ARCADIS

Ohio Department of Transportation

PAU-VAN U.S. 30

Feasibility Study

April 14, 2023

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by ODOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 14, 2020, and executed by FHWA and ODOT.

PAU-VAN U.S. 30

Feasibility Study

April 14, 2023

Prepared By:
Arcadis U.S., Inc.
1111 Superior E, Suite 1300
Cleveland
Ohio 44114
Phone: 216 406 1562

Prepared For:
Kylie Schnipke, PE
Project Manager
Ohio Department of Transportation, District 1
1885 North McCullough Street
Lima, Ohio 45801

Our Ref:
30079344

_____

Craig K. Hebebrand, PE
Project Manager

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Acronyms and Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ADT	average daily traffic
Arcadis	Arcadis U.S., Inc.
CAM	Crash Analysis Module
CR	county route
DHV	design hourly traffic volume
ECAT	Economic Crash Analysis Tool
FAQ	frequently asked question
HCM	Highway Capacity Manual version 6
HCS	Highway Capacity Software version 7
HSM	Highway Safety Manual
I	interstate
LOS	level of service
M&F	Modeling and Forecasting
MP	milepost
mph	miles per hour
NCHRP	National Cooperative Highway Research Program
ODOT	Ohio Department of Transportation
OSHP	Ohio State Highway Patrol
OTFM	Ohio Traffic Forecasting Manual
PDO	property damage only
RCUT	restricted crossing U-turn
SLM	Straight Line Mile
SR	state route
TDM	travel demand model
TIMS	Transportation Information Mapping System
TR	Township Route
U.S.	United States
U.S. 30	United States Route 30
vpd	vehicles per day

Executive Summary

United States Route 30 (U.S. 30) runs 250 miles across northern Ohio and connects to the City of Fort Wayne in Indiana and to the City of Pittsburgh in Pennsylvania. Within Paulding and Van Wert Counties, U.S. 30 provides regional access between the City of Van Wert and the City of Fort Wayne to the west and the City of Mansfield to the east and connects to State Route (SR) 49, U.S. 127, and U.S. 224.

The approximately 17-mile-long segment of U.S. 30 from the Lincoln Highway interchange to the Indiana state line is a wide, flat, divided rural principal arterial with a posted speed limit of 70 miles per hour. Along this section, there are 18 at-grade unsignalized intersections (including two intersections where SR 49 overlaps U.S. 30), a system interchange at U.S. 224, and service interchanges at U.S. 127 and Lincoln Highway. In the last 50 years, the average daily traffic (ADT) volume on U.S. 30 increased from 5,000 vehicles per day (vpd) to more than 20,000 vpd. The percentage of trucks has increased with ADT volumes and is currently 20 percent.

The purpose of this study is to examine the feasibility of converting this 17-mile segment of U.S. 30 to a limited-access facility. In 2019, Ohio Department of Transportation (ODOT) completed the *VAN U.S. 30 Corridor Access Study*, which evaluated the viability of restricting access along U.S. 30. This feasibility study is the next step in the planning process and supports the goal to provide a corridor that efficiently and safely moves traffic through Van Wert and Paulding Counties while providing local connectivity to support farming and future economic development over the next 20 years.

The rural nature of the area, width of the corridor, ADT volumes, and posted speed limit make it difficult and unsafe for traffic at the 18 at-grade unsignalized intersections to access U.S. 30. The traffic capacity analysis indicates that the interchanges operate at free flow speeds but delays at the at-grade unsignalized intersections average 20 to 30 seconds during the a.m. and p.m. peak hours, with delay at some intersections reaching up to 1 minute. The safety analysis indicates that from 2016 to 2021, the 17-mile segment averaged 50 crashes, 20 injuries, and 1 to 2 fatalities each year. From 2016 to 2020, the Ohio State Highway Patrol was notified 100 times that a car was traveling in the wrong direction on U.S. 30. From January 2022 to October 2022, 3 fatalities occurred on U.S. 30.

The build alternative establishes a long-range vision for a limited-access U.S. 30 corridor. The build alternative:

- retains the existing at-grade unsignalized intersection at State Line Road
- closes 13 of the 18 at-grade unsignalized intersections
- builds new overpasses at Klinger Road, Elm Sugar Road, and Convoy Road
- constructs a new interchange at SR 49/Convoy-Heller Road
- connects U.S. 224 to Liberty Union Road on the north side of U.S. 30
- widens the segment of U.S. 127 from Brooks Avenue to the U.S. 30 eastbound ramps

The traffic capacity analysis indicates that the interchanges will continue to operate at free flow speeds even after traffic is rerouted from the closed at-grade intersections to the interchanges. The safety analysis indicates the preferred alternative may decrease crashes on U.S. 30 by 22 to 23 per year and closing the at-grade access points will potentially reduce the number of wrong-way incidents reported to the Ohio State Highway Patrol each year. The conceptual estimate of probable construction cost is $33,846,000 for the build alternative, $2,025,000 for the roundabout at U.S. 224 and Lincoln Highway, $9,180,000 to connect the existing U.S. 224 interchange to Liberty Union Road, and $2,295,000 for the corridor improvements on U.S. 127.

Understanding that the build alternative is a long-term, long-range plan, a series of short-term improvements are proposed to improve safety while the future vision for the U.S. 30 corridor is realized.

The first package of short-term improvements converts the intersection at SR 49/Payne Road to a restricted crossing U-turn (RCUT), closes the intersection at Dixon Cavett Road, and converts the intersection at SR 49/Convoy-Heller Road to an RCUT. The traffic capacity analysis indicates that the RCUTs will operate at LOS C or LOS D and the safety analysis indicates they will potentially decrease crashes by 4 to 5 per year. The conceptual estimate of probable construction cost for the RCUT at SR 49/Payne Road is $2,970,000, to close the intersection at Dixon Cavett Road $540,000, and for the RCUT at SR 49/Convoy Heller Road is $2,565,000. Therefore, the total conceptual estimate of probable construction cost for the first package of improvements is $6,075,000.

The second package of short-term improvements builds an overpass at Convoy Road and reconstructs the intersection of U.S. 224 and Lincoln Highway to a single-lane modern roundabout. The traffic capacity analysis indicates that the roundabout will operate at LOS B and the safety analysis indicates it may potentially decrease crashes by 3 to 4 per year. The safety analysis also indicates that converting Convoy Road to an overpass may potentially decrease crashes on U.S. 30 by 1 per year. The conceptual estimate of probable construction cost for the overpass at Convoy Road is $5,370,000 and for the roundabout at U.S. 224 at the Lincoln Highway is $2,025,000. Therefore, the conceptual estimate of probable construction cost for the second package of improvements is $7,395,000.

The third package of short-term improvements closes the intersection at Liberty Union Road, connects Liberty Union Road to U.S. 224, and converts the intersection at John Brown Road to an RCUT. The traffic capacity analysis indicates that the RCUT will operate at LOS C or LOS D and the safety analysis indicates it will potentially reduce crashes by 1 to 2 per year. The safety analysis indicates that closing the intersection at Liberty Union Road will potentially reduce crashes by 1 to 2 per year. The conceptual estimate of probable construction cost to close the intersection at Liberty Union Road is $945,000, to connect Liberty Union Road to U.S. 224 is $9,180,000, and for the RCUT at John Brown Road is $2,430,000. Therefore, the conceptual estimate of probable construction cost for the third package of improvements is $12,555,000.

1 Introduction

The Ohio Department of Transportation (ODOT) retained Arcadis U.S., Inc. (Arcadis) to study the feasibility of converting a 17.3-mile section of United States Route 30 (U.S. 30) from the Indiana state line to the Lincoln Highway interchange to a limited-access highway. U.S. 30 runs 250 miles across northern Ohio and connects to the City of Fort Wayne in Indiana and to the City of Pittsburgh in Pennsylvania. Within Paulding and Van Wert Counties, U.S. 30 provides regional access between the City of Van Wert and the City of Fort Wayne to the west and the City of Mansfield to the east and connects to State Route (SR) 49, U.S. 127, and U.S. 224. SR 49, U.S. 127, and U.S. 224 are major north-south corridors crossing western Ohio. These roads provide residents of Paulding and Van Wert Counties with access to a variety of places. SR 49 extends north to Michigan and south to the City of Cincinnati. U.S. 127 extends north to Michigan and south to Interstate Route 70 and the City of Dayton. U.S. 224 extends west to the City of Huntington in Indiana and east to the City of New Castle in Pennsylvania.

Given the regional and local connectivity provided by each of these roads, the traffic mix includes familiar and unfamiliar drivers along with many local trucks and semi-trucks. Traffic volumes on U.S. 30 have increased from 5,000 vehicles per day (vpd) to 20,000 vpd in the last 50 years, making it difficult and sometimes unsafe to access U.S. 30 from the at-grade unsignalized side roads. The growth in traffic volumes is expected to continue and this segment of U.S. 30 currently averages 50 crashes, 20 injuries, and 1 to 2 fatalities each year along with approximately 20 wrong-way incidences annually. In addition, it is anticipated that if vacant land is developed and the population of Paulding and Van Wert Counties increases, the volume of passenger cars and semi-trucks will eventually reach a threshold where at-grade intersections will have to be removed to avoid exacerbating the existing access and safety issues.

In 2019, ODOT completed the *VAN U.S. 30 Corridor Access Study* to evaluate the viability of converting U.S. 30 to a limited-access corridor. The study proposed removing all access to U.S. 30 by constructing a cul-de-sac at most of the intersections; constructing an overpass at Elm Sugar Road, Convoy Road, and John Brown Road; and constructing a new interchange at SR 49/Payne Road or SR 49/Convoy-Heller Road. The study indicated that the rerouting of vehicles would not result in capacity issues on nearby roads.

This feasibility study is the next step in the planning process and supports ODOT's goal to provide a corridor that efficiently and safely moves traffic through Van Wert and Paulding Counties while providing local connectivity to support farming and future economic development over the next 20 years. This report documents the existing conditions, describes the purpose and need, evaluates the feasibility of implementing short- and long-term improvements, and provides a construction cost estimate.

2 Study Area

The study area includes 18 at-grade intersections along a 17.3-mile-long segment of U.S. 30 west of the City of Van Wert, including two separate intersections with SR 49. The corridor extends from the Indiana state line to the Lincoln Highway interchange east of the City of Van Wert. This section of U.S. 30 is a wide, flat, divided rural principal arterial with a posted speed limit of 70 miles per hour (mph). Within the study area, U.S. 30 has interchanges with U.S. 224, U.S. 127, and Lincoln Highway.

The study area was expanded for this feasibility study to include the intersection of U.S. 224 and Lincoln Highway, U.S. 127 from Brooks Avenue to Towne Center Boulevard, and the two ramp termini intersections at the Lincoln Highway interchange to evaluate potential impacts caused by the rerouting of local traffic from the 18 at-grade unsignalized intersections. Figure 1 shows the project location and the limits of the study area.

Figure 1. Feasibility Study Limits

3 Purpose and Need

ODOT has been systematically improving four-lane divided, controlled-access highway corridors to reduce the frequency of crashes and improve mobility. Previous studies by ODOT District 1 were conducted to identify safety concerns and conflict points, opportunities to decrease wrong-way driving incidents, and opportunities to improve mobility and freight access. Corridors studied included controlled-access expressways on U.S. 24 in Paulding and

Defiance Counties, U.S. 30 in Allen County, SR 15/U.S. 68 in Hancock and Wyandot Counties, and U.S. 23/U.S. 30 in Hancock and Wyandot Counties. Recently, ODOT District 1 studied U.S. 30 in Van Wert County to identify safety concerns and transportation needs along a 26-mile section of the corridor.

The study area for this project covers a portion of the *Long-Term Access Study for Van Wert US-30* study area plus the 1.2 miles of U.S. 30 in Paulding County. The study area includes 18 two-way unsignalized at-grade intersections and 3 grade-separated interchanges (U.S. 224, U.S. 127, and Lincoln Highway).

Statewide, U.S. 30 functions as a highway freight corridor. It connects the Wellsville Port on the Ohio River to interstates in Ohio, Indiana, and points west such as Great Lakes ports in Indiana and Illinois. Within the northwestern Ohio region, U.S. 30 provides access to Interstate (I)-75 near Lima, Ohio and I-69 in Fort Wayne, Indiana.

The City of Van Wert is the location of the 1,500-acre Ohio Mega Site, which is being marketed by Jobs Ohio as a certified “Job Ready Site.” The site includes frontage along U.S. 30 and is accessible via U.S. 127. This industrial site is anticipated to bring additional vehicle traffic (including semi- and heavy trucks) to the U.S. 30 corridor in addition to jobs. The Jobs Ohio website for the Mega Site is marketing access to the site from I-75 (31 miles), I-69 (36 miles), and the Ohio Turnpike (55 miles), plus maritime access via the Saint Lawrence Seaway (via the Ports of Toledo and Cleveland) and the Tennessee-Tombigbee Waterway (via Cincinnati and the Ohio River). U.S. 30 in Paulding and Van Wert Counties is integral to these freight routes.

3.1 Purpose Statement

The purpose of the project is to improve safety along the U.S. 30 corridor, maintain access and connectivity along the corridor, and support existing land use plans that impact the corridor.

3.2 Need Elements

The need is divided into two categories. The first is related to safety. The second is related to maintaining access and connectivity to support existing land use plans.

3.2.1 Safety

Arcadis analyzed 2017–2019 crash data from ODOT’s Transportation Information Mapping System (TIMS) for the study area and prepared a corridor analysis dashboard of the results. During the three-year period, 215 crashes (excluding 48 animal crashes) occurred on the corridor. Among the 215 total crashes, 54 (25 percent) were injury crashes and 5 (2 percent) were fatal crashes. The predominant crash type was fixed object crashes, which accounted for 83 (39 percent) of the crashes, followed by 38 sideswipe-passing crashes (18 percent), 19 rear-end crashes (9 percent), and 18 angle crashes (8 percent). The posted speed limit along U.S. 30 is 70 mph in the study area; however, for 44 crashes, “unsafe speed” was listed as the at-fault contributing factor. A majority of crashes, 162 (75 percent), occurred outside of an intersection area, while 34 (16 percent) were intersection-related, 14 (7

percent) involved a ramp, 4 (2 percent) were at a median crossover, and 1 was at a driveway access point. The 5 fatal crashes included 3 angle crashes, 1 rear-end crash, and 1 head-on crash that was caused by a vehicle traveling the wrong way on U.S. 30.

U.S. 30 traffic in Van Wert County includes a high proportion of heavy vehicles. Average daily traffic (ADT) counts obtained for the *Long-Term Access Study* show that 31 percent to 45 percent of the traffic is truck traffic, with volumes ranging from 6,452 trucks per day on the west end of the corridor to 3,780 trucks per day on the east end. Total ADT ranges from 12,032 to 15,320 vpd. Heavy vehicles (semi-tractor and single-unit trucks) accounted for 74 (31 percent) of the corridor crashes; 15 of those involved injuries and 1 involved a fatality. Heavy vehicle crashes included 22 (30 percent) fixed object crashes, 22 (30 percent) sideswipe-passing crashes, and 6 (8 percent) rear-end crashes. One of the rear-end crashes was a fatality. Most of the heavy vehicle crashes – 55 (74 percent) – occurred outside of an intersection area, while 11 (15 percent) were at an intersection and 7 (9 percent) involved a ramp.

The 2018 Highway Safety Improvement Program, the most recent listing available from ODOT, identifies four segments in the study area as having “excess expected crashes.” These include SLM 3.8-3.9 near the western SR 49 intersection (rank #594); SLMs 12.91-12.93 and 13.07-13.17 in the U.S. 127 interchange area (rank #1719 and #372); and SLM 16.08-16.18 near the Lincoln Highway interchange (rank #432). These locations are color-coded blue on the Safety Integrated Project mapping.

To supplement the crash analysis data, the Ohio State Highway Patrol (OSHP) provided mapping and statistics for wrong-way “incidents” on U.S. 30 in Van Wert County recorded between January 1, 2016 and February 22, 2021, and to provide context from a similar roadway, on U.S. 24 in Paulding County for the same period. An “incident” signifies a report of a vehicle driving in the wrong direction on the divided highway lanes. OSHP also identified the number of those incidents that included contact with patrol officers. U.S. 30 west of the City of Van Wert had 85 wrong-way incidents during the analysis period, compared to 15 incidents east of the city. There were 14 wrong-way incidents in the 1-mile segment near the SR 49 intersections and 16 wrong-way incidents in a 1-mile segment near the U.S. 224 interchange. Between milepost (MP) 0 and MP 13, an average of 6.5 incidents per mile occurred. Between MP 13 and MP 26, the average was 1.2 incidents per mile. In comparison, the 19-mile section of U.S. 24 in Paulding County had 10 incidents during the same period, an average of 0.5 incidents per mile.

Van Wert Post Commander Lieutenant Jonathon Gray provided the following insight on those numbers as part of a project team discussion on May 13, 2021: U.S. 30 west of Van Wert has a different roadway character than U.S. 30 east of Van Wert. There are more at-grade intersections and driveways, there is no highway lighting in this section, and trees/vegetation in the median obscure drivers’ ability to identify U.S. 30 as a four-lane divided highway.

3.2.2 Maintain Access and Connectivity and Support Existing Land Use Plans

The planned industrial Ohio Mega Site development is anticipated to generate a high percentage of long-haul heavy vehicles and additional vehicular traffic that will be dependent on the U.S. 30 corridor. Existing conditions data

indicate that most at-grade intersections will operate at acceptable levels of service in 2027, except for four intersections (Feasby Wisener Road, the western SR 49 intersection, John Brown Road, and Dutch John Road). At least one approach of these intersections will operate with unacceptable levels of service (E or F) during the p.m. peak period. Analyses of future conditions included traffic generated by the Ohio Mega Site, which is a certified "Job Ready Site." By 2047, 15 of the at-grade intersections will have at least one approach operating at LOS E or F during one or both peak periods. These 15 intersections operate with stop control on the side-street approaches, which means that access to U.S. 30 from the local roadway network will be extremely limited during peak traffic hours.

In addition to industrial land use, this area of Van Wert and Paulding Counties serves large tracts of agricultural land uses. Agricultural landowners in the study area use U.S. 30 to transport large equipment between fields located on both sides of the road. This land use requires acceptable and safe access for agricultural equipment and other agricultural uses as well as for vehicular traffic on the highway corridor.

3.3 Logical Termini and Independent Utility

The logical termini for this study are U.S. 30 at the State Line Road intersection on the west and the U.S. 30 and Lincoln Highway interchange east of the City of Van Wert on the east. The selection of these termini ensures that every at-grade intersection and driveway between the Indiana state line and the Lincoln Highway interchange are studied for potential improvements. The termini of the State Line Road intersection and the Lincoln Highway interchange focus the study on the area of U.S. 30 with a high number of wrong-way incidents. The limits also focus on the section of U.S. 30 most directly impacted by economic development sites and the agricultural land that requires access accommodations for large equipment.

A corridor-wide planning approach is being used to address the regional transportation needs so that wrong-way incidents and crashes experienced in one area of the U.S. 30 corridor are not shifted to another area of the corridor.

4 Existing Conditions/No-Build Alternative

The no-build alternative consists of the existing roadway conditions with no improvements. This alternative is required for evaluation purposes to serve as a baseline for comparison to the build alternative. Figure 2 illustrates the location of each at-grade unsignalized intersection, overpass, and interchange in the study area.

Figure 2. Existing Conditions/No-Build Alternative

4.1 Roadway

U.S. 30 is a rural, flat, four-lane divided expressway with a posted speed limit of 70 mph. Within the study area, U.S. 30 runs mostly northwest-southeast with an east-west section between U.S. 224 and Boroff Road. The ADT volume is 20,000 vpd and approximately 20 percent is truck traffic. The pavement is asphalt with two 12-foot-wide lanes in each direction, a 12-foot-wide outside shoulder, and a 4-foot-wide inside shoulder. The median is typically 50-foot-wide depressed grass except from the Krick Road at-grade intersection to the Lare Road at-grade intersection where it widens to up to 100 feet with intermittent trees. Rumble strips are present on the shoulders, there is no center barrier, and guardrail exists near each of the overpasses.

The system interchange at U.S. 224 consists of single-lane loop ramps on the north side of U.S. 30, which provide access to and from U.S. 30 westbound. The interchange also incorporates single-lane diamond ramps on the south side of U.S. 30 to provide access to and from U.S. 30 eastbound. U.S. 224 is a two-lane minor arterial with a posted speed limit of 55 mph. The ADT volume is approximately 3,600 vpd. And approximately 10 percent is truck traffic. Within the interchange area, the pavement is asphalt with two 12-foot-wide lanes in each direction,

8-foot-wide outside shoulders, and a raised concrete median. South of the interchange, the pavement remains asphalt with one 12-foot-wide lane in each direction, 8-foot-wide outside shoulders, and no median. The ramps are also asphalt with 16-foot-wide single lanes, 4-foot inside shoulders, and 6-foot outside shoulders. The opposing loop ramps are separated by a concrete median.

The intersection of U.S. 224 and Lincoln Highway is unsignalized with dual stop signs on the minor approaches with single-lane approaches serving all movements. Intersection lighting is not present.

There are four existing overpasses that are not at interchanges as shown on Figure 2. These are located at Lincoln Highway, Marsh Road, Stripe Road, and Mendon Road. Each of these is one lane in each direction with varying lane and shoulder widths.

The service interchange at U.S. 224/U.S. 127 is a single-lane partial cloverleaf. U.S. 127 is a north-south minor arterial. The posted speed limit is 45 mph, and the ADT volume is approximately 6,500 vpd north of U.S. 30 and approximately 9,400 vpd south of U.S. 30. Approximately 25 percent are trucks. Between Brooks Avenue and the U.S. 30 eastbound ramps, the pavement is asphalt with one 12-foot-wide lane in each direction, with a 12-foot-wide center two-way left-turn lane and curb and gutter on both sides of the road. Between the U.S. 30 eastbound ramps and Towne Center Boulevard, the pavement on U.S. 127 is asphalt with two 12-foot-wide lanes in each direction, 4-foot-wide outside shoulders, and no curb. A 4-foot-wide concrete median is present between the U.S. 30 eastbound and westbound ramps. The ramps are also asphalt with 16-foot-wide single lanes, 4-foot inside shoulders, and 6-foot outside shoulders.

Three of the five intersections along U.S. 127 are signalized. The other two are unsignalized. The intersection at Brooks Avenue is unsignalized with a stop sign on Brooks Avenue and no turn lanes. The intersection at Bonnewitz Avenue is signalized with left-turn lanes on the south, west, and north approaches. The east approach is the driveway to a Marathon Gas Station. The intersection at the eastbound ramps is signalized with a southbound left-turn lane. The intersection at the westbound ramps is unsignalized with dual stop signs on the exit ramp. There are no turn lanes on any approach. The intersection at Towne Center Boulevard is signalized. There is a southbound left-turn lane, dual westbound left-turn lanes, and a northbound right-turn lane.

The service interchange at Lincoln Highway is a single-lane diamond interchange. Lincoln Highway is an east-west major collector with a posted speed limit of 55 mph. The ADT volume is approximately 3,000 vpd and approximately 10 percent are trucks. The pavement is asphalt with one 12-foot-wide lane in each direction and 3 foot-wide outside shoulders. The ramps are also asphalt with 16-foot-wide single lanes, 4-foot inside shoulders, and 8-foot outside shoulders. The ramp termini intersections are unsignalized with dual stop signs.

The 18 at-grade unsignalized intersections illustrated on Figure 3 are unsignalized with dual stop signs on the minor approaches. All minor roads are one lane in each direction serving all movements. East of the U.S. 224 interchange, the minor roads intersect U.S. 30 at approximately 90-degree skew angles. West of the U.S. 224 interchange, many of the minor road approaches have been relocated to improve the skew angle with U.S. 30 but still have through movement skew angles as low as 70 degrees. The ADT volume is less than 1,000 vpd on all minor streets except SR 49, which has an ADT volume of 1,400 vpd. There are left-turn lanes on U.S. 30 at each of the intersections. The left-turn lanes are offset at Dixon Cavett Road, Convoy-Heller Road, Colwell Road, Convoy Road, Richey Road, and Liberty Union Road. Lighting is not present at any of the intersections.

There are 26 driveways located along U.S. 30 between the Indiana/Ohio state line and Dixon Cavett Road. Within this roughly 6-mile stretch of U.S. 30, there are 4 residential driveways, 2 commercial driveways, and 20

agricultural farm driveways. Of the 26 driveways, properties associated with 14 of the driveways have access from neighboring side roads. The remaining 12 would be landlocked if access from U.S. 30 was eliminated.

According to TIMS, the predicted 2023 pavement condition rating for U.S. 30 varies between 78 and 98. The segment with the lowest pavement condition rating of 78 is east of the interchange at U.S. 30 and U.S. 224.

Figure 3. At-Grade Intersections

4.2 Traffic Volumes

The no-build alternative planning-level design hourly volumes (DHVs) were based on existing traffic volume data forecasted in accordance with the Ohio Traffic Forecasting Manual (OTFM). The existing traffic volume data are based on a regional travel demand model (TDM) created by ODOT Modeling and Forecasting (M&F).

ODOT District 1 collected traffic volume data at 26 intersections. The location of each intersection and year the traffic volume data were collected are shown on Figure 4. The existing traffic volume data are included in Appendix A.

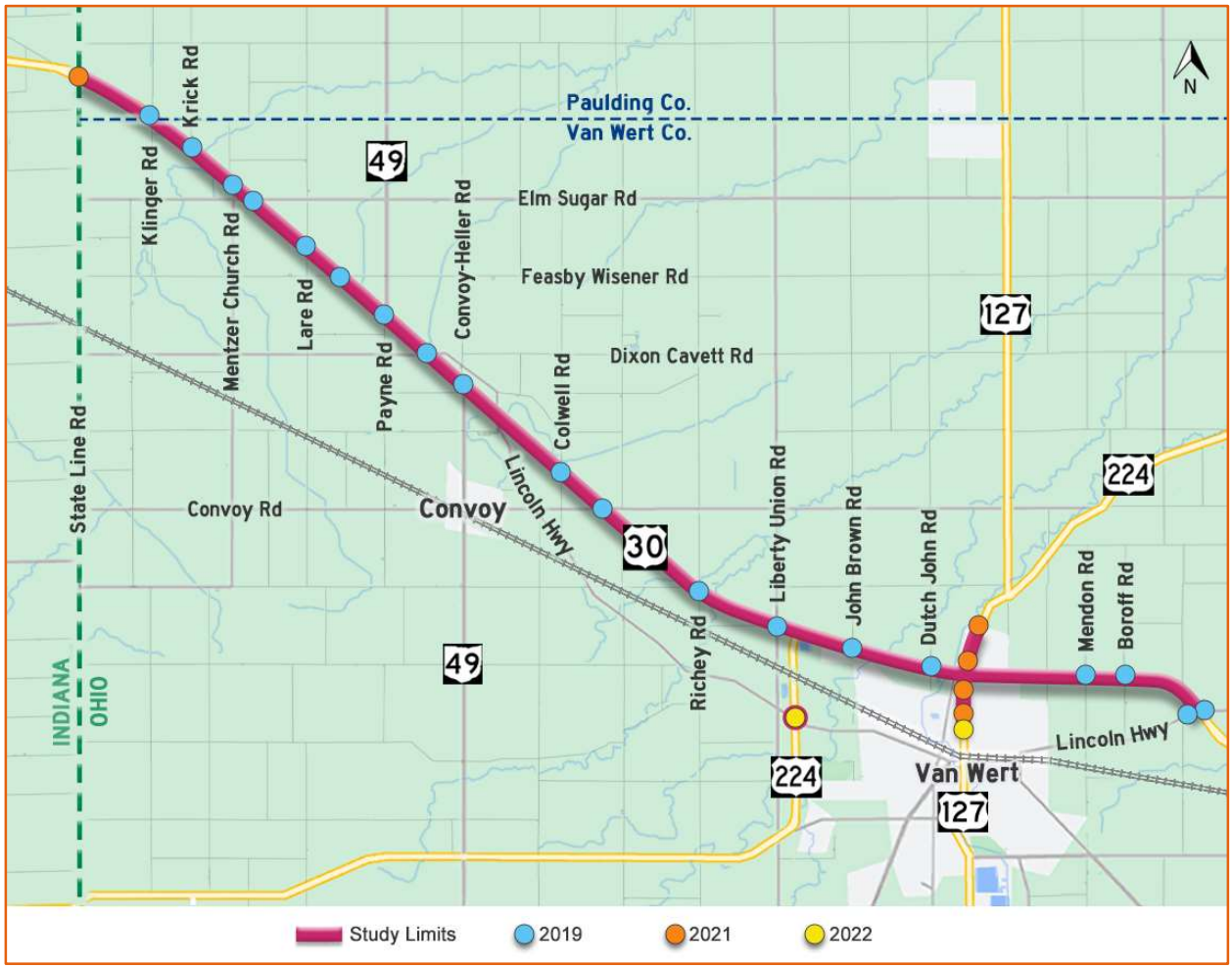


Figure 4. Traffic Volume Data Collection Locations

No-build alternative planning-level DHVs were developed for the a.m. peak period, p.m. peak period, and ADT. The TDM showed moderate growth within the study area. The growth is attributed to the Mega Site on the northeast side of the City of Van Wert and other sites ready for future development on the west side of Van Wert.

The regional TDM provided the ADT volume for each intersection. The DHVs were developed using the NCHRP spreadsheets recommended in the OTFM, TDM ADT volumes, and existing traffic volumes. The DHVs were smoothed along U.S. 30 and along U.S. 127 to balance the traffic volumes between each intersection. The smoothing was completed using methodologies outlined in the OTFM. A copy of the no-build alternative planning-level DHVs is included in Appendix B.

4.3 Safety

The existing and no-build alternative safety analysis is broken into three sections: U.S. 30, U.S. 224 and Lincoln Highway, and U.S. 127. The safety analysis examines historical crash data obtained from ODOT's TIMS and

analyzed in ODOT's Crash Analysis Module (CAM) Tool. A full printout from the ODOT CAM Tool is included in Appendix C.

4.3.1 U.S. 30

The safety analysis of U.S. 30 included crash data from 2017 to 2019 obtained from ODOT's TIMS. The crash data included 48 animal strikes that were eliminated before performing the safety analysis. Table 1 summarizes the crash data.

After removing the animal strikes, the remaining data included a total of 215 crashes, 54 injuries, and 5 fatalities, meaning the corridor averages 52 crashes, 18 injuries, and 1 to 2 fatalities each year. The most common crash types were fixed-object, sideswipe-passing, rear-end, angle, left-/right-turn, and overturning crashes. These crash types accounted for 184 of the 215 crashes, 49 of the 54 injuries, and 4 of the 5 fatalities. The crashes, injuries, and fatalities are split evenly between wet pavement and dry pavement, indicating that weather may not be a typical contributing factor. Between 7 p.m. and 6 a.m. 56 crashes, 15 injuries, and 3 fatalities occurred. Between 6 a.m. and 7 p.m. 159 crashes, 39 injuries, and 2 fatalities occurred.

During stakeholder/public meetings, attendees shared valuable insights into the causes of crashes and the frequency of near misses at the at-grade unsignalized intersections along U.S. 30. Following is a summary of information provided by the public:

- *Fixed-object and overturning crashes* may be occurring when traffic on U.S. 30 exits the roadway and tries to avoid colliding with a vehicle turning onto or off U.S. 30 at one of the unsignalized at-grade intersections. The crash data show that these two crash types account for approximately 44 percent of all crashes and 48 percent of all injuries.
- *Sideswipe-passing crashes and near misses* occur when traffic on U.S. 30 changes lanes to access one of the unsignalized at-grade intersections or when traffic enters U.S. 30 from an unsignalized at-grade intersection and sideswipes through traffic on U.S. 30. These two crash types account for approximately 18 percent of all crashes and 8 percent of all injuries; however, it is difficult to quantify the number of sideswipe-passing near misses that occur on U.S. 30 each day.
- *Rear-end, left-turn, and right-turn crashes and near misses* occur when through traffic on U.S. 30 does not slow down behind a vehicle turning at an unsignalized at-grade intersection. These two crash types account for approximately 15 percent of all crashes, 24 percent of all injuries, and 20 percent of all fatalities; however, it is difficult to quantify the number of rear-end, left-turn, and right-turn near misses that occur on U.S. 30 each day. Assured clear distance or following too closely is identified as the contributing factor in most of these crashes according to the OH-1 reports, indicating that inattentive driving may be a common contributing factor.
- *Angle crashes and near misses* occur when traffic attempts to access the unsignalized side roads and does not yield to through traffic on U.S. 30. Angle crash account for approximately 8 percent of all crashes, 11 percent of all injuries, and 60 percent of all fatalities. Failure to yield and unsafe speed are common contributing factors in most of these crashes according to the OH-1 reports.
- *Rural topography* – U.S. 30 is wide, flat, and dark at night. Attendees at the stakeholder/public meetings noted that the topography provides few visual cues, making it difficult for traffic waiting at the stop sign to

determine the location and speed of traffic on U.S. 30. The attendees also noted that the width of U.S. 30 and the lack of lighting make it difficult for unfamiliar drivers approaching U.S. 30 from one of the unsignalized side roads to understand that U.S. 30 is a divided roadway, and that they may need to cross the adjacent lanes and pass through the median to make a left turn.

The narrative in each OH-1 report was reviewed to determine how often the crashes included avoidance maneuvers, failing to slow down behind a turning vehicle, or failing to recognize U.S. 30 is a divided highway. The narrative in most of the OH-1 reports is brief and does not explicitly note these issues.

Table 1. U.S. 30 Historical Crash Data (2017 to 2019)

Crash Severity	Number	%
Fatal Crash	5	3%
Injury Crash	54	25%
PDO Crash	156	72%

Time of Day	Fatal	Injury	PDO
12 a.m. to 6 a.m.	1	9	17
6 a.m. to 9 a.m.	0	10	19
9 a.m. to 3 p.m.	1	18	45
3 p.m. to 7 p.m.	1	11	54
7 p.m. to 12 a.m.	2	6	21

Type	Fatal	Injury	PDO
Fixed Object	0	17	66
Sideswipe-Passing	0	4	34
Rear-End	1	0	11
Angle	3	6	9
Left Turn	0	6	6
Overturning	0	9	3
Backing	0	1	1
Head-On	1	1	0
Right Turn	0	7	2
Parked Vehicle	0	1	0
Other/Unknown	0	2	24

Day	Fatal	Injury	PDO
Sunday	0	8	20
Monday	2	6	25
Tuesday	1	8	24
Wednesday	1	14	21
Thursday	0	7	20
Friday	1	7	26
Saturday	0	4	20

Table 1. U.S. 30 Historical Crash Data (2017 to 2019) – Continued

Contributing Factor	Total	Percentage
Unsafe Speed	44	20%
Lane Change	38	18%
Failure to Yield	28	13%
Drove Off Road	23	11%
Following too Closely	21	10%
Improper Turn	8	4%
Defective Equipment	3	2%
Left of Center	2	<1%
Swerving to Avoid	1	<1%
Improper Backing	1	<1%
Ran Stop Sign	1	<1%
Other/Unknown	45	21%
Location	**Total**	**Percentage**
Intersection/Ramp	53	24%
Segment	162	76%

Month	Fatal	Injury	PDO
January	0	6	29
February	0	8	18
March	0	4	10
April	0	2	12
May	0	4	8
June	0	4	7
July	1	8	12
August	0	2	11
September	1	3	7
October	1	5	11
November	1	6	15
December	1	2	16
Crashes by Year	**Fatal**	**Injury**	**PDO**
2017	1	13	54
2018	2	16	48
2019	2	25	54
Road Condition	**Fatal**	**Injury**	**PDO**
Dry	3	29	72
Wet	1	15	37
Ice/Snow	1	10	47

In addition to the historical crash data from TIMS, the OSHP provided historical data summarizing “wrong-way incidents” related to drivers traveling in the wrong direction on divided highways across the state of Ohio. A wrong-way incident is recorded any time the OSHP is notified that a car is traveling in the wrong direction on a divided highway. According to the records, in some cases, a law enforcement officer caught the wrong-way driver and corrected the action and in some cases the wrong-way driver corrected the action on their own.

Table 2 and Figure 5 summarize the OSHP wrong-way incident data from 2016 to 2020 for Van Wert County. In those five years, the OSHP documented 100 wrong-way incidents on U.S. 30. Of the 100 wrong-way incidents, 91 occurred on U.S. 30 from the Indiana state line to Boroff Road and 9 occurred on U.S. 30 from Boroff Road to the county line near the City of Delphos. Boroff Road is the dividing point where U.S. 30 changes from limited-access to at-grade intersections. Table 2 shows that most of the wrong-way incidents occur between 8 p.m. and 3 a.m. and that the highest frequency of wrong-way incidents occurs on Saturdays.

Table 2. U.S. 30 Ohio State Highway Patrol Incident Data (2016 to 2020)

Day of the Week	Number	%
Sunday	14	14%
Monday	9	9%
Tuesday	13	13%
Wednesday	8	8%
Thursday	14	14%
Friday	11	11%
Saturday	31	31%

Time of Day	Number	%
12 a.m. to 3 a.m.	34	34%
3 a.m. to 8 a.m.	19	19%
8 a.m. to 5 p.m.	5	5%
5 p.m. to 8 p.m.	15	15%
8 p.m. to 12 a.m.	27	27%

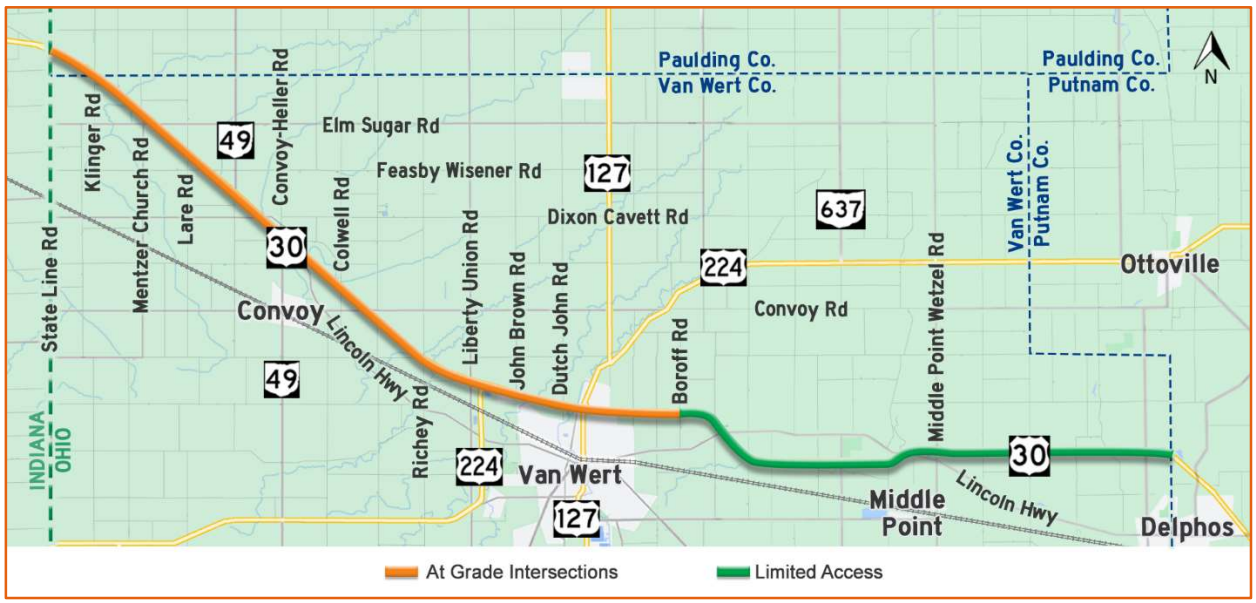


Figure 5. U.S. 30 Existing Access Control

The historical crash data, the perception of near misses, and the frequency of wrong-way incidents indicate safety is a concern on U.S. 30. ODOT has observed that the frequency of crashes on U.S. has increased each year since 2005. From 2011 to 2015, the ADT volume on U.S. 30 increased from approximately 12,300 vpd to 13,900 vpd and one fatality occurred. The fatality was not intersection related. From 2016 to 2021, the ADT volume increased from approximately 13,900 vpd to 16,400 vpd and 10 fatalities occurred. Eight of the fatalities were intersection related. In 2022, the ADT volume increased to approximately 16,300 and three fatalities occurred from January to October. These statistics suggest that safety along U.S. 30 continues to deteriorate.

4.3.2 U.S. 224 at Lincoln Highway

The safety analysis of the intersection of U.S. 224 and Lincoln Highway included crash data from 2017 to 2021 obtained from ODOT's TIMS. Table 3 summarizes the crash data.

The crash data identified 19 crashes, 8 injuries, and 0 fatalities. Twelve crashes, including 6 of the injuries, were angle crashes. Three crashes, including 1 injury, were right-turn crashes. Two crashes were rear-end crashes. One crash was a backing crash. One crash, including 1 injury, was a left-turn crash. Most of the crashes and injuries occurred on dry pavement, indicating that weather may not be a typical contributing factor. Between 7 p.m. and 6 a.m., 4 crashes and 1 injury occurred. Between 6 a.m. and 7 p.m., 15 crashes and 7 injuries occurred. Following is summary of the TIMS data reviewed:

- *Angle Crashes* – Angle crashes are the most predominant crash type. Failure to yield is the contributing factor cited in the OH-1 reports. Eight of the angle crashes, including 3 injuries, occurred when a westbound vehicle failed to yield to traffic on U.S. 224. Four of the angle crashes, including 1 injury, occurred when an eastbound vehicle failed to yield to traffic on U.S. 224. Nine of the angle crashes occurred when vehicles on Lincoln Highway did not yield to southbound traffic on U.S. 224. Although not specifically stated in the OH-1 reports, some of the crashes may have occurred because sight distance to the north is limited and U.S. 224 lacks visual cues. The descending elevation on U.S. 224 moving away from the railroad overpass, the curve between the railroad crossing and the intersection, the potential that trucks on U.S. 224 heading away from the intersection may obscure the view of trucks approaching the intersection, and the lack of visual cues make it difficult for traffic on Lincoln Highway to see vehicles on U.S. 224 or to determine the location and speed of traffic on U.S. 224.
- *Right- and Left-Turn Crashes* – This is the second most predominant crash type. Failure to yield is identified as the contributing factor in most of these crashes according to the OH-1 reports, indicating that inattentive driving may be a common contributing factor. The right-turn crashes included a westbound vehicle failing to yield to a northbound vehicle, an eastbound vehicle failing to yield to a northbound vehicle, and a northbound vehicle operated by a drunk driver turning right and striking a westbound vehicle waiting to turn onto U.S. 224, resulting in an injury. The left-turn crash occurred when a westbound vehicle proceeded through the intersection and failed to yield to a southbound vehicle, resulting in an injury. Although not specifically stated in the OH-1 reports, the limited sight distance and lack of visual cues may have contributed to these crashes. In addition, drivers who are not local to the area may be unfamiliar with the at-grade intersection so close to the U.S. 30 interchange.
- *Rear-End Crashes* – This is the third most predominant crash type. Assured clear distance or following too closely is identified as the contributing factor according to the OH-1 reports, indicating that inattentive driving may be a common contributing factor. One rear-end crash occurred when a northbound vehicle was waiting to turn left and the other occurred when a southbound vehicle was waiting to turn left. Neither resulted in an injury. Although not specifically stated in the OH-1 reports, the two rear-end crashes may have occurred because drivers who are not local to the area may be unfamiliar with the at-grade intersection so close to the U.S. 30 interchange and may be surprised when vehicles are stopped on Lincoln Highway while waiting to turn left.

Table 3. U.S. 224 at Lincoln Highway Historical Crash Data (2017 to 2021)

Crash Severity	Number	%
Fatal Crash	0	0%
Injury Crash	8	42%
PDO Crash	11	58%

Type	Fatal	Injury	PDO
Angle	0	6	6
Right-Turn	0	1	2
Rear-End	0	0	2
Backing	0	0	1
Left Turn	0	1	0

Contributing Factor	Total	Percentage
Failure to Yield	14	74%
Following to Close	1	5%
Left of Center	1	5%
Improper Backing	1	5%
Other	2	11%

Road Condition	Fatal	Injury	PDO
Dry	0	6	8
Wet	0	2	2
Ice/Snow	0	0	1

Time of Day	Fatal	Injury	PDO
12 a.m. to 6 a.m.	0	0	0
6 a.m. to 9 a.m.	0	1	1
9 a.m. to 3 p.m.	0	4	4
3 p.m. to 7 p.m.	0	2	3
7 p.m. to 12 a.m.	0	1	3

Day	Fatal	Injury	PDO
Sunday	0	0	1
Monday	0	1	1
Tuesday	0	0	3
Wednesday	0	1	2
Thursday	0	2	3
Friday	0	2	1
Saturday	0	2	0

Month	Fatal	Injury	PDO
January	0	1	1
February	0	1	1
March	0	0	1
April	0	0	0
May	0	0	0
June	0	1	1
July	0	0	1
August	0	0	0
September	0	2	1
October	0	1	1
November	0	1	2
December	0	1	2

Crashes by Year	Fatal	Injury	PDO
2017	0	0	1
2018	0	3	2
2019	0	1	2
2020	0	3	4
2021	0	1	2

The historical crash data indicate that safety is concern at the intersection of U.S. 224 and Lincoln Highway. The statistics suggest that safety countermeasures to warn vehicles on U.S. 224 that they are approaching the intersection and to make it easier for traffic to enter or cross Lincoln Highway may be appropriate.

4.3.3 U.S. 127 from Brooks Avenue to Towne Center Boulevard

The safety analysis of U.S. 127 from Brooks Avenue to Towne Center Boulevard included crash data from 2017 to 2021 obtained from ODOT's TIMS. Table 4 summarizes the crash data.

The crash data identified 108 crashes, 25 injuries, and 0 fatalities. Seventy-two crashes, including 17 of the injury crashes, were rear-end crashes. Ten crashes, including 3 injury crashes, were angle crashes. Nine crashes were fixed-object crashes. Seven crashes, including 2 injury crashes, were left-turn or right-turn crashes. Four crashes were sideswipe-passing crashes. Sixty-one percent of the crashes and 80 percent of the injuries occurred on dry pavement, indicating that weather may not be a typical contributing factor. Between 7 p.m. and 6 a.m., 11 crashes and no injuries occurred. Between 6 a.m. and 7 p.m., 97 crashes and 25 injuries occurred.

The segment of U.S. 127 from Brooks Avenue to the U.S. 30 eastbound ramps accounted for 80 percent of the crashes and 68 percent of the injuries.

- *Rear-End Crashes* – Rear-end crashes are the most predominant crash type. Assured clear distance or following too closely is the contributing factor according to the OH-1 reports, indicating that inattentive driving may be a common contributing factor. All but one rear-end crash occurred between 9 a.m. and 7 p.m., indicating that traffic congestion is likely a contributing factor. Eighty-one percent of these crashes occurred between Brooks Avenue and the U.S. 30 eastbound ramps.
- *Angle Crashes* – Angle crashes are the second most predominant crash type. Failure to yield is the contributing factor cited in the OH-1 reports. Seventy-percent of the angle crashes occurred between Brooks Avenue and the U.S. 30 eastbound ramps. Three of the angle crashes occurred at Brooks Avenue.
- *Right- and Left-Turn Crashes* – This is the third most predominant crash type. Failure to yield is the contributing factor in most of these crashes according to the OH-1 reports, indicating that inattentive driving may be a common contributing factor. Fifty-eight percent of the right-/left-turn crashes occurred between Brooks Avenue and the U.S. 30 eastbound ramps.

Table 4. U.S. 127 from Brooks Avenue to Towne Center Boulevard Historical Crash Data (2017 to 2021)

Crash Severity	Number	%
Fatal Crash	0	0%
Injury Crash	25	23%
PDO Crash	83	77%

Time of Day	Fatal	Injury	PDO
12 a.m. to 6 a.m.	0	0	3
6 a.m. to 9 a.m.	0	2	2
9 a.m. to 3 p.m.	0	12	33
3 p.m. to 7 p.m.	0	11	37
7 p.m. to 12 a.m.	0	0	8

Table 4. U.S. 127 from Brooks Avenue to Towne Center Boulevard Historical Crash Data (2017 to 2021) - Continued

Type	Fatal	Injury	PDO
Rear-End	0	17	55
Angle	0	3	7
Fixed Object	0	0	9
Right Turn	0	2	3
Sideswipe Passing	0	0	4
Left Turn	0	0	2
Backing	0	1	0
Head On	0	1	0
Overturning	0	1	0
Other	0	0	3

Contributing Factor	Total	Percentage
Following to Close	56	52%
Failure to Yield	10	10%
Improper Lane Change	7	7%
Improper Turn	7	6%
Unsafe Speed	6	5%
Drove Off Road	4	3%
Ran Red Light	2	2%
Improper Backing	1	1%
Defective Equipment	1	1%
Swerving to Avoid	1	1%
Other	13	12%

Road Condition	Fatal	Injury	PDO
Dry	0	20	46
Wet	0	5	31
Ice/Snow	0	0	6

Day	Fatal	Injury	PDO
Sunday	0	3	9
Monday	0	1	12
Tuesday	0	7	17
Wednesday	0	1	5
Thursday	0	7	16
Friday	0	3	20
Saturday	0	3	4

Month	Fatal	Injury	PDO
January	0	2	6
February	0	1	7
March	0	1	4
April	0	2	4
May	0	3	5
June	0	2	9
July	0	3	6
August	0	2	10
September	0	4	5
October	0	1	13
November	0	3	9
December	0	1	5

Crashes by Year	Fatal	Injury	PDO
2017	0	6	22
2018	0	4	12
2019	0	7	19
2020	0	4	9
2021	0	4	21

The historical crash data indicate that safety is a concern on U.S. 127 from Brooks Avenue to the U.S. 30 eastbound ramps. Although the injury rate is below 30 percent, the statistics suggest that improvements to reduce congestion may be appropriate.

4.4 Capacity Analysis

A capacity analysis is the primary method for evaluating the efficiency of a roadway or an intersection as it relates to vehicular traffic. The Highway Capacity Manual version 6 (HCM), published by the Transportation Research Board, outlines capacity analysis procedures and the level of service (LOS) criteria used as a qualitive measure to describe operational conditions.

The HCM defines six levels of service, designated by the letters A through F. For freeway facilities, LOS is estimated by measuring a segment's vehicular density (the number of vehicles per mile of highway). For signalized and unsignalized intersections, LOS is estimated by measuring the control delay per vehicle. The traffic density and vehicular delay conditions for each LOS are defined in Table 5.

Table 5. Level of Service and Delay Thresholds for Freeways and Intersections

Level of Service	Basic Freeway Segment Density (vehicles/mile)	Freeway Merge/ Diverge Segment Density (vehicles/mile)	Signalized Intersection Delay (seconds)	Unsignalized Intersection Delay (seconds)
A	≤ 11	≤ 10	≤ 10	≤ 10
B	> 11 – 18	> 10 – 20	> 10 – 20	> 10 – 15
C	> 18 – 26	> 20 – 28	> 20 – 35	> 15 – 25
D	> 26 – 35	> 28 – 35	> 35 – 55	> 25 – 35
E	> 35 – 45	> 35	> 55 – 80	> 35– 50
F	> 45 or Demand Exceeds Capacity	Demand Exceeds Capacity	> 80 or V/C ratio > 1.00	> 50

Source: Highway Capacity Manual (Transportation Research Board 2016)
Notes: pc/mi/ln = passenger cars per mile per lane; V/C = volume to capacity

The capacity analysis was conducted using Highway Capacity Software version 7 (HCS) for open and design year conditions in the a.m. and p.m. peak hours. The freeway facilities module was used for the analyses of interchanges along U.S. 30, a separate HCS analyses were conducted for each at-grade intersection along U.S. 30, U.S. 224, and Lincoln Highway, and the streets module was used for the intersections along U.S. 127.

4.4.1 Capacity Analysis – Interchanges

The HCS analysis for each interchange is divided into three types of segments based on HCM guidance: basic, merge, and diverge segments. The results of the capacity analysis for each interchange are discussed below.

The HCS analysis results are included in Appendix D.

4.4.1.1 U.S. 30 at U.S. 224

In 2027 and 2047, the U.S. 30 interchange with U.S. 224 is predicted to operate at LOS A or LOS B during the a.m. and p.m. peak hours, as shown on Figures 6 and 7.

Figure 8 shows that in 2027, both approaches of the unsignalized intersection at U.S. 224 and Lincoln Highway are predicted to operate at LOS C during the a.m. peak hour. During the p.m. peak hour, the eastbound approach operates at LOS C and the westbound approach operates at LOS E. Figure 9 shows that in 2047 during the a.m. peak hour, the eastbound approach continues to operate at LOS C, although the westbound approach deteriorates to LOS D. During the p.m. peak hour, the eastbound approach deteriorates to LOS E and the westbound approach deteriorates to LOS F.

4.4.1.2 U.S. 30 at U.S. 127/U.S. 224

In 2027 and 2047, the U.S. 30 interchange with U.S. 127/U.S. 224 is predicted to operate at LOS A or LOS B during the a.m. and p.m. peak hours, as shown on Figures 6 and 7.

Figure 8 shows that in 2027, the unsignalized intersection at U.S. 127 and Brooks Avenue is predicted to operate at LOS C during the a.m. and p.m. peak hours. Figure 9 shows that in 2047, operations remain at LOS C during the a.m. peak hour but deteriorate to LOS D during the p.m. peak hour.

Figure 8 shows that in 2027, the signalized intersection at U.S. 127 and Bonnewitz Avenue is predicted to operate at LOS B and C during the a.m. and p.m. peak hours, respectively. Figure 9 shows that in 2047, operations remain at LOS B during the a.m. peak hour but deteriorate to LOS D during the p.m. peak hour.

Figure 8 shows that in 2027, the signalized intersection at the U.S. 30 eastbound exit ramps is predicted to operate at LOS C during the a.m. and p.m. peak hours. Figure 9 shows that in 2047, LOS remaines C during the a.m. peak hour and p.m. peak hours.

Figure 8 shows that in 2027, the unsignalized intersection at the U.S. 30 westbound ramps is predicted to operate at LOS C and D during the a.m. and p.m. peak hours, respectively. Figure 9 shows that in 2047, operations remain at LOS C during the a.m. peak hour but deteriorate to LOS F during the p.m. peak hour.

Figure 8 shows that in 2027, the signalized intersection at Towne Center Boulevard is predicted to operate at LOS B and C during the a.m. and p.m. peak hours, respectively. Figure 9 shows that in 2047, operations remain at LOS B and C during the a.m. and p.m. peak hours, respectively.

4.4.1.3 U.S. 30 at Lincoln Highway

In 2027 and 2047, the U.S. 30 interchange with Lincoln Highway is predicted to operate at LOS A or LOS B during the a.m. and p.m. peak hours, as shown on Figures 6 and 7.

Figure 8 shows that in 2027, the ramp termini intersections are predicted to operate at LOS A and B during the a.m. and p.m. peak hours, respectively. Figure 9 shows that in 2047, LOS remains A and B during the a.m. and p.m. peak hours, respectively.

4.4.2 Capacity Analysis – Intersections

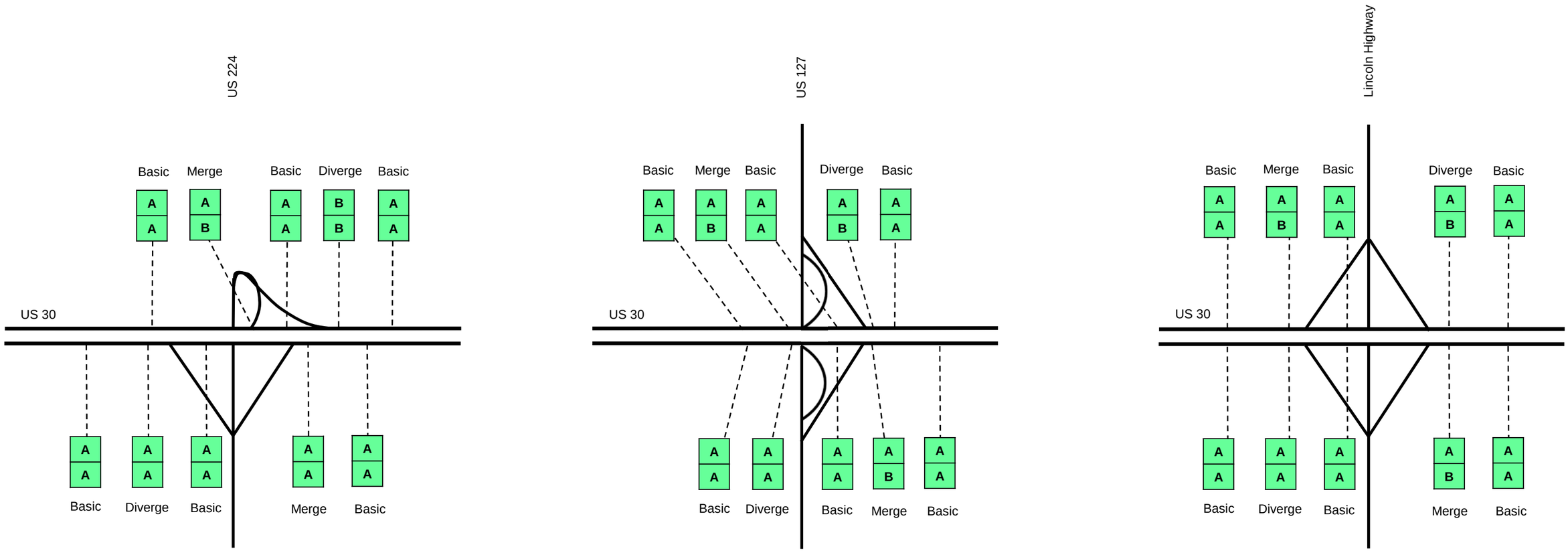
The HCS analysis results for the 18 at-grade intersections along U.S. 30 are summarized on Figures 8 and 9.

Figure 8 shows that in 2027, most of the intersections operate at LOS A, B, C, or D during the a.m. and p.m. peak hours. Both approaches of Feasby Wisener Road operate at LOS E during the p.m. peak hour. The southbound approach of SR 49/Payne Road operates at LOS F and the southbound approach of John Brown Road operates at LOS E during the p.m. peak hour.

Figure 9 shows that in 2047, some of the intersections continue to operate at LOS A, B, C, or D. However, almost all of the intersections deteriorate to LOS E during either the a.m. or p.m. peak hour. Both approaches of Feasby Wisener Road and SR 49/Payne Road operate at LOS F during the p.m. peak hour. The southbound approach of Convoy Road operates at LOS F during the p.m. peak hour. Both approaches of John Brown Road operates at LOS F during the a.m. and p.m. peak hours. The northbound approach of Mendon Road operates at LOS F during the p.m. peak hour.

The HCS analysis results are included in Appendix D.

FIGURE 6 – Interchange HCS Results – 2027 No-Build Alternative – A.M. and P.M. Peak Hour



AM LOS / PM LOS — Freeway Facility LOS

AM LOS / AM Delay / PM LOS / PM Delay — Signalized and Unsignalized Intersection LOS and Delay

LOS A
LOS B
LOS C
LOS D
LOS E
LOS F

Signalized Intersection

Stop-Controlled Intersection

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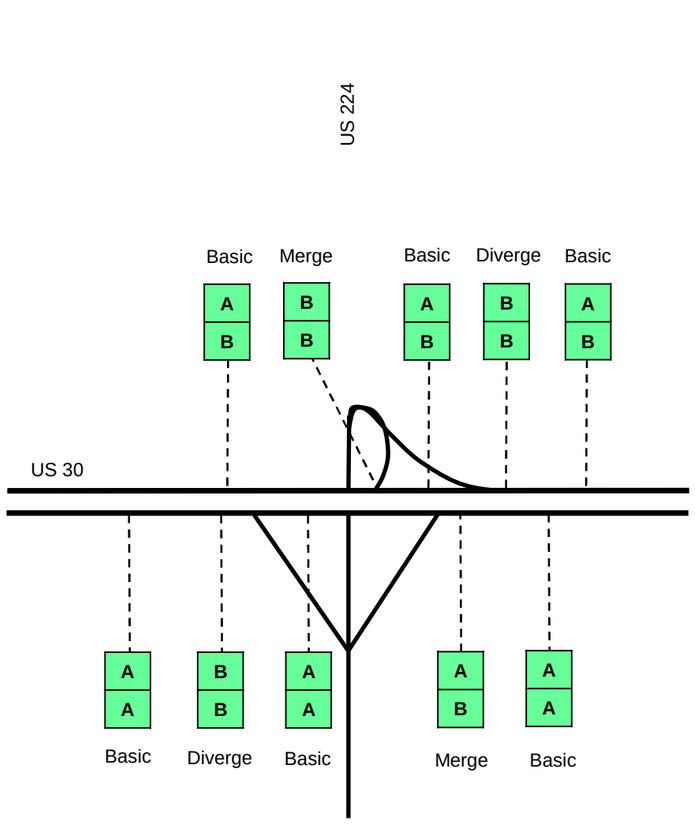
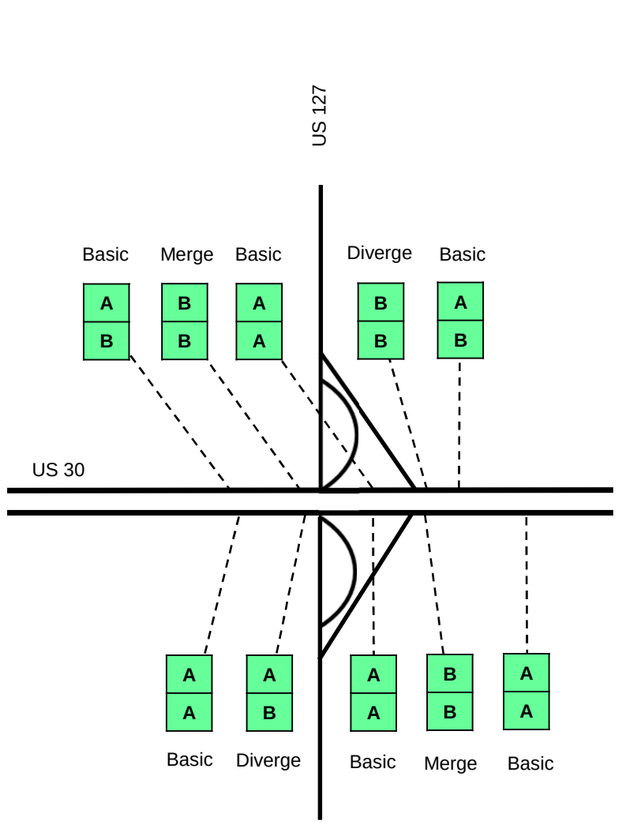
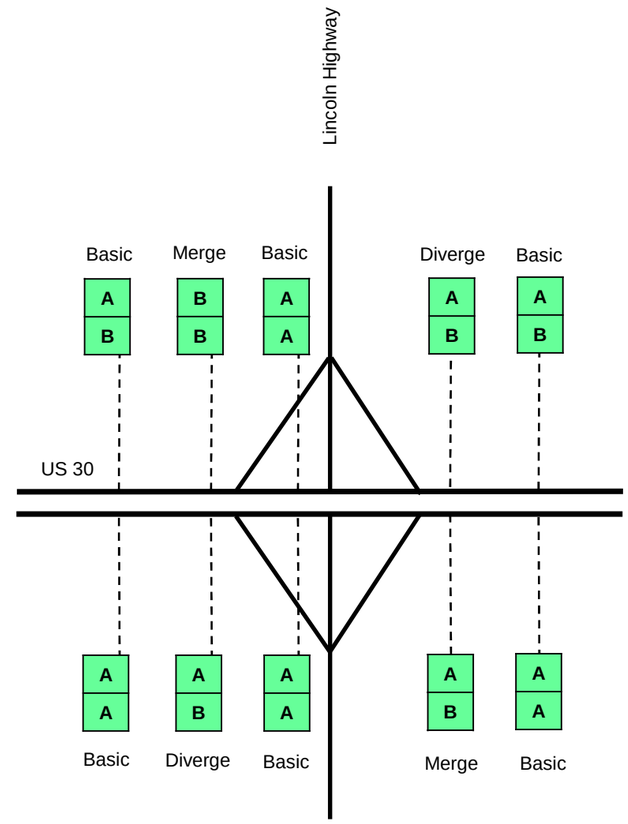
FIGURE 7 – Interchange HCS Results – 2047 No-Build Alternative – A.M. and P.M. Peak Hour







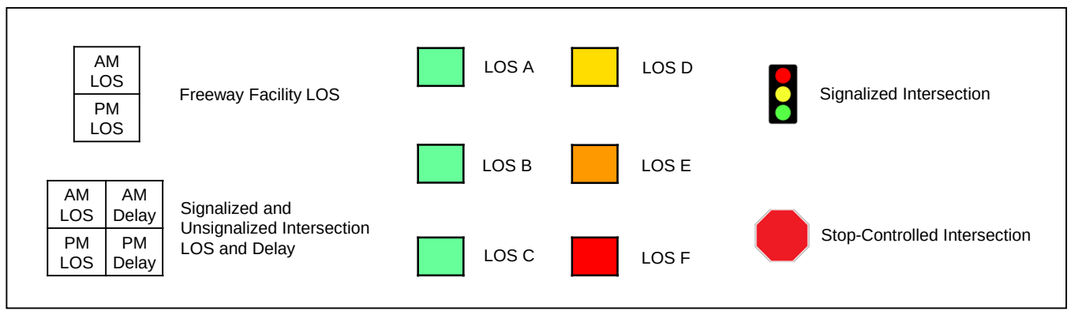


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FIGURE 8 – Intersection HCS Results – 2027 No-Build Alternative – A.M. and P.M. Peak Hour

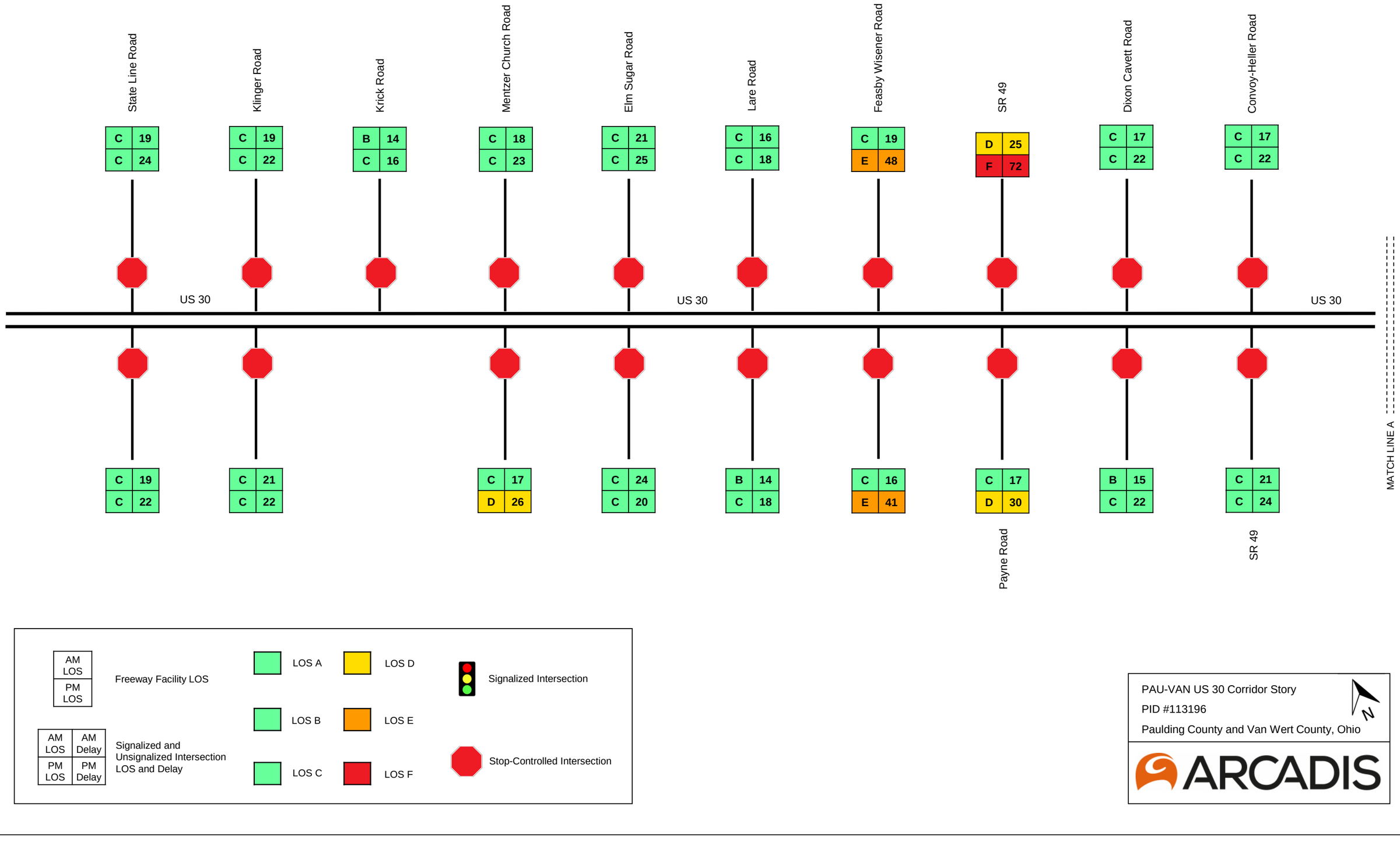

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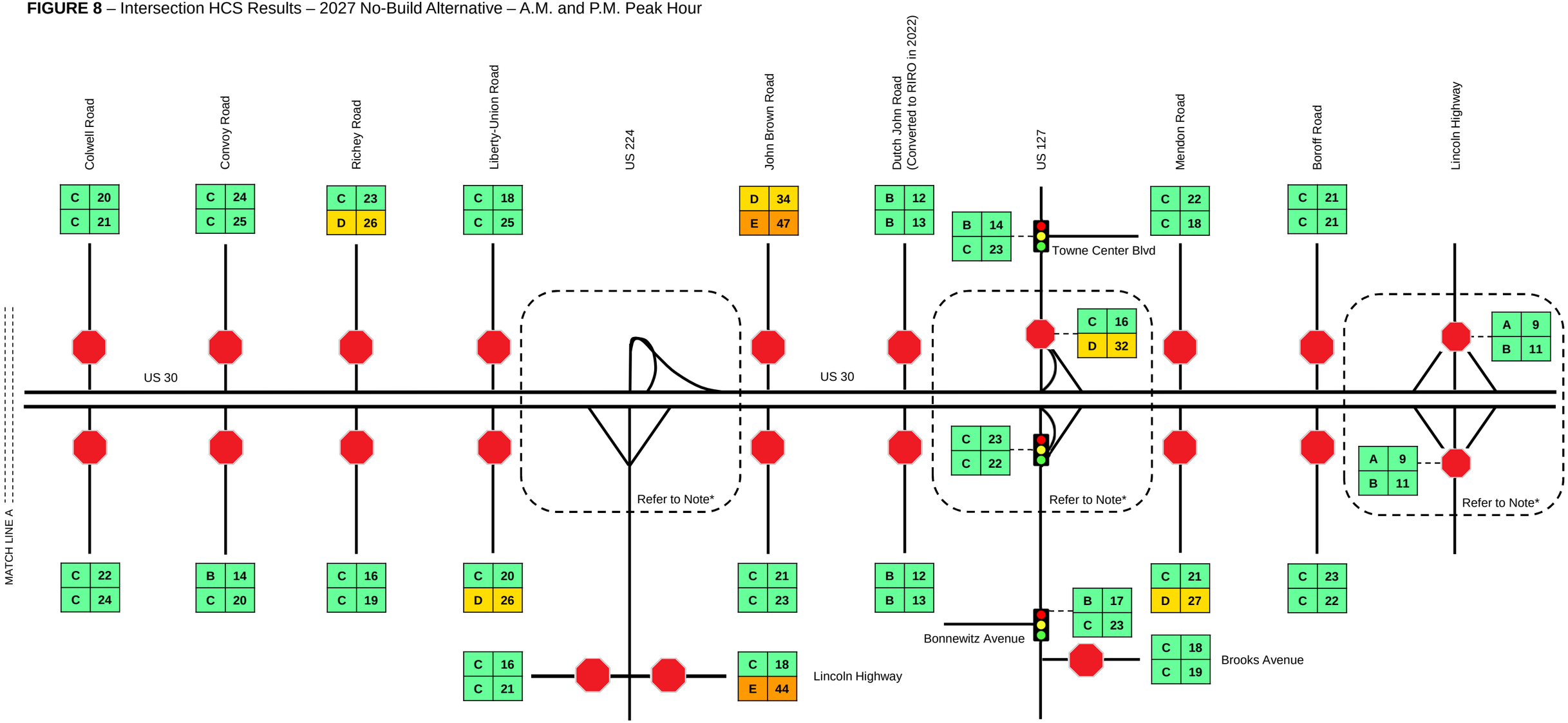
FIGURE 8 – Intersection HCS Results – 2027 No-Build Alternative – A.M. and P.M. Peak Hour



* Figure 6 provides the results of the HCS capacity analysis for the interchanges.

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FIGURE 9 – Intersection HCS Results – 2047 No-Build Alternative – A.M. and P.M. Peak Hour

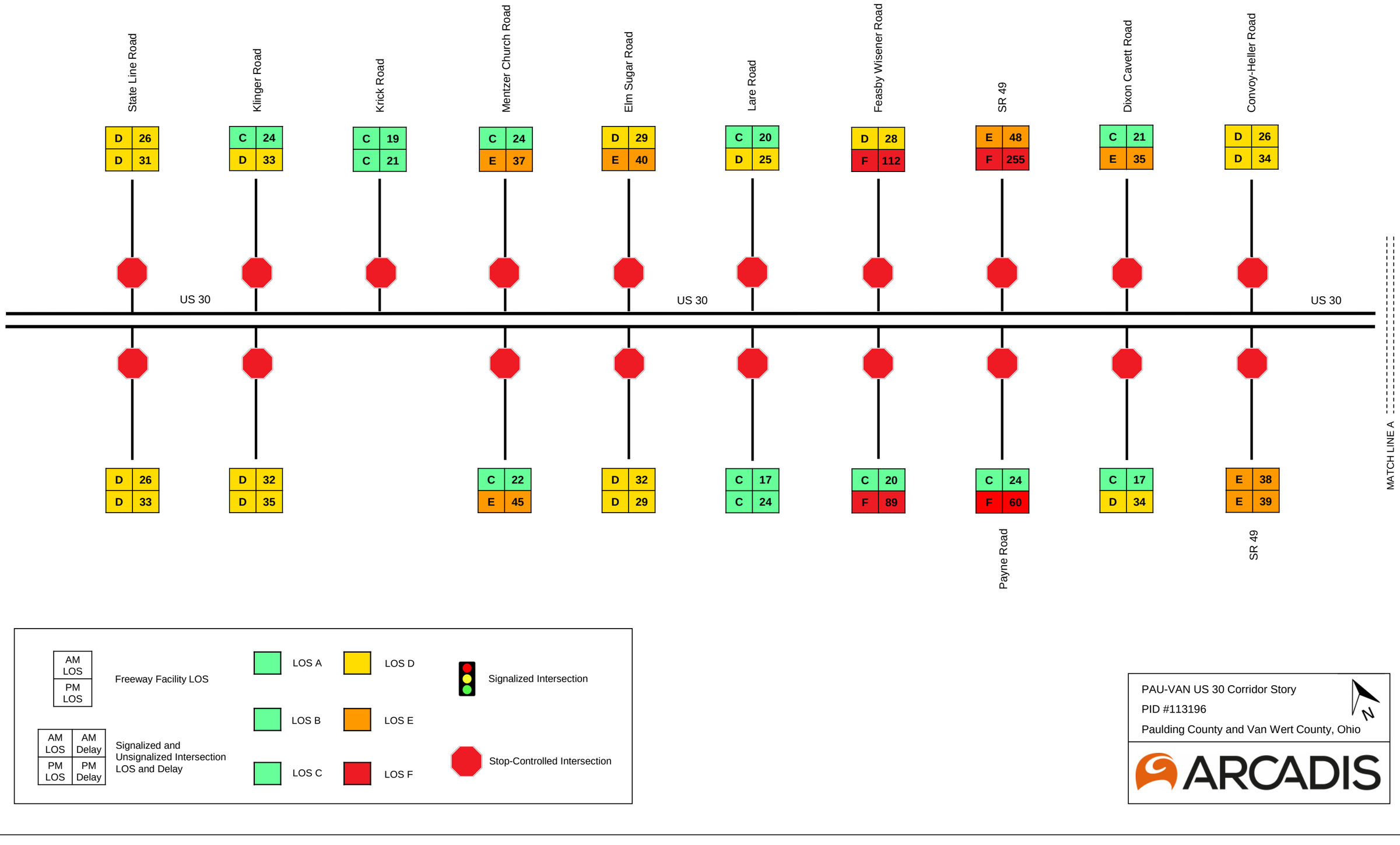

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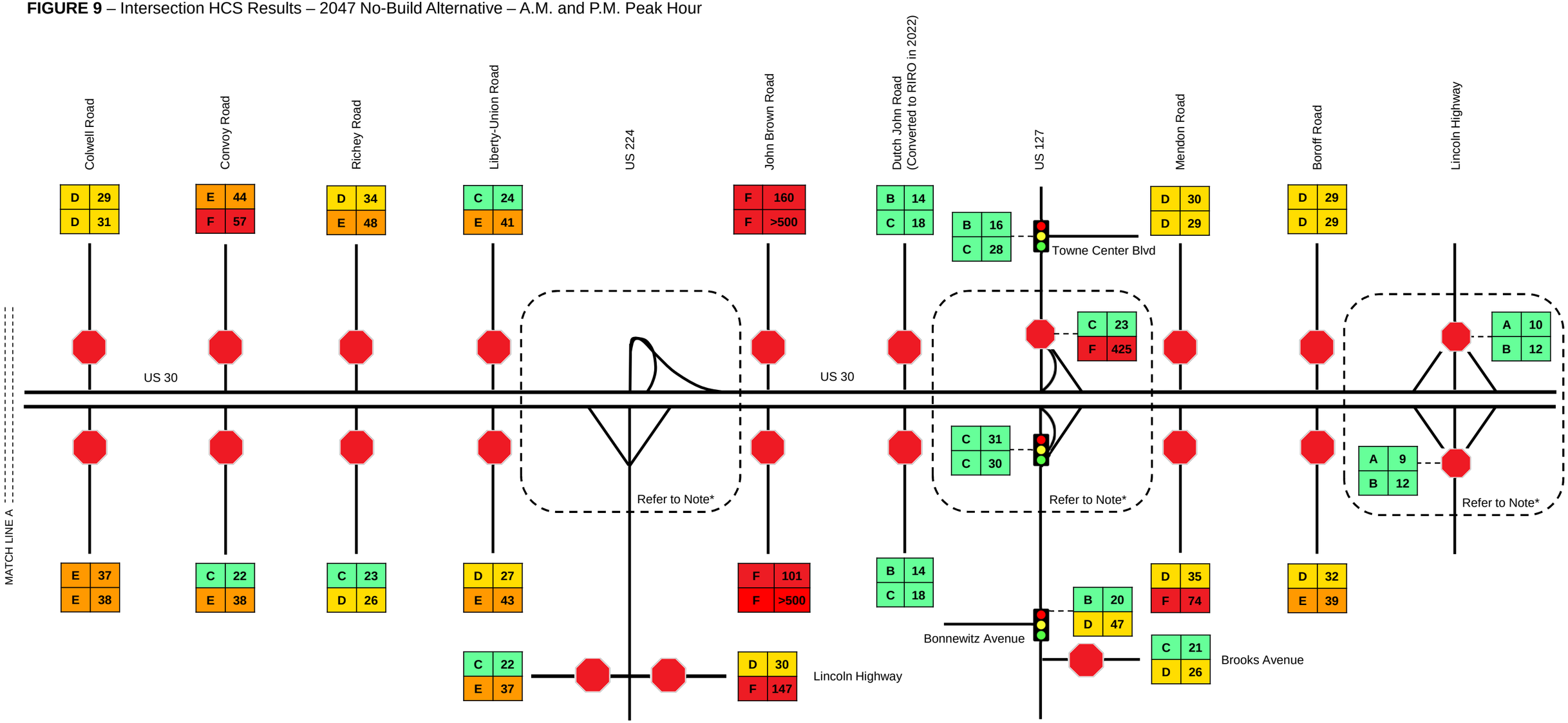
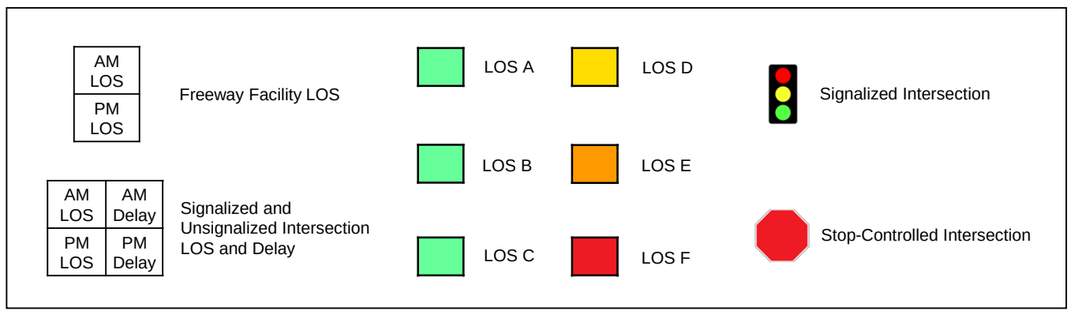
FIGURE 9 – Intersection HCS Results – 2047 No-Build Alternative – A.M. and P.M. Peak Hour





* Figure 7 provides the results of the HCS capacity analysis for the interchanges.

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5 Build Alternative

The build alternative is a long-term, long-range plan that establishes a future vision for the U.S. 30 corridor. Creating the limited-access corridor will require modifying access at 18 at-grade unsignalized intersections along 17.3 miles of U.S. 30. It will also trigger intersection and corridor improvements at the intersection of U.S. 224 and Lincoln Highway and along U.S. 127 from Bonnewitz Avenue to the U.S. 30 eastbound ramps to accommodate shifting traffic patterns. Figure 10 illustrates the build alternative.

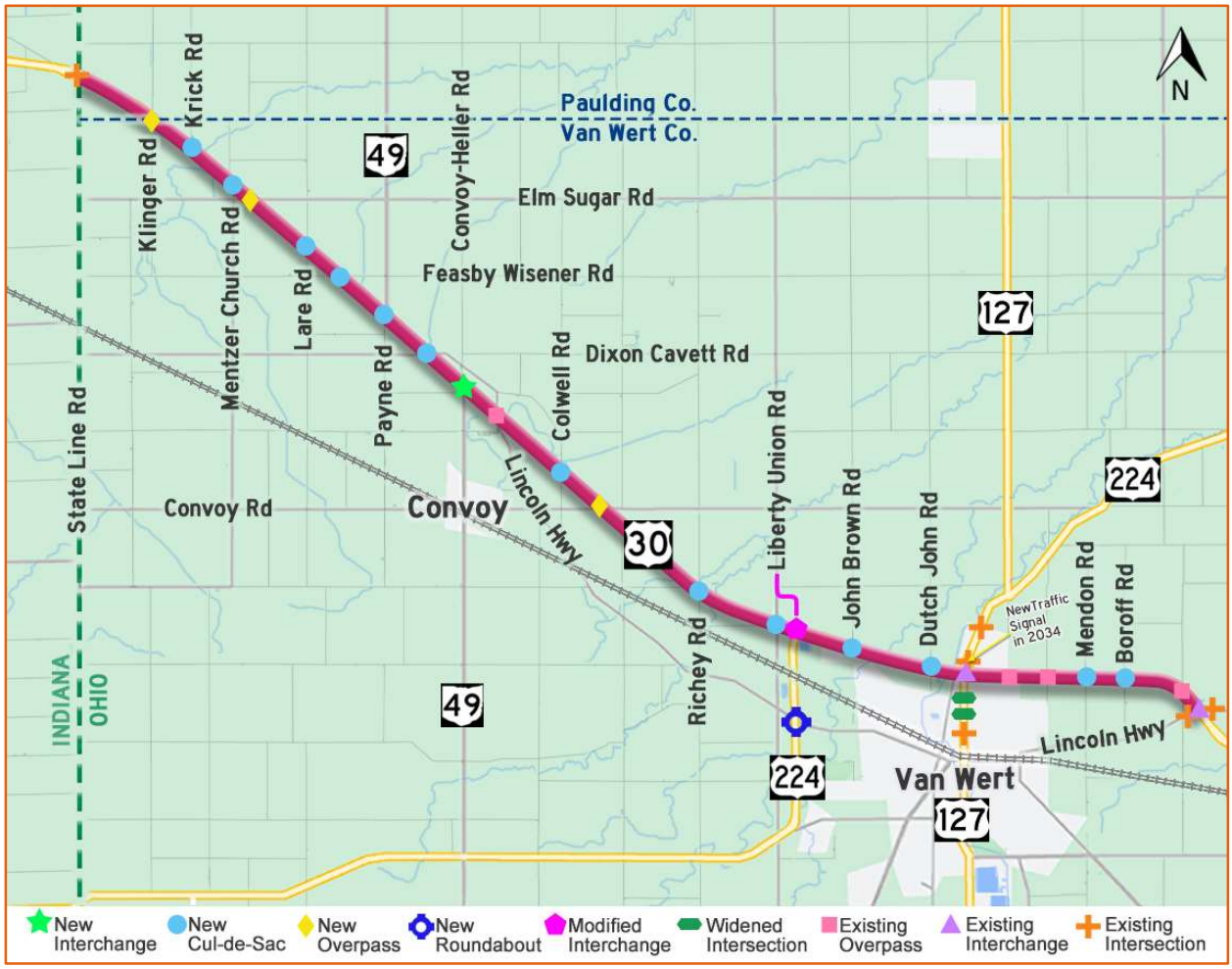

Figure 10. Build Alternative

A detailed description of the build alternative for U.S. 30 is provided below.

5.1 Roadway

The roadway evaluation for the build alternative includes selecting the location of a new interchange at U.S. 30 and SR 49, removing access at some of the existing at-grade intersections, maintaining access to adjacent farms, evaluating the soil condition where overpasses are proposed, improving the existing interchange at U.S. 30 and

U.S. 224, converting the intersection of U.S. 224 and Lincoln Highway to a roundabout, and widening U.S. 127 south of U.S. 30.

5.1.1 New SR 49 Interchange Evaluation

Based on the traffic analysis results, three potential locations were evaluated for placement of a new interchange along the corridor:

- Alternate 1 – U.S. 30 and Payne Road (TR 47)/SR 49 (North)
- Alternate 2 – U.S. 30 and Dixon Cavett Road
- Alternate 3 – U.S. 30 and Convoy-Heller Road (County Route [CR] 55)/SR 49 (South).

Each of the interchanges was designed as a traditional diamond in accordance with the current ODOT Location and Design Volume 1 standards. Each location was evaluated using the same set of criteria to determine which site would result in the least impact overall. The results of this analysis are presented qualitatively in an impact matrix also included in Appendix E. Conceptual schematics of the proposed improvements are included in Appendix E

5.1.1.1 Evaluation Criteria

The following criteria were used for the interchange location evaluation:

- Interchange Construction Cost – High-level conceptual construction costs were calculated and are included in Appendix F. These costs include only major cost drivers and do not include right-of-way costs. Because the actual year of potential construction is unknown, costs were calculated and compared based on present-day values.
- Right-of-Way – The amount of new permanent right-of-way required to construct the alternative was calculated as presented in Appendix E. The amounts shown in Appendix E assume the value of all land being acquired is approximately equal and do not include any right-of-way needed for potential rerouting of traffic.
- Building Impacts – The number of potential impacts to residential homes or substantial outbuildings was tabulated as presented in Appendix E.
- Environmental Impacts – The amount of impact to environmental resources identified in the Red Flag Summary was tabulated. The Red Flag Summary is included in Appendix G. Named streams and wetlands were considered environmental resources.
- Traffic Demand Impact – The number of projected vehicles that would have to be rerouted were calculated. These are vehicles that would have entered U.S. 30 at an existing at-grade intersection that would now have to use the proposed interchange. These projections are provided in Appendix B.
- Farmland Impact – The amount of impact to farmland was determined based on visual inspections. Tabulations are provided in Appendix E.

- Connectivity – Construction of a new interchange at any of the three potential locations will include rerouting of SR 49. Currently, SR 49 approaches U.S. 30 from the north in line with Payne Road and then travels concurrently with U.S. 30 east to a point in line with Convoy-Heller Road, where it turns south. Each of the interchange alternatives includes a potential rerouting of SR 49 that eliminates the section concurrent with U.S. 30. The additional length of travel, costs associated with improvements to local routes, and environmental impacts along local routes were assessed. Details of this evaluation are included in Appendix E

5.1.1.2 Alternate 1 – U.S. 30 and Payne Road (TR 47)/SR 49 (North)

In this alternative, the existing at-grade intersection of U.S. 30 and Payne Road/SR 49 (North) would be replaced with a diamond interchange. Portions of existing Payne Road/SR 49 (North) will be removed, and a new four-span overpass structure will be constructed. To accommodate the overpass, reconstruction of approximately 1,400 feet both north and south of U.S. 30 along Payne Road/SR 49 (North) will be required. The existing left-turn lanes and median crossover will also be removed from U.S. 30. New acceleration and deceleration lanes will be constructed along U.S. 30 to provide access to the new interchange. All drive access within the interchange will be removed and rerouted if the residence is expected to remain intact. Details of this work are shown in conceptual schematics included in Appendix E.

Right-of-way acquisition will be required at all four quadrants and along Payne Road/SR 49 (North). Most of the right-of-way takes are farmland. However, eight structures will potentially be impacted, with four of those being residences. One additional residence will require a long drive relocation to access Feasby Wisener Road (TR 208) because the proposed westbound acceleration lane will block access to the residence's current drive onto U.S. 30. An unnamed tributary to Middle Creek located on the west side of SR 49 will be impacted by the road reconstruction. After construction, approximately 2,000 vpd will be rerouted to this interchange that previously would have used the Dixon Cavett Road and Convoy-Heller Road/SR 49 (South) at-grade intersections. The least impactful traffic reroute is Payne Road (TR 47)–new connector road–SR 49 (South).

5.1.1.3 Alternate 2 – U.S. 30 and Dixon Cavett Road

In this alternative, the existing at-grade intersection of U.S. 30 and Dixon Cavett Road (CR 192) would be replaced with a diamond interchange. Portions of existing Dixon Cavett Road will be removed, and a new four-span overpass structure will be constructed. To accommodate the overpass, reconstruction of approximately 1,250 feet south of U.S. 30 along Dixon Cavett Road will be required. North of U.S. 30, 1,200 feet of Dixon Cavett Road will be reconstructed to smoothly tie into Lincoln Highway. The existing intersection with Lincoln Highway (CR 418) is substandard and will be improved, making the Dixon Cavett Road to Lincoln Highway east movement the new through movement. This improvement will require increasing the radius of the curve connecting the two roads to bring it up to design standards for a through movement. The western portion of Lincoln Highway will be reconfigured to a new "T" intersection with Dixon Cavett Road. The existing left-turn lanes and median crossover will also be removed from U.S. 30. New acceleration and deceleration lanes will be constructed along U.S. 30 to provide access to the new interchange. In addition to the roadway work, a new box culvert will be required under Dixon Cavett Road for the Upper Prairie Creek crossing. Details of this work are shown in conceptual schematics included in Appendix E.

Right-of-way acquisition will be required at all four quadrants. Only small takes will be required on the south leg of Dixon Cavett Road, which has a wide area of existing right-of-way. A small take will also be required at the southeast corner of the Dixon Cavett Road/Lincoln Highway intersection for the road geometry improvement. Most of the right-of-way takes are farmland but two structures will potentially be impacted, both being residences. Upper Prairie Creek, which crosses Dixon Cavett Road north of U.S. 30, will have minor impacts. After construction, approximately 3,390 vpd will be rerouted to this interchange that previously would have used the Payne Road/SR 49 (North) and Convoy-Heller Road/SR 49 (South) at-grade intersections. The least impactful traffic reroute is SR 49 (North)–new connector road–Lincoln Highway–Convoy-Heller Road (CR 55)–new overpass over U.S. 30–SR 49 (South).

5.1.1.4 Alternate 3 – U.S. 30 and Convoy-Heller Road (CR 55)/SR 49 (South)

In this alternative, the existing at-grade intersection of U.S. 30 and Convoy-Heller Road (CR 55) would be replaced with a diamond interchange. Portions of existing Convoy-Heller Road will be removed, and a new four-span overpass structure will be constructed. To accommodate the overpass, reconstruction of approximately 1,200 feet north of U.S. 30 along Convoy-Heller Road, including the intersection with Lincoln Highway, will be required. South of U.S. 30, 1,300 feet of Convoy-Heller Road, including the intersection with Waller Road (TR 182), will be reconstructed. Waller Road will be relocated 600 feet south of its current location to keep it out of the proposed limited-access right-of-way. The existing left-turn lanes and median crossover will also be removed from U.S. 30. New acceleration and deceleration lanes will be constructed along U.S. 30 to provide access to the new interchange. In addition to the roadway work, three new box culverts will be required under Convoy-Heller Road and the new ramps for the Upper Prairie Creek crossings. Details of this work are shown in conceptual schematics included in Appendix E.

Right-of-way was previously acquired at this location; therefore, no additional right-of-way will be required at any of the four quadrants. A new 80-foot-wide right-of-way will be required for the relocation of Waller Road. This right-of-way take is farmland and no structures will be impacted with this alternative. The new ramps north of U.S. 30 will have impacts at each location where Upper Prairie Creek crosses Convoy-Heller Road. Pond 3 and the adjacent wetland, as identified in the Red Flag Summary included in Appendix G, will not be impacted. After construction, approximately 2,590 vpd will be rerouted to this interchange previously would have used the Payne Road/SR 49 (North) and Dixon Cavett Road at-grade intersections. The least impactful traffic reroute is Convoy-Heller Road (CR 55)–Lincoln Highway–new connector road–SR 49 (North).

As shown in the evaluation matrix in Appendix E, Alternative 3 – U.S. 30 and Convoy-Heller Road/SR 49 (South) results in the least impacts overall and was selected as the preferred option. Following public input, additional potential traffic reroutes for this alternative were evaluated. A new criterion, impact to residences, was added to qualitatively account for the effects of the rerouting on residences due to additional traffic. A new rerouting option was also added and investigated for the preferred alternative. No final rerouting option was selected as preferred as of the date of this report. Prior to detailed design, a more thorough investigation will be performed. Details of the updated reroutes are included in Appendix E.

5.1.2 Cul-de-Sacs/Access Removal from U.S. 30

In the build alternative, 14 of the current at-grade intersections will be converted to cul-de-sacs or have direct access to U.S. 30 eliminated. No improvements are proposed at State Line Road because the intersection

physically lies within the state of Indiana. The Indiana Department of Transportation is currently studying U.S. 30 and will include the intersection at State Line Road for potential improvements. Cul-de-sacs will be designed large enough to accommodate farm equipment. These locations are identified in Table 6. Additional details are provided on the conceptual schematics included in Appendix E.

Table 6. Intersections To Have Direct Access Removed from U.S. 30

Location	Treatment
Krick Road (CR 17)	Cul-de-Sac
Mentzer Church Road (TR 27)	Cul-de-Sac
Lare Road (TR 37)	Cul-de-Sac
Feasby Wisener Road (TR 208)	Cul-de-Sac
SR 49 (North)/Payne Road (TR 47)	Cul-de-Sac
Dixon Cavett Road (CR 192)	Cul-de-Sac
Colwell Road (TR 65)	Cul-de-Sac
Richey Road (North, CR 75)	Cul-de-Sac
Richey Road (South, CR 75)	Connect to Pearson Road (TR 235)
Liberty Union Road (North, CR 77)	Cul-de-Sac
Liberty Union Road (South, CR 77)	Connect to Terry Road (TR 160)
Dutch John Road (TR 83)	Cul-de-Sac
Mendon Road (TR 103)	Cul-de-Sac
Boroff Road (TR 113)	Cul-de-Sac

5.1.3 Farm Access Driveways

As indicated in Section 4.1, 26 driveways are located along U.S. 30 within the westerly 6 miles of the study area. Of these 26 driveways, 20 provide farm access to agricultural fields. Of the 20 farm access driveways, 6 driveways if they were eliminated would result in a landlocked parcel of farmland. To provide access to the potential landlocked farmland, the 6 farm access driveways could be rerouted through adjoining parcels via an easement or right-of-way acquisition. It is estimated that 9,424 linear feet of newly rerouted driveway length is required to replace the removal of the existing 6 farm access driveways. The rerouting of the 6 farm access driveways results in approximately 6.5 acres of required right-of-way acquisition or easement.

The removal of 2 commercial driveways on U.S. 30 would leave the property landlocked. The rerouting of the commercial driveways requires right-of-way acquisition or easements from adjoining parcels. It is estimated that approximately 3 acres of right-of-way acquisition or easement is required for the commercial driveways.

All 4 of the residential driveways would result in landlocked property if the U.S. 30 access was eliminated. An additional 6 acres of right-of-way acquisition is estimated to be required to provide access to the landlocked residential properties.

The locations of the driveways along U.S. 30 are shown on conceptual schematics included in Appendix E. Potential access drive locations to the landlocked parcels are shown on the conceptual schematics included in Appendix E.

5.1.4 Overpasses and Geotechnical

Grade separations are proposed at the following locations:

- Klinger Road
- Elm Sugar Road
- Convoy Road

A new diamond interchange is proposed at SR 49/Convoy-Heller Road.

Klinger Road (Overpass)

The preferred alignment for the Klinger Road overpass is along the existing alignment. The vertical alignment proposed uses 3 percent grades with one vertical curve over U.S. 30. The proposed structure is a four-span prestressed American Association of State Highway and Transportation Officials (AASHTO) I-beam girder (60'-89'-89'-60') on concrete cap and column piers and semi-integral abutments. The proposed structure has a skew of approximately 38 degrees.

Elm Sugar Road (Overpass)

The preferred alignment for the Elm Sugar Road overpass is along the existing alignment. The vertical alignment proposed uses 3 percent grades with one vertical curve over U.S. 30. The proposed structure is a four-span prestressed AASHTO I-beam girder (60'-117'-105'-60') on concrete cap and column piers and semi-integral abutments. The proposed structure has a skew of approximately 48 degrees.

Convoy Road (Overpass)

The preferred alignment for the Convoy Road overpass is along the existing alignment. The vertical alignment proposed uses 3 percent grades with one vertical curve over U.S. 30. The proposed structure is a four-span prestressed AASHTO I-beam girder (60'-105'-105'-60') on concrete cap and column piers and semi-integral abutments. The proposed structure has a skew of approximately 49 degrees.

Convoy-Heller Road/SR 49 (Interchange)

The preferred alignment for the Convoy-Heller Road overpass is along the existing alignment. The vertical alignment proposed uses 3 percent grades with one vertical curve over U.S. 30. The proposed structure is a four-span prestressed AASHTO I-beam girder (50'-94'-94'-50') on concrete cap and column piers and semi-integral abutments. The proposed structure has a skew of approximately 41 degrees. This improvement will require an

Interchange Justification Study (IJS). Details of this work are shown on conceptual schematics included in Appendix E.

5.1.5 U.S. 30 at U.S. 224 Interchange Modification

The existing interchange of U.S. 30 and U.S. 127/U.S. 224 is a partial interchange, serving only the east, west, and south movements. The build alternative will expand this to also serve the north movement. A new roadway will be constructed to connect Liberty Union Road from the north to the existing U.S. 224 bridge over U.S. 30. The existing structure over U.S. 30 will be retained, the concrete median removed, and the existing two 16-foot lanes converted to a three 12-foot lane cross section. The eastbound entrance and westbound exit ramps, along with portions of the existing loop ramp, will be retained. A new intersection will be constructed from an extension of the existing loop ramp with the new connector road to serve both northbound and southbound movements. The existing eastbound U.S. 30 ramps will be removed and reconstructed from directional ramps to traditional diamond ramps, meeting at a new intersection with U.S. 224. Several culvert extensions and new culverts will be required where the ramps cross roadway ditches and the unnamed tributary to Hoaglin Creek. Right-of-way acquisition will be required on both the southwest and southeast quadrants for ramp construction as well as to the north through farmland for the connector road construction. This improvement will require an Interchange Modification Study (IMS). Details of this work are shown on conceptual schematics included in Appendix E.

5.1.6 U.S. 224 at Lincoln Highway Intersection Upgrades

To improve safety at the U.S. 224 and Lincoln Highway intersection, the existing two-way stop controlled intersection with overhead flashing light configuration will be replaced with a single-lane roundabout. To reduce speeds entering the roundabout, traffic calming measures will be introduced on the approaches of all legs of the roundabout through successive horizontal curvature and large splitter islands. The center of the roundabout will be shifted southwest approximately 30 feet from the center of the existing roadway to avoid impacts to the residence on the northeast corner of the intersection. Acquisition of right-of-way will be required on southwest corner for construction. Details of this work are shown on drawings in Appendix E.

5.1.7 U.S. 127 from Brooks Avenue to Towne Center Boulevard Improvements

Several improvements are proposed to reduce congestion along the U.S. 127 corridor near the interchange with U.S. 30. The eastbound through/right lane of Bonnewitz Avenue will be restriped to be a full-access left/right/through lane. U.S. 127 will be widened with an additional through lane both northbound and southbound, converting it from the existing three lanes to five lanes from Bonnewitz Avenue to the eastbound ramps at the interchange. The widening will be symmetrical on either side of the centerline from the ramp terminal to Valam Drive. The widening will shift to the east side from Valam Drive to Bonnewitz Avenue to avoid impacts to the residences on the west side of U.S. 127. The widening will require reconstruction of the sidewalk and modification to several commercial parking lots. A new traffic signal will be added to replace the existing stop sign at the westbound ramp terminal. Acquisition of right-of-way will be required along the east side of U.S. 127 to accommodate the widening. This improvement will require an Interchange Operation Study (IOS). Details of this work are shown on conceptual schematics included in Appendix E.

5.2 Traffic Volumes

Similar to the no-build alternative, build alternative planning-level DHVs for the a.m. and p.m. peak hours and ADT volumes were developed in accordance with the OTFM and were based on the regional TDM created by ODOT M&F. The regional TDM provided the ADT volumes for each intersection. The DHVs were developed using the NCHRP spreadsheets as recommended in the OTFM, the TDM ADT volumes, and the existing traffic volumes rerouted to the access points that will remain open on U.S. 30. The DHVs were smoothed along U.S. 30 and along U.S. 127 to balance the traffic volumes between each intersection. The smoothing was completed using methodologies outlined in the OTFM.

The build alternative planning-level DHVs are included in Appendix B.

5.3 Safety

The build alternative safety analysis is broken into the following three sections: U.S. 30, U.S. 224 and Lincoln Highway, and U.S. 127. The results of the historical safety analysis discussed in Section 4.3 were used to perform a predictive safety analysis for the build alternative.

A predictive safety analysis uses the AASHTO Highway Safety Manual (HSM) to determine how a corridor, or intersection, is performing compared to similar locations. The HSM is also used to assess the safety benefits of proposed countermeasures. The HSM Part C discusses use of a predictive model for this type of analysis. The predictive method estimates the predicted crash frequency ($N_{predicted}$) together with observed crash frequency to estimate the expected crash frequency ($N_{expected}$). The difference between predicted and expected crash frequency is explained below:

- $N_{predicted}$ is the anticipated (predicted) crash frequency, which describes how a location is expected to perform relative to similar sites. The calculation of $N_{predicted}$ uses Safety Performance Functions to determine a base condition and applies crash modification factors to account for site-specific features that are different from the base condition. The final value is multiplied by a calibration factor specific to Ohio to normalize the base condition.
- $N_{expected}$ is the estimated expected average crash frequency at a site for a given time period. The calculation of $N_{expected}$ uses the Empirical Bayes method to combine actual crash frequency with $N_{predicted}$.

The difference between $N_{predicted}$ and $N_{expected}$ is the “expected excess crashes.” If $N_{expected}$ is greater than $N_{predicted}$, the location may benefit from a safety improvement. If $N_{expected}$ is less than $N_{predicted}$, the site is experiencing fewer crashes than similar sites.

ODOT’s Economic Crash Analysis Tool (ECAT) was used to calculate $N_{predicted}$ and $N_{expected}$ based on the existing conditions (traffic control, presence of a median, number of lanes, intersection control, lighting, presence of driveways). Crash modification factors were used in ECAT to calculate the reduction in crashes that can be expected if a particular improvement is implemented. ODOT’s ECAT was also used to perform a benefit-cost analysis for the recommended improvements. A full printout from the ODOT ECAT is included in Appendix C.

5.3.1 U.S. 30

Table 7 presents a comparison of the existing corridor ($N_{expected\ existing}$) to similar corridors ($N_{predicted\ existing}$) and to the build alternative ($N_{predicted\ proposed}$). The table shows that overall, U.S. 30 is functioning slightly better than similar corridors by 1.37 crashes per year. There is potential for improvement in fatal and incapacitating injury (KA) crashes (0.04), non-incapacitating injury (B) crashes (2.93) associated with the build alternative. The table also shows that if the build alternative is implemented, the overall crash frequency is predicted to decrease by 21.93 crashes per year. This can be attributed to a predicted decrease in the frequency of KA, B, and O crashes.

Table 7. U.S. 30 ECAT Results

Level of Service	KA	B	C	O	Total
$N_{predicted}$ (Existing Conditions)	2.50	2.93	9.92	33.30	48.64
$N_{expected}$ (Existing Conditions)	2.54	6.87	5.31	32.54	47.27
$N_{potential\ for\ improvement}$ (Existing Conditions)	0.04	2.93	-4.61	-0.76	0.00
$N_{predicted}$ (Proposed Conditions)	1.06	1.86	2.20	20.22	25.34

ODOT's ECAT was also used to compare the cost to construct the build alternative to the anticipated safety benefit. The results of the benefit-cost analysis are shown in Table 8.

Table 8. U.S. 30 Build Alternative Benefit-Cost Summary

Value	Result
Expected Annual Crash Adjustment	-23.31
Net Present Value of the Build Alternative	$33,846,000
Net Present Value of Safety Benefit	$23,726,821
Benefit-Cost Ratio	**0.70**

The build alternative shows a benefit-cost ratio close to zero.

5.3.2 U.S. 224 at Lincoln Highway

Table 9 presents a comparison of the existing intersection ($N_{expected\ existing}$) to similar intersections ($N_{predicted\ existing}$) and to the proposed roundabout ($N_{predicted\ proposed}$). The table shows that overall, the intersection of U.S. 224 and Lincoln Highway is functioning slightly better than similar intersections by 0.42 crashes per year. However, there is potential for improvement in non-incapacitating injury (B) crashes (0.48) associated with converting the intersection to a single-lane modern roundabout. The table also shows that if the roundabout is constructed, the overall crash frequency is predicted to decrease by 2.82 crashes per year. This can be attributed to a predicted decrease in the frequency in all crashes categories.

Table 9. U.S. 224 at Lincoln Highway ECAT Results

Level of Service	KA	B	C	O	Total
$N_{predicted}$ (Existing Conditions)	0.35	0.35	1.07	3.07	4.85
$N_{expected}$ (Existing Conditions)	0.34	0.83	0.55	2.70	4.43
$N_{potential\ for\ improvement}$ (Existing Conditions)	-0.01	0.48	-0.52	-0.37	-0.42
$N_{predicted}$ (Proposed Conditions)	0.07	0.07	0.20	1.28	1.61

ODOT's ECAT was also used to compare the cost to construct the roundabout to the anticipated safety benefit. The results of the benefit-cost analysis are shown in Table 10.

Table 10. U.S. 224 at Lincoln Highway Benefit-Cost Summary

Value	Result
Expected Annual Crash Adjustment	-3.24
Net Present Value of the Build Alternative	$2,025,000
Net Present Value of Safety Benefit	$4,065,799
Benefit-Cost Ratio	**2.01**

The build alternative shows a benefit-cost ratio greater than 1, which indicates a positive return on investment.

5.3.3 U.S. 127 from Brooks Avenue to Towne Center Boulevard

Table 11 presents a comparison of the existing corridor ($N_{expected\ existing}$) to similar corridors ($N_{predicted\ existing}$) and to the build alternative ($N_{predicted\ proposed}$). The table shows that overall, U.S. 127 is functioning slightly better than similar corridors by 0.99 crashes per year. The table also shows that if U.S. 127 is widened between Bonnewitz Avenue and the U.S. 30 eastbound ramps, the overall crash frequency is predicted to increase. The increase can be attributed to a substantial increase in traffic volumes on U.S. 127 and Bonnewitz Avenue as access points to U.S. 30 are closed. The increase in traffic volumes increases the predicted crash frequency by 3 crashes per year instead of almost 8 crashes per year.

Table 11. U.S. 127 from Brooks Avenue to Towne Center Boulevard ECAT Results

Level of Service	KA	B	C	O	Total
$N_{predicted}$ (Existing Conditions)	0.23	1.04	1.53	6.26	9.06
$N_{expected}$ (Existing Conditions)	0.19	0.82	1.19	5.88	8.07
$N_{potential\ for\ improvement}$ (Existing Conditions)	-0.05	-0.22	-0.34	-0.38	-0.99
$N_{predicted}$ (Proposed Conditions)	0.37	1.67	2.47	10.81	15.33

ODOT's ECAT was also used to compare the cost of widening U.S. 127 to the anticipated safety benefit. The results of the benefit-cost analysis are shown in Table 12.

Table 12. U.S. 127 from Brooks Avenue to Towne Center Boulevard Benefit-Cost Summary

Value	Result
Expected Annual Crash Adjustment	7.26
Net Present Value of the Build Alternative	$2,295,000
Net Present Value of Safety Benefit	-$4,596,077
Benefit-Cost Ratio	**-2.00**

The build alternative shows a benefit-cost ratio less than 1. If the traffic volumes were not anticipated to increase significantly on U.S. 127, the benefit-cost ratio would be better.

5.4 Capacity Analysis

As discussed in Section 4.4, a traffic capacity analysis, using HCS, is the primary method for evaluating the efficiency of a roadway or an intersection, with the LOS results designated by the letters A through F. The build alternative capacity analysis was performed to determine the density-based LOS at each interchange and the control delay per vehicle at each intersection in the study area for open and design year conditions in the a.m. and p.m. peak hours. The analysis was conducted using the freeway facilities module for the interchanges along U.S. 30, and a separate intersection analysis was performed for each at-grade intersection along U.S. 30, U.S. 224, and Lincoln Highway.

5.4.1 Capacity Analysis – Interchanges

The HCS analysis for each interchange is divided into three types of segments based on HCM guidance: basic, merge, and diverge segments. The HCS analysis results are included in Appendix D and summarized below for each interchange.

5.4.1.1 U.S. 30 at SR 49/Convoy-Heller Road

In 2027 and 2047, the new U.S. 30 interchange with SR 49/Convoy-Heller Road is predicted to operate at LOS A or LOS B during the a.m. and p.m. peak hours, as shown on Figures 11 and 12.

Figure 13 shows that in 2027, the two-way stop-controlled ramp termini intersections are predicted to operate at LOS A during the a.m. and p.m. peak hours. Figure 14 shows that in 2047, operations remain at LOS A and B during the a.m. and p.m. peak hours, respectively.

5.4.1.2 U.S. 30 at U.S. 224

In 2027 and 2047, the U.S. 30 interchange with U.S. 224 is predicted to operate at LOS A or LOS B during the a.m. and p.m. peak hours, as shown on Figures 11 and 12.

The two-way stop-controlled intersection of U.S. 224 and Lincoln Highway will be converted to a single-lane modern roundabout to address existing operational and safety issues that may be exacerbated as traffic is rerouted because of the closure of at-grade intersections along U.S. 30. Figure 13 shows that in 2027, the roundabout is predicted to operate at LOS A during the a.m. and p.m. peak hours. Figure 14 shows that in 2047, the roundabout is predicted to operate at LOS B during the a.m. and p.m. peak hours.

Figure 13 shows that in 2027 the three new stop-controlled intersections at the U.S. 224 eastbound exit ramp, westbound exit ramp, and Liberty Union Road are predicted to operate at LOS A or LOS B during the a.m. and p.m. peak hours. Figure 14 shows that in 2047, the stop-controlled intersections are predicted to operate at LOS A or LOS B during the a.m. and p.m. peak hours.

5.4.1.3 U.S. 30 at U.S. 224/U.S. 127

In 2027 and 2047, the U.S. 30 interchange with U.S. 224/U.S. 127 is predicted to operate at LOS A or LOS B during the a.m. and p.m. peak hours, as shown on Figures 11 and 12.

No improvements are proposed at the unsignalized intersection of U.S. 127 and Brooks Avenue. Figure 13 shows that in 2027, Brooks Avenue is predicted to operate at LOS C during the a.m. and p.m. peak hours. Figure 14 shows that in 2047, operations remain at LOS C during the a.m. peak hour but deteriorate to LOS D during the p.m. peak hour.

Two capacity improvements are proposed at the signalized intersection of U.S. 127 and Bonnewitz Avenue to address existing operational issues that may be exacerbated by the rerouting of traffic as at-grade intersections along U.S. 30 are closed. The outside lane on Bonnewitz Avenue will be restriped to serve traffic turning left, proceeding through, or turning right. U.S. 127 will be widened to two lanes in each direction from Bonnewitz Avenue to the U.S. 30 eastbound ramps. Figure 13 shows that in 2027, the signalized intersection of U.S. 127 and Bonnewitz Avenue is predicted to operate at LOS C during the a.m. and pm. peak hours. Figure 14 shows that in 2047, operations remain at LOS C during the a.m. peak hour but deteriorate to LOS D during the p.m. peak hour.

Figure 13 shows that in 2027, the signalized intersection at the U.S. 30 eastbound exit ramps is predicted to operate at LOS B during the a.m. and p.m. peak hours. Figure 14 shows that in 2047, the intersection continues to operate at LOS B during the a.m. and p.m. peak hours.

The unsignalized intersection at the U.S. 30 westbound ramps will be converted to a signalized intersection to address existing operational and safety issues that may be exacerbated as traffic is rerouted because of the closure of at-grade intersections along U.S. 30. Figure 13 shows that in 2027, the signalized intersection at the U.S. 30 westbound ramps is predicted to operate at LOS B during the a.m. and p.m. peak hours. Figure 14 shows that in 2047, the intersection continues to operate at LOS B during the a.m. and p.m. peak hours.

Figure 13 shows that in 2027, the signalized intersection at Towne Center Boulevard is predicted to operate at LOS B and C during the a.m. and p.m. peak hours, respectively. Figure 14 shows that in 2047, LOS remains B and C during the a.m. and p.m. peak hours, respectively.

5.4.1.4 U.S. 30 at Lincoln Highway

In 2027 and 2047, the U.S. 30 interchange with Lincoln Highway is predicted to operate at LOS A or LOS B during the a.m. and p.m. peak hours, as shown on Figures 11 and 12.

Figure 13 shows that in 2027, the ramp termini intersections are predicted to operate at LOS A and LOS B during the a.m. and p.m. peak hours, respectively. Figure 14 shows that in 2047, the ramp termini intersections continue to operate at LOS A and LOS B during the a.m. and p.m. peak hours, respectively.

5.4.2 Capacity Analysis – Intersections

The HCS analysis results for the 18 at-grade intersections along U.S. 30 are summarized on Figures 13 and 14.

The build alternative converts most of the at-grade intersections along U.S. 30 to cul-de-sacs or overpasses. Figure 13 shows that in 2027, the unsignalized intersection at State Line Road is predicted to operate at LOS C during the a.m. peak hour and LOS D during the p.m. peak hour. Figure 14 shows that in 2047, operations remain at LOS C during the a.m. peak hour on the southbound approach but deteriorate to LOS E on the northbound approach. During the p.m. peak hour, operations deteriorate to LOS F on the southbound approach and LOS E on the northbound approach. Operations can be improved to LOS E with construction of a northbound left-turn lane and a southbound left-turn lane on State Line Road. However, these two improvements were not included in the build alternative because the intersection lies in the state of Indiana.

The HCS analysis results are included in Appendix D.

FIGURE 11 – Interchange HCS Results – 2027 Build Alternative – A.M. and P.M. Peak Hour

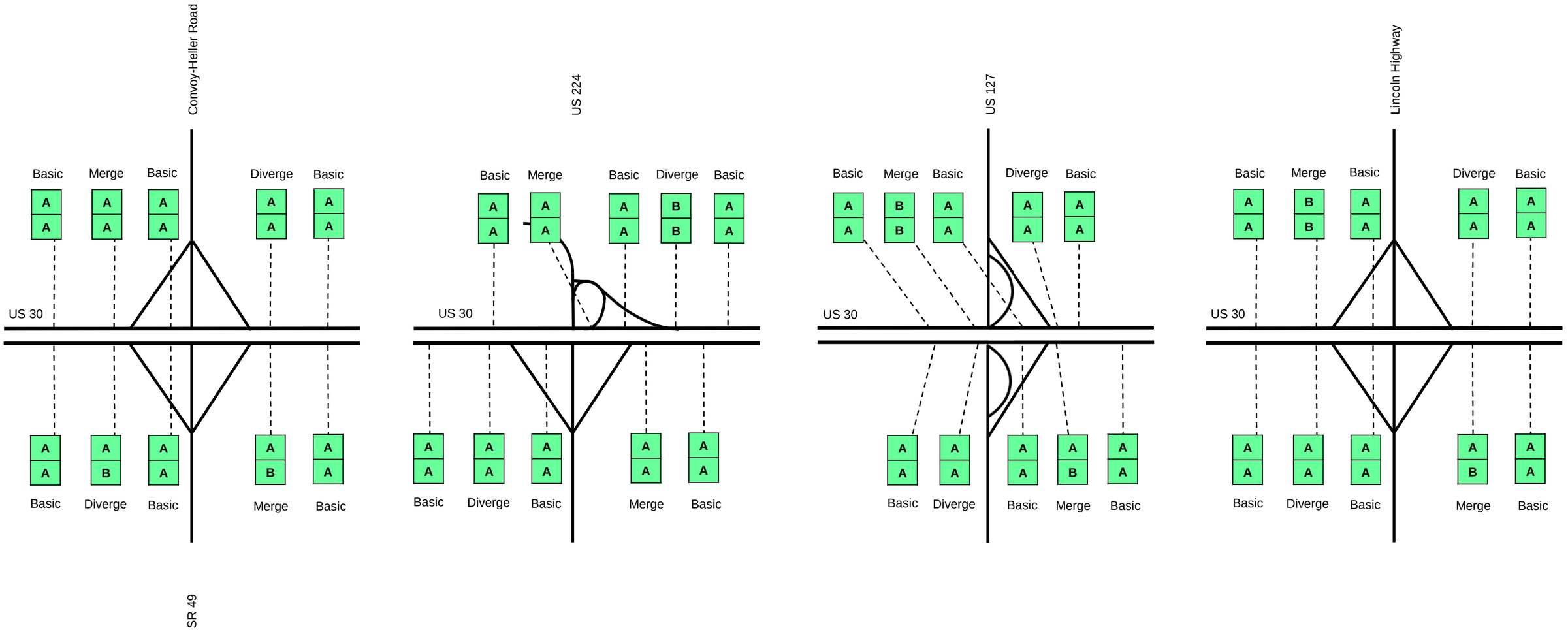

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FIGURE 12 – Interchange HCS Results – 2047 Build Alternative – A.M. and P.M. Peak Hour

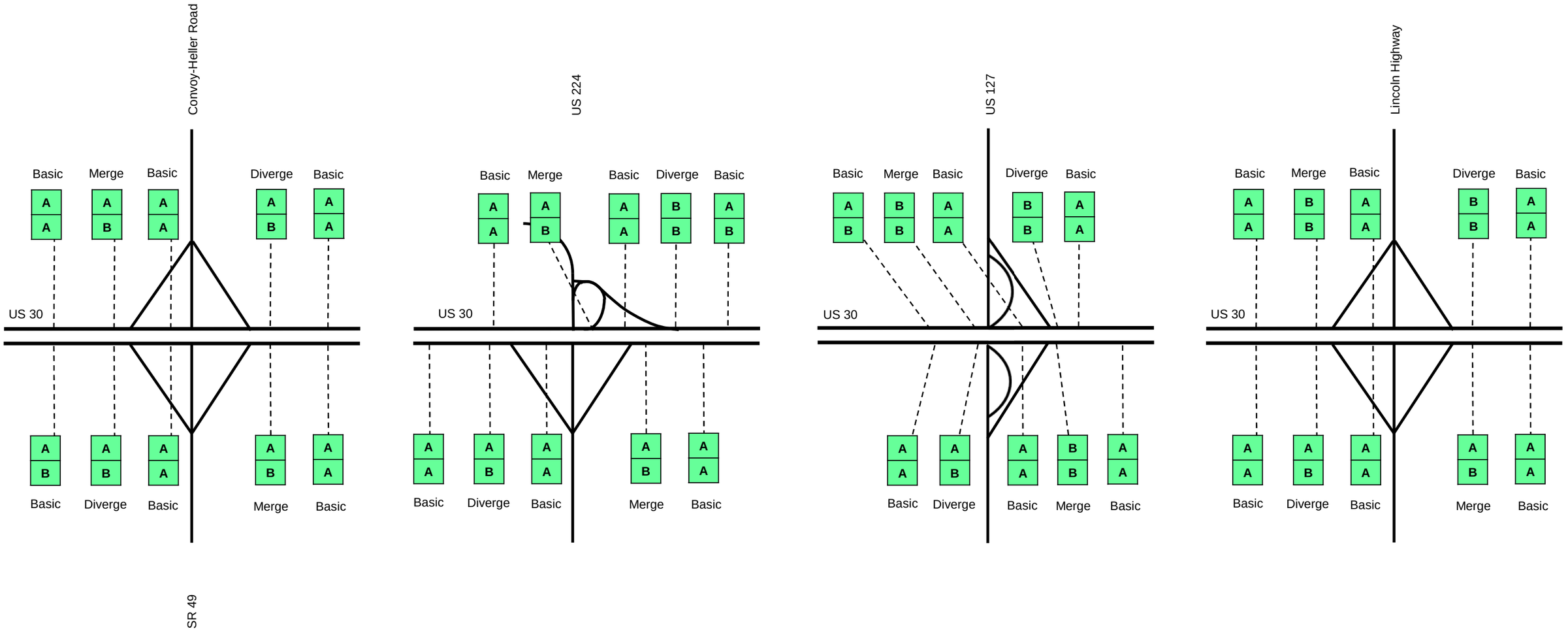

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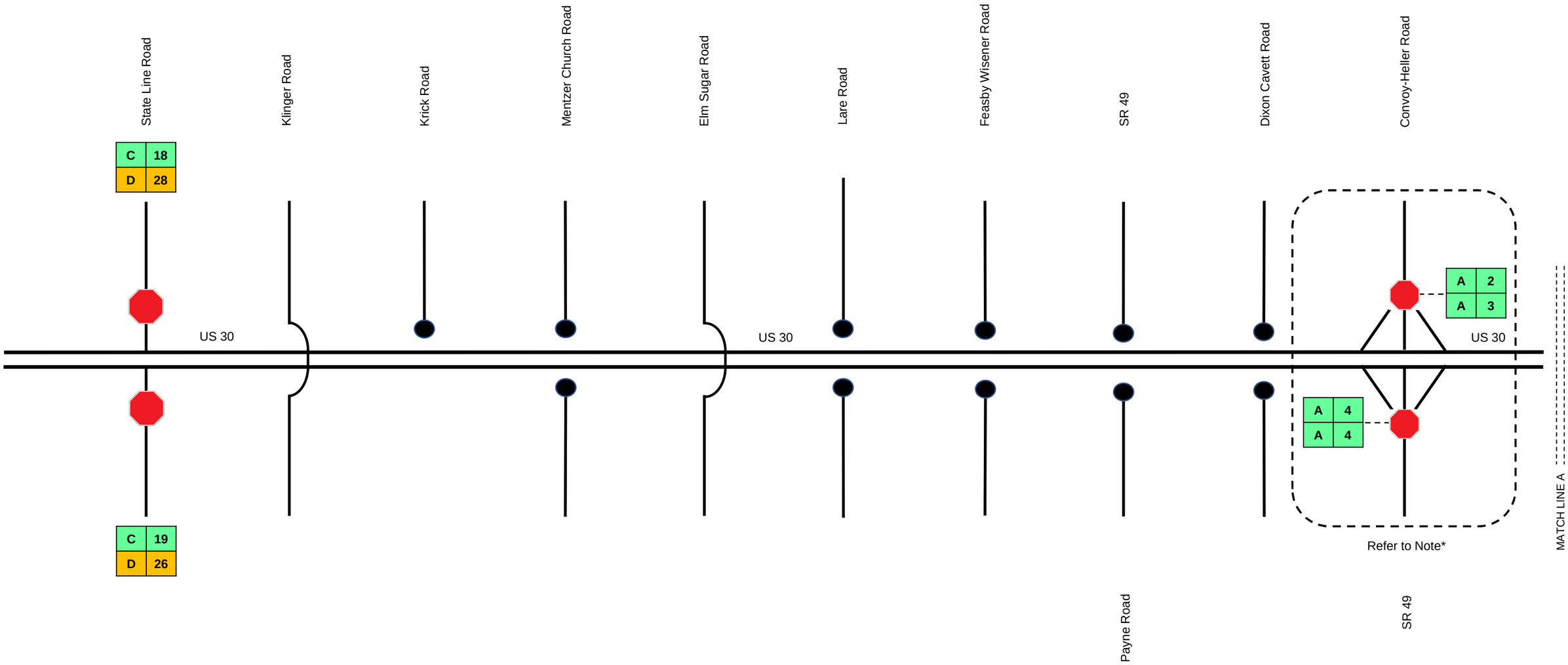
FIGURE 13 – HCS Results – 2027 Build Alternative – A.M. and P.M. Peak Hour



* Figure 11 provides the results of the HCS capacity analysis for the interchanges.

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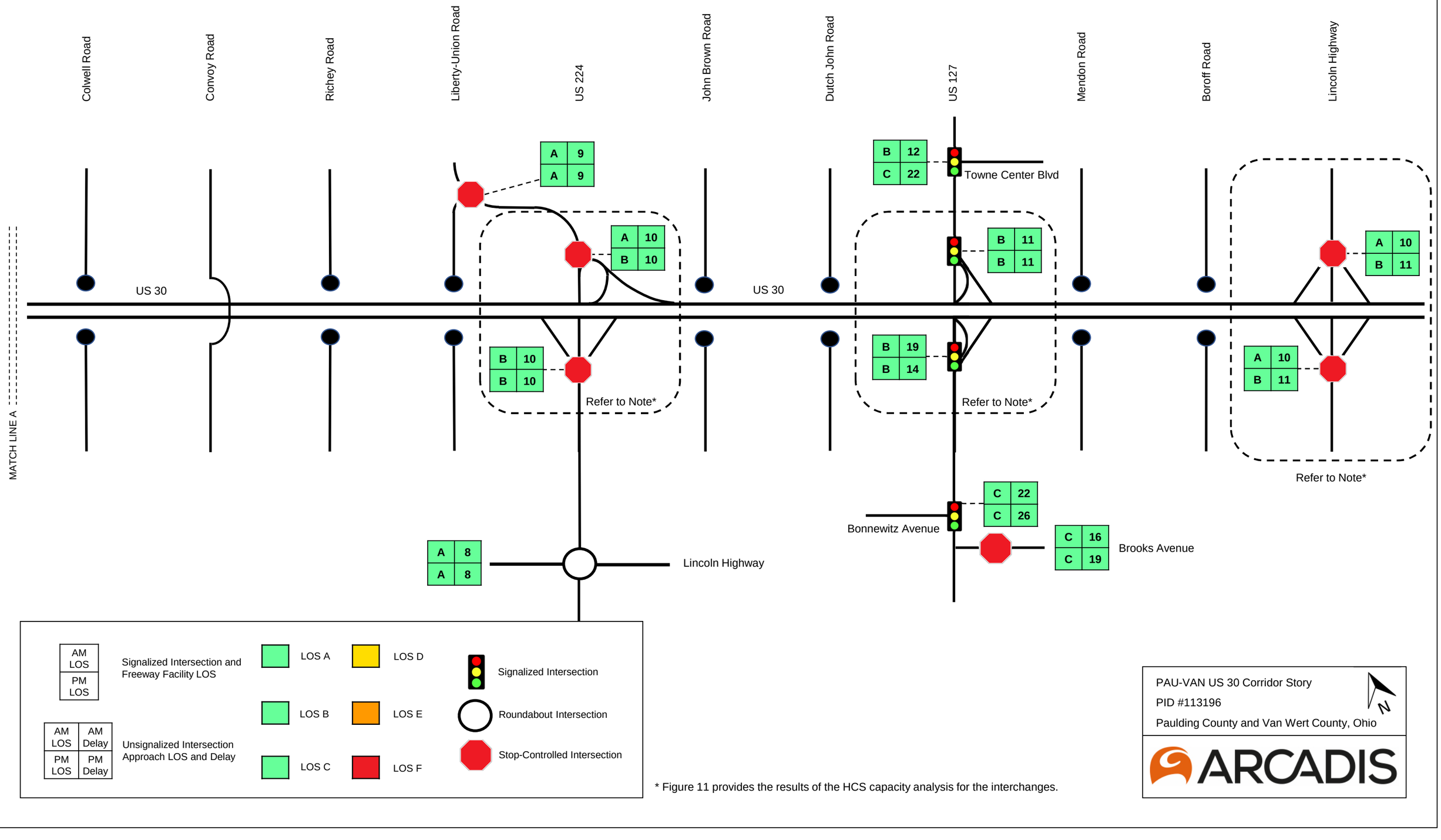
FIGURE 13 – HCS Results – 2027 Build Alternative – A.M. and P.M. Peak Hour



* Figure 11 provides the results of the HCS capacity analysis for the interchanges.

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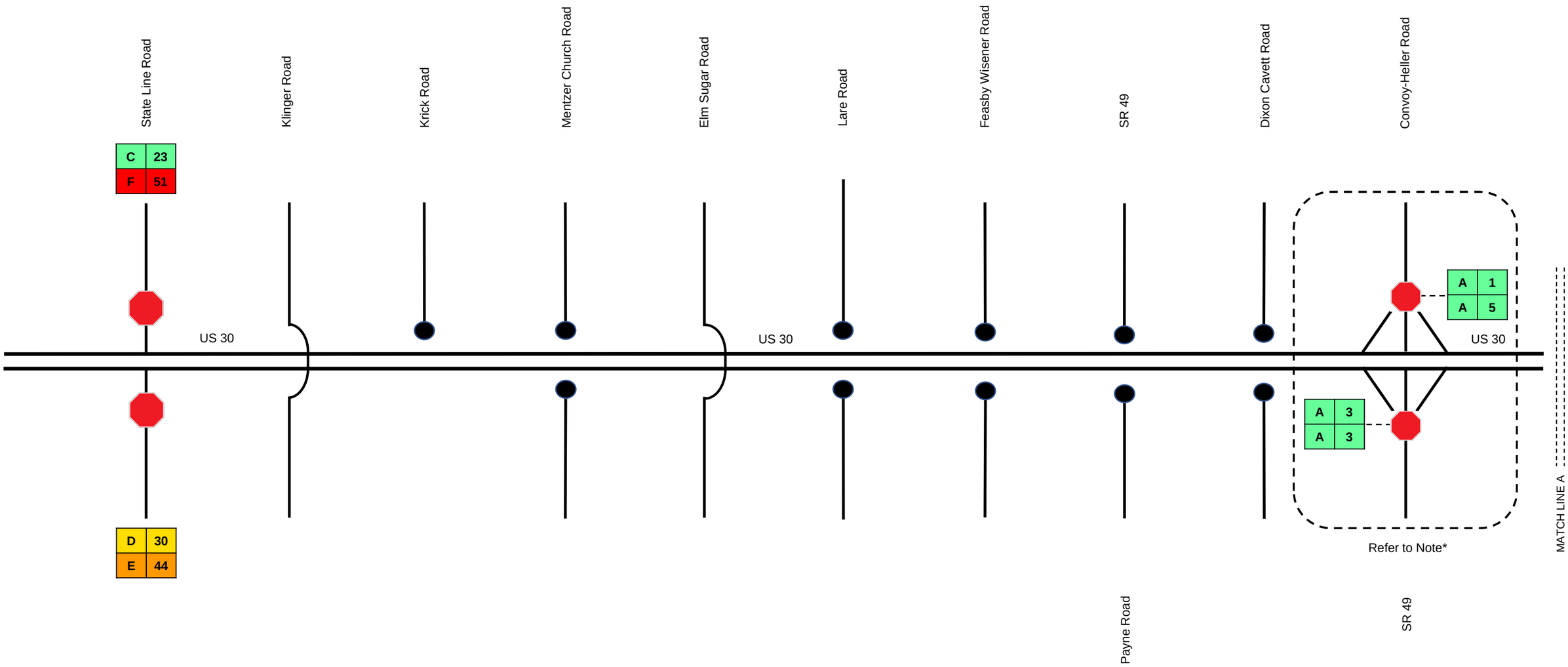
FIGURE 14 – Intersection HCS Results – 2047 Build Alternative – A.M. and P.M. Peak Hour



AM LOS / PM LOS — Signalized Intersection and Freeway Facility LOS

AM LOS / AM Delay / PM LOS / PM Delay — Unsignalized Intersection Approach LOS and Delay

LOS A
LOS B
LOS C
LOS D
LOS E
LOS F

Signalized Intersection
Roundabout Intersection
Stop-Controlled Intersection

* Figure 12 provides the results of the HCS capacity analysis for the interchanges.

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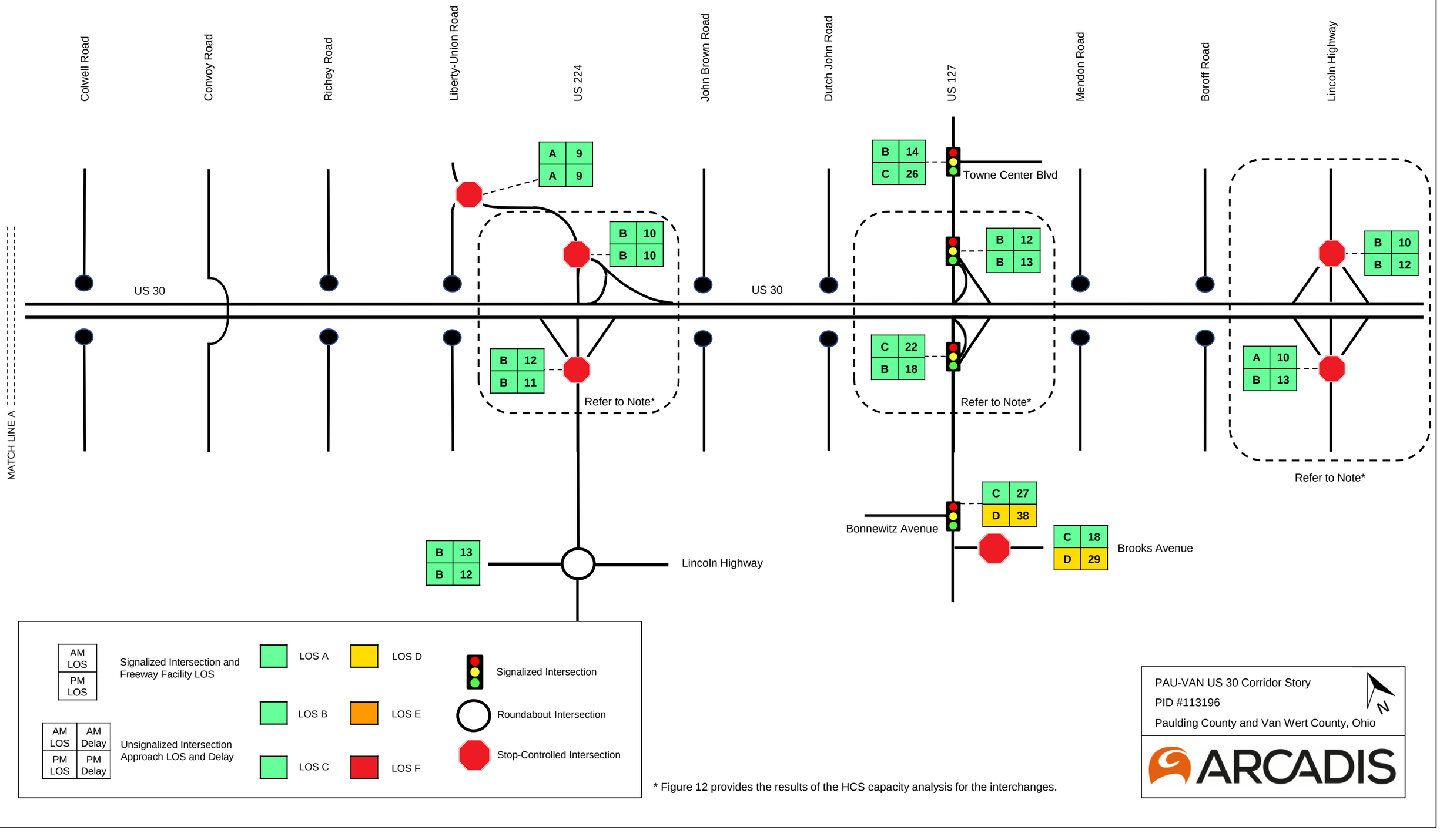
FIGURE 14 – Intersection HCS Results – 2047 Build Alternative – A.M. and P.M. Peak Hour



* Figure 12 provides the results of the HCS capacity analysis for the interchanges.

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5.5 Conceptual Estimate of Probable Cost

A conceptual estimate of probable cost to implement the build alternative was prepared using ODOT historical bid prices. Estimated construction costs were developed using estimated quantities for items that would be needed for or impacted by implementation of the build alternative.

The following assumptions were utilized in developing the conceptual estimate of probable cost:

- Unit prices for all items were estimated based on ODOT's Bid Data Item Search (2019-2022).
- A 35 percent design contingency was used.
- Because the potential construction start dates are not known, no inflation factor was added.

The total conceptual estimate of probable cost (without inflation) for the build alternative is $33,846,000, as shown in Table 13. The table also shows costs for three improvements not on U.S. 30. The total conceptual estimate of probable cost (without inflation) is $2,025,000 for the roundabout at U.S. 224 and Lincoln Highway, $9,180,000 to connect the existing U.S. 224 interchange to Liberty Union Road, and $1,215,000 for the corridor improvements on U.S. 127.

A detailed cost estimate is included in Appendix F.

Table 13. Conceptual Estimate of Probable Cost for the Build Alternative

Improvement	Construction Cost	Right-of-Way Required
Full Build Alternative	$33,846,000	15.02 acres
U.S. 224 at Lincoln Highway Roundabout*	$2,025,000	0.08 acre
U.S. 30 at U.S. 224 Interchange Upgrade*	$9,180,000	10.05 acres
U.S. 127 Corridor Improvements	$2,295,000	0.49 acre

Note: *Cost also included in Table 20 to tabulate short-term improvement package #2.

6 Short-Term Improvements

The long-term, long-range plan established by the build alternative may take decades to achieve. Therefore, a series of short-term improvements were identified to address safety issues sooner while the future vision for the U.S. 30 corridor is realized. The short-term improvements identified for U.S. 30 are illustrated on Figure 15 and described below.

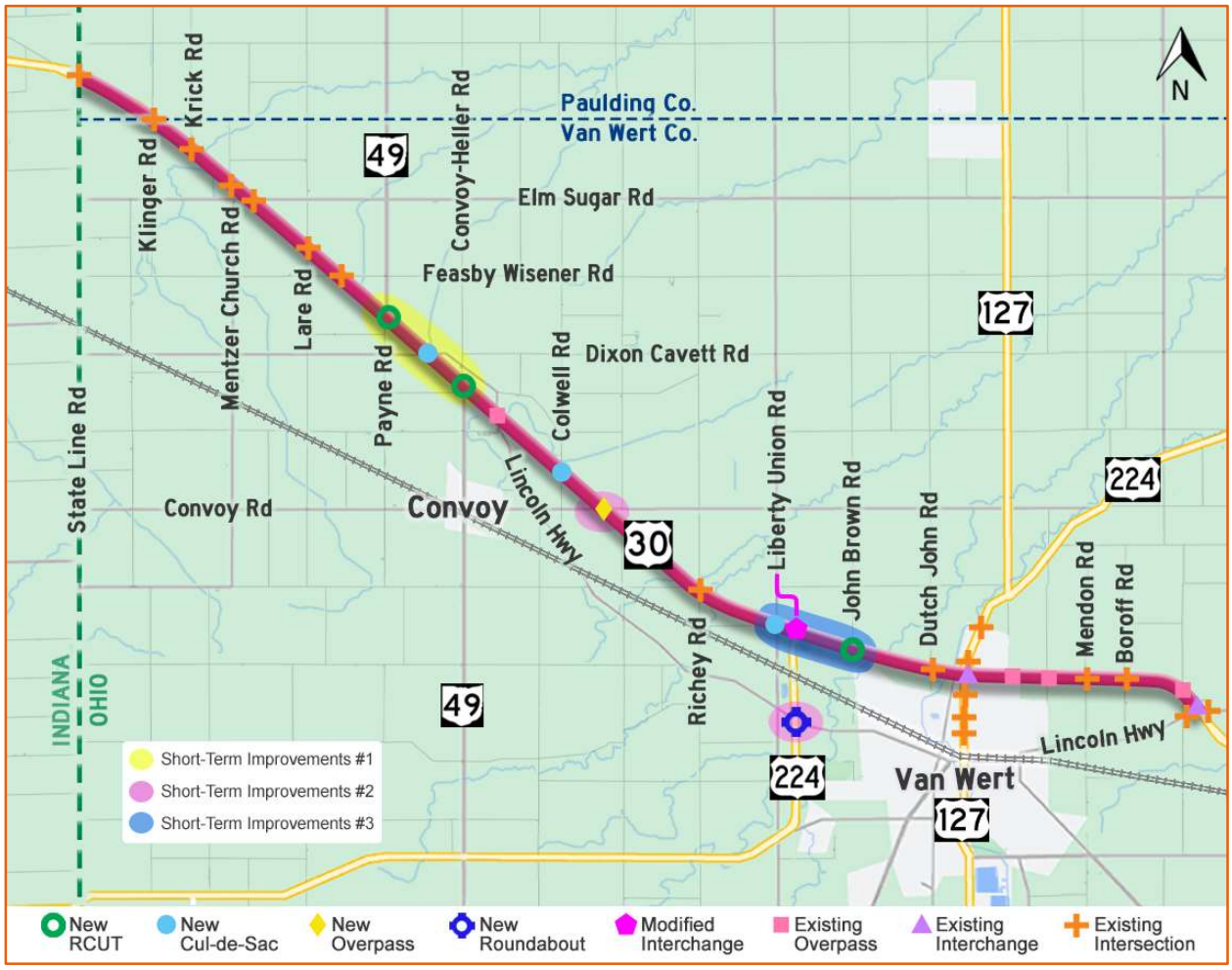


Figure 15. Short-Term Improvements

6.1 Roadway

The short-term improvements include three packages of improvements.

6.1.1 Short-Term Improvement #1

Short-term improvements will occur at the intersections of U.S. 30 with Payne Road/SR 49 (North), Dixon Cavett Road, and SR 49 (South)/Convoy-Heller Road. These three improvements must be performed together to achieve the anticipated safety gain and to maintain connectivity.

6.1.1.1 U.S. 30 and Payne Road (TR 47)/SR 49 (North)

The existing intersection of U.S. 30 and Payne Road/SR 49 (North) will be converted from a full-access at-grade intersection to a restricted crossing U-turn (RCUT). This configuration will maintain full access from U.S. 30 to Payne Road/SR 49 and restrict access from Payne Road/SR 49 to right turns only using concrete islands. Right-

turn lanes from U.S. 30 to the side road will be added in both directions. These turn lanes will be offset to allow a clear line of sight for traffic turning from the side road. U-turn lanes on U.S. 30 will be constructed 800 feet from the intersection to allow indirect left turns from the side road. The U-turns will be designed to accommodate large trucks and farm equipment. Details of this work are shown in drawings in Appendix E.

6.1.1.2 U.S. 30 and Dixon Cavett Road

The existing intersection of U.S. 30 and Dixon Cavett Road will be converted from a full-access at-grade intersection to a cul-de-sac as discussed in Section 5.1.2 or a right-in/right-out configuration.

6.1.1.3 U.S. 30 and Convoy-Heller Road (CR 55)/ SR 49 (South)

The existing intersection of U.S. 30 and Convoy-Heller Road/SR 49 (South) will be converted from a full-access at-grade intersection to an RCUT. This configuration will maintain full access from U.S. 30 to Convoy-Heller Road/SR 49 and restrict access from Payne Road/SR 49 to right turns only using concrete islands. Right-turn lanes from U.S. 30 to the side road will be added in both directions. These turn lanes will be offset to allow a clear line of sight for traffic turning from the side road. U-turn lanes on U.S. 30 will be constructed 800 feet from the intersection to allow indirect left turns from the side road. The U-turns will be designed to accommodate large trucks and farm equipment. Details of this work are shown on drawings in Appendix E.

6.1.2 Short-Term Improvement #2

Short-term improvements will occur at the intersection of U.S. 30 with Convoy Road (CR 168) and at the intersection of U.S. 224 and Lincoln Highway as discussed in Section 5.1.4 and Section 5.1.6.

6.1.3 Short-Term Improvement #3

Short-term improvements will occur at the intersections of U.S. 30 with Liberty Union Road, the U.S. 224 interchange, and John Brown Road. These three improvements must be performed together to achieve the anticipated safety gain and to maintain connectivity.

6.1.3.1 U.S. 30 and Liberty Union Road (CR 77)

The existing intersection of U.S. 30 and Liberty Union Road will be converted from a full-access at-grade intersection to a cul-de-sac on the north side. The south side will be connected directly to Terry Road (TR 160) with access to U.S. 30 removed. These improvements will be constructed as detailed in Section 5.1.2.

6.1.3.2 U.S. 30 at U.S. 224 Interchange Modification

The existing partial interchange of U.S. 30 and U.S. 127/U.S. 224 will be reconstructed to a full-access interchange. Details of this work are provided in Section 5.1.5.

6.1.3.3 U.S. 30 at John Brown Road (TR 83)

The existing intersection of U.S. 30 and John Brown Road will be converted from a full-access at-grade intersection to an RCUT. This configuration will maintain full access from U.S. 30 to John Brown Road and restrict

access from John Brown Road to U.S. 30 to right turns only using concrete islands. Right-turn lanes from U.S. 30 to the side road will be added in both directions. These turn lanes will be offset to allow a clear line of sight for traffic turning from the side road. U-turn lanes on U.S. 30 will be constructed 800 feet east of the intersection and 600 feet west of the intersection to allow indirect left turns from the side road. The U-turns will be designed to accommodate large trucks and farm equipment. Some acquisition of right-of-way may be required in the southwest quadrant for ditch relocation. Details of this work are shown on drawings in Appendix E.

6.2 Traffic Volumes

The planning-level DHVs used for the short-term alternative capacity analysis are the no-build alternative DHVs discussed in Section 4.2. The no-build alternative DHVs were selected because the build alternative DHVs assume all access to U.S. 30 is removed, which will not be the case when the short-term improvements are implemented.

The no-build alternative planning-level DHVs are included in Appendix B.

6.3 Safety

The Federal Highway Administration RCUT Intersection Informational Guide indicates that a stop-controlled RCUT intersection is a preferred safety treatment for isolated intersections on a four-lane roadway. The results of the safety analysis for short-term improvements are summarized below. A full printout from the ODOT ECAT is included in Appendix C.

6.3.1 Short-Term Improvement #1

The first group of short-term improvements converts the unsignalized intersection at SR 49/Payne Road to an RCUT, the unsignalized intersection at Dixon Cavett Road to a cul-de-sac, and the unsignalized intersection at SR 49/Convoy-Heller Road to an RCUT.

Table 14 presents a comparison of the existing intersections at SR 49/Payne Road, Dixon Cavett Road, and SR 49/Convoy-Heller Road ($N_{expected\ existing}$) to similar intersections ($N_{predicted\ existing}$) and to the RCUT/cul-de-sac alternatives ($N_{predicted\ proposed}$). The table shows that overall, these three intersections are functioning better than similar intersections by 0.22 crashes per year. There is potential for improvements in fatal and incapacitating injury (KA) crashes (0.07) and non-incapacitating injury (B) crashes (0.81). The table also shows that the overall crash frequency is predicted to decrease by 4.16 crashes per year..

Table 14. U.S. 30 at SR 49/Payne Road, Dixon Cavett Road & SR 49/Convoy Heller Road ECAT Results

Level of Service	KA	B	C	O	Total
$N_{predicted}$ (Existing Conditions)	0.38	0.38	1.49	4.98	7.23
$N_{expected}$ (Existing Conditions)	0.45	1.19	1.00	4.37	7.01
$N_{potential\ for\ improvement}$ (Existing Conditions)	0.07	0.81	-0.50	-0.61	-0.22
$N_{predicted}$ (Proposed Conditions)	0.11	0.11	0.43	2.20	2.85

ODOT's ECAT was also used to compare the cost to construct short-term improvements #1 to the anticipated safety benefit. The results of the benefit-cost analysis are shown in Table 15.

Table 15. U.S. 30 at SR 49/Payne Road, Dixon Cavett Road & SR 49/Convoy Heller Road Benefit-Cost Summary

Value	Result
Expected Annual Crash Adjustment	-4.38
Net Present Value of the Build Alternative	$6,075,000
Net Present Value of Safety Benefit	$3,913,995
Benefit-Cost Ratio	**0.64**

The build alternative shows a benefit-cost ratio less than 1.

6.3.2 Short-Term Improvement #2

The second group of short-term improvements converts the unsignalized intersection at Convoy Road to an overpass and converts the two-way unsignalized intersection at U.S. 224 and Lincoln Highway to a single-lane modern roundabout. The safety analysis for the roundabout at U.S. 224 and Lincoln Highway is included in Section 5.3.2.

Table 16 presents a comparison of the existing intersection at Convoy Road ($N_{expected\ existing}$) to similar intersections ($N_{predicted\ existing}$) and the overpass alternative ($N_{predicted\ proposed}$). The table shows that overall, the intersection of U.S. 30 and Convoy Road is functioning slightly better than similar intersections by 0.15 crashes per year. However, there is potential for improvement in non-incapacitating injury (B) crashes (0.08) associated with converting the intersection to an overpass. The table also shows the overall crash frequency is predicted to decrease by 0.87 crashes per year.

Table 16. U.S. 30 at Convoy Road ECAT Results

Level of Service	KA	B	C	O	Total
$N_{predicted}$ (Existing Conditions)	0.09	0.09	0.37	1.21	1.75
$N_{expected}$ (Existing Conditions)	0.06	0.16	0.16	1.21	1.60
$N_{potential\ for\ improvement}$ (Existing Conditions)	-0.03	0.08	-0.21	0.00	-0.16
$N_{predicted}$ (Proposed Conditions)	0.04	0.04	0.14	0.50	0.73

ODOT's ECAT was also used to compare the cost to construct the overpass to the anticipated safety benefit. The results of the benefit-cost analysis are shown in Table 17.

Table 17. U.S. 30 at Convoy Road Benefit-Cost Summary

Value	Result
Expected Annual Crash Adjustment	-1.03
Net Present Value of the Build Alternative	$5,370,000
Net Present Value of Safety Benefit	$766,183
Benefit-Cost Ratio	**0.14**

The build alternative shows a benefit-cost ratio less than 1.

6.3.3 Short-Term Improvement #3

The third group of short-term improvements converts John Brown Road to an RCUT, converts the unsignalized intersection at Liberty Union Road to a cul-de-sac, and connects the existing U.S. 224 interchange to Liberty Union Road north of U.S. 30.

Table 18 presents a comparison of the existing intersection of U.S. 30 at John Brown Road ($N_{expected\ existing}$) to similar intersections ($N_{predicted\ existing}$) and to the RCUT alternative ($N_{predicted\ proposed}$). The table shows that overall, the intersection of U.S. 30 and John Brown Road is functioning slightly worse than similar intersections by 0.03 crashes per year. There is potential for safety improvement in non-incapacitating injury (B) crashes (0.17) associated with converting the intersection to an RCUT. The table also shows that the overall crash frequency is predicted to decrease by 1.26 crashes per year.

Table 18. U.S. 30 at John Brown Road ECAT Results

Level of Service	KA	B	C	O	Total
$N_{predicted}$ (Existing Conditions)	0.10	0.10	0.40	1.30	1.89
$N_{expected}$ (Existing Conditions)	0.10	0.26	0.25	1.30	1.92
$N_{potential\ for\ improvement}$ (Existing Conditions)	0.00	0.17	-0.15	0.00	0.02
$N_{predicted}$ (Proposed Conditions)	0.03	0.06	0.03	0.54	0.66

ODOT's ECAT was also used to compare the cost to construct the RCUT to the anticipated safety benefit. The results of the benefit-cost analysis are shown in Table 19.

Table 19. U.S. 30 at John Brown Road Benefit-Cost Summary

Value	Result
Expected Annual Crash Adjustment	-1.24
Net Present Value of the Build Alternative	$2,430,000
Net Present Value of Safety Benefit	$1,398,992
Benefit-Cost Ratio	**0.58**

The build alternative shows a benefit-cost ratio less than 1.

Table 20 presents a comparison of the existing intersection of U.S. 30 at Liberty Union Road ($N_{expected\ existing}$) to similar intersections ($N_{predicted\ existing}$) and to the cul-de-sac alternative ($N_{predicted\ proposed}$). The table shows that overall, the intersection of U.S. 30 and Liberty Union Road is functioning slightly worse than similar intersections by 0.3 crashes per year. There is potential for safety improvement in in fatal and incapacitating injury (KA) crashes (0.05) and non-incapacitating injury (B) crashes (0.25). The table also shows that the overall crash frequency is predicted to decrease by 1.66 crashes per year.

Table 20. U.S. 30 at Liberty Union Road ECAT Results

Level of Service	KA	B	C	O	Total
$N_{predicted}$ (Existing Conditions)	0.07	0.07	0.30	1.04	1.49
$N_{expected}$ (Existing Conditions)	0.12	0.32	0.31	1.04	1.79
$N_{potential\ for\ improvement}$ (Existing Conditions)	0.05	0.25	0.01	0.00	0.30
$N_{predicted}$ (Proposed Conditions)	0.01	0.01	0.01	0.12	0.13

ODOT's ECAT was also used to compare the cost to close the intersection to the anticipated safety benefit. The results of the benefit-cost analysis are shown in Table 21.

Table 21. U.S. 30 at Liberty Union Road Benefit-Cost Summary

Value	Result
Expected Annual Crash Adjustment	-1.35
Net Present Value of the Build Alternative	$945,000
Net Present Value of Safety Benefit	$1,244,303
Benefit-Cost Ratio	**1.32**

The build alternative shows a benefit-cost ratio greater than 1.

6.4 Capacity Analysis

As discussed in Section 5.4, a traffic capacity analysis, using HCS, is the primary method for evaluating the efficiency of a roadway, with the LOS results designated by the letters A through F. The capacity analysis for the RCUT improvements included in the short-term alternatives was performed to determine the delay at each location for open and design year conditions in the a.m. and p.m. peak hours. The HCS analysis results are summarized below and included in Appendix D.

An RCUT intersection differs from a traditional intersection by eliminating and rerouting left-turn and through movements from minor street approaches. To accommodate the left-turn and through movements, drivers must turn right from the side street onto the main road and then make a U-turn maneuver at a one-way median opening approximately 400 feet after the intersection. An RCUT intersection can be signalized, stop-controlled, or merge/yield-controlled. This study addresses only stop-controlled RCUT intersections.

6.4.1 Short-Term Improvement #1

The first group of short-term improvements converts the unsignalized intersection at SR 49/Payne Road to an RCUT, the unsignalized intersection at Dixon Cavett Road to a cul-de-sac, and the unsignalized intersection at SR 49/Convoy-Heller Road to an RCUT.

Figure 16 shows that the RCUT at SR 49/Payne Road operates at LOS C or LOS D. The northbound approach is predicted to operate at LOS C in 2027 and 2047. In 2027, the southbound approach is predicted to operate at LOS C during the a.m. peak hour and LOS D during the p.m. peak hour. In 2047, operations on the southbound approach deteriorate to LOS D during the a.m. peak hour and remain at LOS D during the p.m. peak hour.

Figure 16 shows that the RCUT at SR 49/Convoy-Heller Road operates at LOS C or LOS D. The northbound approach is predicted to operate at LOS C in 2027 and LOS D in 2047. In 2027, the southbound approach is predicted to operate at LOS C during the a.m. and p.m. peak hours. In 2047, operations on the southbound approach remain LOS C during the a.m. peak hour but deteriorate to LOS D during the during the p.m. peak hour.

6.4.2 Short-Term Improvement #2

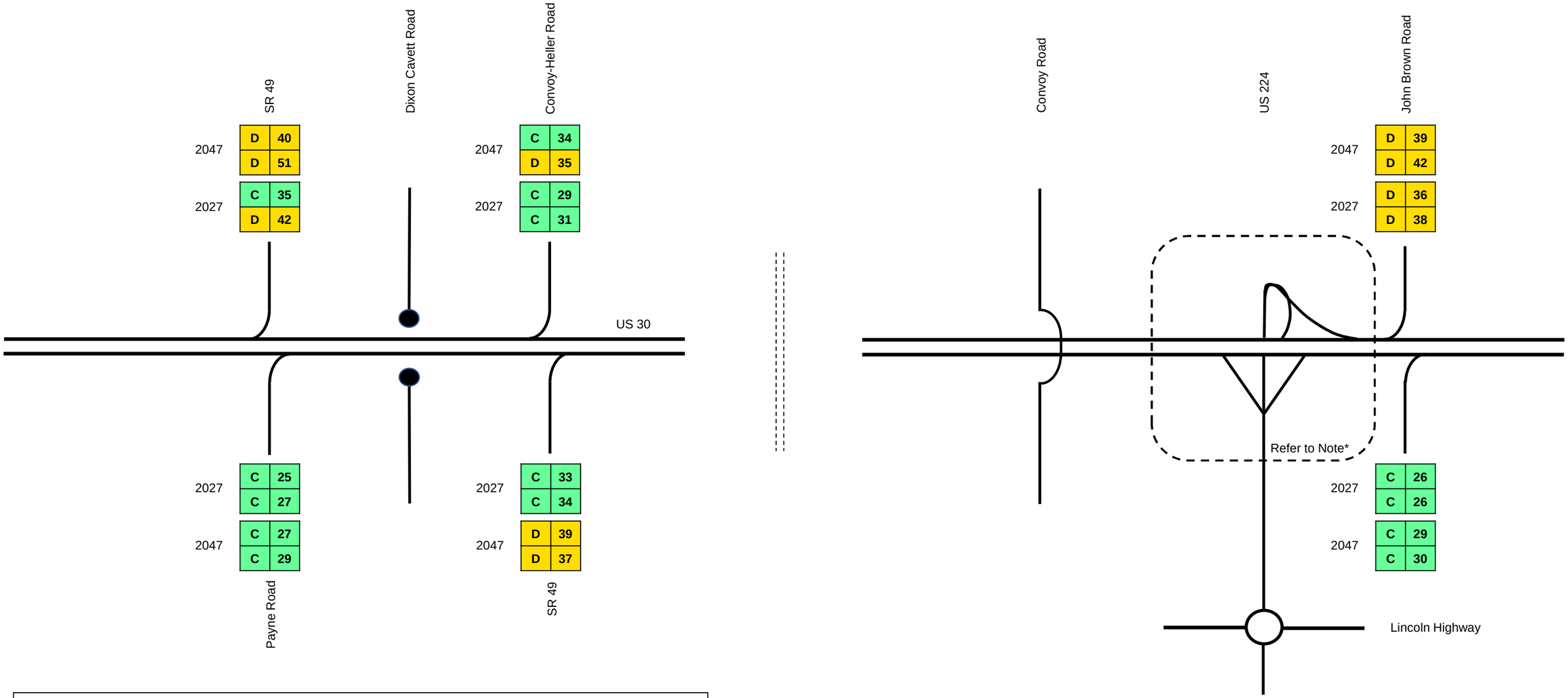
The second group of short-term improvements converts the unsignalized intersection at Convoy Road to an overpass and converts the two-way unsignalized intersection at U.S. 224 and Lincoln Highway to a single-lane modern roundabout. In 2027, the roundabout is predicted to operate at LOS A during the a.m. and p.m. peak hours, as shown on Figure 13. In 2047, the roundabout is predicted to operate at LOS B during the a.m. and p.m. peak hours, as shown on Figure 14.

6.4.3 Short-Term Improvement #3

The third group of short-term improvements converts the unsignalized intersection at Liberty Union Road to a cul-de-sac, connects the existing U.S. 224 interchange to Liberty Union Road north of U.S. 30, and converts John Brown Road to an RCUT.

Figure 16 shows that the RCUT at John Brown Road operates at LOS C or LOS D. The northbound approach is predicted to operate at LOS C in 2027 and 2047. In 2027, the southbound approach is predicted to operate at LOS D during the a.m. and p.m. peak hours. In 2047, operations on the southbound approach deteriorate to LOS D during the a.m. peak hour and remain at LOS D during the during the p.m. peak hour.

FIGURE 16 – RCUT HCS Results – 2027 & 2047 Short-Term Build Alternative – A.M. and P.M. Peak Hour



* Figures 11 and 12 provide the results of the HCS capacity analysis for the interchanges.

PAU-VAN US 30 Corridor Story
PID #113196
Paulding County and Van Wert County, Ohio

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6.5 Conceptual Estimate of Probable Cost

The assumptions used to develop the conceptual estimate of probable cost are discussed in Section 5.5. The total conceptual estimate of probable cost (without inflation) for each of the short-term improvements is provided in Table 20.

A detailed cost estimate is included in Appendix F.

Table 22. Conceptual Estimate of Probable Cost for Short-Term Improvements

Package	Improvement	Construction Cost	Right-of-Way Required
1	SR 49/Payne Road RCUT	$2,970,000	0.10 acre
	Dixon Cavett Road Cul-de-Sac	$540,000	0.00 acre
	SR 49/Convoy-Heller Road RCUT	$2,565,000	0.00 acre
2	Convoy Road Overpass	$5,370,000	1.15 acre
	U.S. 224 at Lincoln Highway Roundabout	$2,025,000	0.08 acre
3	Liberty Union Road Cul-de-Sac	$945,000	0.00 acre
	John Brown Road RCUT	$2,430,000	0.34 acre
	U.S. 30 at U.S. 224 Interchange Upgrade	$9,180,000	10.05 acres

7 Environmental Summary

This section discusses the Red Flag Summary and the public involvement process.

7.1 Environmental Impacts

ODOT District 1 Environmental completed a Red Flag Summary of environmental resources for the study (December 2021). Literature review level of information was assessed for each existing intersection along the corridor as well as identified reroute locations. The Red Flag Summary is included in Appendix G. Public involvement documentation and records of the public meetings are included in Appendix H.

7.2 Public Involvement

Two rounds of stakeholder meetings and one round of public meetings were held during this phase of the study. The meetings were held on the following dates and at the following locations.

Stakeholder Meetings – First Round

- Tuesday, August 3, 2021, 1:00 – 2:00 p.m.

  Vantage Career Center Community Room, 818 North Franklin Street, Van Wert, OH 45891

- Tuesday, August 3, 2021, 5:00 – 6:00 p.m.

  Convoy Community Building, 643 North Main Street, Convoy, OH 45832

Stakeholder Meetings – Second Round

- Wednesday, February 16, 2022, 1:00 – 3:00 p.m.

  Convoy Community Building, 643 North Main Street, Convoy, OH 45832

- Wednesday, February 16, 2022, 5:00 – 7:00 p.m.

  Convoy Community Building, 643 North Main Street, Convoy, OH 45832

Public Meetings

- Wednesday, October 19, 2022, 12:30 – 2:30 p.m.

  Convoy Community Building, 643 North Main Street, Convoy, OH 45832

- Wednesday, October 19, 2022, 5:00 – 7:00 p.m.

  Convoy Community Building, 643 North Main Street, Convoy, OH 45832

A webpage was created on ODOT's District 1 website (https://www.transportation.ohio.gov/projects/projects/113196). The webpage included the materials presented at each meeting, such as pre-recorded presentations, handouts, exhibits, downloadable comment form, online comment form, and other related documents. All notifications for the study included a link to this webpage.

7.2.1 Stakeholder Meetings – First Round

Notification letters and emails were sent to adjacent/affected property owners and residents, local elected officials and municipal administrators, emergency and safety services agencies, and businesses near the study area. The letter and email informed recipients of the upcoming stakeholder meeting and included a frequently asked questions (FAQ) sheet and printable comment form.

The first round of stakeholder meetings was held on Tuesday, August 3, 2021. The first meeting was held at the Vantage Career Center from 1:00 to 2:00 p.m. The second meeting was held at the Convoy Community Building from 5:00 to 6:00 p.m. The entire corridor with the study area was discussed at both meetings, with a focus on the "eastern" corridor at the first meeting and the "western" corridor at the second meeting. The purpose of the first set of meetings was to introduce the study, including the purpose and need for the study; review the project development process; discuss next steps; and provide direction for submitting comments. The goal of the meetings was to learn more about stakeholder concerns prior to developing feasible alternatives. The stakeholder comment period began on August 3, 2021 and concluded on September 3, 2021.

In total, there were 47 stakeholder meeting attendees. During the stakeholder meetings and comment period, 49 comments were received: 28 comments were received verbally during the meetings, 9 comments were received via mailed letter, 5 comments were received via email, 4 comments were received via telephone, 2 comments were received via comment forms at the meetings, and 1 comment was received via the project website.

Many comments received requested general information about the study, including how crash data were collected, what data were included, and the intended outcome of the study. Other comments received were

related to concerns about speed on the corridor and impacts to farms as a result of removing access at certain at-grade intersections. Additional comments received were supportive of the study and recognized that there are safety issues along the corridor that need to be addressed. All comments received during this phase of public involvement were responded to on a rolling basis as they were received.

Comments received at the first meeting were taken into consideration when developing initial draft feasible alternatives. The draft alternatives were then presented to stakeholders at the second round of meetings.

7.2.2 Stakeholder Meetings – Second Round

Notification letters and emails were sent to the first-round stakeholder meeting attendees as well as the initial stakeholder list. The letter and email informed recipients of the upcoming stakeholder meeting and included a FAQ sheet and printable comment form.

The second round of stakeholder meetings was held on Wednesday, February 16, 2022. Both meetings were held at the Convoy Community Building; the first meeting was held from 1:00 to 3:00 p.m. and the second meeting was held from 5:00 to 7:00 p.m. The same information was presented and discussed at both meetings. The purpose of the second set of meetings was to present the initial draft alternatives for the corridor, discuss next steps, and provide information on how to submit comments. The goal of the meetings was to receive feedback on the draft alternatives prior to presenting updated recommended alternatives to the public. The stakeholder comment period began on February 16, 2022 and concluded on March 16, 2022.

In total, there were 36 stakeholder meeting attendees. During the stakeholder meetings and comment period, 44 comments were received: 28 comments were received verbally during the meetings, 6 comments were received via email, 4 comments were received via mailed letter, 2 comments were received via comment forms at the meetings, 2 comments were received via telephone, and 2 comments were received via the project website.

Many comments received during the second round of stakeholder engagement were related to the interchange alternatives proposed for the intersection of U.S. 30 and Payne Road, U.S. 30 and Dixon Cavett Road, and U.S. 30 and Convoy-Heller Road as well as the associated reroutings. Most comments were supportive of the interchange at Convoy-Heller Road/SR 49. Comments also indicated concern about the proposed closure/cul-de-sac at Liberty Union, the need for additional overpasses to maintain access across U.S. 30, and suggestions for short-term countermeasures (RCUTS, right-in/right-out, etc.) to improve safety while still providing access to U.S. 30. All comments received during this phase of public involvement were responded to on a rolling basis as they were received.

Based on comments received from stakeholders and additional analysis from the project team, the draft alternatives were updated prior to being presented at the public meeting. The stakeholders recommended that the interchange be located at U.S. 30 and Convoy-Heller Road/SR 49 and additional rerouting options and overpass locations would be studied.

7.2.3 Public Meetings

Notification letters and emails were sent to the first- and second-round stakeholder meeting attendees as well as the initial stakeholder list. The letter and email informed recipients of the upcoming public meeting and included a printed comment form. A press release was also issued via the ODOT District 1 email distribution list. Local media outlets including WKSD Radio and the *Van Wert Independent* advertised the meeting as well.

The public meetings were held on Wednesday, October 19, 2022. Both meetings were held at the Convoy Community Building; the first meeting was held from 12:30 to 2:30 p.m. and the second meeting was held from 5:00 to 7:00 p.m. The same information was presented and discussed at both meetings. The purpose of the public meetings was to provide information on the study, present the draft recommended alternatives for the corridor, discuss next steps, and provide information on how to submit comments. The goal of the meetings was to receive feedback on the alternatives prior to finalizing the study. The public comment period began on October 19, 2022 and concluded on November 21, 2022.

In total, there were 93 public meeting attendees. During the public meetings and comment period, 98 comments were received: 45 comments were received verbally during the meetings, 16 comments were received via comment forms at the meetings, 12 comments were received on the corridor scroll plots available at the meeting, 9 comments were received via email, 8 comments were received via the project website, 4 comments were received via mailed letter, 3 comments were received via social media, and 1 comment was received via telephone.

Many comments received during the public meetings were related to the interchange alternative for the intersection of U.S. 30 and Convoy-Heller Road and the associated rerouting options. Most comments were supportive of the interchange at Convoy-Heller Road/SR 49, but indicated concerns with the rerouting locations, lengths, and/or impacts. The project team had asked attendees to provide suggested locations for an additional overpass. Many comments received favored an additional overpass at Liberty Union Road, John Brown Road, and/or Klinger Road. All comments received during this phase of public involvement were responded to on a rolling basis.

Based on comments received from the public and stakeholders and additional analysis from the project team, the draft alternatives were updated for inclusion in the feasibility study. An additional overpass at Klinger Road, a modified interchange at Liberty Union Road, and a cul-de-sac at John Brown Road were recommended in the updated draft alternatives. Short-term countermeasures were also recommended and include the installation of RCUTs at specific locations.

8 Summary and Recommendations

The preferred alternative establishes a long-range vision for a limited-access U.S. 30 corridor. It maintains the existing at-grade unsignalized intersection at State Line Road; closes 13 of the 18 at-grade unsignalized intersections; builds new overpasses at Klinger Road, Elm Sugar Road, and Convoy Road; constructs a new interchange at SR 49/Convoy-Heller Road; and connects U.S. 224 to Liberty Union Road on the north side of U.S. 30. The traffic capacity analysis indicates that the interchanges will continue to operate at free flow speeds even after traffic is rerouted from the closed at-grade intersections to the interchanges. The safety analysis indicates the preferred alternative may decrease crashes on U.S. 30 by 22 to 23 per year and closing the at-grade access points will potentially reduce the number of wrong-way incidents reported to OSHP each year.

In addition, a series of short-term improvements are proposed to benefit traffic operations and safety in the near future, ahead of the long-range plan for the preferred alternative. The short-term improvements include converting the intersection at SR 49/Payne Road to an RCUT, closing the intersection at Dixon Cavett Road, converting the intersection at SR 49/Convoy-Heller Road to an RCUT, constructing an overpass at Convoy Road, converting the intersection of U.S. 224 and Lincoln Highway to a single-lane modern roundabout, closing the intersection at

Liberty Union Road, and converting the intersection at John Brown Road to an RCUT. The traffic capacity analysis and the safety analysis indicate that the intersections will operate at LOS C or LOS D and the safety analysis indicates that the frequency of crashes may potentially be reduced as a result of these short-term improvements.

Arcadis U.S., Inc.
1111 Superior E, Suite 1300
Cleveland
Ohio 44114
Phone: 216 781 6177
Fax: 216 781 6243
www.arcadis.com

Appendix A

Existing Traffic Volume Data

Appendix A

Existing Traffic Volume Data - U.S. 30

Ohio DOT - Traffic Operations
1606 West Broad Street

Columbus, Ohio, United States 43223
+16144667170 D01trafficcounts@dot.ohio.gov

Count Name: PAU-30-0.00
Site Code:
Start Date: 01/12/2021

Turning Movement Data

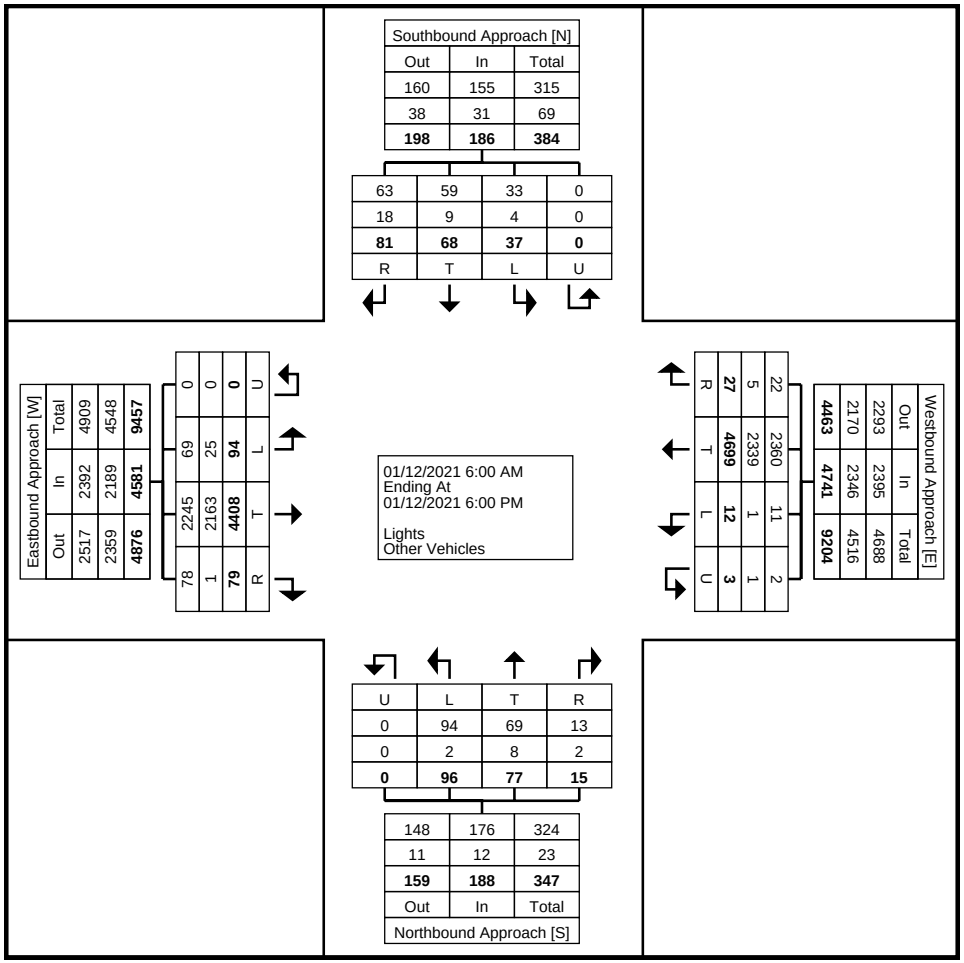
Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
6:00 AM	1	0	1	0	2	0	68	0	0	68	0	2	3	0	5	1	34	1	0	36	111
6:15 AM	1	2	0	0	3	0	87	1	0	88	0	0	6	0	6	2	60	0	0	62	159
6:30 AM	2	1	1	0	4	0	86	1	0	87	2	2	6	0	10	1	71	0	0	72	173
6:45 AM	3	0	1	0	4	1	105	2	0	108	0	3	4	0	7	0	73	1	0	74	193
Hourly Total	7	3	3	0	13	1	346	4	0	351	2	7	19	0	28	4	238	2	0	244	636
7:00 AM	1	0	1	0	2	0	80	1	0	81	2	1	5	0	8	0	56	1	0	57	148
7:15 AM	3	3	1	0	7	0	95	0	0	95	0	0	9	0	9	0	83	0	0	83	194
7:30 AM	2	1	0	0	3	0	89	0	0	89	1	3	5	0	9	0	103	1	0	104	205
7:45 AM	3	3	0	0	6	0	86	1	0	87	0	0	7	0	7	1	68	1	0	70	170
Hourly Total	9	7	2	0	18	0	350	2	0	352	3	4	26	0	33	1	310	3	0	314	717
8:00 AM	1	1	2	0	4	0	81	0	0	81	0	2	1	0	3	0	85	2	0	87	175
8:15 AM	0	1	0	0	1	0	75	1	0	76	0	3	1	0	4	0	80	0	0	80	161
8:30 AM	4	3	4	0	11	0	88	1	1	90	0	1	3	0	4	2	89	0	0	91	196
8:45 AM	3	1	0	0	4	0	115	0	0	115	0	1	1	0	2	1	72	0	0	73	194
Hourly Total	8	6	6	0	20	0	359	2	1	362	0	7	6	0	13	3	326	2	0	331	726
9:00 AM	4	0	2	0	6	1	99	0	0	100	0	0	0	0	0	1	63	2	0	66	172
9:15 AM	2	0	1	0	3	2	90	0	0	92	0	0	1	0	1	0	89	3	0	92	188
9:30 AM	1	1	0	0	2	0	71	0	0	71	0	1	1	0	2	0	85	1	0	86	161
9:45 AM	0	0	1	0	1	1	90	0	0	91	0	2	2	0	4	1	78	1	0	80	176
Hourly Total	7	1	4	0	12	4	350	0	0	354	0	3	4	0	7	2	315	7	0	324	697
10:00 AM	2	3	0	0	5	0	107	0	0	107	0	2	0	0	2	0	82	2	0	84	198
10:15 AM	1	0	2	0	3	1	86	0	0	87	0	1	2	0	3	2	83	3	0	88	181
10:30 AM	1	1	0	0	2	1	88	0	0	89	0	1	0	0	1	0	87	4	0	91	183
10:45 AM	5	0	0	0	5	0	113	0	0	113	1	0	2	0	3	0	69	2	0	71	192
Hourly Total	9	4	2	0	15	2	394	0	0	396	1	4	4	0	9	2	321	11	0	334	754
11:00 AM	0	0	2	0	2	0	110	1	0	111	0	0	1	0	1	1	96	2	0	99	213
11:15 AM	2	1	0	0	3	0	103	0	0	103	0	1	0	0	1	1	91	2	0	94	201
11:30 AM	0	0	0	0	0	1	101	0	0	102	0	0	0	0	0	1	97	2	0	100	202
11:45 AM	2	0	0	0	2	0	114	0	0	114	0	1	2	0	3	0	90	2	0	92	211
Hourly Total	4	1	2	0	7	1	428	1	0	430	0	2	3	0	5	3	374	8	0	385	827
12:00 PM	2	0	2	0	4	0	94	0	0	94	0	1	3	0	4	1	97	1	0	99	201
12:15 PM	0	0	4	0	4	0	107	0	0	107	0	1	2	0	3	0	95	3	0	98	212
12:30 PM	2	2	0	0	4	0	88	0	0	88	0	0	0	0	0	1	97	4	0	102	194
12:45 PM	4	3	0	0	7	0	87	1	0	88	0	1	0	0	1	1	85	1	0	87	183
Hourly Total	8	5	6	0	19	0	376	1	0	377	0	3	5	0	8	3	374	9	0	386	790
1:00 PM	2	5	0	0	7	1	116	0	1	118	0	0	2	0	2	3	88	1	0	92	219

1:15 PM	0	2	0	0	2	1	102	0	0	103	1	1	2	0	4	0	81	1	0	82	191
1:30 PM	1	2	0	0	3	1	87	0	0	88	0	0	2	0	2	5	109	2	0	116	209
1:45 PM	0	1	0	0	1	0	101	0	0	101	0	0	0	0	0	0	98	2	0	100	202
Hourly Total	3	10	0	0	13	3	406	0	1	410	1	1	6	0	8	8	376	6	0	390	821
2:00 PM	1	1	1	0	3	2	92	0	0	94	0	2	2	0	4	1	101	6	0	108	209
2:15 PM	1	1	1	0	3	0	91	1	0	92	0	2	5	0	7	1	92	1	0	94	196
2:30 PM	0	3	3	0	6	0	102	0	0	102	2	6	3	0	11	5	91	1	0	97	216
2:45 PM	2	2	0	0	4	0	96	0	0	96	1	0	1	0	2	1	84	2	0	87	189
Hourly Total	4	7	5	0	16	2	381	1	0	384	3	10	11	0	24	8	368	10	0	386	810
3:00 PM	1	1	1	0	3	0	100	0	0	100	1	2	0	0	3	1	83	1	0	85	191
3:15 PM	3	2	1	0	6	1	102	0	0	103	0	1	0	0	1	1	112	4	0	117	227
3:30 PM	2	2	1	0	5	1	97	0	0	98	1	5	1	0	7	3	108	6	0	117	227
3:45 PM	2	1	0	0	3	0	93	0	0	93	0	2	3	0	5	1	140	3	0	144	245
Hourly Total	8	6	3	0	17	2	392	0	0	394	2	10	4	0	16	6	443	14	0	463	890
4:00 PM	0	4	0	0	4	2	106	1	0	109	1	2	0	0	3	4	128	4	0	136	252
4:15 PM	1	1	0	0	2	2	124	0	0	126	0	3	3	0	6	3	107	3	0	113	247
4:30 PM	0	5	0	0	5	3	109	0	0	112	0	0	1	0	1	3	132	3	0	138	256
4:45 PM	4	1	2	0	7	1	126	0	0	127	0	8	0	0	8	6	123	1	0	130	272
Hourly Total	5	11	2	0	18	8	465	1	0	474	1	13	4	0	18	16	490	11	0	517	1027
5:00 PM	2	1	0	0	3	3	111	0	0	114	0	3	2	0	5	9	120	4	0	133	255
5:15 PM	2	5	0	0	7	1	126	0	0	127	0	2	2	0	4	3	118	2	0	123	261
5:30 PM	5	1	2	0	8	0	128	0	0	128	2	6	0	0	8	7	110	3	0	120	264
5:45 PM	0	0	0	0	0	0	87	0	1	88	0	2	0	0	2	4	125	2	0	131	221
Hourly Total	9	7	2	0	18	4	452	0	1	457	2	13	4	0	19	23	473	11	0	507	1001
Grand Total	81	68	37	0	186	27	4699	12	3	4741	15	77	96	0	188	79	4408	94	0	4581	9696
Approach %	43.5	36.6	19.9	0.0	-	0.6	99.1	0.3	0.1	-	8.0	41.0	51.1	0.0	-	1.7	96.2	2.1	0.0	-	-
Total %	0.8	0.7	0.4	0.0	1.9	0.3	48.5	0.1	0.0	48.9	0.2	0.8	1.0	0.0	1.9	0.8	45.5	1.0	0.0	47.2	-
Lights	63	59	33	0	155	22	2360	11	2	2395	13	69	94	0	176	78	2245	69	0	2392	5118
% Lights	77.8	86.8	89.2	-	83.3	81.5	50.2	91.7	66.7	50.5	86.7	89.6	97.9	-	93.6	98.7	50.9	73.4	-	52.2	52.8
Other Vehicles	18	9	4	0	31	5	2339	1	1	2346	2	8	2	0	12	1	2163	25	0	2189	4578
% Other Vehicles	22.2	13.2	10.8	-	16.7	18.5	49.8	8.3	33.3	49.5	13.3	10.4	2.1	-	6.4	1.3	49.1	26.6	-	47.8	47.2

Ohio DOT - Traffic Operations
1606 West Broad Street

Columbus, Ohio, United States 43223
+16144667170 D01trafficcounts@dot.ohio.gov

Count Name: PAU-30-0.00
Site Code:
Start Date: 01/12/2021



Turning Movement Data Plot

Ohio DOT - Traffic Operations
1606 West Broad Street

Columbus, Ohio, United States 43223
+16144667170 D01trafficcounts@dot.ohio.gov

Count Name: PAU-30-0.00
Site Code:
Start Date: 01/12/2021

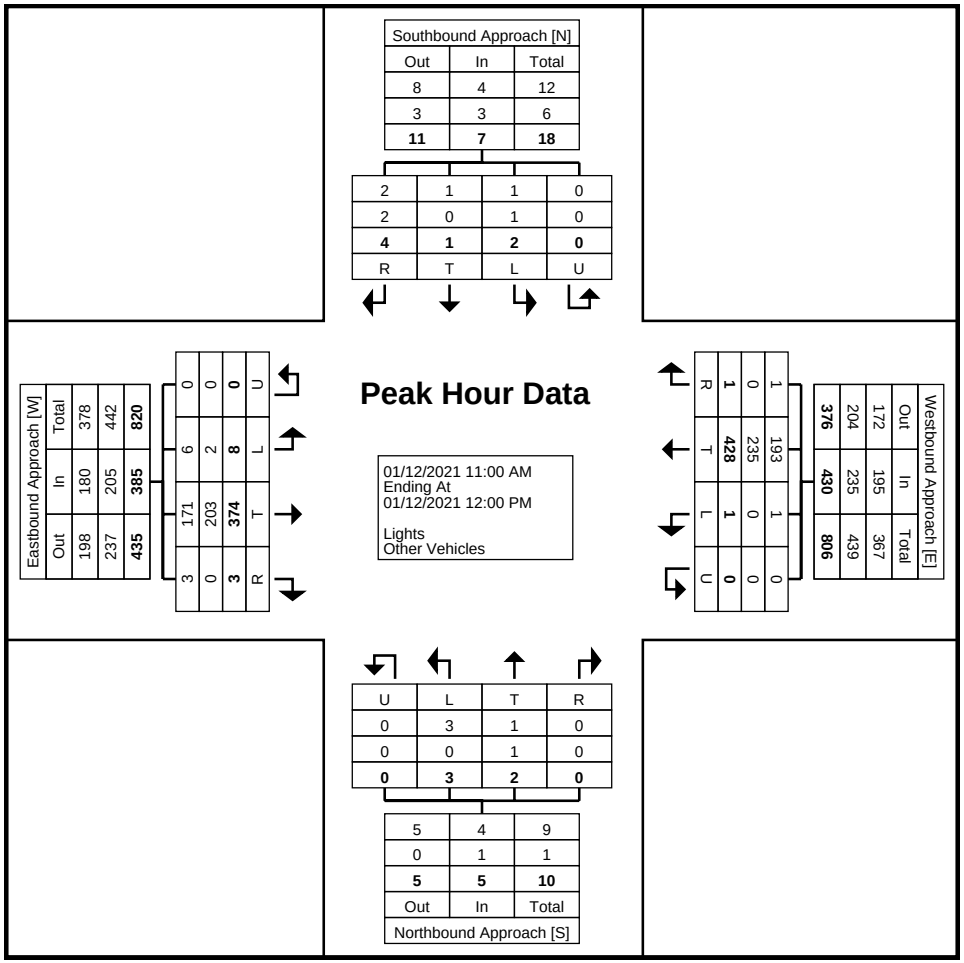
Turning Movement Peak Hour Data (11:00 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
11:00 AM	0	0	2	0	2	0	110	1	0	111	0	0	1	0	1	1	96	2	0	99	213
11:15 AM	2	1	0	0	3	0	103	0	0	103	0	1	0	0	1	1	91	2	0	94	201
11:30 AM	0	0	0	0	0	1	101	0	0	102	0	0	0	0	0	1	97	2	0	100	202
11:45 AM	2	0	0	0	2	0	114	0	0	114	0	1	2	0	3	0	90	2	0	92	211
Total	4	1	2	0	7	1	428	1	0	430	0	2	3	0	5	3	374	8	0	385	827
Approach %	57.1	14.3	28.6	0.0	-	0.2	99.5	0.2	0.0	-	0.0	40.0	60.0	0.0	-	0.8	97.1	2.1	0.0	-	-
Total %	0.5	0.1	0.2	0.0	0.8	0.1	51.8	0.1	0.0	52.0	0.0	0.2	0.4	0.0	0.6	0.4	45.2	1.0	0.0	46.6	-
PHF	0.500	0.250	0.250	0.000	0.583	0.250	0.939	0.250	0.000	0.943	0.000	0.500	0.375	0.000	0.417	0.750	0.964	1.000	0.000	0.963	0.971
Lights	2	1	1	0	4	1	193	1	0	195	0	1	3	0	4	3	171	6	0	180	383
% Lights	50.0	100.0	50.0	-	57.1	100.0	45.1	100.0	-	45.3	-	50.0	100.0	-	80.0	100.0	45.7	75.0	-	46.8	46.3
Other Vehicles	2	0	1	0	3	0	235	0	0	235	0	1	0	0	1	0	203	2	0	205	444
% Other Vehicles	50.0	0.0	50.0	-	42.9	0.0	54.9	0.0	-	54.7	-	50.0	0.0	-	20.0	0.0	54.3	25.0	-	53.2	53.7

Ohio DOT - Traffic Operations
1606 West Broad Street

Columbus, Ohio, United States 43223
+16144667170 D01trafficcounts@dot.ohio.gov

Count Name: PAU-30-0.00
Site Code:
Start Date: 01/12/2021



Turning Movement Peak Hour Data Plot (11:00 AM)

Ohio DOT - Traffic Operations
1606 West Broad Street

Columbus, Ohio, United States 43223
+16144667170 D01trafficcounts@dot.ohio.gov

Count Name: PAU-30-0.00
Site Code:
Start Date: 01/12/2021

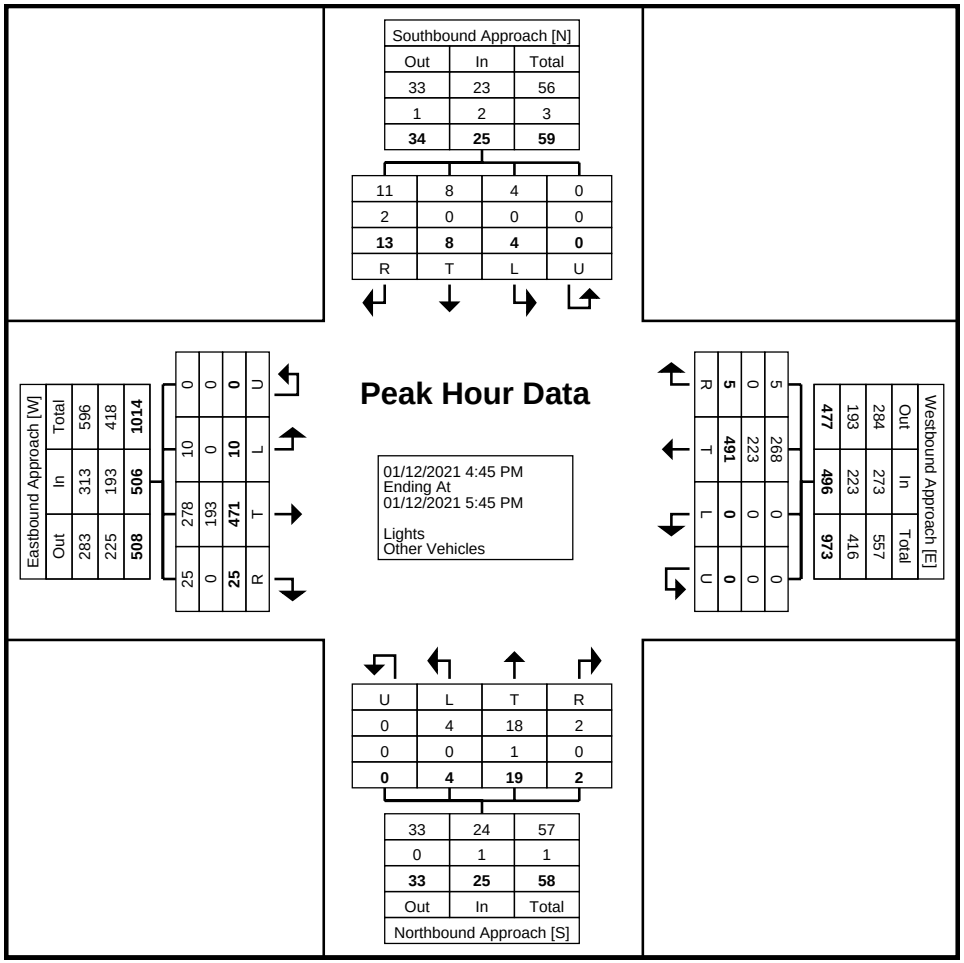
Turning Movement Peak Hour Data (4:45 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
4:45 PM	4	1	2	0	7	1	126	0	0	127	0	8	0	0	8	6	123	1	0	130	272
5:00 PM	2	1	0	0	3	3	111	0	0	114	0	3	2	0	5	9	120	4	0	133	255
5:15 PM	2	5	0	0	7	1	126	0	0	127	0	2	2	0	4	3	118	2	0	123	261
5:30 PM	5	1	2	0	8	0	128	0	0	128	2	6	0	0	8	7	110	3	0	120	264
Total	13	8	4	0	25	5	491	0	0	496	2	19	4	0	25	25	471	10	0	506	1052
Approach %	52.0	32.0	16.0	0.0	-	1.0	99.0	0.0	0.0	-	8.0	76.0	16.0	0.0	-	4.9	93.1	2.0	0.0	-	-
Total %	1.2	0.8	0.4	0.0	2.4	0.5	46.7	0.0	0.0	47.1	0.2	1.8	0.4	0.0	2.4	2.4	44.8	1.0	0.0	48.1	-
PHF	0.650	0.400	0.500	0.000	0.781	0.417	0.959	0.000	0.000	0.969	0.250	0.594	0.500	0.000	0.781	0.694	0.957	0.625	0.000	0.951	0.967
Lights	11	8	4	0	23	5	268	0	0	273	2	18	4	0	24	25	278	10	0	313	633
% Lights	84.6	100.0	100.0	-	92.0	100.0	54.6	-	-	55.0	100.0	94.7	100.0	-	96.0	100.0	59.0	100.0	-	61.9	60.2
Other Vehicles	2	0	0	0	2	0	223	0	0	223	0	1	0	0	1	0	193	0	0	193	419
% Other Vehicles	15.4	0.0	0.0	-	8.0	0.0	45.4	-	-	45.0	0.0	5.3	0.0	-	4.0	0.0	41.0	0.0	-	38.1	39.8

Ohio DOT - Traffic Operations
1606 West Broad Street

Columbus, Ohio, United States 43223
+16144667170 D01trafficcounts@dot.ohio.gov

Count Name: PAU-30-0.00
Site Code:
Start Date: 01/12/2021



Turning Movement Peak Hour Data Plot (4:45 PM)

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Klinger Rd
Site Code:
Start Date: 02/27/2019

Turning Movement Data

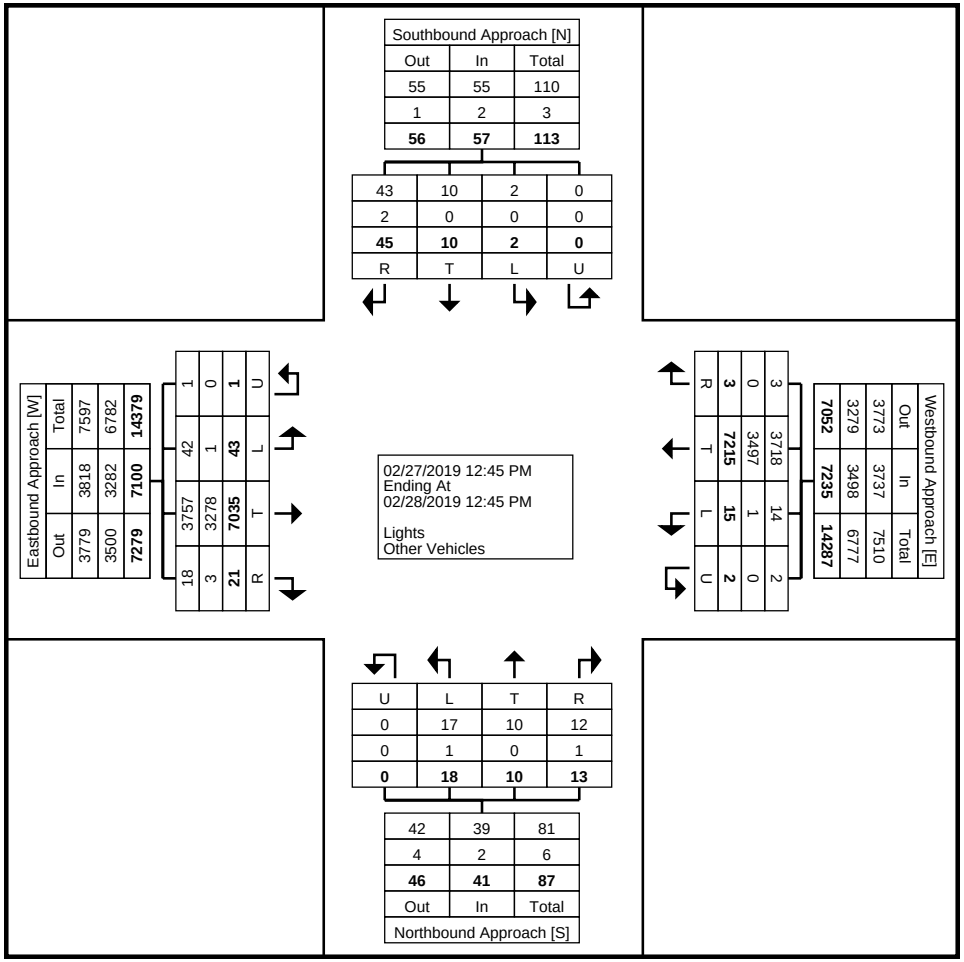
Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
12:45 PM	0	0	1	0	1	0	106	0	0	106	0	0	0	0	0	1	104	0	0	105	212
Hourly Total	0	0	1	0	1	0	106	0	0	106	0	0	0	0	0	1	104	0	0	105	212
1:00 PM	0	0	0	0	0	0	123	0	0	123	0	0	1	0	1	0	103	2	0	105	229
1:15 PM	0	0	0	0	0	0	123	0	0	123	0	0	0	0	0	0	87	0	0	87	210
1:30 PM	0	0	0	0	0	0	112	1	0	113	0	0	0	0	0	0	116	1	0	117	230
1:45 PM	0	0	0	0	0	0	105	1	0	106	0	0	0	0	0	0	118	1	0	119	225
Hourly Total	0	0	0	0	0	0	463	2	0	465	0	0	1	0	1	0	424	4	0	428	894
2:00 PM	1	0	0	0	1	1	121	0	0	122	1	0	0	0	1	0	106	1	0	107	231
2:15 PM	1	0	0	0	1	0	100	0	0	100	0	0	1	0	1	0	99	1	0	100	202
2:30 PM	2	0	0	0	2	0	117	0	0	117	0	0	0	0	0	0	123	1	0	124	243
2:45 PM	1	0	0	0	1	0	108	2	0	110	1	0	0	0	1	1	124	1	0	126	238
Hourly Total	5	0	0	0	5	1	446	2	0	449	2	0	1	0	3	1	452	4	0	457	914
3:00 PM	1	0	0	0	1	0	123	0	0	123	0	0	0	0	0	0	112	0	0	112	236
3:15 PM	2	0	0	0	2	0	107	2	0	109	0	0	0	0	0	0	123	1	0	124	235
3:30 PM	1	0	0	0	1	0	107	0	0	107	0	0	0	0	0	1	130	2	0	133	241
3:45 PM	0	0	0	0	0	0	127	0	0	127	0	0	0	0	0	0	135	0	0	135	262
Hourly Total	4	0	0	0	4	0	464	2	0	466	0	0	0	0	0	1	500	3	0	504	974
4:00 PM	1	0	0	0	1	0	129	0	0	129	0	1	0	0	1	0	121	2	0	123	254
4:15 PM	0	1	0	0	1	0	161	1	0	162	0	1	0	0	1	0	131	2	0	133	297
4:30 PM	1	0	0	0	1	0	114	0	0	114	0	0	0	0	0	0	135	1	0	136	251
4:45 PM	0	0	0	0	0	0	138	0	0	138	0	0	0	0	0	0	152	1	0	153	291
Hourly Total	2	1	0	0	3	0	542	1	0	543	0	2	0	0	2	0	539	6	0	545	1093
5:00 PM	0	0	0	0	0	1	133	0	0	134	0	0	0	0	0	1	123	3	0	127	261
5:15 PM	0	1	0	0	1	0	131	2	0	133	0	0	1	0	1	0	135	1	0	136	271
5:30 PM	0	0	0	0	0	0	119	0	0	119	0	0	1	0	1	3	124	1	0	128	248
5:45 PM	0	0	0	0	0	0	99	2	0	101	0	0	1	0	1	2	104	2	0	108	210
Hourly Total	0	1	0	0	1	1	482	4	0	487	0	0	3	0	3	6	486	7	0	499	990
6:00 PM	0	0	0	0	0	0	105	1	0	106	0	1	2	0	3	0	126	1	0	127	236
6:15 PM	1	0	0	0	1	0	95	0	0	95	0	1	0	0	1	0	104	1	0	105	202
6:30 PM	0	1	0	0	1	0	76	0	0	76	0	0	0	0	0	1	105	1	0	107	184
6:45 PM	0	0	0	0	0	0	90	0	0	90	0	0	0	0	0	1	90	0	0	91	181
Hourly Total	1	1	0	0	2	0	366	1	0	367	0	2	2	0	4	2	425	3	0	430	803
7:00 PM	0	0	0	0	0	0	73	0	0	73	0	0	0	0	0	0	70	0	0	70	143
7:15 PM	0	0	0	0	0	0	69	0	0	69	0	0	0	0	0	1	80	0	0	81	150
7:30 PM	0	0	0	0	0	0	64	0	0	64	0	0	0	0	0	0	66	0	0	66	130

7:45 PM	0	0	0	0	0	0	66	0	0	66	0	0	0	0	0	0	69	0	0	69	135
Hourly Total	0	0	0	0	0	0	272	0	0	272	0	0	0	0	0	1	285	0	0	286	558
8:00 PM	0	0	0	0	0	0	52	0	0	52	0	0	0	0	0	0	54	0	0	54	106
8:15 PM	0	0	0	0	0	0	62	0	0	62	0	0	0	0	0	1	66	0	0	67	129
8:30 PM	0	0	0	0	0	0	49	0	0	49	0	0	0	0	0	0	61	1	0	62	111
8:45 PM	0	0	0	0	0	0	45	0	0	45	1	1	0	0	2	1	55	0	0	56	103
Hourly Total	0	0	0	0	0	0	208	0	0	208	1	1	0	0	2	2	236	1	0	239	449
9:00 PM	0	0	0	0	0	0	42	0	0	42	0	1	0	0	1	0	46	1	0	47	90
9:15 PM	0	0	0	0	0	0	38	0	0	38	0	0	0	0	0	0	62	0	0	62	100
9:30 PM	1	0	0	0	1	0	47	0	0	47	0	0	0	0	0	0	49	0	0	49	97
9:45 PM	0	0	0	0	0	0	44	0	0	44	0	0	0	0	0	0	54	0	0	54	98
Hourly Total	1	0	0	0	1	0	171	0	0	171	0	1	0	0	1	0	211	1	0	212	385
10:00 PM	0	1	0	0	1	0	40	0	0	40	0	0	0	0	0	0	41	0	0	41	82
10:15 PM	0	0	0	0	0	0	27	0	0	27	0	0	1	0	1	0	42	0	0	42	70
10:30 PM	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	0	39	0	0	39	66
10:45 PM	0	0	0	0	0	0	33	0	0	33	0	0	0	0	0	0	33	0	0	33	66
Hourly Total	0	1	0	0	1	0	127	0	0	127	0	0	1	0	1	0	155	0	0	155	284
11:00 PM	0	0	0	0	0	0	32	0	0	32	0	0	0	0	0	0	37	0	0	37	69
11:15 PM	0	0	0	0	0	0	28	0	0	28	0	0	0	0	0	0	36	1	0	37	65
11:30 PM	0	0	0	0	0	0	39	0	0	39	0	0	0	0	0	0	22	0	0	22	61
11:45 PM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	24	0	0	24	49
Hourly Total	0	0	0	0	0	0	124	0	0	124	0	0	0	0	0	0	119	1	0	120	244
12:00 AM	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	16	0	0	16	36
12:15 AM	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	0	32	0	0	32	53
12:30 AM	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	26	0	0	26	39
12:45 AM	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	0	27	0	0	27	49
Hourly Total	0	0	0	0	0	0	76	0	0	76	0	0	0	0	0	0	101	0	0	101	177
1:00 AM	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	24	0	0	24	40
1:15 AM	0	1	0	0	1	0	28	0	0	28	0	0	0	0	0	0	20	0	0	20	49
1:30 AM	0	0	0	0	0	0	32	0	0	32	0	0	0	0	0	0	19	0	0	19	51
1:45 AM	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	18	0	0	18	33
Hourly Total	0	1	0	0	1	0	91	0	0	91	0	0	0	0	0	0	81	0	0	81	173
2:00 AM	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	11	0	0	11	35
2:15 AM	0	0	0	0	0	0	28	0	0	28	0	0	0	0	0	0	17	0	0	17	45
2:30 AM	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	0	19	0	0	19	41
2:45 AM	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	0	18	0	0	18	44
Hourly Total	0	0	0	0	0	0	100	0	0	100	0	0	0	0	0	0	65	0	0	65	165
3:00 AM	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	28	0	0	28	47
3:15 AM	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	0	18	1	0	19	46
3:30 AM	0	0	0	0	0	0	30	0	0	30	0	0	0	0	0	1	29	0	0	30	60
3:45 AM	1	0	0	0	1	0	22	0	0	22	0	0	0	0	0	0	12	0	0	12	35
Hourly Total	1	0	0	0	1	0	98	0	0	98	0	0	0	0	0	1	87	1	0	89	188
4:00 AM	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	0	32	0	0	32	53
4:15 AM	0	0	0	0	0	0	39	0	0	39	0	0	0	0	0	0	32	1	0	33	72
4:30 AM	0	0	0	0	0	0	33	0	0	33	0	0	0	0	0	0	35	1	0	36	69
4:45 AM	0	1	0	0	1	0	34	0	0	34	0	0	0	0	0	0	34	1	0	35	70
Hourly Total	0	1	0	0	1	0	127	0	0	127	0	0	0	0	0	0	133	3	0	136	264
5:00 AM	0	0	0	0	0	0	57	0	0	57	0	0	0	0	0	0	37	0	0	37	94
5:15 AM	2	0	0	0	2	0	66	0	0	66	1	0	0	0	1	0	37	0	0	37	106
5:30 AM	0	0	0	0	0	0	55	0	0	55	0	0	0	0	0	0	47	0	0	47	102
5:45 AM	2	0	0	0	2	0	64	0	0	64	0	0	0	0	0	0	58	1	0	59	125
Hourly Total	4	0	0	0	4	0	242	0	0	242	1	0	0	0	1	0	179	1	0	180	427

6:00 AM	4	0	0	0	4	0	73	0	0	73	0	0	0	0	0	0	63	0	0	63	140
6:15 AM	0	0	0	0	0	0	91	0	0	91	0	0	1	0	1	0	50	0	0	50	142
6:30 AM	4	0	0	0	4	0	101	0	0	101	0	0	0	0	0	0	81	0	0	81	186
6:45 AM	1	0	0	0	1	0	98	0	0	98	0	0	1	0	1	0	77	0	0	77	177
Hourly Total	9	0	0	0	9	0	363	0	0	363	0	0	2	0	2	0	271	0	0	271	645
7:00 AM	4	0	0	0	4	0	110	0	0	110	0	0	1	0	1	1	91	0	0	92	207
7:15 AM	2	0	1	0	3	0	125	0	1	126	1	0	4	0	5	1	80	0	0	81	215
7:30 AM	0	0	0	0	0	0	116	0	0	116	1	1	1	0	3	0	84	0	0	84	203
7:45 AM	1	0	0	0	1	0	90	0	0	90	1	1	0	0	2	0	73	0	0	73	166
Hourly Total	7	0	1	0	8	0	441	0	1	442	3	2	6	0	11	2	328	0	0	330	791
8:00 AM	1	0	0	0	1	0	85	0	0	85	0	0	0	0	0	0	94	0	0	94	180
8:15 AM	3	0	0	0	3	0	89	0	0	89	0	0	0	0	0	0	85	0	0	85	177
8:30 AM	0	0	0	0	0	0	86	0	1	87	0	0	0	0	0	0	106	1	0	107	194
8:45 AM	0	1	0	0	1	0	96	1	0	97	0	0	0	0	0	0	106	0	0	106	204
Hourly Total	4	1	0	0	5	0	356	1	1	358	0	0	0	0	0	0	391	1	0	392	755
9:00 AM	0	0	0	0	0	0	100	0	0	100	0	0	0	0	0	0	99	0	0	99	199
9:15 AM	1	0	0	0	1	0	88	0	0	88	0	0	1	0	1	1	104	0	0	105	195
9:30 AM	1	0	0	0	1	0	102	0	0	102	0	0	0	0	0	0	95	0	1	96	199
9:45 AM	0	0	0	0	0	0	94	0	0	94	0	2	1	0	3	0	97	0	0	97	194
Hourly Total	2	0	0	0	2	0	384	0	0	384	0	2	2	0	4	1	395	0	1	397	787
10:00 AM	0	0	0	0	0	0	103	0	0	103	0	0	0	0	0	0	107	2	0	109	212
10:15 AM	0	0	0	0	0	0	117	1	0	118	1	0	0	0	1	1	83	0	0	84	203
10:30 AM	0	0	0	0	0	0	107	1	0	108	2	0	0	0	2	1	88	0	0	89	199
10:45 AM	0	1	0	0	1	0	116	0	0	116	0	0	0	0	0	0	97	1	0	98	215
Hourly Total	0	1	0	0	1	0	443	2	0	445	3	0	0	0	3	2	375	3	0	380	829
11:00 AM	0	1	0	0	1	0	107	0	0	107	0	0	0	0	0	0	94	0	0	94	202
11:15 AM	0	0	0	0	0	1	93	0	0	94	2	0	0	0	2	0	107	1	0	108	204
11:30 AM	1	0	0	0	1	0	101	0	0	101	0	0	0	0	0	0	93	0	0	93	195
11:45 AM	0	1	0	0	1	0	114	0	0	114	0	0	0	0	0	0	97	0	0	97	212
Hourly Total	1	2	0	0	3	1	415	0	0	416	2	0	0	0	2	0	391	1	0	392	813
12:00 PM	3	0	0	0	3	0	89	0	0	89	0	0	0	0	0	1	87	2	0	90	182
12:15 PM	1	0	0	0	1	0	116	0	0	116	1	0	0	0	1	0	99	1	0	100	218
12:30 PM	0	0	0	0	0	0	103	0	0	103	0	0	0	0	0	0	116	0	0	116	219
Grand Total	45	10	2	0	57	3	7215	15	2	7235	13	10	18	0	41	21	7035	43	1	7100	14433
Approach %	78.9	17.5	3.5	0.0	-	0.0	99.7	0.2	0.0	-	31.7	24.4	43.9	0.0	-	0.3	99.1	0.6	0.0	-	-
Total %	0.3	0.1	0.0	0.0	0.4	0.0	50.0	0.1	0.0	50.1	0.1	0.1	0.1	0.0	0.3	0.1	48.7	0.3	0.0	49.2	-
Lights	43	10	2	0	55	3	3718	14	2	3737	12	10	17	0	39	18	3757	42	1	3818	7649
% Lights	95.6	100.0	100.0	-	96.5	100.0	51.5	93.3	100.0	51.7	92.3	100.0	94.4	-	95.1	85.7	53.4	97.7	100.0	53.8	53.0
Other Vehicles	2	0	0	0	2	0	3497	1	0	3498	1	0	1	0	2	3	3278	1	0	3282	6784
% Other Vehicles	4.4	0.0	0.0	-	3.5	0.0	48.5	6.7	0.0	48.3	7.7	0.0	5.6	-	4.9	14.3	46.6	2.3	0.0	46.2	47.0

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Klinger Rd
Site Code:
Start Date: 02/27/2019



Turning Movement Data Plot

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Office of Traffic Engineering

Count Name: VAN-30 & Klinger Rd
Site Code:
Start Date: 02/27/2019

Turning Movement Peak Hour Data (4:15 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
4:15 PM	0	1	0	0	1	0	161	1	0	162	0	1	0	0	1	0	131	2	0	133	297
4:30 PM	1	0	0	0	1	0	114	0	0	114	0	0	0	0	0	0	135	1	0	136	251
4:45 PM	0	0	0	0	0	0	138	0	0	138	0	0	0	0	0	0	152	1	0	153	291
5:00 PM	0	0	0	0	0	1	133	0	0	134	0	0	0	0	0	1	123	3	0	127	261
Total	1	1	0	0	2	1	546	1	0	548	0	1	0	0	1	1	541	7	0	549	1100
Approach %	50.0	50.0	0.0	0.0	-	0.2	99.6	0.2	0.0	-	0.0	100.0	0.0	0.0	-	0.2	98.5	1.3	0.0	-	-
Total %	0.1	0.1	0.0	0.0	0.2	0.1	49.6	0.1	0.0	49.8	0.0	0.1	0.0	0.0	0.1	0.1	49.2	0.6	0.0	49.9	-
PHF	0.250	0.250	0.000	0.000	0.500	0.250	0.848	0.250	0.000	0.846	0.000	0.250	0.000	0.000	0.250	0.250	0.890	0.583	0.000	0.897	0.926
Lights	1	1	0	0	2	1	349	1	0	351	0	1	0	0	1	1	339	7	0	347	701
% Lights	100.0	100.0	-	-	100.0	100.0	63.9	100.0	-	64.1	-	100.0	-	-	100.0	100.0	62.7	100.0	-	63.2	63.7
Other Vehicles	0	0	0	0	0	0	197	0	0	197	0	0	0	0	0	0	202	0	0	202	399
% Other Vehicles	0.0	0.0	-	-	0.0	0.0	36.1	0.0	-	35.9	-	0.0	-	-	0.0	0.0	37.3	0.0	-	36.8	36.3

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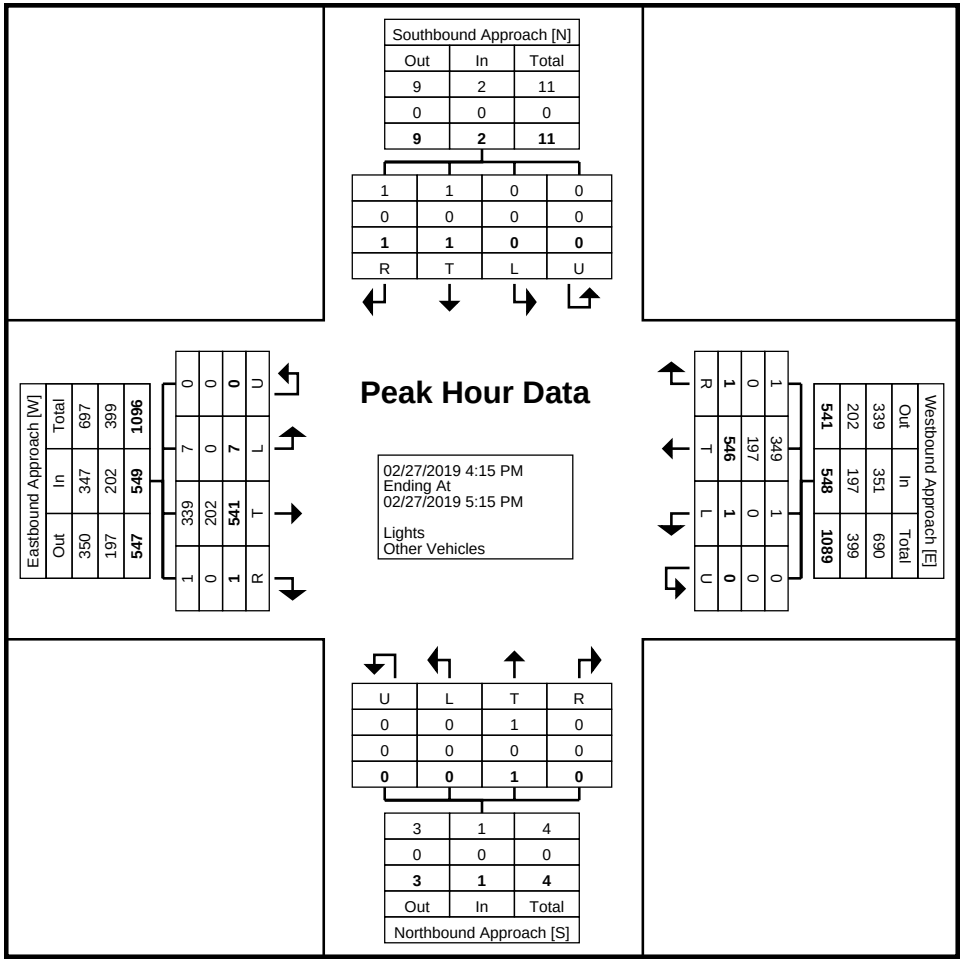

Turning Movement Peak Hour Data Plot (4:15 PM)

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Count Name: VAN-30 & Klinger Rd
Site Code:
Start Date: 02/27/2019

Turning Movement Peak Hour Data (11:45 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
11:45 AM	0	1	0	0	1	0	114	0	0	114	0	0	0	0	0	0	97	0	0	97	212
12:00 PM	3	0	0	0	3	0	89	0	0	89	0	0	0	0	0	1	87	2	0	90	182
12:15 PM	1	0	0	0	1	0	116	0	0	116	1	0	0	0	1	0	99	1	0	100	218
12:30 PM	0	0	0	0	0	0	103	0	0	103	0	0	0	0	0	0	116	0	0	116	219
Total	4	1	0	0	5	0	422	0	0	422	1	0	0	0	1	1	399	3	0	403	831
Approach %	80.0	20.0	0.0	0.0	-	0.0	100.0	0.0	0.0	-	100.0	0.0	0.0	0.0	-	0.2	99.0	0.7	0.0	-	-
Total %	0.5	0.1	0.0	0.0	0.6	0.0	50.8	0.0	0.0	50.8	0.1	0.0	0.0	0.0	0.1	0.1	48.0	0.4	0.0	48.5	-
PHF	0.333	0.250	0.000	0.000	0.417	0.000	0.909	0.000	0.000	0.909	0.250	0.000	0.000	0.000	0.250	0.250	0.860	0.375	0.000	0.869	0.949
Lights	4	1	0	0	5	0	202	0	0	202	1	0	0	0	1	1	191	3	0	195	403
% Lights	100.0	100.0	-	-	100.0	-	47.9	-	-	47.9	100.0	-	-	-	100.0	100.0	47.9	100.0	-	48.4	48.5
Other Vehicles	0	0	0	0	0	0	220	0	0	220	0	0	0	0	0	0	208	0	0	208	428
% Other Vehicles	0.0	0.0	-	-	0.0	-	52.1	-	-	52.1	0.0	-	-	-	0.0	0.0	52.1	0.0	-	51.6	51.5

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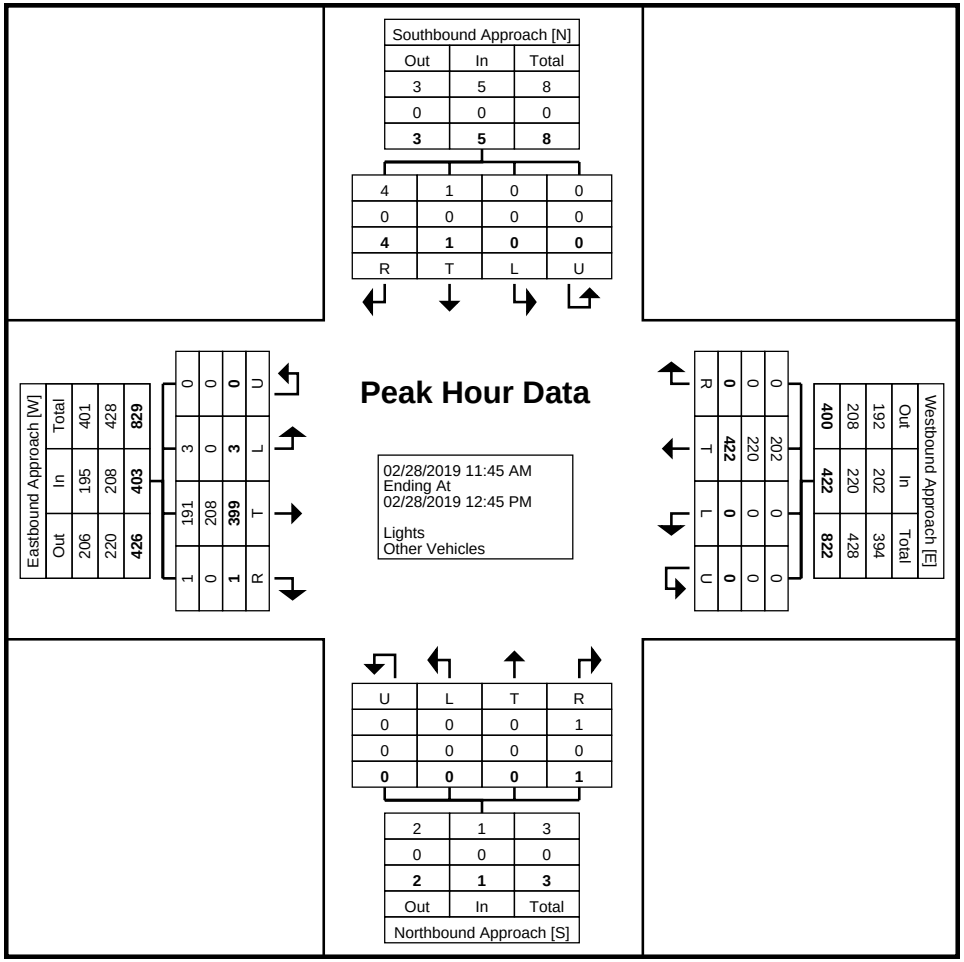

Turning Movement Peak Hour Data Plot (11:45 AM)

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Count Name: VAN-30 & Krick Rd
Site Code:
Start Date: 02/27/2019

Turning Movement Data

Start Time	Southbound Approach Southbound				Westbound Approach Westbound				Eastbound Approach Eastbound				
	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
1:00 PM	0	0	0	0	1	117	0	118	100	0	0	100	218
1:15 PM	0	0	0	0	0	118	0	118	87	0	0	87	205
1:30 PM	0	0	0	0	0	109	0	109	99	0	0	99	208
1:45 PM	0	0	0	0	0	105	0	105	111	0	0	111	216
Hourly Total	0	0	0	0	1	449	0	450	397	0	0	397	847
2:00 PM	0	1	0	1	0	120	0	120	98	0	0	98	219
2:15 PM	0	0	0	0	1	98	0	99	101	0	0	101	200
2:30 PM	0	0	0	0	0	113	0	113	127	0	0	127	240
2:45 PM	0	0	0	0	0	109	0	109	117	0	0	117	226
Hourly Total	0	1	0	1	1	440	0	441	443	0	0	443	885
3:00 PM	0	0	0	0	1	111	0	112	102	1	0	103	215
3:15 PM	1	1	0	2	0	112	0	112	120	0	0	120	234
3:30 PM	0	3	0	3	2	107	0	109	121	0	0	121	233
3:45 PM	0	1	0	1	0	124	0	124	125	0	0	125	250
Hourly Total	1	5	0	6	3	454	0	457	468	1	0	469	932
4:00 PM	0	0	0	0	0	122	0	122	121	0	0	121	243
4:15 PM	1	0	0	1	0	159	0	159	131	0	0	131	291
4:30 PM	0	1	0	1	1	111	0	112	133	0	0	133	246
4:45 PM	0	0	0	0	0	133	0	133	152	0	0	152	285
Hourly Total	1	1	0	2	1	525	0	526	537	0	0	537	1065
5:00 PM	0	0	0	0	0	130	0	130	116	0	0	116	246
5:15 PM	0	0	0	0	0	137	0	137	122	0	0	122	259
5:30 PM	0	1	0	1	2	118	0	120	126	0	0	126	247
5:45 PM	0	1	0	1	2	101	0	103	103	0	0	103	207
Hourly Total	0	2	0	2	4	486	0	490	467	0	0	467	959
6:00 PM	0	0	0	0	0	106	0	106	115	0	0	115	221
6:15 PM	0	1	0	1	1	93	0	94	102	0	0	102	197
6:30 PM	0	0	0	0	0	73	0	73	111	0	0	111	184
6:45 PM	0	0	0	0	0	92	0	92	77	0	0	77	169
Hourly Total	0	1	0	1	1	364	0	365	405	0	0	405	771
7:00 PM	0	0	0	0	0	76	0	76	75	0	0	75	151
7:15 PM	0	1	0	1	0	66	0	66	76	0	0	76	143
7:30 PM	0	0	0	0	0	67	0	67	56	0	0	56	123
7:45 PM	0	0	0	0	0	70	0	70	70	0	0	70	140
Hourly Total	0	1	0	1	0	279	0	279	277	0	0	277	557

8:00 PM	0	0	0	0	0	50	0	50	45	0	0	45	95
8:15 PM	0	0	0	0	1	62	0	63	62	0	0	62	125
8:30 PM	0	0	0	0	1	48	0	49	59	0	0	59	108
8:45 PM	0	0	0	0	0	45	0	45	55	0	0	55	100
Hourly Total	0	0	0	0	2	205	0	207	221	0	0	221	428
9:00 PM	0	0	0	0	0	44	0	44	47	0	0	47	91
9:15 PM	0	0	0	0	1	38	0	39	61	0	0	61	100
9:30 PM	0	0	0	0	0	46	0	46	47	0	0	47	93
9:45 PM	0	0	0	0	0	41	0	41	56	0	0	56	97
Hourly Total	0	0	0	0	1	169	0	170	211	0	0	211	381
10:00 PM	0	0	0	0	0	40	0	40	43	0	0	43	83
10:15 PM	0	0	0	0	0	27	0	27	40	0	0	40	67
10:30 PM	0	0	0	0	0	27	0	27	36	0	0	36	63
10:45 PM	0	0	0	0	0	32	0	32	32	0	0	32	64
Hourly Total	0	0	0	0	0	126	0	126	151	0	0	151	277
11:00 PM	0	0	0	0	0	31	0	31	38	0	0	38	69
11:15 PM	0	0	0	0	0	28	0	28	34	0	0	34	62
11:30 PM	0	0	0	0	0	37	0	37	25	0	0	25	62
11:45 PM	0	0	0	0	0	24	0	24	22	0	0	22	46
Hourly Total	0	0	0	0	0	120	0	120	119	0	0	119	239
12:00 AM	0	0	0	0	0	25	0	25	15	0	0	15	40
12:15 AM	0	0	0	0	0	21	0	21	32	0	0	32	53
12:30 AM	0	0	0	0	0	13	0	13	22	0	0	22	35
12:45 AM	0	0	0	0	0	22	0	22	29	0	0	29	51
Hourly Total	0	0	0	0	0	81	0	81	98	0	0	98	179
1:00 AM	0	0	0	0	0	16	0	16	25	0	0	25	41
1:15 AM	0	0	0	0	0	28	0	28	22	0	0	22	50
1:30 AM	0	0	0	0	0	32	0	32	17	0	0	17	49
1:45 AM	0	0	0	0	0	14	0	14	15	0	0	15	29
Hourly Total	0	0	0	0	0	90	0	90	79	0	0	79	169
2:00 AM	0	0	0	0	0	24	0	24	14	0	0	14	38
2:15 AM	0	0	0	0	0	27	0	27	12	0	0	12	39
2:30 AM	0	0	0	0	0	22	0	22	24	0	0	24	46
2:45 AM	0	0	0	0	0	26	0	26	18	0	0	18	44
Hourly Total	0	0	0	0	0	99	0	99	68	0	0	68	167
3:00 AM	0	0	0	0	0	19	0	19	22	0	0	22	41
3:15 AM	0	0	0	0	0	26	0	26	21	0	0	21	47
3:30 AM	0	0	0	0	0	28	0	28	25	0	0	25	53
3:45 AM	0	0	0	0	0	22	0	22	16	0	0	16	38
Hourly Total	0	0	0	0	0	95	0	95	84	0	0	84	179
4:00 AM	0	0	0	0	0	22	0	22	28	0	0	28	50
4:15 AM	0	0	0	0	0	40	0	40	32	0	0	32	72
4:30 AM	0	0	0	0	0	35	0	35	35	0	0	35	70
4:45 AM	0	0	0	0	0	34	0	34	32	0	0	32	66
Hourly Total	0	0	0	0	0	131	0	131	127	0	0	127	258
5:00 AM	0	0	0	0	0	55	0	55	35	0	0	35	90
5:15 AM	0	0	0	0	0	65	0	65	32	0	0	32	97
5:30 AM	0	0	0	0	0	55	0	55	45	0	0	45	100
5:45 AM	0	0	0	0	0	61	0	61	57	0	0	57	118
Hourly Total	0	0	0	0	0	236	0	236	169	0	0	169	405
6:00 AM	0	0	0	0	0	74	0	74	63	0	0	63	137
6:15 AM	0	0	0	0	0	83	0	83	48	0	0	48	131

6:30 AM	0	0	0	0	0	100	0	100	77	0	0	77	177
6:45 AM	0	0	0	0	0	95	0	95	77	0	0	77	172
Hourly Total	0	0	0	0	0	352	0	352	265	0	0	265	617
7:00 AM	0	0	0	0	3	112	0	115	91	0	0	91	206
7:15 AM	0	3	0	3	0	126	0	126	83	1	0	84	213
7:30 AM	0	2	0	2	1	113	0	114	86	0	0	86	202
7:45 AM	0	2	0	2	1	89	1	91	71	0	0	71	164
Hourly Total	0	7	0	7	5	440	1	446	331	1	0	332	785
8:00 AM	0	1	0	1	1	80	0	81	93	0	0	93	175
8:15 AM	0	0	0	0	0	87	0	87	93	0	0	93	180
8:30 AM	0	0	0	0	0	85	0	85	95	0	0	95	180
8:45 AM	0	1	0	1	0	95	0	95	113	0	0	113	209
Hourly Total	0	2	0	2	1	347	0	348	394	0	0	394	744
9:00 AM	0	0	0	0	0	101	0	101	96	0	0	96	197
9:15 AM	0	0	0	0	0	85	0	85	97	0	0	97	182
9:30 AM	0	1	0	1	0	102	0	102	86	1	0	87	190
9:45 AM	0	1	0	1	0	93	0	93	99	0	0	99	193
Hourly Total	0	2	0	2	0	381	0	381	378	1	0	379	762
10:00 AM	0	0	0	0	1	100	0	101	100	0	0	100	201
10:15 AM	0	0	0	0	0	116	0	116	79	0	0	79	195
10:30 AM	1	0	0	1	0	97	0	97	86	0	0	86	184
10:45 AM	0	1	0	1	0	110	0	110	96	0	0	96	207
Hourly Total	1	1	0	2	1	423	0	424	361	0	0	361	787
11:00 AM	0	0	0	0	0	108	0	108	92	0	0	92	200
11:15 AM	0	1	0	1	1	93	0	94	105	0	0	105	200
11:30 AM	0	0	0	0	0	102	0	102	83	0	0	83	185
11:45 AM	0	0	0	0	0	113	0	113	94	0	0	94	207
Hourly Total	0	1	0	1	1	416	0	417	374	0	0	374	792
12:00 PM	0	0	0	0	0	87	0	87	95	0	0	95	182
12:15 PM	0	0	0	0	0	111	0	111	89	0	0	89	200
12:30 PM	0	1	0	1	1	98	0	99	109	0	0	109	209
12:45 PM	0	0	0	0	0	107	0	107	86	0	0	86	193
Hourly Total	0	1	0	1	1	403	0	404	379	0	0	379	784
Grand Total	3	25	0	28	23	7111	1	7135	6803	3	0	6806	13969
Approach %	10.7	89.3	0.0	-	0.3	99.7	0.0	-	100.0	0.0	0.0	-	-
Total %	0.0	0.2	0.0	0.2	0.2	50.9	0.0	51.1	48.7	0.0	0.0	48.7	-
Lights	3	24	0	27	22	3717	1	3740	3650	3	0	3653	7420
% Lights	100.0	96.0	-	96.4	95.7	52.3	100.0	52.4	53.7	100.0	-	53.7	53.1
Other Vehicles	0	1	0	1	1	3394	0	3395	3153	0	0	3153	6549
% Other Vehicles	0.0	4.0	-	3.6	4.3	47.7	0.0	47.6	46.3	0.0	-	46.3	46.9

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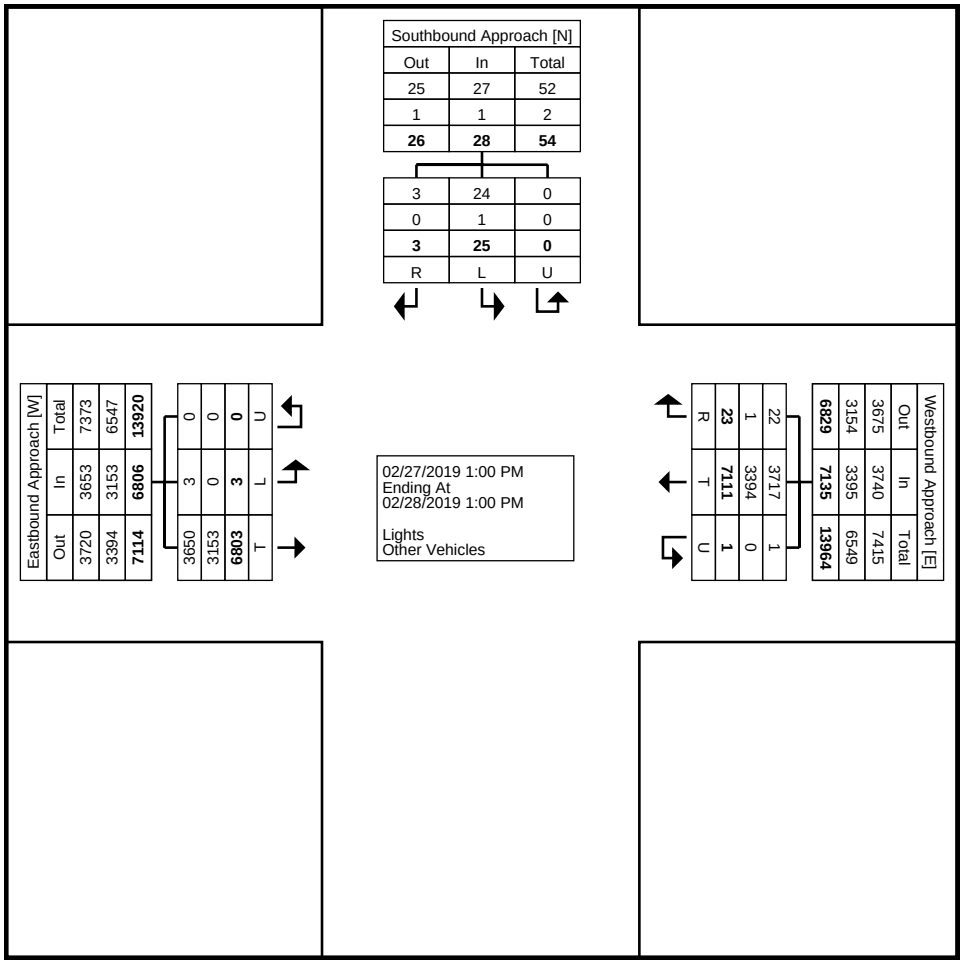

Turning Movement Data Plot

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Turning Movement Peak Hour Data (4:15 PM)

Start Time	Southbound Approach Southbound				Westbound Approach Westbound				Eastbound Approach Eastbound				
	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
4:15 PM	1	0	0	1	0	159	0	159	131	0	0	131	291
4:30 PM	0	1	0	1	1	111	0	112	133	0	0	133	246
4:45 PM	0	0	0	0	0	133	0	133	152	0	0	152	285
5:00 PM	0	0	0	0	0	130	0	130	116	0	0	116	246
Total	1	1	0	2	1	533	0	534	532	0	0	532	1068
Approach %	50.0	50.0	0.0	-	0.2	99.8	0.0	-	100.0	0.0	0.0	-	-
Total %	0.1	0.1	0.0	0.2	0.1	49.9	0.0	50.0	49.8	0.0	0.0	49.8	-
PHF	0.250	0.250	0.000	0.500	0.250	0.838	0.000	0.840	0.875	0.000	0.000	0.875	0.918
Lights	1	1	0	2	1	341	0	342	330	0	0	330	674
% Lights	100.0	100.0	-	100.0	100.0	64.0	-	64.0	62.0	-	-	62.0	63.1
Other Vehicles	0	0	0	0	0	192	0	192	202	0	0	202	394
% Other Vehicles	0.0	0.0	-	0.0	0.0	36.0	-	36.0	38.0	-	-	38.0	36.9

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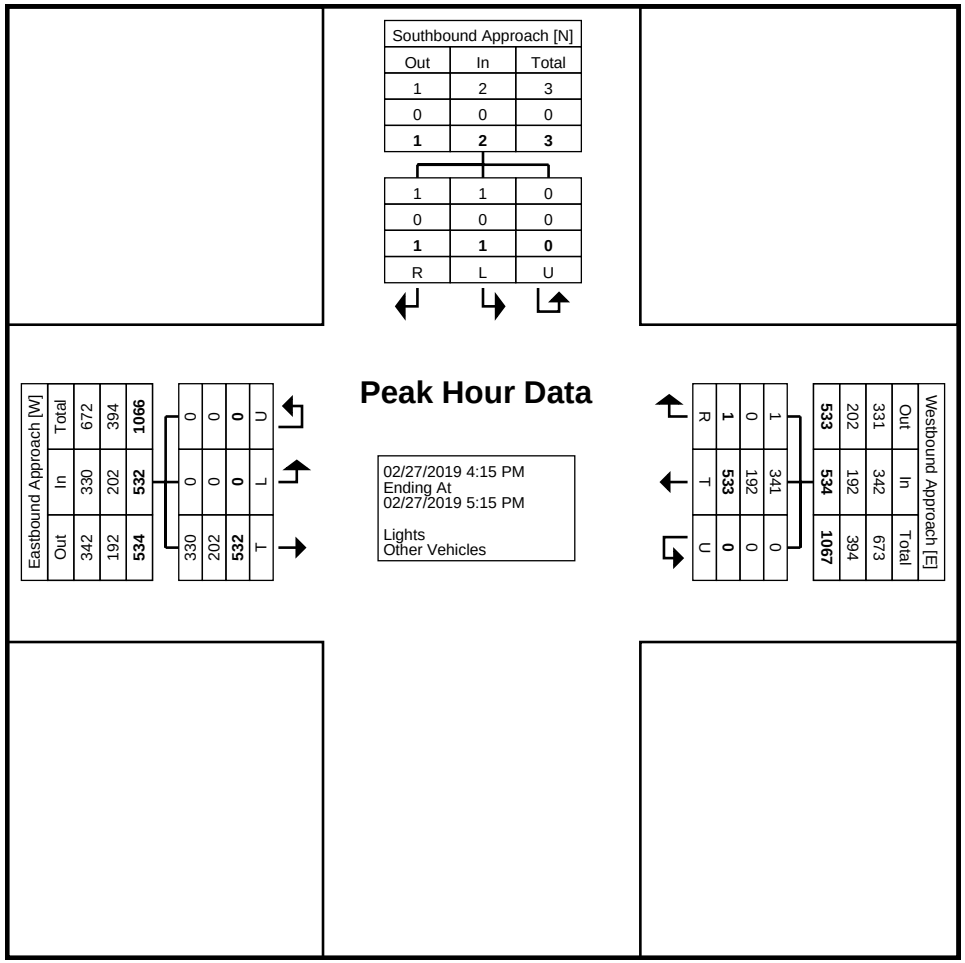
Site Code:
Start Date: 02/27/2019



Turning Movement Peak Hour Data Plot (4:15 PM)

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Krick Rd
Site Code:
Start Date: 02/27/2019

Turning Movement Peak Hour Data (6:45 AM)

Start Time	Southbound Approach				Westbound Approach				Eastbound Approach				
	Southbound				Westbound				Eastbound				
	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
6:45 AM	0	0	0	0	0	95	0	95	77	0	0	77	172
7:00 AM	0	0	0	0	3	112	0	115	91	0	0	91	206
7:15 AM	0	3	0	3	0	126	0	126	83	1	0	84	213
7:30 AM	0	2	0	2	1	113	0	114	86	0	0	86	202
Total	0	5	0	5	4	446	0	450	337	1	0	338	793
Approach %	0.0	100.0	0.0	-	0.9	99.1	0.0	-	99.7	0.3	0.0	-	-
Total %	0.0	0.6	0.0	0.6	0.5	56.2	0.0	56.7	42.5	0.1	0.0	42.6	-
PHF	0.000	0.417	0.000	0.417	0.333	0.885	0.000	0.893	0.926	0.250	0.000	0.929	0.931
Lights	0	5	0	5	4	273	0	277	196	1	0	197	479
% Lights	-	100.0	-	100.0	100.0	61.2	-	61.6	58.2	100.0	-	58.3	60.4
Other Vehicles	0	0	0	0	0	173	0	173	141	0	0	141	314
% Other Vehicles	-	0.0	-	0.0	0.0	38.8	-	38.4	41.8	0.0	-	41.7	39.6

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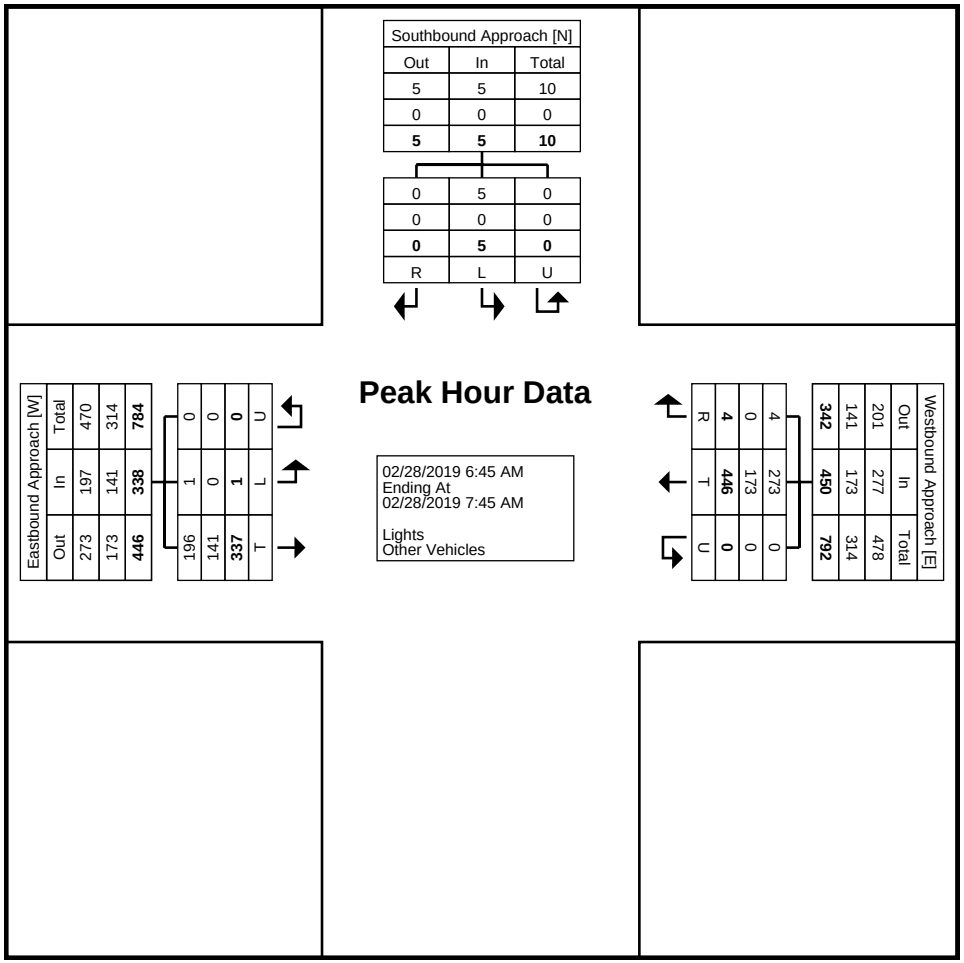
Site Code:
Start Date: 02/27/2019



Turning Movement Peak Hour Data Plot (6:45 AM)

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Office of Traffic Engineering

Count Name: VAN-30 & Krick Rd
Site Code:
Start Date: 02/27/2019

Turning Movement Peak Hour Data (12:00 PM)

Start Time	Southbound Approach				Westbound Approach				Eastbound Approach				
	Southbound				Westbound				Eastbound				
	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
12:00 PM	0	0	0	0	0	87	0	87	95	0	0	95	182
12:15 PM	0	0	0	0	0	111	0	111	89	0	0	89	200
12:30 PM	0	1	0	1	1	98	0	99	109	0	0	109	209
12:45 PM	0	0	0	0	0	107	0	107	86	0	0	86	193
Total	0	1	0	1	1	403	0	404	379	0	0	379	784
Approach %	0.0	100.0	0.0	-	0.2	99.8	0.0	-	100.0	0.0	0.0	-	-
Total %	0.0	0.1	0.0	0.1	0.1	51.4	0.0	51.5	48.3	0.0	0.0	48.3	-
PHF	0.000	0.250	0.000	0.250	0.250	0.908	0.000	0.910	0.869	0.000	0.000	0.869	0.938
Lights	0	1	0	1	1	210	0	211	183	0	0	183	395
% Lights	-	100.0	-	100.0	100.0	52.1	-	52.2	48.3	-	-	48.3	50.4
Other Vehicles	0	0	0	0	0	193	0	193	196	0	0	196	389
% Other Vehicles	-	0.0	-	0.0	0.0	47.9	-	47.8	51.7	-	-	51.7	49.6

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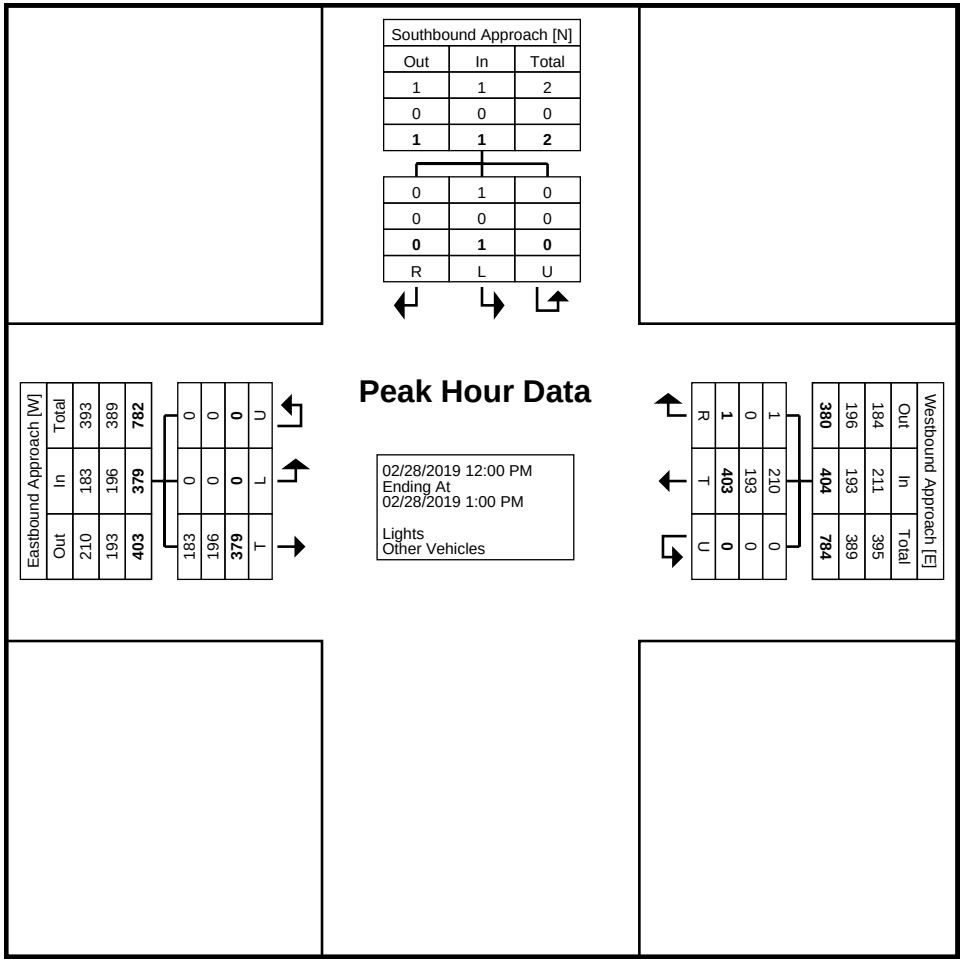
Site Code:
Start Date: 02/27/2019



Turning Movement Peak Hour Data Plot (12:00 PM)

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Count Name: VAN-30 & Krick Rd
Site Code:
Start Date: 02/27/2019

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+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Mentzer Church Rd
Site Code:
Start Date: 03/05/2019

Turning Movement Data

Start Time	Southbound Approach				Northbound Approach				Eastbound Approach				
	Southbound				Northbound				Eastbound				
	Thru	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
9:00 AM	0	0	0	0	0	0	0	0	0	96	0	96	96
9:15 AM	0	0	0	0	0	1	0	1	0	86	0	86	87
9:30 AM	0	0	0	0	0	0	0	0	0	88	0	88	88
9:45 AM	0	0	0	0	0	0	0	0	1	104	0	105	105
Hourly Total	0	0	0	0	0	1	0	1	1	374	0	375	376
10:00 AM	0	1	0	1	0	0	0	0	0	88	0	88	89
10:15 AM	0	0	0	0	0	1	0	1	0	83	0	83	84
10:30 AM	0	0	0	0	0	0	0	0	0	92	0	92	92
10:45 AM	0	0	0	0	0	0	0	0	0	93	0	93	93
Hourly Total	0	1	0	1	0	1	0	1	0	356	0	356	358
11:00 AM	0	0	0	0	0	0	0	0	0	82	0	82	82
11:15 AM	1	0	0	1	0	0	0	0	0	73	0	73	74
11:30 AM	0	0	0	0	0	1	0	1	0	90	0	90	91
11:45 AM	0	0	0	0	0	1	0	1	0	99	0	99	100
Hourly Total	1	0	0	1	0	2	0	2	0	344	0	344	347
12:00 PM	0	0	0	0	1	0	0	1	0	76	0	76	77
12:15 PM	0	0	0	0	0	0	0	0	0	91	0	91	91
12:30 PM	0	0	0	0	0	0	0	0	0	101	0	101	101
12:45 PM	0	0	0	0	0	0	0	0	1	77	0	78	78
Hourly Total	0	0	0	0	1	0	0	1	1	345	0	346	347
1:00 PM	0	0	0	0	0	0	0	0	0	90	0	90	90
1:15 PM	0	0	0	0	1	0	0	1	0	100	0	100	101
1:30 PM	0	0	0	0	0	0	0	0	0	114	0	114	114
1:45 PM	0	0	0	0	0	0	0	0	0	98	0	98	98
Hourly Total	0	0	0	0	1	0	0	1	0	402	0	402	403
2:00 PM	0	0	0	0	0	1	0	1	0	92	0	92	93
2:15 PM	0	0	0	0	0	0	0	0	0	94	0	94	94
2:30 PM	0	0	0	0	0	0	0	0	0	90	0	90	90
2:45 PM	0	0	0	0	0	0	0	0	1	107	0	108	108
Hourly Total	0	0	0	0	0	1	0	1	1	383	0	384	385
3:00 PM	0	0	0	0	0	0	0	0	0	96	0	96	96
3:15 PM	0	0	0	0	0	0	0	0	1	121	0	122	122
3:30 PM	0	0	0	0	0	0	0	0	1	105	0	106	106
3:45 PM	0	0	0	0	0	1	0	1	1	111	0	112	113
Hourly Total	0	0	0	0	0	1	0	1	3	433	0	436	437

4:00 PM	0	0	0	0	0	0	0	0	1	115	0	116	116
4:15 PM	0	0	0	0	0	0	0	0	3	109	0	112	112
4:30 PM	0	0	0	0	0	0	0	0	0	137	0	137	137
4:45 PM	0	0	0	0	0	0	0	0	3	118	0	121	121
Hourly Total	0	0	0	0	0	0	0	0	7	479	0	486	486
5:00 PM	0	0	0	0	0	0	0	0	1	132	0	133	133
5:15 PM	0	0	0	0	0	1	0	1	0	118	0	118	119
5:30 PM	0	0	0	0	0	0	0	0	2	118	0	120	120
5:45 PM	0	0	0	0	0	0	0	0	2	123	0	125	125
Hourly Total	0	0	0	0	0	1	0	1	5	491	0	496	497
6:00 PM	0	0	0	0	0	0	0	0	1	78	0	79	79
6:15 PM	0	0	0	0	0	0	0	0	0	106	0	106	106
6:30 PM	0	0	0	0	0	2	0	2	0	100	0	100	102
6:45 PM	0	0	0	0	0	0	0	0	0	85	0	85	85
Hourly Total	0	0	0	0	0	2	0	2	1	369	0	370	372
7:00 PM	0	0	0	0	0	1	0	1	0	79	0	79	80
7:15 PM	0	0	0	0	0	0	0	0	0	68	0	68	68
7:30 PM	0	0	0	0	0	2	0	2	0	73	0	73	75
7:45 PM	0	0	0	0	0	0	0	0	0	65	0	65	65
Hourly Total	0	0	0	0	0	3	0	3	0	285	0	285	288
8:00 PM	0	0	0	0	0	0	0	0	0	44	0	44	44
8:15 PM	0	0	0	0	0	0	0	0	0	66	0	66	66
8:30 PM	0	0	0	0	0	0	0	0	1	64	0	65	65
8:45 PM	0	0	0	0	0	0	0	0	1	54	0	55	55
Hourly Total	0	0	0	0	0	0	0	0	2	228	0	230	230
9:00 PM	0	0	0	0	0	0	0	0	0	52	0	52	52
9:15 PM	0	0	0	0	0	0	0	0	0	50	0	50	50
9:30 PM	0	0	0	0	0	0	0	0	0	53	0	53	53
9:45 PM	0	0	0	0	0	0	0	0	0	52	0	52	52
Hourly Total	0	0	0	0	0	0	0	0	0	207	0	207	207
10:00 PM	0	0	0	0	0	0	0	0	0	40	0	40	40
10:15 PM	0	0	0	0	0	0	0	0	0	40	0	40	40
10:30 PM	0	0	0	0	0	0	0	0	0	38	0	38	38
10:45 PM	0	0	0	0	0	0	0	0	0	39	0	39	39
Hourly Total	0	0	0	0	0	0	0	0	0	157	0	157	157
11:00 PM	0	0	0	0	0	0	0	0	0	30	0	30	30
11:15 PM	0	0	0	0	0	0	0	0	0	32	0	32	32
11:30 PM	0	0	0	0	0	0	0	0	0	29	0	29	29
11:45 PM	0	0	0	0	0	0	0	0	0	22	0	22	22
Hourly Total	0	0	0	0	0	0	0	0	0	113	0	113	113
12:00 AM	0	0	0	0	0	0	0	0	0	20	0	20	20
12:15 AM	0	0	0	0	0	0	0	0	0	30	0	30	30
12:30 AM	0	0	0	0	0	0	0	0	0	21	0	21	21
12:45 AM	0	0	0	0	0	0	0	0	0	19	0	19	19
Hourly Total	0	0	0	0	0	0	0	0	0	90	0	90	90
1:00 AM	0	0	0	0	0	0	0	0	0	13	0	13	13
1:15 AM	0	0	0	0	1	0	0	1	0	16	0	16	17
1:30 AM	0	0	0	0	0	0	0	0	0	14	0	14	14
1:45 AM	0	0	0	0	0	0	0	0	0	14	0	14	14
Hourly Total	0	0	0	0	1	0	0	1	0	57	0	57	58
2:00 AM	0	0	0	0	0	0	0	0	0	10	0	10	10
2:15 AM	0	0	0	0	0	0	0	0	0	16	0	16	16

2:30 AM	0	0	0	0	0	0	0	0	0	13	0	13	13
2:45 AM	0	0	0	0	0	0	0	0	0	24	0	24	24
Hourly Total	0	0	0	0	0	0	0	0	0	63	0	63	63
3:00 AM	0	0	0	0	0	0	0	0	0	7	0	7	7
3:15 AM	0	0	0	0	0	0	0	0	0	18	0	18	18
3:30 AM	0	0	0	0	0	0	0	0	0	19	0	19	19
3:45 AM	0	0	0	0	0	0	0	0	0	21	0	21	21
Hourly Total	0	0	0	0	0	0	0	0	0	65	0	65	65
4:00 AM	0	0	0	0	0	0	0	0	0	18	0	18	18
4:15 AM	0	0	0	0	0	0	0	0	0	35	0	35	35
4:30 AM	0	0	0	0	0	1	0	1	0	35	0	35	36
4:45 AM	0	0	0	0	0	0	0	0	0	23	0	23	23
Hourly Total	0	0	0	0	0	1	0	1	0	111	0	111	112
5:00 AM	0	0	0	0	0	0	0	0	0	29	0	29	29
5:15 AM	0	0	0	0	0	0	0	0	0	44	0	44	44
5:30 AM	0	0	0	0	0	0	0	0	0	42	0	42	42
5:45 AM	0	0	0	0	0	1	0	1	0	47	0	47	48
Hourly Total	0	0	0	0	0	1	0	1	0	162	0	162	163
6:00 AM	0	0	0	0	0	1	0	1	0	52	0	52	53
6:15 AM	0	0	0	0	0	1	0	1	0	57	0	57	58
6:30 AM	0	0	0	0	0	1	0	1	0	77	0	77	78
6:45 AM	0	0	0	0	0	1	0	1	0	48	0	48	49
Hourly Total	0	0	0	0	0	4	0	4	0	234	0	234	238
7:00 AM	0	0	0	0	0	0	0	0	0	65	0	65	65
7:15 AM	0	0	0	0	0	1	0	1	0	87	0	87	88
7:30 AM	0	0	0	0	0	0	0	0	0	96	0	96	96
7:45 AM	0	0	0	0	0	0	0	0	0	84	0	84	84
Hourly Total	0	0	0	0	0	1	0	1	0	332	0	332	333
8:00 AM	0	0	0	0	0	0	0	0	0	79	0	79	79
8:15 AM	0	0	0	0	0	0	0	0	1	78	0	79	79
8:30 AM	1	0	0	1	0	0	0	0	0	77	0	77	78
8:45 AM	1	0	0	1	0	2	0	2	0	88	0	88	91
Hourly Total	2	0	0	2	0	2	0	2	1	322	0	323	327
Grand Total	3	1	0	4	3	21	0	24	22	6402	0	6424	6452
Approach %	75.0	25.0	0.0	-	12.5	87.5	0.0	-	0.3	99.7	0.0	-	-
Total %	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.4	0.3	99.2	0.0	99.6	-
Lights	1	1	0	2	0	21	0	21	22	3268	0	3290	3313
% Lights	33.3	100.0	-	50.0	0.0	100.0	-	87.5	100.0	51.0	-	51.2	51.3
Other Vehicles	2	0	0	2	3	0	0	3	0	3134	0	3134	3139
% Other Vehicles	66.7	0.0	-	50.0	100.0	0.0	-	12.5	0.0	49.0	-	48.8	48.7

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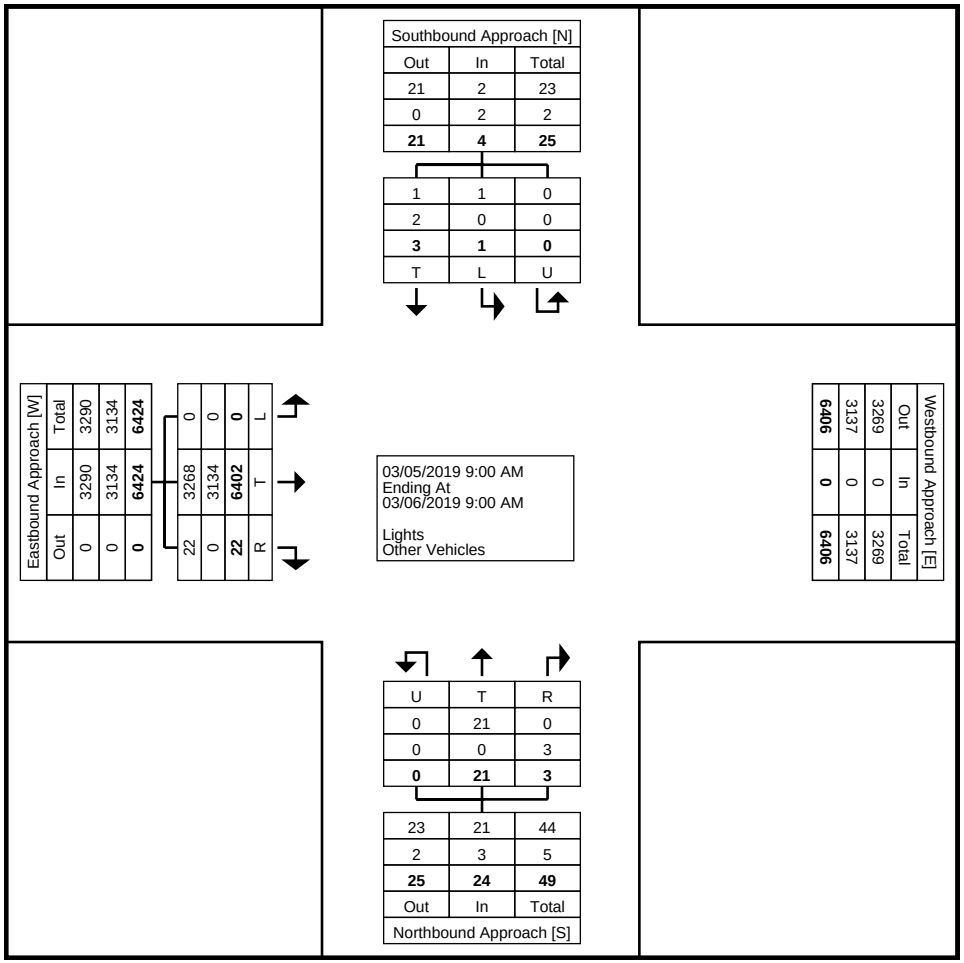
Site Code:
Start Date: 03/05/2019



Turning Movement Data Plot

Ohio Department of Transportation
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Office of Traffic Engineering

Count Name: VAN-30 & Mentzer Church Rd
Site Code:
Start Date: 03/05/2019

Turning Movement Peak Hour Data (9:00 AM)

Start Time	Southbound Approach				Northbound Approach				Eastbound Approach				
	Southbound				Northbound				Eastbound				
	Thru	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
9:00 AM	0	0	0	0	0	0	0	0	0	96	0	96	96
9:15 AM	0	0	0	0	0	1	0	1	0	86	0	86	87
9:30 AM	0	0	0	0	0	0	0	0	0	88	0	88	88
9:45 AM	0	0	0	0	0	0	0	0	1	104	0	105	105
Total	0	0	0	0	0	1	0	1	1	374	0	375	376
Approach %	0.0	0.0	0.0	-	0.0	100.0	0.0	-	0.3	99.7	0.0	-	-
Total %	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.3	99.5	0.0	99.7	-
PHF	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.250	0.899	0.000	0.893	0.895
Lights	0	0	0	0	0	1	0	1	1	177	0	178	179
% Lights	-	-	-	-	-	100.0	-	100.0	100.0	47.3	-	47.5	47.6
Other Vehicles	0	0	0	0	0	0	0	0	0	197	0	197	197
% Other Vehicles	-	-	-	-	-	0.0	-	0.0	0.0	52.7	-	52.5	52.4

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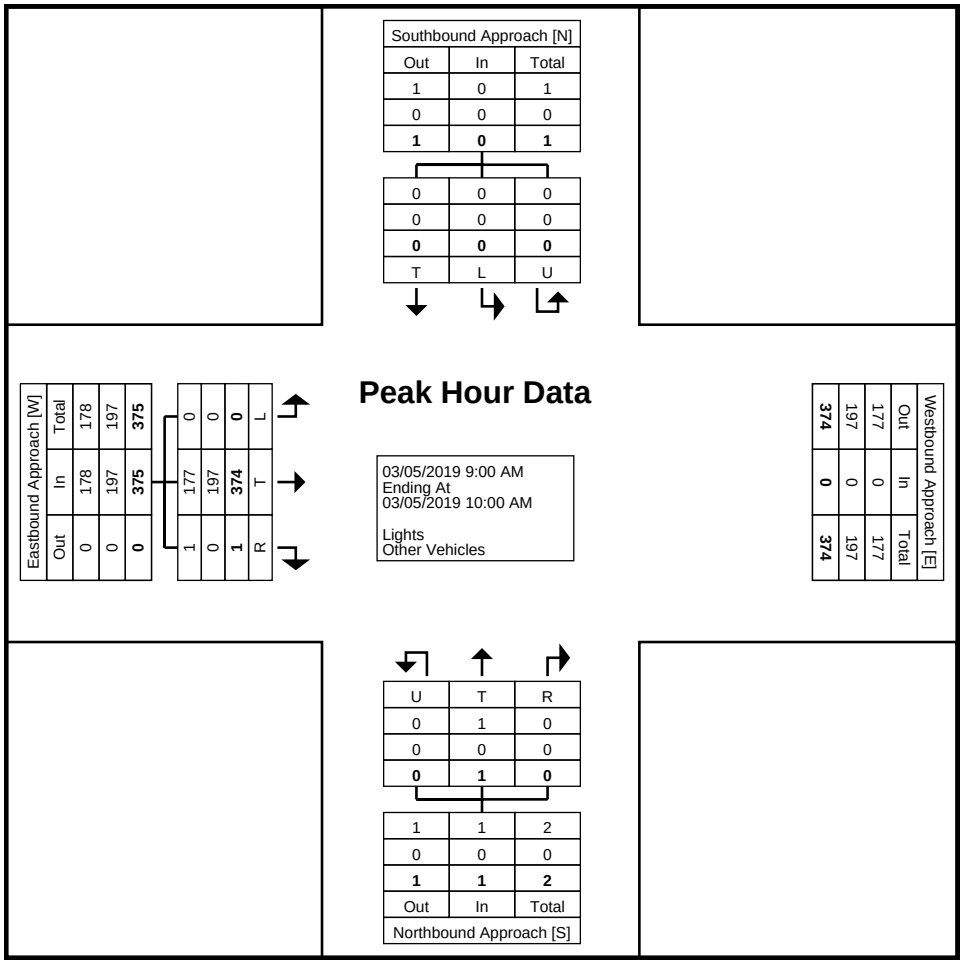

Turning Movement Peak Hour Data Plot (9:00 AM)

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Office of Traffic Engineering

Count Name: VAN-30 & Mentzer Church Rd
Site Code:
Start Date: 03/05/2019

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Southbound Approach				Northbound Approach				Eastbound Approach				
	Southbound				Northbound				Eastbound				
	Thru	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
4:30 PM	0	0	0	0	0	0	0	0	0	137	0	137	137
4:45 PM	0	0	0	0	0	0	0	0	3	118	0	121	121
5:00 PM	0	0	0	0	0	0	0	0	1	132	0	133	133
5:15 PM	0	0	0	0	0	1	0	1	0	118	0	118	119
Total	0	0	0	0	0	1	0	1	4	505	0	509	510
Approach %	0.0	0.0	0.0	-	0.0	100.0	0.0	-	0.8	99.2	0.0	-	-
Total %	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.8	99.0	0.0	99.8	-
PHF	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.333	0.922	0.000	0.929	0.931
Lights	0	0	0	0	0	1	0	1	4	320	0	324	325
% Lights	-	-	-	-	-	100.0	-	100.0	100.0	63.4	-	63.7	63.7
Other Vehicles	0	0	0	0	0	0	0	0	0	185	0	185	185
% Other Vehicles	-	-	-	-	-	0.0	-	0.0	0.0	36.6	-	36.3	36.3

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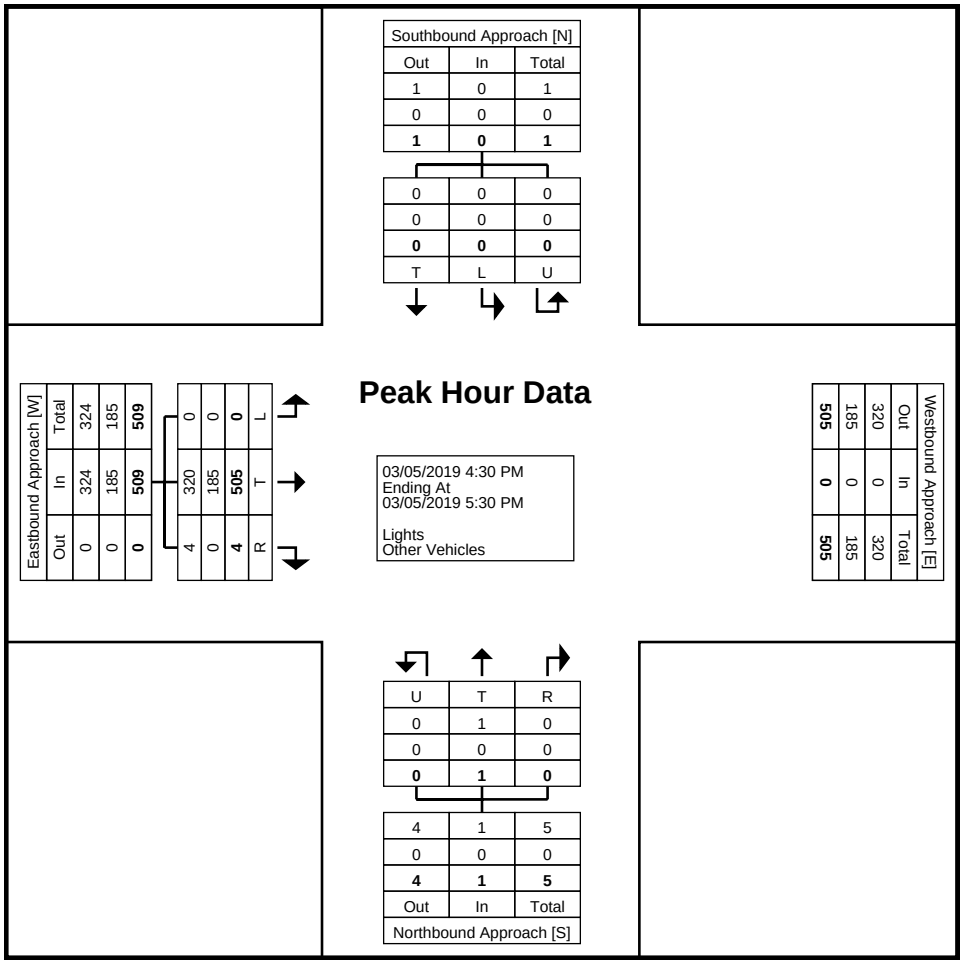
Count Name: VAN-30 & Mentzer Church Rd
Site Code:
Start Date: 03/05/2019



Turning Movement Peak Hour Data Plot (4:30 PM)

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Mentzer Church Rd
Site Code:
Start Date: 03/05/2019

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Southbound Approach				Northbound Approach				Eastbound Approach				
	Southbound				Northbound				Eastbound				
	Thru	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
7:15 AM	0	0	0	0	0	1	0	1	0	87	0	87	88
7:30 AM	0	0	0	0	0	0	0	0	0	96	0	96	96
7:45 AM	0	0	0	0	0	0	0	0	0	84	0	84	84
8:00 AM	0	0	0	0	0	0	0	0	0	79	0	79	79
Total	0	0	0	0	0	1	0	1	0	346	0	346	347
Approach %	0.0	0.0	0.0	-	0.0	100.0	0.0	-	0.0	100.0	0.0	-	-
Total %	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	99.7	0.0	99.7	-
PHF	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.901	0.000	0.901	0.904
Lights	0	0	0	0	0	1	0	1	0	200	0	200	201
% Lights	-	-	-	-	-	100.0	-	100.0	-	57.8	-	57.8	57.9
Other Vehicles	0	0	0	0	0	0	0	0	0	146	0	146	146
% Other Vehicles	-	-	-	-	-	0.0	-	0.0	-	42.2	-	42.2	42.1

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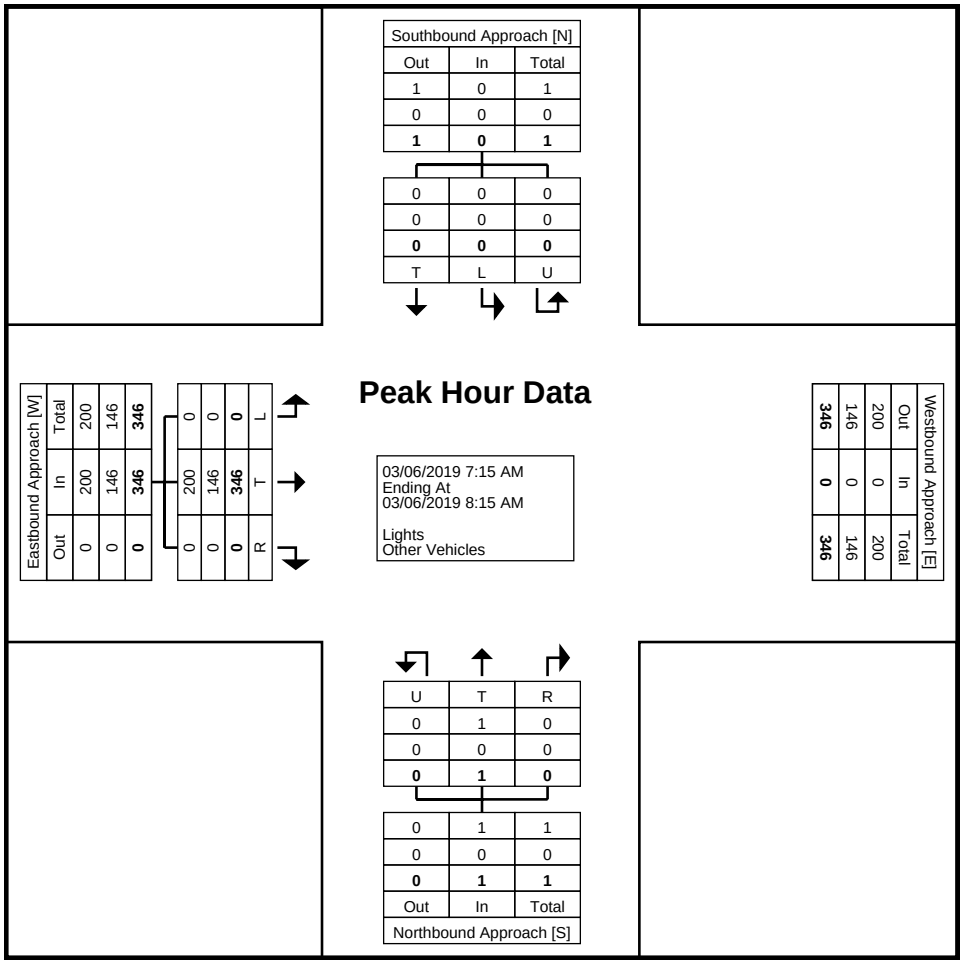
Site Code:
Start Date: 03/05/2019



Turning Movement Peak Hour Data Plot (7:15 AM)

Ohio Department of Transportation
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Office of Traffic Engineering

Count Name: VAN-30 & Elm Sugar
Site Code:
Start Date: 02/27/2019

Turning Movement Data

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
1:15 PM	0	1	0	0	1	0	113	2	0	115	1	0	0	0	1	0	84	0	0	84	201
1:30 PM	0	0	0	0	0	0	113	1	0	114	0	0	0	0	0	0	108	0	0	108	222
1:45 PM	0	1	0	0	1	0	104	0	0	104	0	0	0	0	0	0	114	2	0	116	221
Hourly Total	0	2	0	0	2	0	330	3	0	333	1	0	0	0	1	0	306	2	0	308	644
2:00 PM	0	1	0	0	1	0	130	1	0	131	0	0	0	0	0	0	101	0	0	101	233
2:15 PM	0	0	0	0	0	0	92	1	0	93	0	1	0	0	1	0	99	0	0	99	193
2:30 PM	0	0	0	0	0	0	115	1	0	116	2	0	0	0	2	0	123	0	0	123	241
2:45 PM	0	0	0	0	0	0	106	2	0	108	0	0	0	0	0	0	123	0	0	123	231
Hourly Total	0	1	0	0	1	0	443	5	0	448	2	1	0	0	3	0	446	0	0	446	898
3:00 PM	2	0	0	0	2	0	119	0	0	119	2	0	0	0	2	3	106	1	0	110	233
3:15 PM	0	0	0	0	0	0	108	2	0	110	0	1	0	0	1	0	125	0	0	125	236
3:30 PM	0	0	0	0	0	0	108	1	0	109	3	0	0	0	3	0	130	0	0	130	242
3:45 PM	0	1	0	0	1	0	122	1	0	123	2	0	0	0	2	0	124	0	0	124	250
Hourly Total	2	1	0	0	3	0	457	4	0	461	7	1	0	0	8	3	485	1	0	489	961
4:00 PM	1	0	0	0	1	0	125	4	0	129	1	0	0	0	1	0	126	0	0	126	257
4:15 PM	1	0	0	0	1	0	149	1	0	150	3	0	0	0	3	0	134	1	0	135	289
4:30 PM	2	0	0	0	2	0	113	1	0	114	1	0	0	0	1	0	132	1	0	133	250
4:45 PM	1	1	0	0	2	0	131	2	0	133	1	0	0	0	1	0	153	1	0	154	290
Hourly Total	5	1	0	0	6	0	518	8	0	526	6	0	0	0	6	0	545	3	0	548	1086
5:00 PM	1	1	0	0	2	0	129	1	0	130	0	0	0	0	0	0	117	1	0	118	250
5:15 PM	2	0	0	0	2	0	123	0	0	123	2	0	0	0	2	0	125	1	0	126	253
5:30 PM	0	0	0	0	0	0	127	4	0	131	0	0	0	0	0	0	129	0	0	129	260
5:45 PM	2	0	0	0	2	0	102	0	0	102	2	0	0	0	2	0	97	0	0	97	203
Hourly Total	5	1	0	0	6	0	481	5	0	486	4	0	0	0	4	0	468	2	0	470	966
6:00 PM	0	1	0	0	1	0	101	1	0	102	0	0	0	0	0	0	122	0	0	122	225
6:15 PM	0	1	0	0	1	0	90	0	0	90	2	1	0	0	3	0	103	0	0	103	197
6:30 PM	0	0	0	0	0	0	67	0	0	67	0	1	0	0	1	0	107	1	0	108	176
6:45 PM	0	0	0	0	0	0	93	0	0	93	0	0	0	0	0	0	78	0	0	78	171
Hourly Total	0	2	0	0	2	0	351	1	0	352	2	2	0	0	4	0	410	1	0	411	769
7:00 PM	0	0	0	0	0	0	73	0	0	73	0	0	0	0	0	0	71	0	0	71	144
7:15 PM	1	1	0	0	2	0	59	0	0	59	1	0	0	0	1	0	79	0	0	79	141
7:30 PM	2	0	0	0	2	0	64	0	0	64	0	0	0	0	0	0	61	0	0	61	127
7:45 PM	1	0	0	0	1	0	60	0	0	60	0	2	0	0	2	0	71	2	0	73	136
Hourly Total	4	1	0	0	5	0	256	0	0	256	1	2	0	0	3	0	282	2	0	284	548
8:00 PM	0	0	0	0	0	0	55	0	0	55	0	0	0	0	0	0	51	0	0	51	106

8:15 PM	0	1	0	0	1	0	58	0	0	58	0	0	0	0	0	0	64	1	0	65	124
8:30 PM	0	0	0	0	0	0	48	1	0	49	0	0	0	0	0	0	63	0	0	63	112
8:45 PM	0	0	0	0	0	0	40	1	0	41	0	0	0	0	0	0	59	1	0	60	101
Hourly Total	0	1	0	0	1	0	201	2	0	203	0	0	0	0	0	0	237	2	0	239	443
9:00 PM	0	0	0	0	0	0	41	1	0	42	0	0	0	0	0	0	47	0	0	47	89
9:15 PM	0	0	0	0	0	0	45	0	0	45	0	0	0	0	0	0	60	0	0	60	105
9:30 PM	0	0	0	0	0	0	42	0	0	42	0	0	0	0	0	0	48	0	0	48	90
9:45 PM	0	0	0	0	0	0	46	0	0	46	0	0	0	0	0	0	54	0	0	54	100
Hourly Total	0	0	0	0	0	0	174	1	0	175	0	0	0	0	0	0	209	0	0	209	384
10:00 PM	0	0	0	0	0	0	37	0	0	37	0	0	0	0	0	0	43	1	0	44	81
10:15 PM	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	0	41	1	0	42	71
10:30 PM	0	0	0	0	0	0	31	0	0	31	0	0	0	0	0	0	38	0	0	38	69
10:45 PM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	34	0	0	34	59
Hourly Total	0	0	0	0	0	0	122	0	0	122	0	0	0	0	0	0	156	2	0	158	280
11:00 PM	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	0	38	0	0	38	67
11:15 PM	0	0	0	0	0	0	35	0	0	35	0	0	0	0	0	0	35	0	0	35	70
11:30 PM	0	0	0	0	0	0	35	0	0	35	0	0	0	0	0	0	23	0	0	23	58
11:45 PM	0	0	0	0	0	0	20	1	0	21	0	0	0	0	0	0	23	0	0	23	44
Hourly Total	0	0	0	0	0	0	119	1	0	120	0	0	0	0	0	0	119	0	0	119	239
12:00 AM	0	0	0	0	0	0	25	0	0	25	2	0	0	0	2	0	15	0	0	15	42
12:15 AM	0	0	0	0	0	0	22	0	0	22	1	0	0	0	1	0	30	0	0	30	53
12:30 AM	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	23	0	0	23	35
12:45 AM	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	0	29	0	0	29	51
Hourly Total	0	0	0	0	0	0	81	0	0	81	3	0	0	0	3	0	97	0	0	97	181
1:00 AM	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	25	0	0	25	41
1:15 AM	0	0	0	0	0	0	30	0	0	30	0	0	0	0	0	0	21	0	0	21	51
1:30 AM	0	0	0	0	0	0	28	0	0	28	0	0	0	0	0	0	18	0	0	18	46
1:45 AM	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	14	0	0	14	33
Hourly Total	0	0	0	0	0	0	93	0	0	93	0	0	0	0	0	0	78	0	0	78	171
2:00 AM	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	0	15	0	0	15	37
2:15 AM	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	0	15	0	0	15	42
2:30 AM	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	21	0	0	21	45
2:45 AM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	18	0	0	18	43
Hourly Total	0	0	0	0	0	0	98	0	0	98	0	0	0	0	0	0	69	0	0	69	167
3:00 AM	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	21	0	0	21	40
3:15 AM	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	22	0	0	22	46
3:30 AM	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	0	25	0	0	25	54
3:45 AM	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	0	16	0	0	16	39
Hourly Total	0	0	0	0	0	0	95	0	0	95	0	0	0	0	0	0	84	0	0	84	179
4:00 AM	0	0	0	0	0	0	27	1	0	28	0	0	0	0	0	0	28	0	0	28	56
4:15 AM	0	0	0	0	0	0	38	0	0	38	0	0	0	0	0	0	34	0	0	34	72
4:30 AM	0	0	0	0	0	0	31	1	0	32	0	0	0	0	0	0	34	0	0	34	66
4:45 AM	0	0	0	0	0	0	36	0	0	36	1	0	0	0	1	0	33	0	0	33	70
Hourly Total	0	0	0	0	0	0	132	2	0	134	1	0	0	0	1	0	129	0	0	129	264
5:00 AM	0	0	0	0	0	0	67	0	0	67	0	0	0	0	0	0	38	0	0	38	105
5:15 AM	0	0	0	0	0	0	58	1	0	59	2	0	0	0	2	0	34	0	0	34	95
5:30 AM	0	0	0	0	0	0	51	1	0	52	2	0	0	0	2	0	46	0	0	46	100
5:45 AM	0	0	0	0	0	0	60	0	0	60	0	0	0	0	0	0	56	0	0	56	116
Hourly Total	0	0	0	0	0	0	236	2	0	238	4	0	0	0	4	0	174	0	0	174	416
6:00 AM	0	0	0	0	0	0	74	2	0	76	0	0	0	0	0	0	60	0	0	60	136
6:15 AM	0	0	0	0	0	0	84	2	0	86	0	0	0	0	0	0	53	0	0	53	139
6:30 AM	0	0	0	0	0	0	94	1	0	95	1	0	0	0	1	1	76	0	0	77	173

6:45 AM	3	0	0	0	3	0	95	2	0	97	1	0	0	0	1	0	79	0	0	79	180
Hourly Total	3	0	0	0	3	0	347	7	0	354	2	0	0	0	2	1	268	0	0	269	628
7:00 AM	0	0	0	0	0	0	115	0	0	115	3	0	0	0	3	0	88	1	0	89	207
7:15 AM	0	0	0	0	0	0	121	0	0	121	1	0	0	0	1	0	83	1	0	84	206
7:30 AM	0	0	0	0	0	0	111	0	0	111	2	0	0	0	2	0	86	0	0	86	199
7:45 AM	0	0	0	0	0	0	90	0	0	90	2	3	0	0	5	0	73	1	0	74	169
Hourly Total	0	0	0	0	0	0	437	0	0	437	8	3	0	0	11	0	330	3	0	333	781
8:00 AM	0	0	0	0	0	0	86	0	0	86	0	0	0	0	0	0	90	0	0	90	176
8:15 AM	0	0	0	0	0	0	81	0	0	81	0	0	0	0	0	0	89	1	0	90	171
8:30 AM	1	0	0	0	1	0	84	0	0	84	0	0	0	0	0	0	91	0	1	92	177
8:45 AM	0	0	0	0	0	0	93	1	0	94	1	0	0	0	1	0	112	1	0	113	208
Hourly Total	1	0	0	0	1	0	344	1	0	345	1	0	0	0	1	0	382	2	1	385	732
9:00 AM	1	1	0	0	2	0	101	0	0	101	0	1	0	0	1	0	97	0	0	97	201
9:15 AM	1	0	0	0	1	0	88	0	0	88	1	0	0	0	1	0	97	2	0	99	189
9:30 AM	0	0	0	0	0	0	104	0	0	104	0	0	0	0	0	0	90	1	0	91	195
9:45 AM	1	0	0	0	1	0	85	0	0	85	0	1	0	0	1	0	97	1	0	98	185
Hourly Total	3	1	0	0	4	0	378	0	0	378	1	2	0	0	3	0	381	4	0	385	770
10:00 AM	1	0	0	0	1	0	107	0	0	107	0	0	0	0	0	1	101	2	0	104	212
10:15 AM	1	0	0	0	1	0	113	1	0	114	0	0	0	0	0	0	79	0	0	79	194
10:30 AM	1	0	0	0	1	0	106	0	0	106	0	0	0	0	0	0	90	0	0	90	197
10:45 AM	0	0	1	0	1	0	111	0	0	111	0	0	0	0	0	0	96	2	0	98	210
Hourly Total	3	0	1	0	4	0	437	1	0	438	0	0	0	0	0	1	366	4	0	371	813
11:00 AM	0	0	0	0	0	0	103	0	0	103	0	0	0	0	0	0	101	0	0	101	204
11:15 AM	0	0	0	0	0	0	98	0	0	98	0	0	0	0	0	0	108	0	0	108	206
11:30 AM	0	0	0	0	0	0	98	1	0	99	1	0	0	0	1	0	92	1	0	93	193
11:45 AM	1	0	0	0	1	0	112	0	0	112	0	0	0	0	0	0	88	0	0	88	201
Hourly Total	1	0	0	0	1	0	411	1	0	412	1	0	0	0	1	0	389	1	0	390	804
12:00 PM	1	0	0	0	1	0	85	0	0	85	1	0	0	0	1	0	92	1	0	93	180
12:15 PM	0	0	0	0	0	0	107	0	0	107	1	0	0	0	1	0	90	0	0	90	198
12:30 PM	0	0	0	0	0	0	96	0	0	96	0	0	0	0	0	0	113	1	0	114	210
12:45 PM	0	1	0	0	1	0	110	0	0	110	0	0	0	0	0	0	87	1	0	88	199
Hourly Total	1	1	0	0	2	0	398	0	0	398	2	0	0	0	2	0	382	3	0	385	787
1:00 PM	0	0	0	0	0	0	102	1	0	103	0	0	0	0	0	0	104	1	0	105	208
Grand Total	28	12	1	0	41	0	7041	45	0	7086	46	11	0	0	57	5	6896	33	1	6935	14119
Approach %	68.3	29.3	2.4	0.0	-	0.0	99.4	0.6	0.0	-	80.7	19.3	0.0	0.0	-	0.1	99.4	0.5	0.0	-	-
Total %	0.2	0.1	0.0	0.0	0.3	0.0	49.9	0.3	0.0	50.2	0.3	0.1	0.0	0.0	0.4	0.0	48.8	0.2	0.0	49.1	-
Lights	25	11	1	0	37	0	3720	45	0	3765	46	11	0	0	57	5	3655	24	1	3685	7544
% Lights	89.3	91.7	100.0	-	90.2	-	52.8	100.0	-	53.1	100.0	100.0	-	-	100.0	100.0	53.0	72.7	100.0	53.1	53.4
Other Vehicles	3	1	0	0	4	0	3321	0	0	3321	0	0	0	0	0	0	3241	9	0	3250	6575
% Other Vehicles	10.7	8.3	0.0	-	9.8	-	47.2	0.0	-	46.9	0.0	0.0	-	-	0.0	0.0	47.0	27.3	0.0	46.9	46.6

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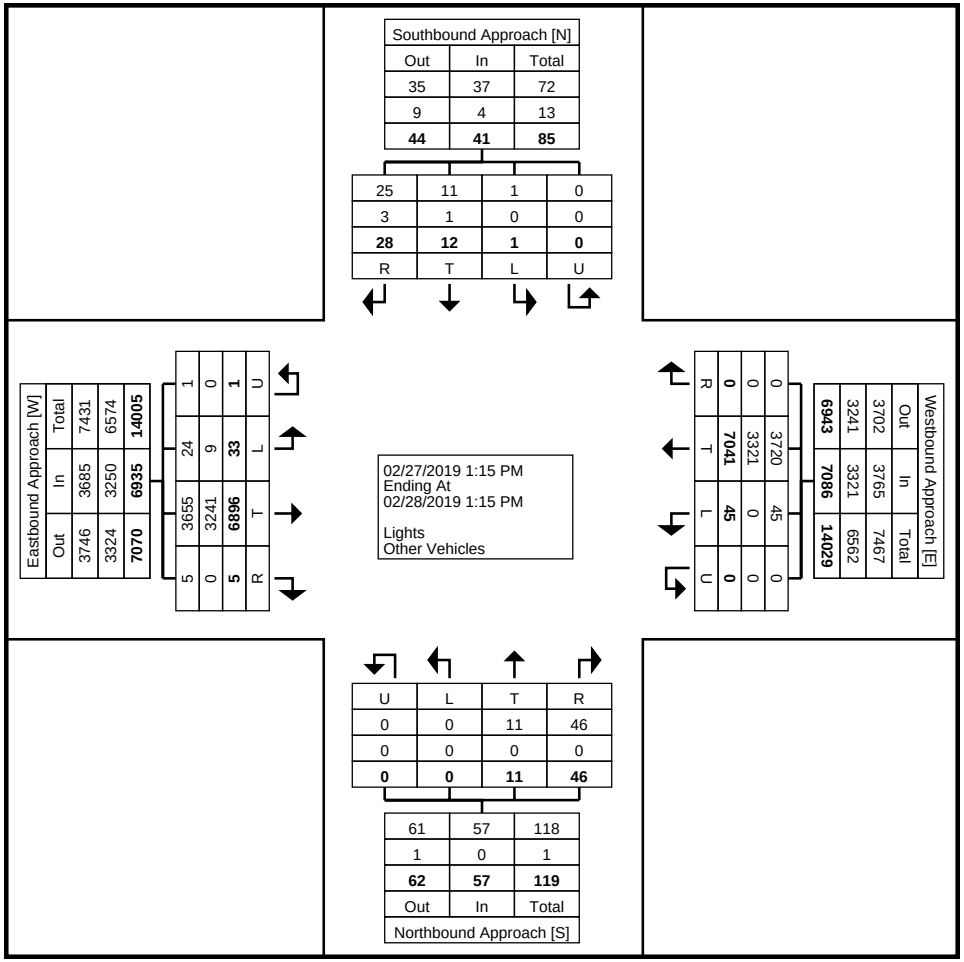
Office of Traffic Engineering

Count Name: VAN-30 & Elm Sugar
Site Code:
Start Date: 02/27/2019



Turning Movement Data Plot

Ohio Department of Transportation
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Office of Traffic Engineering

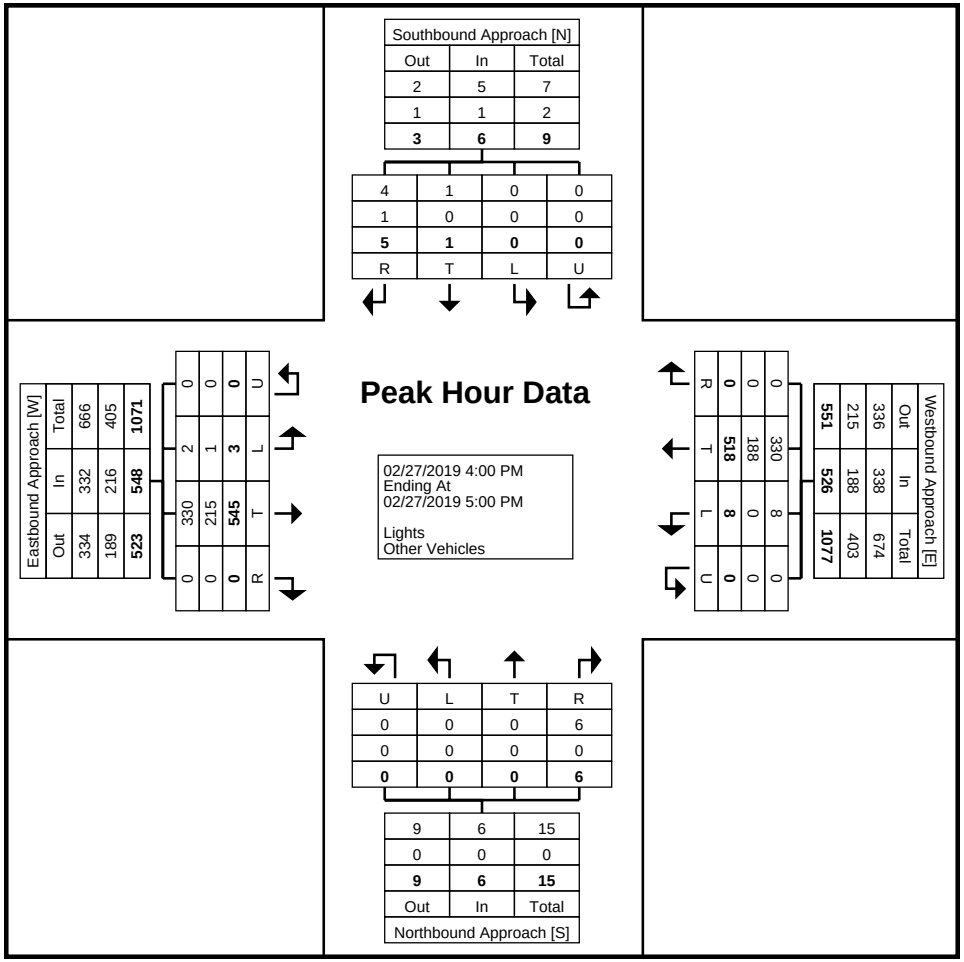
Count Name: VAN-30 & Elm Sugar
Site Code:
Start Date: 02/27/2019

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
4:00 PM	1	0	0	0	1	0	125	4	0	129	1	0	0	0	1	0	126	0	0	126	257
4:15 PM	1	0	0	0	1	0	149	1	0	150	3	0	0	0	3	0	134	1	0	135	289
4:30 PM	2	0	0	0	2	0	113	1	0	114	1	0	0	0	1	0	132	1	0	133	250
4:45 PM	1	1	0	0	2	0	131	2	0	133	1	0	0	0	1	0	153	1	0	154	290
Total	5	1	0	0	6	0	518	8	0	526	6	0	0	0	6	0	545	3	0	548	1086
Approach %	83.3	16.7	0.0	0.0	-	0.0	98.5	1.5	0.0	-	100.0	0.0	0.0	0.0	-	0.0	99.5	0.5	0.0	-	-
Total %	0.5	0.1	0.0	0.0	0.6	0.0	47.7	0.7	0.0	48.4	0.6	0.0	0.0	0.0	0.6	0.0	50.2	0.3	0.0	50.5	-
PHF	0.625	0.250	0.000	0.000	0.750	0.000	0.869	0.500	0.000	0.877	0.500	0.000	0.000	0.000	0.500	0.000	0.891	0.750	0.000	0.890	0.936
Lights	4	1	0	0	5	0	330	8	0	338	6	0	0	0	6	0	330	2	0	332	681
% Lights	80.0	100.0	-	-	83.3	-	63.7	100.0	-	64.3	100.0	-	-	-	100.0	-	60.6	66.7	-	60.6	62.7
Other Vehicles	1	0	0	0	1	0	188	0	0	188	0	0	0	0	0	0	215	1	0	216	405
% Other Vehicles	20.0	0.0	-	-	16.7	-	36.3	0.0	-	35.7	0.0	-	-	-	0.0	-	39.4	33.3	-	39.4	37.3

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Elm Sugar
Site Code:
Start Date: 02/27/2019



Turning Movement Peak Hour Data Plot (4:00 PM)

Ohio Department of Transportation
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Office of Traffic Engineering

Count Name: VAN-30 & Elm Sugar
Site Code:
Start Date: 02/27/2019

Turning Movement Peak Hour Data (10:30 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
10:30 AM	1	0	0	0	1	0	106	0	0	106	0	0	0	0	0	0	90	0	0	90	197
10:45 AM	0	0	1	0	1	0	111	0	0	111	0	0	0	0	0	0	96	2	0	98	210
11:00 AM	0	0	0	0	0	0	103	0	0	103	0	0	0	0	0	0	101	0	0	101	204
11:15 AM	0	0	0	0	0	0	98	0	0	98	0	0	0	0	0	0	108	0	0	108	206
Total	1	0	1	0	2	0	418	0	0	418	0	0	0	0	0	0	395	2	0	397	817
Approach %	50.0	0.0	50.0	0.0	-	0.0	100.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	99.5	0.5	0.0	-	-
Total %	0.1	0.0	0.1	0.0	0.2	0.0	51.2	0.0	0.0	51.2	0.0	0.0	0.0	0.0	0.0	0.0	48.3	0.2	0.0	48.6	-
PHF	0.250	0.000	0.250	0.000	0.500	0.000	0.941	0.000	0.000	0.941	0.000	0.000	0.000	0.000	0.000	0.000	0.914	0.250	0.000	0.919	0.973
Lights	1	0	1	0	2	0	230	0	0	230	0	0	0	0	0	0	212	2	0	214	446
% Lights	100.0	-	100.0	-	100.0	-	55.0	-	-	55.0	-	-	-	-	-	-	53.7	100.0	-	53.9	54.6
Other Vehicles	0	0	0	0	0	0	188	0	0	188	0	0	0	0	0	0	183	0	0	183	371
% Other Vehicles	0.0	-	0.0	-	0.0	-	45.0	-	-	45.0	-	-	-	-	-	-	46.3	0.0	-	46.1	45.4

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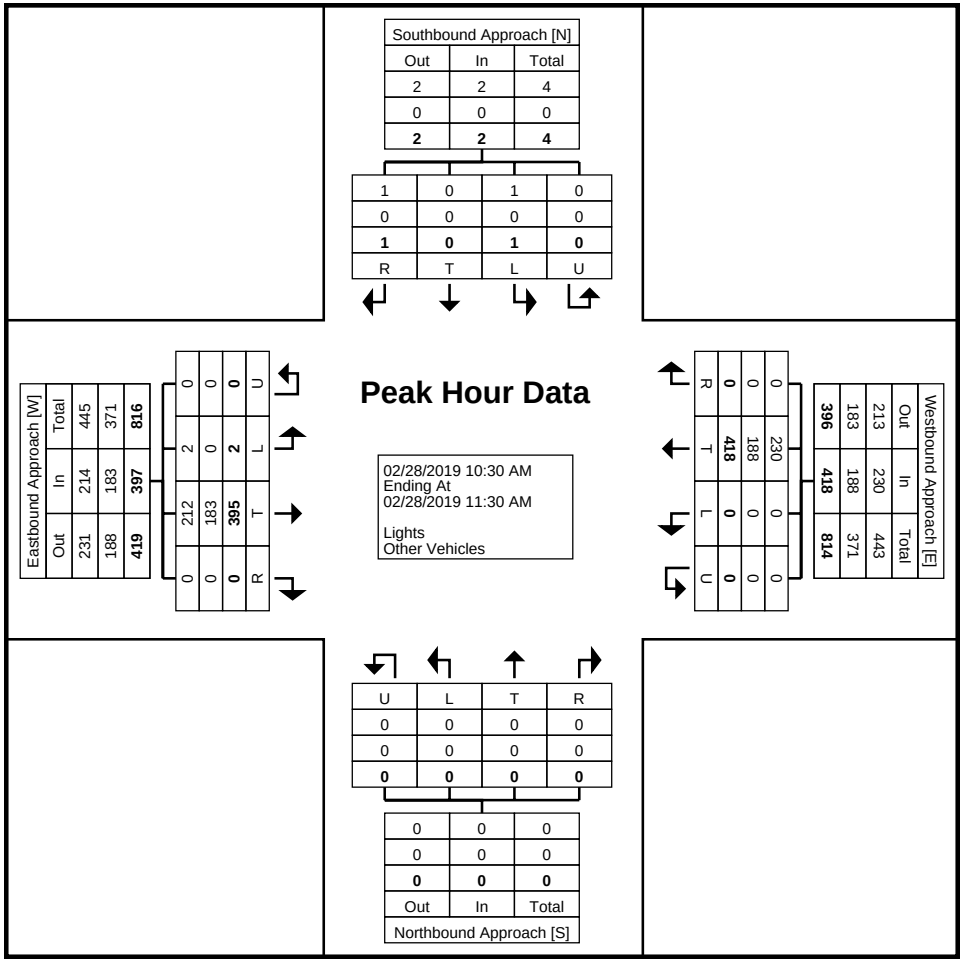
Site Code:
Start Date: 02/27/2019



Turning Movement Peak Hour Data Plot (10:30 AM)

Ohio Department of Transportation
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Office of Traffic Engineering

Count Name: VAN-30 & Elm Sugar
Site Code:
Start Date: 02/27/2019

Turning Movement Peak Hour Data (12:15 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
12:15 PM	0	0	0	0	0	0	107	0	0	107	1	0	0	0	1	0	90	0	0	90	198
12:30 PM	0	0	0	0	0	0	96	0	0	96	0	0	0	0	0	0	113	1	0	114	210
12:45 PM	0	1	0	0	1	0	110	0	0	110	0	0	0	0	0	0	87	1	0	88	199
1:00 PM	0	0	0	0	0	0	102	1	0	103	0	0	0	0	0	0	104	1	0	105	208
Total	0	1	0	0	1	0	415	1	0	416	1	0	0	0	1	0	394	3	0	397	815
Approach %	0.0	100.0	0.0	0.0	-	0.0	99.8	0.2	0.0	-	100.0	0.0	0.0	0.0	-	0.0	99.2	0.8	0.0	-	-
Total %	0.0	0.1	0.0	0.0	0.1	0.0	50.9	0.1	0.0	51.0	0.1	0.0	0.0	0.0	0.1	0.0	48.3	0.4	0.0	48.7	-
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.943	0.250	0.000	0.945	0.250	0.000	0.000	0.000	0.250	0.000	0.872	0.750	0.000	0.871	0.970
Lights	0	1	0	0	1	0	215	1	0	216	1	0	0	0	1	0	201	2	0	203	421
% Lights	-	100.0	-	-	100.0	-	51.8	100.0	-	51.9	100.0	-	-	-	100.0	-	51.0	66.7	-	51.1	51.7
Other Vehicles	0	0	0	0	0	0	200	0	0	200	0	0	0	0	0	0	193	1	0	194	394
% Other Vehicles	-	0.0	-	-	0.0	-	48.2	0.0	-	48.1	0.0	-	-	-	0.0	-	49.0	33.3	-	48.9	48.3

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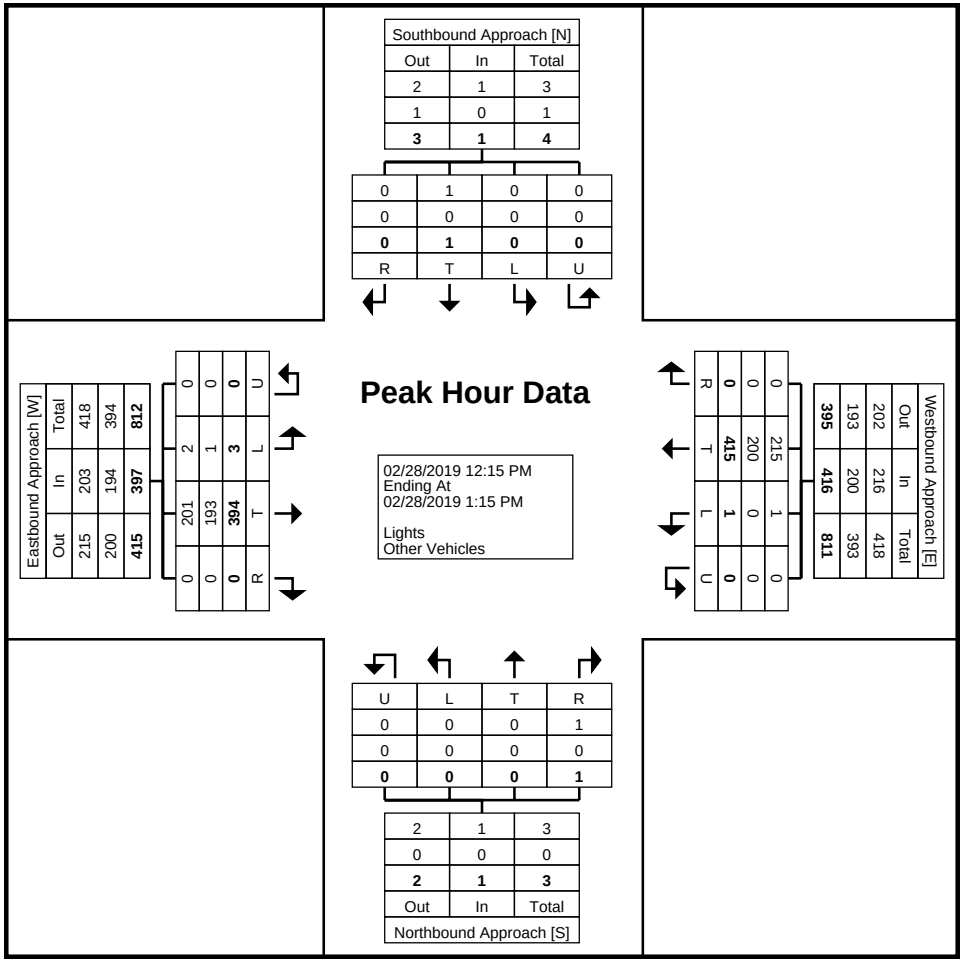
Site Code:
Start Date: 02/27/2019



Turning Movement Peak Hour Data Plot (12:15 PM)

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Start Date: 02/27/2019

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Office of Traffic Engineering

Count Name: VAN-30 & Lare Rd
Site Code:
Start Date: 03/06/2019

Turning Movement Data

Start Time	Westbound Approach				Northbound Approach				Eastbound Approach				Int. Total
	Westbound				Northbound				Eastbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
10:30 AM	102	0	0	102	0	1	0	1	0	83	0	83	186
10:45 AM	111	0	0	111	0	3	0	3	0	82	0	82	196
Hourly Total	213	0	0	213	0	4	0	4	0	165	0	165	382
11:00 AM	91	0	0	91	0	0	0	0	0	82	0	82	173
11:15 AM	86	0	0	86	0	0	0	0	0	89	0	89	175
11:30 AM	101	1	0	102	0	0	0	0	0	96	0	96	198
11:45 AM	81	0	0	81	0	0	0	0	1	92	0	93	174
Hourly Total	359	1	0	360	0	0	0	0	1	359	0	360	720
12:00 PM	92	0	0	92	0	1	0	1	1	87	0	88	181
12:15 PM	107	0	0	107	0	1	0	1	0	68	0	68	176
12:30 PM	84	0	0	84	0	0	0	0	0	102	0	102	186
12:45 PM	92	0	0	92	0	0	0	0	1	94	0	95	187
Hourly Total	375	0	0	375	0	2	0	2	2	351	0	353	730
1:00 PM	94	0	0	94	0	0	0	0	0	91	0	91	185
1:15 PM	106	0	0	106	0	0	0	0	0	90	0	90	196
1:30 PM	125	0	0	125	0	1	0	1	0	106	0	106	232
1:45 PM	116	0	0	116	0	0	0	0	1	113	0	114	230
Hourly Total	441	0	0	441	0	1	0	1	1	400	0	401	843
2:00 PM	90	0	0	90	0	0	0	0	2	97	0	99	189
2:15 PM	103	0	0	103	0	0	0	0	0	101	0	101	204
2:30 PM	97	0	0	97	0	0	0	0	0	110	0	110	207
2:45 PM	126	0	0	126	0	0	0	0	0	106	0	106	232
Hourly Total	416	0	0	416	0	0	0	0	2	414	0	416	832
3:00 PM	97	0	0	97	0	0	0	0	0	116	0	116	213
3:15 PM	135	0	0	135	0	0	0	0	0	114	0	114	249
3:30 PM	122	0	0	122	0	2	0	2	0	114	0	114	238
3:45 PM	133	0	0	133	0	0	0	0	1	134	0	135	268
Hourly Total	487	0	0	487	0	2	0	2	1	478	0	479	968
4:00 PM	144	1	0	145	0	0	0	0	1	123	0	124	269
4:15 PM	148	0	0	148	0	1	0	1	0	130	0	130	279
4:30 PM	124	0	0	124	0	2	0	2	0	119	0	119	245
4:45 PM	127	0	0	127	0	0	0	0	0	118	0	118	245
Hourly Total	543	1	0	544	0	3	0	3	1	490	0	491	1038
5:00 PM	120	0	0	120	0	1	0	1	0	142	0	142	263
5:15 PM	149	0	0	149	0	0	0	0	2	122	0	124	273

5:30 PM	104	0	0	104	1	1	0	2	1	140	0	141	247
5:45 PM	101	0	0	101	0	0	0	0	3	117	0	120	221
Hourly Total	474	0	0	474	1	2	0	3	6	521	0	527	1004
6:00 PM	97	0	0	97	0	0	0	0	0	112	0	112	209
6:15 PM	99	1	0	100	0	0	0	0	0	102	0	102	202
6:30 PM	94	0	0	94	0	1	0	1	0	75	0	75	170
6:45 PM	71	0	0	71	0	0	0	0	0	69	0	69	140
Hourly Total	361	1	0	362	0	1	0	1	0	358	0	358	721
7:00 PM	61	0	0	61	0	0	0	0	0	83	1	84	145
7:15 PM	68	1	0	69	0	1	0	1	0	82	0	82	152
7:30 PM	57	0	0	57	0	0	0	0	1	72	0	73	130
7:45 PM	55	0	0	55	0	0	0	0	1	66	0	67	122
Hourly Total	241	1	0	242	0	1	0	1	2	303	1	306	549
8:00 PM	45	0	0	45	0	0	0	0	0	82	0	82	127
8:15 PM	41	0	0	41	0	0	0	0	0	48	0	48	89
8:30 PM	50	0	0	50	0	0	0	0	0	57	0	57	107
8:45 PM	59	0	0	59	0	1	0	1	0	65	0	65	125
Hourly Total	195	0	0	195	0	1	0	1	0	252	0	252	448
9:00 PM	47	0	0	47	0	0	0	0	0	47	0	47	94
9:15 PM	48	0	0	48	0	1	0	1	0	56	0	56	105
9:30 PM	44	0	0	44	0	0	0	0	0	54	0	54	98
9:45 PM	38	0	0	38	0	0	0	0	1	53	0	54	92
Hourly Total	177	0	0	177	0	1	0	1	1	210	0	211	389
10:00 PM	37	0	0	37	0	0	0	0	0	37	0	37	74
10:15 PM	30	0	0	30	0	0	0	0	0	47	0	47	77
10:30 PM	38	0	0	38	0	0	0	0	0	36	0	36	74
10:45 PM	24	0	0	24	0	0	0	0	0	48	0	48	72
Hourly Total	129	0	0	129	0	0	0	0	0	168	0	168	297
11:00 PM	30	0	0	30	0	0	0	0	0	40	0	40	70
11:15 PM	30	0	0	30	0	0	0	0	0	28	0	28	58
11:30 PM	37	0	0	37	0	0	0	0	0	34	0	34	71
11:45 PM	32	0	0	32	0	0	0	0	0	24	0	24	56
Hourly Total	129	0	0	129	0	0	0	0	0	126	0	126	255
12:00 AM	25	0	0	25	0	0	0	0	0	23	0	23	48
12:15 AM	25	0	0	25	1	0	0	1	0	26	0	26	52
12:30 AM	22	0	0	22	0	0	0	0	0	23	0	23	45
12:45 AM	29	0	0	29	0	0	0	0	0	21	0	21	50
Hourly Total	101	0	0	101	1	0	0	1	0	93	0	93	195
1:00 AM	20	0	0	20	0	0	0	0	0	18	0	18	38
1:15 AM	19	0	0	19	0	0	0	0	0	19	0	19	38
1:30 AM	14	0	0	14	0	0	0	0	0	19	0	19	33
1:45 AM	24	0	0	24	0	0	0	0	0	17	0	17	41
Hourly Total	77	0	0	77	0	0	0	0	0	73	0	73	150
2:00 AM	28	0	0	28	0	0	0	0	0	13	0	13	41
2:15 AM	26	0	0	26	0	0	0	0	0	24	0	24	50
2:30 AM	18	0	0	18	0	0	0	0	0	12	0	12	30
2:45 AM	24	0	0	24	0	0	0	0	0	15	0	15	39
Hourly Total	96	0	0	96	0	0	0	0	0	64	0	64	160
3:00 AM	18	0	0	18	0	0	0	0	0	19	0	19	37
3:15 AM	21	0	0	21	0	0	0	0	0	22	0	22	43
3:30 AM	29	0	0	29	0	0	0	0	0	27	0	27	56
3:45 AM	24	0	0	24	0	0	0	0	0	24	0	24	48

Hourly Total	92	0	0	92	0	0	0	0	0	92	0	92	184
4:00 AM	20	0	0	20	0	0	0	0	0	30	0	30	50
4:15 AM	27	0	0	27	0	0	0	0	0	29	0	29	56
4:30 AM	34	0	0	34	0	0	0	0	0	37	0	37	71
4:45 AM	42	0	0	42	0	0	0	0	0	34	0	34	76
Hourly Total	123	0	0	123	0	0	0	0	0	130	0	130	253
5:00 AM	44	0	0	44	0	0	0	0	0	35	0	35	79
5:15 AM	56	0	0	56	0	0	0	0	1	42	0	43	99
5:30 AM	54	0	0	54	0	0	0	0	0	49	0	49	103
5:45 AM	66	0	0	66	0	0	0	0	0	57	0	57	123
Hourly Total	220	0	0	220	0	0	0	0	1	183	0	184	404
6:00 AM	82	0	0	82	0	1	0	1	0	41	0	41	124
6:15 AM	76	0	0	76	0	2	0	2	1	63	0	64	142
6:30 AM	108	0	0	108	0	0	0	0	1	68	0	69	177
6:45 AM	95	0	0	95	0	0	0	0	2	67	0	69	164
Hourly Total	361	0	0	361	0	3	0	3	4	239	0	243	607
7:00 AM	111	0	0	111	0	3	0	3	0	74	0	74	188
7:15 AM	136	0	0	136	0	0	0	0	0	83	0	83	219
7:30 AM	104	0	0	104	0	1	0	1	0	88	0	88	193
7:45 AM	92	0	0	92	0	0	0	0	0	98	0	98	190
Hourly Total	443	0	0	443	0	4	0	4	0	343	0	343	790
8:00 AM	101	0	0	101	0	2	0	2	0	75	0	75	178
8:15 AM	98	0	0	98	0	1	0	1	0	90	0	90	189
8:30 AM	94	0	0	94	0	0	0	0	0	76	0	76	170
8:45 AM	101	0	0	101	0	1	0	1	0	91	0	91	193
Hourly Total	394	0	0	394	0	4	0	4	0	332	0	332	730
9:00 AM	88	0	0	88	0	0	0	0	0	110	0	110	198
9:15 AM	84	0	0	84	0	0	0	0	1	85	0	86	170
9:30 AM	83	0	0	83	0	0	0	0	0	104	0	104	187
9:45 AM	96	0	0	96	0	1	0	1	0	95	0	95	192
Hourly Total	351	0	0	351	0	1	0	1	1	394	0	395	747
10:00 AM	91	0	0	91	0	0	0	0	0	100	0	100	191
10:15 AM	105	0	0	105	0	0	0	0	1	92	0	93	198
Grand Total	6994	4	0	6998	2	30	0	32	24	6730	1	6755	13785
Approach %	99.9	0.1	0.0	-	6.3	93.8	0.0	-	0.4	99.6	0.0	-	-
Total %	50.7	0.0	0.0	50.8	0.0	0.2	0.0	0.2	0.2	48.8	0.0	49.0	-
Lights	3627	4	0	3631	2	27	0	29	22	3523	0	3545	7205
% Lights	51.9	100.0	-	51.9	100.0	90.0	-	90.6	91.7	52.3	0.0	52.5	52.3
Other Vehicles	3367	0	0	3367	0	3	0	3	2	3207	1	3210	6580
% Other Vehicles	48.1	0.0	-	48.1	0.0	10.0	-	9.4	8.3	47.7	100.0	47.5	47.7

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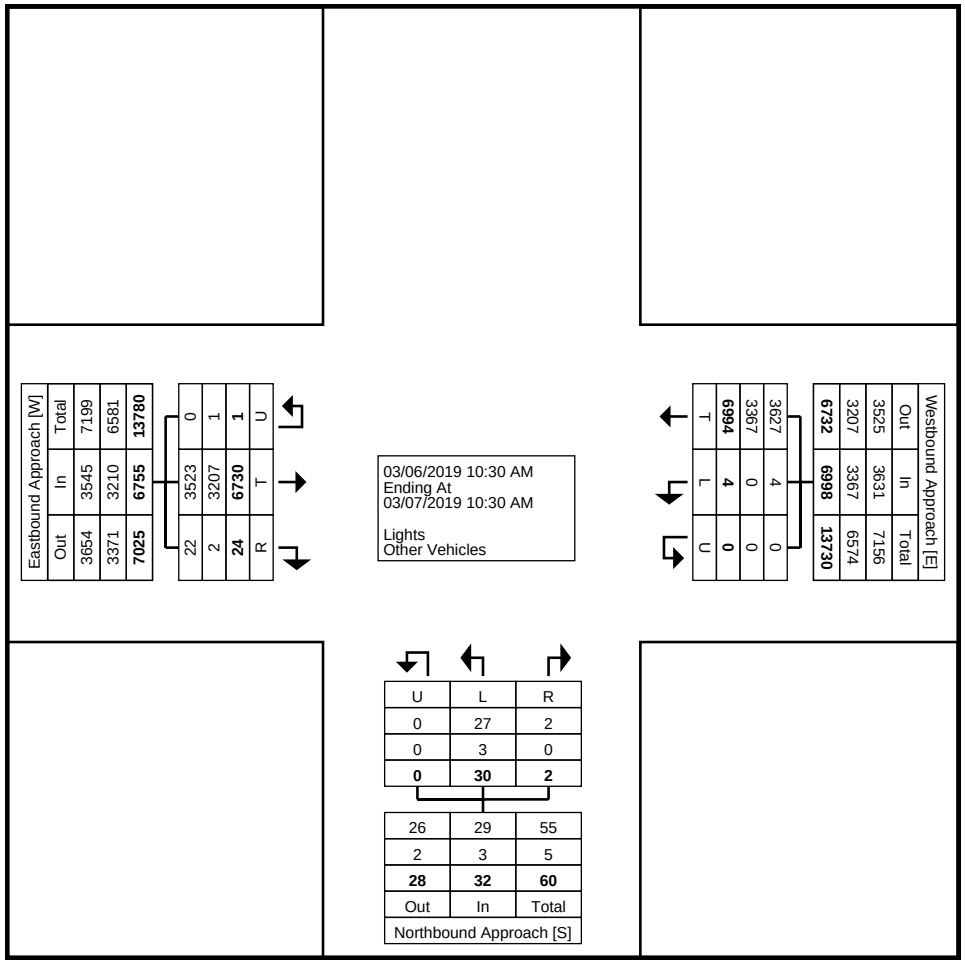
Site Code:
Start Date: 03/06/2019



Turning Movement Data Plot

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Office of Traffic Engineering

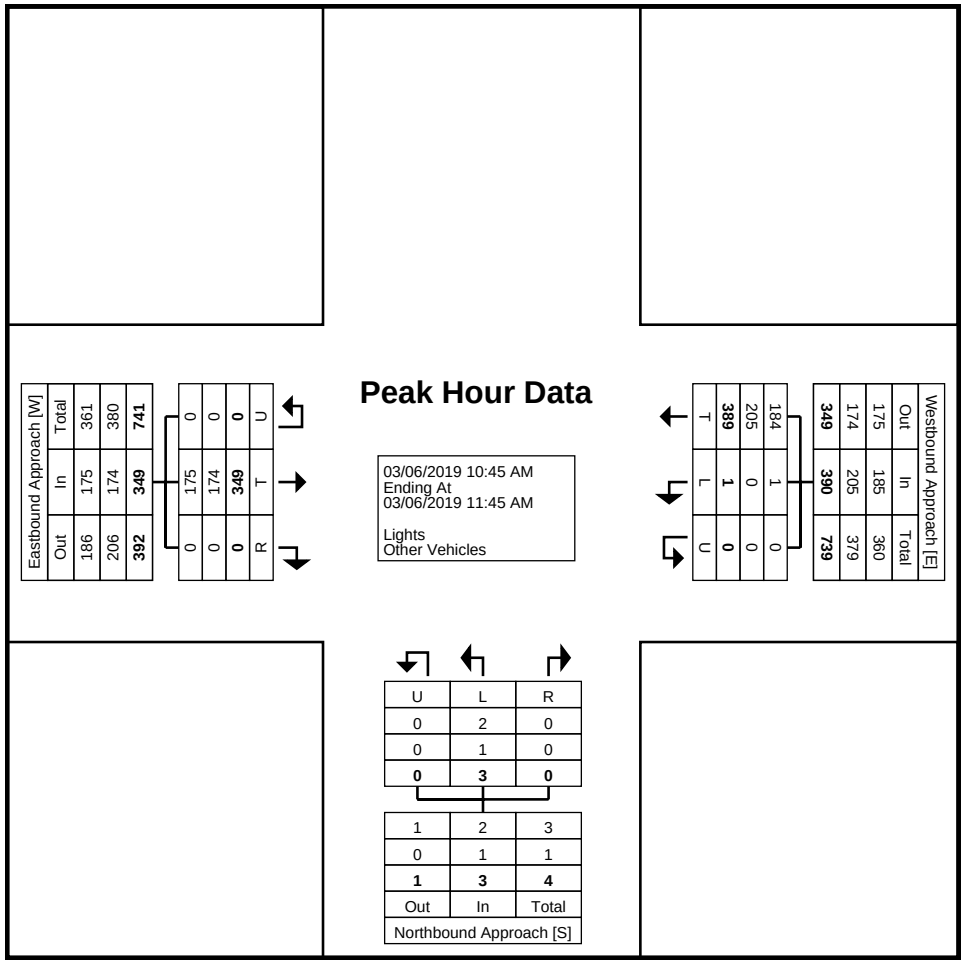
Count Name: VAN-30 & Lare Rd
Site Code:
Start Date: 03/06/2019

Turning Movement Peak Hour Data (10:45 AM)

Start Time	Westbound Approach				Northbound Approach				Eastbound Approach				
	Westbound				Northbound				Eastbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
10:45 AM	111	0	0	111	0	3	0	3	0	82	0	82	196
11:00 AM	91	0	0	91	0	0	0	0	0	82	0	82	173
11:15 AM	86	0	0	86	0	0	0	0	0	89	0	89	175
11:30 AM	101	1	0	102	0	0	0	0	0	96	0	96	198
Total	389	1	0	390	0	3	0	3	0	349	0	349	742
Approach %	99.7	0.3	0.0	-	0.0	100.0	0.0	-	0.0	100.0	0.0	-	-
Total %	52.4	0.1	0.0	52.6	0.0	0.4	0.0	0.4	0.0	47.0	0.0	47.0	-
PHF	0.876	0.250	0.000	0.878	0.000	0.250	0.000	0.250	0.000	0.909	0.000	0.909	0.937
Lights	184	1	0	185	0	2	0	2	0	175	0	175	362
% Lights	47.3	100.0	-	47.4	-	66.7	-	66.7	-	50.1	-	50.1	48.8
Other Vehicles	205	0	0	205	0	1	0	1	0	174	0	174	380
% Other Vehicles	52.7	0.0	-	52.6	-	33.3	-	33.3	-	49.9	-	49.9	51.2

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Lare Rd
Site Code:
Start Date: 03/06/2019



Turning Movement Peak Hour Data Plot (10:45 AM)

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Office of Traffic Engineering

Count Name: VAN-30 & Lare Rd
Site Code:
Start Date: 03/06/2019

Turning Movement Peak Hour Data (3:45 PM)

Start Time	Westbound Approach				Northbound Approach				Eastbound Approach				
	Westbound				Northbound				Eastbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
3:45 PM	133	0	0	133	0	0	0	0	1	134	0	135	268
4:00 PM	144	1	0	145	0	0	0	0	1	123	0	124	269
4:15 PM	148	0	0	148	0	1	0	1	0	130	0	130	279
4:30 PM	124	0	0	124	0	2	0	2	0	119	0	119	245
Total	549	1	0	550	0	3	0	3	2	506	0	508	1061
Approach %	99.8	0.2	0.0	-	0.0	100.0	0.0	-	0.4	99.6	0.0	-	-
Total %	51.7	0.1	0.0	51.8	0.0	0.3	0.0	0.3	0.2	47.7	0.0	47.9	-
PHF	0.927	0.250	0.000	0.929	0.000	0.375	0.000	0.375	0.500	0.944	0.000	0.941	0.951
Lights	331	1	0	332	0	3	0	3	2	298	0	300	635
% Lights	60.3	100.0	-	60.4	-	100.0	-	100.0	100.0	58.9	-	59.1	59.8
Other Vehicles	218	0	0	218	0	0	0	0	0	208	0	208	426
% Other Vehicles	39.7	0.0	-	39.6	-	0.0	-	0.0	0.0	41.1	-	40.9	40.2

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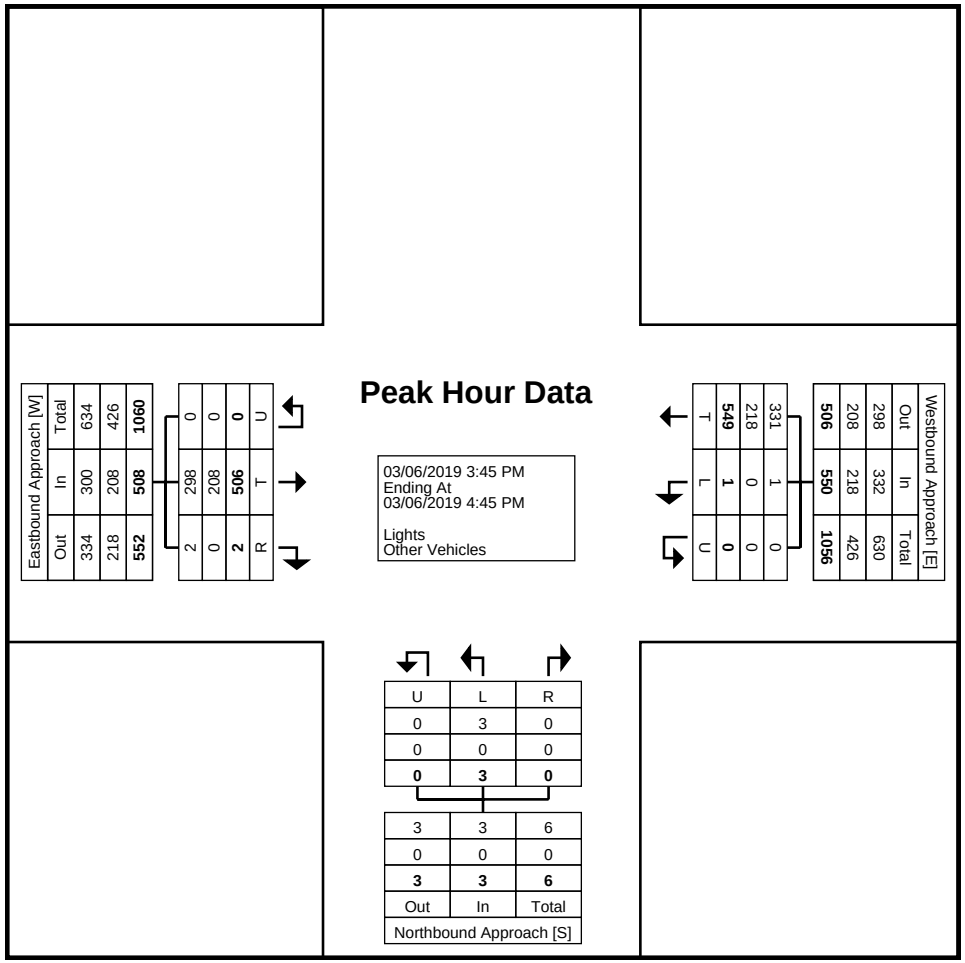
Count Name: VAN-30 & Lare Rd
Site Code:
Start Date: 03/06/2019



Turning Movement Peak Hour Data Plot (3:45 PM)

Ohio Department of Transportation
1980 West Broad Street
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Office of Traffic Engineering

Count Name: VAN-30 & Lare Rd
Site Code:
Start Date: 03/06/2019

Turning Movement Peak Hour Data (7:00 AM)

Start Time	Westbound Approach				Northbound Approach				Eastbound Approach				
	Westbound				Northbound				Eastbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
7:00 AM	111	0	0	111	0	3	0	3	0	74	0	74	188
7:15 AM	136	0	0	136	0	0	0	0	0	83	0	83	219
7:30 AM	104	0	0	104	0	1	0	1	0	88	0	88	193
7:45 AM	92	0	0	92	0	0	0	0	0	98	0	98	190
Total	443	0	0	443	0	4	0	4	0	343	0	343	790
Approach %	100.0	0.0	0.0	-	0.0	100.0	0.0	-	0.0	100.0	0.0	-	-
Total %	56.1	0.0	0.0	56.1	0.0	0.5	0.0	0.5	0.0	43.4	0.0	43.4	-
PHF	0.814	0.000	0.000	0.814	0.000	0.333	0.000	0.333	0.000	0.875	0.000	0.875	0.902
Lights	276	0	0	276	0	4	0	4	0	213	0	213	493
% Lights	62.3	-	-	62.3	-	100.0	-	100.0	-	62.1	-	62.1	62.4
Other Vehicles	167	0	0	167	0	0	0	0	0	130	0	130	297
% Other Vehicles	37.7	-	-	37.7	-	0.0	-	0.0	-	37.9	-	37.9	37.6

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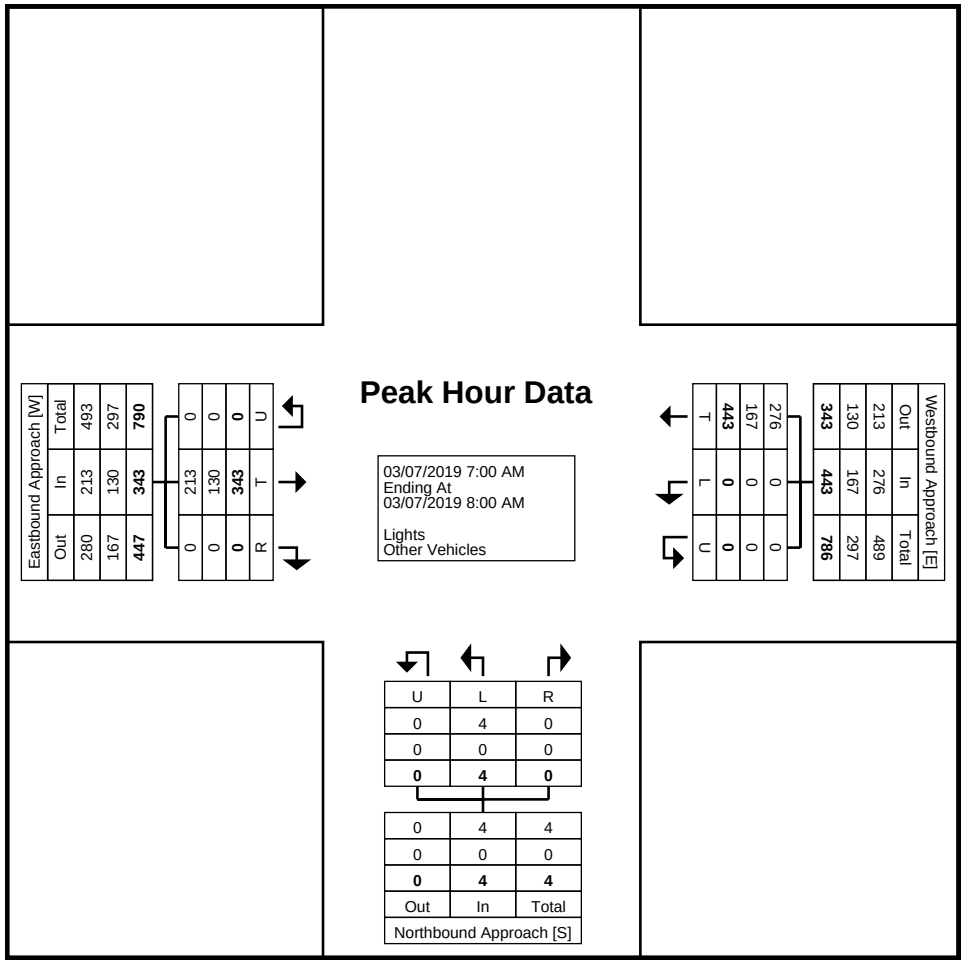
Site Code:
Start Date: 03/06/2019



Turning Movement Peak Hour Data Plot (7:00 AM)

Ohio Department of Transportation
1980 West Broad Street
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Count Name: VAN-30 & Lare Rd
Site Code:
Start Date: 03/06/2019

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Office of Traffic Engineering

Count Name: VAN-30 & Feasby Wisner Rd
Site Code:
Start Date: 03/05/2019

Turning Movement Data

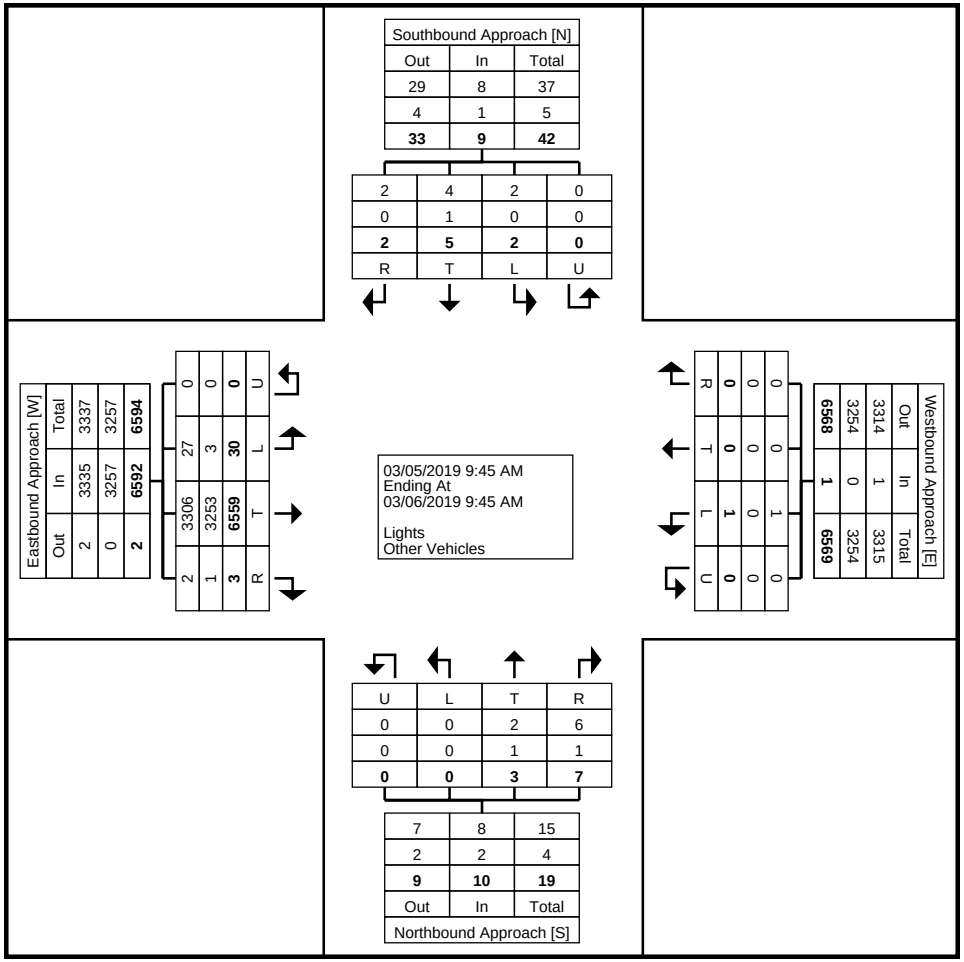
Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	1	0	76	76
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	1	0	76	76
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	100	1	0	102	102
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85	0	0	85	85
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	89	0	0	89	89
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	97	0	0	97	97
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	371	1	0	373	373
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	0	0	90	90
11:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	91	1	0	92	93
11:30 AM	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	0	94	0	0	94	96
11:45 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	108	0	0	108	110
Hourly Total	0	3	1	0	4	0	0	0	0	0	1	0	0	0	1	0	383	1	0	384	389
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	0	0	99	99
12:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	94	0	0	94	95
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	0	0	99	99
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	89	1	0	90	90
Hourly Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	381	1	0	382	383
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	111	0	0	111	111
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	1	0	91	91
1:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	103	0	0	103	104
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84	0	0	84	84
Hourly Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	388	1	0	389	390
2:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	116	0	0	116	117
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85	0	0	85	85
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	0	0	106	106
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	112	0	0	113	113
Hourly Total	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	419	0	0	420	421
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	0	0	91	91
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	107	0	0	107	107
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	0	0	90	90
3:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	111	0	0	111	112
Hourly Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	399	0	0	399	400
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	130	0	0	130	132
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	109	0	0	109	109
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	104	0	0	104	104

4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119	3	0	122	122
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	462	3	0	465	467
5:00 PM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	127	2	0	129	131
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	104	0	0	104	104
5:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	113	1	0	114	115
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73	0	0	73	73
Hourly Total	2	0	0	0	2	0	0	0	0	0	1	0	0	0	1	0	417	3	0	420	423
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	0	0	99	99
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	0	0	90	90
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	78	0	0	78	79
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	71	0	0	71	71
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	338	0	0	338	339
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	1	0	59	59
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	1	0	49	49
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	0	0	55	55
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67	2	0	69	69
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	228	4	0	232	232
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	0	0	51	51
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	0	0	53	53
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	2	0	57	57
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	2	0	44	44
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	201	4	0	205	205
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	2	0	43	43
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	1	0	38	38
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	0	0	45	45
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	0	0	34	34
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	157	3	0	160	160
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	1	0	45	45
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	2	0	31	31
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	1	0	32	32
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0	0	32	32
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	136	4	0	140	140
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	29	29
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	0	0	28	28
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	0	0	31	31
11:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	30	0	0	30	31
Hourly Total	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	118	0	0	118	119
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	21	21
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	21	0	0	22	22
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	1	0	23	23
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	25	25
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	89	1	0	91	91
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0	0	26	26
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	20	20
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	13	13
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	19	19
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78	0	0	78	78
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	29	29
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	0	0	31	31
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0	0	32	32
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	20	20
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112	0	0	112	112

3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	21	21
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0	22	22
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	0	0	33	33
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	0	0	23	23
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	0	0	99	99
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	29	29
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	25	25
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	29	29
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	40	40
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	123	0	0	123	123
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	1	0	55	55
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	0	0	52	52
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	0	0	46	46
5:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	62	0	0	62	63
Hourly Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	214	1	0	215	216
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	58	58
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	97	0	0	97	97
6:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	89	0	0	89	90
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	0	0	91	91
Hourly Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	335	0	0	335	336
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	0	0	99	99
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	115	0	0	115	115
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	114	0	0	114	114
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	86	0	0	86	86
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	414	0	0	414	414
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85	0	0	85	85
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83	1	0	84	84
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	105	0	0	105	106
8:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	82	0	0	82	83
Hourly Total	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	355	1	0	356	358
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93	0	0	93	93
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78	1	0	79	79
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96	0	0	96	96
Grand Total	2	5	2	0	9	0	0	1	0	1	7	3	0	0	10	3	6559	30	0	6592	6612
Approach %	22.2	55.6	22.2	0.0	-	0.0	0.0	100.0	0.0	-	70.0	30.0	0.0	0.0	-	0.0	99.5	0.5	0.0	-	-
Total %	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	99.2	0.5	0.0	99.7	-
Lights	2	4	2	0	8	0	0	1	0	1	6	2	0	0	8	2	3306	27	0	3335	3352
% Lights	100.0	80.0	100.0	-	88.9	-	-	100.0	-	100.0	85.7	66.7	-	-	80.0	66.7	50.4	90.0	-	50.6	50.7
Other Vehicles	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	1	3253	3	0	3257	3260
% Other Vehicles	0.0	20.0	0.0	-	11.1	-	-	0.0	-	0.0	14.3	33.3	-	-	20.0	33.3	49.6	10.0	-	49.4	49.3

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Feasby Wisner Rd
Site Code:
Start Date: 03/05/2019



Turning Movement Data Plot

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Count Name: VAN-30 & Feasby Wisner Rd
Site Code:
Start Date: 03/05/2019

Turning Movement Peak Hour Data (11:00 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	0	0	90	90
11:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	91	1	0	92	93
11:30 AM	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	0	94	0	0	94	96
11:45 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	108	0	0	108	110
Total	0	3	1	0	4	0	0	0	0	0	1	0	0	0	1	0	383	1	0	384	389
Approach %	0.0	75.0	25.0	0.0	-	0.0	0.0	0.0	0.0	-	100.0	0.0	0.0	0.0	-	0.0	99.7	0.3	0.0	-	-
Total %	0.0	0.8	0.3	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.3	0.0	98.5	0.3	0.0	98.7	-
PHF	0.000	0.375	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.887	0.250	0.000	0.889	0.884
Lights	0	2	1	0	3	0	0	0	0	0	1	0	0	0	1	0	186	0	0	186	190
% Lights	-	66.7	100.0	-	75.0	-	-	-	-	-	100.0	-	-	-	100.0	-	48.6	0.0	-	48.4	48.8
Other Vehicles	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	197	1	0	198	199
% Other Vehicles	-	33.3	0.0	-	25.0	-	-	-	-	-	0.0	-	-	-	0.0	-	51.4	100.0	-	51.6	51.2

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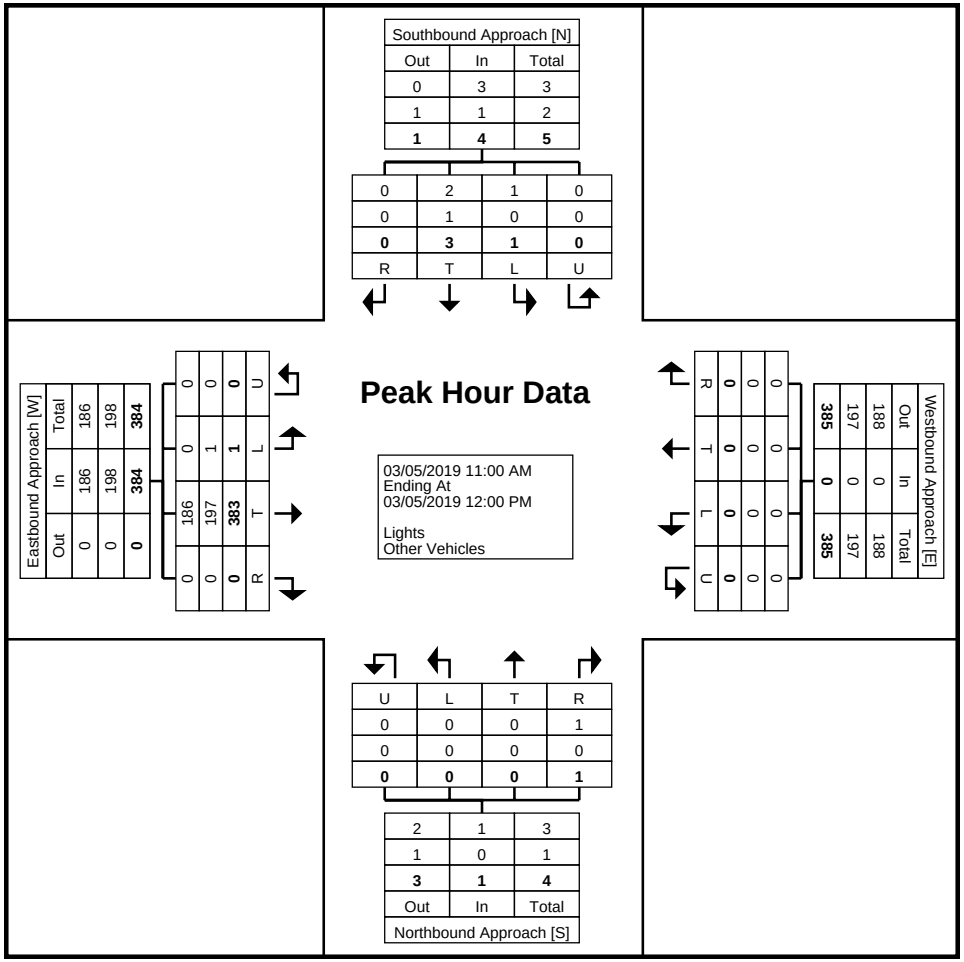
Site Code:
Start Date: 03/05/2019



Turning Movement Peak Hour Data Plot (11:00 AM)

Ohio Department of Transportation
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Office of Traffic Engineering

Count Name: VAN-30 & Feasby Wisner Rd
Site Code:
Start Date: 03/05/2019

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119	3	0	122	122
5:00 PM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	127	2	0	129	131
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	104	0	0	104	104
5:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	113	1	0	114	115
Total	2	0	0	0	2	0	0	0	0	0	1	0	0	0	1	0	463	6	0	469	472
Approach %	100.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	100.0	0.0	0.0	0.0	-	0.0	98.7	1.3	0.0	-	-
Total %	0.4	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.0	98.1	1.3	0.0	99.4	-
PHF	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.911	0.500	0.000	0.909	0.901
Lights	2	0	0	0	2	0	0	0	0	0	1	0	0	0	1	0	269	6	0	275	278
% Lights	100.0	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	100.0	-	58.1	100.0	-	58.6	58.9
Other Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	194	0	0	194	194
% Other Vehicles	0.0	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	0.0	-	41.9	0.0	-	41.4	41.1

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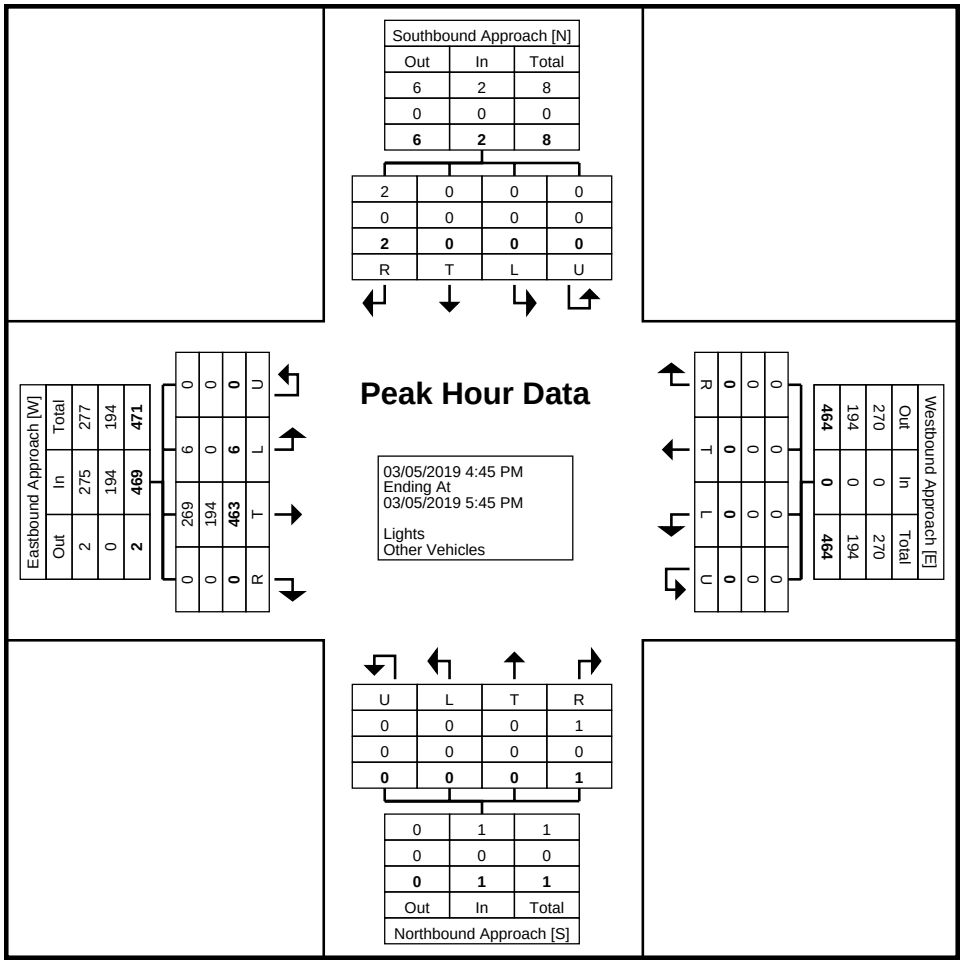

Turning Movement Peak Hour Data Plot (4:45 PM)

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Count Name: VAN-30 & Feasby Wisner Rd
Site Code:
Start Date: 03/05/2019

Turning Movement Peak Hour Data (6:45 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	0	0	91	91
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	0	0	99	99
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	115	0	0	115	115
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	114	0	0	114	114
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	419	0	0	419	419
Approach %	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	100.0	0.0	0.0	-	-
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	-
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.911	0.000	0.000	0.911	0.911
Lights	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	242	0	0	242	242
% Lights	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57.8	-	-	57.8	57.8
Other Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	177	0	0	177	177
% Other Vehicles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42.2	-	-	42.2	42.2

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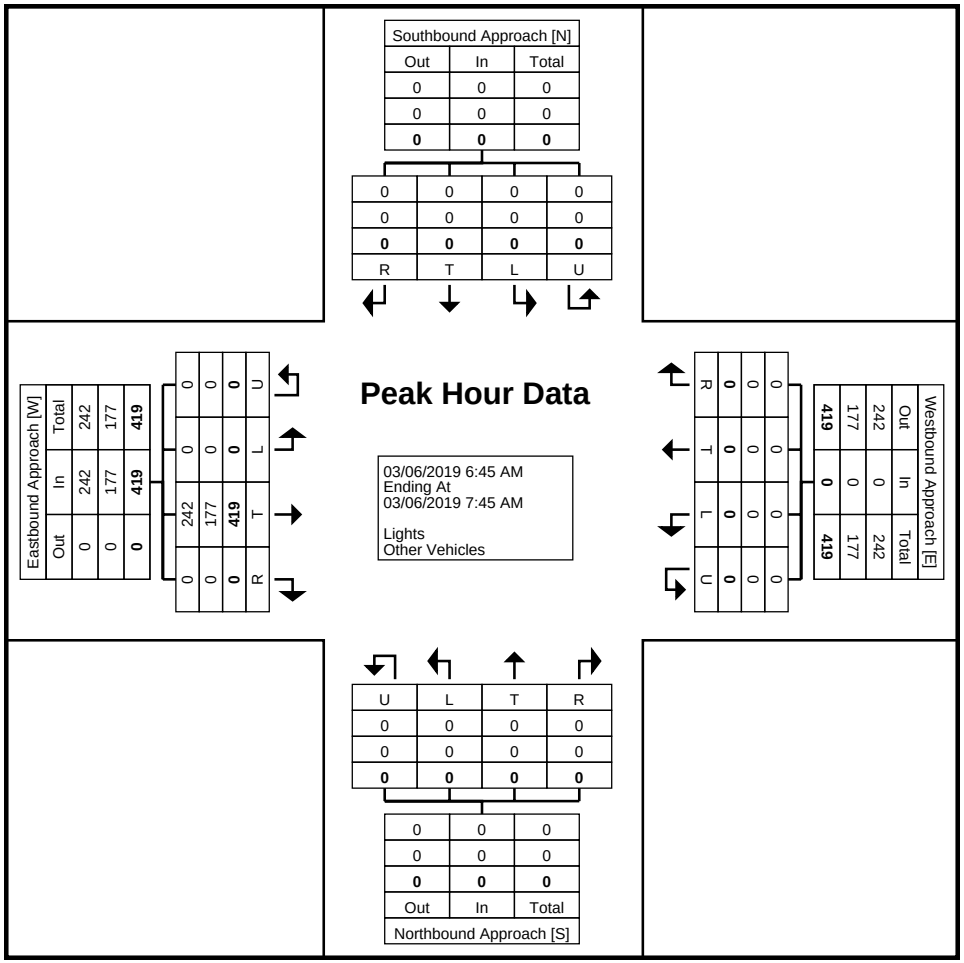
Start Date: 03/05/2019



Turning Movement Peak Hour Data Plot (6:45 AM)

Ohio Department of Transportation
1980 West Broad Street
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Count Name: VAN-30 & Feasby Wisner Rd
Site Code:
Start Date: 03/05/2019

Ohio Department of Transportation
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+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & 49 N (Payne Rd.)
Site Code:
Start Date: 02/26/2019

Turning Movement Data

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
12:00 PM	1	9	0	0	10	6	85	0	0	91	0	0	0	0	0	0	0	0	0	0	101
12:15 PM	0	4	0	0	4	5	99	0	0	104	0	0	1	0	1	0	0	0	0	0	109
12:30 PM	0	6	0	0	6	3	84	0	0	87	0	0	1	0	1	0	0	0	0	0	94
12:45 PM	0	8	0	0	8	7	98	0	0	105	0	0	0	0	0	0	0	0	0	0	113
Hourly Total	1	27	0	0	28	21	366	0	0	387	0	0	2	0	2	0	0	0	0	0	417
1:00 PM	2	3	0	0	5	5	96	0	0	101	0	1	0	0	1	0	0	0	0	0	107
1:15 PM	0	8	0	0	8	5	110	0	0	115	0	1	0	0	1	0	0	0	0	0	124
1:30 PM	0	6	0	0	6	8	87	0	0	95	0	0	0	0	0	0	0	0	0	0	101
1:45 PM	2	10	0	0	12	5	101	0	0	106	0	1	0	0	1	0	0	0	0	0	119
Hourly Total	4	27	0	0	31	23	394	0	0	417	0	3	0	0	3	0	0	0	0	0	451
2:00 PM	0	8	0	0	8	4	104	0	0	108	0	0	0	0	0	0	0	0	0	0	116
2:15 PM	0	11	0	0	11	11	108	0	0	119	0	1	1	0	2	0	0	0	0	0	132
2:30 PM	1	9	0	0	10	8	112	0	0	120	0	0	0	0	0	0	0	0	0	0	130
2:45 PM	0	3	0	0	3	9	105	0	0	114	0	0	0	0	0	0	0	0	0	0	117
Hourly Total	1	31	0	0	32	32	429	0	0	461	0	1	1	0	2	0	0	0	0	0	495
3:00 PM	1	6	0	0	7	11	88	0	0	99	0	2	0	0	2	0	0	0	0	0	108
3:15 PM	0	15	0	0	15	12	116	0	0	128	0	0	0	0	0	0	0	1	0	1	144
3:30 PM	0	7	0	0	7	12	100	0	0	112	0	1	1	0	2	0	0	1	0	1	122
3:45 PM	0	20	0	0	20	6	122	0	0	128	0	1	1	0	2	0	0	0	0	0	150
Hourly Total	1	48	0	0	49	41	426	0	0	467	0	4	2	0	6	0	0	2	0	2	524
4:00 PM	0	12	0	0	12	12	139	2	0	153	0	0	0	0	0	0	0	0	0	0	165
4:15 PM	0	8	0	0	8	13	165	0	0	178	0	0	0	0	0	0	0	0	0	0	186
4:30 PM	1	9	0	0	10	7	128	0	0	135	0	1	0	0	1	0	0	0	0	0	146
4:45 PM	0	8	0	0	8	11	112	1	0	124	0	2	1	0	3	0	0	0	0	0	135
Hourly Total	1	37	0	0	38	43	544	3	0	590	0	3	1	0	4	0	0	0	0	0	632
5:00 PM	0	9	0	0	9	9	125	0	0	134	0	0	0	0	0	0	0	0	0	0	143
5:15 PM	1	11	0	0	12	8	126	0	0	134	0	0	1	0	1	0	0	0	0	0	147
5:30 PM	0	7	0	0	7	9	125	0	0	134	0	2	0	0	2	0	0	1	0	1	144
5:45 PM	0	14	0	0	14	7	114	0	0	121	0	0	0	0	0	0	0	0	0	0	135
Hourly Total	1	41	0	0	42	33	490	0	0	523	0	2	1	0	3	0	0	1	0	1	569
6:00 PM	0	4	0	0	4	8	85	0	0	93	0	0	0	0	0	0	0	0	0	0	97
6:15 PM	0	2	0	0	2	9	93	0	0	102	0	1	0	0	1	0	0	0	0	0	105
6:30 PM	0	4	0	0	4	9	73	0	0	82	0	0	0	0	0	0	0	0	0	0	86
6:45 PM	0	1	0	0	1	6	97	0	0	103	0	1	0	0	1	0	0	0	0	0	105
Hourly Total	0	11	0	0	11	32	348	0	0	380	0	2	0	0	2	0	0	0	0	0	393

7:00 PM	0	3	0	0	3	6	53	0	0	59	0	1	0	0	1	0	0	0	0	0	63
7:15 PM	0	7	0	0	7	6	65	0	0	71	0	0	0	0	0	0	0	0	0	0	78
7:30 PM	0	4	0	0	4	5	59	0	0	64	0	0	0	0	0	0	0	0	0	0	68
7:45 PM	0	4	0	0	4	8	54	0	0	62	0	2	0	0	2	0	0	0	0	0	68
Hourly Total	0	18	0	0	18	25	231	0	0	256	0	3	0	0	3	0	0	0	0	0	277
8:00 PM	0	4	0	0	4	2	50	0	0	52	0	0	1	0	1	0	0	0	0	0	57
8:15 PM	0	1	0	0	1	2	53	0	0	55	0	0	0	0	0	0	0	0	0	0	56
8:30 PM	0	0	0	0	0	2	41	0	0	43	0	0	1	0	1	0	0	0	0	0	44
8:45 PM	0	0	0	0	0	3	45	0	0	48	0	0	0	0	0	0	0	0	0	0	48
Hourly Total	0	5	0	0	5	9	189	0	0	198	0	0	2	0	2	0	0	0	0	0	205
9:00 PM	0	2	0	0	2	5	53	0	0	58	0	0	0	0	0	0	0	0	0	0	60
9:15 PM	0	1	0	0	1	5	35	0	0	40	0	1	0	0	1	0	0	1	0	1	43
9:30 PM	0	4	0	0	4	2	35	0	0	37	0	0	0	0	0	0	0	0	0	0	41
9:45 PM	0	1	0	0	1	1	35	0	0	36	0	0	0	0	0	0	0	0	0	0	37
Hourly Total	0	8	0	0	8	13	158	0	0	171	0	1	0	0	1	0	0	1	0	1	181
10:00 PM	0	2	0	0	2	6	22	0	0	28	0	0	0	0	0	0	0	0	0	0	30
10:15 PM	0	3	0	0	3	0	27	0	0	27	0	0	0	0	0	0	0	0	0	0	30
10:30 PM	0	3	0	0	3	2	22	0	0	24	0	0	0	0	0	0	0	0	0	0	27
10:45 PM	0	1	0	0	1	4	43	0	0	47	0	0	1	0	1	0	0	0	0	0	49
Hourly Total	0	9	0	0	9	12	114	0	0	126	0	0	1	0	1	0	0	0	0	0	136
11:00 PM	0	1	0	0	1	0	37	0	0	37	0	0	0	0	0	0	0	0	0	0	38
11:15 PM	0	4	0	0	4	4	41	0	0	45	0	0	1	0	1	0	0	0	0	0	50
11:30 PM	0	0	0	0	0	4	32	0	0	36	0	0	0	0	0	0	0	0	0	0	36
11:45 PM	0	0	0	0	0	1	29	0	0	30	0	0	1	0	1	0	0	0	0	0	31
Hourly Total	0	5	0	0	5	9	139	0	0	148	0	0	2	0	2	0	0	0	0	0	155
12:00 AM	0	0	0	0	0	0	28	0	0	28	0	0	0	0	0	0	0	0	0	0	28
12:15 AM	0	1	0	0	1	0	19	0	0	19	0	0	0	0	0	0	0	0	0	0	20
12:30 AM	0	0	0	0	0	2	20	0	0	22	0	0	0	0	0	0	0	0	0	0	22
12:45 AM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	0	0	0	0	25
Hourly Total	0	1	0	0	1	2	92	0	0	94	0	0	0	0	0	0	0	0	0	0	95
1:00 AM	0	0	0	1	1	0	23	0	0	23	0	0	0	0	0	0	0	0	0	0	24
1:15 AM	0	0	0	0	0	1	17	0	0	18	0	0	0	0	0	0	0	0	0	0	18
1:30 AM	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	0	0	0	0	24
1:45 AM	0	2	0	0	2	0	26	0	0	26	0	0	0	0	0	0	0	0	0	0	28
Hourly Total	0	2	0	1	3	1	90	0	0	91	0	0	0	0	0	0	0	0	0	0	94
2:00 AM	0	1	0	0	1	1	24	0	0	25	0	0	0	0	0	0	0	0	0	0	26
2:15 AM	0	1	0	0	1	0	30	0	0	30	0	0	0	0	0	0	0	0	0	0	31
2:30 AM	0	3	0	0	3	1	19	0	0	20	0	0	0	0	0	0	0	0	0	0	23
2:45 AM	0	0	0	0	0	1	18	0	0	19	0	0	0	0	0	0	0	0	0	0	19
Hourly Total	0	5	0	0	5	3	91	0	0	94	0	0	0	0	0	0	0	0	0	0	99
3:00 AM	0	0	0	0	0	2	25	0	0	27	0	0	0	0	0	0	0	0	0	0	27
3:15 AM	0	0	0	0	0	0	31	0	0	31	0	0	0	0	0	0	0	0	0	0	31
3:30 AM	0	1	0	0	1	0	28	0	0	28	0	0	0	0	0	0	0	0	0	0	29
3:45 AM	0	2	0	0	2	0	22	0	0	22	0	0	0	0	0	0	0	0	0	0	24
Hourly Total	0	3	0	0	3	2	106	0	0	108	0	0	0	0	0	0	0	0	0	0	111
4:00 AM	0	5	0	0	5	1	25	0	0	26	0	0	1	0	1	0	0	0	0	0	32
4:15 AM	0	0	0	0	0	2	36	0	0	38	0	0	0	0	0	0	0	0	0	0	38
4:30 AM	0	3	0	0	3	0	29	0	0	29	0	0	0	0	0	0	0	0	0	0	32
4:45 AM	0	0	0	0	0	1	39	0	0	40	0	0	0	0	0	0	0	0	0	0	40
Hourly Total	0	8	0	0	8	4	129	0	0	133	0	0	1	0	1	0	0	0	0	0	142
5:00 AM	0	2	0	0	2	0	50	0	0	50	0	0	1	0	1	0	0	0	0	0	53
5:15 AM	1	5	0	0	6	1	61	0	0	62	0	0	1	0	1	0	0	0	0	0	69

5:30 AM	1	8	0	0	9	2	54	0	0	56	0	1	1	0	2	0	0	0	0	0	67
5:45 AM	0	12	0	0	12	5	56	0	0	61	0	1	0	0	1	0	0	1	0	1	75
Hourly Total	2	27	0	0	29	8	221	0	0	229	0	2	3	0	5	0	0	1	0	1	264
6:00 AM	2	3	0	0	5	5	73	0	0	78	0	0	3	0	3	0	0	0	0	0	86
6:15 AM	2	14	0	0	16	13	84	0	0	97	0	3	0	0	3	0	0	0	0	0	116
6:30 AM	0	18	0	0	18	6	86	0	0	92	0	1	0	0	1	0	0	0	0	0	111
6:45 AM	0	3	0	0	3	3	104	0	0	107	0	0	3	0	3	0	0	0	0	0	113
Hourly Total	4	38	0	0	42	27	347	0	0	374	0	4	6	0	10	0	0	0	0	0	426
7:00 AM	0	8	0	0	8	6	106	0	0	112	0	2	0	0	2	0	0	0	0	0	122
7:15 AM	0	13	0	0	13	4	111	0	0	115	0	1	1	0	2	0	0	0	0	0	130
7:30 AM	1	11	0	0	12	12	113	0	0	125	0	1	0	0	1	0	0	1	0	1	139
7:45 AM	0	7	0	0	7	8	90	0	0	98	0	1	0	0	1	0	0	1	0	1	107
Hourly Total	1	39	0	0	40	30	420	0	0	450	0	5	1	0	6	0	0	2	0	2	498
8:00 AM	0	5	0	0	5	2	90	0	0	92	0	0	0	0	0	0	0	0	0	0	97
8:15 AM	0	11	0	0	11	5	103	1	0	109	0	0	1	0	1	0	0	0	0	0	121
8:30 AM	0	9	0	0	9	7	71	0	0	78	0	0	0	0	0	0	0	0	0	0	87
8:45 AM	0	7	0	0	7	6	98	0	0	104	0	2	1	0	3	0	0	0	0	0	114
Hourly Total	0	32	0	0	32	20	362	1	0	383	0	2	2	0	4	0	0	0	0	0	419
9:00 AM	0	3	0	1	4	5	92	0	0	97	0	0	0	0	0	0	0	0	0	0	101
9:15 AM	1	2	0	0	3	3	91	0	0	94	0	1	0	0	1	0	0	1	0	1	99
9:30 AM	0	10	0	0	10	8	90	0	0	98	0	0	0	0	0	0	0	0	0	0	108
9:45 AM	0	4	0	0	4	5	107	0	0	112	0	1	1	0	2	0	0	1	0	1	119
Hourly Total	1	19	0	1	21	21	380	0	0	401	0	2	1	0	3	0	0	2	0	2	427
10:00 AM	0	11	0	0	11	4	93	0	0	97	0	0	0	0	0	0	0	0	0	0	108
10:15 AM	1	6	0	0	7	7	82	0	0	89	0	0	0	0	0	0	0	0	0	0	96
10:30 AM	0	7	0	0	7	4	102	0	0	106	0	0	1	0	1	0	0	0	0	0	114
10:45 AM	0	11	0	0	11	3	101	0	0	104	0	0	0	0	0	0	0	0	0	0	115
Hourly Total	1	35	0	0	36	18	378	0	0	396	0	0	1	0	1	0	0	0	0	0	433
11:00 AM	1	5	0	0	6	5	88	0	0	93	0	0	1	0	1	0	0	0	0	0	100
11:15 AM	0	5	0	0	5	6	86	0	0	92	0	2	0	0	2	0	0	1	0	1	100
11:30 AM	0	5	0	0	5	2	96	0	0	98	0	1	0	0	1	0	0	0	0	0	104
11:45 AM	0	9	0	0	9	4	91	0	0	95	0	2	0	0	2	0	0	1	0	1	107
Hourly Total	1	24	0	0	25	17	361	0	0	378	0	5	1	0	6	0	0	2	0	2	411
Grand Total	19	500	0	2	521	446	6805	4	0	7255	0	39	28	0	67	0	0	11	0	11	7854
Approach %	3.6	96.0	0.0	0.4	-	6.1	93.8	0.1	0.0	-	0.0	58.2	41.8	0.0	-	0.0	0.0	100.0	0.0	-	-
Total %	0.2	6.4	0.0	0.0	6.6	5.7	86.6	0.1	0.0	92.4	0.0	0.5	0.4	0.0	0.9	0.0	0.0	0.1	0.0	0.1	-
Lights	5	448	0	1	454	391	3417	4	0	3812	0	25	26	0	51	0	0	2	0	2	4319
% Lights	26.3	89.6	-	50.0	87.1	87.7	50.2	100.0	-	52.5	-	64.1	92.9	-	76.1	-	-	18.2	-	18.2	55.0
Other Vehicles	14	52	0	1	67	55	3388	0	0	3443	0	14	2	0	16	0	0	9	0	9	3535
% Other Vehicles	73.7	10.4	-	50.0	12.9	12.3	49.8	0.0	-	47.5	-	35.9	7.1	-	23.9	-	-	81.8	-	81.8	45.0

Ohio Department of Transportation
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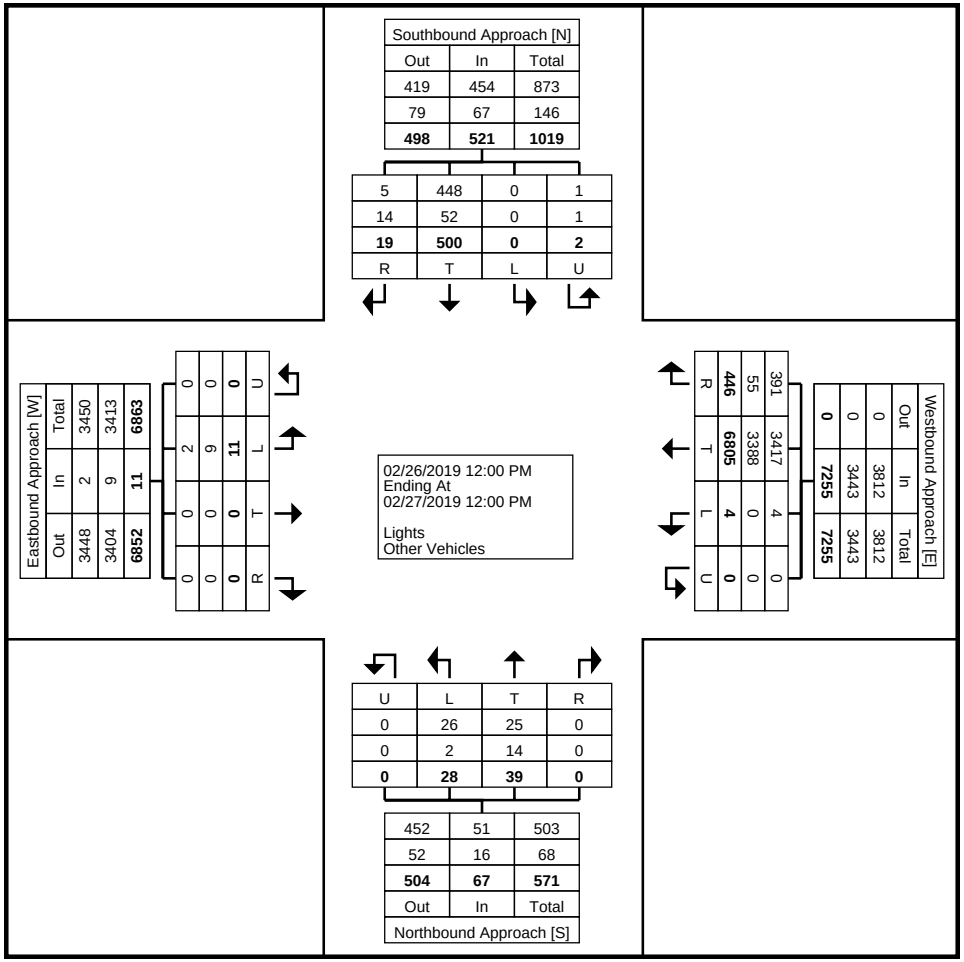
Office of Traffic Engineering

Count Name: VAN-30 & 49 N (Payne Rd.)
Site Code:
Start Date: 02/26/2019



Turning Movement Data Plot

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Count Name: VAN-30 & 49 N (Payne Rd.)
Site Code:
Start Date: 02/26/2019

Turning Movement Peak Hour Data (3:45 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
3:45 PM	0	20	0	0	20	6	122	0	0	128	0	1	1	0	2	0	0	0	0	0	150
4:00 PM	0	12	0	0	12	12	139	2	0	153	0	0	0	0	0	0	0	0	0	0	165
4:15 PM	0	8	0	0	8	13	165	0	0	178	0	0	0	0	0	0	0	0	0	0	186
4:30 PM	1	9	0	0	10	7	128	0	0	135	0	1	0	0	1	0	0	0	0	0	146
Total	1	49	0	0	50	38	554	2	0	594	0	2	1	0	3	0	0	0	0	0	647
Approach %	2.0	98.0	0.0	0.0	-	6.4	93.3	0.3	0.0	-	0.0	66.7	33.3	0.0	-	0.0	0.0	0.0	0.0	-	-
Total %	0.2	7.6	0.0	0.0	7.7	5.9	85.6	0.3	0.0	91.8	0.0	0.3	0.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0	-
PHF	0.250	0.613	0.000	0.000	0.625	0.731	0.839	0.250	0.000	0.834	0.000	0.500	0.250	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.870
Lights	0	44	0	0	44	35	320	2	0	357	0	2	0	0	2	0	0	0	0	0	403
% Lights	0.0	89.8	-	-	88.0	92.1	57.8	100.0	-	60.1	-	100.0	0.0	-	66.7	-	-	-	-	-	62.3
Other Vehicles	1	5	0	0	6	3	234	0	0	237	0	0	1	0	1	0	0	0	0	0	244
% Other Vehicles	100.0	10.2	-	-	12.0	7.9	42.2	0.0	-	39.9	-	0.0	100.0	-	33.3	-	-	-	-	-	37.7

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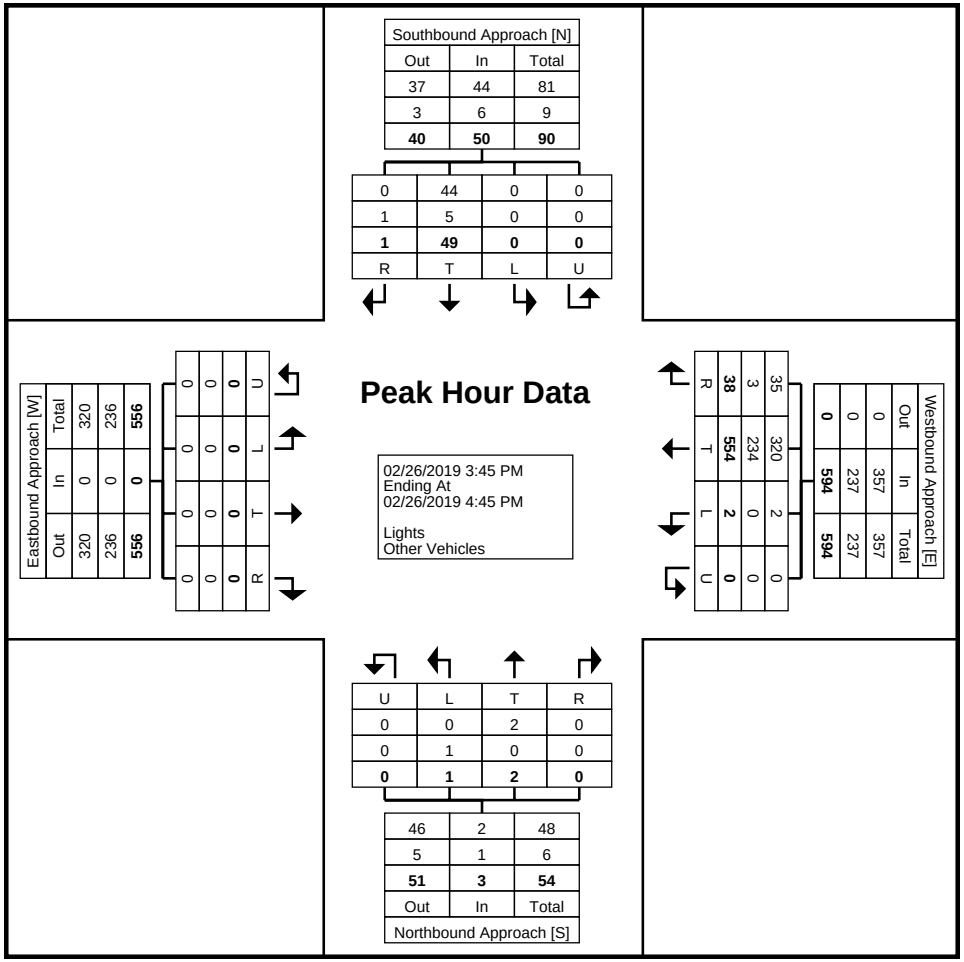

Turning Movement Peak Hour Data Plot (3:45 PM)

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Count Name: VAN-30 & 49 N (Payne Rd.)
Site Code:
Start Date: 02/26/2019

Turning Movement Peak Hour Data (6:45 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
6:45 AM	0	3	0	0	3	3	104	0	0	107	0	0	3	0	3	0	0	0	0	0	113
7:00 AM	0	8	0	0	8	6	106	0	0	112	0	2	0	0	2	0	0	0	0	0	122
7:15 AM	0	13	0	0	13	4	111	0	0	115	0	1	1	0	2	0	0	0	0	0	130
7:30 AM	1	11	0	0	12	12	113	0	0	125	0	1	0	0	1	0	0	1	0	1	139
Total	1	35	0	0	36	25	434	0	0	459	0	4	4	0	8	0	0	1	0	1	504
Approach %	2.8	97.2	0.0	0.0	-	5.4	94.6	0.0	0.0	-	0.0	50.0	50.0	0.0	-	0.0	0.0	100.0	0.0	-	-
Total %	0.2	6.9	0.0	0.0	7.1	5.0	86.1	0.0	0.0	91.1	0.0	0.8	0.8	0.0	1.6	0.0	0.0	0.2	0.0	0.2	-
PHF	0.250	0.673	0.000	0.000	0.692	0.521	0.960	0.000	0.000	0.918	0.000	0.500	0.333	0.000	0.667	0.000	0.000	0.250	0.000	0.250	0.906
Lights	0	32	0	0	32	24	255	0	0	279	0	3	4	0	7	0	0	0	0	0	318
% Lights	0.0	91.4	-	-	88.9	96.0	58.8	-	-	60.8	-	75.0	100.0	-	87.5	-	-	0.0	-	0.0	63.1
Other Vehicles	1	3	0	0	4	1	179	0	0	180	0	1	0	0	1	0	0	1	0	1	186
% Other Vehicles	100.0	8.6	-	-	11.1	4.0	41.2	-	-	39.2	-	25.0	0.0	-	12.5	-	-	100.0	-	100.0	36.9

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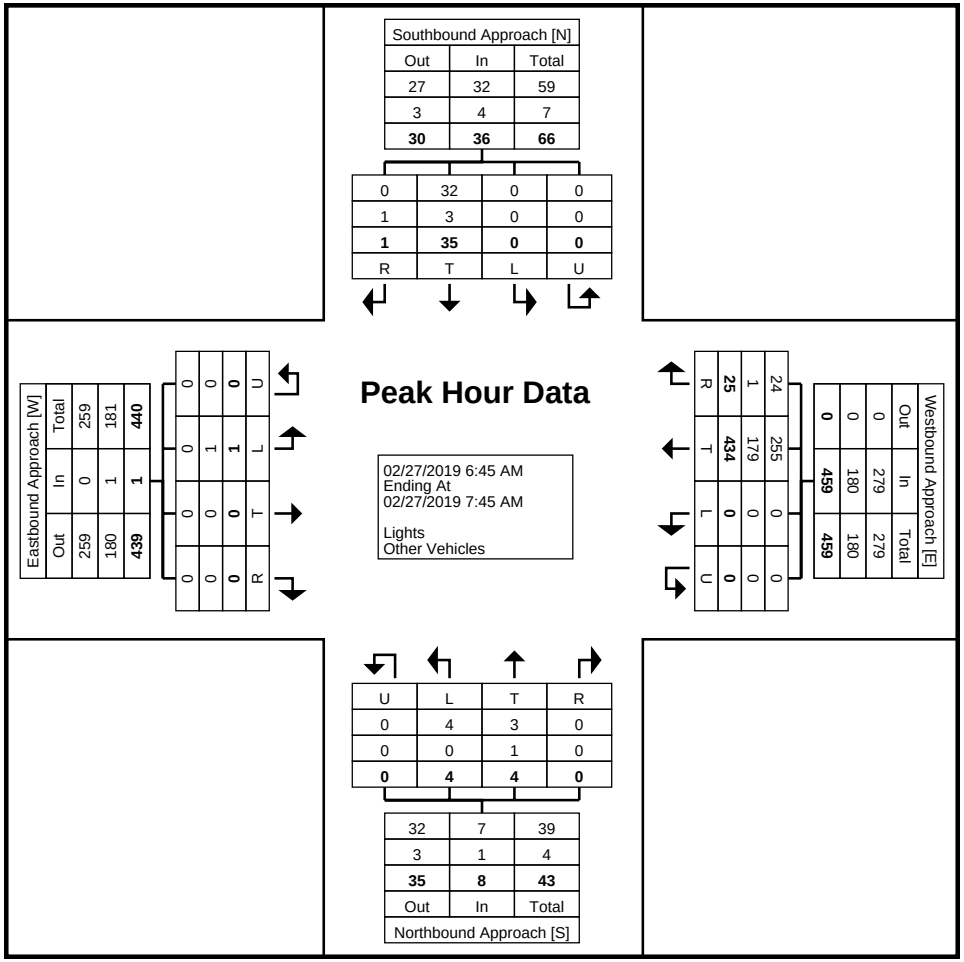
Start Date: 02/26/2019



Turning Movement Peak Hour Data Plot (6:45 AM)

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Start Date: 02/26/2019

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+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Dixon Cavett Rd
Site Code:
Start Date: 02/27/2019

Turning Movement Data

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
1:33 PM	1	0	0	0	1	0	106	1	0	107	1	0	0	0	1	0	107	0	0	107	216
1:48 PM	1	0	0	0	1	0	112	0	0	112	0	0	0	0	0	0	120	0	0	120	233
Hourly Total	2	0	0	0	2	0	218	1	0	219	1	0	0	0	1	0	227	0	0	227	449
2:03 PM	1	0	0	0	1	0	124	1	0	125	1	0	0	0	1	0	103	2	0	105	232
2:18 PM	1	0	0	0	1	0	103	0	0	103	0	0	0	0	0	0	105	1	0	106	210
2:33 PM	1	0	0	0	1	0	116	2	0	118	0	0	0	0	0	0	130	0	0	130	249
2:48 PM	0	0	0	0	0	0	115	0	0	115	0	0	0	0	0	0	141	0	0	141	256
Hourly Total	3	0	0	0	3	0	458	3	0	461	1	0	0	0	1	0	479	3	0	482	947
3:03 PM	0	0	0	0	0	0	136	1	0	137	2	0	0	0	2	0	106	0	0	106	245
3:18 PM	2	0	0	0	2	0	128	1	0	129	0	0	0	0	0	0	133	0	0	133	264
3:33 PM	0	1	0	0	1	0	110	3	0	113	1	0	0	0	1	0	138	1	0	139	254
3:48 PM	0	0	0	0	0	0	121	0	0	121	1	0	0	0	1	0	131	2	0	133	255
Hourly Total	2	1	0	0	3	0	495	5	0	500	4	0	0	0	4	0	508	3	0	511	1018
4:03 PM	2	0	0	0	2	0	136	2	0	138	0	1	0	0	1	0	132	2	0	134	275
4:18 PM	1	1	0	0	2	1	151	0	0	152	0	0	0	0	0	0	137	0	0	137	291
4:33 PM	1	0	0	0	1	1	130	4	0	135	0	1	0	0	1	0	143	1	0	144	281
4:48 PM	2	0	0	0	2	0	129	0	0	129	0	0	0	0	0	0	163	4	0	167	298
Hourly Total	6	1	0	0	7	2	546	6	0	554	0	2	0	0	2	0	575	7	0	582	1145
5:03 PM	1	0	0	0	1	0	137	2	0	139	1	0	0	0	1	0	112	0	0	112	253
5:18 PM	3	1	0	0	4	1	126	2	0	129	2	1	0	0	3	0	139	0	0	139	275
5:33 PM	2	2	0	0	4	0	135	0	0	135	1	1	0	0	2	0	146	1	0	147	288
5:48 PM	0	0	0	0	0	0	105	1	0	106	0	0	0	0	0	0	109	1	0	110	216
Hourly Total	6	3	0	0	9	1	503	5	0	509	4	2	0	0	6	0	506	2	0	508	1032
6:03 PM	1	1	0	0	2	0	99	1	0	100	3	0	0	0	3	0	121	1	0	122	227
6:18 PM	1	0	0	0	1	0	88	1	0	89	0	0	0	0	0	0	120	0	0	120	210
6:33 PM	0	0	0	0	0	0	91	2	0	93	1	0	0	0	1	0	120	2	0	122	216
6:48 PM	0	1	0	0	1	0	99	0	0	99	1	0	0	0	1	0	86	0	0	86	187
Hourly Total	2	2	0	0	4	0	377	4	0	381	5	0	0	0	5	0	447	3	0	450	840
7:03 PM	0	0	0	0	0	0	77	0	0	77	0	0	0	0	0	0	75	1	0	76	153
7:18 PM	1	1	0	0	2	0	65	1	0	66	0	0	0	0	0	0	86	0	0	86	154
7:33 PM	1	0	0	0	1	0	67	1	0	68	1	0	0	0	1	0	69	1	0	70	140
7:48 PM	0	1	0	0	1	0	65	4	1	70	0	0	0	0	0	0	68	0	0	68	139
Hourly Total	2	2	0	0	4	0	274	6	1	281	1	0	0	0	1	0	298	2	0	300	586
8:03 PM	1	0	0	0	1	0	57	0	0	57	0	0	0	0	0	0	54	0	0	54	112
8:18 PM	0	0	0	0	0	0	64	0	0	64	0	0	0	0	0	0	67	1	0	68	132

8:33 PM	1	0	0	0	1	0	57	2	0	59	0	0	0	0	0	0	64	0	0	64	124
8:48 PM	0	0	0	0	0	0	59	1	0	60	0	0	0	0	0	0	61	0	0	61	121
Hourly Total	2	0	0	0	2	0	237	3	0	240	0	0	0	0	0	0	246	1	0	247	489
9:03 PM	0	0	0	0	0	0	48	0	0	48	0	0	0	0	0	0	41	0	0	41	89
9:18 PM	0	0	0	0	0	0	41	2	0	43	0	0	0	0	0	0	66	0	0	66	109
9:33 PM	0	0	0	0	0	0	48	0	0	48	0	0	0	0	0	0	43	0	0	43	91
9:48 PM	0	0	0	0	0	1	42	0	0	43	1	0	0	0	1	0	59	1	0	60	104
Hourly Total	0	0	0	0	0	1	179	2	0	182	1	0	0	0	1	0	209	1	0	210	393
10:03 PM	0	0	0	0	0	0	39	0	0	39	1	0	0	0	1	0	45	0	0	45	85
10:18 PM	0	0	0	0	0	0	30	0	0	30	0	1	0	0	1	0	41	0	0	41	72
10:33 PM	0	0	0	0	0	0	33	0	0	33	0	0	0	0	0	0	40	0	0	40	73
10:48 PM	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	0	32	0	0	32	58
Hourly Total	0	0	0	0	0	0	128	0	0	128	1	1	0	0	2	0	158	0	0	158	288
11:03 PM	0	0	0	0	0	0	40	0	0	40	0	0	0	0	0	0	43	0	0	43	83
11:18 PM	0	0	0	0	0	0	33	0	0	33	0	0	0	0	0	0	36	0	0	36	69
11:33 PM	0	0	1	0	1	0	35	0	0	35	0	0	0	0	0	0	24	0	0	24	60
11:48 PM	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	0	21	0	0	21	47
Hourly Total	0	0	1	0	1	0	134	0	0	134	0	0	0	0	0	0	124	0	0	124	259
12:03 AM	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	0	15	0	0	15	41
12:18 AM	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	0	33	0	0	33	54
12:33 AM	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	25	0	0	25	43
12:48 AM	0	0	0	0	0	0	18	0	0	18	0	1	0	0	1	0	28	0	0	28	47
Hourly Total	0	0	0	0	0	0	83	0	0	83	0	1	0	0	1	0	101	0	0	101	185
1:03 AM	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	0	25	0	0	25	47
1:18 AM	0	0	0	0	0	0	33	0	0	33	0	0	0	0	0	0	25	0	0	25	58
1:33 AM	1	0	0	0	1	0	22	0	0	22	0	0	0	0	0	0	16	0	0	16	39
1:48 AM	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	16	0	0	16	36
Hourly Total	1	0	0	0	1	0	97	0	0	97	0	0	0	0	0	0	82	0	0	82	180
2:03 AM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	16	0	0	16	41
2:18 AM	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	13	0	0	13	37
2:33 AM	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	23	1	0	24	48
2:48 AM	1	0	0	0	1	0	29	0	0	29	0	0	0	0	0	0	17	0	0	17	47
Hourly Total	1	0	0	0	1	0	102	0	0	102	0	0	0	0	0	0	69	1	0	70	173
3:03 AM	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	0	21	0	0	21	43
3:18 AM	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	18	0	0	18	38
3:33 AM	1	0	0	0	1	0	30	0	0	30	0	0	0	0	0	0	32	0	0	32	63
3:48 AM	1	0	0	0	1	0	24	0	0	24	0	0	0	0	0	0	19	0	0	19	44
Hourly Total	2	0	0	0	2	0	96	0	0	96	0	0	0	0	0	0	90	0	0	90	188
4:03 AM	1	0	0	0	1	0	28	0	0	28	0	0	0	0	0	0	30	0	0	30	59
4:18 AM	0	1	0	0	1	0	38	0	0	38	0	0	0	0	0	0	34	0	0	34	73
4:33 AM	0	0	0	0	0	0	35	0	0	35	0	0	0	0	0	0	36	0	0	36	71
4:48 AM	0	0	0	0	0	0	42	0	0	42	0	0	0	0	0	0	39	0	0	39	81
Hourly Total	1	1	0	0	2	0	143	0	0	143	0	0	0	0	0	0	139	0	0	139	284
5:03 AM	0	0	0	0	0	0	63	0	0	63	1	1	0	0	2	0	34	0	0	34	99
5:18 AM	2	0	0	0	2	0	62	0	0	62	1	0	0	0	1	0	38	0	0	38	103
5:33 AM	0	0	0	0	0	0	47	0	0	47	1	0	0	0	1	0	57	0	0	57	105
5:48 AM	3	0	0	0	3	0	67	0	0	67	0	0	0	0	0	0	68	0	0	68	138
Hourly Total	5	0	0	0	5	0	239	0	0	239	3	1	0	0	4	0	197	0	0	197	445
6:03 AM	1	0	0	0	1	0	78	0	0	78	2	0	0	0	2	0	72	0	0	72	153
6:18 AM	1	0	0	0	1	0	95	0	0	95	4	0	0	0	4	0	61	0	0	61	161
6:33 AM	4	0	0	0	4	0	104	0	0	104	5	0	0	0	5	0	78	0	0	78	191
6:48 AM	1	0	0	0	1	0	95	0	0	95	2	0	0	0	2	0	85	3	0	88	186

Hourly Total	7	0	0	0	7	0	372	0	0	372	13	0	0	0	13	0	296	3	0	299	691
7:03 AM	4	0	1	0	5	0	118	0	0	118	3	0	1	0	4	0	94	0	0	94	221
7:18 AM	0	0	0	0	0	0	117	0	0	117	4	0	0	0	4	0	99	0	0	99	220
7:33 AM	2	0	0	0	2	0	118	1	0	119	4	0	0	0	4	0	101	1	0	102	227
7:48 AM	0	0	1	0	1	0	102	0	0	102	2	0	0	0	2	0	96	0	0	96	201
Hourly Total	6	0	2	0	8	0	455	1	0	456	13	0	1	0	14	0	390	1	0	391	869
8:03 AM	2	0	0	0	2	0	97	0	0	97	1	0	0	0	1	0	86	1	0	87	187
8:18 AM	0	0	0	0	0	0	82	0	0	82	0	0	0	0	0	0	91	1	0	92	174
8:33 AM	0	0	0	0	0	0	101	1	0	102	0	0	0	0	0	0	104	0	0	104	206
8:48 AM	3	0	0	0	3	0	99	1	0	100	2	0	0	0	2	0	101	1	0	102	207
Hourly Total	5	0	0	0	5	0	379	2	0	381	3	0	0	0	3	0	382	3	0	385	774
9:03 AM	0	0	0	0	0	0	97	0	0	97	1	0	0	0	1	0	100	0	0	100	198
9:18 AM	0	0	0	0	0	0	94	0	0	94	1	0	0	0	1	0	107	0	0	107	202
9:33 AM	0	0	0	0	0	0	110	0	0	110	3	0	0	0	3	0	83	0	0	83	196
9:48 AM	1	0	0	0	1	0	87	2	0	89	0	0	0	0	0	0	104	0	0	104	194
Hourly Total	1	0	0	0	1	0	388	2	0	390	5	0	0	0	5	0	394	0	0	394	790
10:03 AM	3	0	0	0	3	0	110	0	0	110	1	0	0	0	1	0	100	0	0	100	214
10:18 AM	0	0	0	0	0	0	103	0	0	103	0	0	0	0	0	0	84	0	0	84	187
10:33 AM	2	0	0	0	2	0	103	0	0	103	0	1	0	0	1	0	95	0	0	95	201
10:48 AM	0	0	0	0	0	0	114	1	0	115	0	0	0	0	0	0	106	0	0	106	221
Hourly Total	5	0	0	0	5	0	430	1	0	431	1	1	0	0	2	0	385	0	0	385	823
11:03 AM	0	0	0	0	0	0	119	0	0	119	0	0	0	0	0	0	95	0	0	95	214
11:18 AM	1	0	0	0	1	0	99	2	0	101	1	0	0	0	1	0	114	1	0	115	218
11:33 AM	0	1	0	0	1	0	104	0	0	104	0	0	0	0	0	0	98	1	0	99	204
11:48 AM	1	0	0	0	1	0	105	0	0	105	1	0	0	0	1	0	102	1	0	103	210
Hourly Total	2	1	0	0	3	0	427	2	0	429	2	0	0	0	2	0	409	3	0	412	846
12:03 PM	1	0	1	0	2	0	83	1	0	84	2	0	0	0	2	0	89	0	0	89	177
12:18 PM	1	0	0	0	1	0	108	0	0	108	0	0	0	0	0	0	101	0	0	101	210
12:33 PM	0	0	0	0	0	0	122	0	0	122	0	1	0	0	1	0	106	1	0	107	230
12:48 PM	1	0	0	0	1	0	101	0	0	101	0	0	0	0	0	0	96	0	0	96	198
Hourly Total	3	0	1	0	4	0	414	1	0	415	2	1	0	0	3	0	392	1	0	393	815
1:03 PM	1	0	0	0	1	0	105	0	0	105	1	0	0	0	1	0	118	1	0	119	226
1:18 PM	1	0	0	0	1	0	89	0	0	89	2	0	0	0	2	0	124	2	0	126	218
1:33 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
Grand Total	66	11	4	0	81	4	7369	44	1	7418	63	9	1	0	73	0	7347	37	0	7384	14956
Approach %	81.5	13.6	4.9	0.0	-	0.1	99.3	0.6	0.0	-	86.3	12.3	1.4	0.0	-	0.0	99.5	0.5	0.0	-	-
Total %	0.4	0.1	0.0	0.0	0.5	0.0	49.3	0.3	0.0	49.6	0.4	0.1	0.0	0.0	0.5	0.0	49.1	0.2	0.0	49.4	-
Lights	64	11	4	0	79	4	4021	41	1	4067	62	9	1	0	72	0	4042	35	0	4077	8295
% Lights	97.0	100.0	100.0	-	97.5	100.0	54.6	93.2	100.0	54.8	98.4	100.0	100.0	-	98.6	-	55.0	94.6	-	55.2	55.5
Other Vehicles	2	0	0	0	2	0	3348	3	0	3351	1	0	0	0	1	0	3305	2	0	3307	6661
% Other Vehicles	3.0	0.0	0.0	-	2.5	0.0	45.4	6.8	0.0	45.2	1.6	0.0	0.0	-	1.4	-	45.0	5.4	-	44.8	44.5

Ohio Department of Transportation
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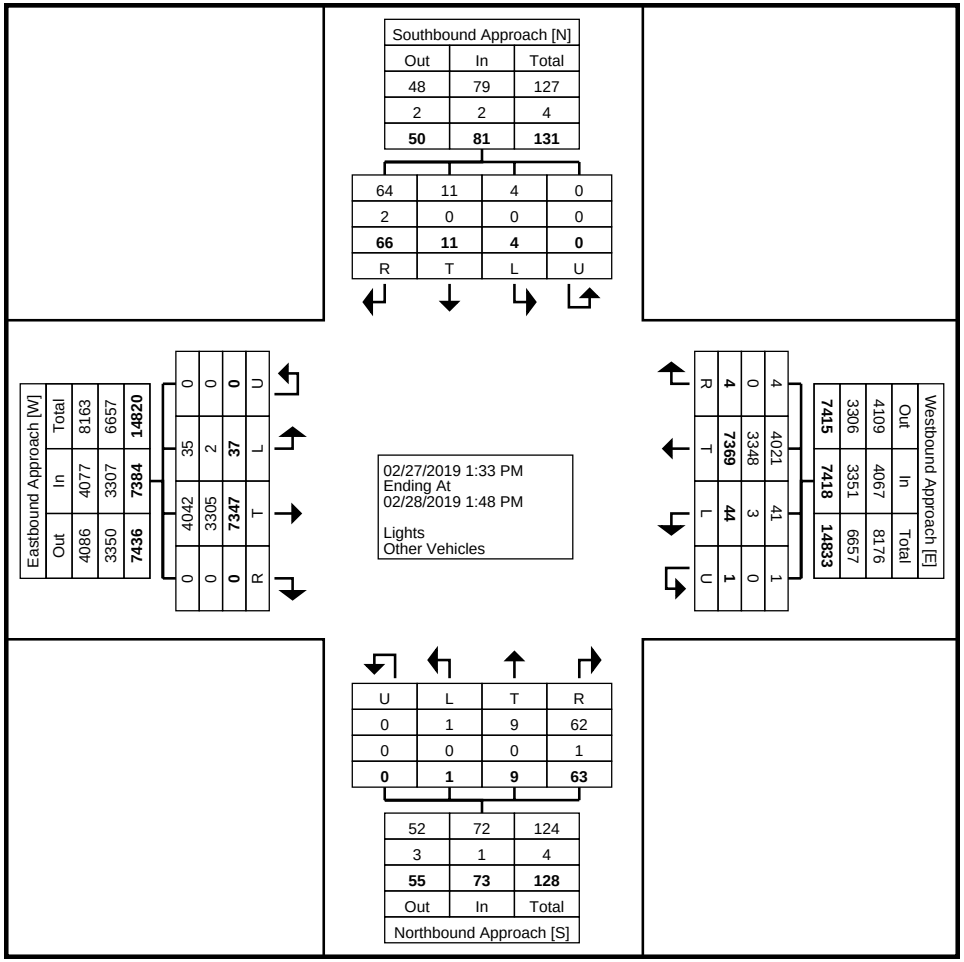
Office of Traffic Engineering

Count Name: VAN-30 & Dixon Cavett Rd
Site Code:
Start Date: 02/27/2019



Turning Movement Data Plot

Ohio Department of Transportation
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Office of Traffic Engineering

Count Name: VAN-30 & Dixon Cavett Rd
Site Code:
Start Date: 02/27/2019

Turning Movement Peak Hour Data (4:03 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
4:03 PM	2	0	0	0	2	0	136	2	0	138	0	1	0	0	1	0	132	2	0	134	275
4:18 PM	1	1	0	0	2	1	151	0	0	152	0	0	0	0	0	0	137	0	0	137	291
4:33 PM	1	0	0	0	1	1	130	4	0	135	0	1	0	0	1	0	143	1	0	144	281
4:48 PM	2	0	0	0	2	0	129	0	0	129	0	0	0	0	0	0	163	4	0	167	298
Total	6	1	0	0	7	2	546	6	0	554	0	2	0	0	2	0	575	7	0	582	1145
Approach %	85.7	14.3	0.0	0.0	-	0.4	98.6	1.1	0.0	-	0.0	100.0	0.0	0.0	-	0.0	98.8	1.2	0.0	-	-
Total %	0.5	0.1	0.0	0.0	0.6	0.2	47.7	0.5	0.0	48.4	0.0	0.2	0.0	0.0	0.2	0.0	50.2	0.6	0.0	50.8	-
PHF	0.750	0.250	0.000	0.000	0.875	0.500	0.904	0.375	0.000	0.911	0.000	0.500	0.000	0.000	0.500	0.000	0.882	0.438	0.000	0.871	0.961
Lights	6	1	0	0	7	2	355	6	0	363	0	2	0	0	2	0	355	7	0	362	734
% Lights	100.0	100.0	-	-	100.0	100.0	65.0	100.0	-	65.5	-	100.0	-	-	100.0	-	61.7	100.0	-	62.2	64.1
Other Vehicles	0	0	0	0	0	0	191	0	0	191	0	0	0	0	0	0	220	0	0	220	411
% Other Vehicles	0.0	0.0	-	-	0.0	0.0	35.0	0.0	-	34.5	-	0.0	-	-	0.0	-	38.3	0.0	-	37.8	35.9

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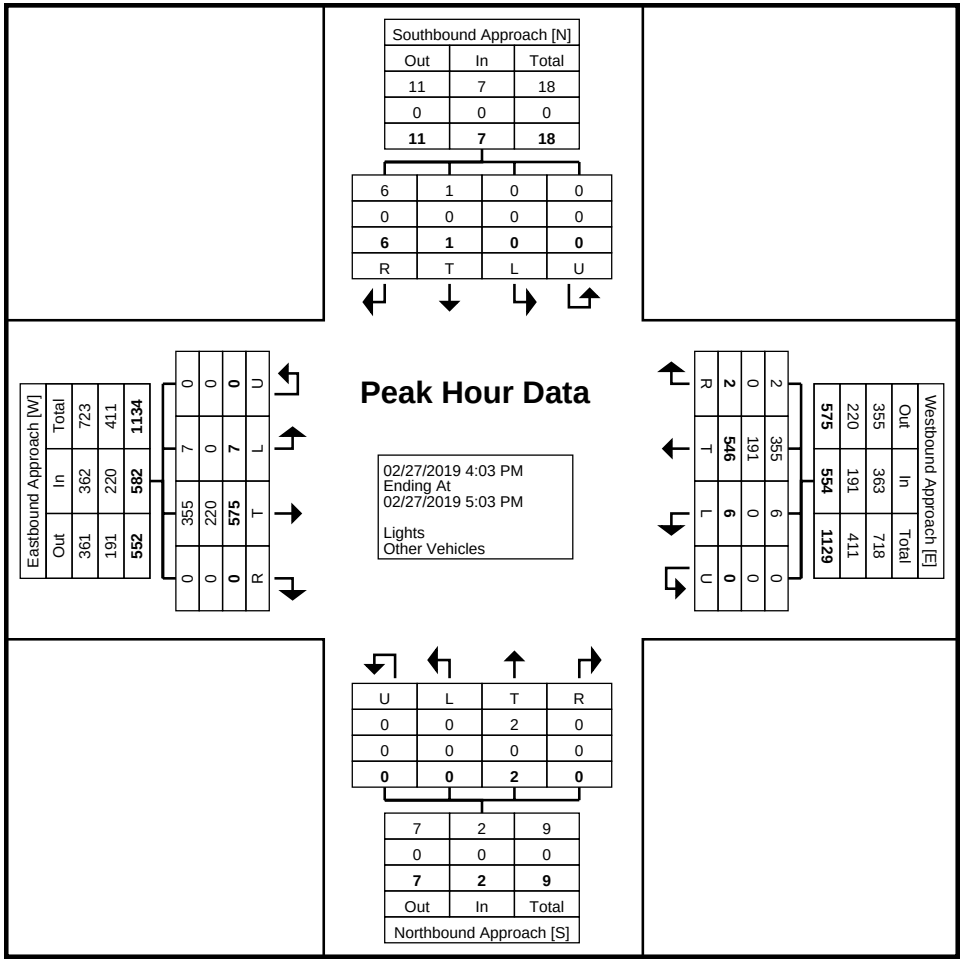

Turning Movement Peak Hour Data Plot (4:03 PM)

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Count Name: VAN-30 & Dixon Cavett Rd
Site Code:
Start Date: 02/27/2019

Turning Movement Peak Hour Data (7:03 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
7:03 AM	4	0	1	0	5	0	118	0	0	118	3	0	1	0	4	0	94	0	0	94	221
7:18 AM	0	0	0	0	0	0	117	0	0	117	4	0	0	0	4	0	99	0	0	99	220
7:33 AM	2	0	0	0	2	0	118	1	0	119	4	0	0	0	4	0	101	1	0	102	227
7:48 AM	0	0	1	0	1	0	102	0	0	102	2	0	0	0	2	0	96	0	0	96	201
Total	6	0	2	0	8	0	455	1	0	456	13	0	1	0	14	0	390	1	0	391	869
Approach %	75.0	0.0	25.0	0.0	-	0.0	99.8	0.2	0.0	-	92.9	0.0	7.1	0.0	-	0.0	99.7	0.3	0.0	-	-
Total %	0.7	0.0	0.2	0.0	0.9	0.0	52.4	0.1	0.0	52.5	1.5	0.0	0.1	0.0	1.6	0.0	44.9	0.1	0.0	45.0	-
PHF	0.375	0.000	0.500	0.000	0.400	0.000	0.964	0.250	0.000	0.958	0.813	0.000	0.250	0.000	0.875	0.000	0.965	0.250	0.000	0.958	0.957
Lights	6	0	2	0	8	0	287	1	0	288	13	0	1	0	14	0	258	1	0	259	569
% Lights	100.0	-	100.0	-	100.0	-	63.1	100.0	-	63.2	100.0	-	100.0	-	100.0	-	66.2	100.0	-	66.2	65.5
Other Vehicles	0	0	0	0	0	0	168	0	0	168	0	0	0	0	0	0	132	0	0	132	300
% Other Vehicles	0.0	-	0.0	-	0.0	-	36.9	0.0	-	36.8	0.0	-	0.0	-	0.0	-	33.8	0.0	-	33.8	34.5

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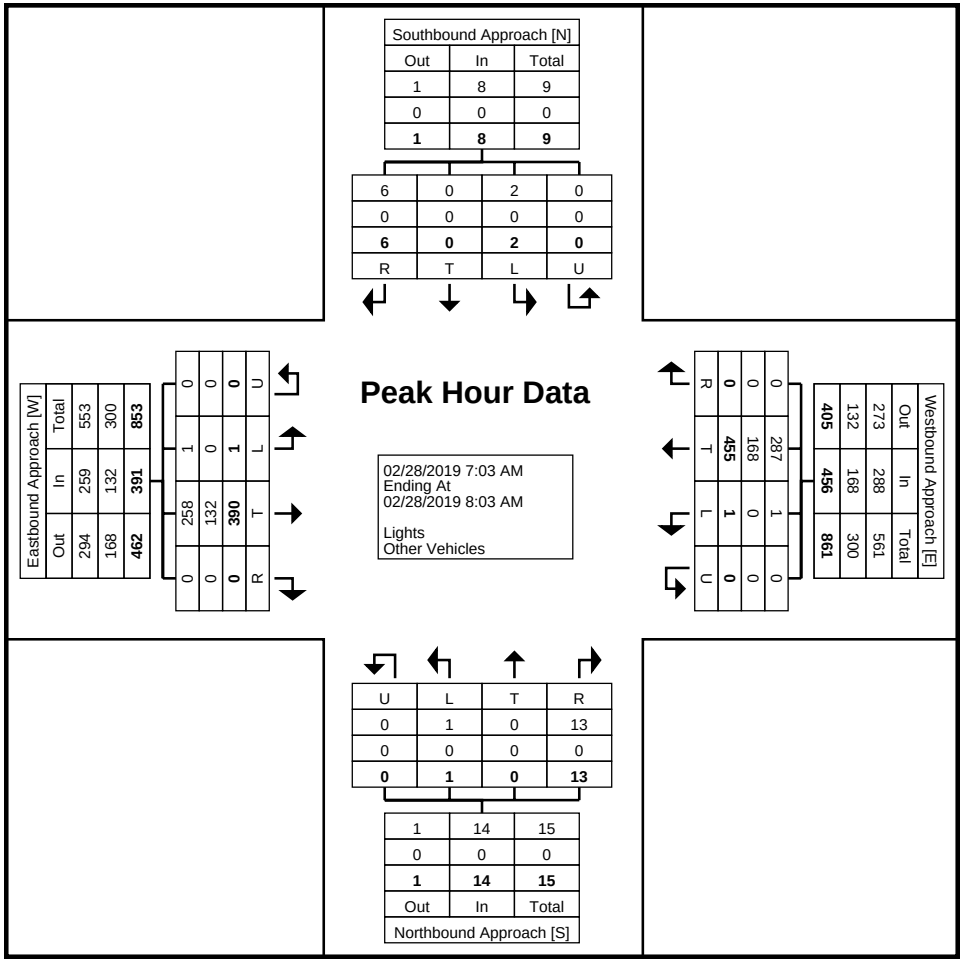

Turning Movement Peak Hour Data Plot (7:03 AM)

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Count Name: VAN-30 & Dixon Cavett Rd
Site Code:
Start Date: 02/27/2019

Turning Movement Peak Hour Data (12:33 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
12:33 PM	0	0	0	0	0	0	122	0	0	122	0	1	0	0	1	0	106	1	0	107	230
12:48 PM	1	0	0	0	1	0	101	0	0	101	0	0	0	0	0	0	96	0	0	96	198
1:03 PM	1	0	0	0	1	0	105	0	0	105	1	0	0	0	1	0	118	1	0	119	226
1:18 PM	1	0	0	0	1	0	89	0	0	89	2	0	0	0	2	0	124	2	0	126	218
Total	3	0	0	0	3	0	417	0	0	417	3	1	0	0	4	0	444	4	0	448	872
Approach %	100.0	0.0	0.0	0.0	-	0.0	100.0	0.0	0.0	-	75.0	25.0	0.0	0.0	-	0.0	99.1	0.9	0.0	-	-
Total %	0.3	0.0	0.0	0.0	0.3	0.0	47.8	0.0	0.0	47.8	0.3	0.1	0.0	0.0	0.5	0.0	50.9	0.5	0.0	51.4	-
PHF	0.750	0.000	0.000	0.000	0.750	0.000	0.855	0.000	0.000	0.855	0.375	0.250	0.000	0.000	0.500	0.000	0.895	0.500	0.000	0.889	0.948
Lights	3	0	0	0	3	0	221	0	0	221	3	1	0	0	4	0	266	4	0	270	498
% Lights	100.0	-	-	-	100.0	-	53.0	-	-	53.0	100.0	100.0	-	-	100.0	-	59.9	100.0	-	60.3	57.1
Other Vehicles	0	0	0	0	0	0	196	0	0	196	0	0	0	0	0	0	178	0	0	178	374
% Other Vehicles	0.0	-	-	-	0.0	-	47.0	-	-	47.0	0.0	0.0	-	-	0.0	-	40.1	0.0	-	39.7	42.9

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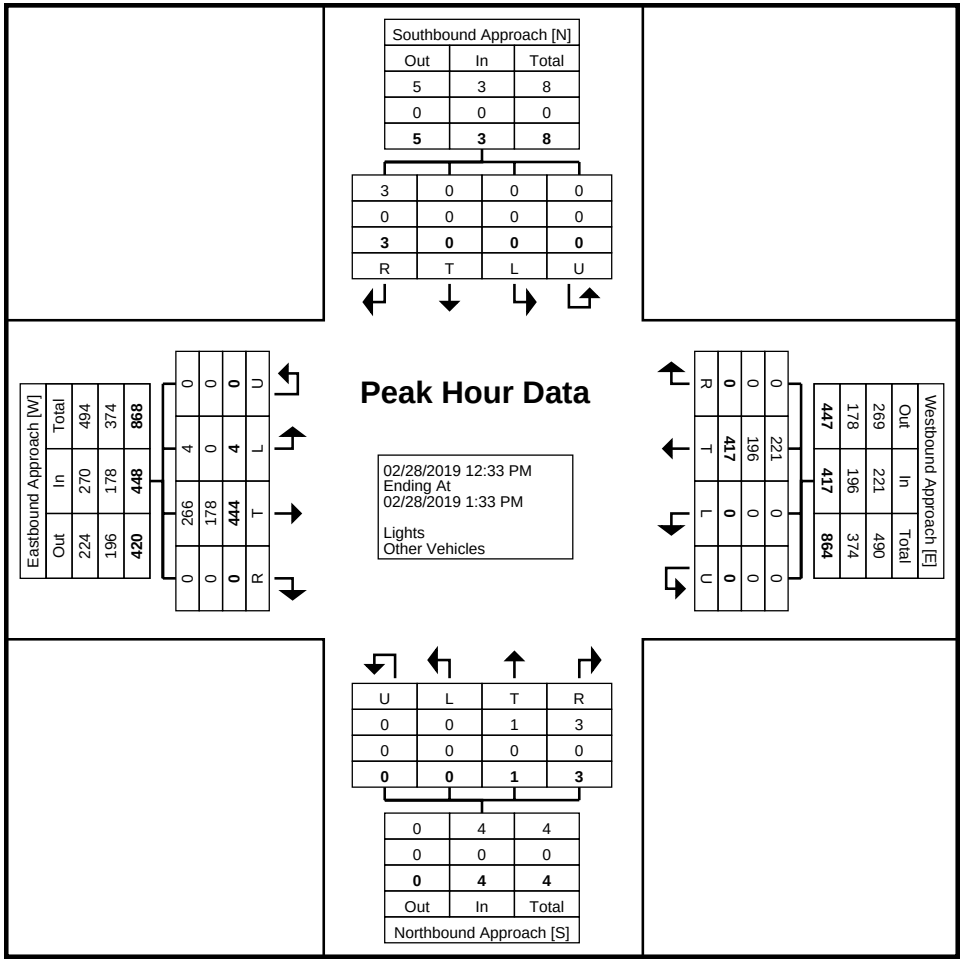

Turning Movement Peak Hour Data Plot (12:33 PM)

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Office of Traffic Engineering

Count Name: VAN-30 & 49 S (Convoy-Helle Rd.)
Site Code:
Start Date: 02/26/2019

Turning Movement Data

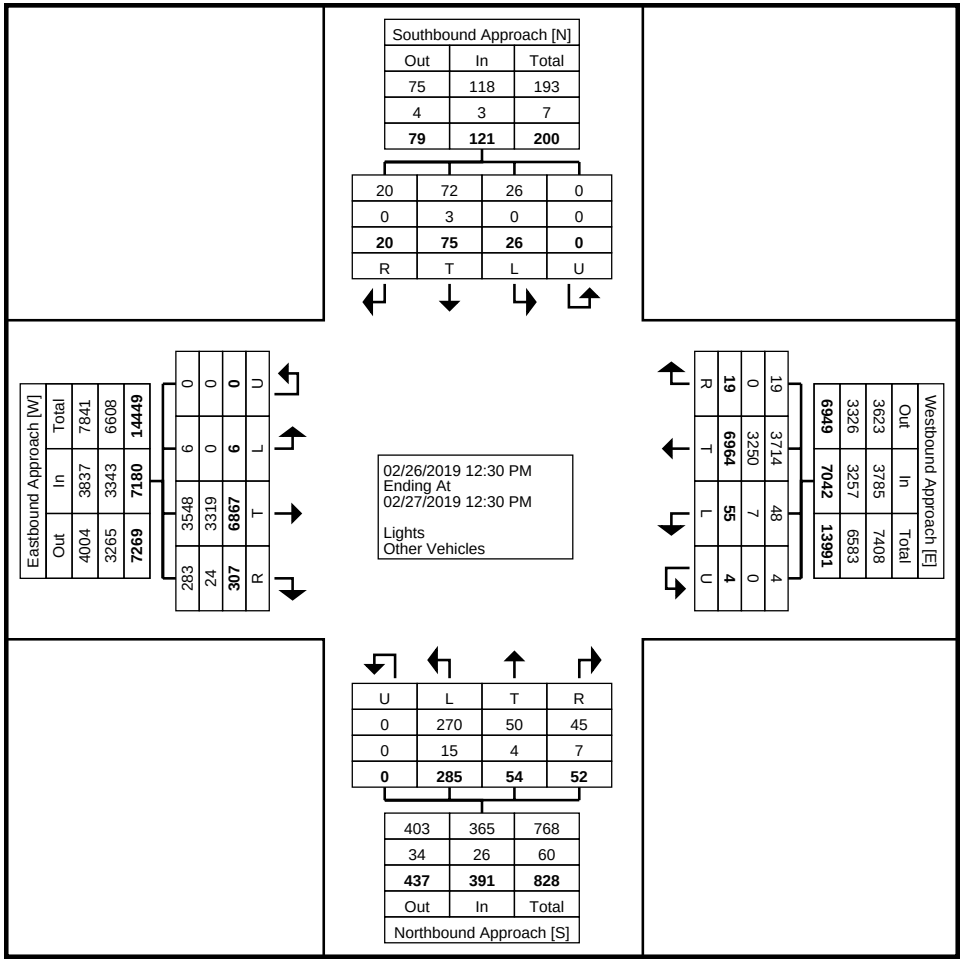
Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
12:30 PM	0	1	0	0	1	0	85	0	0	85	2	2	2	0	6	3	78	0	0	81	173
12:45 PM	0	2	0	0	2	0	106	1	0	107	0	2	4	0	6	2	88	0	0	90	205
Hourly Total	0	3	0	0	3	0	191	1	0	192	2	4	6	0	12	5	166	0	0	171	378
1:00 PM	0	0	0	0	0	0	98	0	0	98	1	1	0	0	2	4	90	0	0	94	194
1:15 PM	0	1	0	0	1	0	112	1	0	113	1	2	2	0	5	4	101	0	0	105	224
1:30 PM	0	3	0	0	3	0	94	0	0	94	0	1	3	0	4	2	104	0	0	106	207
1:45 PM	0	3	2	0	5	1	107	1	0	109	0	2	5	0	7	5	122	0	0	127	248
Hourly Total	0	7	2	0	9	1	411	2	0	414	2	6	10	0	18	15	417	0	0	432	873
2:00 PM	0	0	1	0	1	0	100	1	0	101	1	0	3	0	4	3	115	0	0	118	224
2:15 PM	0	0	0	0	0	1	118	0	0	119	0	1	4	0	5	1	130	0	0	131	255
2:30 PM	0	2	0	0	2	1	118	1	0	120	0	0	6	0	6	7	111	0	0	118	246
2:45 PM	0	2	0	0	2	1	114	2	0	117	0	0	1	0	1	2	109	0	0	111	231
Hourly Total	0	4	1	0	5	3	450	4	0	457	1	1	14	0	16	13	465	0	0	478	956
3:00 PM	0	2	0	0	2	0	102	2	0	104	0	0	4	0	4	4	96	0	0	100	210
3:15 PM	0	3	0	0	3	0	122	1	0	123	0	0	3	0	3	3	119	0	0	122	251
3:30 PM	0	2	2	0	4	1	111	3	0	115	0	2	3	0	5	10	107	0	0	117	241
3:45 PM	0	0	1	0	1	0	122	1	1	124	1	1	1	0	3	8	152	0	0	160	288
Hourly Total	0	7	3	0	10	1	457	7	1	466	1	3	11	0	15	25	474	0	0	499	990
4:00 PM	1	3	0	0	4	1	148	1	0	150	3	0	6	0	9	8	141	0	0	149	312
4:15 PM	2	0	1	0	3	0	173	2	0	175	1	2	3	0	6	7	125	0	0	132	316
4:30 PM	0	2	0	0	2	0	127	2	0	129	1	2	4	0	7	11	102	0	0	113	251
4:45 PM	1	1	0	0	2	0	118	0	0	118	2	1	2	0	5	5	124	0	0	129	254
Hourly Total	4	6	1	0	11	1	566	5	0	572	7	5	15	0	27	31	492	0	0	523	1133
5:00 PM	2	1	0	0	3	3	130	1	0	134	1	0	6	0	7	8	135	0	0	143	287
5:15 PM	0	1	0	0	1	0	127	1	0	128	0	1	5	0	6	14	132	0	0	146	281
5:30 PM	0	0	0	0	0	0	127	1	0	128	1	2	3	0	6	12	110	0	0	122	256
5:45 PM	0	1	0	0	1	0	124	4	0	128	1	0	2	0	3	8	120	0	0	128	260
Hourly Total	2	3	0	0	5	3	508	7	0	518	3	3	16	0	22	42	497	0	0	539	1084
6:00 PM	0	4	0	0	4	0	98	0	0	98	2	0	3	0	5	1	104	0	0	105	212
6:15 PM	1	0	0	0	1	0	107	0	0	107	1	3	1	0	5	7	100	0	0	107	220
6:30 PM	0	1	0	0	1	1	77	1	0	79	0	1	7	0	8	8	94	0	0	102	190
6:45 PM	0	1	1	0	2	0	96	1	0	97	1	1	7	0	9	4	92	0	0	96	204
Hourly Total	1	6	1	0	8	1	378	2	0	381	4	5	18	0	27	20	390	0	0	410	826
7:00 PM	0	2	0	0	2	1	60	0	0	61	1	1	4	0	6	5	73	0	0	78	147
7:15 PM	0	0	0	0	0	1	67	0	0	68	0	0	0	0	0	8	65	1	0	74	142

7:30 PM	0	1	0	0	1	0	60	2	0	62	0	2	3	0	5	11	72	0	0	83	151
7:45 PM	0	0	0	0	0	0	56	2	0	58	0	0	3	0	3	3	64	1	0	68	129
Hourly Total	0	3	0	0	3	2	243	4	0	249	1	3	10	0	14	27	274	2	0	303	569
8:00 PM	0	1	1	0	2	0	56	0	0	56	1	1	0	0	2	1	72	1	0	74	134
8:15 PM	0	0	0	0	0	1	54	0	0	55	0	0	3	0	3	4	65	0	0	69	127
8:30 PM	0	1	1	0	2	1	44	0	0	45	0	0	1	0	1	2	56	0	0	58	106
8:45 PM	0	0	0	0	0	0	43	0	0	43	1	1	3	0	5	2	50	0	0	52	100
Hourly Total	0	2	2	0	4	2	197	0	0	199	2	2	7	0	11	9	243	1	0	253	467
9:00 PM	1	0	0	0	1	0	48	0	0	48	0	0	5	0	5	1	54	0	0	55	109
9:15 PM	0	0	0	0	0	0	39	1	0	40	0	0	2	0	2	2	48	0	0	50	92
9:30 PM	0	1	0	0	1	0	35	0	0	35	0	0	1	0	1	6	52	0	0	58	95
9:45 PM	0	0	0	0	0	0	35	0	0	35	0	1	1	0	2	0	36	0	0	36	73
Hourly Total	1	1	0	0	2	0	157	1	0	158	0	1	9	0	10	9	190	0	0	199	369
10:00 PM	1	0	0	0	1	0	25	0	0	25	0	0	1	0	1	2	50	0	0	52	79
10:15 PM	0	0	0	0	0	0	28	0	0	28	0	0	0	0	0	1	37	0	0	38	66
10:30 PM	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	1	45	0	0	46	73
10:45 PM	0	0	0	0	0	0	47	0	0	47	0	0	1	0	1	0	48	0	0	48	96
Hourly Total	1	0	0	0	1	0	127	0	0	127	0	0	2	0	2	4	180	0	0	184	314
11:00 PM	0	0	0	0	0	0	37	0	0	37	0	0	0	0	0	0	40	0	0	40	77
11:15 PM	0	0	0	0	0	0	45	0	0	45	0	0	0	0	0	2	24	0	0	26	71
11:30 PM	0	0	0	0	0	0	37	0	0	37	0	0	0	0	0	2	33	0	0	35	72
11:45 PM	0	0	0	0	0	0	28	0	0	28	0	0	0	0	0	1	23	0	0	24	52
Hourly Total	0	0	0	0	0	0	147	0	0	147	0	0	0	0	0	5	120	0	0	125	272
12:00 AM	0	0	0	0	0	0	31	0	0	31	0	0	0	0	0	0	29	0	0	29	60
12:15 AM	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	1	21	0	0	22	41
12:30 AM	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	0	24	0	0	24	45
12:45 AM	0	0	0	0	0	0	24	0	0	24	0	1	0	0	1	0	24	0	0	24	49
Hourly Total	0	0	0	0	0	0	95	0	0	95	0	1	0	0	1	1	98	0	0	99	195
1:00 AM	0	0	0	0	0	0	26	1	0	27	0	0	0	0	0	1	26	0	0	27	54
1:15 AM	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	1	17	0	0	18	36
1:30 AM	0	0	0	0	0	0	22	0	0	22	0	1	0	0	1	1	9	0	0	10	33
1:45 AM	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	0	13	0	0	13	40
Hourly Total	0	0	0	0	0	0	93	1	0	94	0	1	0	0	1	3	65	0	0	68	163
2:00 AM	1	0	0	0	1	0	22	0	0	22	0	0	0	0	0	0	9	0	0	9	32
2:15 AM	0	0	0	0	0	0	31	0	0	31	0	0	1	0	1	1	14	0	0	15	47
2:30 AM	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	2	19	0	0	21	41
2:45 AM	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	0	17	0	0	17	38
Hourly Total	1	0	0	0	1	0	94	0	0	94	0	0	1	0	1	3	59	0	0	62	158
3:00 AM	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	0	21	0	0	21	47
3:15 AM	0	0	0	0	0	0	31	0	0	31	0	0	0	0	0	0	19	0	0	19	50
3:30 AM	0	0	0	0	0	0	28	0	0	28	1	0	0	0	1	2	17	0	0	19	48
3:45 AM	1	0	0	0	1	0	22	0	0	22	0	0	0	0	0	1	33	0	0	34	57
Hourly Total	1	0	0	0	1	0	107	0	0	107	1	0	0	0	1	3	90	0	0	93	202
4:00 AM	0	1	0	0	1	0	24	0	1	25	0	0	0	0	0	1	25	0	0	26	52
4:15 AM	0	0	0	0	0	0	36	1	0	37	0	0	3	0	3	0	27	0	0	27	67
4:30 AM	0	0	1	0	1	0	26	0	0	26	1	0	3	0	4	1	33	0	0	34	65
4:45 AM	0	1	0	0	1	0	32	0	0	32	0	0	5	0	5	0	42	0	0	42	80
Hourly Total	0	2	1	0	3	0	118	1	1	120	1	0	11	0	12	2	127	0	0	129	264
5:00 AM	0	0	0	0	0	0	46	0	0	46	0	0	3	0	3	0	37	0	0	37	86
5:15 AM	0	0	1	0	1	0	52	0	0	52	1	0	9	0	10	2	46	0	0	48	111
5:30 AM	1	2	1	0	4	0	52	0	0	52	2	0	5	0	7	0	56	0	0	56	119
5:45 AM	1	0	1	0	2	0	50	2	0	52	1	0	7	0	8	0	64	0	0	64	126

Hourly Total	2	2	3	0	7	0	200	2	0	202	4	0	24	0	28	2	203	0	0	205	442
6:00 AM	0	2	0	0	2	0	71	0	0	71	1	1	7	0	9	2	65	0	0	67	149
6:15 AM	0	1	1	0	2	0	85	0	0	85	3	1	6	0	10	2	76	1	0	79	176
6:30 AM	0	1	0	0	1	0	85	0	0	85	2	1	12	0	15	3	82	0	0	85	186
6:45 AM	0	0	0	0	0	0	96	1	0	97	1	2	6	0	9	1	78	0	0	79	185
Hourly Total	0	4	1	0	5	0	337	1	0	338	7	5	31	0	43	8	301	1	0	310	696
7:00 AM	1	0	1	0	2	0	90	0	0	90	1	2	15	0	18	8	79	1	0	88	198
7:15 AM	0	3	1	0	4	0	114	1	1	116	1	0	9	0	10	7	95	0	0	102	232
7:30 AM	0	2	1	0	3	2	103	1	0	106	2	0	9	0	11	7	99	0	0	106	226
7:45 AM	0	1	0	0	1	0	89	0	0	89	0	4	10	0	14	7	89	0	0	96	200
Hourly Total	1	6	3	0	10	2	396	2	1	401	4	6	43	0	53	29	362	1	0	392	856
8:00 AM	0	1	0	0	1	0	83	2	0	85	0	0	0	0	0	2	81	0	0	83	169
8:15 AM	0	0	0	0	0	0	105	0	0	105	2	0	1	0	3	4	90	0	0	94	202
8:30 AM	0	0	0	0	0	0	77	3	0	80	0	0	1	0	1	2	99	0	0	101	182
8:45 AM	2	1	2	0	5	0	102	0	0	102	0	0	2	0	2	1	88	0	0	89	198
Hourly Total	2	2	2	0	6	0	367	5	0	372	2	0	4	0	6	9	358	0	0	367	751
9:00 AM	0	1	0	0	1	0	91	0	0	91	1	0	3	0	4	1	88	0	0	89	185
9:15 AM	0	1	0	0	1	0	95	0	0	95	0	0	0	0	0	2	91	0	0	93	189
9:30 AM	1	0	1	0	2	0	94	0	0	94	1	1	7	0	9	3	98	0	0	101	206
9:45 AM	0	2	0	0	2	0	103	0	1	104	0	0	5	0	5	5	102	0	0	107	218
Hourly Total	1	4	1	0	6	0	383	0	1	384	2	1	15	0	18	11	379	0	0	390	798
10:00 AM	1	0	0	0	1	0	93	2	0	95	1	0	3	0	4	4	93	0	0	97	197
10:15 AM	2	2	0	0	4	0	78	0	0	78	1	1	4	0	6	5	101	0	0	106	194
10:30 AM	0	2	1	0	3	0	96	0	0	96	1	1	4	0	6	1	97	0	0	98	203
10:45 AM	0	1	0	0	1	2	108	1	0	111	2	1	1	0	4	1	93	0	0	94	210
Hourly Total	3	5	1	0	9	2	375	3	0	380	5	3	12	0	20	11	384	0	0	395	804
11:00 AM	0	0	1	0	1	0	94	1	0	95	0	0	1	0	1	3	82	0	0	85	182
11:15 AM	0	1	0	0	1	0	89	0	0	89	0	2	9	0	11	3	102	1	0	106	207
11:30 AM	0	4	1	0	5	1	91	2	0	94	1	0	3	0	4	4	88	0	0	92	195
11:45 AM	0	0	0	0	0	0	90	3	0	93	0	1	5	0	6	3	85	0	0	88	187
Hourly Total	0	5	2	0	7	1	364	6	0	371	1	3	18	0	22	13	357	1	0	371	771
12:00 PM	0	2	1	0	3	0	99	1	0	100	1	1	4	0	6	4	84	0	0	88	197
12:15 PM	0	1	1	0	2	0	104	0	0	104	1	0	4	0	5	3	92	0	0	95	206
Grand Total	20	75	26	0	121	19	6964	55	4	7042	52	54	285	0	391	307	6867	6	0	7180	14734
Approach %	16.5	62.0	21.5	0.0	-	0.3	98.9	0.8	0.1	-	13.3	13.8	72.9	0.0	-	4.3	95.6	0.1	0.0	-	-
Total %	0.1	0.5	0.2	0.0	0.8	0.1	47.3	0.4	0.0	47.8	0.4	0.4	1.9	0.0	2.7	2.1	46.6	0.0	0.0	48.7	-
Lights	20	72	26	0	118	19	3714	48	4	3785	45	50	270	0	365	283	3548	6	0	3837	8105
% Lights	100.0	96.0	100.0	-	97.5	100.0	53.3	87.3	100.0	53.7	86.5	92.6	94.7	-	93.4	92.2	51.7	100.0	-	53.4	55.0
Other Vehicles	0	3	0	0	3	0	3250	7	0	3257	7	4	15	0	26	24	3319	0	0	3343	6629
% Other Vehicles	0.0	4.0	0.0	-	2.5	0.0	46.7	12.7	0.0	46.3	13.5	7.4	5.3	-	6.6	7.8	48.3	0.0	-	46.6	45.0

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & 49 S (Convoy-Helle Rd.)
Site Code:
Start Date: 02/26/2019



Turning Movement Data Plot

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
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Office of Traffic Engineering

Count Name: VAN-30 & 49 S (Convoy-Helle Rd.)
Site Code:
Start Date: 02/26/2019

Turning Movement Peak Hour Data (3:45 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
3:45 PM	0	0	1	0	1	0	122	1	1	124	1	1	1	0	3	8	152	0	0	160	288
4:00 PM	1	3	0	0	4	1	148	1	0	150	3	0	6	0	9	8	141	0	0	149	312
4:15 PM	2	0	1	0	3	0	173	2	0	175	1	2	3	0	6	7	125	0	0	132	316
4:30 PM	0	2	0	0	2	0	127	2	0	129	1	2	4	0	7	11	102	0	0	113	251
Total	3	5	2	0	10	1	570	6	1	578	6	5	14	0	25	34	520	0	0	554	1167
Approach %	30.0	50.0	20.0	0.0	-	0.2	98.6	1.0	0.2	-	24.0	20.0	56.0	0.0	-	6.1	93.9	0.0	0.0	-	-
Total %	0.3	0.4	0.2	0.0	0.9	0.1	48.8	0.5	0.1	49.5	0.5	0.4	1.2	0.0	2.1	2.9	44.6	0.0	0.0	47.5	-
PHF	0.375	0.417	0.500	0.000	0.625	0.250	0.824	0.750	0.250	0.826	0.500	0.625	0.583	0.000	0.694	0.773	0.855	0.000	0.000	0.866	0.923
Lights	3	5	2	0	10	1	345	5	1	352	6	5	13	0	24	33	293	0	0	326	712
% Lights	100.0	100.0	100.0	-	100.0	100.0	60.5	83.3	100.0	60.9	100.0	100.0	92.9	-	96.0	97.1	56.3	-	-	58.8	61.0
Other Vehicles	0	0	0	0	0	0	225	1	0	226	0	0	1	0	1	1	227	0	0	228	455
% Other Vehicles	0.0	0.0	0.0	-	0.0	0.0	39.5	16.7	0.0	39.1	0.0	0.0	7.1	-	4.0	2.9	43.7	-	-	41.2	39.0

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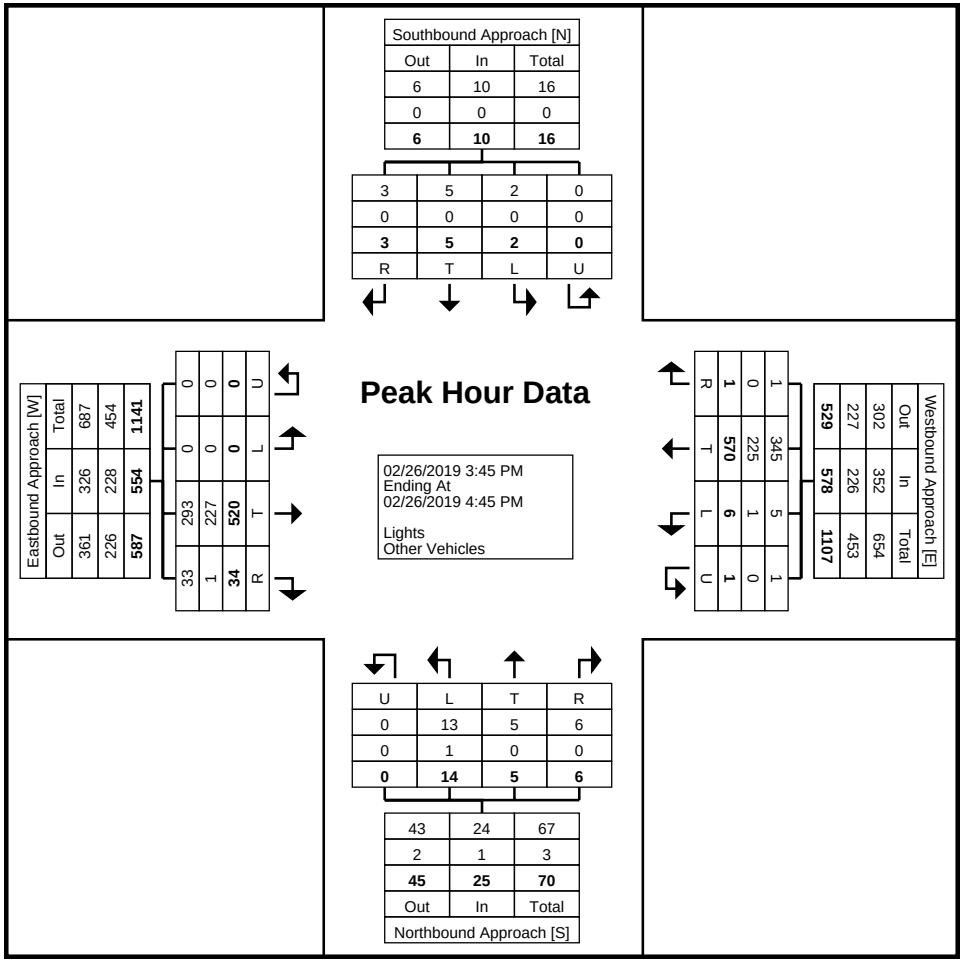
Count Name: VAN-30 & 49 S (Convoy-Helle Rd.)
Site Code:
Start Date: 02/26/2019



Turning Movement Peak Hour Data Plot (3:45 PM)

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
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Office of Traffic Engineering

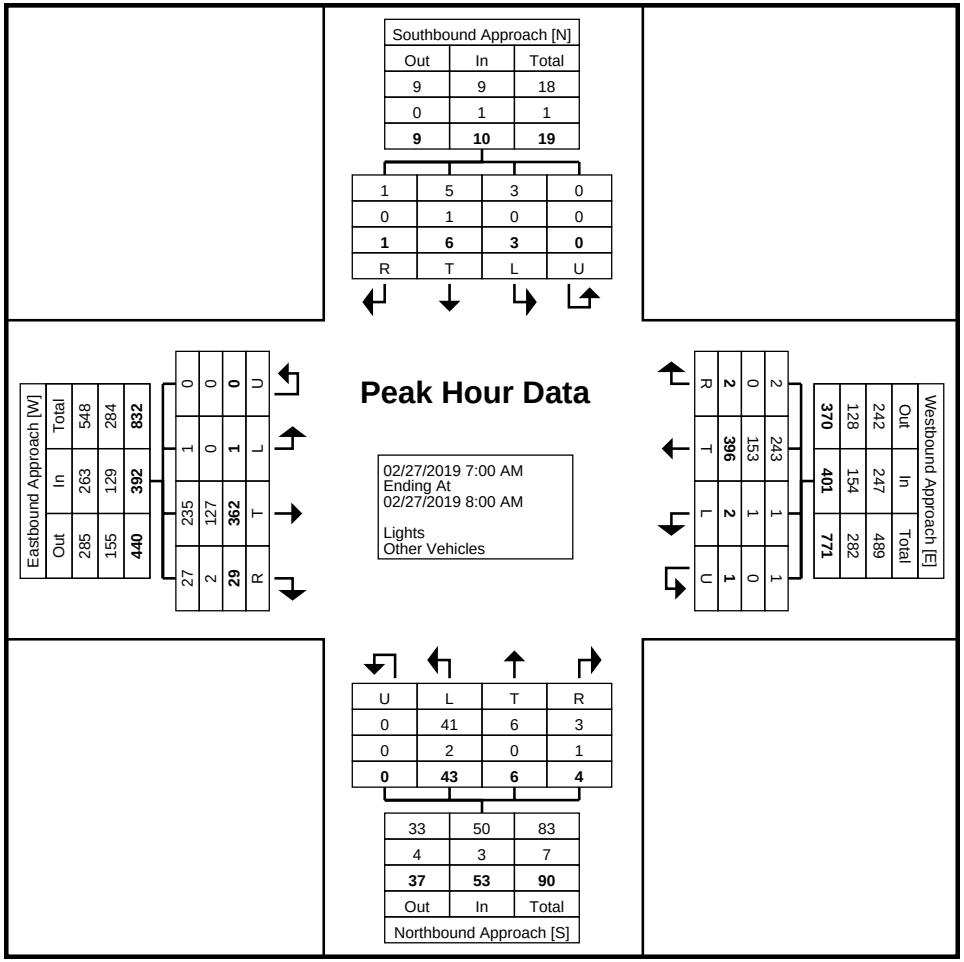
Count Name: VAN-30 & 49 S (Convoy-Helle Rd.)
Site Code:
Start Date: 02/26/2019

Turning Movement Peak Hour Data (7:00 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
7:00 AM	1	0	1	0	2	0	90	0	0	90	1	2	15	0	18	8	79	1	0	88	198
7:15 AM	0	3	1	0	4	0	114	1	1	116	1	0	9	0	10	7	95	0	0	102	232
7:30 AM	0	2	1	0	3	2	103	1	0	106	2	0	9	0	11	7	99	0	0	106	226
7:45 AM	0	1	0	0	1	0	89	0	0	89	0	4	10	0	14	7	89	0	0	96	200
Total	1	6	3	0	10	2	396	2	1	401	4	6	43	0	53	29	362	1	0	392	856
Approach %	10.0	60.0	30.0	0.0	-	0.5	98.8	0.5	0.2	-	7.5	11.3	81.1	0.0	-	7.4	92.3	0.3	0.0	-	-
Total %	0.1	0.7	0.4	0.0	1.2	0.2	46.3	0.2	0.1	46.8	0.5	0.7	5.0	0.0	6.2	3.4	42.3	0.1	0.0	45.8	-
PHF	0.250	0.500	0.750	0.000	0.625	0.250	0.868	0.500	0.250	0.864	0.500	0.375	0.717	0.000	0.736	0.906	0.914	0.250	0.000	0.925	0.922
Lights	1	5	3	0	9	2	243	1	1	247	3	6	41	0	50	27	235	1	0	263	569
% Lights	100.0	83.3	100.0	-	90.0	100.0	61.4	50.0	100.0	61.6	75.0	100.0	95.3	-	94.3	93.1	64.9	100.0	-	67.1	66.5
Other Vehicles	0	1	0	0	1	0	153	1	0	154	1	0	2	0	3	2	127	0	0	129	287
% Other Vehicles	0.0	16.7	0.0	-	10.0	0.0	38.6	50.0	0.0	38.4	25.0	0.0	4.7	-	5.7	6.9	35.1	0.0	-	32.9	33.5

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & 49 S (Convoy-Helle Rd.)
Site Code:
Start Date: 02/26/2019



Turning Movement Peak Hour Data Plot (7:00 AM)

Ohio Department of Transportation
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Office of Traffic Engineering

Count Name: VAN-30 & Colwell Rd
Site Code:
Start Date: 03/05/2019

Turning Movement Data

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
10:00 AM	0	0	0	0	0	0	100	0	0	100	0	0	0	0	0	0	89	0	0	89	189
10:15 AM	1	0	0	0	1	0	88	0	0	88	0	0	0	0	0	0	94	0	0	94	183
10:30 AM	0	0	1	0	1	0	88	0	0	88	0	1	0	0	1	0	95	0	0	95	185
10:45 AM	0	0	0	0	0	1	100	0	0	101	0	0	0	0	0	0	91	0	0	91	192
Hourly Total	1	0	1	0	2	1	376	0	0	377	0	1	0	0	1	0	369	0	0	369	749
11:00 AM	0	0	0	0	0	0	98	0	0	98	0	0	0	0	0	0	81	0	0	81	179
11:15 AM	1	0	0	0	1	0	94	0	0	94	0	0	0	0	0	0	77	0	0	77	172
11:30 AM	0	0	0	0	0	1	99	0	0	100	0	0	0	0	0	0	74	0	0	74	174
11:45 AM	0	0	1	0	1	0	111	0	0	111	0	0	0	0	0	0	98	0	0	98	210
Hourly Total	1	0	1	0	2	1	402	0	0	403	0	0	0	0	0	0	330	0	0	330	735
12:00 PM	0	0	1	0	1	1	103	0	0	104	1	0	0	0	1	0	87	0	0	87	193
12:15 PM	0	0	0	0	0	1	98	0	0	99	0	0	1	0	1	0	88	0	0	88	188
12:30 PM	0	0	0	0	0	0	107	0	0	107	0	0	0	0	0	0	101	0	0	101	208
12:45 PM	0	0	2	0	2	1	84	0	0	85	0	1	0	0	1	0	100	0	0	100	188
Hourly Total	0	0	3	0	3	3	392	0	0	395	1	1	1	0	3	0	376	0	0	376	777
1:00 PM	0	1	0	0	1	0	104	0	0	104	0	0	0	0	0	0	85	0	0	85	190
1:15 PM	0	0	0	0	0	0	92	0	0	92	0	0	0	0	0	0	94	0	0	94	186
1:30 PM	0	0	0	0	0	0	99	0	0	99	0	0	0	0	0	0	116	0	0	116	215
1:45 PM	0	0	0	0	0	0	96	0	0	96	0	0	0	0	0	0	95	0	0	95	191
Hourly Total	0	1	0	0	1	0	391	0	0	391	0	0	0	0	0	0	390	0	0	390	782
2:00 PM	0	0	1	0	1	0	110	0	0	110	0	0	0	0	0	0	101	0	0	101	212
2:15 PM	0	0	1	0	1	0	91	0	0	91	0	0	0	0	0	0	89	0	1	90	182
2:30 PM	0	0	0	0	0	2	107	0	0	109	0	0	0	0	0	1	88	0	0	89	198
2:45 PM	0	0	0	0	0	0	120	0	0	120	0	0	1	0	1	1	92	0	0	93	214
Hourly Total	0	0	2	0	2	2	428	0	0	430	0	0	1	0	1	2	370	0	1	373	806
3:00 PM	0	0	0	0	0	3	96	0	0	99	0	0	1	0	1	0	118	0	1	119	219
3:15 PM	0	0	1	0	1	0	109	0	0	109	0	0	0	0	0	1	119	0	0	120	230
3:30 PM	1	0	1	0	2	2	118	0	0	120	0	1	0	0	1	1	120	0	0	121	244
3:45 PM	0	0	0	0	0	1	140	0	0	141	0	1	0	0	1	2	117	0	0	119	261
Hourly Total	1	0	2	0	3	6	463	0	0	469	0	2	1	0	3	4	474	0	1	479	954
4:00 PM	0	0	0	0	0	4	117	0	0	121	0	0	1	0	1	0	124	0	0	124	246
4:15 PM	0	0	1	0	1	1	116	0	0	117	0	2	0	0	2	0	104	0	0	104	224
4:30 PM	0	0	0	0	0	3	119	0	0	122	0	0	0	0	0	0	138	0	0	138	260
4:45 PM	0	0	1	0	1	3	131	0	0	134	0	1	0	0	1	0	113	0	0	113	249
Hourly Total	0	0	2	0	2	11	483	0	0	494	0	3	1	0	4	0	479	0	0	479	979

5:00 PM	0	0	3	0	3	3	128	0	0	131	0	0	0	0	0	0	125	0	0	125	259
5:15 PM	0	0	2	0	2	1	105	0	0	106	0	1	0	0	1	0	117	0	0	117	226
5:30 PM	0	0	0	0	0	2	115	0	0	117	0	1	0	0	1	0	110	1	0	111	229
5:45 PM	0	0	0	0	0	0	90	0	0	90	0	0	0	0	0	0	120	0	0	120	210
Hourly Total	0	0	5	0	5	6	438	0	0	444	0	2	0	0	2	0	472	1	0	473	924
6:00 PM	0	0	0	0	0	1	108	0	0	109	0	0	0	0	0	0	88	0	0	88	197
6:15 PM	0	0	1	0	1	1	93	0	0	94	0	0	0	0	0	0	95	1	0	96	191
6:30 PM	0	0	0	0	0	1	81	0	0	82	0	0	0	0	0	2	97	1	0	100	182
6:45 PM	0	0	0	0	0	0	67	0	0	67	0	0	0	0	0	0	89	0	0	89	156
Hourly Total	0	0	1	0	1	3	349	0	0	352	0	0	0	0	0	2	369	2	0	373	726
7:00 PM	0	0	0	0	0	1	58	0	0	59	0	0	0	0	0	0	86	0	0	86	145
7:15 PM	0	0	0	0	0	0	57	0	0	57	0	0	0	0	0	0	70	0	0	70	127
7:30 PM	0	0	0	0	0	2	65	0	0	67	0	0	0	0	0	0	77	0	0	77	144
7:45 PM	0	0	2	0	2	2	71	0	0	73	0	0	0	0	0	0	54	0	0	54	129
Hourly Total	0	0	2	0	2	5	251	0	0	256	0	0	0	0	0	0	287	0	0	287	545
8:00 PM	0	0	0	0	0	1	49	0	0	50	0	0	0	0	0	0	50	0	0	50	100
8:15 PM	0	0	0	0	0	1	58	0	0	59	0	0	0	0	0	0	70	0	0	70	129
8:30 PM	0	0	1	0	1	2	59	0	0	61	0	0	0	0	0	0	59	0	0	59	121
8:45 PM	0	0	0	0	0	0	47	0	0	47	0	0	0	0	0	0	52	0	0	52	99
Hourly Total	0	0	1	0	1	4	213	0	0	217	0	0	0	0	0	0	231	0	0	231	449
9:00 PM	0	0	0	0	0	2	39	0	0	41	0	0	0	0	0	0	52	0	0	52	93
9:15 PM	0	0	0	0	0	0	49	0	0	49	0	0	0	0	0	0	46	0	0	46	95
9:30 PM	0	0	0	0	0	0	46	0	0	46	0	0	0	0	0	0	54	0	0	54	100
9:45 PM	0	1	0	0	1	0	47	0	0	47	0	1	0	0	1	0	41	0	0	41	90
Hourly Total	0	1	0	0	1	2	181	0	0	183	0	1	0	0	1	0	193	0	0	193	378
10:00 PM	0	0	0	0	0	0	71	0	0	71	0	0	0	0	0	0	45	0	0	45	116
10:15 PM	0	0	0	0	0	2	39	0	0	41	0	0	0	0	0	0	46	0	0	46	87
10:30 PM	0	0	0	0	0	0	30	0	0	30	0	0	0	0	0	0	33	0	0	33	63
10:45 PM	0	0	1	0	1	0	33	0	0	33	0	0	0	0	0	0	39	0	0	39	73
Hourly Total	0	0	1	0	1	2	173	0	0	175	0	0	0	0	0	0	163	0	0	163	339
11:00 PM	0	0	0	0	0	0	32	0	0	32	0	0	0	0	0	0	28	0	0	28	60
11:15 PM	0	0	0	0	0	0	35	0	0	35	0	0	0	0	0	0	34	0	0	34	69
11:30 PM	0	0	0	0	0	0	33	0	0	33	0	0	0	0	0	0	24	0	0	24	57
11:45 PM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	24	0	0	24	49
Hourly Total	0	0	0	0	0	0	125	0	0	125	0	0	0	0	0	0	110	0	0	110	235
12:00 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	15	0	0	15	32
12:15 AM	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	0	37	0	0	37	64
12:30 AM	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	0	24	0	0	24	50
12:45 AM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	18	0	0	18	43
Hourly Total	0	0	0	0	0	0	95	0	0	95	0	0	0	0	0	0	94	0	0	94	189
1:00 AM	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	0	15	0	0	15	36
1:15 AM	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	12	0	0	12	36
1:30 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	17	0	0	17	34
1:45 AM	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	0	13	0	0	13	34
Hourly Total	0	0	0	0	0	0	83	0	0	83	0	0	0	0	0	0	57	0	0	57	140
2:00 AM	0	0	0	0	0	0	28	0	0	28	0	0	0	0	0	0	11	0	0	11	39
2:15 AM	0	0	0	0	0	1	29	0	0	30	0	0	0	0	0	0	17	0	0	17	47
2:30 AM	0	0	0	0	0	0	35	0	0	35	0	0	0	0	0	0	13	0	0	13	48
2:45 AM	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	18	0	0	18	36
Hourly Total	0	0	0	0	0	1	110	0	0	111	0	0	0	0	0	0	59	0	0	59	170
3:00 AM	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	0	15	0	0	15	37
3:15 AM	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	18	0	0	18	37

3:30 AM	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	0	16	0	0	16	45
3:45 AM	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	0	20	0	0	20	47
Hourly Total	0	0	0	0	0	0	97	0	0	97	0	0	0	0	0	0	69	0	0	69	166
4:00 AM	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	0	19	0	0	19	42
4:15 AM	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	0	31	0	0	31	58
4:30 AM	0	0	0	0	0	0	28	0	0	28	5	0	0	0	5	0	39	0	0	39	72
4:45 AM	0	0	1	0	1	0	38	0	0	38	0	0	0	0	0	0	20	0	0	20	59
Hourly Total	0	0	1	0	1	0	116	0	0	116	5	0	0	0	5	0	109	0	0	109	231
5:00 AM	0	0	0	0	0	0	49	0	0	49	1	0	0	0	1	0	28	0	0	28	78
5:15 AM	0	0	2	0	2	0	40	0	0	40	0	0	0	0	0	0	49	0	0	49	91
5:30 AM	0	0	1	0	1	0	47	0	0	47	0	0	0	0	0	0	52	0	0	52	100
5:45 AM	0	0	0	0	0	0	72	0	0	72	0	0	0	0	0	0	62	0	0	62	134
Hourly Total	0	0	3	0	3	0	208	0	0	208	1	0	0	0	1	0	191	0	0	191	403
6:00 AM	0	0	1	0	1	0	59	0	0	59	0	0	0	0	0	0	54	0	0	54	114
6:15 AM	0	0	1	0	1	0	92	0	0	92	0	0	0	0	0	0	82	0	0	82	175
6:30 AM	0	0	4	0	4	0	92	0	0	92	0	0	0	0	0	0	91	0	0	91	187
6:45 AM	0	0	1	0	1	0	97	0	0	97	0	0	0	0	0	0	69	0	0	69	167
Hourly Total	0	0	7	0	7	0	340	0	0	340	0	0	0	0	0	0	296	0	0	296	643
7:00 AM	0	0	3	0	3	0	91	0	0	91	0	0	0	0	0	0	65	0	0	65	159
7:15 AM	0	0	3	0	3	2	107	0	0	109	0	0	0	0	0	0	103	0	0	103	215
7:30 AM	0	5	2	0	7	1	95	0	0	96	0	0	0	0	0	0	114	0	0	114	217
7:45 AM	0	1	1	0	2	0	96	0	0	96	0	0	0	0	0	0	97	0	0	97	195
Hourly Total	0	6	9	0	15	3	389	0	0	392	0	0	0	0	0	0	379	0	0	379	786
8:00 AM	0	0	3	0	3	1	88	0	0	89	0	0	0	0	0	0	93	0	0	93	185
8:15 AM	0	0	2	0	2	2	101	0	0	103	0	0	0	0	0	0	86	0	0	86	191
8:30 AM	0	1	2	0	3	1	98	0	0	99	0	0	0	0	0	0	78	0	0	78	180
8:45 AM	0	0	0	0	0	0	71	0	0	71	0	0	0	0	0	0	95	0	0	95	166
Hourly Total	0	1	7	0	8	4	358	0	0	362	0	0	0	0	0	0	352	0	0	352	722
9:00 AM	1	1	0	0	2	1	94	0	0	95	0	1	0	0	1	0	70	0	0	70	168
9:15 AM	0	0	0	0	0	0	91	0	0	91	0	1	0	0	1	0	93	0	0	93	185
9:30 AM	0	0	0	0	0	0	85	0	0	85	0	0	0	0	0	0	100	0	0	100	185
9:45 AM	0	0	1	0	1	0	85	0	1	86	0	1	0	0	1	0	82	0	0	82	170
Hourly Total	1	1	1	0	3	1	355	0	1	357	0	3	0	0	3	0	345	0	0	345	708
Grand Total	4	10	49	0	63	55	6816	0	1	6872	7	13	4	0	24	8	6564	3	2	6577	13536
Approach %	6.3	15.9	77.8	0.0	-	0.8	99.2	0.0	0.0	-	29.2	54.2	16.7	0.0	-	0.1	99.8	0.0	0.0	-	-
Total %	0.0	0.1	0.4	0.0	0.5	0.4	50.4	0.0	0.0	50.8	0.1	0.1	0.0	0.0	0.2	0.1	48.5	0.0	0.0	48.6	-
Lights	3	9	49	0	61	51	3478	0	1	3530	6	13	4	0	23	8	3614	3	2	3627	7241
% Lights	75.0	90.0	100.0	-	96.8	92.7	51.0	-	100.0	51.4	85.7	100.0	100.0	-	95.8	100.0	55.1	100.0	100.0	55.1	53.5
Other Vehicles	1	1	0	0	2	4	3338	0	0	3342	1	0	0	0	1	0	2950	0	0	2950	6295
% Other Vehicles	25.0	10.0	0.0	-	3.2	7.3	49.0	-	0.0	48.6	14.3	0.0	0.0	-	4.2	0.0	44.9	0.0	0.0	44.9	46.5

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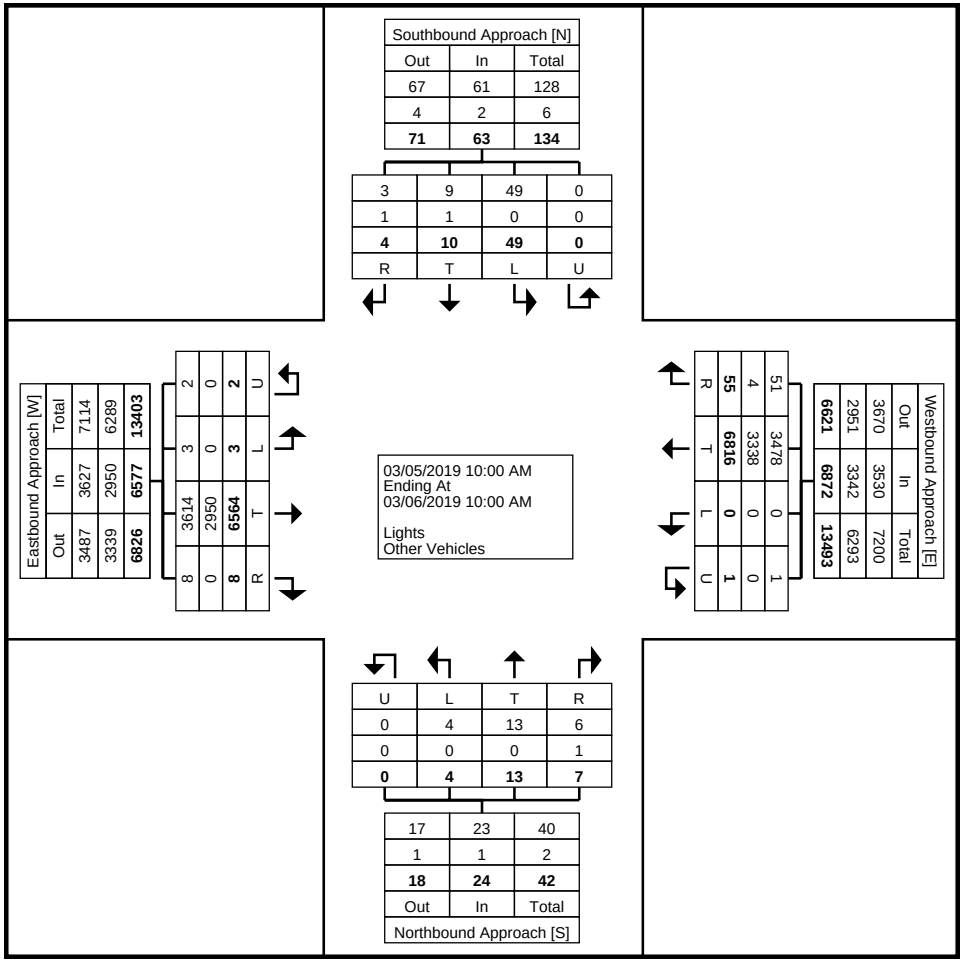
Count Name: VAN-30 & Colwell Rd
Site Code:
Start Date: 03/05/2019



Turning Movement Data Plot

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Colwell Rd
Site Code:
Start Date: 03/05/2019

Turning Movement Peak Hour Data (10:00 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
10:00 AM	0	0	0	0	0	0	100	0	0	100	0	0	0	0	0	0	89	0	0	89	189
10:15 AM	1	0	0	0	1	0	88	0	0	88	0	0	0	0	0	0	94	0	0	94	183
10:30 AM	0	0	1	0	1	0	88	0	0	88	0	1	0	0	1	0	95	0	0	95	185
10:45 AM	0	0	0	0	0	1	100	0	0	101	0	0	0	0	0	0	91	0	0	91	192
Total	1	0	1	0	2	1	376	0	0	377	0	1	0	0	1	0	369	0	0	369	749
Approach %	50.0	0.0	50.0	0.0	-	0.3	99.7	0.0	0.0	-	0.0	100.0	0.0	0.0	-	0.0	100.0	0.0	0.0	-	-
Total %	0.1	0.0	0.1	0.0	0.3	0.1	50.2	0.0	0.0	50.3	0.0	0.1	0.0	0.0	0.1	0.0	49.3	0.0	0.0	49.3	-
PHF	0.250	0.000	0.250	0.000	0.500	0.250	0.940	0.000	0.000	0.933	0.000	0.250	0.000	0.000	0.250	0.000	0.971	0.000	0.000	0.971	0.975
Lights	0	0	1	0	1	1	212	0	0	213	0	1	0	0	1	0	210	0	0	210	425
% Lights	0.0	-	100.0	-	50.0	100.0	56.4	-	-	56.5	-	100.0	-	-	100.0	-	56.9	-	-	56.9	56.7
Other Vehicles	1	0	0	0	1	0	164	0	0	164	0	0	0	0	0	0	159	0	0	159	324
% Other Vehicles	100.0	-	0.0	-	50.0	0.0	43.6	-	-	43.5	-	0.0	-	-	0.0	-	43.1	-	-	43.1	43.3

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
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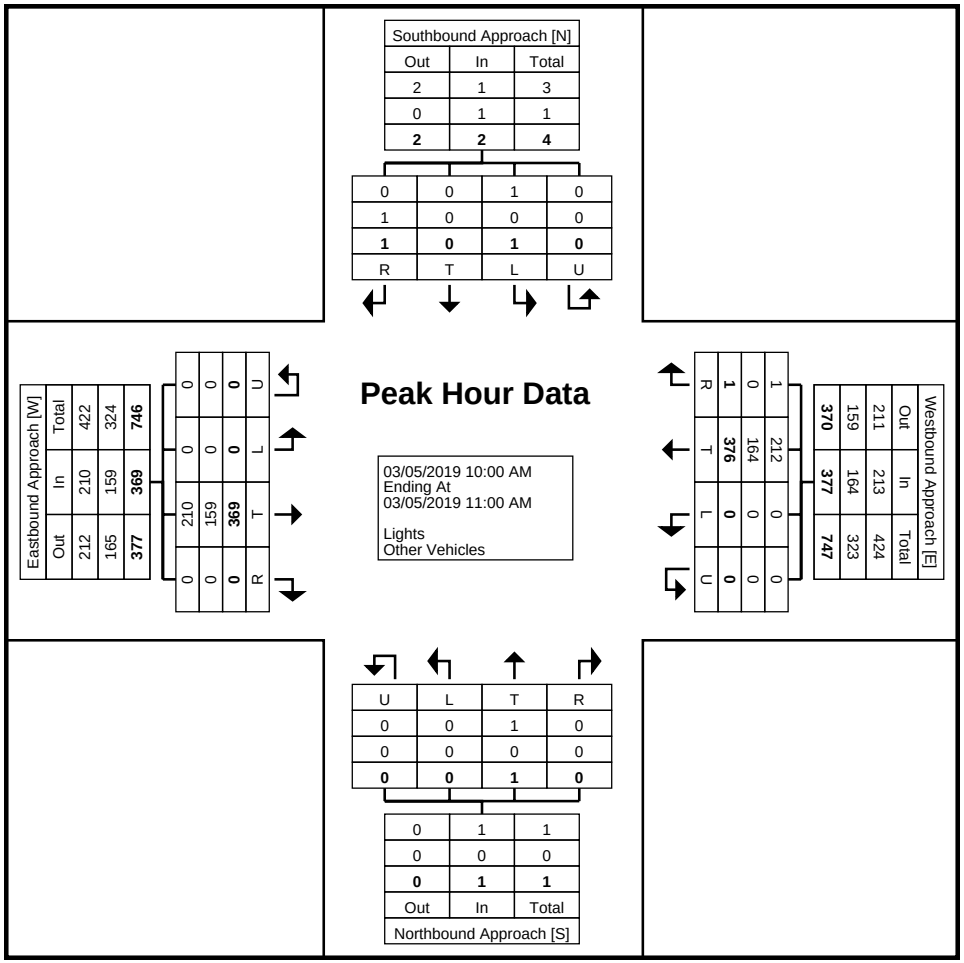
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Colwell Rd
Site Code:
Start Date: 03/05/2019



Turning Movement Peak Hour Data Plot (10:00 AM)

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Office of Traffic Engineering

Count Name: VAN-30 & Colwell Rd
Site Code:
Start Date: 03/05/2019

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
4:30 PM	0	0	0	0	0	3	119	0	0	122	0	0	0	0	0	0	138	0	0	138	260
4:45 PM	0	0	1	0	1	3	131	0	0	134	0	1	0	0	1	0	113	0	0	113	249
5:00 PM	0	0	3	0	3	3	128	0	0	131	0	0	0	0	0	0	125	0	0	125	259
5:15 PM	0	0	2	0	2	1	105	0	0	106	0	1	0	0	1	0	117	0	0	117	226
Total	0	0	6	0	6	10	483	0	0	493	0	2	0	0	2	0	493	0	0	493	994
Approach %	0.0	0.0	100.0	0.0	-	2.0	98.0	0.0	0.0	-	0.0	100.0	0.0	0.0	-	0.0	100.0	0.0	0.0	-	-
Total %	0.0	0.0	0.6	0.0	0.6	1.0	48.6	0.0	0.0	49.6	0.0	0.2	0.0	0.0	0.2	0.0	49.6	0.0	0.0	49.6	-
PHF	0.000	0.000	0.500	0.000	0.500	0.833	0.922	0.000	0.000	0.920	0.000	0.500	0.000	0.000	0.500	0.000	0.893	0.000	0.000	0.893	0.956
Lights	0	0	6	0	6	10	290	0	0	300	0	2	0	0	2	0	306	0	0	306	614
% Lights	-	-	100.0	-	100.0	100.0	60.0	-	-	60.9	-	100.0	-	-	100.0	-	62.1	-	-	62.1	61.8
Other Vehicles	0	0	0	0	0	0	193	0	0	193	0	0	0	0	0	0	187	0	0	187	380
% Other Vehicles	-	-	0.0	-	0.0	0.0	40.0	-	-	39.1	-	0.0	-	-	0.0	-	37.9	-	-	37.9	38.2

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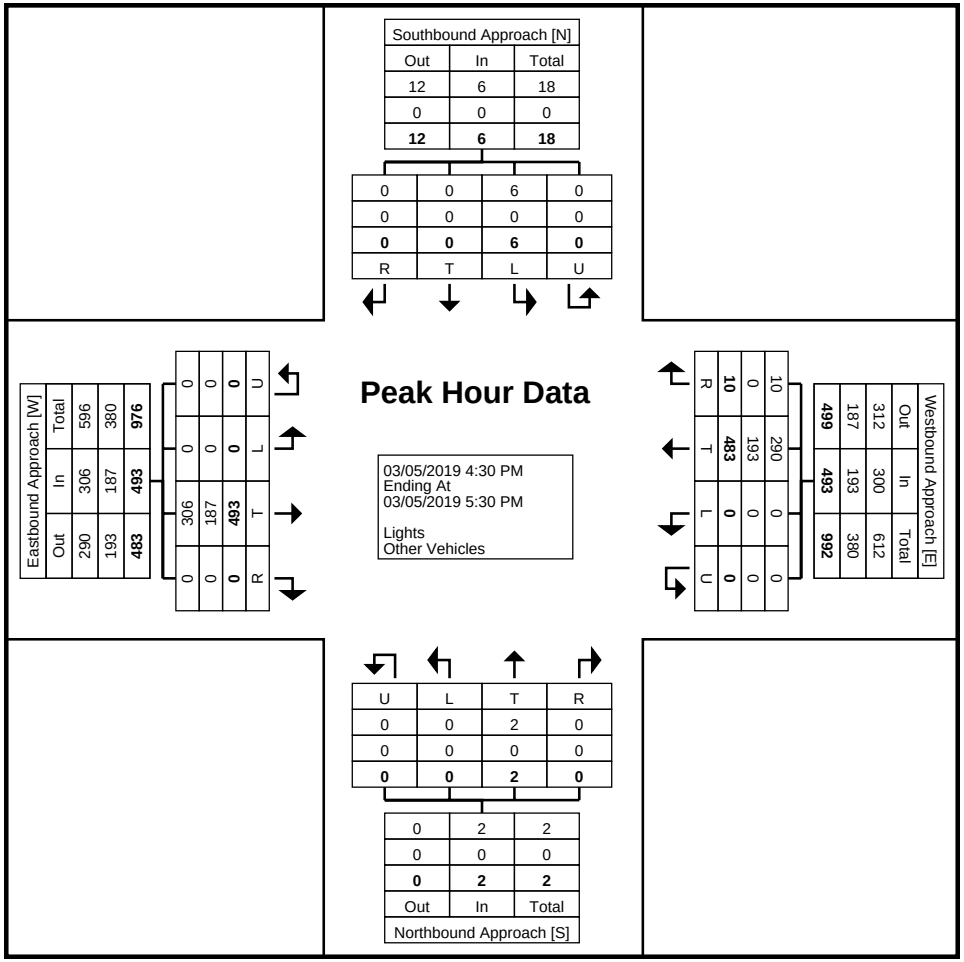

Turning Movement Peak Hour Data Plot (4:30 PM)

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Office of Traffic Engineering

Count Name: VAN-30 & Colwell Rd
Site Code:
Start Date: 03/05/2019

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
7:15 AM	0	0	3	0	3	2	107	0	0	109	0	0	0	0	0	0	103	0	0	103	215
7:30 AM	0	5	2	0	7	1	95	0	0	96	0	0	0	0	0	0	114	0	0	114	217
7:45 AM	0	1	1	0	2	0	96	0	0	96	0	0	0	0	0	0	97	0	0	97	195
8:00 AM	0	0	3	0	3	1	88	0	0	89	0	0	0	0	0	0	93	0	0	93	185
Total	0	6	9	0	15	4	386	0	0	390	0	0	0	0	0	0	407	0	0	407	812
Approach %	0.0	40.0	60.0	0.0	-	1.0	99.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	100.0	0.0	0.0	-	-
Total %	0.0	0.7	1.1	0.0	1.8	0.5	47.5	0.0	0.0	48.0	0.0	0.0	0.0	0.0	0.0	0.0	50.1	0.0	0.0	50.1	-
PHF	0.000	0.300	0.750	0.000	0.536	0.500	0.902	0.000	0.000	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.893	0.000	0.000	0.893	0.935
Lights	0	6	9	0	15	3	203	0	0	206	0	0	0	0	0	0	259	0	0	259	480
% Lights	-	100.0	100.0	-	100.0	75.0	52.6	-	-	52.8	-	-	-	-	-	-	63.6	-	-	63.6	59.1
Other Vehicles	0	0	0	0	0	1	183	0	0	184	0	0	0	0	0	0	148	0	0	148	332
% Other Vehicles	-	0.0	0.0	-	0.0	25.0	47.4	-	-	47.2	-	-	-	-	-	-	36.4	-	-	36.4	40.9

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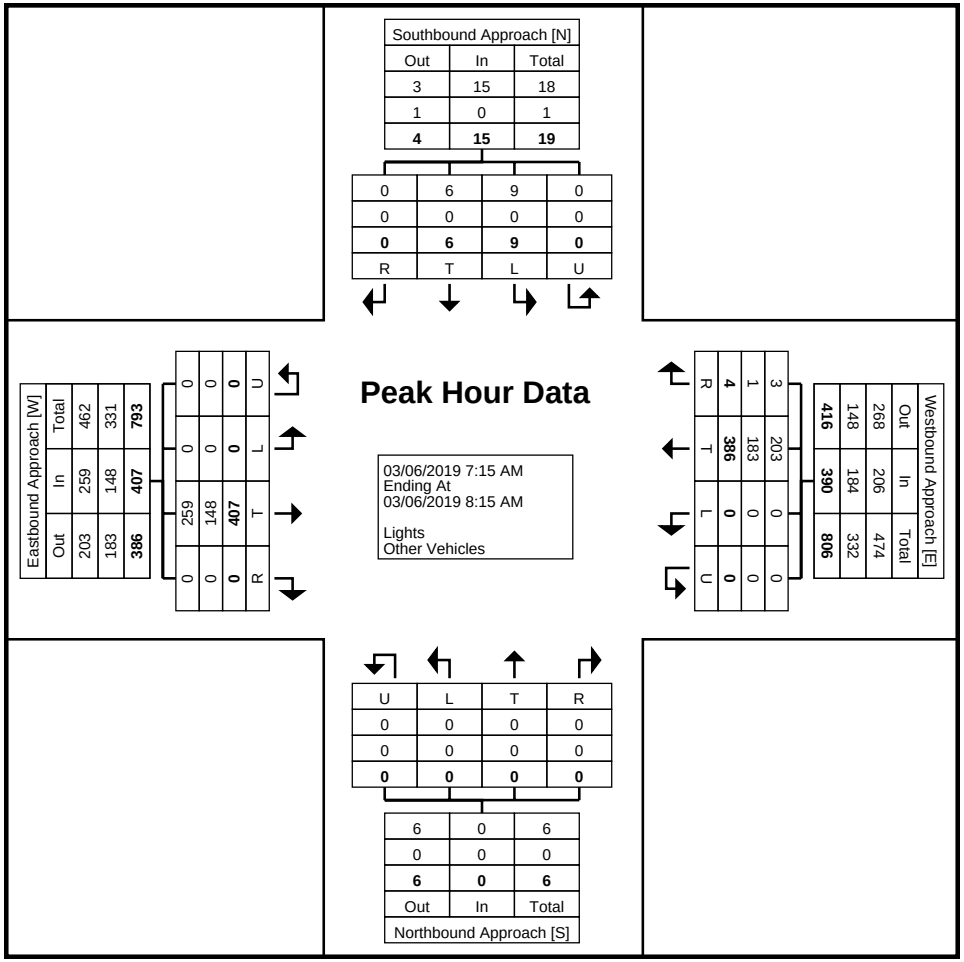

Turning Movement Peak Hour Data Plot (7:15 AM)

Ohio Department of Transportation
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Count Name: VAN-30 & Colwell Rd
Site Code:
Start Date: 03/05/2019

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Office of Traffic Engineering

Count Name: VAN-30 & Convoy Rd
Site Code:
Start Date: 03/06/2019

Turning Movement Data

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
12:00 PM	1	0	1	0	2	0	97	3	0	100	4	0	0	0	4	0	105	0	0	105	211
12:15 PM	0	2	1	0	3	0	107	2	0	109	2	0	0	0	2	1	81	0	0	82	196
12:30 PM	1	0	0	0	1	0	84	5	0	89	6	0	0	0	6	0	97	0	0	97	193
12:45 PM	1	3	0	0	4	0	90	3	0	93	2	0	0	0	2	0	91	0	0	91	190
Hourly Total	3	5	2	0	10	0	378	13	0	391	14	0	0	0	14	1	374	0	0	375	790
1:00 PM	0	1	0	0	1	0	92	4	0	96	4	1	0	0	5	1	96	0	0	97	199
1:15 PM	0	0	0	0	0	2	114	4	0	120	3	0	0	0	3	0	88	0	0	88	211
1:30 PM	3	3	1	0	7	0	124	3	0	127	4	2	0	0	6	0	114	0	0	114	254
1:45 PM	0	2	1	0	3	0	104	5	1	110	3	0	0	0	3	0	96	1	0	97	213
Hourly Total	3	6	2	0	11	2	434	16	1	453	14	3	0	0	17	1	394	1	0	396	877
2:00 PM	1	1	0	0	2	0	96	3	1	100	6	1	1	0	8	0	118	0	0	118	228
2:15 PM	0	0	0	0	0	0	97	4	0	101	6	0	0	0	6	1	121	0	0	122	229
2:30 PM	1	4	0	0	5	0	112	15	0	127	2	0	0	0	2	0	92	0	0	92	226
2:45 PM	0	3	0	0	3	0	129	18	0	147	2	1	0	0	3	0	116	0	0	116	269
Hourly Total	2	8	0	0	10	0	434	40	1	475	16	2	1	0	19	1	447	0	0	448	952
3:00 PM	0	3	1	0	4	0	106	9	0	115	4	1	0	0	5	3	105	1	0	109	233
3:15 PM	0	3	0	0	3	2	128	7	1	138	12	2	0	0	14	0	120	1	0	121	276
3:30 PM	2	3	1	0	6	0	139	4	0	143	5	2	0	0	7	0	111	1	0	112	268
3:45 PM	0	0	0	0	0	1	150	7	0	158	5	5	0	0	10	0	129	0	0	129	297
Hourly Total	2	9	2	0	13	3	523	27	1	554	26	10	0	0	36	3	465	3	0	471	1074
4:00 PM	3	1	0	0	4	1	140	9	0	150	1	2	1	0	4	0	120	1	0	121	279
4:15 PM	3	2	0	0	5	0	145	11	0	156	4	0	0	0	4	0	121	0	0	121	286
4:30 PM	0	4	0	0	4	0	132	8	0	140	2	0	0	0	2	0	127	2	0	129	275
4:45 PM	2	2	1	0	5	0	130	7	0	137	5	4	0	0	9	0	110	3	0	113	264
Hourly Total	8	9	1	0	18	1	547	35	0	583	12	6	1	0	19	0	478	6	0	484	1104
5:00 PM	0	3	0	0	3	0	125	6	1	132	4	4	0	0	8	0	125	3	0	128	271
5:15 PM	0	5	0	0	5	0	161	3	0	164	10	6	0	0	16	1	123	0	0	124	309
5:30 PM	3	4	0	0	7	0	117	7	0	124	7	1	0	0	8	0	128	0	0	128	267
5:45 PM	0	1	0	0	1	0	105	7	0	112	3	1	0	0	4	0	110	1	0	111	228
Hourly Total	3	13	0	0	16	0	508	23	1	532	24	12	0	0	36	1	486	4	0	491	1075
6:00 PM	0	1	0	0	1	2	110	3	0	115	3	2	0	0	5	0	114	0	0	114	235
6:15 PM	0	3	1	0	4	0	97	4	0	101	4	3	0	0	7	0	102	0	0	102	214
6:30 PM	1	1	0	0	2	0	91	6	0	97	4	2	0	0	6	0	86	0	0	86	191
6:45 PM	2	0	0	0	2	0	78	7	0	85	4	2	0	0	6	0	88	0	0	88	181
Hourly Total	3	5	1	0	9	2	376	20	0	398	15	9	0	0	24	0	390	0	0	390	821

7:00 PM	0	2	0	0	2	0	68	5	0	73	1	0	0	0	1	0	77	0	0	77	153
7:15 PM	0	0	0	0	0	1	71	5	0	77	0	2	0	0	2	0	83	0	0	83	162
7:30 PM	0	1	0	0	1	0	59	4	0	63	2	0	0	0	2	0	70	1	0	71	137
7:45 PM	0	0	0	0	0	0	55	7	0	62	1	1	0	0	2	0	70	0	0	70	134
Hourly Total	0	3	0	0	3	1	253	21	0	275	4	3	0	0	7	0	300	1	0	301	586
8:00 PM	0	0	0	0	0	0	54	4	1	59	3	1	0	0	4	0	75	0	0	75	138
8:15 PM	0	0	0	0	0	0	45	6	0	51	2	0	0	0	2	0	64	1	0	65	118
8:30 PM	0	1	0	0	1	0	51	2	1	54	1	0	0	0	1	0	55	0	0	55	111
8:45 PM	0	0	0	0	0	0	64	3	0	67	2	2	0	0	4	0	56	0	0	56	127
Hourly Total	0	1	0	0	1	0	214	15	2	231	8	3	0	0	11	0	250	1	0	251	494
9:00 PM	1	1	0	0	2	0	39	0	0	39	1	1	0	0	2	0	61	1	0	62	105
9:15 PM	1	1	0	0	2	0	48	1	0	49	0	0	0	0	0	0	44	0	0	44	95
9:30 PM	0	0	0	0	0	0	44	2	0	46	1	1	0	0	2	0	52	0	0	52	100
9:45 PM	0	0	0	0	0	0	43	3	0	46	1	0	0	0	1	0	55	0	0	55	102
Hourly Total	2	2	0	0	4	0	174	6	0	180	3	2	0	0	5	0	212	1	0	213	402
10:00 PM	0	0	0	0	0	0	33	0	0	33	2	0	0	0	2	0	44	0	0	44	79
10:15 PM	0	0	0	0	0	0	32	2	0	34	0	0	0	0	0	0	41	1	0	42	76
10:30 PM	0	0	0	0	0	0	37	2	2	41	0	1	0	0	1	0	46	1	0	47	89
10:45 PM	0	0	0	0	0	0	28	1	0	29	3	0	1	0	4	0	47	0	0	47	80
Hourly Total	0	0	0	0	0	0	130	5	2	137	5	1	1	0	7	0	178	2	0	180	324
11:00 PM	0	0	0	0	0	0	33	0	0	33	0	0	0	0	0	0	42	0	0	42	75
11:15 PM	0	1	0	0	1	0	37	1	0	38	0	0	0	0	0	0	26	0	0	26	65
11:30 PM	0	0	0	0	0	0	39	0	0	39	1	0	0	0	1	0	29	0	0	29	69
11:45 PM	0	3	0	0	3	0	30	1	0	31	0	0	0	0	0	0	32	0	0	32	66
Hourly Total	0	4	0	0	4	0	139	2	0	141	1	0	0	0	1	0	129	0	0	129	275
12:00 AM	0	0	0	0	0	0	26	1	0	27	0	0	0	0	0	0	17	0	0	17	44
12:15 AM	0	0	0	0	0	0	30	2	0	32	0	0	0	0	0	0	28	0	0	28	60
12:30 AM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	20	0	0	20	45
12:45 AM	0	0	0	0	0	0	27	1	0	28	0	0	0	0	0	0	24	0	0	24	52
Hourly Total	0	0	0	0	0	0	108	4	0	112	0	0	0	0	0	0	89	0	0	89	201
1:00 AM	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	0	14	0	0	14	36
1:15 AM	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	19	0	0	19	39
1:30 AM	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	22	0	0	22	38
1:45 AM	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	0	15	0	0	15	42
Hourly Total	0	0	0	0	0	0	85	0	0	85	0	0	0	0	0	0	70	0	0	70	155
2:00 AM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	10	0	0	10	35
2:15 AM	0	0	0	0	0	0	29	1	0	30	0	0	0	0	0	0	19	0	0	19	49
2:30 AM	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	0	21	0	0	21	35
2:45 AM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	13	0	0	13	38
Hourly Total	0	0	0	0	0	0	93	1	0	94	0	0	0	0	0	0	63	0	0	63	157
3:00 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	17	0	0	17	34
3:15 AM	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	0	27	0	0	27	50
3:30 AM	0	0	0	0	0	0	32	0	0	32	2	0	0	0	2	0	18	0	0	18	52
3:45 AM	0	0	0	0	0	0	26	0	0	26	5	0	0	0	5	0	29	0	0	29	60
Hourly Total	0	0	0	0	0	0	98	0	0	98	7	0	0	0	7	0	91	0	0	91	196
4:00 AM	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	27	0	0	27	51
4:15 AM	0	0	0	0	0	0	22	0	0	22	0	1	0	0	1	0	29	0	0	29	52
4:30 AM	0	0	0	0	0	0	31	0	0	31	1	0	0	0	1	0	44	0	0	44	76
4:45 AM	0	0	0	0	0	0	40	1	0	41	3	1	1	0	5	0	42	0	0	42	88
Hourly Total	0	0	0	0	0	0	117	1	0	118	4	2	1	0	7	0	142	0	0	142	267
5:00 AM	1	0	0	0	1	0	32	1	0	33	1	2	0	0	3	0	32	0	0	32	69
5:15 AM	1	0	0	0	1	0	42	1	0	43	4	4	1	0	9	0	40	1	0	41	94

5:30 AM	0	0	0	0	0	0	50	0	0	50	5	0	0	0	5	0	58	1	0	59	114
5:45 AM	1	1	0	0	2	0	55	0	0	55	2	1	0	0	3	0	61	1	0	62	122
Hourly Total	3	1	0	0	4	0	179	2	0	181	12	7	1	0	20	0	191	3	0	194	399
6:00 AM	0	0	0	0	0	0	74	1	1	76	3	0	0	0	3	0	62	1	0	63	142
6:15 AM	0	2	2	0	4	0	85	0	0	85	2	2	1	0	5	0	60	3	0	63	157
6:30 AM	0	3	1	0	4	0	95	0	0	95	2	1	0	0	3	0	80	4	0	84	186
6:45 AM	2	1	1	0	4	0	94	4	0	98	2	1	0	0	3	0	71	3	0	74	179
Hourly Total	2	6	4	0	12	0	348	5	1	354	9	4	1	0	14	0	273	11	0	284	664
7:00 AM	2	0	1	0	3	0	100	6	1	107	7	1	0	0	8	0	85	1	0	86	204
7:15 AM	3	4	0	0	7	2	139	12	0	153	8	2	0	0	10	0	85	0	0	85	255
7:30 AM	1	9	2	0	12	0	92	15	0	107	16	3	0	0	19	0	105	1	0	106	244
7:45 AM	0	5	0	0	5	0	95	4	0	99	18	2	2	0	22	1	114	1	0	116	242
Hourly Total	6	18	3	0	27	2	426	37	1	466	49	8	2	0	59	1	389	3	0	393	945
8:00 AM	1	1	0	0	2	0	95	2	1	98	5	1	0	0	6	0	98	2	0	100	206
8:15 AM	1	0	1	0	2	0	94	2	0	96	3	1	0	0	4	0	82	1	0	83	185
8:30 AM	1	0	0	0	1	0	88	2	0	90	3	1	1	0	5	0	86	0	0	86	182
8:45 AM	0	1	0	0	1	1	100	0	0	101	1	1	1	0	3	0	105	0	0	105	210
Hourly Total	3	2	1	0	6	1	377	6	1	385	12	4	2	0	18	0	371	3	0	374	783
9:00 AM	1	3	0	0	4	0	94	4	0	98	6	0	0	0	6	0	98	1	0	99	207
9:15 AM	0	1	1	0	2	0	85	5	2	92	2	2	0	0	4	0	104	0	0	104	202
9:30 AM	0	1	0	0	1	1	79	1	0	81	1	2	0	0	3	0	104	1	0	105	190
9:45 AM	0	2	0	0	2	0	104	1	0	105	2	0	0	0	2	0	95	0	0	95	204
Hourly Total	1	7	1	0	9	1	362	11	2	376	11	4	0	0	15	0	401	2	0	403	803
10:00 AM	0	2	0	0	2	0	94	2	0	96	3	0	0	0	3	0	108	0	0	108	209
10:15 AM	1	2	0	0	3	0	112	2	0	114	1	3	0	0	4	0	86	1	0	87	208
10:30 AM	0	0	0	0	0	0	97	1	0	98	1	1	0	0	2	0	85	0	0	85	185
10:45 AM	0	1	1	0	2	1	100	3	0	104	2	0	1	0	3	0	87	0	0	87	196
Hourly Total	1	5	1	0	7	1	403	8	0	412	7	4	1	0	12	0	366	1	0	367	798
11:00 AM	0	0	1	0	1	0	98	2	0	100	4	3	0	0	7	0	116	0	0	116	224
11:15 AM	0	1	3	0	4	0	97	3	0	100	3	1	0	0	4	0	110	0	0	110	218
11:30 AM	0	0	0	0	0	0	96	3	1	100	4	1	0	0	5	0	89	1	0	90	195
11:45 AM	1	1	0	0	2	0	90	4	0	94	0	2	0	0	2	0	101	2	0	103	201
Hourly Total	1	2	4	0	7	0	381	12	1	394	11	7	0	0	18	0	416	3	0	419	838
Grand Total	43	106	22	0	171	14	7087	310	14	7425	264	91	11	0	366	8	6965	45	0	7018	14980
Approach %	25.1	62.0	12.9	0.0	-	0.2	95.4	4.2	0.2	-	72.1	24.9	3.0	0.0	-	0.1	99.2	0.6	0.0	-	-
Total %	0.3	0.7	0.1	0.0	1.1	0.1	47.3	2.1	0.1	49.6	1.8	0.6	0.1	0.0	2.4	0.1	46.5	0.3	0.0	46.8	-
Lights	40	101	18	0	159	10	3735	303	13	4061	253	90	11	0	354	8	3816	44	0	3868	8442
% Lights	93.0	95.3	81.8	-	93.0	71.4	52.7	97.7	92.9	54.7	95.8	98.9	100.0	-	96.7	100.0	54.8	97.8	-	55.1	56.4
Other Vehicles	3	5	4	0	12	4	3352	7	1	3364	11	1	0	0	12	0	3149	1	0	3150	6538
% Other Vehicles	7.0	4.7	18.2	-	7.0	28.6	47.3	2.3	7.1	45.3	4.2	1.1	0.0	-	3.3	0.0	45.2	2.2	-	44.9	43.6

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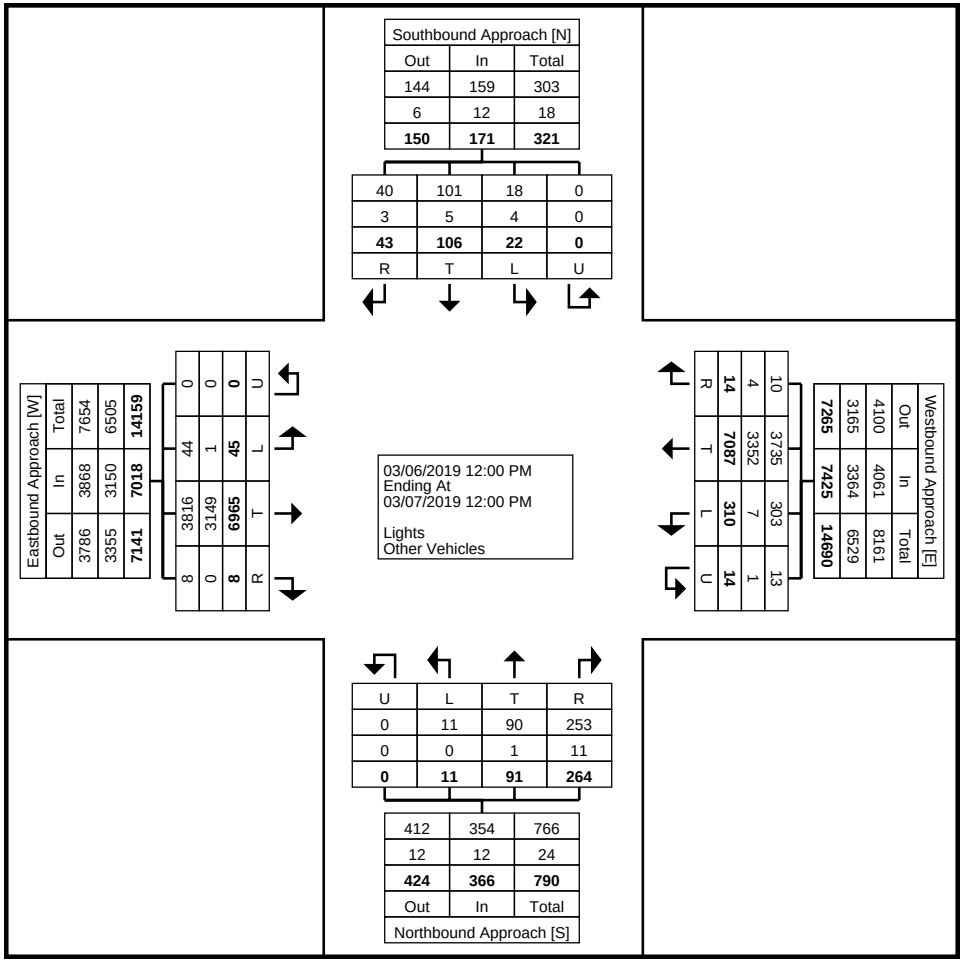
Office of Traffic Engineering

Count Name: VAN-30 & Convoy Rd
Site Code:
Start Date: 03/06/2019



Turning Movement Data Plot

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Count Name: VAN-30 & Convoy Rd
Site Code:
Start Date: 03/06/2019

Turning Movement Peak Hour Data (3:45 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
3:45 PM	0	0	0	0	0	1	150	7	0	158	5	5	0	0	10	0	129	0	0	129	297
4:00 PM	3	1	0	0	4	1	140	9	0	150	1	2	1	0	4	0	120	1	0	121	279
4:15 PM	3	2	0	0	5	0	145	11	0	156	4	0	0	0	4	0	121	0	0	121	286
4:30 PM	0	4	0	0	4	0	132	8	0	140	2	0	0	0	2	0	127	2	0	129	275
Total	6	7	0	0	13	2	567	35	0	604	12	7	1	0	20	0	497	3	0	500	1137
Approach %	46.2	53.8	0.0	0.0	-	0.3	93.9	5.8	0.0	-	60.0	35.0	5.0	0.0	-	0.0	99.4	0.6	0.0	-	-
Total %	0.5	0.6	0.0	0.0	1.1	0.2	49.9	3.1	0.0	53.1	1.1	0.6	0.1	0.0	1.8	0.0	43.7	0.3	0.0	44.0	-
PHF	0.500	0.438	0.000	0.000	0.650	0.500	0.945	0.795	0.000	0.956	0.600	0.350	0.250	0.000	0.500	0.000	0.963	0.375	0.000	0.969	0.957
Lights	6	6	0	0	12	2	358	34	0	394	12	7	1	0	20	0	312	3	0	315	741
% Lights	100.0	85.7	-	-	92.3	100.0	63.1	97.1	-	65.2	100.0	100.0	100.0	-	100.0	-	62.8	100.0	-	63.0	65.2
Other Vehicles	0	1	0	0	1	0	209	1	0	210	0	0	0	0	0	0	185	0	0	185	396
% Other Vehicles	0.0	14.3	-	-	7.7	0.0	36.9	2.9	-	34.8	0.0	0.0	0.0	-	0.0	-	37.2	0.0	-	37.0	34.8

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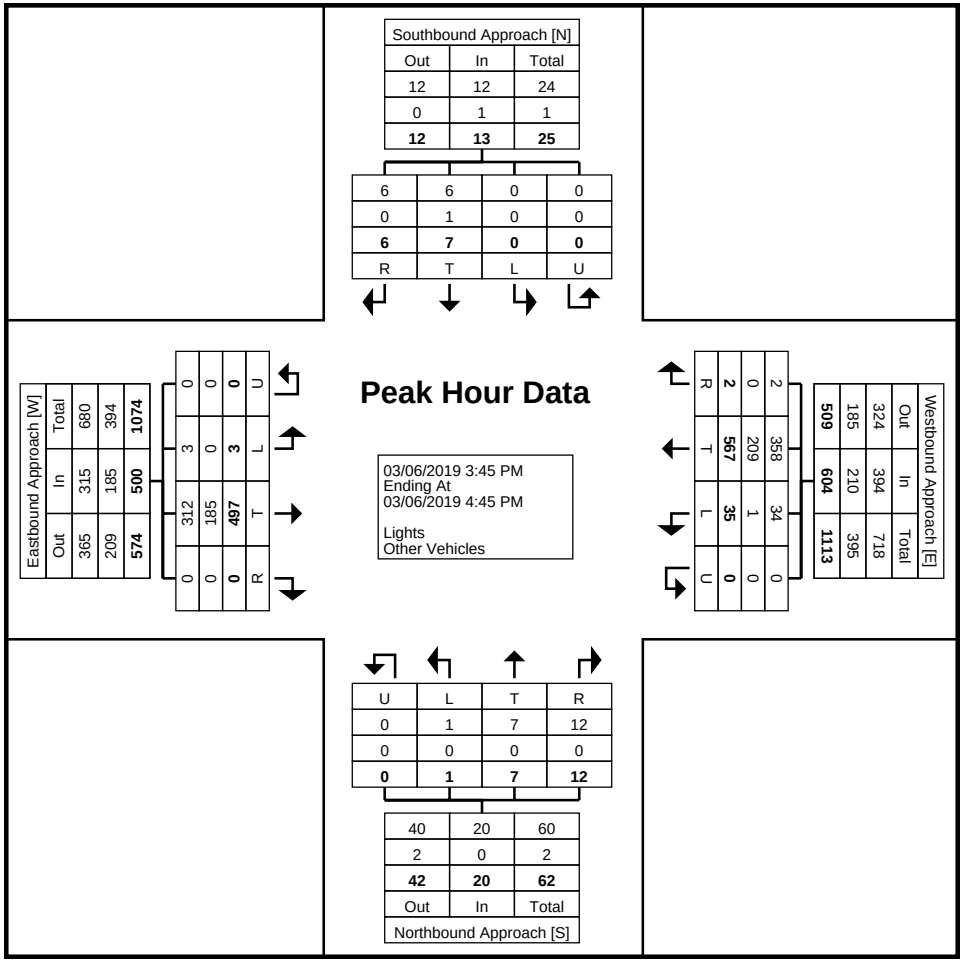

Turning Movement Peak Hour Data Plot (3:45 PM)

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Count Name: VAN-30 & Convoy Rd
Site Code:
Start Date: 03/06/2019

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
7:15 AM	3	4	0	0	7	2	139	12	0	153	8	2	0	0	10	0	85	0	0	85	255
7:30 AM	1	9	2	0	12	0	92	15	0	107	16	3	0	0	19	0	105	1	0	106	244
7:45 AM	0	5	0	0	5	0	95	4	0	99	18	2	2	0	22	1	114	1	0	116	242
8:00 AM	1	1	0	0	2	0	95	2	1	98	5	1	0	0	6	0	98	2	0	100	206
Total	5	19	2	0	26	2	421	33	1	457	47	8	2	0	57	1	402	4	0	407	947
Approach %	19.2	73.1	7.7	0.0	-	0.4	92.1	7.2	0.2	-	82.5	14.0	3.5	0.0	-	0.2	98.8	1.0	0.0	-	-
Total %	0.5	2.0	0.2	0.0	2.7	0.2	44.5	3.5	0.1	48.3	5.0	0.8	0.2	0.0	6.0	0.1	42.4	0.4	0.0	43.0	-
PHF	0.417	0.528	0.250	0.000	0.542	0.250	0.757	0.550	0.250	0.747	0.653	0.667	0.250	0.000	0.648	0.250	0.882	0.500	0.000	0.877	0.928
Lights	5	19	2	0	26	2	239	32	1	274	45	8	2	0	55	1	266	3	0	270	625
% Lights	100.0	100.0	100.0	-	100.0	100.0	56.8	97.0	100.0	60.0	95.7	100.0	100.0	-	96.5	100.0	66.2	75.0	-	66.3	66.0
Other Vehicles	0	0	0	0	0	0	182	1	0	183	2	0	0	0	2	0	136	1	0	137	322
% Other Vehicles	0.0	0.0	0.0	-	0.0	0.0	43.2	3.0	0.0	40.0	4.3	0.0	0.0	-	3.5	0.0	33.8	25.0	-	33.7	34.0

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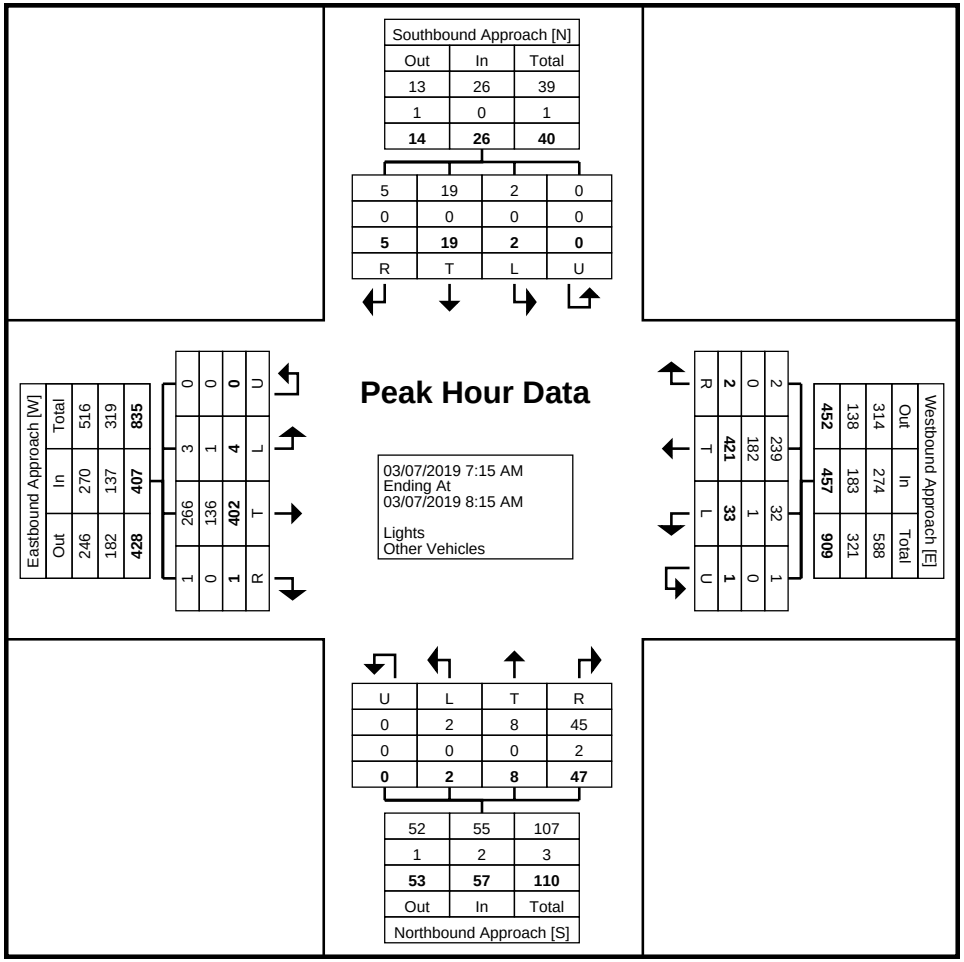

Turning Movement Peak Hour Data Plot (7:15 AM)

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+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Richey Rd
Site Code:
Start Date: 03/06/2019

Turning Movement Data

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
12:30 PM	0	1	5	0	6	1	97	0	0	98	0	0	0	0	0	1	96	0	0	97	201
12:45 PM	0	0	0	0	0	1	87	0	0	88	0	1	0	0	1	0	103	0	0	103	192
Hourly Total	0	1	5	0	6	2	184	0	0	186	0	1	0	0	1	1	199	0	0	200	393
1:00 PM	0	1	2	0	3	2	103	0	0	105	0	0	2	0	2	2	100	0	0	102	212
1:15 PM	0	1	2	0	3	2	113	0	0	115	1	0	1	0	2	0	92	0	0	92	212
1:30 PM	0	1	0	0	1	0	120	1	0	121	0	2	1	0	3	0	118	0	1	119	244
1:45 PM	0	1	1	0	2	3	95	0	0	98	0	0	2	0	2	0	100	0	0	100	202
Hourly Total	0	4	5	0	9	7	431	1	0	439	1	2	6	0	9	2	410	0	1	413	870
2:00 PM	0	0	0	0	0	3	104	0	0	107	1	0	0	0	1	1	118	0	0	119	227
2:15 PM	0	1	5	0	6	1	100	0	0	101	0	0	1	0	1	2	114	0	0	116	224
2:30 PM	0	1	1	0	2	3	126	1	0	130	0	0	0	0	0	1	85	1	0	87	219
2:45 PM	0	0	0	0	0	3	131	0	0	134	1	0	1	0	2	0	121	0	0	121	257
Hourly Total	0	2	6	0	8	10	461	1	0	472	2	0	2	0	4	4	438	1	0	443	927
3:00 PM	2	0	5	0	7	3	122	2	1	128	1	0	1	0	2	0	101	0	0	101	238
3:15 PM	1	0	2	0	3	2	134	1	0	137	2	1	0	0	3	1	126	0	0	127	270
3:30 PM	0	0	0	0	0	1	137	4	0	142	1	0	0	0	1	0	111	0	1	112	255
3:45 PM	2	0	1	0	3	2	138	1	0	141	0	1	0	0	1	1	123	0	0	124	269
Hourly Total	5	0	8	0	13	8	531	8	1	548	4	2	1	0	7	2	461	0	1	464	1032
4:00 PM	1	1	2	0	4	1	145	2	0	148	1	0	0	0	1	2	122	0	0	124	277
4:15 PM	0	1	1	0	2	1	152	2	0	155	2	2	1	0	5	0	119	0	0	119	281
4:30 PM	0	0	0	0	0	0	137	2	0	139	1	1	1	0	3	0	127	0	0	127	269
4:45 PM	0	1	0	0	1	1	139	4	0	144	0	0	0	0	0	4	109	0	0	113	258
Hourly Total	1	3	3	0	7	3	573	10	0	586	4	3	2	0	9	6	477	0	0	483	1085
5:00 PM	0	0	3	0	3	0	134	4	0	138	0	1	1	0	2	1	127	0	0	128	271
5:15 PM	0	1	0	0	1	1	152	2	0	155	2	0	1	0	3	1	133	0	0	134	293
5:30 PM	0	2	1	0	3	3	118	1	0	122	3	2	1	0	6	0	133	0	0	133	264
5:45 PM	0	1	2	0	3	1	107	0	0	108	1	1	0	0	2	3	114	0	0	117	230
Hourly Total	0	4	6	0	10	5	511	7	0	523	6	4	3	0	13	5	507	0	0	512	1058
6:00 PM	0	0	1	0	1	1	116	2	0	119	1	2	2	0	5	0	116	0	0	116	241
6:15 PM	0	1	2	0	3	3	88	2	0	93	1	1	0	0	2	1	107	0	0	108	206
6:30 PM	0	0	1	0	1	0	98	0	0	98	0	0	0	0	0	1	90	0	0	91	190
6:45 PM	0	0	0	0	0	1	80	0	0	81	2	1	0	0	3	1	86	0	0	87	171
Hourly Total	0	1	4	0	5	5	382	4	0	391	4	4	2	0	10	3	399	0	0	402	808
7:00 PM	0	0	2	0	2	0	72	1	0	73	0	0	1	0	1	0	79	0	0	79	155
7:15 PM	0	0	2	0	2	0	72	1	0	73	1	0	2	0	3	0	82	0	0	82	160

7:30 PM	0	1	0	0	1	1	55	1	0	57	1	0	1	0	2	1	63	0	0	64	124
7:45 PM	0	0	0	0	0	0	65	1	0	66	1	2	1	0	4	0	71	0	0	71	141
Hourly Total	0	1	4	0	5	1	264	4	0	269	3	2	5	0	10	1	295	0	0	296	580
8:00 PM	0	0	0	0	0	2	53	0	0	55	2	0	0	1	3	0	75	0	0	75	133
8:15 PM	0	0	0	0	0	2	46	1	0	49	0	1	1	0	2	2	55	0	0	57	108
8:30 PM	0	0	1	0	1	0	61	2	0	63	0	0	0	0	0	1	63	0	0	64	128
8:45 PM	0	0	0	0	0	0	55	0	0	55	1	0	1	0	2	0	55	0	0	55	112
Hourly Total	0	0	1	0	1	4	215	3	0	222	3	1	2	1	7	3	248	0	0	251	481
9:00 PM	0	0	0	0	0	1	41	0	0	42	0	0	0	0	0	0	64	0	0	64	106
9:15 PM	0	0	0	0	0	1	44	1	0	46	0	0	1	0	1	0	41	0	0	41	88
9:30 PM	0	0	0	0	0	1	49	0	0	50	0	0	0	0	0	2	53	0	0	55	105
9:45 PM	0	0	0	0	0	0	46	0	0	46	0	0	0	0	0	0	57	0	0	57	103
Hourly Total	0	0	0	0	0	3	180	1	0	184	0	0	1	0	1	2	215	0	0	217	402
10:00 PM	0	0	0	0	0	0	27	0	0	27	1	0	0	0	1	0	46	0	0	46	74
10:15 PM	0	0	0	0	0	0	39	2	0	41	2	0	0	0	2	0	40	0	0	40	83
10:30 PM	0	0	3	0	3	0	35	0	0	35	1	0	0	0	1	0	47	0	1	48	87
10:45 PM	0	0	0	0	0	1	30	1	0	32	0	0	0	0	0	1	49	0	0	50	82
Hourly Total	0	0	3	0	3	1	131	3	0	135	4	0	0	0	4	1	182	0	1	184	326
11:00 PM	0	0	0	0	0	0	32	1	0	33	0	0	0	0	0	0	40	0	0	40	73
11:15 PM	0	0	0	0	0	0	40	0	0	40	0	0	0	0	0	0	27	0	0	27	67
11:30 PM	0	0	0	0	0	0	35	0	0	35	0	0	0	0	0	0	29	0	1	30	65
11:45 PM	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	1	30	0	0	31	57
Hourly Total	0	0	0	0	0	0	133	1	0	134	0	0	0	0	0	1	126	0	1	128	262
12:00 AM	0	0	0	0	0	0	31	0	0	31	0	0	0	0	0	0	15	0	0	15	46
12:15 AM	0	0	0	0	0	0	28	0	0	28	0	0	0	0	0	0	30	0	0	30	58
12:30 AM	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	0	18	0	0	18	40
12:45 AM	0	0	0	0	0	1	29	0	0	30	0	0	0	0	0	0	23	0	0	23	53
Hourly Total	0	0	0	0	0	1	110	0	0	111	0	0	0	0	0	0	86	0	0	86	197
1:00 AM	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	16	0	0	16	35
1:15 AM	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	18	0	0	18	38
1:30 AM	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	0	20	0	0	20	34
1:45 AM	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	0	14	0	0	14	43
Hourly Total	0	0	0	0	0	0	82	0	0	82	0	0	0	0	0	0	68	0	0	68	150
2:00 AM	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	0	10	0	0	10	37
2:15 AM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	19	0	0	19	44
2:30 AM	0	0	0	0	0	0	20	0	0	20	0	0	1	0	1	0	21	0	0	21	42
2:45 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	10	0	0	10	27
Hourly Total	0	0	0	0	0	0	89	0	0	89	0	0	1	0	1	0	60	0	0	60	150
3:00 AM	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	0	19	0	0	19	40
3:15 AM	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	26	0	0	26	44
3:30 AM	0	0	1	0	1	0	27	0	0	27	0	0	0	0	0	0	18	0	0	18	46
3:45 AM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	1	31	0	0	32	57
Hourly Total	0	0	1	0	1	0	91	0	0	91	0	0	0	0	0	1	94	0	0	95	187
4:00 AM	0	0	0	0	0	0	22	0	0	22	0	0	1	0	1	0	29	0	0	29	52
4:15 AM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	29	0	0	29	54
4:30 AM	0	0	0	0	0	0	31	0	0	31	0	0	0	0	0	0	45	0	0	45	76
4:45 AM	0	0	0	0	0	0	41	0	0	41	1	0	0	0	1	1	45	0	0	46	88
Hourly Total	0	0	0	0	0	0	119	0	0	119	1	0	1	0	2	1	148	0	0	149	270
5:00 AM	0	0	0	0	0	0	39	0	0	39	1	0	0	0	1	0	33	0	0	33	73
5:15 AM	0	0	0	0	0	0	34	0	0	34	1	0	0	0	1	0	43	0	0	43	78
5:30 AM	1	0	3	0	4	0	50	0	0	50	1	0	0	0	1	0	64	0	0	64	119
5:45 AM	0	0	0	0	0	3	54	0	0	57	2	0	0	0	2	0	67	0	0	67	126

Hourly Total	1	0	3	0	4	3	177	0	0	180	5	0	0	0	5	0	207	0	0	207	396
6:00 AM	0	0	3	0	3	0	70	1	0	71	1	3	3	0	7	0	66	0	1	67	148
6:15 AM	0	0	1	0	1	0	90	0	0	90	1	2	1	0	4	0	63	0	0	63	158
6:30 AM	0	0	3	0	3	2	85	1	0	88	0	1	1	0	2	0	76	0	0	76	169
6:45 AM	0	0	1	0	1	0	90	0	0	90	0	0	2	0	2	0	74	0	0	74	167
Hourly Total	0	0	8	0	8	2	335	2	0	339	2	6	7	0	15	0	279	0	1	280	642
7:00 AM	0	0	1	0	1	0	115	0	0	115	1	0	0	0	1	0	91	0	0	91	208
7:15 AM	1	0	4	0	5	4	127	0	0	131	1	0	1	0	2	0	97	0	0	97	235
7:30 AM	4	0	3	0	7	1	100	0	0	101	1	0	1	0	2	1	118	0	0	119	229
7:45 AM	0	0	2	0	2	2	94	1	0	97	1	1	0	0	2	0	122	0	0	122	223
Hourly Total	5	0	10	0	15	7	436	1	0	444	4	1	2	0	7	1	428	0	0	429	895
8:00 AM	0	0	1	0	1	0	97	0	0	97	1	2	0	0	3	1	104	0	0	105	206
8:15 AM	2	0	4	0	6	3	98	0	0	101	0	0	3	0	3	0	87	1	0	88	198
8:30 AM	0	0	2	0	2	3	97	0	0	100	1	1	0	0	2	0	94	0	0	94	198
8:45 AM	0	0	4	0	4	3	100	0	0	103	4	2	0	0	6	0	112	0	0	112	225
Hourly Total	2	0	11	0	13	9	392	0	0	401	6	5	3	0	14	1	397	1	0	399	827
9:00 AM	0	0	0	0	0	4	86	2	0	92	2	1	0	0	3	0	96	0	0	96	191
9:15 AM	0	1	4	0	5	0	88	1	0	89	0	0	1	0	1	0	109	0	0	109	204
9:30 AM	0	0	3	0	3	0	77	0	0	77	2	1	1	0	4	1	104	0	0	105	189
9:45 AM	0	0	2	0	2	2	110	0	0	112	2	2	1	0	5	0	90	0	0	90	209
Hourly Total	0	1	9	0	10	6	361	3	0	370	6	4	3	0	13	1	399	0	0	400	793
10:00 AM	0	0	1	0	1	1	90	1	0	92	0	1	1	0	2	1	117	0	0	118	213
10:15 AM	0	0	2	0	2	1	110	0	0	111	1	0	1	0	2	1	90	0	0	91	206
10:30 AM	0	0	1	0	1	0	86	2	1	89	0	0	0	0	0	0	94	0	0	94	184
10:45 AM	0	0	0	0	0	1	97	0	0	98	0	2	0	0	2	1	97	0	0	98	198
Hourly Total	0	0	4	0	4	3	383	3	1	390	1	3	2	0	6	3	398	0	0	401	801
11:00 AM	0	0	2	0	2	2	100	0	0	102	0	0	1	0	1	1	110	0	0	111	216
11:15 AM	0	0	3	0	3	1	106	1	0	108	0	0	0	0	0	0	112	0	1	113	224
11:30 AM	0	0	2	0	2	1	115	0	0	116	0	0	0	0	0	0	95	1	0	96	214
11:45 AM	0	1	0	0	1	0	79	0	0	79	0	1	1	0	2	0	95	0	0	95	177
Hourly Total	0	1	7	0	8	4	400	1	0	405	0	1	2	0	3	1	412	1	1	415	831
12:00 PM	0	1	2	0	3	3	106	0	1	110	0	0	0	0	0	1	124	0	0	125	238
12:15 PM	0	0	2	0	2	1	116	1	0	118	1	0	1	0	2	0	87	0	0	87	209
Grand Total	14	19	102	0	135	88	7193	54	3	7338	57	39	46	1	143	41	7144	3	6	7194	14810
Approach %	10.4	14.1	75.6	0.0	-	1.2	98.0	0.7	0.0	-	39.9	27.3	32.2	0.7	-	0.6	99.3	0.0	0.1	-	-
Total %	0.1	0.1	0.7	0.0	0.9	0.6	48.6	0.4	0.0	49.5	0.4	0.3	0.3	0.0	1.0	0.3	48.2	0.0	0.0	48.6	-
Lights	10	19	63	0	92	56	3920	52	1	4029	56	37	43	1	137	40	4007	3	5	4055	8313
% Lights	71.4	100.0	61.8	-	68.1	63.6	54.5	96.3	33.3	54.9	98.2	94.9	93.5	100.0	95.8	97.6	56.1	100.0	83.3	56.4	56.1
Other Vehicles	4	0	39	0	43	32	3273	2	2	3309	1	2	3	0	6	1	3137	0	1	3139	6497
% Other Vehicles	28.6	0.0	38.2	-	31.9	36.4	45.5	3.7	66.7	45.1	1.8	5.1	6.5	0.0	4.2	2.4	43.9	0.0	16.7	43.6	43.9

Ohio Department of Transportation
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Mail Stop 5160
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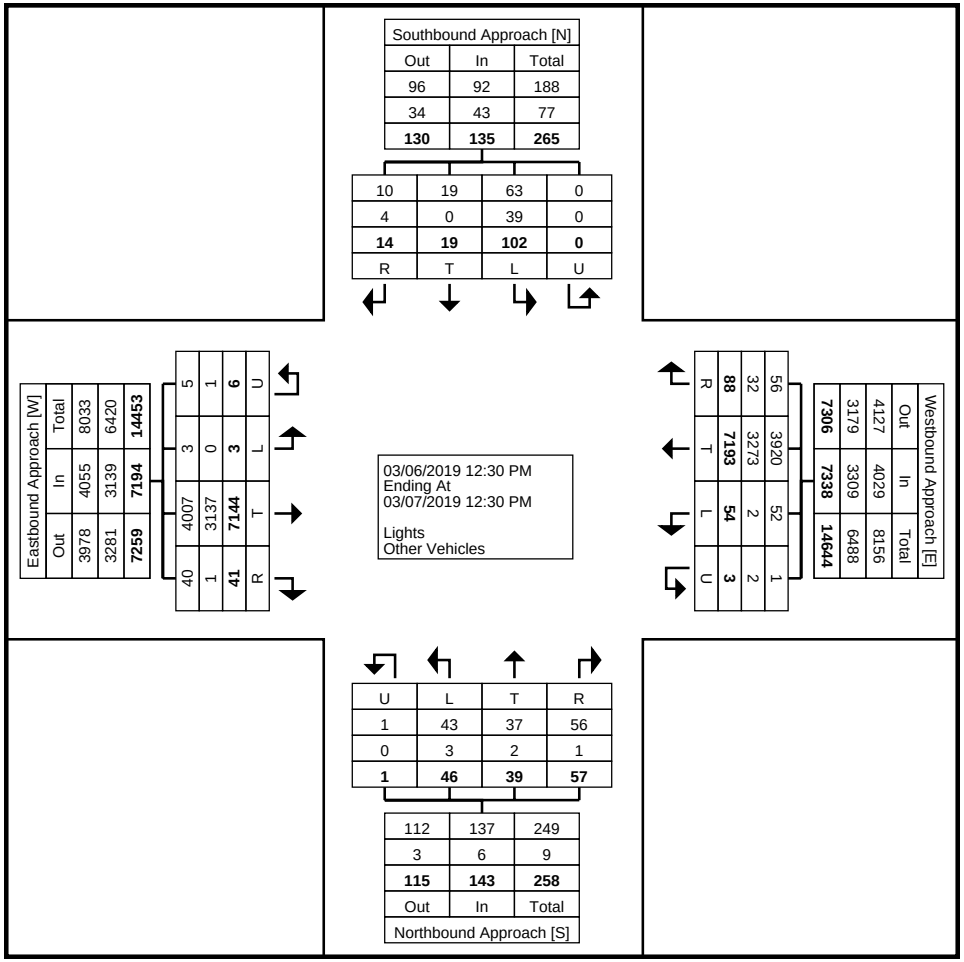
Office of Traffic Engineering

Count Name: VAN-30 & Richey Rd
Site Code:
Start Date: 03/06/2019



Turning Movement Data Plot

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Office of Traffic Engineering

Count Name: VAN-30 & Richey Rd
Site Code:
Start Date: 03/06/2019

Turning Movement Peak Hour Data (3:45 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
3:45 PM	2	0	1	0	3	2	138	1	0	141	0	1	0	0	1	1	123	0	0	124	269
4:00 PM	1	1	2	0	4	1	145	2	0	148	1	0	0	0	1	2	122	0	0	124	277
4:15 PM	0	1	1	0	2	1	152	2	0	155	2	2	1	0	5	0	119	0	0	119	281
4:30 PM	0	0	0	0	0	0	137	2	0	139	1	1	1	0	3	0	127	0	0	127	269
Total	3	2	4	0	9	4	572	7	0	583	4	4	2	0	10	3	491	0	0	494	1096
Approach %	33.3	22.2	44.4	0.0	-	0.7	98.1	1.2	0.0	-	40.0	40.0	20.0	0.0	-	0.6	99.4	0.0	0.0	-	-
Total %	0.3	0.2	0.4	0.0	0.8	0.4	52.2	0.6	0.0	53.2	0.4	0.4	0.2	0.0	0.9	0.3	44.8	0.0	0.0	45.1	-
PHF	0.375	0.500	0.500	0.000	0.563	0.500	0.941	0.875	0.000	0.940	0.500	0.500	0.500	0.000	0.500	0.375	0.967	0.000	0.000	0.972	0.975
Lights	2	2	3	0	7	3	357	6	0	366	3	4	2	0	9	3	300	0	0	303	685
% Lights	66.7	100.0	75.0	-	77.8	75.0	62.4	85.7	-	62.8	75.0	100.0	100.0	-	90.0	100.0	61.1	-	-	61.3	62.5
Other Vehicles	1	0	1	0	2	1	215	1	0	217	1	0	0	0	1	0	191	0	0	191	411
% Other Vehicles	33.3	0.0	25.0	-	22.2	25.0	37.6	14.3	-	37.2	25.0	0.0	0.0	-	10.0	0.0	38.9	-	-	38.7	37.5

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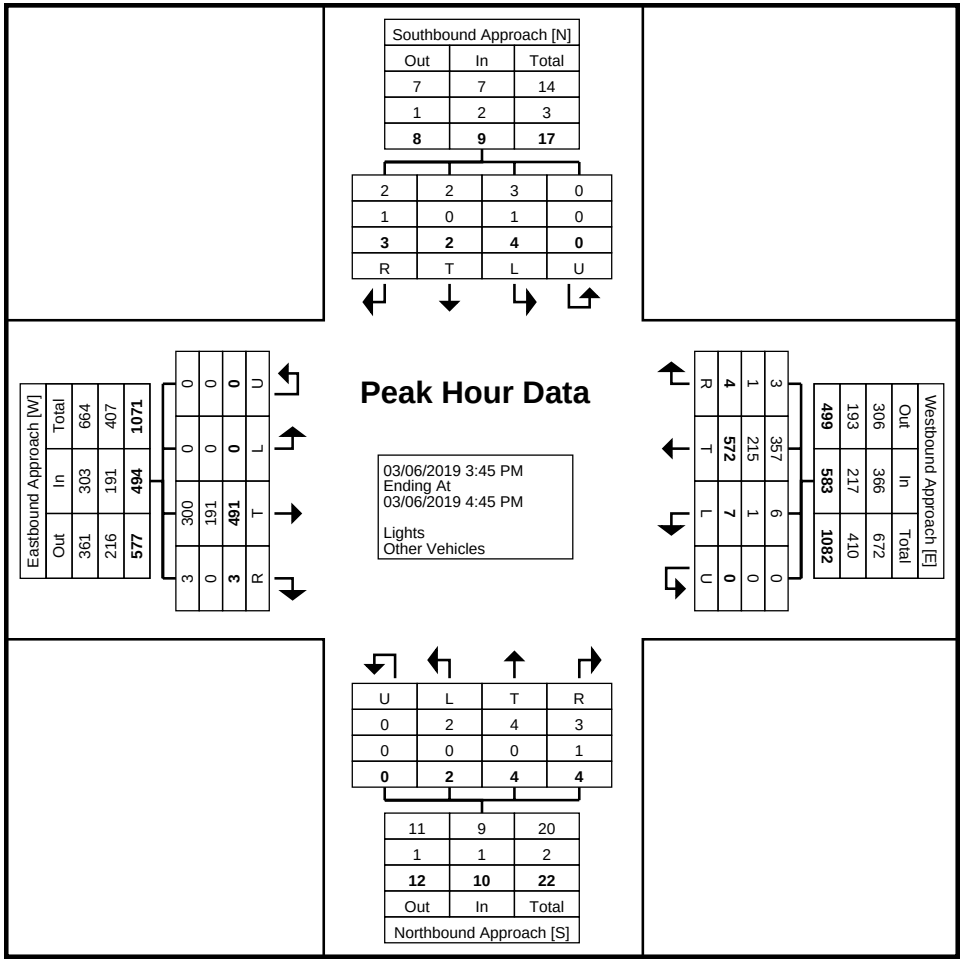
Start Date: 03/06/2019



Turning Movement Peak Hour Data Plot (3:45 PM)

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Count Name: VAN-30 & Richey Rd
Site Code:
Start Date: 03/06/2019

Turning Movement Peak Hour Data (7:00 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
7:00 AM	0	0	1	0	1	0	115	0	0	115	1	0	0	0	1	0	91	0	0	91	208
7:15 AM	1	0	4	0	5	4	127	0	0	131	1	0	1	0	2	0	97	0	0	97	235
7:30 AM	4	0	3	0	7	1	100	0	0	101	1	0	1	0	2	1	118	0	0	119	229
7:45 AM	0	0	2	0	2	2	94	1	0	97	1	1	0	0	2	0	122	0	0	122	223
Total	5	0	10	0	15	7	436	1	0	444	4	1	2	0	7	1	428	0	0	429	895
Approach %	33.3	0.0	66.7	0.0	-	1.6	98.2	0.2	0.0	-	57.1	14.3	28.6	0.0	-	0.2	99.8	0.0	0.0	-	-
Total %	0.6	0.0	1.1	0.0	1.7	0.8	48.7	0.1	0.0	49.6	0.4	0.1	0.2	0.0	0.8	0.1	47.8	0.0	0.0	47.9	-
PHF	0.313	0.000	0.625	0.000	0.536	0.438	0.858	0.250	0.000	0.847	1.000	0.250	0.500	0.000	0.875	0.250	0.877	0.000	0.000	0.879	0.952
Lights	3	0	7	0	10	5	272	1	0	278	4	1	2	0	7	1	301	0	0	302	597
% Lights	60.0	-	70.0	-	66.7	71.4	62.4	100.0	-	62.6	100.0	100.0	100.0	-	100.0	100.0	70.3	-	-	70.4	66.7
Other Vehicles	2	0	3	0	5	2	164	0	0	166	0	0	0	0	0	0	127	0	0	127	298
% Other Vehicles	40.0	-	30.0	-	33.3	28.6	37.6	0.0	-	37.4	0.0	0.0	0.0	-	0.0	0.0	29.7	-	-	29.6	33.3

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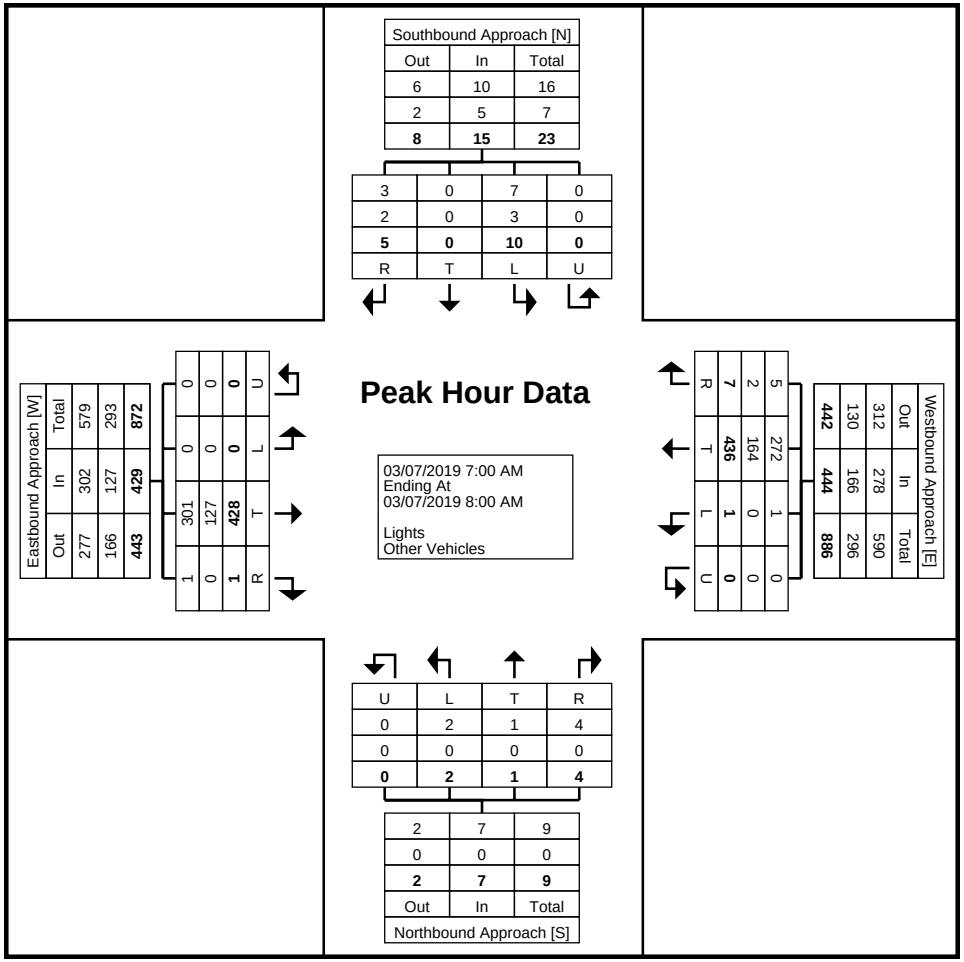
Site Code:
Start Date: 03/06/2019



Turning Movement Peak Hour Data Plot (7:00 AM)

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Site Code:
Start Date: 03/06/2019

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Office of Traffic Engineering

Count Name: VAN-30 & Liberty Union Rd
Site Code:
Start Date: 03/12/2019

Turning Movement Data

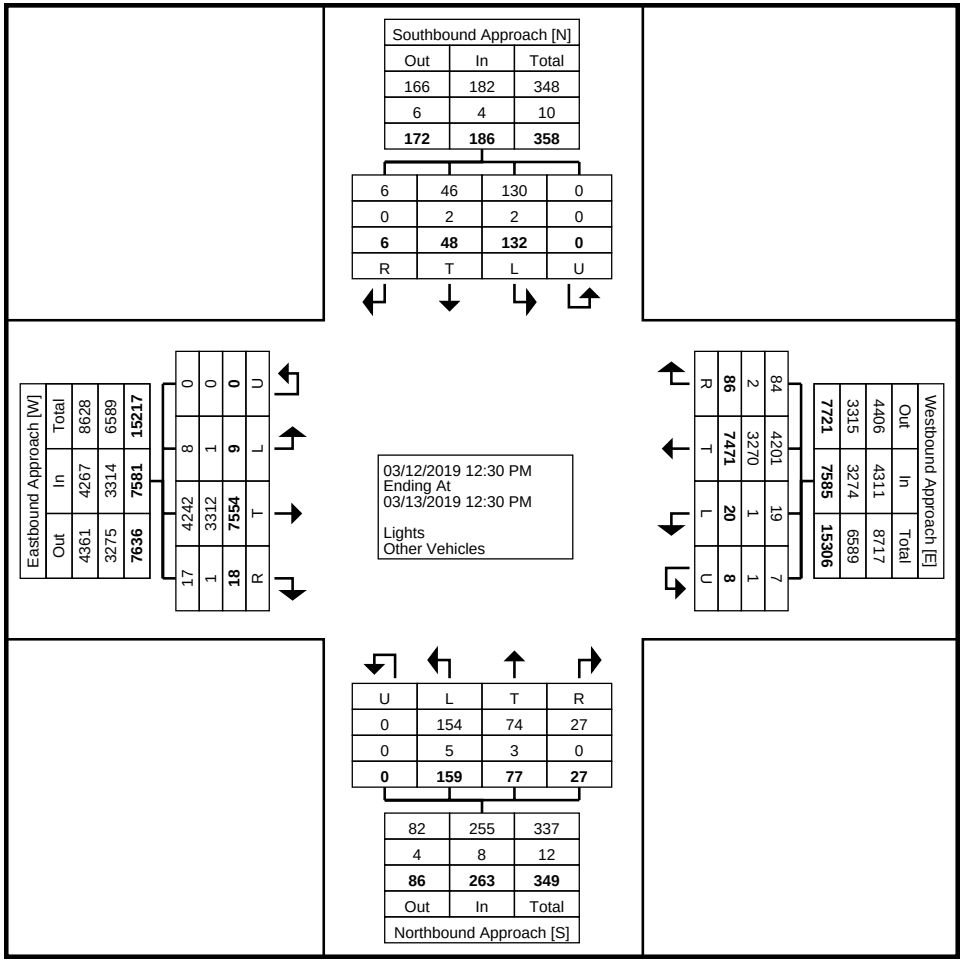
Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
12:30 PM	0	2	2	0	4	1	99	0	0	100	0	3	0	0	3	0	94	0	0	94	201
12:45 PM	0	0	1	0	1	0	126	0	0	126	1	1	5	0	7	0	106	0	0	106	240
Hourly Total	0	2	3	0	5	1	225	0	0	226	1	4	5	0	10	0	200	0	0	200	441
1:00 PM	0	0	2	0	2	1	111	0	0	112	0	2	5	0	7	0	102	0	0	102	223
1:15 PM	0	1	2	0	3	2	124	0	1	127	0	2	2	0	4	0	129	0	0	129	263
1:30 PM	0	2	2	0	4	0	144	0	0	144	1	1	3	0	5	0	110	0	0	110	263
1:45 PM	0	1	0	0	1	1	149	0	0	150	0	0	3	0	3	0	115	0	0	115	269
Hourly Total	0	4	6	0	10	4	528	0	1	533	1	5	13	0	19	0	456	0	0	456	1018
2:00 PM	0	0	0	0	0	2	125	0	0	127	0	1	0	0	1	0	135	0	0	135	263
2:15 PM	0	2	2	0	4	2	153	0	0	155	0	1	4	0	5	0	122	1	0	123	287
2:30 PM	0	1	3	0	4	3	124	2	0	129	2	5	2	0	9	1	116	0	0	117	259
2:45 PM	0	1	2	0	3	3	115	1	0	119	0	0	3	0	3	0	139	0	0	139	264
Hourly Total	0	4	7	0	11	10	517	3	0	530	2	7	9	0	18	1	512	1	0	514	1073
3:00 PM	1	0	2	0	3	2	162	1	0	165	1	4	4	0	9	1	167	0	0	168	345
3:15 PM	0	0	2	0	2	4	147	0	0	151	1	1	4	0	6	0	135	0	0	135	294
3:30 PM	0	5	3	0	8	2	144	0	0	146	0	1	3	0	4	0	152	1	0	153	311
3:45 PM	1	0	3	0	4	3	140	0	0	143	1	2	3	0	6	0	142	0	0	142	295
Hourly Total	2	5	10	0	17	11	593	1	0	605	3	8	14	0	25	1	596	1	0	598	1245
4:00 PM	0	4	0	0	4	5	134	0	0	139	1	4	2	0	7	2	139	0	0	141	291
4:15 PM	0	0	1	0	1	5	120	0	0	125	0	3	5	0	8	0	145	1	0	146	280
4:30 PM	0	0	2	0	2	4	117	2	0	123	0	2	4	0	6	2	136	0	0	138	269
4:45 PM	0	2	0	0	2	2	105	0	0	107	0	1	1	0	2	0	119	0	0	119	230
Hourly Total	0	6	3	0	9	16	476	2	0	494	1	10	12	0	23	4	539	1	0	544	1070
5:00 PM	0	0	1	0	1	1	120	2	0	123	0	0	1	0	1	1	116	0	0	117	242
5:15 PM	0	1	1	0	2	3	110	0	0	113	0	3	3	0	6	1	112	0	0	113	234
5:30 PM	0	2	0	0	2	3	82	0	0	85	2	0	1	0	3	0	108	0	0	108	198
5:45 PM	0	1	0	0	1	1	80	2	0	83	1	2	6	0	9	1	97	0	0	98	191
Hourly Total	0	4	2	0	6	8	392	4	0	404	3	5	11	0	19	3	433	0	0	436	865
6:00 PM	0	0	0	0	0	1	80	0	0	81	2	1	2	0	5	0	73	0	0	73	159
6:15 PM	0	1	0	0	1	2	65	0	0	67	2	4	1	0	7	0	72	0	0	72	147
6:30 PM	0	1	4	0	5	1	72	1	0	74	0	0	2	0	2	0	83	0	0	83	164
6:45 PM	0	0	0	0	0	0	69	0	0	69	0	1	0	0	1	0	71	0	0	71	141
Hourly Total	0	2	4	0	6	4	286	1	0	291	4	6	5	0	15	0	299	0	0	299	611
7:00 PM	0	1	2	0	3	0	59	0	0	59	0	0	2	0	2	0	58	0	0	58	122
7:15 PM	0	1	2	0	3	0	57	0	0	57	0	1	2	0	3	0	77	0	0	77	140

7:30 PM	0	2	1	0	3	0	55	2	0	57	0	0	1	0	1	1	65	0	0	66	127
7:45 PM	0	0	0	0	0	1	45	0	0	46	0	1	2	0	3	2	50	0	0	52	101
Hourly Total	0	4	5	0	9	1	216	2	0	219	0	2	7	0	9	3	250	0	0	253	490
8:00 PM	0	0	0	0	0	0	60	1	0	61	0	1	0	0	1	0	52	0	0	52	114
8:15 PM	0	0	1	0	1	0	59	0	0	59	0	0	4	0	4	0	53	0	0	53	117
8:30 PM	0	0	2	0	2	0	50	0	0	50	0	1	1	0	2	0	70	0	0	70	124
8:45 PM	0	0	1	0	1	0	49	0	0	49	0	0	1	0	1	0	54	0	0	54	105
Hourly Total	0	0	4	0	4	0	218	1	0	219	0	2	6	0	8	0	229	0	0	229	460
9:00 PM	0	0	0	0	0	0	42	0	0	42	0	0	2	0	2	0	42	0	0	42	86
9:15 PM	0	0	2	0	2	0	36	0	0	36	0	0	0	0	0	0	55	0	0	55	93
9:30 PM	0	0	1	0	1	0	34	0	0	34	0	0	0	0	0	0	55	0	0	55	90
9:45 PM	0	0	0	0	0	0	43	0	0	43	0	0	0	0	0	0	32	0	0	32	75
Hourly Total	0	0	3	0	3	0	155	0	0	155	0	0	2	0	2	0	184	0	0	184	344
10:00 PM	0	0	1	0	1	0	69	0	0	69	0	1	1	0	2	0	38	0	0	38	110
10:15 PM	0	1	3	0	4	4	55	0	1	60	1	0	0	0	1	0	30	1	0	31	96
10:30 PM	0	1	0	0	1	0	49	0	0	49	0	2	1	0	3	0	27	0	0	27	80
10:45 PM	2	0	0	0	2	1	42	0	0	43	0	0	1	0	1	0	17	0	0	17	63
Hourly Total	2	2	4	0	8	5	215	0	1	221	1	3	3	0	7	0	112	1	0	113	349
11:00 PM	0	0	2	0	2	0	23	0	0	23	0	0	2	0	2	0	28	0	0	28	55
11:15 PM	0	1	0	0	1	1	25	0	0	26	0	0	0	0	0	0	25	0	0	25	52
11:30 PM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	24	0	0	24	49
11:45 PM	0	0	0	0	0	0	35	0	0	35	0	0	1	0	1	0	26	0	0	26	62
Hourly Total	0	1	2	0	3	1	108	0	0	109	0	0	3	0	3	0	103	0	0	103	218
12:00 AM	0	0	0	0	0	0	36	0	0	36	0	0	0	0	0	0	19	0	0	19	55
12:15 AM	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	21	0	0	21	46
12:30 AM	0	0	1	0	1	0	25	0	0	25	0	0	0	0	0	0	12	0	0	12	38
12:45 AM	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	19	0	0	19	39
Hourly Total	0	0	1	0	1	0	106	0	0	106	0	0	0	0	0	0	71	0	0	71	178
1:00 AM	0	0	0	0	0	0	33	0	0	33	0	0	2	0	2	0	20	0	0	20	55
1:15 AM	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	15	0	0	15	33
1:30 AM	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	0	15	0	0	15	41
1:45 AM	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	16	0	0	16	32
Hourly Total	0	0	0	0	0	0	93	0	0	93	0	0	2	0	2	0	66	0	0	66	161
2:00 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	18	0	0	18	35
2:15 AM	0	0	1	0	1	0	24	0	0	24	0	0	0	0	0	0	24	0	0	24	49
2:30 AM	0	0	0	0	0	0	25	0	0	25	0	0	2	0	2	0	30	0	0	30	57
2:45 AM	0	0	0	0	0	0	31	0	0	31	0	0	1	0	1	0	19	0	0	19	51
Hourly Total	0	0	1	0	1	0	97	0	0	97	0	0	3	0	3	0	91	0	0	91	192
3:00 AM	0	0	0	0	0	0	30	0	0	30	0	0	2	0	2	0	36	0	0	36	68
3:15 AM	0	0	0	0	0	0	28	0	0	28	0	0	0	0	0	0	34	0	0	34	62
3:30 AM	0	0	1	0	1	0	29	0	0	29	0	0	1	0	1	0	39	0	0	39	70
3:45 AM	0	0	1	0	1	0	32	0	0	32	0	0	0	0	0	1	30	0	0	31	64
Hourly Total	0	0	2	0	2	0	119	0	0	119	0	0	3	0	3	1	139	0	0	140	264
4:00 AM	0	0	0	0	0	0	45	0	0	45	0	0	1	0	1	0	36	0	0	36	82
4:15 AM	0	0	1	0	1	2	43	0	0	45	0	1	1	0	2	0	49	0	0	49	97
4:30 AM	0	0	3	0	3	0	54	0	0	54	0	0	0	0	0	0	59	0	0	59	116
4:45 AM	0	0	0	0	0	1	67	0	0	68	1	0	0	0	1	0	82	0	0	82	151
Hourly Total	0	0	4	0	4	3	209	0	0	212	1	1	2	0	4	0	226	0	0	226	446
5:00 AM	0	0	4	0	4	0	62	0	0	62	0	2	0	0	2	0	65	0	0	65	133
5:15 AM	0	0	1	0	1	0	93	0	0	93	0	0	0	0	0	0	77	0	0	77	171
5:30 AM	0	1	4	0	5	1	86	0	0	87	0	1	2	0	3	0	96	3	0	99	194
5:45 AM	0	0	0	0	0	1	80	0	0	81	1	1	1	0	3	0	83	0	0	83	167

Hourly Total	0	1	9	0	10	2	321	0	0	323	1	4	3	0	8	0	321	3	0	324	665
6:00 AM	0	0	2	0	2	1	108	0	0	109	0	1	5	0	6	0	74	1	0	75	192
6:15 AM	0	1	5	0	6	1	104	0	0	105	2	0	5	0	7	0	97	0	0	97	215
6:30 AM	0	0	7	0	7	0	80	0	0	80	0	1	2	0	3	0	113	0	0	113	203
6:45 AM	0	1	6	0	7	1	95	0	0	96	2	0	3	0	5	0	143	0	0	143	251
Hourly Total	0	2	20	0	22	3	387	0	0	390	4	2	15	0	21	0	427	1	0	428	861
7:00 AM	0	0	5	0	5	0	99	1	0	100	0	1	2	0	3	0	93	0	0	93	201
7:15 AM	0	1	3	0	4	0	74	0	0	74	0	1	0	0	1	0	92	0	0	92	171
7:30 AM	0	0	2	0	2	2	71	0	0	73	0	0	3	0	3	1	103	0	0	104	182
7:45 AM	1	0	3	0	4	1	106	1	0	108	1	2	0	0	3	0	100	0	0	100	215
Hourly Total	1	1	13	0	15	3	350	2	0	355	1	4	5	0	10	1	388	0	0	389	769
8:00 AM	0	2	1	0	3	0	100	0	0	100	0	0	1	0	1	0	109	0	0	109	213
8:15 AM	0	0	1	0	1	2	76	0	0	78	0	0	4	0	4	0	95	0	0	95	178
8:30 AM	0	2	1	0	3	0	108	0	0	108	1	0	0	0	1	0	111	0	0	111	223
8:45 AM	0	0	3	0	3	0	90	0	1	91	1	0	2	0	3	0	119	0	0	119	216
Hourly Total	0	4	6	0	10	2	374	0	1	377	2	0	7	0	9	0	434	0	0	434	830
9:00 AM	0	0	0	0	0	2	95	0	0	97	1	1	2	0	4	0	104	0	0	104	205
9:15 AM	0	0	2	0	2	1	108	0	0	109	0	0	0	0	0	0	114	0	0	114	225
9:30 AM	0	0	0	0	0	2	100	0	0	102	0	4	2	0	6	0	103	0	0	103	211
9:45 AM	0	0	3	0	3	1	76	2	3	82	0	0	1	0	1	0	94	0	0	94	180
Hourly Total	0	0	5	0	5	6	379	2	3	390	1	5	5	0	11	0	415	0	0	415	821
10:00 AM	0	1	3	0	4	0	89	0	0	89	0	0	2	0	2	0	107	0	0	107	202
10:15 AM	1	0	0	0	1	1	88	0	0	89	0	1	2	0	3	1	105	1	0	107	200
10:30 AM	0	2	4	0	6	0	101	0	1	102	0	1	2	0	3	1	109	0	0	110	221
10:45 AM	0	0	3	0	3	0	103	0	0	103	1	1	1	0	3	0	105	0	0	105	214
Hourly Total	1	3	10	0	14	1	381	0	1	383	1	3	7	0	11	2	426	1	0	429	837
11:00 AM	0	0	1	0	1	2	121	0	0	123	0	0	4	0	4	0	111	0	0	111	239
11:15 AM	0	0	3	0	3	1	115	0	1	117	0	2	4	0	6	0	97	0	0	97	223
11:30 AM	0	2	2	0	4	0	120	0	0	120	0	1	3	0	4	1	108	0	0	109	237
11:45 AM	0	0	0	0	0	1	121	2	0	124	0	1	1	0	2	0	101	0	0	101	227
Hourly Total	0	2	6	0	8	4	477	2	1	484	0	4	12	0	16	1	417	0	0	418	926
12:00 PM	0	1	2	0	3	0	120	0	0	120	0	1	4	0	5	0	111	0	0	111	239
12:15 PM	0	0	0	0	0	1	129	0	0	130	0	1	1	0	2	1	109	0	0	110	242
Grand Total	6	48	132	0	186	86	7471	20	8	7585	27	77	159	0	263	18	7554	9	0	7581	15615
Approach %	3.2	25.8	71.0	0.0	-	1.1	98.5	0.3	0.1	-	10.3	29.3	60.5	0.0	-	0.2	99.6	0.1	0.0	-	-
Total %	0.0	0.3	0.8	0.0	1.2	0.6	47.8	0.1	0.1	48.6	0.2	0.5	1.0	0.0	1.7	0.1	48.4	0.1	0.0	48.5	-
Lights	6	46	130	0	182	84	4201	19	7	4311	27	74	154	0	255	17	4242	8	0	4267	9015
% Lights	100.0	95.8	98.5	-	97.8	97.7	56.2	95.0	87.5	56.8	100.0	96.1	96.9	-	97.0	94.4	56.2	88.9	-	56.3	57.7
Other Vehicles	0	2	2	0	4	2	3270	1	1	3274	0	3	5	0	8	1	3312	1	0	3314	6600
% Other Vehicles	0.0	4.2	1.5	-	2.2	2.3	43.8	5.0	12.5	43.2	0.0	3.9	3.1	-	3.0	5.6	43.8	11.1	-	43.7	42.3

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Liberty Union Rd
Site Code:
Start Date: 03/12/2019



Turning Movement Data Plot

Ohio Department of Transportation
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Office of Traffic Engineering

Count Name: VAN-30 & Liberty Union Rd
Site Code:
Start Date: 03/12/2019

Turning Movement Peak Hour Data (3:00 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
3:00 PM	1	0	2	0	3	2	162	1	0	165	1	4	4	0	9	1	167	0	0	168	345
3:15 PM	0	0	2	0	2	4	147	0	0	151	1	1	4	0	6	0	135	0	0	135	294
3:30 PM	0	5	3	0	8	2	144	0	0	146	0	1	3	0	4	0	152	1	0	153	311
3:45 PM	1	0	3	0	4	3	140	0	0	143	1	2	3	0	6	0	142	0	0	142	295
Total	2	5	10	0	17	11	593	1	0	605	3	8	14	0	25	1	596	1	0	598	1245
Approach %	11.8	29.4	58.8	0.0	-	1.8	98.0	0.2	0.0	-	12.0	32.0	56.0	0.0	-	0.2	99.7	0.2	0.0	-	-
Total %	0.2	0.4	0.8	0.0	1.4	0.9	47.6	0.1	0.0	48.6	0.2	0.6	1.1	0.0	2.0	0.1	47.9	0.1	0.0	48.0	-
PHF	0.500	0.250	0.833	0.000	0.531	0.688	0.915	0.250	0.000	0.917	0.750	0.500	0.875	0.000	0.694	0.250	0.892	0.250	0.000	0.890	0.902
Lights	2	5	10	0	17	10	382	1	0	393	3	8	13	0	24	1	377	1	0	379	813
% Lights	100.0	100.0	100.0	-	100.0	90.9	64.4	100.0	-	65.0	100.0	100.0	92.9	-	96.0	100.0	63.3	100.0	-	63.4	65.3
Other Vehicles	0	0	0	0	0	1	211	0	0	212	0	0	1	0	1	0	219	0	0	219	432
% Other Vehicles	0.0	0.0	0.0	-	0.0	9.1	35.6	0.0	-	35.0	0.0	0.0	7.1	-	4.0	0.0	36.7	0.0	-	36.6	34.7

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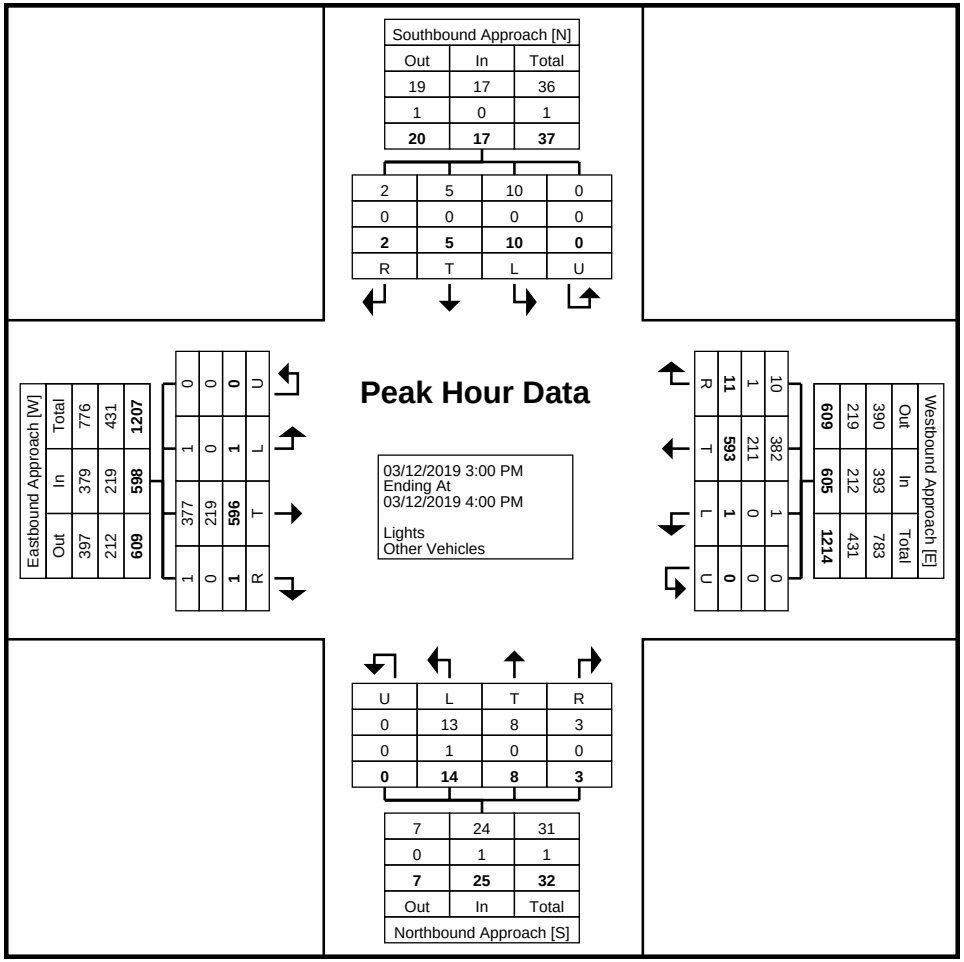
Start Date: 03/12/2019



Turning Movement Peak Hour Data Plot (3:00 PM)

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Office of Traffic Engineering

Count Name: VAN-30 & Liberty Union Rd
Site Code:
Start Date: 03/12/2019

Turning Movement Peak Hour Data (11:30 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
11:30 AM	0	2	2	0	4	0	120	0	0	120	0	1	3	0	4	1	108	0	0	109	237
11:45 AM	0	0	0	0	0	1	121	2	0	124	0	1	1	0	2	0	101	0	0	101	227
12:00 PM	0	1	2	0	3	0	120	0	0	120	0	1	4	0	5	0	111	0	0	111	239
12:15 PM	0	0	0	0	0	1	129	0	0	130	0	1	1	0	2	1	109	0	0	110	242
Total	0	3	4	0	7	2	490	2	0	494	0	4	9	0	13	2	429	0	0	431	945
Approach %	0.0	42.9	57.1	0.0	-	0.4	99.2	0.4	0.0	-	0.0	30.8	69.2	0.0	-	0.5	99.5	0.0	0.0	-	-
Total %	0.0	0.3	0.4	0.0	0.7	0.2	51.9	0.2	0.0	52.3	0.0	0.4	1.0	0.0	1.4	0.2	45.4	0.0	0.0	45.6	-
PHF	0.000	0.375	0.500	0.000	0.438	0.500	0.950	0.250	0.000	0.950	0.000	1.000	0.563	0.000	0.650	0.500	0.966	0.000	0.000	0.971	0.976
Lights	0	2	4	0	6	2	266	2	0	270	0	3	9	0	12	2	211	0	0	213	501
% Lights	-	66.7	100.0	-	85.7	100.0	54.3	100.0	-	54.7	-	75.0	100.0	-	92.3	100.0	49.2	-	-	49.4	53.0
Other Vehicles	0	1	0	0	1	0	224	0	0	224	0	1	0	0	1	0	218	0	0	218	444
% Other Vehicles	-	33.3	0.0	-	14.3	0.0	45.7	0.0	-	45.3	-	25.0	0.0	-	7.7	0.0	50.8	-	-	50.6	47.0

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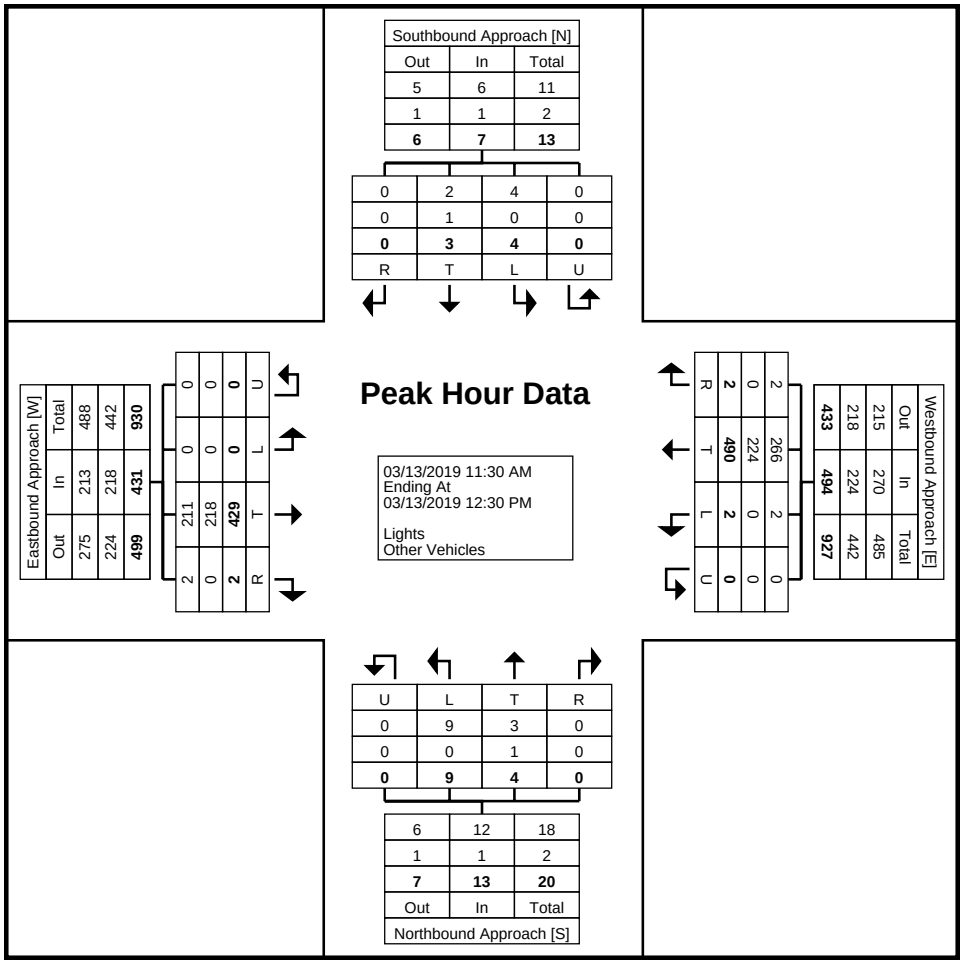
Site Code:
Start Date: 03/12/2019



Turning Movement Peak Hour Data Plot (11:30 AM)

Ohio Department of Transportation
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Office of Traffic Engineering

Count Name: VAN-30 & Liberty Union Rd
Site Code:
Start Date: 03/12/2019

Ohio Department of Transportation
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+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & John Brown Rd
Site Code:
Start Date: 03/06/2019

Turning Movement Data

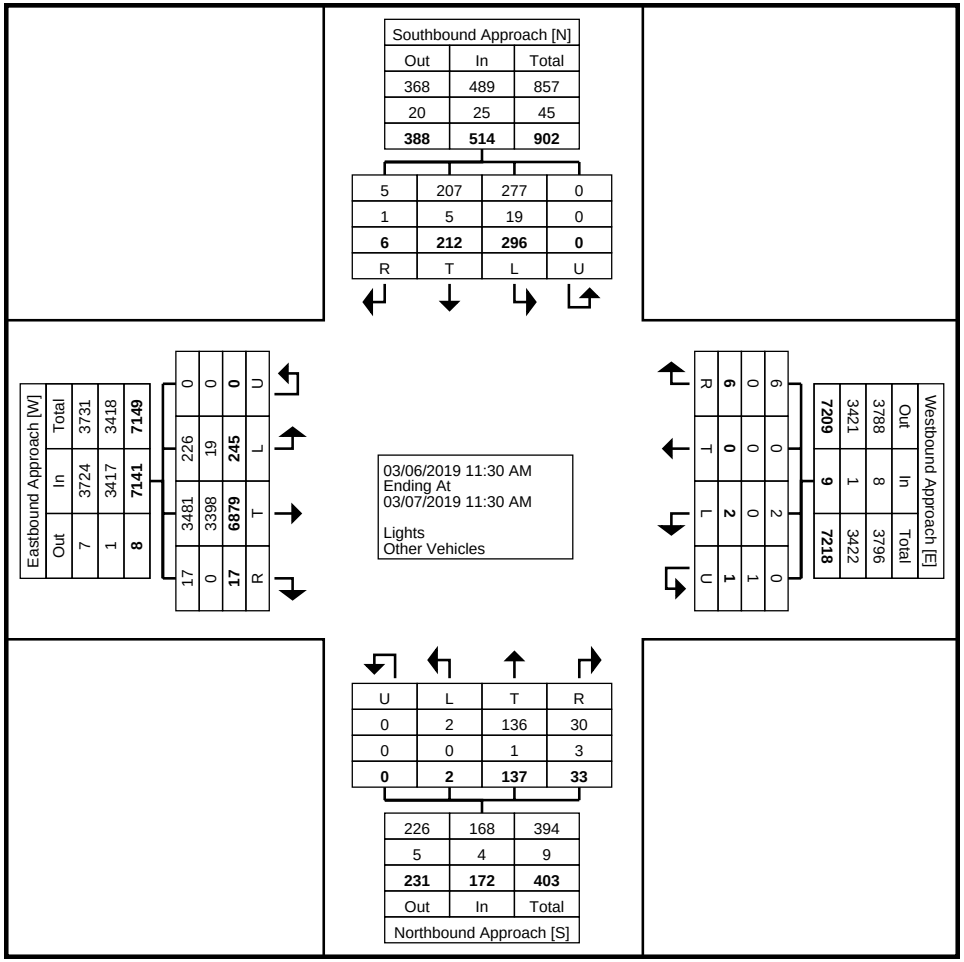
Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
11:30 AM	0	2	5	0	7	0	0	0	0	0	1	1	1	0	3	0	84	5	0	89	99
11:45 AM	0	2	4	0	6	0	0	0	0	0	0	1	0	0	1	0	84	3	0	87	94
Hourly Total	0	4	9	0	13	0	0	0	0	0	1	2	1	0	4	0	168	8	0	176	193
12:00 PM	0	1	4	0	5	0	0	0	0	0	0	0	0	0	0	0	82	6	0	88	93
12:15 PM	0	1	2	0	3	0	0	0	0	0	0	2	0	0	2	0	94	1	0	95	100
12:30 PM	0	4	0	0	4	0	0	0	0	0	1	1	0	0	2	0	99	2	0	101	107
12:45 PM	0	1	1	0	2	0	0	0	0	0	1	2	0	0	3	0	82	2	0	84	89
Hourly Total	0	7	7	0	14	0	0	0	0	0	2	5	0	0	7	0	357	11	0	368	389
1:00 PM	0	0	3	0	3	0	0	0	0	0	1	0	0	0	1	3	97	2	0	102	106
1:15 PM	0	0	3	0	3	0	0	0	0	0	0	1	0	0	1	0	110	2	0	112	116
1:30 PM	0	6	0	0	6	0	0	0	0	0	0	2	0	0	2	0	118	1	0	119	127
1:45 PM	0	3	6	0	9	0	0	0	0	0	0	2	0	0	2	0	90	4	0	94	105
Hourly Total	0	9	12	0	21	0	0	0	0	0	1	5	0	0	6	3	415	9	0	427	454
2:00 PM	0	2	5	0	7	0	0	0	0	0	0	3	0	0	3	0	96	3	0	99	109
2:15 PM	0	0	2	0	2	0	0	0	0	0	0	2	0	0	2	0	86	7	0	93	97
2:30 PM	0	11	17	0	28	0	0	0	0	0	1	1	0	0	2	0	124	8	0	132	162
2:45 PM	0	6	8	0	14	0	0	0	0	0	1	0	0	0	1	1	127	2	0	130	145
Hourly Total	0	19	32	0	51	0	0	0	0	0	2	6	0	0	8	1	433	20	0	454	513
3:00 PM	0	1	4	0	5	0	0	0	0	0	0	0	0	0	0	0	129	1	0	130	135
3:15 PM	0	11	13	0	24	0	0	0	0	0	1	3	0	0	4	0	121	2	0	123	151
3:30 PM	0	12	13	0	25	0	0	0	0	0	1	2	0	0	3	1	120	0	0	121	149
3:45 PM	0	7	5	0	12	0	0	0	0	0	0	1	0	0	1	0	142	0	0	142	155
Hourly Total	0	31	35	0	66	0	0	0	0	0	2	6	0	0	8	1	512	3	0	516	590
4:00 PM	0	6	5	0	11	0	0	1	0	1	0	0	0	0	0	0	146	1	0	147	159
4:15 PM	0	3	7	0	10	0	0	0	0	0	0	0	0	0	0	1	148	4	0	153	163
4:30 PM	0	4	9	0	13	0	0	0	0	0	1	4	0	0	5	0	125	1	0	126	144
4:45 PM	0	7	10	0	17	0	0	0	0	0	0	1	0	0	1	1	122	5	0	128	146
Hourly Total	0	20	31	0	51	0	0	1	0	1	1	5	0	0	6	2	541	11	0	554	612
5:00 PM	0	4	8	0	12	0	0	0	0	0	0	1	0	0	1	0	142	1	0	143	156
5:15 PM	0	7	6	0	13	0	0	0	0	0	0	3	0	0	3	0	143	3	0	146	162
5:30 PM	0	7	6	0	13	0	0	0	0	0	1	0	0	0	1	0	115	2	0	117	131
5:45 PM	0	4	1	0	5	0	0	0	0	0	0	3	0	0	3	0	91	3	0	94	102
Hourly Total	0	22	21	0	43	0	0	0	0	0	1	7	0	0	8	0	491	9	0	500	551
6:00 PM	0	4	3	0	7	0	0	0	0	0	1	0	0	0	1	0	110	2	0	112	120
6:15 PM	0	1	3	0	4	0	0	1	0	1	1	4	0	0	5	0	95	1	0	96	106

6:30 PM	0	3	2	0	5	0	0	0	0	0	1	3	0	0	4	0	95	1	0	96	105
6:45 PM	0	2	5	0	7	0	0	0	0	0	0	0	0	0	0	1	65	0	0	66	73
Hourly Total	0	10	13	0	23	0	0	1	0	1	3	7	0	0	10	1	365	4	0	370	404
7:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	74	3	0	77	79
7:15 PM	0	5	1	0	6	0	0	0	0	0	0	0	0	0	0	0	65	2	0	67	73
7:30 PM	0	5	1	0	6	0	0	0	0	0	1	0	0	0	1	0	55	1	0	56	63
7:45 PM	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	0	60	0	0	60	64
Hourly Total	0	13	3	0	16	0	0	0	0	0	2	1	0	0	3	0	254	6	0	260	279
8:00 PM	0	2	1	0	3	0	0	0	0	0	0	2	0	0	2	0	55	0	0	55	60
8:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	52	3	0	56	57
8:30 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	71	0	0	71	74
8:45 PM	0	1	2	0	3	0	0	0	0	0	0	0	0	0	0	1	54	3	0	58	61
Hourly Total	0	5	4	0	9	0	0	0	0	0	0	3	0	0	3	2	232	6	0	240	252
9:00 PM	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	1	42	1	0	44	47
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	51	0	0	51	53
9:30 PM	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	0	38	1	0	39	43
9:45 PM	0	3	1	0	4	1	0	0	0	1	0	0	0	0	0	0	49	1	0	50	55
Hourly Total	0	5	3	0	8	1	0	0	0	1	0	5	0	0	5	1	180	3	0	184	198
10:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	37	3	0	41	42
10:15 PM	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	1	46	11	0	58	61
10:30 PM	0	3	0	0	3	0	0	0	0	0	1	1	0	0	2	0	43	7	0	50	55
10:45 PM	0	1	2	0	3	0	0	0	0	0	1	1	0	0	2	0	29	2	0	31	36
Hourly Total	0	5	2	0	7	3	0	0	0	3	2	2	0	0	4	2	155	23	0	180	194
11:00 PM	0	1	3	0	4	0	0	0	0	0	0	0	0	0	0	0	29	2	0	31	35
11:15 PM	0	1	10	0	11	0	0	0	0	0	0	1	0	0	1	0	33	0	0	33	45
11:30 PM	0	1	4	0	5	0	0	0	0	0	0	0	0	0	0	0	26	0	0	26	31
11:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	20	0	0	20	21
Hourly Total	0	3	18	0	21	0	0	0	0	0	0	1	0	0	1	0	108	2	0	110	132
12:00 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	27	0	0	27	29
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	0	36	36
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	24	0	0	24	26
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	0	0	27	27
Hourly Total	0	2	0	0	2	0	0	0	0	0	0	1	1	0	2	0	114	0	0	114	118
1:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	23	0	0	23	24
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16	16
1:30 AM	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	0	13	0	0	13	16
1:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	33	0	0	33	34
Hourly Total	1	0	2	0	3	2	0	0	0	2	0	0	0	0	0	0	85	0	0	85	90
2:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	27	0	0	28	29
2:15 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	23	0	0	23	25
2:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	20	0	0	20	21
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	16	0	0	16	17
Hourly Total	1	2	0	0	3	0	0	0	0	0	0	2	0	0	2	1	86	0	0	87	92
3:00 AM	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	19	2	0	21	23
3:15 AM	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	15	0	0	15	17
3:30 AM	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	0	36	3	0	39	42
3:45 AM	1	0	2	0	3	0	0	0	0	0	0	1	0	0	1	0	19	3	0	22	26
Hourly Total	1	1	4	0	6	0	0	0	1	1	0	4	0	0	4	0	89	8	0	97	108
4:00 AM	1	0	1	0	2	0	0	0	0	0	0	1	0	0	1	0	24	0	0	24	27
4:15 AM	2	0	3	0	5	0	0	0	0	0	0	0	0	0	0	0	21	1	0	22	27
4:30 AM	0	2	1	0	3	0	0	0	0	0	0	2	0	0	2	0	33	9	0	42	47
4:45 AM	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	0	44	3	0	47	50

Hourly Total	3	2	6	0	11	0	0	0	0	0	0	5	0	0	5	0	122	13	0	135	151
5:00 AM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	38	1	0	39	41
5:15 AM	0	0	3	0	3	0	0	0	0	0	0	2	0	0	2	0	41	1	0	42	47
5:30 AM	0	1	1	0	2	0	0	0	0	0	0	6	0	0	6	0	53	15	0	68	76
5:45 AM	0	1	4	0	5	0	0	0	0	0	0	6	0	0	6	0	41	15	0	56	67
Hourly Total	0	2	10	0	12	0	0	0	0	0	0	14	0	0	14	0	173	32	0	205	231
6:00 AM	0	0	3	0	3	0	0	0	0	0	0	4	0	0	4	0	70	8	0	78	85
6:15 AM	0	1	1	0	2	0	0	0	0	0	2	3	0	0	5	0	86	13	0	99	106
6:30 AM	0	0	2	0	2	0	0	0	0	0	0	6	0	0	6	0	89	9	0	98	106
6:45 AM	0	3	5	0	8	0	0	0	0	0	0	3	0	0	3	0	88	6	0	94	105
Hourly Total	0	4	11	0	15	0	0	0	0	0	2	16	0	0	18	0	333	36	0	369	402
7:00 AM	0	5	6	0	11	0	0	0	0	0	3	1	0	0	4	0	95	5	0	100	115
7:15 AM	0	4	11	0	15	0	0	0	0	0	1	6	0	0	7	0	120	5	0	125	147
7:30 AM	0	1	8	0	9	0	0	0	0	0	4	1	0	0	5	1	76	1	0	78	92
7:45 AM	0	3	6	0	9	0	0	0	0	0	0	4	0	0	4	0	96	6	0	102	115
Hourly Total	0	13	31	0	44	0	0	0	0	0	8	12	0	0	20	1	387	17	0	405	469
8:00 AM	0	4	2	0	6	0	0	0	0	0	0	4	0	0	4	0	94	0	0	94	104
8:15 AM	0	1	2	0	3	0	0	0	0	0	0	2	0	0	2	0	95	1	0	96	101
8:30 AM	0	1	5	0	6	0	0	0	0	0	0	3	0	0	3	0	100	3	0	103	112
8:45 AM	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	0	103	3	0	106	109
Hourly Total	0	8	9	0	17	0	0	0	0	0	1	9	0	0	10	0	392	7	0	399	426
9:00 AM	0	1	3	0	4	0	0	0	0	0	1	4	0	0	5	0	85	0	0	85	94
9:15 AM	0	2	4	0	6	0	0	0	0	0	1	1	0	0	2	0	88	1	0	89	97
9:30 AM	0	1	2	0	3	0	0	0	0	0	2	2	0	0	4	1	77	2	0	80	87
9:45 AM	0	3	2	0	5	0	0	0	0	0	0	2	0	0	2	0	90	1	0	91	98
Hourly Total	0	7	11	0	18	0	0	0	0	0	4	9	0	0	13	1	340	4	0	345	376
10:00 AM	0	3	4	0	7	0	0	0	0	0	0	0	0	0	0	0	78	2	0	80	87
10:15 AM	0	3	3	0	6	0	0	0	0	0	0	2	0	0	2	0	106	3	0	109	117
10:30 AM	0	1	4	0	5	0	0	0	0	0	0	2	0	0	2	0	83	1	0	84	91
10:45 AM	0	1	6	0	7	0	0	0	0	0	1	1	0	0	2	1	92	0	0	93	102
Hourly Total	0	8	17	0	25	0	0	0	0	0	1	5	0	0	6	1	359	6	0	366	397
11:00 AM	0	5	4	0	9	0	0	0	0	0	0	2	0	0	2	0	95	4	0	99	110
11:15 AM	0	5	1	0	6	0	0	0	0	0	0	3	0	0	3	0	93	3	0	96	105
Grand Total	6	212	296	0	514	6	0	2	1	9	33	137	2	0	172	17	6879	245	0	7141	7836
Approach %	1.2	41.2	57.6	0.0	-	66.7	0.0	22.2	11.1	-	19.2	79.7	1.2	0.0	-	0.2	96.3	3.4	0.0	-	-
Total %	0.1	2.7	3.8	0.0	6.6	0.1	0.0	0.0	0.0	0.1	0.4	1.7	0.0	0.0	2.2	0.2	87.8	3.1	0.0	91.1	-
Lights	5	207	277	0	489	6	0	2	0	8	30	136	2	0	168	17	3481	226	0	3724	4389
% Lights	83.3	97.6	93.6	-	95.1	100.0	-	100.0	0.0	88.9	90.9	99.3	100.0	-	97.7	100.0	50.6	92.2	-	52.1	56.0
Other Vehicles	1	5	19	0	25	0	0	0	1	1	3	1	0	0	4	0	3398	19	0	3417	3447
% Other Vehicles	16.7	2.4	6.4	-	4.9	0.0	-	0.0	100.0	11.1	9.1	0.7	0.0	-	2.3	0.0	49.4	7.8	-	47.9	44.0

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & John Brown Rd
Site Code:
Start Date: 03/06/2019



Turning Movement Data Plot

Ohio Department of Transportation
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Office of Traffic Engineering

Count Name: VAN-30 & John Brown Rd
Site Code:
Start Date: 03/06/2019

Turning Movement Peak Hour Data (3:30 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
3:30 PM	0	12	13	0	25	0	0	0	0	0	1	2	0	0	3	1	120	0	0	121	149
3:45 PM	0	7	5	0	12	0	0	0	0	0	0	1	0	0	1	0	142	0	0	142	155
4:00 PM	0	6	5	0	11	0	0	1	0	1	0	0	0	0	0	0	146	1	0	147	159
4:15 PM	0	3	7	0	10	0	0	0	0	0	0	0	0	0	0	1	148	4	0	153	163
Total	0	28	30	0	58	0	0	1	0	1	1	3	0	0	4	2	556	5	0	563	626
Approach %	0.0	48.3	51.7	0.0	-	0.0	0.0	100.0	0.0	-	25.0	75.0	0.0	0.0	-	0.4	98.8	0.9	0.0	-	-
Total %	0.0	4.5	4.8	0.0	9.3	0.0	0.0	0.2	0.0	0.2	0.2	0.5	0.0	0.0	0.6	0.3	88.8	0.8	0.0	89.9	-
PHF	0.000	0.583	0.577	0.000	0.580	0.000	0.000	0.250	0.000	0.250	0.250	0.375	0.000	0.000	0.333	0.500	0.939	0.313	0.000	0.920	0.960
Lights	0	28	29	0	57	0	0	1	0	1	1	3	0	0	4	2	333	4	0	339	401
% Lights	-	100.0	96.7	-	98.3	-	-	100.0	-	100.0	100.0	100.0	-	-	100.0	100.0	59.9	80.0	-	60.2	64.1
Other Vehicles	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	223	1	0	224	225
% Other Vehicles	-	0.0	3.3	-	1.7	-	-	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0	40.1	20.0	-	39.8	35.9

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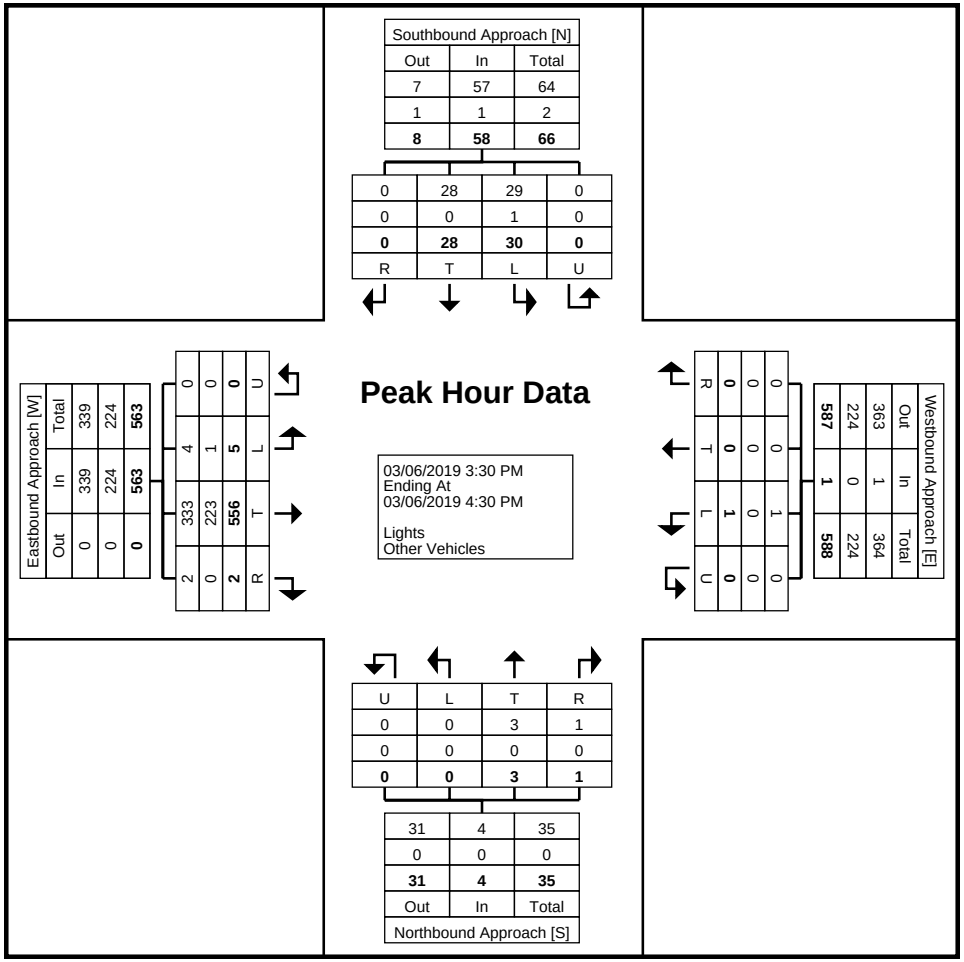

Turning Movement Peak Hour Data Plot (3:30 PM)

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Office of Traffic Engineering

Count Name: VAN-30 & John Brown Rd
Site Code:
Start Date: 03/06/2019

Turning Movement Peak Hour Data (6:30 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
6:30 AM	0	0	2	0	2	0	0	0	0	0	0	6	0	0	6	0	89	9	0	98	106
6:45 AM	0	3	5	0	8	0	0	0	0	0	0	3	0	0	3	0	88	6	0	94	105
7:00 AM	0	5	6	0	11	0	0	0	0	0	3	1	0	0	4	0	95	5	0	100	115
7:15 AM	0	4	11	0	15	0	0	0	0	0	1	6	0	0	7	0	120	5	0	125	147
Total	0	12	24	0	36	0	0	0	0	0	4	16	0	0	20	0	392	25	0	417	473
Approach %	0.0	33.3	66.7	0.0	-	0.0	0.0	0.0	0.0	-	20.0	80.0	0.0	0.0	-	0.0	94.0	6.0	0.0	-	-
Total %	0.0	2.5	5.1	0.0	7.6	0.0	0.0	0.0	0.0	0.0	0.8	3.4	0.0	0.0	4.2	0.0	82.9	5.3	0.0	88.2	-
PHF	0.000	0.600	0.545	0.000	0.600	0.000	0.000	0.000	0.000	0.000	0.333	0.667	0.000	0.000	0.714	0.000	0.817	0.694	0.000	0.834	0.804
Lights	0	12	24	0	36	0	0	0	0	0	4	16	0	0	20	0	219	23	0	242	298
% Lights	-	100.0	100.0	-	100.0	-	-	-	-	-	100.0	100.0	-	-	100.0	-	55.9	92.0	-	58.0	63.0
Other Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	173	2	0	175	175
% Other Vehicles	-	0.0	0.0	-	0.0	-	-	-	-	-	0.0	0.0	-	-	0.0	-	44.1	8.0	-	42.0	37.0

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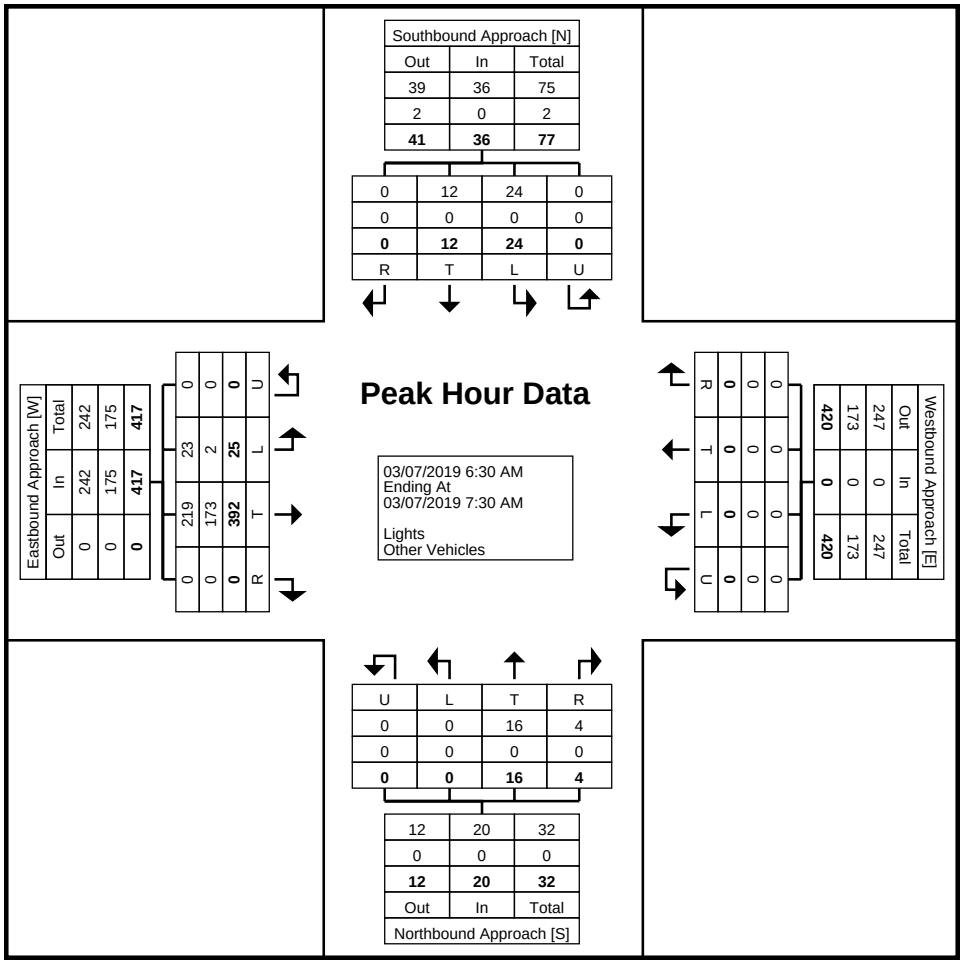
Site Code:
Start Date: 03/06/2019



Turning Movement Peak Hour Data Plot (6:30 AM)

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Count Name: VAN-30 & John Brown Rd
Site Code:
Start Date: 03/06/2019

Ohio Department of Transportation
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Office of Traffic Engineering

Count Name: VAN-30 & Dutch John Rd
Site Code:
Start Date: 03/12/2019

Turning Movement Data

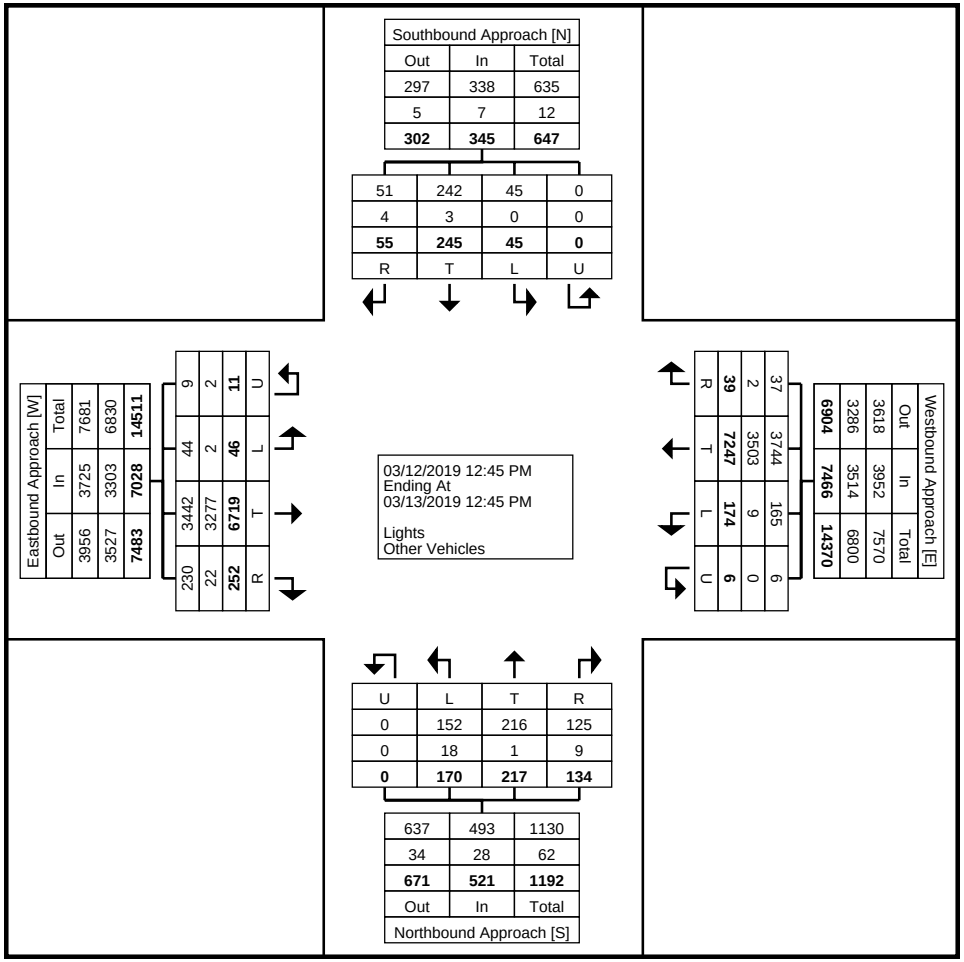
Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
12:45 PM	0	2	0	0	2	0	116	0	0	116	4	4	0	0	8	2	82	0	0	84	210
Hourly Total	0	2	0	0	2	0	116	0	0	116	4	4	0	0	8	2	82	0	0	84	210
1:00 PM	1	4	1	0	6	0	113	6	0	119	2	3	1	0	6	2	97	0	0	99	230
1:15 PM	1	6	0	0	7	0	120	4	0	124	2	2	2	0	6	3	107	2	0	112	249
1:30 PM	0	6	0	0	6	0	124	1	0	125	0	3	4	0	7	0	127	3	0	130	268
1:45 PM	3	5	1	0	9	0	125	3	0	128	2	5	4	0	11	1	125	0	0	126	274
Hourly Total	5	21	2	0	28	0	482	14	0	496	6	13	11	0	30	6	456	5	0	467	1021
2:00 PM	2	4	0	0	6	2	96	4	0	102	2	5	9	0	16	4	113	0	0	117	241
2:15 PM	0	1	0	0	1	0	117	3	0	120	8	5	2	0	15	5	112	2	0	119	255
2:30 PM	1	7	0	0	8	2	121	5	0	128	5	10	6	0	21	3	138	0	0	141	298
2:45 PM	1	7	0	0	8	0	114	5	0	119	2	3	3	0	8	6	113	0	1	120	255
Hourly Total	4	19	0	0	23	4	448	17	0	469	17	23	20	0	60	18	476	2	1	497	1049
3:00 PM	3	2	1	0	6	2	151	2	0	155	1	7	5	0	13	4	130	1	2	137	311
3:15 PM	5	11	2	0	18	1	137	2	0	140	2	11	3	0	16	10	119	1	1	131	305
3:30 PM	1	6	0	0	7	2	134	2	0	138	3	10	13	0	26	7	108	2	1	118	289
3:45 PM	4	5	1	0	10	0	133	3	0	136	3	7	4	0	14	5	136	1	0	142	302
Hourly Total	13	24	4	0	41	5	555	9	0	569	9	35	25	0	69	26	493	5	4	528	1207
4:00 PM	0	8	2	0	10	0	116	5	0	121	6	5	6	0	17	5	137	0	0	142	290
4:15 PM	1	5	2	0	8	0	109	6	0	115	2	3	11	0	16	5	135	2	0	142	281
4:30 PM	0	7	2	0	9	0	125	8	1	134	1	6	4	0	11	6	125	1	1	133	287
4:45 PM	0	1	2	0	3	0	106	0	0	106	0	8	0	0	8	2	89	1	0	92	209
Hourly Total	1	21	8	0	30	0	456	19	1	476	9	22	21	0	52	18	486	4	1	509	1067
5:00 PM	0	9	4	0	13	1	114	1	0	116	3	1	1	0	5	2	83	2	0	87	221
5:15 PM	1	2	1	0	4	0	113	2	0	115	0	4	2	0	6	1	83	1	0	85	210
5:30 PM	1	0	2	0	3	1	91	5	0	97	0	4	1	0	5	2	82	0	0	84	189
5:45 PM	1	5	0	0	6	0	70	2	0	72	0	4	5	0	9	3	80	0	0	83	170
Hourly Total	3	16	7	0	26	2	388	10	0	400	3	13	9	0	25	8	328	3	0	339	790
6:00 PM	1	4	0	0	5	0	74	2	0	76	1	2	3	0	6	2	77	0	0	79	166
6:15 PM	0	2	0	0	2	0	62	2	0	64	1	1	2	0	4	0	74	0	0	74	144
6:30 PM	1	1	0	0	2	0	67	3	0	70	0	3	3	0	6	4	79	0	0	83	161
6:45 PM	0	3	0	0	3	0	64	1	1	66	1	3	0	0	4	3	63	0	0	66	139
Hourly Total	2	10	0	0	12	0	267	8	1	276	3	9	8	0	20	9	293	0	0	302	610
7:00 PM	0	1	1	0	2	0	59	0	0	59	0	3	1	0	4	4	57	1	1	63	128
7:15 PM	0	1	0	0	1	0	53	1	0	54	1	0	1	0	2	3	74	0	0	77	134
7:30 PM	0	0	1	0	1	1	55	0	0	56	0	2	1	0	3	0	64	0	0	64	124

7:45 PM	1	2	0	0	3	0	42	0	0	42	2	2	1	0	5	1	46	0	0	47	97
Hourly Total	1	4	2	0	7	1	209	1	0	211	3	7	4	0	14	8	241	1	1	251	483
8:00 PM	0	4	0	0	4	2	52	2	1	57	0	2	0	0	2	1	43	0	1	45	108
8:15 PM	0	1	0	0	1	1	58	0	0	59	0	2	1	0	3	0	44	0	0	44	107
8:30 PM	0	0	1	0	1	0	44	0	0	44	0	2	0	0	2	4	52	0	0	56	103
8:45 PM	0	2	0	0	2	0	47	1	0	48	2	2	0	0	4	1	46	0	0	47	101
Hourly Total	0	7	1	0	8	3	201	3	1	208	2	8	1	0	11	6	185	0	1	192	419
9:00 PM	0	2	0	0	2	1	42	3	0	46	0	1	0	0	1	0	48	0	0	48	97
9:15 PM	0	0	0	0	0	0	45	2	0	47	0	1	0	0	1	2	40	0	0	42	90
9:30 PM	1	1	0	0	2	0	40	3	0	43	0	0	0	0	0	5	44	0	0	49	94
9:45 PM	0	1	1	0	2	0	49	2	0	51	2	1	0	0	3	1	30	1	0	32	88
Hourly Total	1	4	1	0	6	1	176	10	0	187	2	3	0	0	5	8	162	1	0	171	369
10:00 PM	0	1	1	0	2	4	91	2	0	97	0	0	0	0	0	1	31	1	0	33	132
10:15 PM	1	1	0	0	2	1	62	2	0	65	1	2	0	0	3	0	35	1	0	36	106
10:30 PM	0	0	0	0	0	2	49	0	0	51	0	1	0	0	1	0	28	0	0	28	80
10:45 PM	1	2	0	0	3	0	37	0	0	37	1	0	0	0	1	1	13	0	0	14	55
Hourly Total	2	4	1	0	7	7	239	4	0	250	2	3	0	0	5	2	107	2	0	111	373
11:00 PM	0	1	0	0	1	0	31	0	0	31	0	0	0	0	0	2	33	0	0	35	67
11:15 PM	0	1	0	0	1	0	26	0	0	26	0	1	0	0	1	1	23	0	0	24	52
11:30 PM	0	3	0	0	3	0	22	0	0	22	0	0	0	0	0	0	24	0	0	24	49
11:45 PM	0	1	0	0	1	0	37	0	0	37	0	0	0	0	0	0	25	1	0	26	64
Hourly Total	0	6	0	0	6	0	116	0	0	116	0	1	0	0	1	3	105	1	0	109	232
12:00 AM	0	1	0	0	1	0	35	1	0	36	0	0	0	0	0	0	15	0	0	15	52
12:15 AM	0	0	0	0	0	0	23	0	0	23	0	1	0	0	1	0	29	0	0	29	53
12:30 AM	0	0	0	0	0	0	25	0	0	25	1	0	0	0	1	0	13	0	0	13	39
12:45 AM	0	0	0	0	0	0	16	0	0	16	0	0	2	0	2	0	20	0	0	20	38
Hourly Total	0	1	0	0	1	0	99	1	0	100	1	1	2	0	4	0	77	0	0	77	182
1:00 AM	0	0	0	0	0	0	30	0	0	30	0	0	0	0	0	0	21	0	0	21	51
1:15 AM	0	0	0	0	0	0	17	0	0	17	0	0	1	0	1	0	19	0	0	19	37
1:30 AM	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	0	11	0	0	11	37
1:45 AM	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	13	0	0	13	31
Hourly Total	0	0	0	0	0	0	91	0	0	91	0	0	1	0	1	0	64	0	0	64	156
2:00 AM	0	0	0	0	0	0	16	0	0	16	1	0	0	0	1	1	21	0	0	22	39
2:15 AM	0	0	0	0	0	1	27	0	0	28	1	0	0	0	1	0	20	0	0	20	49
2:30 AM	0	1	0	0	1	1	33	0	0	34	0	0	0	0	0	1	23	0	0	24	59
2:45 AM	0	0	0	0	0	0	32	0	0	32	0	0	0	0	0	0	20	0	0	20	52
Hourly Total	0	1	0	0	1	2	108	0	0	110	2	0	0	0	2	2	84	0	0	86	199
3:00 AM	0	0	0	0	0	0	31	0	0	31	1	0	1	0	2	0	28	0	1	29	62
3:15 AM	0	0	0	0	0	0	33	0	0	33	0	0	0	0	0	1	37	0	0	38	71
3:30 AM	0	1	0	0	1	0	29	0	0	29	1	1	0	0	2	1	32	0	0	33	65
3:45 AM	2	1	0	0	3	0	37	0	0	37	1	1	0	0	2	1	24	1	0	26	68
Hourly Total	2	2	0	0	4	0	130	0	0	130	3	2	1	0	6	3	121	1	1	126	266
4:00 AM	0	1	0	0	1	0	42	0	0	42	1	0	2	0	3	0	34	1	0	35	81
4:15 AM	4	2	0	0	6	0	43	1	0	44	2	2	2	0	6	0	48	1	0	49	105
4:30 AM	0	3	1	0	4	0	69	4	0	73	0	1	0	0	1	1	48	2	0	51	129
4:45 AM	1	0	1	0	2	0	77	2	0	79	1	1	2	0	4	6	61	3	0	70	155
Hourly Total	5	6	2	0	13	0	231	7	0	238	4	4	6	0	14	7	191	7	0	205	470
5:00 AM	0	1	0	0	1	0	55	4	0	59	2	1	3	0	6	1	57	0	0	58	124
5:15 AM	1	2	0	0	3	0	90	8	0	98	1	1	5	0	7	5	60	1	0	66	174
5:30 AM	3	8	1	0	12	0	92	5	0	97	2	2	1	0	5	3	58	0	0	61	175
5:45 AM	1	3	2	0	6	1	78	8	0	87	4	3	2	0	9	12	69	1	0	82	184
Hourly Total	5	14	3	0	22	1	315	25	0	341	9	7	11	0	27	21	244	2	0	267	657

6:00 AM	0	3	0	0	3	1	96	5	0	102	2	1	3	0	6	6	74	1	0	81	192
6:15 AM	0	6	0	0	6	0	92	4	0	96	10	4	1	0	15	7	91	0	0	98	215
6:30 AM	2	10	3	0	15	0	78	3	0	81	5	2	3	0	10	10	97	2	0	109	215
6:45 AM	0	1	1	0	2	3	84	2	0	89	3	4	3	0	10	10	119	0	1	130	231
Hourly Total	2	20	4	0	26	4	350	14	0	368	20	11	10	0	41	33	381	3	1	418	853
7:00 AM	2	7	0	0	9	0	99	2	0	101	2	4	2	0	8	5	92	2	0	99	217
7:15 AM	1	3	2	0	6	1	79	3	0	83	3	0	1	0	4	3	84	0	1	88	181
7:30 AM	0	5	2	0	7	1	89	6	0	96	2	1	0	0	3	2	90	0	0	92	198
7:45 AM	1	3	0	0	4	0	100	0	0	100	1	1	1	0	3	3	85	0	0	88	195
Hourly Total	4	18	4	0	26	2	367	11	0	380	8	6	4	0	18	13	351	2	1	367	791
8:00 AM	1	2	0	0	3	0	92	4	1	97	2	0	3	0	5	2	93	1	0	96	201
8:15 AM	1	1	1	0	3	0	71	1	0	72	3	1	0	0	4	0	106	1	0	107	186
8:30 AM	0	0	0	0	0	3	94	1	0	98	4	0	4	0	8	4	93	0	0	97	203
8:45 AM	0	1	0	0	1	0	84	0	1	85	3	2	0	0	5	9	102	0	0	111	202
Hourly Total	2	4	1	0	7	3	341	6	2	352	12	3	7	0	22	15	394	2	0	411	792
9:00 AM	0	1	0	0	1	0	92	3	0	95	2	4	3	0	9	4	93	0	0	97	202
9:15 AM	0	2	1	0	3	0	100	1	0	101	0	2	1	0	3	4	77	0	0	81	188
9:30 AM	0	1	0	0	1	0	109	1	0	110	2	1	0	0	3	1	104	0	0	105	219
9:45 AM	1	3	1	0	5	0	80	1	0	81	1	2	0	0	3	1	76	0	0	77	166
Hourly Total	1	7	2	0	10	0	381	6	0	387	5	9	4	0	18	10	350	0	0	360	775
10:00 AM	0	4	0	0	4	0	100	1	0	101	0	3	0	0	3	1	91	0	0	92	200
10:15 AM	0	2	0	0	2	0	93	0	0	93	3	4	0	0	7	2	95	0	0	97	199
10:30 AM	0	4	0	0	4	0	101	1	0	102	1	1	2	0	4	5	89	0	0	94	204
10:45 AM	0	6	0	0	6	1	104	0	0	105	0	4	2	0	6	3	100	3	0	106	223
Hourly Total	0	16	0	0	16	1	398	2	0	401	4	12	4	0	20	11	375	3	0	389	826
11:00 AM	0	3	0	0	3	0	104	0	0	104	0	6	4	0	10	5	96	1	0	102	219
11:15 AM	1	2	0	0	3	0	108	1	0	109	0	0	4	0	4	3	90	1	0	94	210
11:30 AM	0	3	0	0	3	1	115	1	0	117	0	3	5	0	8	1	97	0	0	98	226
11:45 AM	1	3	2	0	6	0	118	1	1	120	2	4	2	0	8	1	81	0	0	82	216
Hourly Total	2	11	2	0	15	1	445	3	1	450	2	13	15	0	30	10	364	2	0	376	871
12:00 PM	0	2	0	0	2	1	107	1	0	109	0	2	1	0	3	6	107	0	0	113	227
12:15 PM	0	2	0	0	2	1	120	2	0	123	4	4	5	0	13	1	105	0	0	106	244
12:30 PM	0	3	1	0	4	0	111	1	0	112	0	2	0	0	2	6	97	0	0	103	221
Grand Total	55	245	45	0	345	39	7247	174	6	7466	134	217	170	0	521	252	6719	46	11	7028	15360
Approach %	15.9	71.0	13.0	0.0	-	0.5	97.1	2.3	0.1	-	25.7	41.7	32.6	0.0	-	3.6	95.6	0.7	0.2	-	-
Total %	0.4	1.6	0.3	0.0	2.2	0.3	47.2	1.1	0.0	48.6	0.9	1.4	1.1	0.0	3.4	1.6	43.7	0.3	0.1	45.8	-
Lights	51	242	45	0	338	37	3744	165	6	3952	125	216	152	0	493	230	3442	44	9	3725	8508
% Lights	92.7	98.8	100.0	-	98.0	94.9	51.7	94.8	100.0	52.9	93.3	99.5	89.4	-	94.6	91.3	51.2	95.7	81.8	53.0	55.4
Other Vehicles	4	3	0	0	7	2	3503	9	0	3514	9	1	18	0	28	22	3277	2	2	3303	6852
% Other Vehicles	7.3	1.2	0.0	-	2.0	5.1	48.3	5.2	0.0	47.1	6.7	0.5	10.6	-	5.4	8.7	48.8	4.3	18.2	47.0	44.6

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Dutch John Rd
Site Code:
Start Date: 03/12/2019



Turning Movement Data Plot

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Dutch John Rd
Site Code:
Start Date: 03/12/2019

Turning Movement Peak Hour Data (3:00 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
3:00 PM	3	2	1	0	6	2	151	2	0	155	1	7	5	0	13	4	130	1	2	137	311
3:15 PM	5	11	2	0	18	1	137	2	0	140	2	11	3	0	16	10	119	1	1	131	305
3:30 PM	1	6	0	0	7	2	134	2	0	138	3	10	13	0	26	7	108	2	1	118	289
3:45 PM	4	5	1	0	10	0	133	3	0	136	3	7	4	0	14	5	136	1	0	142	302
Total	13	24	4	0	41	5	555	9	0	569	9	35	25	0	69	26	493	5	4	528	1207
Approach %	31.7	58.5	9.8	0.0	-	0.9	97.5	1.6	0.0	-	13.0	50.7	36.2	0.0	-	4.9	93.4	0.9	0.8	-	-
Total %	1.1	2.0	0.3	0.0	3.4	0.4	46.0	0.7	0.0	47.1	0.7	2.9	2.1	0.0	5.7	2.2	40.8	0.4	0.3	43.7	-
PHF	0.650	0.545	0.500	0.000	0.569	0.625	0.919	0.750	0.000	0.918	0.750	0.795	0.481	0.000	0.663	0.650	0.906	0.625	0.500	0.930	0.970
Lights	11	22	4	0	37	5	340	7	0	352	9	35	25	0	69	25	280	4	4	313	771
% Lights	84.6	91.7	100.0	-	90.2	100.0	61.3	77.8	-	61.9	100.0	100.0	100.0	-	100.0	96.2	56.8	80.0	100.0	59.3	63.9
Other Vehicles	2	2	0	0	4	0	215	2	0	217	0	0	0	0	0	1	213	1	0	215	436
% Other Vehicles	15.4	8.3	0.0	-	9.8	0.0	38.7	22.2	-	38.1	0.0	0.0	0.0	-	0.0	3.8	43.2	20.0	0.0	40.7	36.1

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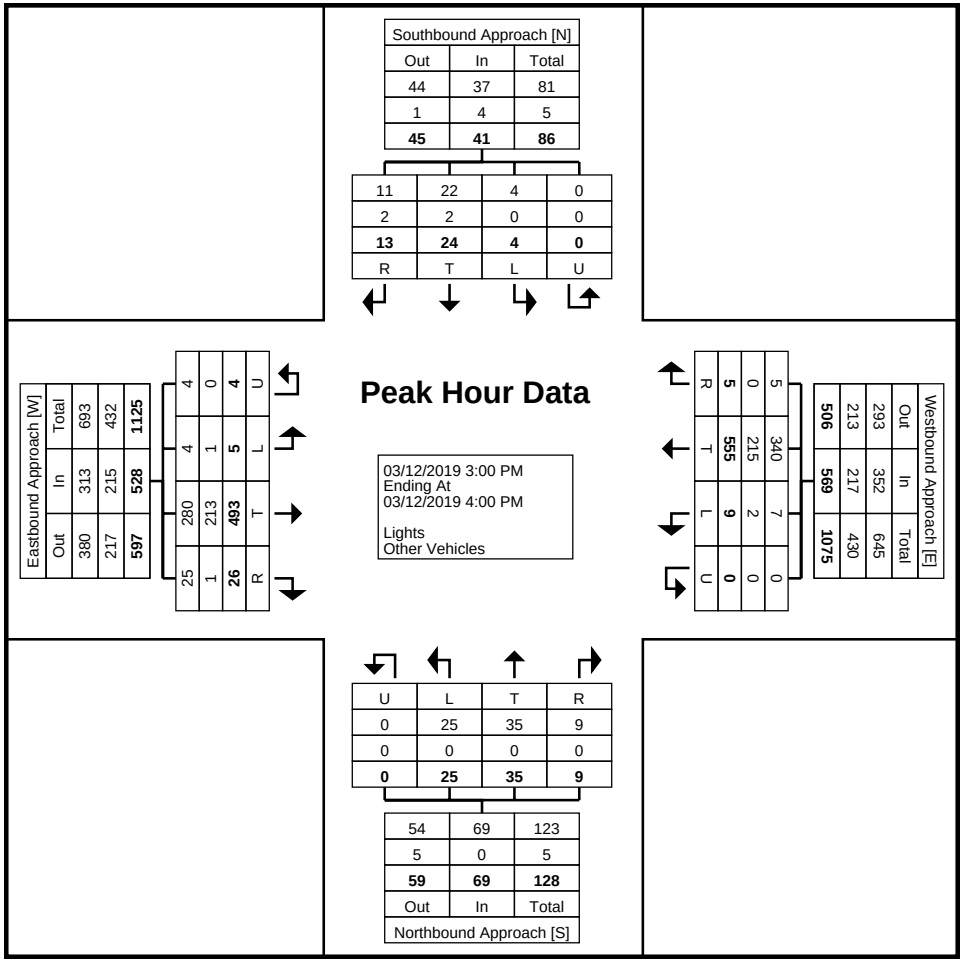
Site Code:
Start Date: 03/12/2019



Turning Movement Peak Hour Data Plot (3:00 PM)

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

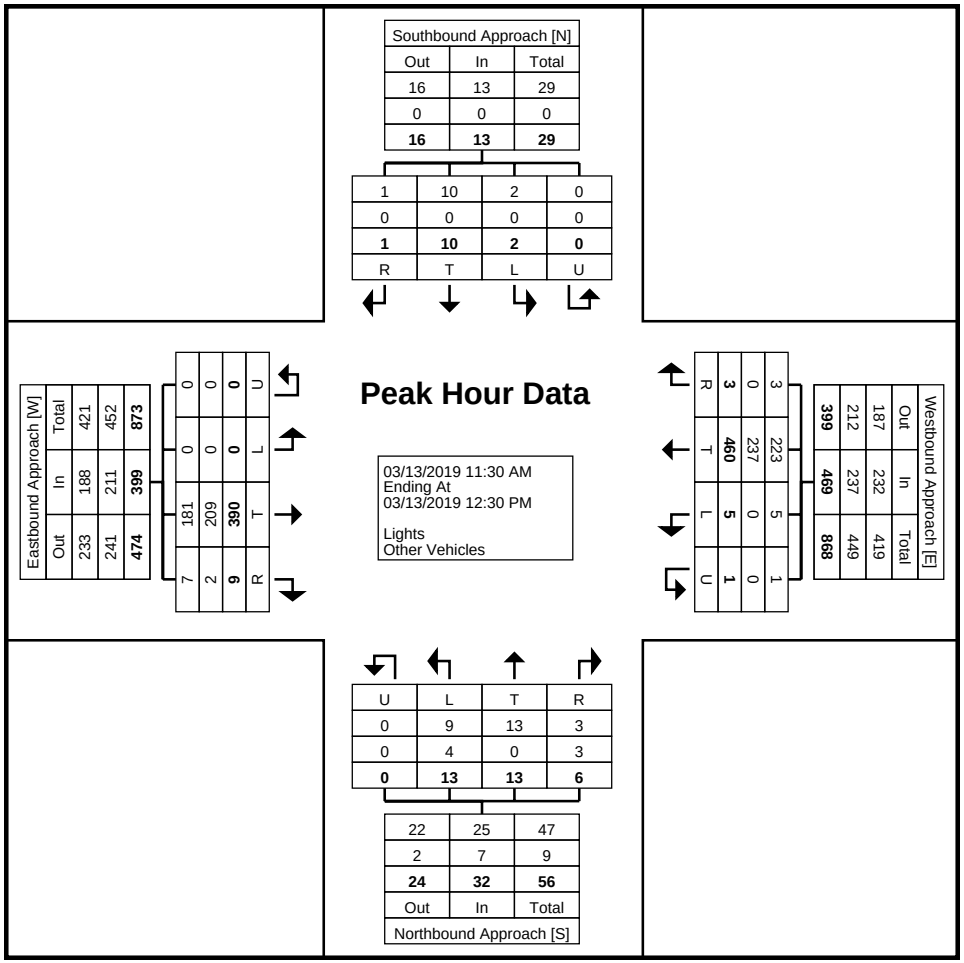
Count Name: VAN-30 & Dutch John Rd
Site Code:
Start Date: 03/12/2019

Turning Movement Peak Hour Data (11:30 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
11:30 AM	0	3	0	0	3	1	115	1	0	117	0	3	5	0	8	1	97	0	0	98	226
11:45 AM	1	3	2	0	6	0	118	1	1	120	2	4	2	0	8	1	81	0	0	82	216
12:00 PM	0	2	0	0	2	1	107	1	0	109	0	2	1	0	3	6	107	0	0	113	227
12:15 PM	0	2	0	0	2	1	120	2	0	123	4	4	5	0	13	1	105	0	0	106	244
Total	1	10	2	0	13	3	460	5	1	469	6	13	13	0	32	9	390	0	0	399	913
Approach %	7.7	76.9	15.4	0.0	-	0.6	98.1	1.1	0.2	-	18.8	40.6	40.6	0.0	-	2.3	97.7	0.0	0.0	-	-
Total %	0.1	1.1	0.2	0.0	1.4	0.3	50.4	0.5	0.1	51.4	0.7	1.4	1.4	0.0	3.5	1.0	42.7	0.0	0.0	43.7	-
PHF	0.250	0.833	0.250	0.000	0.542	0.750	0.958	0.625	0.250	0.953	0.375	0.813	0.650	0.000	0.615	0.375	0.911	0.000	0.000	0.883	0.935
Lights	1	10	2	0	13	3	223	5	1	232	3	13	9	0	25	7	181	0	0	188	458
% Lights	100.0	100.0	100.0	-	100.0	100.0	48.5	100.0	100.0	49.5	50.0	100.0	69.2	-	78.1	77.8	46.4	-	-	47.1	50.2
Other Vehicles	0	0	0	0	0	0	237	0	0	237	3	0	4	0	7	2	209	0	0	211	455
% Other Vehicles	0.0	0.0	0.0	-	0.0	0.0	51.5	0.0	0.0	50.5	50.0	0.0	30.8	-	21.9	22.2	53.6	-	-	52.9	49.8

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Dutch John Rd
Site Code:
Start Date: 03/12/2019



Turning Movement Peak Hour Data Plot (11:30 AM)

Ohio Department of Transportation
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Count Name: VAN-30 & Mendon Rd
Site Code:
Start Date: 03/12/2019

Turning Movement Data

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
2:15 PM	0	0	0	0	0	0	108	1	0	109	0	0	1	0	1	2	103	0	0	105	215
2:30 PM	0	0	0	0	0	0	112	0	0	112	0	0	2	0	2	2	118	0	0	120	234
2:45 PM	0	0	0	0	0	0	109	2	0	111	0	0	1	0	1	3	111	0	0	114	226
Hourly Total	0	0	0	0	0	0	329	3	0	332	0	0	4	0	4	7	332	0	0	339	675
3:00 PM	0	0	0	0	0	0	94	0	0	94	0	0	2	0	2	3	99	0	0	102	198
3:15 PM	0	0	0	0	0	0	108	0	0	108	0	0	1	0	1	5	107	0	0	112	221
3:30 PM	0	0	0	0	0	0	98	0	0	98	1	0	4	0	5	5	115	0	1	121	224
3:45 PM	0	0	0	0	0	0	98	0	0	98	1	1	2	0	4	1	110	0	0	111	213
Hourly Total	0	0	0	0	0	0	398	0	0	398	2	1	9	0	12	14	431	0	1	446	856
4:00 PM	0	0	0	0	0	0	140	0	0	140	0	0	6	0	6	7	116	0	0	123	269
4:15 PM	0	0	0	0	0	0	113	2	0	115	1	0	3	0	4	2	127	0	1	130	249
4:30 PM	0	0	0	0	0	0	109	0	0	109	0	0	7	0	7	3	124	0	0	127	243
4:45 PM	0	0	0	0	0	0	90	2	0	92	0	0	2	0	2	3	113	0	0	116	210
Hourly Total	0	0	0	0	0	0	452	4	0	456	1	0	18	0	19	15	480	0	1	496	971
5:00 PM	0	0	0	0	0	0	105	0	0	105	0	0	2	0	2	8	115	0	1	124	231
5:15 PM	0	0	0	0	0	0	111	0	0	111	0	0	2	0	2	2	121	0	0	123	236
5:30 PM	0	0	0	0	0	0	81	0	0	81	1	0	1	0	2	5	112	0	0	117	200
5:45 PM	0	0	0	0	0	0	83	0	0	83	0	0	1	0	1	6	110	0	1	117	201
Hourly Total	0	0	0	0	0	0	380	0	0	380	1	0	6	0	7	21	458	0	2	481	868
6:00 PM	0	0	0	0	0	0	101	0	0	101	0	0	0	0	0	1	95	0	0	96	197
6:15 PM	0	0	0	0	0	0	102	1	0	103	0	0	0	0	0	3	85	0	0	88	191
6:30 PM	0	0	0	0	0	0	79	0	0	79	1	0	0	0	1	1	69	0	0	70	150
6:45 PM	0	0	0	0	0	0	77	1	0	78	0	0	0	0	0	2	63	0	0	65	143
Hourly Total	0	0	0	0	0	0	359	2	0	361	1	0	0	0	1	7	312	0	0	319	681
7:00 PM	0	0	0	0	0	0	65	0	0	65	0	0	2	0	2	2	66	0	0	68	135
7:15 PM	0	0	0	0	0	0	54	0	0	54	0	0	0	0	0	0	73	0	0	73	127
7:30 PM	0	0	0	0	0	0	60	0	0	60	0	0	1	0	1	2	58	0	0	60	121
7:45 PM	0	0	0	0	0	0	53	0	0	53	0	0	3	0	3	0	48	0	0	48	104
Hourly Total	0	0	0	0	0	0	232	0	0	232	0	0	6	0	6	4	245	0	0	249	487
8:00 PM	0	0	0	0	0	0	63	0	0	63	0	0	1	0	1	1	60	0	0	61	125
8:15 PM	0	0	0	0	0	0	50	0	0	50	0	0	0	0	0	2	63	0	0	65	115
8:30 PM	0	0	0	0	0	0	39	0	0	39	0	0	1	0	1	2	48	0	1	51	91
8:45 PM	0	0	0	0	0	0	41	0	0	41	0	0	0	0	0	2	42	0	0	44	85
Hourly Total	0	0	0	0	0	0	193	0	0	193	0	0	2	0	2	7	213	0	1	221	416
9:00 PM	0	0	0	0	0	0	41	2	0	43	0	0	1	0	1	0	44	0	0	44	88

9:15 PM	0	0	0	0	0	0	41	0	0	41	0	0	0	0	0	1	32	0	1	34	75
9:30 PM	0	0	0	0	0	0	32	1	0	33	0	0	1	0	1	0	39	0	0	39	73
9:45 PM	0	0	0	0	0	0	38	0	0	38	0	0	0	0	0	1	35	0	1	37	75
Hourly Total	0	0	0	0	0	0	152	3	0	155	0	0	2	0	2	2	150	0	2	154	311
10:00 PM	0	0	0	0	0	0	42	0	0	42	0	0	1	0	1	1	36	0	0	37	80
10:15 PM	0	0	0	0	0	0	35	0	0	35	0	0	1	0	1	1	39	0	0	40	76
10:30 PM	0	0	0	0	0	0	37	0	0	37	0	0	0	0	0	0	35	0	0	35	72
10:45 PM	0	0	0	0	0	0	40	0	0	40	0	0	1	0	1	1	26	0	0	27	68
Hourly Total	0	0	0	0	0	0	154	0	0	154	0	0	3	0	3	3	136	0	0	139	296
11:00 PM	0	0	0	0	0	0	103	0	0	103	0	0	1	0	1	1	21	0	0	22	126
11:15 PM	0	0	0	0	0	0	48	0	0	48	0	0	1	0	1	0	24	0	0	24	73
11:30 PM	0	0	0	0	0	0	39	0	0	39	0	0	0	0	0	0	21	0	0	21	60
11:45 PM	0	0	0	0	0	0	30	0	0	30	0	0	0	0	0	0	11	0	0	11	41
Hourly Total	0	0	0	0	0	0	220	0	0	220	0	0	2	0	2	1	77	0	0	78	300
12:00 AM	0	0	0	0	0	0	19	0	0	19	1	0	0	0	1	0	27	0	0	27	47
12:15 AM	0	0	0	0	0	0	23	1	0	24	0	0	0	0	0	0	17	0	0	17	41
12:30 AM	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	23	0	0	23	39
12:45 AM	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	18	0	0	18	42
Hourly Total	0	0	0	0	0	0	82	1	0	83	1	0	0	0	1	0	85	0	0	85	169
1:00 AM	0	0	0	0	0	0	20	0	0	20	0	0	1	0	1	0	13	0	0	13	34
1:15 AM	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	20	0	0	20	39
1:30 AM	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	11	0	0	11	27
1:45 AM	0	0	0	0	0	0	15	0	0	15	0	0	1	0	1	0	10	0	0	10	26
Hourly Total	0	0	0	0	0	0	70	0	0	70	0	0	2	0	2	0	54	0	0	54	126
2:00 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	1	15	0	0	16	33
2:15 AM	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	12	0	0	12	25
2:30 AM	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	8	0	0	8	23
2:45 AM	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	10	0	0	10	21
Hourly Total	0	0	0	0	0	0	56	0	0	56	0	0	0	0	0	1	45	0	0	46	102
3:00 AM	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	20	0	0	20	32
3:15 AM	0	0	0	0	0	0	19	0	0	19	0	0	1	0	1	0	15	0	0	15	35
3:30 AM	0	0	0	0	0	0	28	0	0	28	0	0	0	0	0	0	18	0	0	18	46
3:45 AM	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	0	15	0	0	15	36
Hourly Total	0	0	0	0	0	0	80	0	0	80	0	0	1	0	1	0	68	0	0	68	149
4:00 AM	0	0	0	0	0	0	13	0	0	13	0	0	2	0	2	1	16	0	0	17	32
4:15 AM	0	0	0	0	0	0	13	0	0	13	0	0	1	0	1	0	24	0	0	24	38
4:30 AM	0	0	0	0	0	0	28	0	0	28	0	0	1	0	1	0	28	0	0	28	57
4:45 AM	0	0	0	0	0	0	26	0	0	26	0	0	1	0	1	0	21	0	0	21	48
Hourly Total	0	0	0	0	0	0	80	0	0	80	0	0	5	0	5	1	89	0	0	90	175
5:00 AM	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	0	30	0	0	30	56
5:15 AM	0	0	0	0	0	0	43	0	0	43	0	0	1	0	1	0	46	0	0	46	90
5:30 AM	0	0	0	0	0	0	56	0	0	56	0	0	4	0	4	0	54	0	0	54	114
5:45 AM	0	0	0	0	0	0	61	0	0	61	1	0	1	0	2	0	57	0	0	57	120
Hourly Total	0	0	0	0	0	0	186	0	0	186	1	0	6	0	7	0	187	0	0	187	380
6:00 AM	0	0	0	0	0	0	52	0	0	52	0	0	1	0	1	0	49	0	0	49	102
6:15 AM	0	0	0	0	0	0	73	0	0	73	0	0	2	0	2	1	42	0	0	43	118
6:30 AM	0	0	0	0	0	0	86	1	0	87	0	0	3	0	3	0	56	0	0	56	146
6:45 AM	0	0	0	0	0	0	68	0	0	68	0	0	3	0	3	1	71	0	0	72	143
Hourly Total	0	0	0	0	0	0	279	1	0	280	0	0	9	0	9	2	218	0	0	220	509
7:00 AM	0	0	0	0	0	0	76	0	0	76	0	0	5	0	5	0	66	0	0	66	147
7:15 AM	0	0	0	0	0	0	74	1	0	75	1	0	3	0	4	2	78	0	0	80	159
7:30 AM	0	0	1	0	1	0	87	2	0	89	0	0	3	0	3	3	90	0	0	93	186

7:45 AM	0	0	0	0	0	0	73	0	0	73	0	0	4	0	4	3	86	0	0	89	166
Hourly Total	0	0	1	0	1	0	310	3	0	313	1	0	15	0	16	8	320	0	0	328	658
8:00 AM	0	0	0	0	0	0	87	0	0	87	0	0	4	0	4	3	77	0	0	80	171
8:15 AM	0	0	0	0	0	0	72	0	0	72	0	0	6	0	6	3	84	0	0	87	165
8:30 AM	0	0	0	0	0	0	79	0	0	79	0	0	3	0	3	2	78	0	0	80	162
8:45 AM	0	0	0	0	0	0	74	0	0	74	0	0	3	0	3	3	64	0	0	67	144
Hourly Total	0	0	0	0	0	0	312	0	0	312	0	0	16	0	16	11	303	0	0	314	642
9:00 AM	0	0	0	0	0	0	81	0	0	81	0	0	3	0	3	0	93	0	0	93	177
9:15 AM	0	0	0	0	0	0	66	0	0	66	1	0	3	0	4	3	91	0	0	94	164
9:30 AM	0	0	0	0	0	0	63	0	0	63	0	0	4	0	4	0	88	0	0	88	155
9:45 AM	0	0	0	0	0	0	83	0	0	83	1	0	1	0	2	5	90	0	0	95	180
Hourly Total	0	0	0	0	0	0	293	0	0	293	2	0	11	0	13	8	362	0	0	370	676
10:00 AM	0	0	0	0	0	0	75	0	0	75	0	0	4	0	4	1	75	0	0	76	155
10:15 AM	0	1	0	0	1	0	76	0	0	76	0	0	2	0	2	1	74	0	0	75	154
10:30 AM	0	0	0	0	0	0	92	0	0	92	0	0	2	0	2	1	82	0	0	83	177
10:45 AM	0	0	0	0	0	0	79	0	0	79	0	0	1	0	1	0	74	0	1	75	155
Hourly Total	0	1	0	0	1	0	322	0	0	322	0	0	9	0	9	3	305	0	1	309	641
11:00 AM	0	0	0	0	0	0	78	0	0	78	0	0	1	0	1	0	76	0	1	77	156
11:15 AM	0	0	0	0	0	0	77	0	0	77	0	0	0	0	0	0	94	0	0	94	171
11:30 AM	0	0	0	0	0	0	87	0	0	87	0	0	1	0	1	1	85	0	0	86	174
11:45 AM	0	0	0	0	0	0	94	0	0	94	0	0	4	0	4	0	96	0	0	96	194
Hourly Total	0	0	0	0	0	0	336	0	0	336	0	0	6	0	6	1	351	0	1	353	695
12:00 PM	0	0	0	0	0	0	83	1	0	84	0	0	1	0	1	1	88	0	0	89	174
12:15 PM	0	0	0	0	0	0	96	0	0	96	0	0	1	0	1	0	80	0	0	80	177
12:30 PM	0	0	0	0	0	0	78	0	0	78	0	0	1	0	1	0	83	0	0	83	162
12:45 PM	0	1	0	0	1	0	104	0	0	104	0	1	0	0	1	1	76	0	1	78	184
Hourly Total	0	1	0	0	1	0	361	1	0	362	0	1	3	0	4	2	327	0	1	330	697
1:00 PM	0	0	0	0	0	0	86	0	0	86	0	0	4	0	4	1	85	0	0	86	176
1:15 PM	0	0	0	0	0	0	104	0	0	104	1	0	0	0	1	2	97	0	1	100	205
1:30 PM	0	0	0	0	0	0	86	0	0	86	0	0	0	0	0	0	80	0	0	80	166
1:45 PM	0	0	0	0	0	0	84	0	0	84	0	0	0	0	0	5	88	1	0	94	178
Hourly Total	0	0	0	0	0	0	360	0	0	360	1	0	4	0	5	8	350	1	1	360	725
2:00 PM	0	0	0	0	0	0	84	0	0	84	1	0	2	0	3	1	82	0	0	83	170
Grand Total	0	2	1	0	3	0	6080	18	0	6098	12	2	141	0	155	127	5980	1	11	6119	12375
Approach %	0.0	66.7	33.3	0.0	-	0.0	99.7	0.3	0.0	-	7.7	1.3	91.0	0.0	-	2.1	97.7	0.0	0.2	-	-
Total %	0.0	0.0	0.0	0.0	0.0	0.0	49.1	0.1	0.0	49.3	0.1	0.0	1.1	0.0	1.3	1.0	48.3	0.0	0.1	49.4	-
Lights	0	2	1	0	3	0	3492	18	0	3510	12	2	136	0	150	123	3499	1	9	3632	7295
% Lights	-	100.0	100.0	-	100.0	-	57.4	100.0	-	57.6	100.0	100.0	96.5	-	96.8	96.9	58.5	100.0	81.8	59.4	58.9
Other Vehicles	0	0	0	0	0	0	2588	0	0	2588	0	0	5	0	5	4	2481	0	2	2487	5080
% Other Vehicles	-	0.0	0.0	-	0.0	-	42.6	0.0	-	42.4	0.0	0.0	3.5	-	3.2	3.1	41.5	0.0	18.2	40.6	41.1

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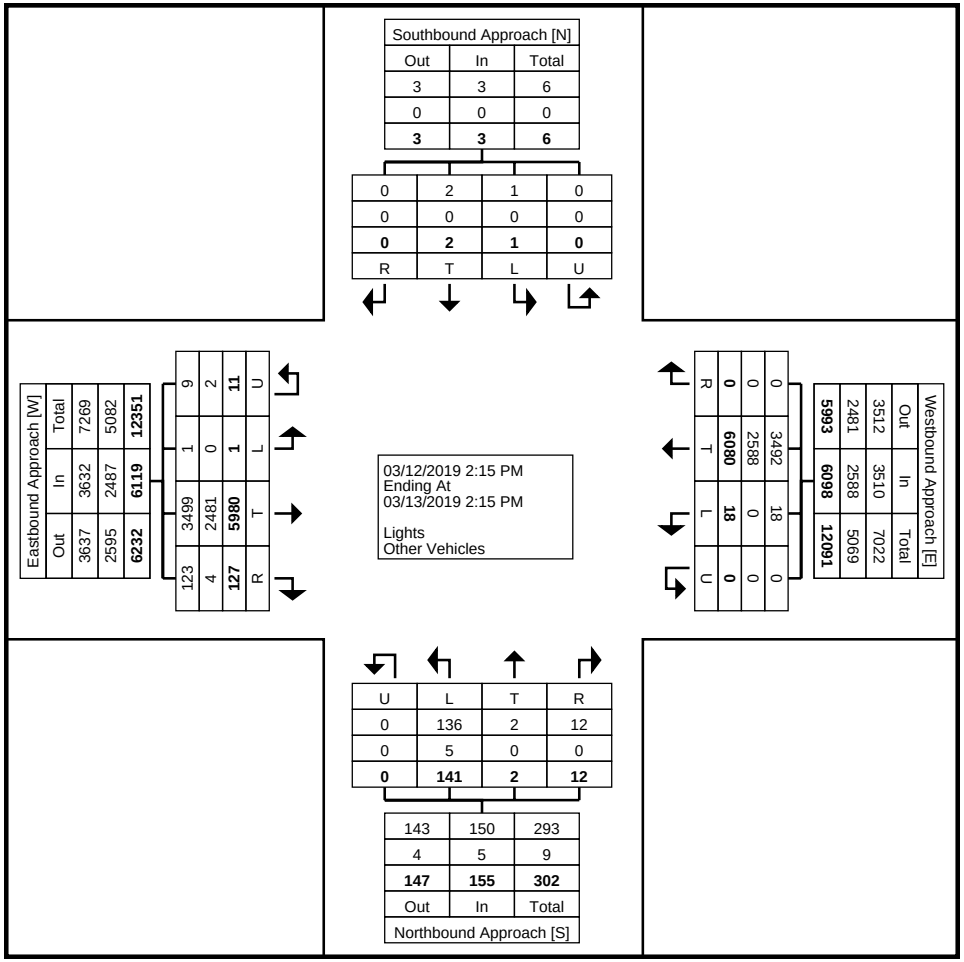
Office of Traffic Engineering

Count Name: VAN-30 & Mendon Rd
Site Code:
Start Date: 03/12/2019



Turning Movement Data Plot

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Mendon Rd
Site Code:
Start Date: 03/12/2019

Turning Movement Peak Hour Data (3:45 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
3:45 PM	0	0	0	0	0	0	98	0	0	98	1	1	2	0	4	1	110	0	0	111	213
4:00 PM	0	0	0	0	0	0	140	0	0	140	0	0	6	0	6	7	116	0	0	123	269
4:15 PM	0	0	0	0	0	0	113	2	0	115	1	0	3	0	4	2	127	0	1	130	249
4:30 PM	0	0	0	0	0	0	109	0	0	109	0	0	7	0	7	3	124	0	0	127	243
Total	0	0	0	0	0	0	460	2	0	462	2	1	18	0	21	13	477	0	1	491	974
Approach %	0.0	0.0	0.0	0.0	-	0.0	99.6	0.4	0.0	-	9.5	4.8	85.7	0.0	-	2.6	97.1	0.0	0.2	-	-
Total %	0.0	0.0	0.0	0.0	0.0	0.0	47.2	0.2	0.0	47.4	0.2	0.1	1.8	0.0	2.2	1.3	49.0	0.0	0.1	50.4	-
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.821	0.250	0.000	0.825	0.500	0.250	0.643	0.000	0.750	0.464	0.939	0.000	0.250	0.944	0.905
Lights	0	0	0	0	0	0	285	2	0	287	2	1	16	0	19	13	308	0	0	321	627
% Lights	-	-	-	-	-	-	62.0	100.0	-	62.1	100.0	100.0	88.9	-	90.5	100.0	64.6	-	0.0	65.4	64.4
Other Vehicles	0	0	0	0	0	0	175	0	0	175	0	0	2	0	2	0	169	0	1	170	347
% Other Vehicles	-	-	-	-	-	-	38.0	0.0	-	37.9	0.0	0.0	11.1	-	9.5	0.0	35.4	-	100.0	34.6	35.6

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
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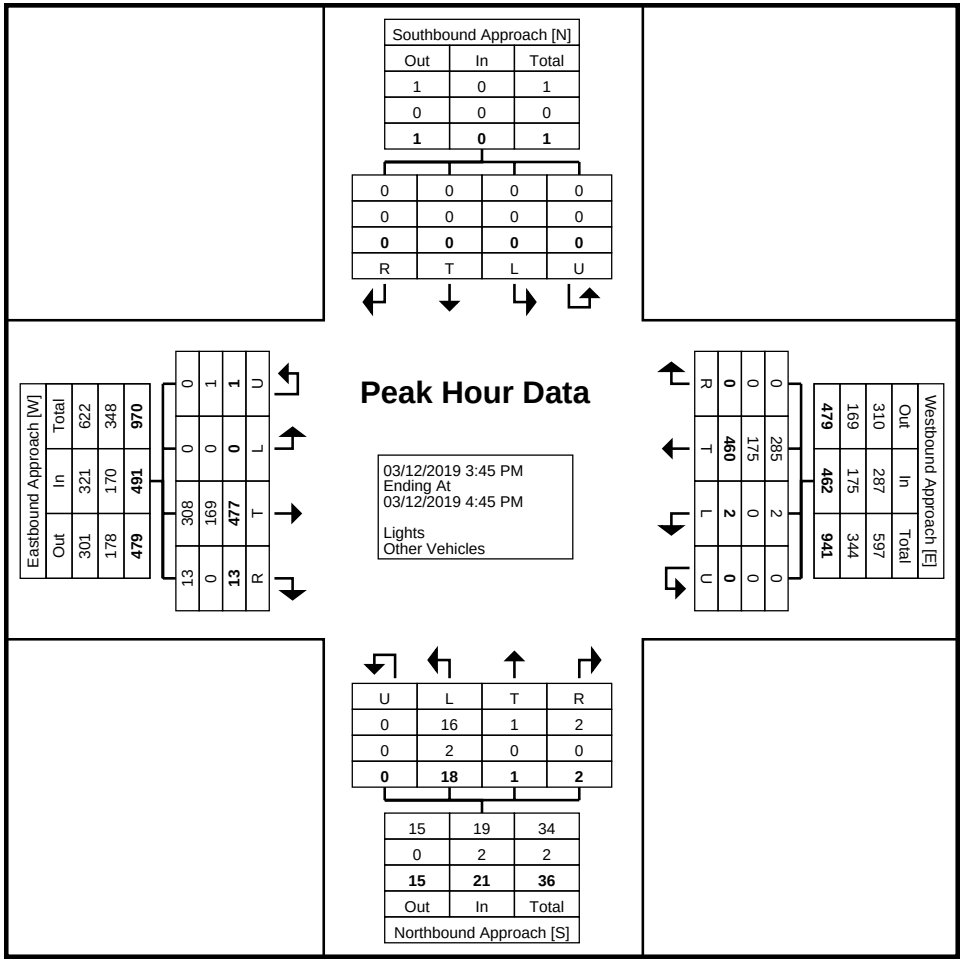
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30 & Mendon Rd
Site Code:
Start Date: 03/12/2019



Turning Movement Peak Hour Data Plot (3:45 PM)

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Office of Traffic Engineering

Count Name: VAN-30 & Mendon Rd
Site Code:
Start Date: 03/12/2019

Turning Movement Peak Hour Data (11:00 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
11:00 AM	0	0	0	0	0	0	78	0	0	78	0	0	1	0	1	0	76	0	1	77	156
11:15 AM	0	0	0	0	0	0	77	0	0	77	0	0	0	0	0	0	94	0	0	94	171
11:30 AM	0	0	0	0	0	0	87	0	0	87	0	0	1	0	1	1	85	0	0	86	174
11:45 AM	0	0	0	0	0	0	94	0	0	94	0	0	4	0	4	0	96	0	0	96	194
Total	0	0	0	0	0	0	336	0	0	336	0	0	6	0	6	1	351	0	1	353	695
Approach %	0.0	0.0	0.0	0.0	-	0.0	100.0	0.0	0.0	-	0.0	0.0	100.0	0.0	-	0.3	99.4	0.0	0.3	-	-
Total %	0.0	0.0	0.0	0.0	0.0	0.0	48.3	0.0	0.0	48.3	0.0	0.0	0.9	0.0	0.9	0.1	50.5	0.0	0.1	50.8	-
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.894	0.000	0.000	0.894	0.000	0.000	0.375	0.000	0.375	0.250	0.914	0.000	0.250	0.919	0.896
Lights	0	0	0	0	0	0	198	0	0	198	0	0	6	0	6	1	204	0	1	206	410
% Lights	-	-	-	-	-	-	58.9	-	-	58.9	-	-	100.0	-	100.0	100.0	58.1	-	100.0	58.4	59.0
Other Vehicles	0	0	0	0	0	0	138	0	0	138	0	0	0	0	0	0	147	0	0	147	285
% Other Vehicles	-	-	-	-	-	-	41.1	-	-	41.1	-	-	0.0	-	0.0	0.0	41.9	-	0.0	41.6	41.0

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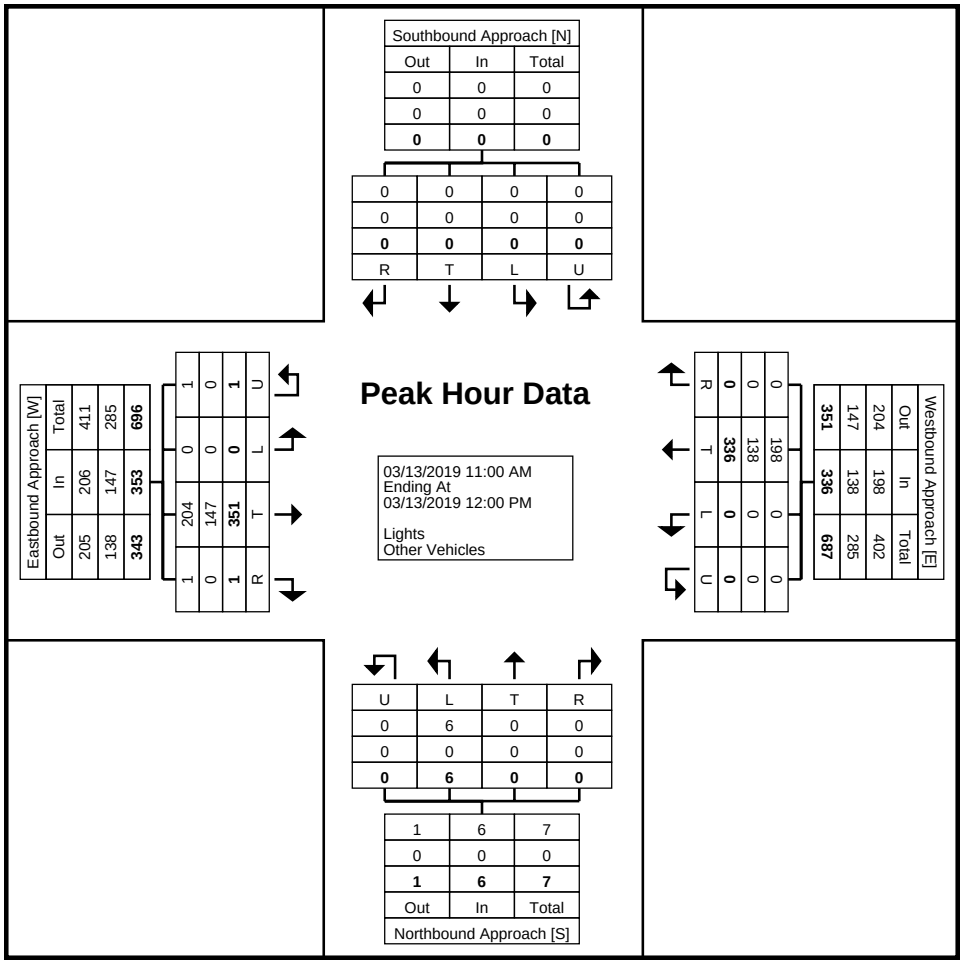

Turning Movement Peak Hour Data Plot (11:00 AM)

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Office of Traffic Engineering

Count Name: VAN-30 & Mendon Rd
Site Code:
Start Date: 03/12/2019

Turning Movement Peak Hour Data (12:45 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
12:45 PM	0	1	0	0	1	0	104	0	0	104	0	1	0	0	1	1	76	0	1	78	184
1:00 PM	0	0	0	0	0	0	86	0	0	86	0	0	4	0	4	1	85	0	0	86	176
1:15 PM	0	0	0	0	0	0	104	0	0	104	1	0	0	0	1	2	97	0	1	100	205
1:30 PM	0	0	0	0	0	0	86	0	0	86	0	0	0	0	0	0	80	0	0	80	166
Total	0	1	0	0	1	0	380	0	0	380	1	1	4	0	6	4	338	0	2	344	731
Approach %	0.0	100.0	0.0	0.0	-	0.0	100.0	0.0	0.0	-	16.7	16.7	66.7	0.0	-	1.2	98.3	0.0	0.6	-	-
Total %	0.0	0.1	0.0	0.0	0.1	0.0	52.0	0.0	0.0	52.0	0.1	0.1	0.5	0.0	0.8	0.5	46.2	0.0	0.3	47.1	-
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.913	0.000	0.000	0.913	0.250	0.250	0.250	0.000	0.375	0.500	0.871	0.000	0.500	0.860	0.891
Lights	0	1	0	0	1	0	204	0	0	204	1	1	4	0	6	4	173	0	1	178	389
% Lights	-	100.0	-	-	100.0	-	53.7	-	-	53.7	100.0	100.0	100.0	-	100.0	100.0	51.2	-	50.0	51.7	53.2
Other Vehicles	0	0	0	0	0	0	176	0	0	176	0	0	0	0	0	0	165	0	1	166	342
% Other Vehicles	-	0.0	-	-	0.0	-	46.3	-	-	46.3	0.0	0.0	0.0	-	0.0	0.0	48.8	-	50.0	48.3	46.8

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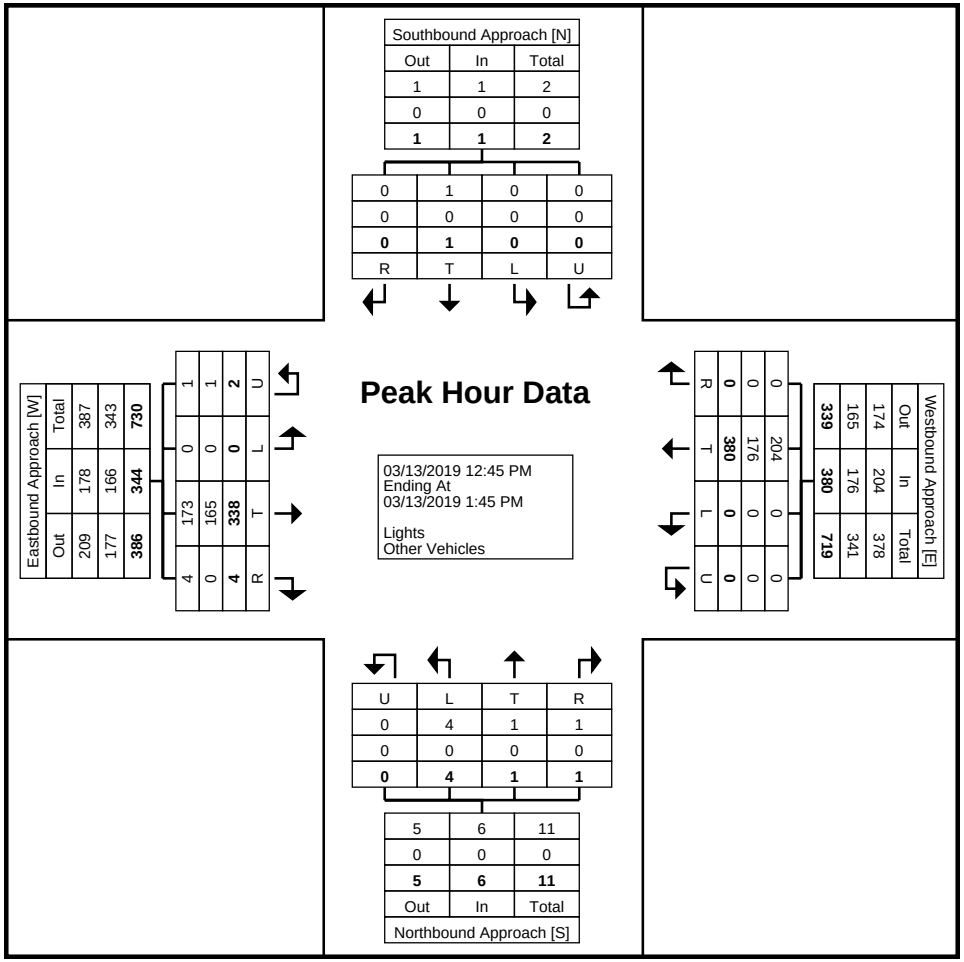

Turning Movement Peak Hour Data Plot (12:45 PM)

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Office of Traffic Engineering

Count Name: VAN-30 & Boroff Rd
Site Code:
Start Date: 03/12/2019

Turning Movement Data

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
2:15 PM	0	0	0	0	0	0	91	0	0	91	0	0	0	0	0	0	96	0	0	96	187
2:30 PM	0	0	0	0	0	0	102	1	0	103	0	0	2	0	2	1	109	0	0	110	215
2:45 PM	0	1	0	0	1	0	101	0	0	101	1	0	0	0	1	3	101	0	0	104	207
Hourly Total	0	1	0	0	1	0	294	1	0	295	1	0	2	0	3	4	306	0	0	310	609
3:00 PM	0	0	0	0	0	0	87	0	0	87	0	0	0	0	0	0	92	1	0	93	180
3:15 PM	0	0	0	0	0	0	113	0	0	113	0	1	0	0	1	0	106	0	0	106	220
3:30 PM	0	0	0	0	0	0	95	0	0	95	0	0	0	0	0	1	118	1	0	120	215
3:45 PM	0	0	0	0	0	0	95	0	0	95	0	1	1	0	2	0	111	0	0	111	208
Hourly Total	0	0	0	0	0	0	390	0	0	390	0	2	1	0	3	1	427	2	0	430	823
4:00 PM	0	0	0	0	0	0	139	2	0	141	0	0	0	0	0	0	118	1	0	119	260
4:15 PM	0	3	0	0	3	0	114	0	0	114	0	0	0	0	0	0	123	2	0	125	242
4:30 PM	0	0	0	0	0	0	122	0	0	122	0	2	0	0	2	0	126	0	0	126	250
4:45 PM	1	0	0	0	1	0	97	1	0	98	0	1	0	0	1	0	114	1	0	115	215
Hourly Total	1	3	0	0	4	0	472	3	0	475	0	3	0	0	3	0	481	4	0	485	967
5:00 PM	0	0	0	0	0	0	109	0	0	109	0	0	0	0	0	1	114	0	0	115	224
5:15 PM	0	2	1	0	3	0	108	0	0	108	0	0	0	0	0	0	111	0	0	111	222
5:30 PM	1	1	1	0	3	1	89	2	0	92	0	0	0	0	0	0	102	0	0	102	197
5:45 PM	0	1	0	0	1	0	85	0	0	85	0	0	0	0	0	0	102	0	0	102	188
Hourly Total	1	4	2	0	7	1	391	2	0	394	0	0	0	0	0	1	429	0	0	430	831
6:00 PM	1	0	0	0	1	1	96	0	0	97	0	0	0	0	0	1	95	0	0	96	194
6:15 PM	0	1	0	0	1	0	105	0	0	105	0	1	0	0	1	0	87	0	0	87	194
6:30 PM	0	1	1	0	2	0	77	1	0	78	0	0	0	0	0	0	67	0	0	67	147
6:45 PM	0	0	1	0	1	0	72	0	0	72	0	0	0	0	0	0	65	0	0	65	138
Hourly Total	1	2	2	0	5	1	350	1	0	352	0	1	0	0	1	1	314	0	0	315	673
7:00 PM	0	0	0	0	0	0	63	0	0	63	0	0	1	0	1	0	65	0	0	65	129
7:15 PM	1	0	0	0	1	0	50	0	0	50	1	0	0	0	1	0	72	0	0	72	124
7:30 PM	0	0	0	0	0	1	55	1	0	57	0	1	0	0	1	1	60	0	0	61	119
7:45 PM	0	1	1	0	2	3	52	0	0	55	0	0	0	0	0	0	46	0	0	46	103
Hourly Total	1	1	1	0	3	4	220	1	0	225	1	1	1	0	3	1	243	0	0	244	475
8:00 PM	0	0	0	0	0	0	64	0	0	64	0	0	1	0	1	0	60	0	0	60	125
8:15 PM	0	0	0	0	0	0	46	0	0	46	0	0	0	0	0	0	62	0	0	62	108
8:30 PM	0	0	0	0	0	0	34	0	0	34	0	0	0	0	0	0	46	0	0	46	80
8:45 PM	0	1	0	0	1	1	44	0	0	45	0	2	0	0	2	0	43	0	0	43	91
Hourly Total	0	1	0	0	1	1	188	0	0	189	0	2	1	0	3	0	211	0	0	211	404
9:00 PM	0	0	0	0	0	1	44	0	0	45	0	1	0	0	1	0	41	0	0	41	87

9:15 PM	1	0	0	0	1	0	40	1	0	41	0	0	0	0	0	0	30	1	0	31	73
9:30 PM	0	0	0	0	0	0	37	0	0	37	0	1	0	0	1	0	37	1	0	38	76
9:45 PM	0	0	0	0	0	0	39	0	0	39	0	0	0	0	0	0	32	1	0	33	72
Hourly Total	1	0	0	0	1	1	160	1	0	162	0	2	0	0	2	0	140	3	0	143	308
10:00 PM	1	0	0	0	1	0	43	0	0	43	0	0	0	0	0	0	36	0	0	36	80
10:15 PM	0	0	0	0	0	0	34	0	0	34	0	0	0	0	0	0	37	0	0	37	71
10:30 PM	0	0	0	0	0	0	41	0	0	41	1	0	0	0	1	0	34	0	0	34	76
10:45 PM	0	0	0	0	0	0	47	0	0	47	0	0	0	0	0	0	27	0	0	27	74
Hourly Total	1	0	0	0	1	0	165	0	0	165	1	0	0	0	1	0	134	0	0	134	301
11:00 PM	0	0	0	0	0	0	105	0	0	105	0	0	0	0	0	0	22	0	0	22	127
11:15 PM	0	0	0	0	0	0	48	0	0	48	0	0	0	0	0	0	25	0	0	25	73
11:30 PM	0	0	0	0	0	0	37	0	0	37	0	0	0	0	0	0	24	0	0	24	61
11:45 PM	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	0	12	0	0	12	41
Hourly Total	0	0	0	0	0	0	219	0	0	219	0	0	0	0	0	0	83	0	0	83	302
12:00 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	28	0	0	28	45
12:15 AM	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	0	17	0	0	17	39
12:30 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	23	0	0	23	40
12:45 AM	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	0	19	0	0	19	42
Hourly Total	0	0	0	0	0	0	79	0	0	79	0	0	0	0	0	0	87	0	0	87	166
1:00 AM	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	13	0	0	13	32
1:15 AM	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	21	0	0	21	45
1:30 AM	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	10	0	0	10	21
1:45 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	10	0	0	10	27
Hourly Total	0	0	0	0	0	0	71	0	0	71	0	0	0	0	0	0	54	0	0	54	125
2:00 AM	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	16	0	0	16	34
2:15 AM	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	12	0	0	12	23
2:30 AM	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	0	8	0	0	8	22
2:45 AM	0	0	1	0	1	0	11	0	0	11	0	0	0	0	0	0	10	0	0	10	22
Hourly Total	0	0	1	0	1	0	54	0	0	54	0	0	0	0	0	0	46	0	0	46	101
3:00 AM	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	0	20	0	0	20	34
3:15 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	15	0	0	15	32
3:30 AM	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	0	16	0	0	16	45
3:45 AM	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	15	0	0	15	35
Hourly Total	0	0	0	0	0	0	80	0	0	80	0	0	0	0	0	0	66	0	0	66	146
4:00 AM	0	0	0	0	0	1	14	0	0	15	0	0	0	0	0	0	16	0	0	16	31
4:15 AM	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	25	0	0	25	41
4:30 AM	0	0	0	0	0	0	31	0	0	31	1	0	0	0	1	0	29	0	0	29	61
4:45 AM	0	0	1	0	1	0	28	0	0	28	0	0	0	0	0	0	22	0	0	22	51
Hourly Total	0	0	1	0	1	1	89	0	0	90	1	0	0	0	1	0	92	0	0	92	184
5:00 AM	0	0	0	0	0	0	26	0	0	26	0	0	1	0	1	0	30	0	0	30	57
5:15 AM	0	0	0	0	0	0	38	0	0	38	0	0	0	0	0	0	43	0	0	43	81
5:30 AM	1	0	0	0	1	0	48	0	0	48	0	0	0	0	0	0	54	2	0	56	105
5:45 AM	1	1	0	0	2	0	55	0	0	55	0	0	0	0	0	0	56	0	0	56	113
Hourly Total	2	1	0	0	3	0	167	0	0	167	0	0	1	0	1	0	183	2	0	185	356
6:00 AM	1	0	0	0	1	0	50	0	0	50	0	0	1	0	1	1	51	0	0	52	104
6:15 AM	0	0	0	0	0	0	76	0	0	76	0	0	0	0	0	0	47	0	0	47	123
6:30 AM	2	0	0	0	2	0	85	0	0	85	0	0	0	0	0	0	56	0	0	56	143
6:45 AM	0	0	1	0	1	0	62	0	0	62	0	1	0	0	1	0	70	0	0	70	134
Hourly Total	3	0	1	0	4	0	273	0	0	273	0	1	1	0	2	1	224	0	0	225	504
7:00 AM	0	0	0	0	0	0	84	0	0	84	0	0	0	0	0	0	65	0	0	65	149
7:15 AM	1	1	0	0	2	0	79	0	0	79	0	0	0	0	0	0	84	1	0	85	166
7:30 AM	0	0	0	0	0	0	79	0	0	79	1	0	0	0	1	0	95	1	0	96	176

7:45 AM	0	1	1	0	2	0	74	0	0	74	0	1	1	0	2	0	87	0	0	87	165
Hourly Total	1	2	1	0	4	0	316	0	0	316	1	1	1	0	3	0	331	2	0	333	656
8:00 AM	0	0	0	0	0	0	84	0	0	84	0	0	1	0	1	0	76	0	0	76	161
8:15 AM	1	0	0	0	1	0	67	0	0	67	0	0	0	0	0	0	80	0	0	80	148
8:30 AM	0	0	0	0	0	0	78	0	0	78	0	0	0	0	0	0	78	0	0	78	156
8:45 AM	2	1	0	0	3	0	75	0	0	75	0	1	0	0	1	0	62	0	0	62	141
Hourly Total	3	1	0	0	4	0	304	0	0	304	0	1	1	0	2	0	296	0	0	296	606
9:00 AM	0	0	0	0	0	0	82	0	0	82	0	0	0	0	0	0	88	0	0	88	170
9:15 AM	0	0	0	0	0	0	68	0	0	68	0	1	0	0	1	0	89	0	0	89	158
9:30 AM	0	0	0	0	0	0	61	0	0	61	0	0	1	0	1	0	89	0	0	89	151
9:45 AM	0	1	0	0	1	0	87	0	0	87	0	1	1	0	2	0	91	0	0	91	181
Hourly Total	0	1	0	0	1	0	298	0	0	298	0	2	2	0	4	0	357	0	0	357	660
10:00 AM	1	0	0	0	1	0	75	0	0	75	0	1	0	0	1	1	75	0	0	76	153
10:15 AM	0	1	0	0	1	1	71	0	0	72	0	0	0	0	0	0	77	0	0	77	150
10:30 AM	0	0	0	0	0	0	91	0	0	91	0	0	0	0	0	0	88	0	0	88	179
10:45 AM	0	0	0	0	0	0	77	1	0	78	0	1	1	0	2	0	73	0	0	73	153
Hourly Total	1	1	0	0	2	1	314	1	0	316	0	2	1	0	3	1	313	0	0	314	635
11:00 AM	1	0	0	0	1	0	70	0	0	70	0	0	0	0	0	0	79	0	0	79	150
11:15 AM	0	0	0	0	0	0	80	0	0	80	0	0	0	0	0	1	93	0	0	94	174
11:30 AM	0	0	0	0	0	0	77	0	0	77	0	0	1	0	1	2	78	1	0	81	159
11:45 AM	0	0	0	0	0	0	95	0	0	95	0	0	2	0	2	1	94	0	0	95	192
Hourly Total	1	0	0	0	1	0	322	0	0	322	0	0	3	0	3	4	344	1	0	349	675
12:00 PM	0	1	0	0	1	0	87	0	0	87	0	0	0	0	0	0	81	0	0	81	169
12:15 PM	0	0	1	0	1	1	87	0	0	88	0	1	0	0	1	0	80	0	0	80	170
12:30 PM	0	0	0	0	0	0	80	0	0	80	0	0	0	0	0	0	84	0	0	84	164
12:45 PM	0	3	0	0	3	0	93	0	0	93	0	0	1	0	1	0	74	1	0	75	172
Hourly Total	0	4	1	0	5	1	347	0	0	348	0	1	1	0	2	0	319	1	0	320	675
1:00 PM	0	0	0	0	0	0	82	0	0	82	0	0	0	0	0	1	87	0	0	88	170
1:15 PM	0	3	0	0	3	0	103	0	0	103	0	0	1	0	1	0	99	0	0	99	206
1:30 PM	0	0	0	0	0	0	84	1	0	85	0	0	0	0	0	0	80	0	0	80	165
1:45 PM	0	0	0	0	0	0	83	0	0	83	0	0	0	0	0	0	84	0	0	84	167
Hourly Total	0	3	0	0	3	0	352	1	0	353	0	0	1	0	1	1	350	0	0	351	708
2:00 PM	0	3	1	0	4	0	94	0	0	94	0	0	0	0	0	0	84	0	0	84	182
Grand Total	17	28	11	0	56	11	6009	11	0	6031	5	19	17	0	41	15	5914	15	0	5944	12072
Approach %	30.4	50.0	19.6	0.0	-	0.2	99.6	0.2	0.0	-	12.2	46.3	41.5	0.0	-	0.3	99.5	0.3	0.0	-	-
Total %	0.1	0.2	0.1	0.0	0.5	0.1	49.8	0.1	0.0	50.0	0.0	0.2	0.1	0.0	0.3	0.1	49.0	0.1	0.0	49.2	-
Lights	17	25	10	0	52	11	3480	11	0	3502	5	18	17	0	40	15	3452	14	0	3481	7075
% Lights	100.0	89.3	90.9	-	92.9	100.0	57.9	100.0	-	58.1	100.0	94.7	100.0	-	97.6	100.0	58.4	93.3	-	58.6	58.6
Other Vehicles	0	3	1	0	4	0	2529	0	0	2529	0	1	0	0	1	0	2462	1	0	2463	4997
% Other Vehicles	0.0	10.7	9.1	-	7.1	0.0	42.1	0.0	-	41.9	0.0	5.3	0.0	-	2.4	0.0	41.6	6.7	-	41.4	41.4

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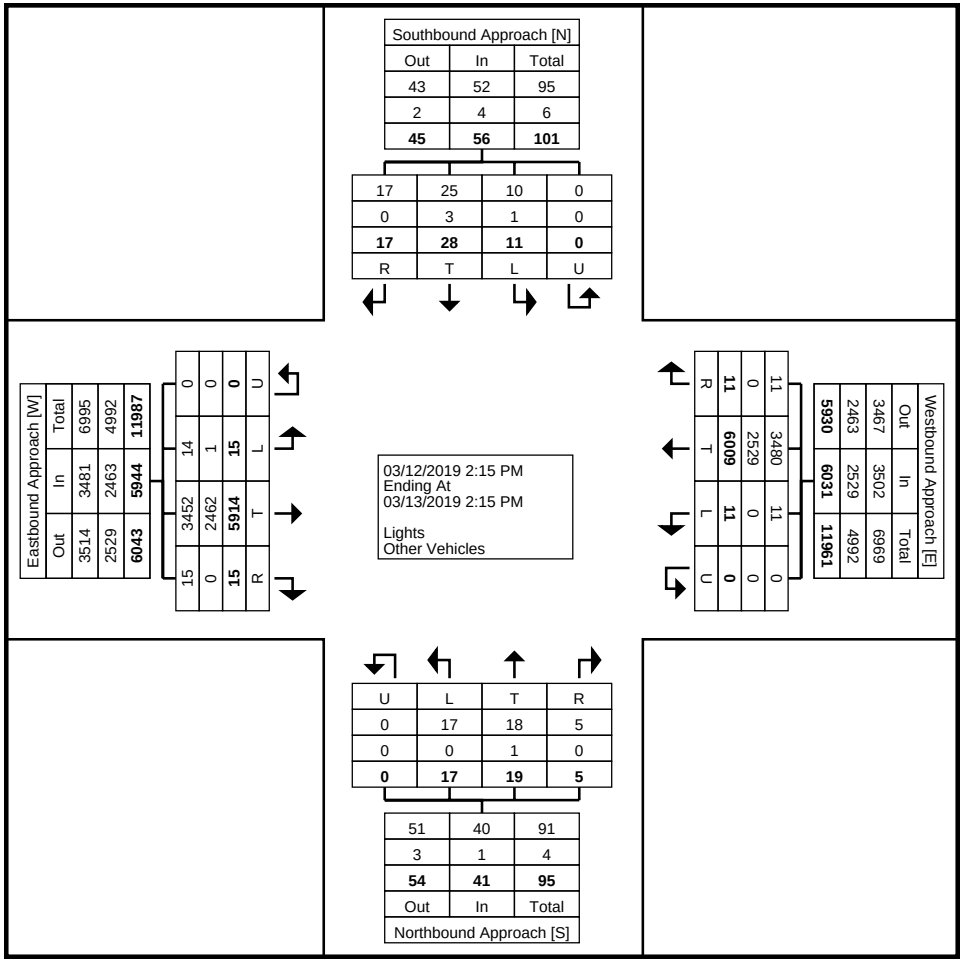
Office of Traffic Engineering

Count Name: VAN-30 & Boroff Rd
Site Code:
Start Date: 03/12/2019



Turning Movement Data Plot

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Office of Traffic Engineering

Count Name: VAN-30 & Boroff Rd
Site Code:
Start Date: 03/12/2019

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
4:00 PM	0	0	0	0	0	0	139	2	0	141	0	0	0	0	0	0	118	1	0	119	260
4:15 PM	0	3	0	0	3	0	114	0	0	114	0	0	0	0	0	0	123	2	0	125	242
4:30 PM	0	0	0	0	0	0	122	0	0	122	0	2	0	0	2	0	126	0	0	126	250
4:45 PM	1	0	0	0	1	0	97	1	0	98	0	1	0	0	1	0	114	1	0	115	215
Total	1	3	0	0	4	0	472	3	0	475	0	3	0	0	3	0	481	4	0	485	967
Approach %	25.0	75.0	0.0	0.0	-	0.0	99.4	0.6	0.0	-	0.0	100.0	0.0	0.0	-	0.0	99.2	0.8	0.0	-	-
Total %	0.1	0.3	0.0	0.0	0.4	0.0	48.8	0.3	0.0	49.1	0.0	0.3	0.0	0.0	0.3	0.0	49.7	0.4	0.0	50.2	-
PHF	0.250	0.250	0.000	0.000	0.333	0.000	0.849	0.375	0.000	0.842	0.000	0.375	0.000	0.000	0.375	0.000	0.954	0.500	0.000	0.962	0.930
Lights	1	2	0	0	3	0	297	3	0	300	0	3	0	0	3	0	306	4	0	310	616
% Lights	100.0	66.7	-	-	75.0	-	62.9	100.0	-	63.2	-	100.0	-	-	100.0	-	63.6	100.0	-	63.9	63.7
Other Vehicles	0	1	0	0	1	0	175	0	0	175	0	0	0	0	0	0	175	0	0	175	351
% Other Vehicles	0.0	33.3	-	-	25.0	-	37.1	0.0	-	36.8	-	0.0	-	-	0.0	-	36.4	0.0	-	36.1	36.3

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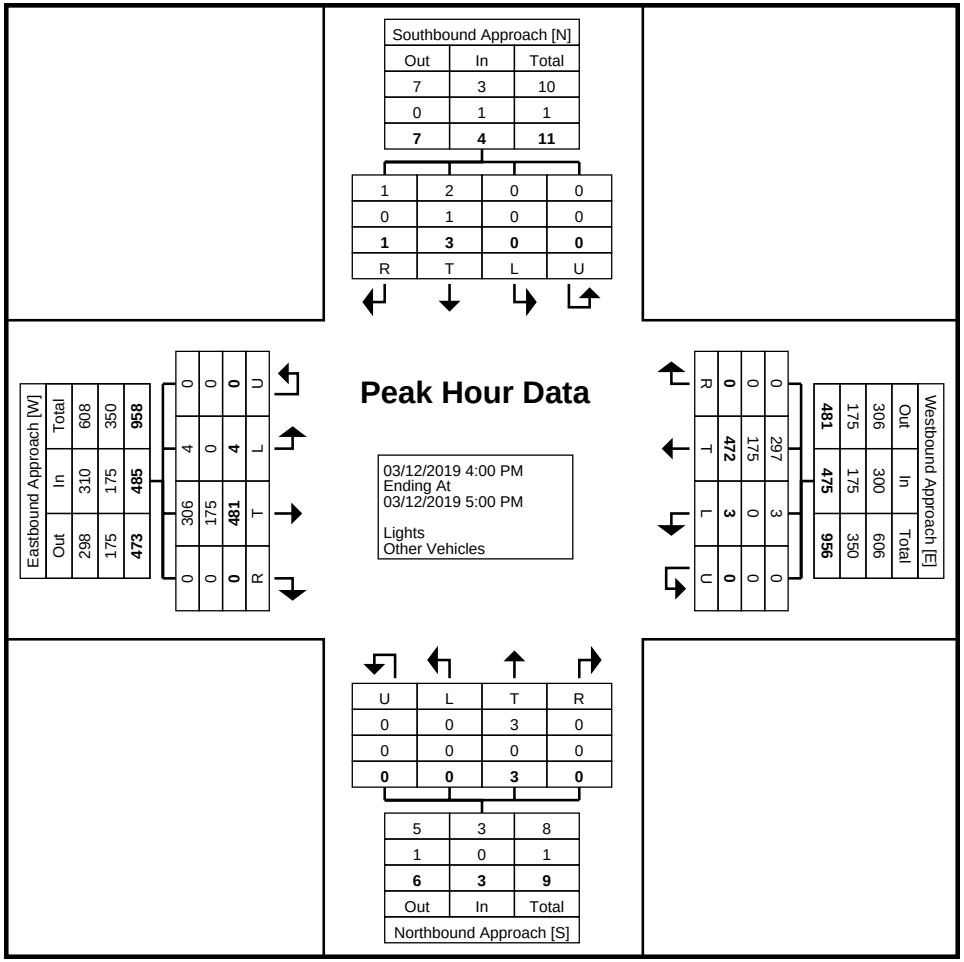

Turning Movement Peak Hour Data Plot (4:00 PM)

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Count Name: VAN-30 & Boroff Rd
Site Code:
Start Date: 03/12/2019

Turning Movement Peak Hour Data (11:00 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
11:00 AM	1	0	0	0	1	0	70	0	0	70	0	0	0	0	0	0	79	0	0	79	150
11:15 AM	0	0	0	0	0	0	80	0	0	80	0	0	0	0	0	1	93	0	0	94	174
11:30 AM	0	0	0	0	0	0	77	0	0	77	0	0	1	0	1	2	78	1	0	81	159
11:45 AM	0	0	0	0	0	0	95	0	0	95	0	0	2	0	2	1	94	0	0	95	192
Total	1	0	0	0	1	0	322	0	0	322	0	0	3	0	3	4	344	1	0	349	675
Approach %	100.0	0.0	0.0	0.0	-	0.0	100.0	0.0	0.0	-	0.0	0.0	100.0	0.0	-	1.1	98.6	0.3	0.0	-	-
Total %	0.1	0.0	0.0	0.0	0.1	0.0	47.7	0.0	0.0	47.7	0.0	0.0	0.4	0.0	0.4	0.6	51.0	0.1	0.0	51.7	-
PHF	0.250	0.000	0.000	0.000	0.250	0.000	0.847	0.000	0.000	0.847	0.000	0.000	0.375	0.000	0.375	0.500	0.915	0.250	0.000	0.918	0.879
Lights	1	0	0	0	1	0	188	0	0	188	0	0	3	0	3	4	194	1	0	199	391
% Lights	100.0	-	-	-	100.0	-	58.4	-	-	58.4	-	-	100.0	-	100.0	100.0	56.4	100.0	-	57.0	57.9
Other Vehicles	0	0	0	0	0	0	134	0	0	134	0	0	0	0	0	0	150	0	0	150	284
% Other Vehicles	0.0	-	-	-	0.0	-	41.6	-	-	41.6	-	-	0.0	-	0.0	0.0	43.6	0.0	-	43.0	42.1

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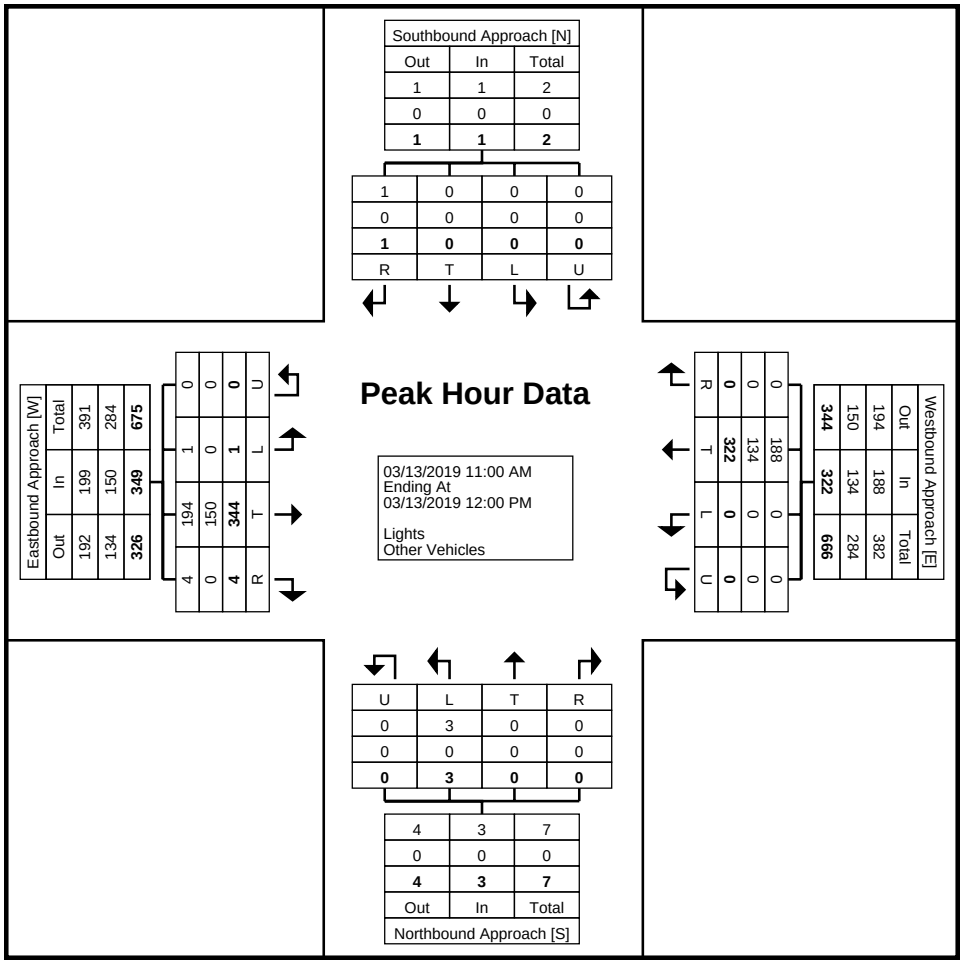

Turning Movement Peak Hour Data Plot (11:00 AM)

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Count Name: VAN-30 & Boroff Rd
Site Code:
Start Date: 03/12/2019

Turning Movement Peak Hour Data (1:15 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
1:15 PM	0	3	0	0	3	0	103	0	0	103	0	0	1	0	1	0	99	0	0	99	206
1:30 PM	0	0	0	0	0	0	84	1	0	85	0	0	0	0	0	0	80	0	0	80	165
1:45 PM	0	0	0	0	0	0	83	0	0	83	0	0	0	0	0	0	84	0	0	84	167
2:00 PM	0	3	1	0	4	0	94	0	0	94	0	0	0	0	0	0	84	0	0	84	182
Total	0	6	1	0	7	0	364	1	0	365	0	0	1	0	1	0	347	0	0	347	720
Approach %	0.0	85.7	14.3	0.0	-	0.0	99.7	0.3	0.0	-	0.0	0.0	100.0	0.0	-	0.0	100.0	0.0	0.0	-	-
Total %	0.0	0.8	0.1	0.0	1.0	0.0	50.6	0.1	0.0	50.7	0.0	0.0	0.1	0.0	0.1	0.0	48.2	0.0	0.0	48.2	-
PHF	0.000	0.500	0.250	0.000	0.438	0.000	0.883	0.250	0.000	0.886	0.000	0.000	0.250	0.000	0.250	0.000	0.876	0.000	0.000	0.876	0.874
Lights	0	6	1	0	7	0	199	1	0	200	0	0	1	0	1	0	218	0	0	218	426
% Lights	-	100.0	100.0	-	100.0	-	54.7	100.0	-	54.8	-	-	100.0	-	100.0	-	62.8	-	-	62.8	59.2
Other Vehicles	0	0	0	0	0	0	165	0	0	165	0	0	0	0	0	0	129	0	0	129	294
% Other Vehicles	-	0.0	0.0	-	0.0	-	45.3	0.0	-	45.2	-	-	0.0	-	0.0	-	37.2	-	-	37.2	40.8

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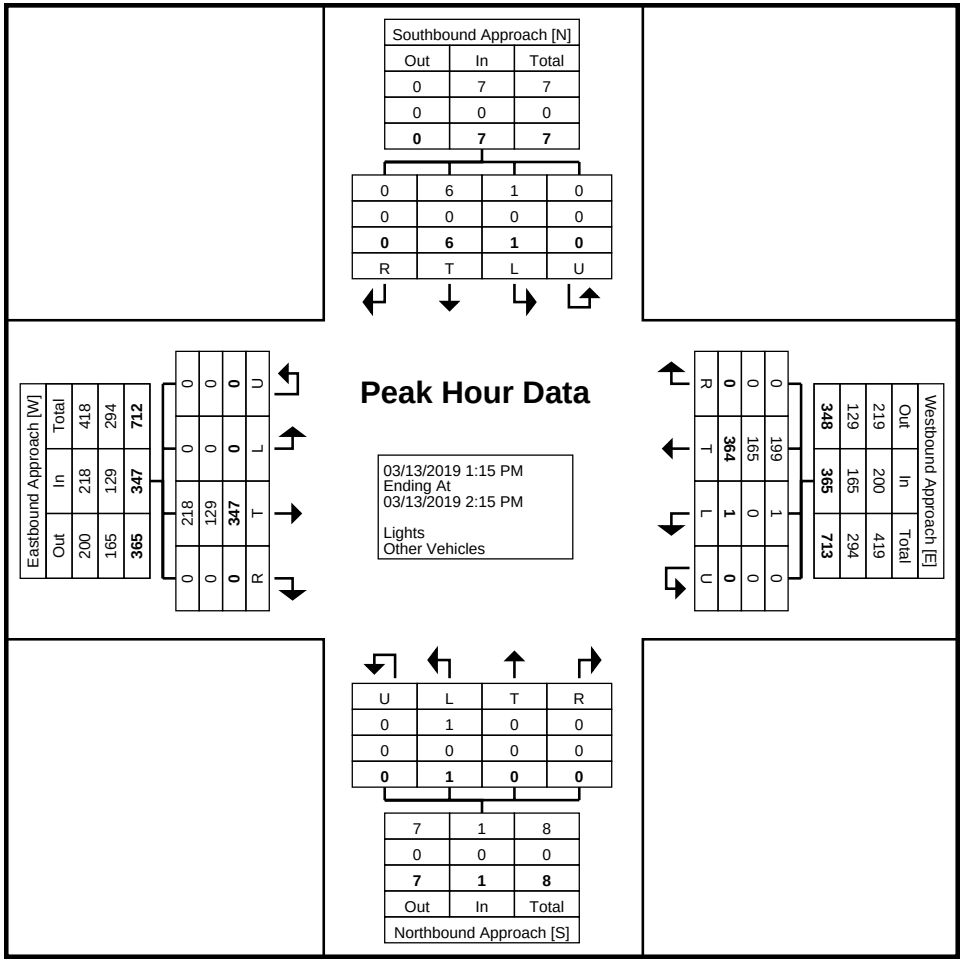

Turning Movement Peak Hour Data Plot (1:15 PM)

Ohio Department of Transportation
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Count Name: VAN-30 & Boroff Rd
Site Code:
Start Date: 03/12/2019

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Office of Traffic Engineering

Count Name: VAN-30-16.15 Eastbound
Site Code:
Start Date: 01/06/2021

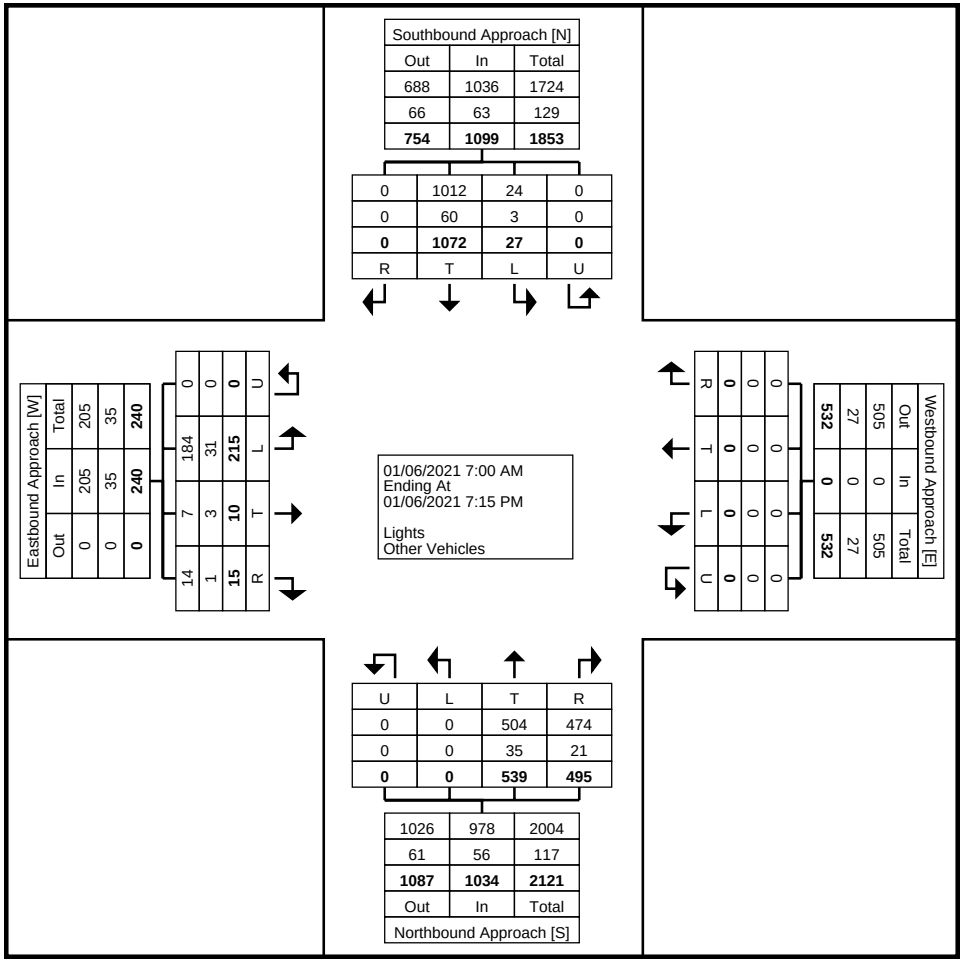
Turning Movement Data

Start Time	Southbound Approach Southbound					Westbound Approach Westbound					Northbound Approach Northbound					Eastbound Approach Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
7:00 AM	0	6	0	0	6	0	0	0	0	0	5	1	0	0	6	0	0	0	0	0	12
7:15 AM	0	8	1	0	9	0	0	0	0	0	9	2	0	0	11	0	0	1	0	1	21
7:30 AM	0	9	0	0	9	0	0	0	0	0	3	1	0	0	4	0	0	0	0	0	13
7:45 AM	0	8	0	0	8	0	0	0	0	0	3	4	0	0	7	0	0	1	0	1	16
Hourly Total	0	31	1	0	32	0	0	0	0	0	20	8	0	0	28	0	0	2	0	2	62
8:00 AM	0	6	0	0	6	0	0	0	0	0	6	6	0	0	12	0	0	2	0	2	20
8:15 AM	0	12	0	0	12	0	0	0	0	0	12	5	0	0	17	0	0	3	0	3	32
8:30 AM	0	24	1	0	25	0	0	0	0	0	10	9	0	0	19	0	0	4	0	4	48
8:45 AM	0	21	0	0	21	0	0	0	0	0	11	9	0	0	20	0	0	4	0	4	45
Hourly Total	0	63	1	0	64	0	0	0	0	0	39	29	0	0	68	0	0	13	0	13	145
9:00 AM	0	25	2	0	27	0	0	0	0	0	7	11	0	0	18	0	0	4	0	4	49
9:15 AM	0	34	1	0	35	0	0	0	0	0	10	5	0	0	15	1	0	9	0	10	60
9:30 AM	0	54	0	0	54	0	0	0	0	0	11	10	0	0	21	0	1	12	0	13	88
9:45 AM	0	49	1	0	50	0	0	0	0	0	4	26	0	0	30	1	0	15	0	16	96
Hourly Total	0	162	4	0	166	0	0	0	0	0	32	52	0	0	84	2	1	40	0	43	293
10:00 AM	0	42	1	0	43	0	0	0	0	0	11	10	0	0	21	0	2	9	0	11	75
10:15 AM	0	28	2	0	30	0	0	0	0	0	10	15	0	0	25	0	0	6	0	6	61
10:30 AM	0	27	0	0	27	0	0	0	0	0	8	10	0	0	18	0	0	1	0	1	46
10:45 AM	0	14	0	0	14	0	0	0	0	0	6	6	0	0	12	0	1	3	0	4	30
Hourly Total	0	111	3	0	114	0	0	0	0	0	35	41	0	0	76	0	3	19	0	22	212
11:00 AM	0	16	0	0	16	0	0	0	0	0	6	3	0	0	9	3	0	2	0	5	30
11:15 AM	0	10	0	0	10	0	0	0	0	0	12	4	0	0	16	0	0	3	0	3	29
11:30 AM	0	18	0	0	18	0	0	0	0	0	6	8	0	0	14	0	0	3	0	3	35
11:45 AM	0	23	0	0	23	0	0	0	0	0	11	6	0	0	17	0	0	1	0	1	41
Hourly Total	0	67	0	0	67	0	0	0	0	0	35	21	0	0	56	3	0	9	0	12	135
12:00 PM	0	16	0	0	16	0	0	0	0	0	5	2	0	0	7	0	0	2	0	2	25
12:15 PM	0	27	0	0	27	0	0	0	0	0	7	12	0	0	19	0	1	4	0	5	51
12:30 PM	0	26	0	0	26	0	0	0	0	0	12	9	0	0	21	0	0	1	0	1	48
12:45 PM	0	16	0	0	16	0	0	0	0	0	10	11	0	0	21	1	0	2	0	3	40
Hourly Total	0	85	0	0	85	0	0	0	0	0	34	34	0	0	68	1	1	9	0	11	164
1:00 PM	0	13	0	0	13	0	0	0	0	0	3	8	0	0	11	0	0	6	0	6	30
1:15 PM	0	20	0	0	20	0	0	0	0	0	8	11	0	0	19	1	1	7	0	9	48
1:30 PM	0	24	0	0	24	0	0	0	0	0	13	11	0	0	24	0	0	5	0	5	53
1:45 PM	0	17	0	0	17	0	0	0	0	0	6	8	0	0	14	2	0	3	0	5	36
Hourly Total	0	74	0	0	74	0	0	0	0	0	30	38	0	0	68	3	1	21	0	25	167

2:00 PM	0	17	0	0	17	0	0	0	0	0	11	14	0	0	25	0	1	5	0	6	48
2:15 PM	0	24	1	0	25	0	0	0	0	0	7	9	0	0	16	0	0	4	0	4	45
2:30 PM	0	22	0	0	22	0	0	0	0	0	11	13	0	0	24	0	2	5	0	7	53
2:45 PM	0	15	0	0	15	0	0	0	0	0	10	13	0	0	23	0	0	0	0	0	38
Hourly Total	0	78	1	0	79	0	0	0	0	0	39	49	0	0	88	0	3	14	0	17	184
3:00 PM	0	16	1	0	17	0	0	0	0	0	9	9	0	0	18	0	1	0	0	1	36
3:15 PM	0	21	0	0	21	0	0	0	0	0	17	9	0	0	26	0	0	2	0	2	49
3:30 PM	0	18	0	0	18	0	0	0	0	0	9	13	0	0	22	0	0	1	0	1	41
3:45 PM	0	15	1	0	16	0	0	0	0	0	8	14	0	0	22	0	0	3	0	3	41
Hourly Total	0	70	2	0	72	0	0	0	0	0	43	45	0	0	88	0	1	6	0	7	167
4:00 PM	0	22	1	0	23	0	0	0	0	0	9	9	0	0	18	1	0	5	0	6	47
4:15 PM	0	22	0	0	22	0	0	0	0	0	11	15	0	0	26	1	0	3	0	4	52
4:30 PM	0	23	2	0	25	0	0	0	0	0	11	22	0	0	33	0	0	4	0	4	62
4:45 PM	0	28	1	0	29	0	0	0	0	0	16	27	0	0	43	0	0	12	0	12	84
Hourly Total	0	95	4	0	99	0	0	0	0	0	47	73	0	0	120	2	0	24	0	26	245
5:00 PM	0	28	3	0	31	0	0	0	0	0	16	32	0	0	48	2	0	11	0	13	92
5:15 PM	0	43	2	0	45	0	0	0	0	0	14	13	0	0	27	1	0	5	0	6	78
5:30 PM	0	33	2	0	35	0	0	0	0	0	22	18	0	0	40	1	0	9	0	10	85
5:45 PM	0	25	2	0	27	0	0	0	0	0	19	17	0	0	36	0	0	5	0	5	68
Hourly Total	0	129	9	0	138	0	0	0	0	0	71	80	0	0	151	4	0	30	0	34	323
6:00 PM	0	34	0	0	34	0	0	0	0	0	14	14	0	0	28	0	0	7	0	7	69
6:15 PM	0	19	1	0	20	0	0	0	0	0	16	18	0	0	34	0	0	3	0	3	57
6:30 PM	0	22	1	0	23	0	0	0	0	0	17	18	0	0	35	0	0	13	0	13	71
6:45 PM	0	32	0	0	32	0	0	0	0	0	23	19	0	0	42	0	0	5	0	5	79
Hourly Total	0	107	2	0	109	0	0	0	0	0	70	69	0	0	139	0	0	28	0	28	276
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1072	27	0	1099	0	0	0	0	0	495	539	0	0	1034	15	10	215	0	240	2373
Approach %	0.0	97.5	2.5	0.0	-	0.0	0.0	0.0	0.0	-	47.9	52.1	0.0	0.0	-	6.3	4.2	89.6	0.0	-	-
Total %	0.0	45.2	1.1	0.0	46.3	0.0	0.0	0.0	0.0	0.0	20.9	22.7	0.0	0.0	43.6	0.6	0.4	9.1	0.0	10.1	-
Lights	0	1012	24	0	1036	0	0	0	0	0	474	504	0	0	978	14	7	184	0	205	2219
% Lights	-	94.4	88.9	-	94.3	-	-	-	-	-	95.8	93.5	-	-	94.6	93.3	70.0	85.6	-	85.4	93.5
Other Vehicles	0	60	3	0	63	0	0	0	0	0	21	35	0	0	56	1	3	31	0	35	154
% Other Vehicles	-	5.6	11.1	-	5.7	-	-	-	-	-	4.2	6.5	-	-	5.4	6.7	30.0	14.4	-	14.6	6.5

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30-16.15 Eastbound
Site Code:
Start Date: 01/06/2021



Turning Movement Data Plot

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Count Name: VAN-30-16.15 Eastbound
Site Code:
Start Date: 01/06/2021

Turning Movement Peak Hour Data (9:30 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
9:30 AM	0	54	0	0	54	0	0	0	0	0	11	10	0	0	21	0	1	12	0	13	88
9:45 AM	0	49	1	0	50	0	0	0	0	0	4	26	0	0	30	1	0	15	0	16	96
10:00 AM	0	42	1	0	43	0	0	0	0	0	11	10	0	0	21	0	2	9	0	11	75
10:15 AM	0	28	2	0	30	0	0	0	0	0	10	15	0	0	25	0	0	6	0	6	61
Total	0	173	4	0	177	0	0	0	0	0	36	61	0	0	97	1	3	42	0	46	320
Approach %	0.0	97.7	2.3	0.0	-	0.0	0.0	0.0	0.0	-	37.1	62.9	0.0	0.0	-	2.2	6.5	91.3	0.0	-	-
Total %	0.0	54.1	1.3	0.0	55.3	0.0	0.0	0.0	0.0	0.0	11.3	19.1	0.0	0.0	30.3	0.3	0.9	13.1	0.0	14.4	-
PHF	0.000	0.801	0.500	0.000	0.819	0.000	0.000	0.000	0.000	0.000	0.818	0.587	0.000	0.000	0.808	0.250	0.375	0.700	0.000	0.719	0.833
Lights	0	168	3	0	171	0	0	0	0	0	31	55	0	0	86	1	1	36	0	38	295
% Lights	-	97.1	75.0	-	96.6	-	-	-	-	-	86.1	90.2	-	-	88.7	100.0	33.3	85.7	-	82.6	92.2
Other Vehicles	0	5	1	0	6	0	0	0	0	0	5	6	0	0	11	0	2	6	0	8	25
% Other Vehicles	-	2.9	25.0	-	3.4	-	-	-	-	-	13.9	9.8	-	-	11.3	0.0	66.7	14.3	-	17.4	7.8

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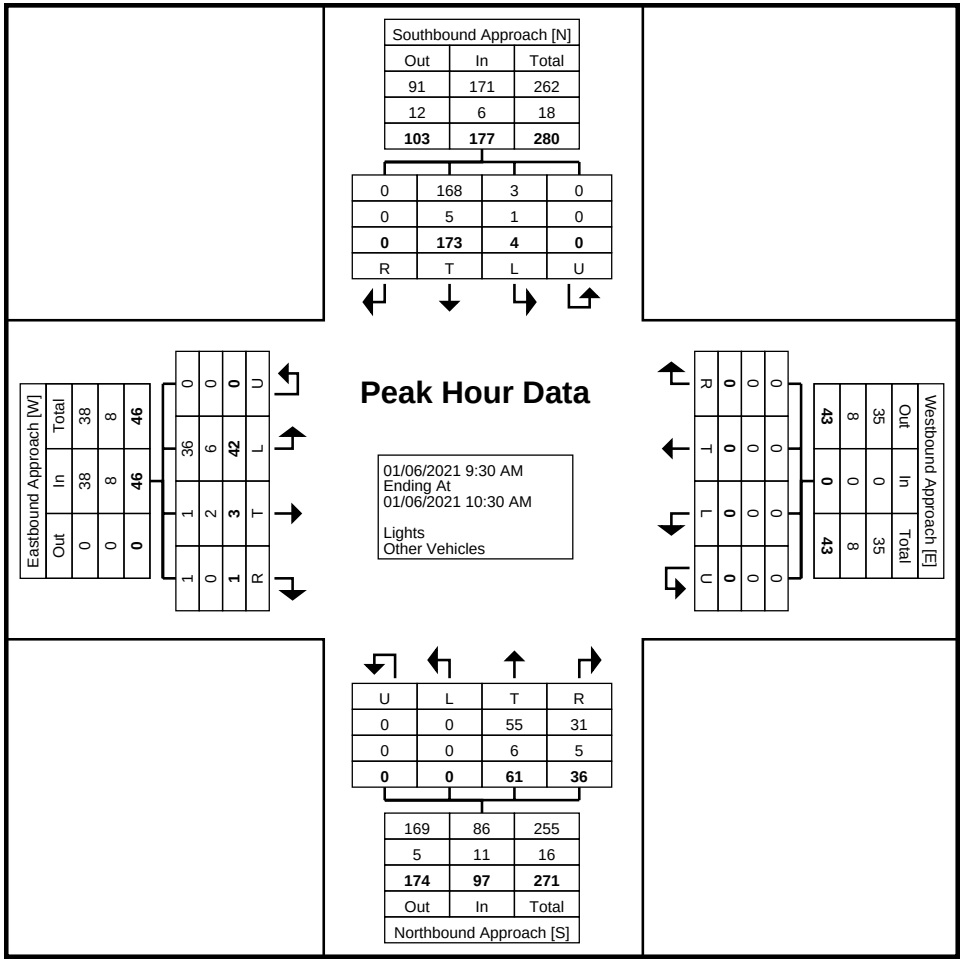

Turning Movement Peak Hour Data Plot (9:30 AM)

Ohio Department of Transportation
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Mail Stop 5160
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Office of Traffic Engineering

Count Name: VAN-30-16.15 Eastbound
Site Code:
Start Date: 01/06/2021

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
4:45 PM	0	28	1	0	29	0	0	0	0	0	16	27	0	0	43	0	0	12	0	12	84
5:00 PM	0	28	3	0	31	0	0	0	0	0	16	32	0	0	48	2	0	11	0	13	92
5:15 PM	0	43	2	0	45	0	0	0	0	0	14	13	0	0	27	1	0	5	0	6	78
5:30 PM	0	33	2	0	35	0	0	0	0	0	22	18	0	0	40	1	0	9	0	10	85
Total	0	132	8	0	140	0	0	0	0	0	68	90	0	0	158	4	0	37	0	41	339
Approach %	0.0	94.3	5.7	0.0	-	0.0	0.0	0.0	0.0	-	43.0	57.0	0.0	0.0	-	9.8	0.0	90.2	0.0	-	-
Total %	0.0	38.9	2.4	0.0	41.3	0.0	0.0	0.0	0.0	0.0	20.1	26.5	0.0	0.0	46.6	1.2	0.0	10.9	0.0	12.1	-
PHF	0.000	0.767	0.667	0.000	0.778	0.000	0.000	0.000	0.000	0.000	0.773	0.703	0.000	0.000	0.823	0.500	0.000	0.771	0.000	0.788	0.921
Lights	0	126	8	0	134	0	0	0	0	0	64	88	0	0	152	4	0	33	0	37	323
% Lights	-	95.5	100.0	-	95.7	-	-	-	-	-	94.1	97.8	-	-	96.2	100.0	-	89.2	-	90.2	95.3
Other Vehicles	0	6	0	0	6	0	0	0	0	0	4	2	0	0	6	0	0	4	0	4	16
% Other Vehicles	-	4.5	0.0	-	4.3	-	-	-	-	-	5.9	2.2	-	-	3.8	0.0	-	10.8	-	9.8	4.7

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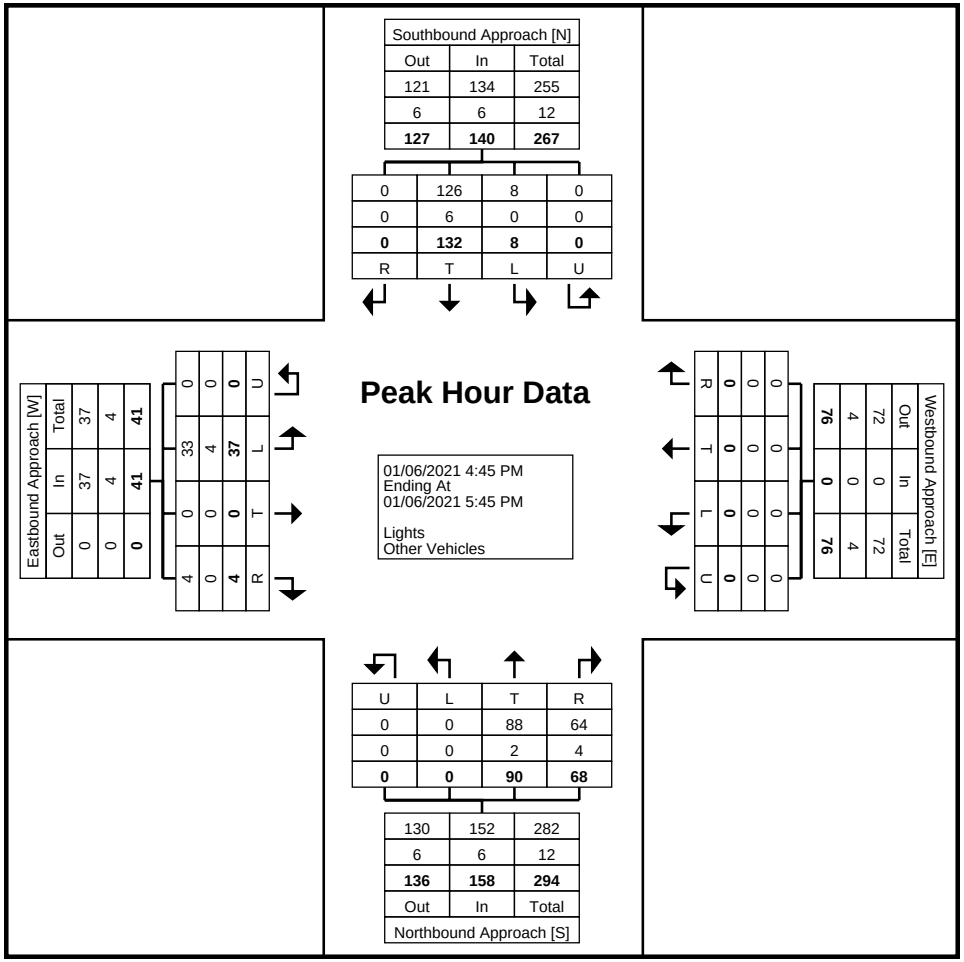

Turning Movement Peak Hour Data Plot (4:45 PM)

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Count Name: VAN-30-16.15 Westbound
Site Code:
Start Date: 01/06/2021

Turning Movement Data

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
7:00 AM	0	0	0	0	0	3	4	0	0	7	0	0	2	0	2	0	1	0	0	1	10
7:15 AM	0	0	0	0	0	5	2	0	0	7	0	0	7	0	7	0	3	0	0	3	17
7:30 AM	0	0	0	0	0	4	6	0	0	10	0	0	3	0	3	0	1	0	0	1	14
7:45 AM	0	0	0	0	0	11	6	0	0	17	0	0	2	0	2	0	5	0	0	5	24
Hourly Total	0	0	0	0	0	23	18	0	0	41	0	0	14	0	14	0	10	0	0	10	65
8:00 AM	0	0	0	0	0	7	3	0	0	10	2	0	3	0	5	0	7	1	0	8	23
8:15 AM	0	0	0	0	0	8	5	0	0	13	0	0	7	0	7	0	7	0	0	7	27
8:30 AM	0	0	0	0	0	11	13	0	0	24	0	0	11	0	11	0	14	0	0	14	49
8:45 AM	0	0	0	0	0	9	6	0	0	15	0	0	15	0	15	0	12	0	0	12	42
Hourly Total	0	0	0	0	0	35	27	0	0	62	2	0	36	0	38	0	40	1	0	41	141
9:00 AM	0	0	0	0	0	8	13	0	0	21	0	0	14	0	14	0	15	1	0	16	51
9:15 AM	0	0	0	0	0	5	12	0	0	17	3	0	24	0	27	0	12	1	0	13	57
9:30 AM	0	0	0	0	0	6	22	0	0	28	3	0	27	0	30	0	20	0	0	20	78
9:45 AM	0	0	0	0	0	13	23	0	0	36	5	0	29	0	34	0	38	2	0	40	110
Hourly Total	0	0	0	0	0	32	70	0	0	102	11	0	94	0	105	0	85	4	0	89	296
10:00 AM	0	0	0	0	0	10	30	0	0	40	0	0	13	0	13	0	23	0	0	23	76
10:15 AM	0	0	0	0	0	5	17	0	0	22	0	0	12	0	12	0	18	0	0	18	52
10:30 AM	0	0	0	0	0	4	17	0	0	21	0	0	11	0	11	0	14	0	0	14	46
10:45 AM	0	0	0	0	0	8	5	0	0	13	1	0	9	0	10	0	9	0	0	9	32
Hourly Total	0	0	0	0	0	27	69	0	0	96	1	0	45	0	46	0	64	0	0	64	206
11:00 AM	0	0	0	0	0	2	11	0	0	13	1	0	6	0	7	0	5	0	0	5	25
11:15 AM	0	0	0	0	0	3	6	0	0	9	0	0	4	0	4	0	6	1	0	7	20
11:30 AM	0	0	0	0	0	2	9	0	0	11	0	0	9	0	9	0	11	0	0	11	31
11:45 AM	0	0	0	0	0	4	11	0	0	15	1	1	10	0	12	0	5	0	0	5	32
Hourly Total	0	0	0	0	0	11	37	0	0	48	2	1	29	0	32	0	27	1	0	28	108
12:00 PM	0	0	0	0	0	2	12	0	0	14	0	0	6	0	6	0	6	0	0	6	26
12:15 PM	0	0	0	0	0	0	14	0	0	14	0	0	10	0	10	0	14	1	0	15	39
12:30 PM	0	0	0	0	0	0	13	0	0	13	0	0	15	0	15	0	11	0	0	11	39
12:45 PM	0	0	0	0	0	5	8	0	0	13	0	0	12	0	12	0	11	1	0	12	37
Hourly Total	0	0	0	0	0	7	47	0	0	54	0	0	43	0	43	0	42	2	0	44	141
1:00 PM	0	0	0	0	0	2	3	0	0	5	0	1	7	0	8	0	15	0	0	15	28
1:15 PM	0	0	0	0	0	5	16	0	0	21	1	0	7	0	8	0	15	1	0	16	45
1:30 PM	0	0	0	0	0	3	12	0	0	15	0	0	11	0	11	0	16	0	0	16	42
1:45 PM	0	0	0	0	0	2	10	0	0	12	0	0	8	0	8	0	13	0	0	13	33
Hourly Total	0	0	0	0	0	12	41	0	0	53	1	1	33	0	35	0	59	1	0	60	148

2:00 PM	0	0	0	0	0	8	9	0	0	17	0	0	8	0	8	0	16	1	0	17	42
2:15 PM	0	0	0	0	0	3	12	0	0	15	0	0	12	0	12	0	13	2	0	15	42
2:30 PM	0	0	0	0	0	3	13	0	0	16	0	0	10	0	10	0	16	2	0	18	44
2:45 PM	0	0	0	0	0	3	9	0	0	12	1	0	6	0	7	0	12	1	0	13	32
Hourly Total	0	0	0	0	0	17	43	0	0	60	1	0	36	0	37	0	57	6	0	63	160
3:00 PM	0	0	0	0	0	2	10	0	0	12	1	0	7	0	8	0	9	0	0	9	29
3:15 PM	0	0	0	0	0	4	15	0	0	19	0	0	4	0	4	0	9	2	0	11	34
3:30 PM	0	0	0	0	0	5	14	0	0	19	1	0	6	0	7	0	13	0	0	13	39
3:45 PM	0	0	0	0	0	4	10	0	0	14	0	2	5	0	7	0	18	0	0	18	39
Hourly Total	0	0	0	0	0	15	49	0	0	64	2	2	22	0	26	0	49	2	0	51	141
4:00 PM	0	0	0	0	0	6	16	0	0	22	0	1	8	0	9	0	13	0	0	13	44
4:15 PM	0	0	0	0	0	9	14	0	0	23	0	0	7	0	7	0	18	0	0	18	48
4:30 PM	0	0	0	0	0	4	17	0	0	21	0	0	7	0	7	0	21	2	0	23	51
4:45 PM	0	0	0	0	0	2	18	0	0	20	0	0	12	0	12	0	38	1	0	39	71
Hourly Total	0	0	0	0	0	21	65	0	0	86	0	1	34	0	35	0	90	3	0	93	214
5:00 PM	0	0	0	0	0	5	18	0	0	23	0	0	13	0	13	0	42	2	0	44	80
5:15 PM	0	0	0	0	0	12	31	0	0	43	1	0	16	0	17	0	19	1	0	20	80
5:30 PM	0	0	0	0	0	12	15	0	0	27	0	0	17	0	17	0	26	2	0	28	72
5:45 PM	0	0	0	0	0	6	15	0	0	21	1	0	14	0	15	0	22	1	0	23	59
Hourly Total	0	0	0	0	0	35	79	0	0	114	2	0	60	0	62	0	109	6	0	115	291
6:00 PM	0	0	0	0	0	6	15	0	0	21	1	0	20	0	21	0	19	1	0	20	62
6:15 PM	0	0	0	0	0	4	11	0	0	15	2	0	8	0	10	0	21	1	0	22	47
6:30 PM	0	0	0	0	0	3	16	0	0	19	0	1	7	0	8	0	28	1	0	29	56
6:45 PM	0	0	0	0	0	7	15	0	0	22	1	0	15	0	16	0	23	1	0	24	62
Hourly Total	0	0	0	0	0	20	57	0	0	77	4	1	50	0	55	0	91	4	0	95	227
7:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	255	603	0	0	858	26	6	496	0	528	0	723	30	0	753	2139
Approach %	0.0	0.0	0.0	0.0	-	29.7	70.3	0.0	0.0	-	4.9	1.1	93.9	0.0	-	0.0	96.0	4.0	0.0	-	-
Total %	0.0	0.0	0.0	0.0	0.0	11.9	28.2	0.0	0.0	40.1	1.2	0.3	23.2	0.0	24.7	0.0	33.8	1.4	0.0	35.2	-
Lights	0	0	0	0	0	222	566	0	0	788	25	3	468	0	496	0	663	24	0	687	1971
% Lights	-	-	-	-	-	87.1	93.9	-	-	91.8	96.2	50.0	94.4	-	93.9	-	91.7	80.0	-	91.2	92.1
Other Vehicles	0	0	0	0	0	33	37	0	0	70	1	3	28	0	32	0	60	6	0	66	168
% Other Vehicles	-	-	-	-	-	12.9	6.1	-	-	8.2	3.8	50.0	5.6	-	6.1	-	8.3	20.0	-	8.8	7.9

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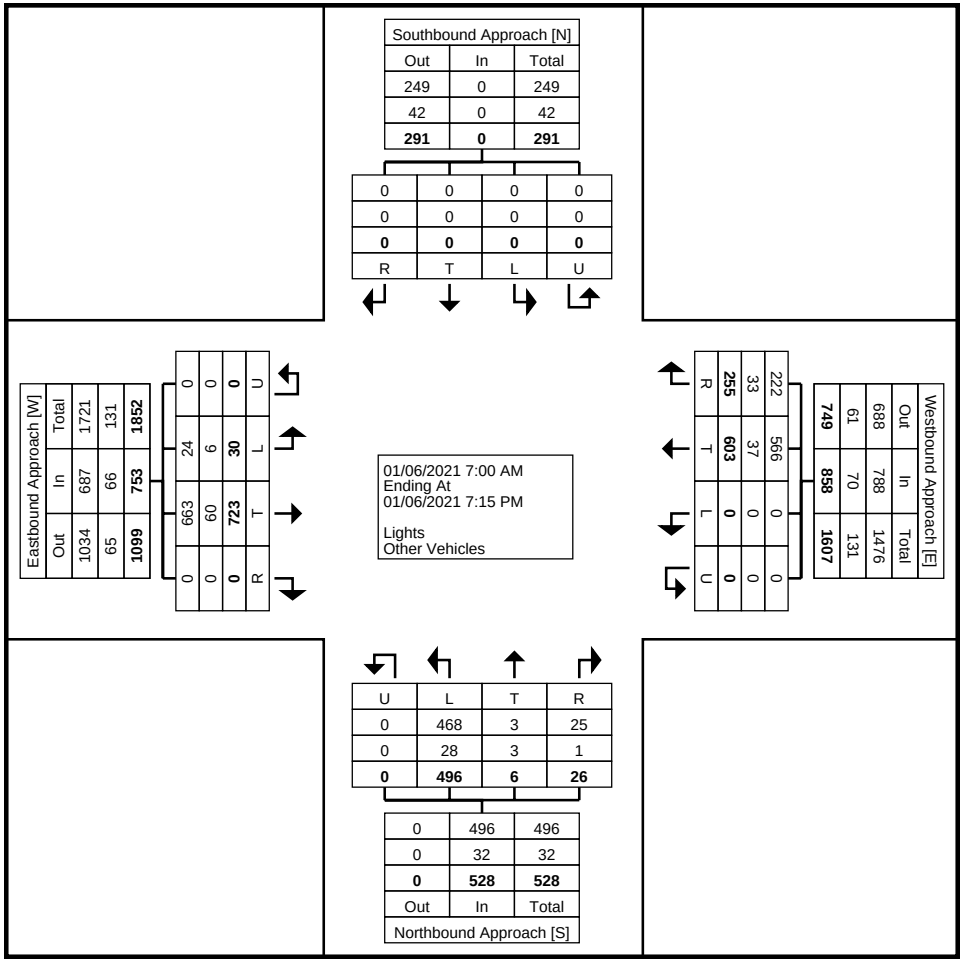

Turning Movement Data Plot

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Count Name: VAN-30-16.15 Westbound
Site Code:
Start Date: 01/06/2021

Turning Movement Peak Hour Data (9:15 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
9:15 AM	0	0	0	0	0	5	12	0	0	17	3	0	24	0	27	0	12	1	0	13	57
9:30 AM	0	0	0	0	0	6	22	0	0	28	3	0	27	0	30	0	20	0	0	20	78
9:45 AM	0	0	0	0	0	13	23	0	0	36	5	0	29	0	34	0	38	2	0	40	110
10:00 AM	0	0	0	0	0	10	30	0	0	40	0	0	13	0	13	0	23	0	0	23	76
Total	0	0	0	0	0	34	87	0	0	121	11	0	93	0	104	0	93	3	0	96	321
Approach %	0.0	0.0	0.0	0.0	-	28.1	71.9	0.0	0.0	-	10.6	0.0	89.4	0.0	-	0.0	96.9	3.1	0.0	-	-
Total %	0.0	0.0	0.0	0.0	0.0	10.6	27.1	0.0	0.0	37.7	3.4	0.0	29.0	0.0	32.4	0.0	29.0	0.9	0.0	29.9	-
PHF	0.000	0.000	0.000	0.000	0.000	0.654	0.725	0.000	0.000	0.756	0.550	0.000	0.802	0.000	0.765	0.000	0.612	0.375	0.000	0.600	0.730
Lights	0	0	0	0	0	30	81	0	0	111	11	0	89	0	100	0	82	3	0	85	296
% Lights	-	-	-	-	-	88.2	93.1	-	-	91.7	100.0	-	95.7	-	96.2	-	88.2	100.0	-	88.5	92.2
Other Vehicles	0	0	0	0	0	4	6	0	0	10	0	0	4	0	4	0	11	0	0	11	25
% Other Vehicles	-	-	-	-	-	11.8	6.9	-	-	8.3	0.0	-	4.3	-	3.8	-	11.8	0.0	-	11.5	7.8

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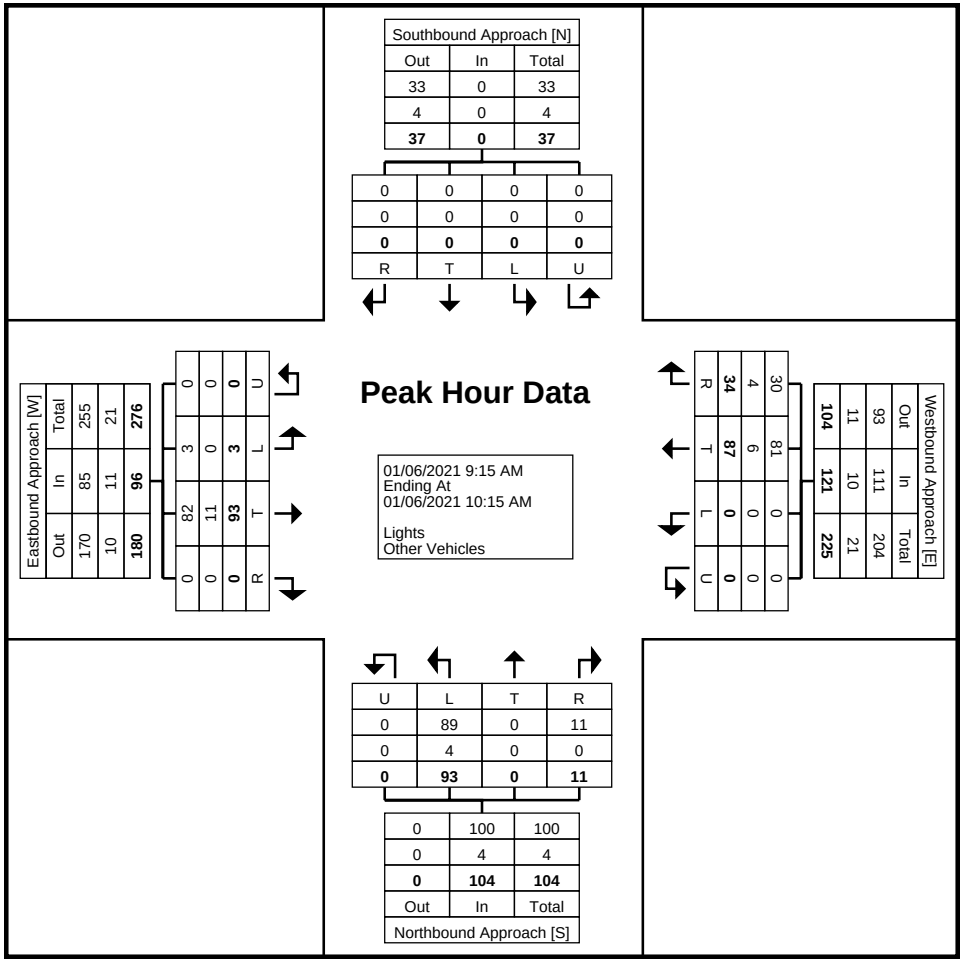

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Office of Traffic Engineering

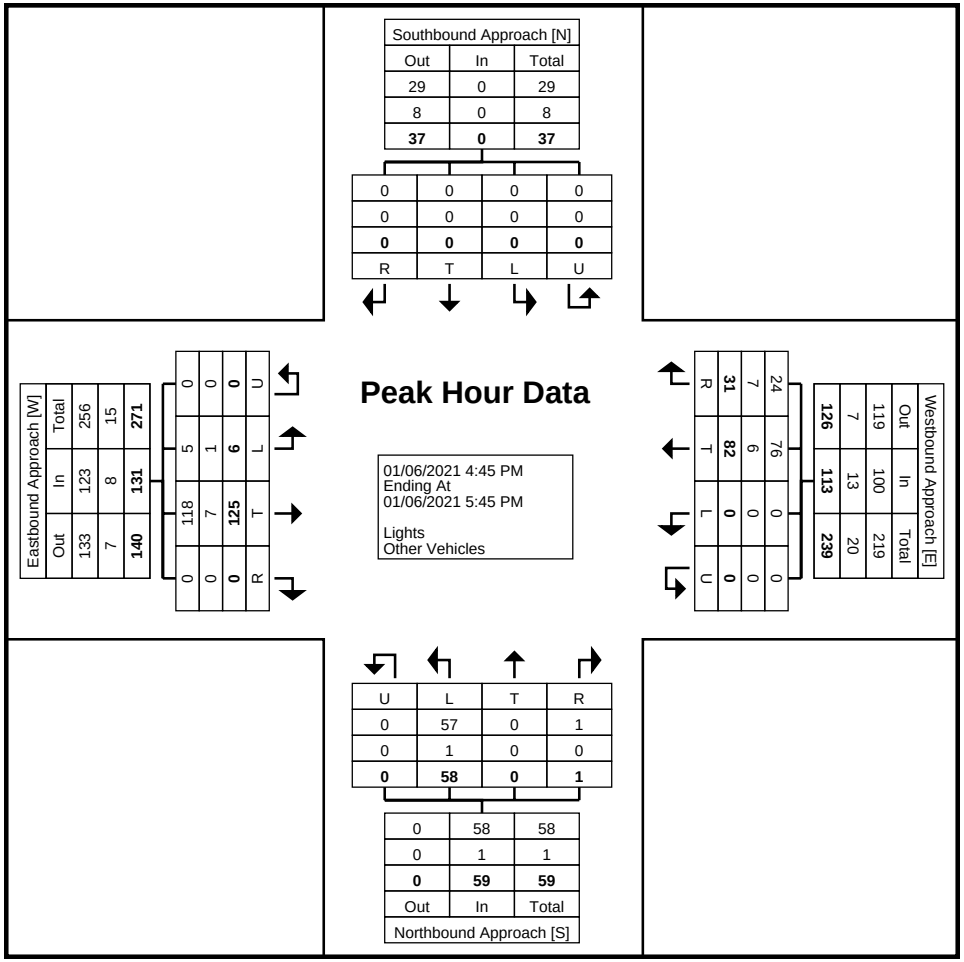
Count Name: VAN-30-16.15 Westbound
Site Code:
Start Date: 01/06/2021

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
4:45 PM	0	0	0	0	0	2	18	0	0	20	0	0	12	0	12	0	38	1	0	39	71
5:00 PM	0	0	0	0	0	5	18	0	0	23	0	0	13	0	13	0	42	2	0	44	80
5:15 PM	0	0	0	0	0	12	31	0	0	43	1	0	16	0	17	0	19	1	0	20	80
5:30 PM	0	0	0	0	0	12	15	0	0	27	0	0	17	0	17	0	26	2	0	28	72
Total	0	0	0	0	0	31	82	0	0	113	1	0	58	0	59	0	125	6	0	131	303
Approach %	0.0	0.0	0.0	0.0	-	27.4	72.6	0.0	0.0	-	1.7	0.0	98.3	0.0	-	0.0	95.4	4.6	0.0	-	-
Total %	0.0	0.0	0.0	0.0	0.0	10.2	27.1	0.0	0.0	37.3	0.3	0.0	19.1	0.0	19.5	0.0	41.3	2.0	0.0	43.2	-
PHF	0.000	0.000	0.000	0.000	0.000	0.646	0.661	0.000	0.000	0.657	0.250	0.000	0.853	0.000	0.868	0.000	0.744	0.750	0.000	0.744	0.947
Lights	0	0	0	0	0	24	76	0	0	100	1	0	57	0	58	0	118	5	0	123	281
% Lights	-	-	-	-	-	77.4	92.7	-	-	88.5	100.0	-	98.3	-	98.3	-	94.4	83.3	-	93.9	92.7
Other Vehicles	0	0	0	0	0	7	6	0	0	13	0	0	1	0	1	0	7	1	0	8	22
% Other Vehicles	-	-	-	-	-	22.6	7.3	-	-	11.5	0.0	-	1.7	-	1.7	-	5.6	16.7	-	6.1	7.3

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-30-16.15 Westbound
Site Code:
Start Date: 01/06/2021



Turning Movement Peak Hour Data Plot (4:45 PM)

Appendix A

Existing Traffic Volume Data - U.S. 224 at Lincoln Highway

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-224-10.891
Site Code:
Start Date: 05/24/2022

Turning Movement Data

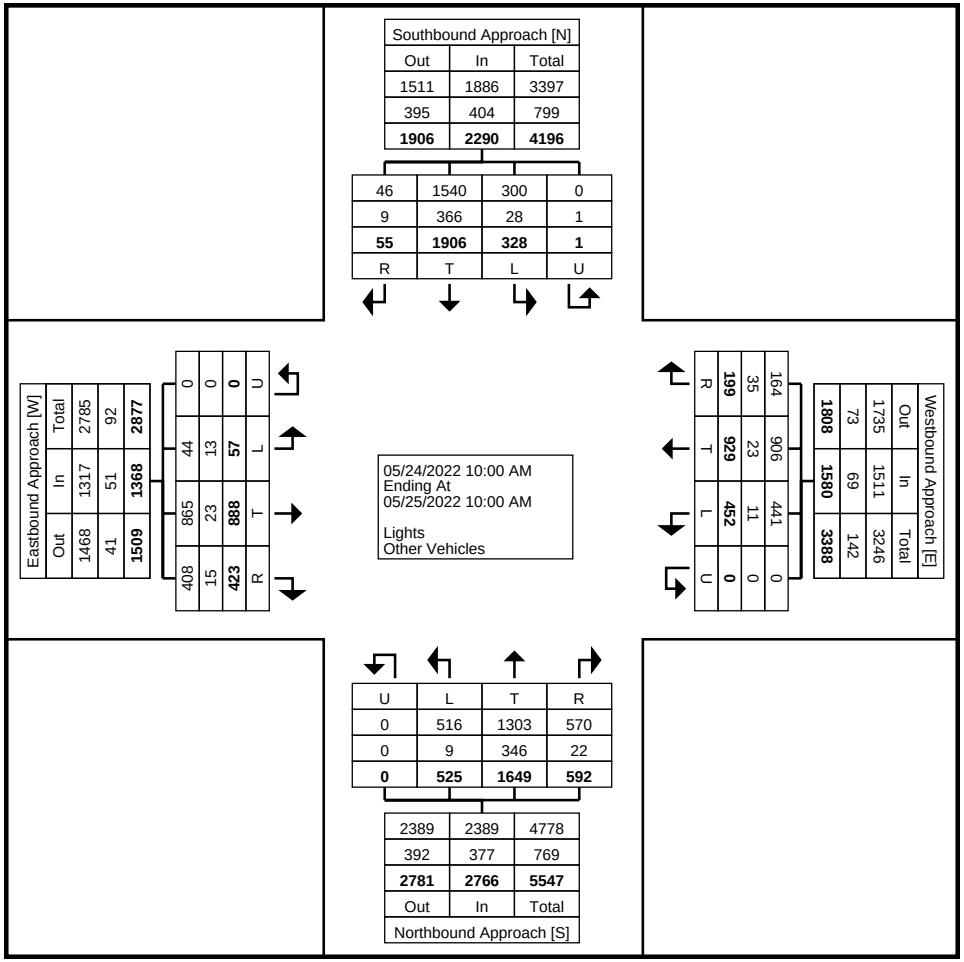
Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
10:00 AM	0	25	11	0	36	4	7	5	0	16	3	19	4	0	26	2	20	1	0	23	101
10:15 AM	0	32	3	0	35	1	15	8	0	24	10	13	7	0	30	3	10	0	0	13	102
10:30 AM	0	25	0	0	25	2	12	2	0	16	6	21	6	0	33	3	8	1	0	12	86
10:45 AM	1	31	3	0	35	6	8	7	0	21	3	25	5	0	33	5	8	1	0	14	103
Hourly Total	1	113	17	0	131	13	42	22	0	77	22	78	22	0	122	13	46	3	0	62	392
11:00 AM	0	21	6	0	27	3	13	9	0	25	10	30	8	0	48	7	11	0	0	18	118
11:15 AM	0	23	7	0	30	1	18	4	0	23	7	25	7	0	39	4	6	0	0	10	102
11:30 AM	3	28	6	0	37	4	11	5	0	20	3	22	4	0	29	6	14	2	0	22	108
11:45 AM	0	27	2	0	29	3	9	9	0	21	9	23	4	0	36	9	11	2	0	22	108
Hourly Total	3	99	21	0	123	11	51	27	0	89	29	100	23	0	152	26	42	4	0	72	436
12:00 PM	0	27	1	0	28	12	27	7	0	46	7	29	8	0	44	10	15	2	0	27	145
12:15 PM	0	26	4	0	30	21	18	3	0	42	10	36	5	0	51	8	15	0	0	23	146
12:30 PM	1	30	3	0	34	3	11	6	0	20	7	24	9	0	40	7	19	0	0	26	120
12:45 PM	0	25	5	0	30	2	11	4	0	17	6	25	7	0	38	10	8	1	0	19	104
Hourly Total	1	108	13	0	122	38	67	20	0	125	30	114	29	0	173	35	57	3	0	95	515
1:00 PM	0	21	4	0	25	2	13	5	0	20	9	33	6	0	48	7	12	2	0	21	114
1:15 PM	0	27	3	0	30	1	8	4	0	13	6	28	11	0	45	15	14	0	0	29	117
1:30 PM	1	30	4	0	35	3	19	10	0	32	5	25	11	0	41	5	8	2	0	15	123
1:45 PM	0	34	6	0	40	0	7	2	0	9	7	33	9	0	49	6	9	0	0	15	113
Hourly Total	1	112	17	0	130	6	47	21	0	74	27	119	37	0	183	33	43	4	0	80	467
2:00 PM	2	31	6	0	39	4	15	5	0	24	12	34	8	0	54	6	22	2	0	30	147
2:15 PM	2	29	3	0	34	2	15	7	0	24	9	26	15	0	50	6	12	2	0	20	128
2:30 PM	2	50	4	0	56	4	30	22	0	56	6	25	8	0	39	4	10	0	0	14	165
2:45 PM	3	24	5	0	32	3	31	17	0	51	7	26	19	0	52	4	13	1	0	18	153
Hourly Total	9	134	18	0	161	13	91	51	0	155	34	111	50	0	195	20	57	5	0	82	593
3:00 PM	2	40	5	0	47	2	25	18	0	45	4	37	11	0	52	4	14	1	0	19	163
3:15 PM	1	45	3	0	49	8	28	13	0	49	6	27	7	0	40	16	26	1	0	43	181
3:30 PM	2	38	4	0	44	1	29	8	0	38	9	40	11	0	60	7	20	0	0	27	169
3:45 PM	0	46	5	0	51	5	18	8	0	31	8	25	11	0	44	8	19	1	0	28	154
Hourly Total	5	169	17	0	191	16	100	47	0	163	27	129	40	0	196	35	79	3	0	117	667
4:00 PM	1	52	8	0	61	3	17	13	0	33	16	32	14	0	62	11	9	3	0	23	179
4:15 PM	0	39	6	0	45	3	16	7	0	26	9	36	8	0	53	11	14	0	0	25	149
4:30 PM	1	46	6	0	53	7	18	13	0	38	13	36	16	0	65	8	16	2	0	26	182
4:45 PM	2	37	3	0	42	3	21	13	0	37	15	39	14	0	68	5	15	0	0	20	167
Hourly Total	4	174	23	0	201	16	72	46	0	134	53	143	52	0	248	35	54	5	0	94	677

5:00 PM	3	38	7	0	48	4	27	16	0	47	14	46	22	0	82	4	16	2	0	22	199
5:15 PM	1	33	6	0	40	4	28	8	0	40	9	32	15	0	56	5	14	0	0	19	155
5:30 PM	2	39	6	0	47	2	26	4	0	32	5	22	17	0	44	7	11	0	0	18	141
5:45 PM	1	23	6	0	30	3	21	3	0	27	6	20	13	0	39	8	11	2	0	21	117
Hourly Total	7	133	25	0	165	13	102	31	0	146	34	120	67	0	221	24	52	4	0	80	612
6:00 PM	1	24	3	0	28	1	25	4	0	30	7	21	7	0	35	7	15	1	0	23	116
6:15 PM	0	27	5	0	32	1	15	8	0	24	9	20	6	0	35	7	12	0	0	19	110
6:30 PM	0	27	6	0	33	1	18	2	0	21	6	20	8	0	34	6	8	3	0	17	105
6:45 PM	1	22	5	0	28	3	12	5	0	20	5	20	14	0	39	2	12	0	0	14	101
Hourly Total	2	100	19	0	121	6	70	19	0	95	27	81	35	0	143	22	47	4	0	73	432
7:00 PM	1	20	1	0	22	2	9	0	0	11	4	19	6	0	29	1	16	1	0	18	80
7:15 PM	1	14	2	0	17	1	9	3	0	13	4	10	5	0	19	0	9	1	0	10	59
7:30 PM	1	22	1	0	24	1	6	2	0	9	7	16	12	0	35	0	11	0	0	11	79
7:45 PM	1	8	2	0	11	1	11	2	0	14	1	13	10	0	24	4	24	1	0	29	78
Hourly Total	4	64	6	0	74	5	35	7	0	47	16	58	33	0	107	5	60	3	0	68	296
8:00 PM	0	16	3	0	19	3	13	2	0	18	4	12	6	0	22	11	17	1	0	29	88
8:15 PM	0	12	1	0	13	1	7	7	0	15	9	6	6	0	21	5	4	0	0	9	58
8:30 PM	0	6	4	0	10	0	7	2	0	9	2	9	12	0	23	10	11	0	0	21	63
8:45 PM	0	15	3	0	18	1	8	7	0	16	2	13	2	0	17	11	15	2	0	28	79
Hourly Total	0	49	11	0	60	5	35	18	0	58	17	40	26	0	83	37	47	3	0	87	288
9:00 PM	1	9	4	0	14	2	11	2	0	15	2	7	5	0	14	6	10	0	0	16	59
9:15 PM	1	15	1	0	17	0	7	1	0	8	5	6	6	0	17	0	6	1	0	7	49
9:30 PM	0	10	2	0	12	0	9	3	0	12	1	8	6	0	15	2	5	0	0	7	46
9:45 PM	1	11	1	0	13	0	2	0	0	2	5	8	1	0	14	3	4	1	0	8	37
Hourly Total	3	45	8	0	56	2	29	6	0	37	13	29	18	0	60	11	25	2	0	38	191
10:00 PM	0	11	0	0	11	0	2	3	0	5	3	4	3	0	10	2	4	0	0	6	32
10:15 PM	0	7	2	0	9	0	3	1	0	4	6	3	2	0	11	1	5	0	0	6	30
10:30 PM	0	7	4	0	11	2	5	2	0	9	3	3	0	0	6	1	2	0	0	3	29
10:45 PM	0	5	2	0	7	1	4	5	0	10	1	1	0	0	2	0	2	0	0	2	21
Hourly Total	0	30	8	0	38	3	14	11	0	28	13	11	5	0	29	4	13	0	0	17	112
11:00 PM	0	6	2	0	8	0	8	8	0	16	1	5	3	0	9	0	1	0	0	1	34
11:15 PM	0	7	1	0	8	2	3	2	0	7	0	2	0	0	2	0	1	0	0	1	18
11:30 PM	0	3	0	0	3	0	2	2	0	4	1	3	1	0	5	0	0	0	0	0	12
11:45 PM	0	5	4	0	9	0	1	3	0	4	0	3	2	0	5	0	0	1	0	1	19
Hourly Total	0	21	7	0	28	2	14	15	0	31	2	13	6	0	21	0	2	1	0	3	83
12:00 AM	1	6	1	0	8	0	1	1	0	2	1	3	0	0	4	0	1	0	0	1	15
12:15 AM	0	2	0	0	2	0	1	0	0	1	0	3	0	0	3	0	1	0	0	1	7
12:30 AM	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
12:45 AM	0	3	0	0	3	0	0	1	0	1	1	3	1	0	5	0	0	0	0	0	9
Hourly Total	1	14	1	0	16	0	3	2	0	5	2	9	1	0	12	0	2	0	0	2	35
1:00 AM	0	6	0	0	6	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	10
1:15 AM	0	0	1	0	1	0	2	1	0	3	0	1	0	0	1	0	0	0	0	0	5
1:30 AM	0	6	0	0	6	0	2	0	0	2	0	1	0	0	1	0	2	0	0	2	11
1:45 AM	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	5
Hourly Total	0	14	1	0	15	0	5	2	0	7	1	4	0	0	5	1	3	0	0	4	31
2:00 AM	0	1	1	0	2	0	0	1	0	1	0	1	0	0	1	0	2	0	0	2	6
2:15 AM	0	1	0	0	1	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	4
2:30 AM	0	7	1	0	8	0	0	0	0	0	0	4	0	0	4	0	1	0	0	1	13
2:45 AM	0	3	0	0	3	0	1	0	0	1	0	3	0	0	3	0	3	0	0	3	10
Hourly Total	0	12	2	0	14	0	2	2	0	4	0	9	0	0	9	0	6	0	0	6	33
3:00 AM	0	1	0	0	1	0	3	0	0	3	0	3	0	0	3	0	0	0	0	0	7
3:15 AM	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	3	0	0	3	9

3:30 AM	0	1	1	0	2	0	1	1	0	2	4	1	0	0	5	1	1	0	0	2	11
3:45 AM	0	2	1	0	3	1	1	1	0	3	2	4	0	0	6	0	2	0	0	2	14
Hourly Total	0	6	2	0	8	1	5	2	0	8	6	12	0	0	18	1	6	0	0	7	41
4:00 AM	0	1	1	0	2	0	1	1	0	2	3	5	0	0	8	0	6	0	0	6	18
4:15 AM	0	2	1	1	4	1	2	2	0	5	6	5	0	0	11	0	0	0	0	0	20
4:30 AM	0	2	0	0	2	0	2	4	0	6	9	1	0	0	10	1	4	1	0	6	24
4:45 AM	0	2	1	0	3	2	0	2	0	4	2	6	0	0	8	0	3	0	0	3	18
Hourly Total	0	7	3	1	11	3	5	9	0	17	20	17	0	0	37	1	13	1	0	15	80
5:00 AM	0	5	2	0	7	0	0	4	0	4	2	8	2	0	12	2	6	0	0	8	31
5:15 AM	0	8	4	0	12	1	1	3	0	5	8	11	4	0	23	7	2	1	0	10	50
5:30 AM	0	10	3	0	13	0	3	5	0	8	18	14	1	0	33	3	7	0	0	10	64
5:45 AM	1	24	9	0	34	0	1	3	0	4	23	14	1	0	38	3	9	1	0	13	89
Hourly Total	1	47	18	0	66	1	5	15	0	21	51	47	8	0	106	15	24	2	0	41	234
6:00 AM	0	7	7	0	14	3	4	4	0	11	12	18	3	0	33	2	11	1	0	14	72
6:15 AM	0	15	14	0	29	2	4	5	0	11	29	25	2	0	56	3	15	1	0	19	115
6:30 AM	0	22	11	0	33	4	6	2	0	12	14	35	3	0	52	6	12	0	0	18	115
6:45 AM	0	22	5	0	27	5	5	12	0	22	14	19	2	0	35	4	12	0	0	16	100
Hourly Total	0	66	37	0	103	14	19	23	0	56	69	97	10	0	176	15	50	2	0	67	402
7:00 AM	1	35	1	0	37	5	12	15	0	32	9	30	5	0	44	5	10	1	0	16	129
7:15 AM	2	25	2	0	29	4	12	9	0	25	10	23	15	0	48	7	8	0	0	15	117
7:30 AM	1	43	6	0	50	1	17	4	0	22	11	33	4	0	48	7	21	1	0	29	149
7:45 AM	2	37	4	0	43	0	9	2	0	11	23	27	4	0	54	22	33	1	0	56	164
Hourly Total	6	140	13	0	159	10	50	30	0	90	53	113	28	0	194	41	72	3	0	116	559
8:00 AM	0	27	3	0	30	3	7	5	0	15	7	32	5	0	44	7	18	0	0	25	114
8:15 AM	1	28	6	0	35	1	6	5	0	12	4	30	3	0	37	8	13	1	0	22	106
8:30 AM	1	40	4	0	45	3	10	3	0	16	3	26	2	0	31	8	9	0	0	17	109
8:45 AM	0	35	8	0	43	2	10	1	0	13	3	26	6	0	35	7	12	0	0	19	110
Hourly Total	2	130	21	0	153	9	33	14	0	56	17	114	16	0	147	30	52	1	0	83	439
9:00 AM	0	31	2	0	33	3	7	2	0	12	5	25	3	0	33	6	12	0	0	18	96
9:15 AM	0	31	8	0	39	2	5	4	0	11	9	17	4	0	30	4	10	1	0	15	95
9:30 AM	3	28	4	0	35	3	10	3	0	16	9	21	4	0	34	7	6	2	0	15	100
9:45 AM	2	29	6	0	37	4	11	3	0	18	6	18	8	0	32	2	8	1	0	11	98
Hourly Total	5	119	20	0	144	12	33	12	0	57	29	81	19	0	129	19	36	4	0	59	389
Grand Total	55	1906	328	1	2290	199	929	452	0	1580	592	1649	525	0	2766	423	888	57	0	1368	8004
Approach %	2.4	83.2	14.3	0.0	-	12.6	58.8	28.6	0.0	-	21.4	59.6	19.0	0.0	-	30.9	64.9	4.2	0.0	-	-
Total %	0.7	23.8	4.1	0.0	28.6	2.5	11.6	5.6	0.0	19.7	7.4	20.6	6.6	0.0	34.6	5.3	11.1	0.7	0.0	17.1	-
Lights	46	1540	300	0	1886	164	906	441	0	1511	570	1303	516	0	2389	408	865	44	0	1317	7103
% Lights	83.6	80.8	91.5	0.0	82.4	82.4	97.5	97.6	-	95.6	96.3	79.0	98.3	-	86.4	96.5	97.4	77.2	-	96.3	88.7
Other Vehicles	9	366	28	1	404	35	23	11	0	69	22	346	9	0	377	15	23	13	0	51	901
% Other Vehicles	16.4	19.2	8.5	100.0	17.6	17.6	2.5	2.4	-	4.4	3.7	21.0	1.7	-	13.6	3.5	2.6	22.8	-	3.7	11.3

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-224-10.891
Site Code:
Start Date: 05/24/2022



Turning Movement Data Plot

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

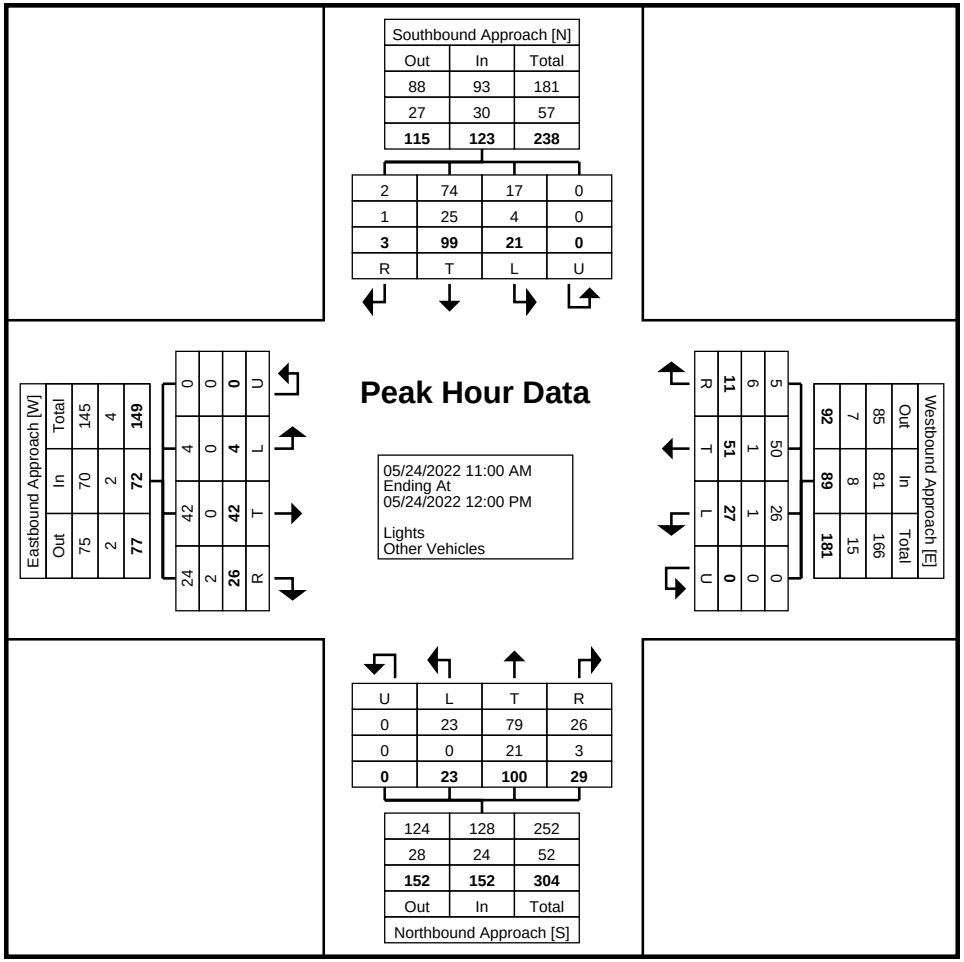
Count Name: VAN-224-10.891
Site Code:
Start Date: 05/24/2022

Turning Movement Peak Hour Data (11:00 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
11:00 AM	0	21	6	0	27	3	13	9	0	25	10	30	8	0	48	7	11	0	0	18	118
11:15 AM	0	23	7	0	30	1	18	4	0	23	7	25	7	0	39	4	6	0	0	10	102
11:30 AM	3	28	6	0	37	4	11	5	0	20	3	22	4	0	29	6	14	2	0	22	108
11:45 AM	0	27	2	0	29	3	9	9	0	21	9	23	4	0	36	9	11	2	0	22	108
Total	3	99	21	0	123	11	51	27	0	89	29	100	23	0	152	26	42	4	0	72	436
Approach %	2.4	80.5	17.1	0.0	-	12.4	57.3	30.3	0.0	-	19.1	65.8	15.1	0.0	-	36.1	58.3	5.6	0.0	-	-
Total %	0.7	22.7	4.8	0.0	28.2	2.5	11.7	6.2	0.0	20.4	6.7	22.9	5.3	0.0	34.9	6.0	9.6	0.9	0.0	16.5	-
PHF	0.250	0.884	0.750	0.000	0.831	0.688	0.708	0.750	0.000	0.890	0.725	0.833	0.719	0.000	0.792	0.722	0.750	0.500	0.000	0.818	0.924
Lights	2	74	17	0	93	5	50	26	0	81	26	79	23	0	128	24	42	4	0	70	372
% Lights	66.7	74.7	81.0	-	75.6	45.5	98.0	96.3	-	91.0	89.7	79.0	100.0	-	84.2	92.3	100.0	100.0	-	97.2	85.3
Other Vehicles	1	25	4	0	30	6	1	1	0	8	3	21	0	0	24	2	0	0	0	2	64
% Other Vehicles	33.3	25.3	19.0	-	24.4	54.5	2.0	3.7	-	9.0	10.3	21.0	0.0	-	15.8	7.7	0.0	0.0	-	2.8	14.7

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-224-10.891
Site Code:
Start Date: 05/24/2022



Turning Movement Peak Hour Data Plot (11:00 AM)

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
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Office of Traffic Engineering

Count Name: VAN-224-10.891
Site Code:
Start Date: 05/24/2022

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
4:30 PM	1	46	6	0	53	7	18	13	0	38	13	36	16	0	65	8	16	2	0	26	182
4:45 PM	2	37	3	0	42	3	21	13	0	37	15	39	14	0	68	5	15	0	0	20	167
5:00 PM	3	38	7	0	48	4	27	16	0	47	14	46	22	0	82	4	16	2	0	22	199
5:15 PM	1	33	6	0	40	4	28	8	0	40	9	32	15	0	56	5	14	0	0	19	155
Total	7	154	22	0	183	18	94	50	0	162	51	153	67	0	271	22	61	4	0	87	703
Approach %	3.8	84.2	12.0	0.0	-	11.1	58.0	30.9	0.0	-	18.8	56.5	24.7	0.0	-	25.3	70.1	4.6	0.0	-	-
Total %	1.0	21.9	3.1	0.0	26.0	2.6	13.4	7.1	0.0	23.0	7.3	21.8	9.5	0.0	38.5	3.1	8.7	0.6	0.0	12.4	-
PHF	0.583	0.837	0.786	0.000	0.863	0.643	0.839	0.781	0.000	0.862	0.850	0.832	0.761	0.000	0.826	0.688	0.953	0.500	0.000	0.837	0.883
Lights	7	141	21	0	169	15	94	50	0	159	51	136	66	0	253	22	60	2	0	84	665
% Lights	100.0	91.6	95.5	-	92.3	83.3	100.0	100.0	-	98.1	100.0	88.9	98.5	-	93.4	100.0	98.4	50.0	-	96.6	94.6
Other Vehicles	0	13	1	0	14	3	0	0	0	3	0	17	1	0	18	0	1	2	0	3	38
% Other Vehicles	0.0	8.4	4.5	-	7.7	16.7	0.0	0.0	-	1.9	0.0	11.1	1.5	-	6.6	0.0	1.6	50.0	-	3.4	5.4

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Site Code:
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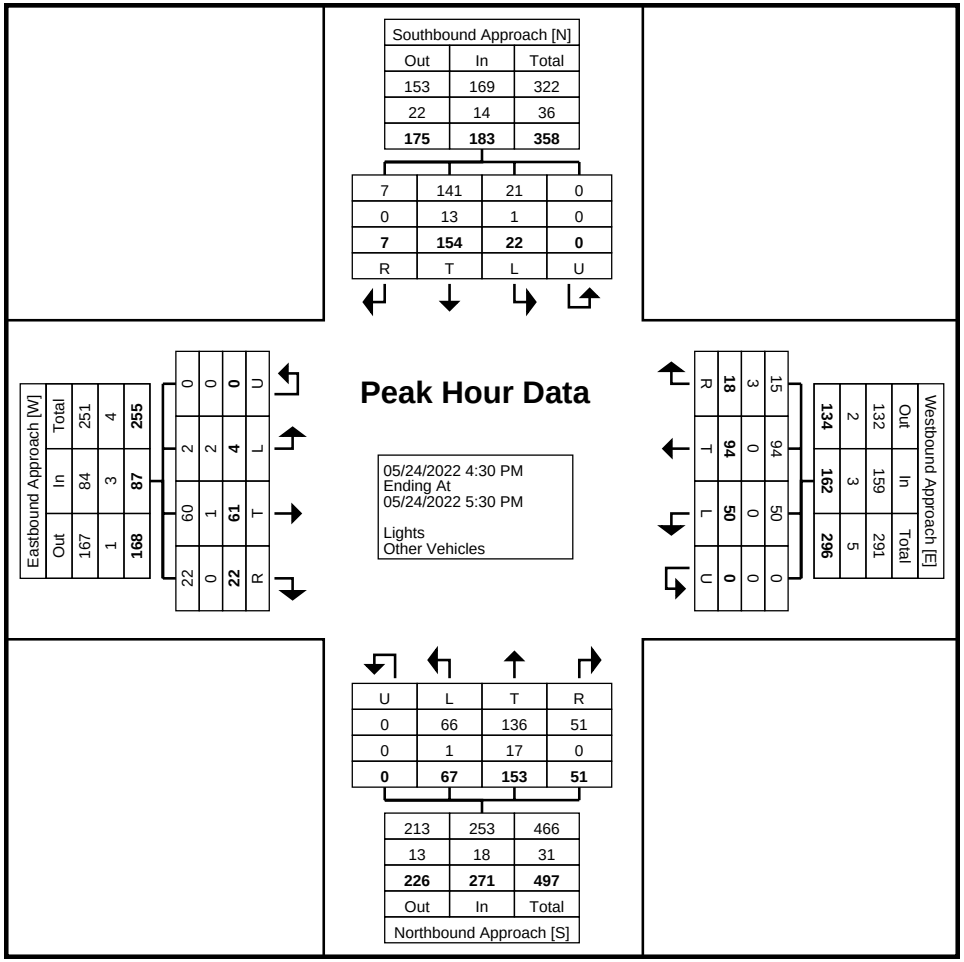

Turning Movement Peak Hour Data Plot (4:30 PM)

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
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Office of Traffic Engineering

Count Name: VAN-224-10.891
Site Code:
Start Date: 05/24/2022

Turning Movement Peak Hour Data (7:00 AM)

Start Time	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
	Southbound					Westbound					Northbound					Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
7:00 AM	1	35	1	0	37	5	12	15	0	32	9	30	5	0	44	5	10	1	0	16	129
7:15 AM	2	25	2	0	29	4	12	9	0	25	10	23	15	0	48	7	8	0	0	15	117
7:30 AM	1	43	6	0	50	1	17	4	0	22	11	33	4	0	48	7	21	1	0	29	149
7:45 AM	2	37	4	0	43	0	9	2	0	11	23	27	4	0	54	22	33	1	0	56	164
Total	6	140	13	0	159	10	50	30	0	90	53	113	28	0	194	41	72	3	0	116	559
Approach %	3.8	88.1	8.2	0.0	-	11.1	55.6	33.3	0.0	-	27.3	58.2	14.4	0.0	-	35.3	62.1	2.6	0.0	-	-
Total %	1.1	25.0	2.3	0.0	28.4	1.8	8.9	5.4	0.0	16.1	9.5	20.2	5.0	0.0	34.7	7.3	12.9	0.5	0.0	20.8	-
PHF	0.750	0.814	0.542	0.000	0.795	0.500	0.735	0.500	0.000	0.703	0.576	0.856	0.467	0.000	0.898	0.466	0.545	0.750	0.000	0.518	0.852
Lights	3	124	11	0	138	8	48	27	0	83	52	86	28	0	166	41	69	3	0	113	500
% Lights	50.0	88.6	84.6	-	86.8	80.0	96.0	90.0	-	92.2	98.1	76.1	100.0	-	85.6	100.0	95.8	100.0	-	97.4	89.4
Other Vehicles	3	16	2	0	21	2	2	3	0	7	1	27	0	0	28	0	3	0	0	3	59
% Other Vehicles	50.0	11.4	15.4	-	13.2	20.0	4.0	10.0	-	7.8	1.9	23.9	0.0	-	14.4	0.0	4.2	0.0	-	2.6	10.6

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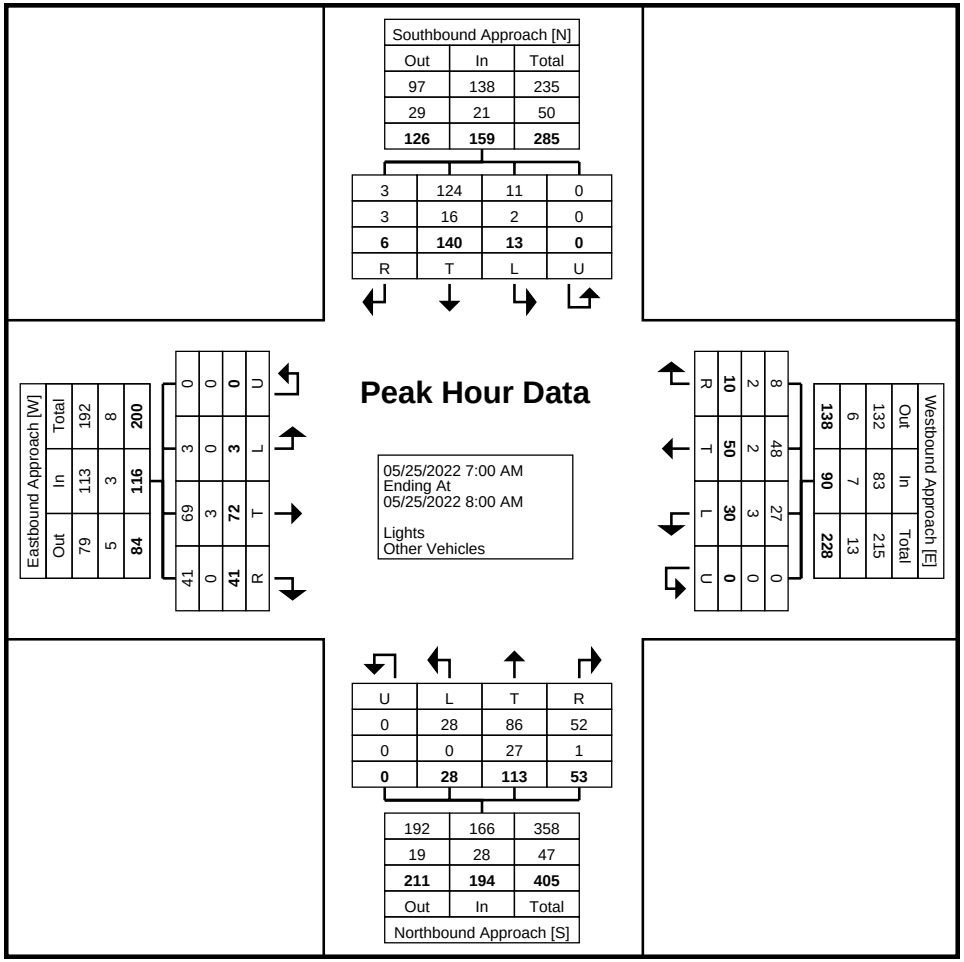

Turning Movement Peak Hour Data Plot (7:00 AM)

Appendix A

Existing Traffic Volume Data - U.S. 127

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-127-10.610
Site Code:
Start Date: 05/24/2022

Turning Movement Data

Start Time	Southbound Approach Southbound				Westbound Approach Westbound				Northbound Approach Northbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
10:00 AM	70	2	0	72	2	0	0	2	1	72	0	73	147
10:15 AM	79	2	0	81	2	3	0	5	2	81	0	83	169
10:30 AM	74	0	0	74	3	0	0	3	2	99	0	101	178
10:45 AM	82	2	0	84	5	1	0	6	3	108	0	111	201
Hourly Total	305	6	0	311	12	4	0	16	8	360	0	368	695
11:00 AM	85	5	0	90	3	2	0	5	3	109	0	112	207
11:15 AM	90	2	0	92	3	2	0	5	3	102	0	105	202
11:30 AM	102	1	0	103	2	0	0	2	1	114	0	115	220
11:45 AM	92	0	0	92	6	0	0	6	3	97	0	100	198
Hourly Total	369	8	0	377	14	4	0	18	10	422	0	432	827
12:00 PM	91	0	0	91	4	2	0	6	4	131	0	135	232
12:15 PM	104	2	0	106	3	1	0	4	2	136	0	138	248
12:30 PM	110	1	0	111	7	2	0	9	4	111	0	115	235
12:45 PM	83	0	0	83	3	2	0	5	5	108	0	113	201
Hourly Total	388	3	0	391	17	7	0	24	15	486	0	501	916
1:00 PM	104	2	0	106	4	2	0	6	3	112	0	115	227
1:15 PM	100	1	0	101	1	1	0	2	2	80	0	82	185
1:30 PM	102	2	0	104	2	2	0	4	4	96	0	100	208
1:45 PM	87	6	0	93	3	1	0	4	2	115	0	117	214
Hourly Total	393	11	0	404	10	6	0	16	11	403	0	414	834
2:00 PM	94	5	0	99	5	1	0	6	4	103	0	107	212
2:15 PM	84	6	0	90	4	1	0	5	5	78	0	83	178
2:30 PM	124	7	0	131	2	3	0	5	2	71	0	73	209
2:45 PM	108	3	0	111	1	3	0	4	2	101	0	103	218
Hourly Total	410	21	0	431	12	8	0	20	13	353	0	366	817
3:00 PM	91	1	0	92	2	1	0	3	3	90	0	93	188
3:15 PM	101	2	0	103	4	5	0	9	5	122	0	127	239
3:30 PM	102	0	0	102	2	0	0	2	4	101	0	105	209
3:45 PM	87	2	0	89	2	6	0	8	3	106	0	109	206
Hourly Total	381	5	0	386	10	12	0	22	15	419	0	434	842
4:00 PM	98	0	0	98	1	1	0	2	4	140	0	144	244
4:15 PM	102	0	0	102	3	4	0	7	8	103	0	111	220
4:30 PM	111	4	0	115	3	3	0	6	6	56	0	62	183
4:45 PM	90	4	0	94	0	5	0	5	6	112	0	118	217
Hourly Total	401	8	0	409	7	13	0	20	24	411	0	435	864

5:00 PM	94	6	0	100	6	2	0	8	5	109	0	114	222
5:15 PM	84	4	0	88	6	2	0	8	6	131	0	137	233
5:30 PM	91	6	0	97	1	5	0	6	6	82	0	88	191
5:45 PM	75	8	0	83	0	1	0	1	7	95	0	102	186
Hourly Total	344	24	0	368	13	10	0	23	24	417	0	441	832
6:00 PM	76	2	0	78	9	1	0	10	5	81	0	86	174
6:15 PM	73	4	0	77	2	4	0	6	7	62	0	69	152
6:30 PM	75	2	0	77	2	6	0	8	4	70	0	74	159
6:45 PM	76	4	0	80	4	3	0	7	6	81	0	87	174
Hourly Total	300	12	0	312	17	14	0	31	22	294	0	316	659
7:00 PM	59	4	0	63	17	6	0	23	7	72	0	79	165
7:15 PM	61	8	0	69	6	7	0	13	7	81	0	88	170
7:30 PM	45	3	0	48	4	7	0	11	2	71	0	73	132
7:45 PM	51	2	0	53	2	2	0	4	3	64	0	67	124
Hourly Total	216	17	0	233	29	22	0	51	19	288	0	307	591
8:00 PM	55	0	0	55	2	2	0	4	0	56	0	56	115
8:15 PM	49	0	0	49	3	4	0	7	3	55	0	58	114
8:30 PM	60	2	0	62	4	2	0	6	2	43	0	45	113
8:45 PM	52	0	0	52	2	2	0	4	0	40	0	40	96
Hourly Total	216	2	0	218	11	10	0	21	5	194	0	199	438
9:00 PM	41	0	0	41	12	4	0	16	3	46	0	49	106
9:15 PM	31	0	0	31	0	3	0	3	1	44	0	45	79
9:30 PM	42	0	0	42	0	1	0	1	3	25	0	28	71
9:45 PM	39	0	0	39	1	2	0	3	1	35	0	36	78
Hourly Total	153	0	0	153	13	10	0	23	8	150	0	158	334
10:00 PM	25	0	0	25	0	3	0	3	1	36	0	37	65
10:15 PM	30	0	0	30	1	2	0	3	1	28	0	29	62
10:30 PM	32	0	0	32	0	0	0	0	2	29	0	31	63
10:45 PM	20	0	0	20	1	2	0	3	0	23	0	23	46
Hourly Total	107	0	0	107	2	7	0	9	4	116	0	120	236
11:00 PM	29	0	0	29	0	4	0	4	0	19	0	19	52
11:15 PM	16	0	0	16	0	0	0	0	1	24	0	25	41
11:30 PM	23	0	0	23	0	2	0	2	1	17	0	18	43
11:45 PM	21	0	0	21	1	0	0	1	0	15	0	15	37
Hourly Total	89	0	0	89	1	6	0	7	2	75	0	77	173
12:00 AM	10	0	0	10	1	2	0	3	1	12	0	13	26
12:15 AM	16	1	0	17	0	0	0	0	2	16	0	18	35
12:30 AM	17	0	0	17	0	1	0	1	0	17	0	17	35
12:45 AM	9	0	0	9	0	0	0	0	0	17	0	17	26
Hourly Total	52	1	0	53	1	3	0	4	3	62	0	65	122
1:00 AM	5	1	0	6	0	0	0	0	0	12	0	12	18
1:15 AM	8	0	0	8	0	1	0	1	0	12	0	12	21
1:30 AM	5	0	0	5	0	0	0	0	0	10	0	10	15
1:45 AM	9	1	0	10	0	0	0	0	0	5	0	5	15
Hourly Total	27	2	0	29	0	1	0	1	0	39	0	39	69
2:00 AM	7	0	0	7	0	1	0	1	1	16	0	17	25
2:15 AM	6	0	0	6	0	0	0	0	1	9	0	10	16
2:30 AM	9	0	0	9	0	1	0	1	0	17	0	17	27
2:45 AM	14	1	0	15	0	0	0	0	0	18	0	18	33
Hourly Total	36	1	0	37	0	2	0	2	2	60	0	62	101
3:00 AM	13	0	0	13	0	1	0	1	1	19	0	20	34
3:15 AM	5	0	0	5	0	0	0	0	1	15	0	16	21

3:30 AM	11	1	0	12	1	0	0	1	1	11	0	12	25
3:45 AM	9	2	0	11	0	0	0	0	2	21	0	23	34
Hourly Total	38	3	0	41	1	1	0	2	5	66	0	71	114
4:00 AM	14	0	0	14	0	0	0	0	1	17	0	18	32
4:15 AM	14	0	0	14	0	1	0	1	1	21	0	22	37
4:30 AM	12	0	0	12	0	0	0	0	1	25	0	26	38
4:45 AM	22	0	0	22	0	1	0	1	5	20	0	25	48
Hourly Total	62	0	0	62	0	2	0	2	8	83	0	91	155
5:00 AM	16	1	0	17	0	0	0	0	0	26	0	26	43
5:15 AM	34	0	0	34	1	2	0	3	1	33	0	34	71
5:30 AM	30	2	0	32	2	0	0	2	3	42	0	45	79
5:45 AM	37	1	0	38	1	1	0	2	6	42	0	48	88
Hourly Total	117	4	0	121	4	3	0	7	10	143	0	153	281
6:00 AM	38	0	0	38	1	0	0	1	1	43	0	44	83
6:15 AM	34	1	0	35	1	1	0	2	2	66	0	68	105
6:30 AM	57	1	0	58	0	0	0	0	5	53	0	58	116
6:45 AM	44	0	0	44	0	2	0	2	4	55	0	59	105
Hourly Total	173	2	0	175	2	3	0	5	12	217	0	229	409
7:00 AM	52	1	0	53	3	1	0	4	1	63	0	64	121
7:15 AM	51	2	0	53	0	2	0	2	2	66	0	68	123
7:30 AM	82	1	0	83	1	3	0	4	1	71	0	72	159
7:45 AM	77	0	0	77	0	4	0	4	2	79	0	81	162
Hourly Total	262	4	0	266	4	10	0	14	6	279	0	285	565
8:00 AM	72	0	0	72	3	0	0	3	3	78	0	81	156
8:15 AM	60	0	0	60	1	1	0	2	2	72	0	74	136
8:30 AM	56	4	0	60	1	2	0	3	0	53	0	53	116
8:45 AM	59	2	0	61	1	3	0	4	2	65	0	67	132
Hourly Total	247	6	0	253	6	6	0	12	7	268	0	275	540
9:00 AM	64	0	0	64	1	2	0	3	3	89	0	92	159
9:15 AM	69	0	0	69	3	1	0	4	2	99	0	101	174
9:30 AM	89	0	0	89	4	2	0	6	2	82	0	84	179
9:45 AM	73	0	0	73	2	1	0	3	2	87	0	89	165
Hourly Total	295	0	0	295	10	6	0	16	9	357	0	366	677
Grand Total	5381	140	0	5521	196	170	0	366	242	5962	0	6204	12091
Approach %	97.5	2.5	0.0	-	53.6	46.4	0.0	-	3.9	96.1	0.0	-	-
Total %	44.5	1.2	0.0	45.7	1.6	1.4	0.0	3.0	2.0	49.3	0.0	51.3	-
Lights	4115	124	0	4239	176	165	0	341	234	4546	0	4780	9360
% Lights	76.5	88.6	-	76.8	89.8	97.1	-	93.2	96.7	76.2	-	77.0	77.4
Other Vehicles	1266	16	0	1282	20	5	0	25	8	1416	0	1424	2731
% Other Vehicles	23.5	11.4	-	23.2	10.2	2.9	-	6.8	3.3	23.8	-	23.0	22.6

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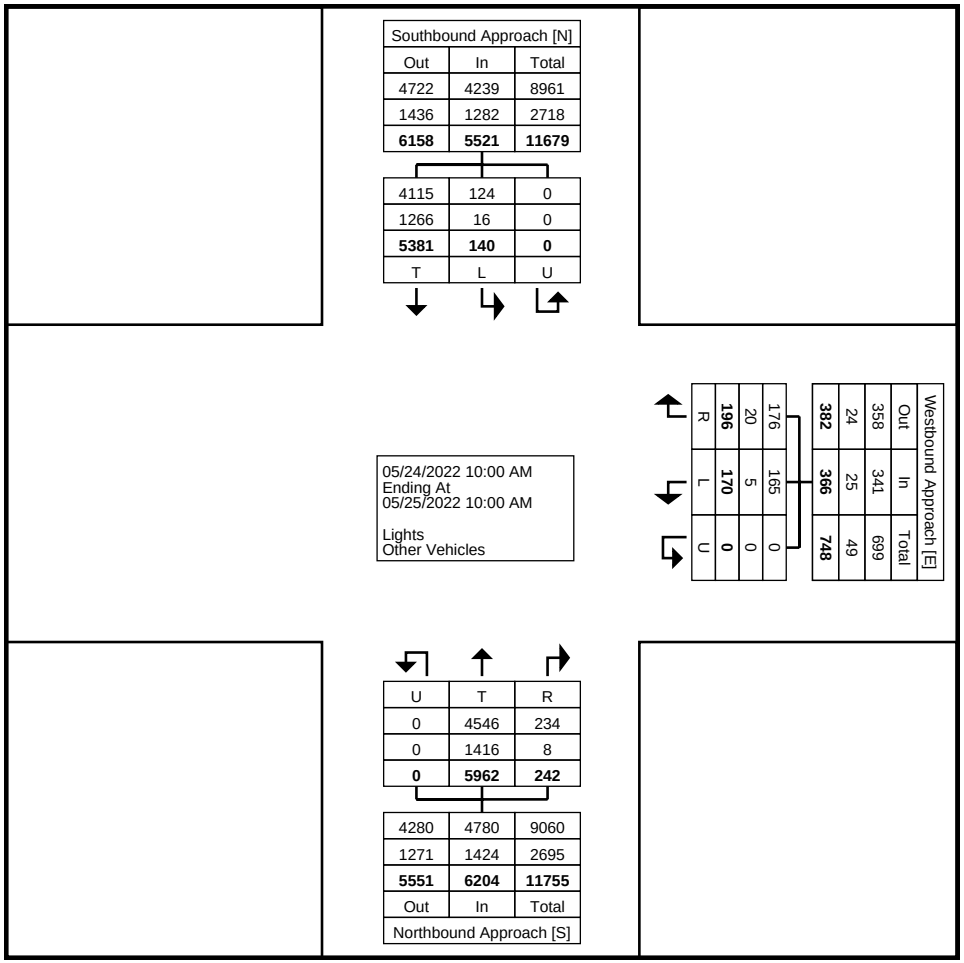
Site Code:
Start Date: 05/24/2022



Turning Movement Data Plot

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

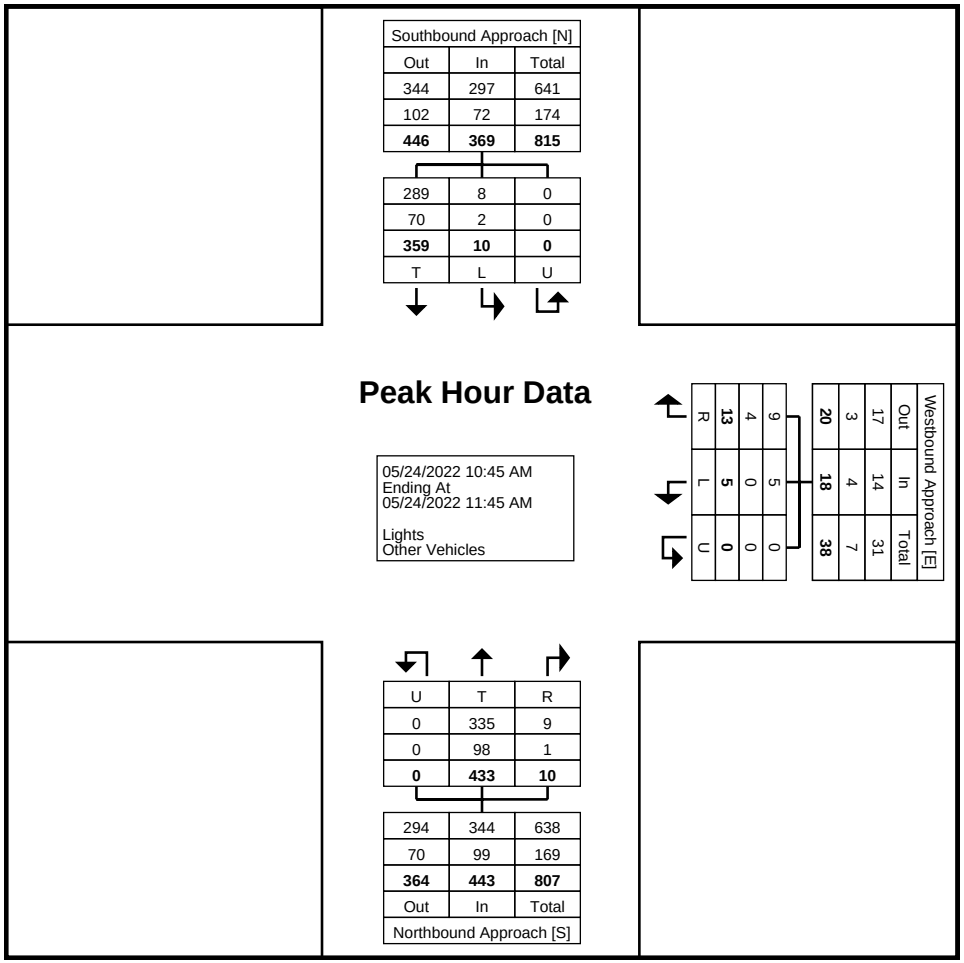
Count Name: VAN-127-10.610
Site Code:
Start Date: 05/24/2022

Turning Movement Peak Hour Data (10:45 AM)

Start Time	Southbound Approach Southbound				Westbound Approach Westbound				Northbound Approach Northbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
10:45 AM	82	2	0	84	5	1	0	6	3	108	0	111	201
11:00 AM	85	5	0	90	3	2	0	5	3	109	0	112	207
11:15 AM	90	2	0	92	3	2	0	5	3	102	0	105	202
11:30 AM	102	1	0	103	2	0	0	2	1	114	0	115	220
Total	359	10	0	369	13	5	0	18	10	433	0	443	830
Approach %	97.3	2.7	0.0	-	72.2	27.8	0.0	-	2.3	97.7	0.0	-	-
Total %	43.3	1.2	0.0	44.5	1.6	0.6	0.0	2.2	1.2	52.2	0.0	53.4	-
PHF	0.880	0.500	0.000	0.896	0.650	0.625	0.000	0.750	0.833	0.950	0.000	0.963	0.943
Lights	289	8	0	297	9	5	0	14	9	335	0	344	655
% Lights	80.5	80.0	-	80.5	69.2	100.0	-	77.8	90.0	77.4	-	77.7	78.9
Other Vehicles	70	2	0	72	4	0	0	4	1	98	0	99	175
% Other Vehicles	19.5	20.0	-	19.5	30.8	0.0	-	22.2	10.0	22.6	-	22.3	21.1

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-127-10.610
Site Code:
Start Date: 05/24/2022



Turning Movement Peak Hour Data Plot (10:45 AM)

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-127-10.610
Site Code:
Start Date: 05/24/2022

Turning Movement Peak Hour Data (12:00 PM)

Start Time	Southbound Approach Southbound				Westbound Approach Westbound				Northbound Approach Northbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
12:00 PM	91	0	0	91	4	2	0	6	4	131	0	135	232
12:15 PM	104	2	0	106	3	1	0	4	2	136	0	138	248
12:30 PM	110	1	0	111	7	2	0	9	4	111	0	115	235
12:45 PM	83	0	0	83	3	2	0	5	5	108	0	113	201
Total	388	3	0	391	17	7	0	24	15	486	0	501	916
Approach %	99.2	0.8	0.0	-	70.8	29.2	0.0	-	3.0	97.0	0.0	-	-
Total %	42.4	0.3	0.0	42.7	1.9	0.8	0.0	2.6	1.6	53.1	0.0	54.7	-
PHF	0.882	0.375	0.000	0.881	0.607	0.875	0.000	0.667	0.750	0.893	0.000	0.908	0.923
Lights	307	3	0	310	15	6	0	21	14	382	0	396	727
% Lights	79.1	100.0	-	79.3	88.2	85.7	-	87.5	93.3	78.6	-	79.0	79.4
Other Vehicles	81	0	0	81	2	1	0	3	1	104	0	105	189
% Other Vehicles	20.9	0.0	-	20.7	11.8	14.3	-	12.5	6.7	21.4	-	21.0	20.6

Ohio Department of Transportation
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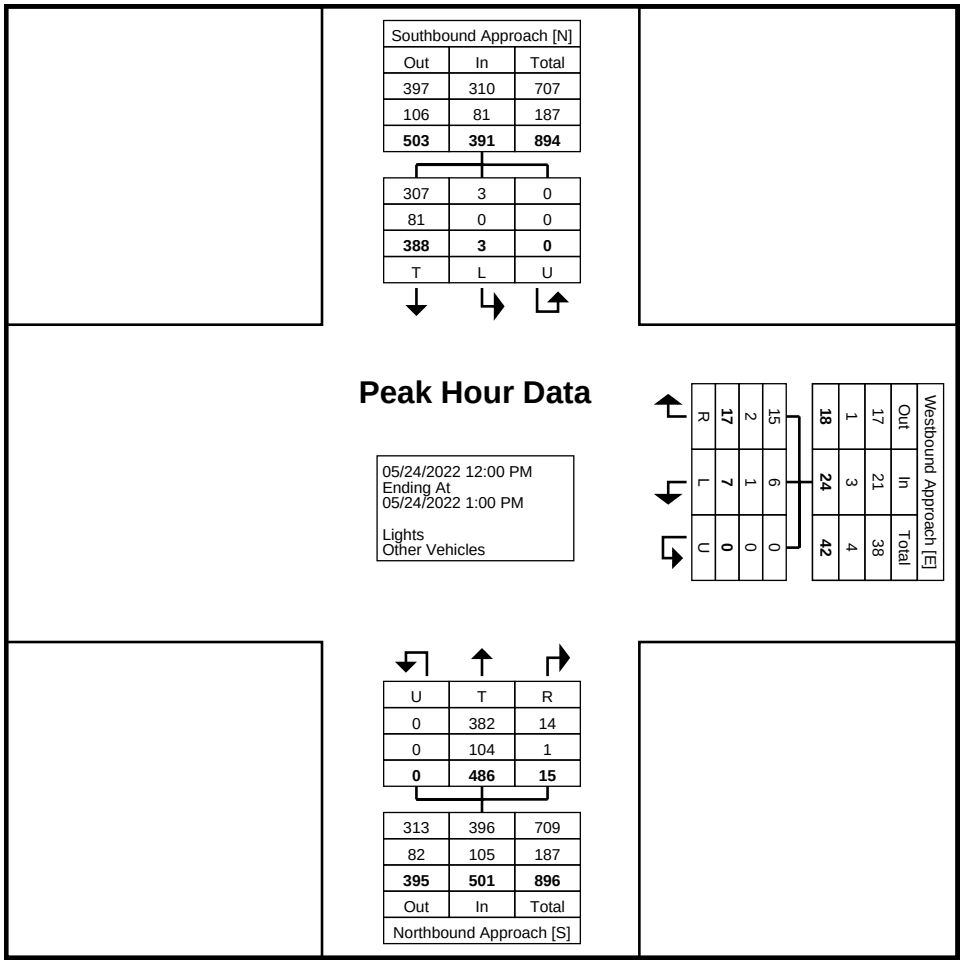


Turning Movement Peak Hour Data Plot (12:00 PM)

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

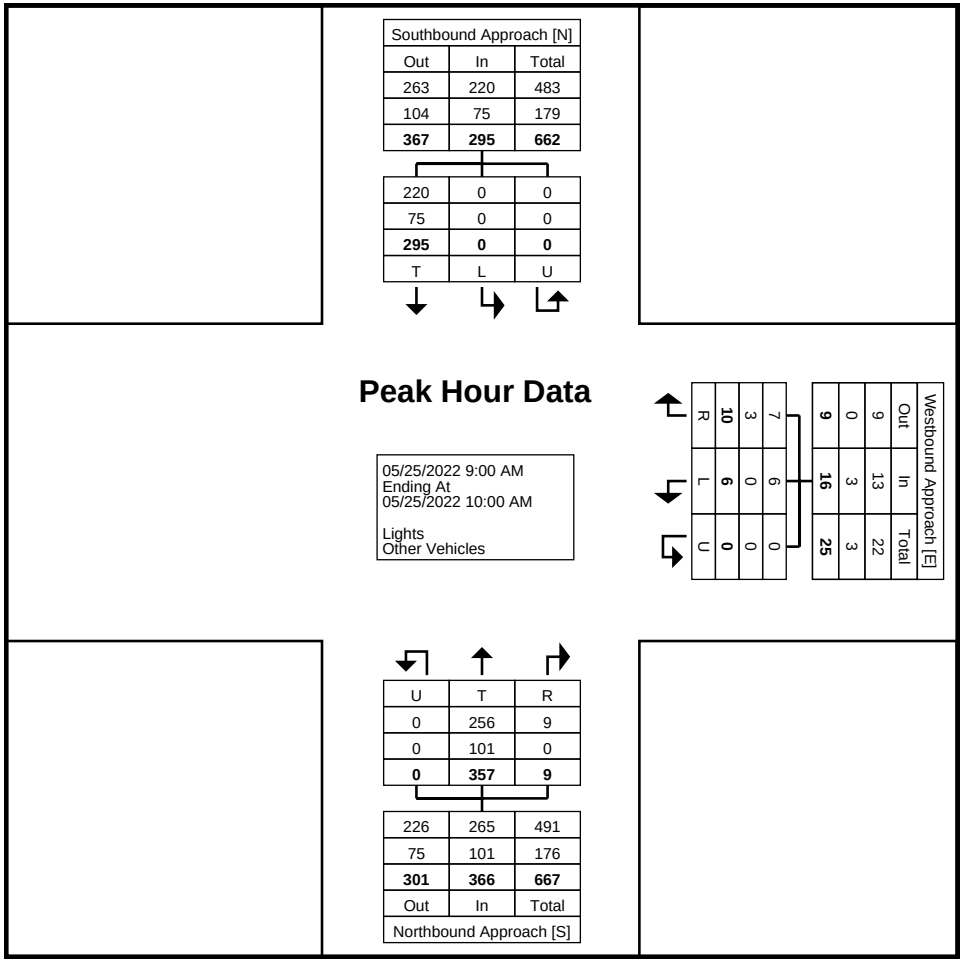
Count Name: VAN-127-10.610
Site Code:
Start Date: 05/24/2022

Turning Movement Peak Hour Data (9:00 AM)

Start Time	Southbound Approach Southbound				Westbound Approach Westbound				Northbound Approach Northbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
9:00 AM	64	0	0	64	1	2	0	3	3	89	0	92	159
9:15 AM	69	0	0	69	3	1	0	4	2	99	0	101	174
9:30 AM	89	0	0	89	4	2	0	6	2	82	0	84	179
9:45 AM	73	0	0	73	2	1	0	3	2	87	0	89	165
Total	295	0	0	295	10	6	0	16	9	357	0	366	677
Approach %	100.0	0.0	0.0	-	62.5	37.5	0.0	-	2.5	97.5	0.0	-	-
Total %	43.6	0.0	0.0	43.6	1.5	0.9	0.0	2.4	1.3	52.7	0.0	54.1	-
PHF	0.829	0.000	0.000	0.829	0.625	0.750	0.000	0.667	0.750	0.902	0.000	0.906	0.946
Lights	220	0	0	220	7	6	0	13	9	256	0	265	498
% Lights	74.6	-	-	74.6	70.0	100.0	-	81.3	100.0	71.7	-	72.4	73.6
Other Vehicles	75	0	0	75	3	0	0	3	0	101	0	101	179
% Other Vehicles	25.4	-	-	25.4	30.0	0.0	-	18.8	0.0	28.3	-	27.6	26.4

Ohio Department of Transportation
1980 West Broad Street
Mail Stop 5160
Columbus, Ohio, United States 43223
+16147528099 Kylie.Siebeneck@dot.ohio.gov
Office of Traffic Engineering

Count Name: VAN-127-10.610
Site Code:
Start Date: 05/24/2022



Turning Movement Peak Hour Data Plot (9:00 AM)

OHIO DEPARTMENT OF TRANSPORTATION

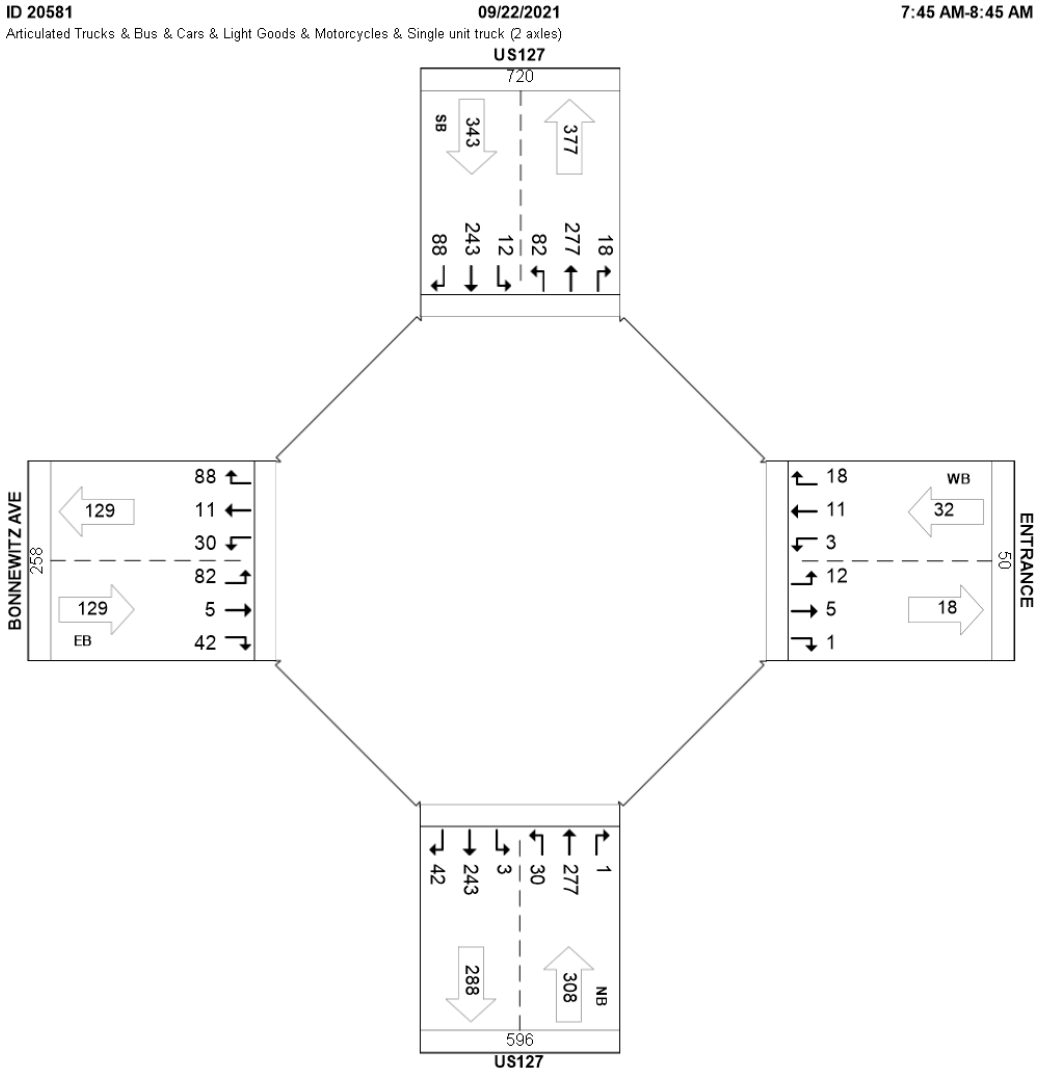
Peak Hour Data for Intersection

Int ID:	20581		
Community:	VAN WERT	**Zone:**	N/A
Road 1:	BONNEWITZ AVE	**Road 2:**	US127
Road 3:	US127	**Road 4:**	ENTRANCE

AM Peak Hour (09/22/2021)

☑ Articulated Trucks ☑ Bus ☑ Cars & Light Goods ☑ Motorcycles ☑ Single unit truck (2 axles)

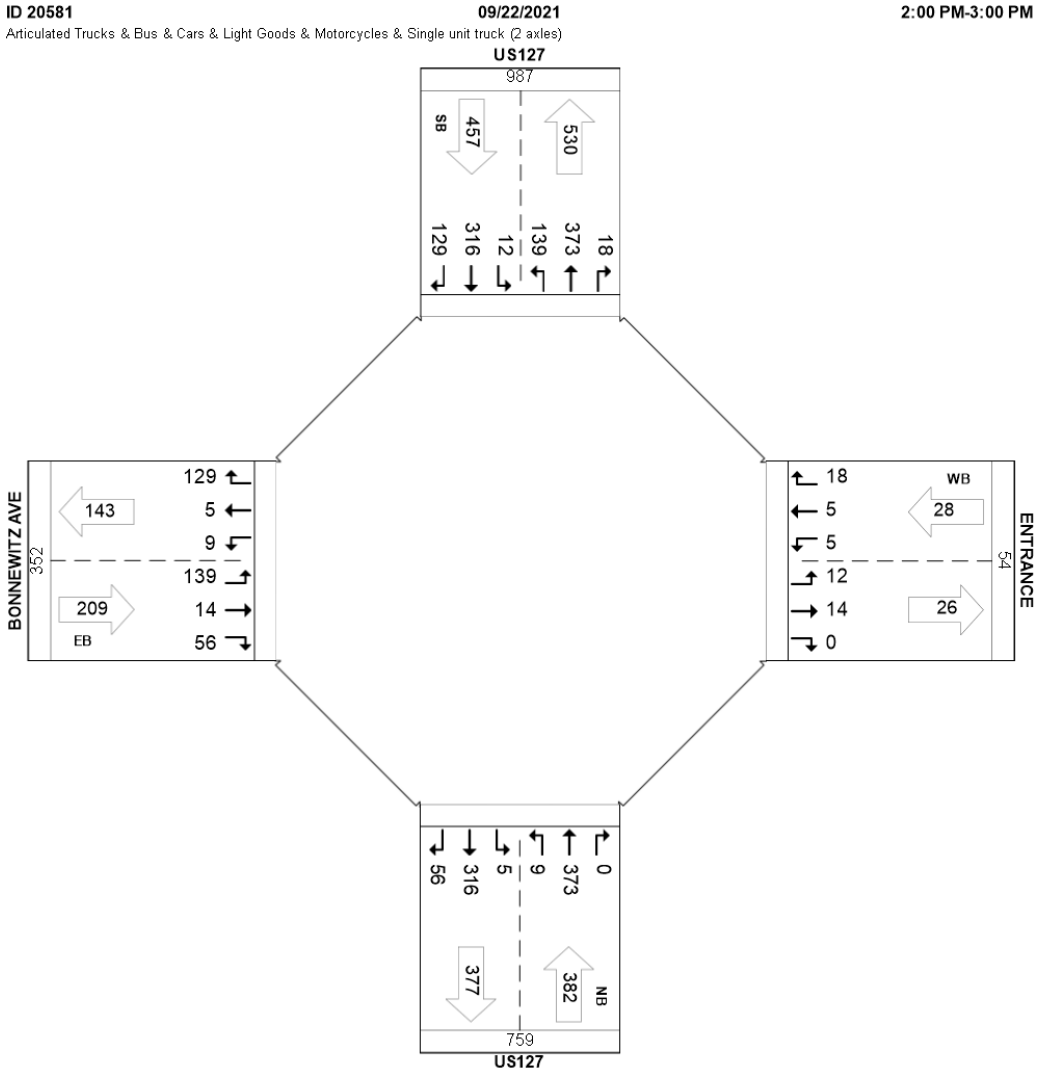
	NB				EB				SB				WB			
Start Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total
7:45 AM	8	75	0	**83**	24	1	18	**43**	4	78	22	**104**	0	3	4	**7**
8:00 AM	6	53	1	**60**	14	1	11	**26**	2	46	18	**66**	2	2	4	**8**
8:15 AM	11	80	0	**91**	19	2	7	**28**	2	60	15	**77**	1	2	5	**8**
8:30 AM	5	69	0	**74**	25	1	6	**32**	4	59	33	**96**	0	4	5	**9**
Total	30	277	1	**308**	82	5	42	**129**	12	243	88	**343**	3	11	18	**32**
App %	10%	90%	0%		64%	4%	33%		3%	71%	26%		9%	34%	56%	
PHF	0.68	0.87	0.25	**0.85**	0.82	0.63	0.58	**0.75**	0.75	0.78	0.67	**0.82**	0.38	0.69	0.90	**0.89**
HV %	20%	34%	100%	**33%**	7%			**5%**		22%	9%	**18%**	33%	27%	6%	**16%**
Total %	4%	34%	0%	**38%**	10%	1%	5%	**16%**	1%	30%	11%	**42%**	0%	1%	2%	**4%**



Midday Peak Hour (09/22/2021)

☑ Articulated Trucks ☑ Bus ☑ Cars & Light Goods ☑ Motorcycles ☑ Single unit truck (2 axles)

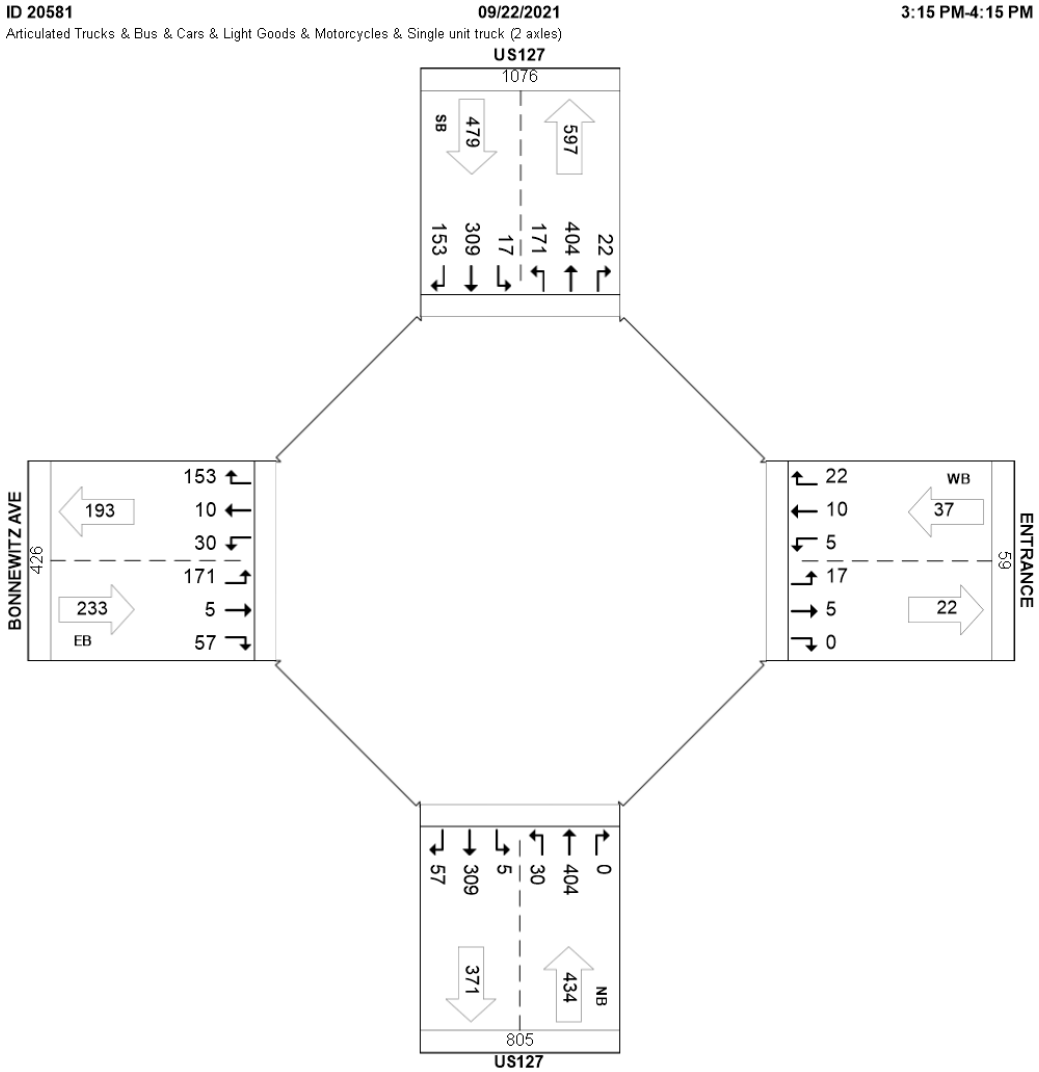
	NB				EB				SB				WB			
Start Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total
2:00 PM	2	89	0	**91**	23	3	7	**33**	2	63	23	**88**	1	1	2	**4**
2:15 PM	2	94	0	**96**	34	3	8	**45**	1	62	24	**87**	2	0	5	**7**
2:30 PM	2	100	0	**102**	44	2	31	**77**	4	89	38	**131**	1	3	6	**10**
2:45 PM	3	90	0	**93**	38	6	10	**54**	5	102	44	**151**	1	1	5	**7**
Total	9	373	0	**382**	139	14	56	**209**	12	316	129	**457**	5	5	18	**28**
App %	2%	98%	0%		67%	7%	27%		3%	69%	28%		18%	18%	64%	
PHF	0.75	0.93		**0.94**	0.79	0.58	0.45	**0.68**	0.60	0.77	0.73	**0.76**	0.63	0.42	0.75	**0.70**
HV %		24%		**24%**	1%	7%	4%	**2%**		21%	3%	**15%**	20%	20%		**7%**
Total %	1%	35%	0%	**36%**	13%	1%	5%	**19%**	1%	29%	12%	**42%**	0%	0%	2%	**3%**



PM Peak Hour (09/22/2021)

☑ Articulated Trucks ☑ Bus ☑ Cars & Light Goods ☑ Motorcycles ☑ Single unit truck (2 axles)

	NB				EB				SB				WB			
Start Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total
3:15 PM	11	99	0	**110**	49	1	13	**63**	4	72	44	**120**	0	2	5	**7**
3:30 PM	7	101	0	**108**	41	3	21	**65**	5	71	37	**113**	3	3	7	**13**
3:45 PM	4	110	0	**114**	31	0	10	**41**	2	74	39	**115**	2	3	5	**10**
4:00 PM	8	94	0	**102**	50	1	13	**64**	6	92	33	**131**	0	2	5	**7**
Total	30	404	0	**434**	171	5	57	**233**	17	309	153	**479**	5	10	22	**37**
App %	7%	93%	0%		73%	2%	24%		4%	65%	32%		14%	27%	59%	
PHF	0.68	0.92		**0.95**	0.86	0.42	0.68	**0.90**	0.71	0.84	0.87	**0.91**	0.42	0.83	0.79	**0.71**
HV %	10%	21%		**20%**	1%		7%	**3%**	6%	14%	2%	**10%**				
Total %	3%	34%	0%	**37%**	14%	0%	5%	**20%**	1%	26%	13%	**40%**	0%	1%	2%	**3%**

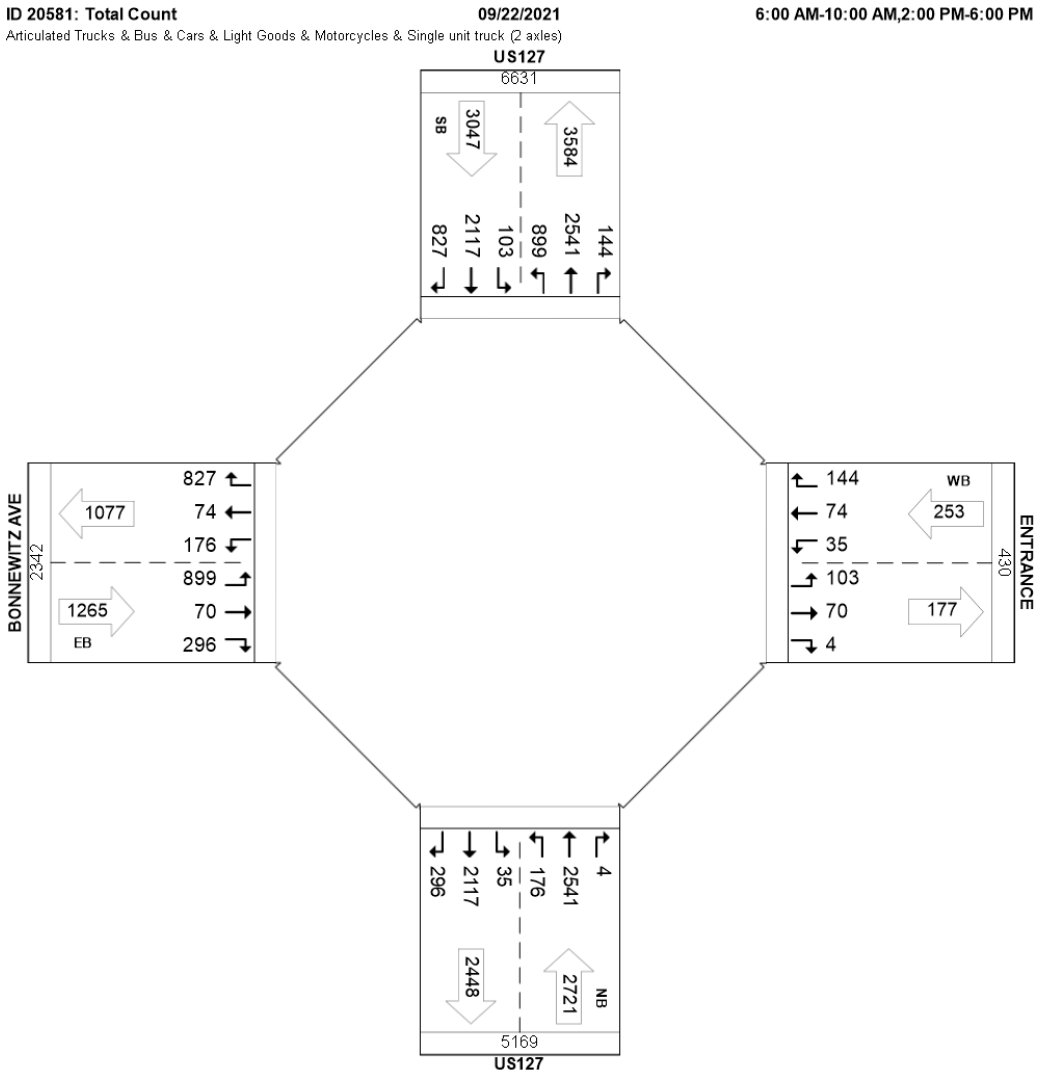


AllDay (09/22/2021)

☑ Articulated Trucks ☑ Bus ☑ Cars & Light Goods ☑ Motorcycles ☑ Single unit truck (2 axles)

	NB				EB				SB				WB			
Start Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total
6:00 AM	3	50	0	**53**	7	1	4	**12**	1	28	13	**42**	1	0	8	**9**
6:15 AM	3	41	0	**44**	8	3	2	**13**	3	39	11	**53**	1	1	5	**7**
6:30 AM	3	45	0	**48**	17	3	5	**25**	5	44	23	**72**	1	3	6	**10**
6:45 AM	8	53	0	**61**	20	1	4	**25**	5	53	20	**78**	0	4	3	**7**
7:00 AM	2	75	0	**77**	26	2	4	**32**	5	49	18	**72**	2	4	1	**7**
7:15 AM	10	56	1	**67**	32	2	12	**46**	2	41	21	**64**	1	2	2	**5**
7:30 AM	9	60	0	**69**	16	2	12	**30**	5	69	17	**91**	1	0	6	**7**
7:45 AM	8	75	0	**83**	24	1	18	**43**	4	78	22	**104**	0	3	4	**7**
8:00 AM	6	53	1	**60**	14	1	11	**26**	2	46	18	**66**	2	2	4	**8**
8:15 AM	11	80	0	**91**	19	2	7	**28**	2	60	15	**77**	1	2	5	**8**
8:30 AM	5	69	0	**74**	25	1	6	**32**	4	59	33	**96**	0	4	5	**9**
8:45 AM	3	66	1	**70**	22	2	8	**32**	4	61	10	**75**	2	6	6	**14**
9:00 AM	9	58	0	**67**	26	2	6	**34**	1	77	17	**95**	1	2	1	**4**
9:15 AM	5	74	0	**79**	23	1	5	**29**	2	60	20	**82**	0	2	2	**4**
9:30 AM	7	75	0	**82**	21	5	5	**31**	4	54	11	**69**	0	3	2	**5**
9:45 AM	6	81	0	**87**	23	1	6	**30**	2	67	24	**93**	1	1	2	**4**
2:00 PM	2	89	0	**91**	23	3	7	**33**	2	63	23	**88**	1	1	2	**4**
2:15 PM	2	94	0	**96**	34	3	8	**45**	1	62	24	**87**	2	0	5	**7**
2:30 PM	2	100	0	**102**	44	2	31	**77**	4	89	38	**131**	1	3	6	**10**
2:45 PM	3	90	0	**93**	38	6	10	**54**	5	102	44	**151**	1	1	5	**7**
3:00 PM	4	95	0	**99**	37	4	6	**47**	2	88	38	**128**	2	1	7	**10**
3:15 PM	11	99	0	**110**	49	1	13	**63**	4	72	44	**120**	0	2	5	**7**
3:30 PM	7	101	0	**108**	41	3	21	**65**	5	71	37	**113**	3	3	7	**13**
3:45 PM	4	110	0	**114**	31	0	10	**41**	2	74	39	**115**	2	3	5	**10**
4:00 PM	8	94	0	**102**	50	1	13	**64**	6	92	33	**131**	0	2	5	**7**
4:15 PM	8	98	1	**107**	37	5	10	**52**	3	73	40	**116**	1	4	4	**9**
4:30 PM	5	115	0	**120**	33	2	14	**49**	4	73	41	**118**	1	4	7	**12**
4:45 PM	5	111	0	**116**	31	1	13	**45**	5	69	36	**110**	4	1	3	**8**
5:00 PM	5	91	0	**96**	38	3	9	**50**	2	74	22	**98**	1	5	9	**15**
5:15 PM	4	91	0	**95**	37	1	6	**44**	1	82	27	**110**	0	0	6	**6**
5:30 PM	5	73	0	**78**	22	3	4	**29**	3	72	20	**95**	0	3	2	**5**

	NB				EB				SB				WB			
Start Time	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total
5:45 PM	3	79	0	**82**	31	2	6	**39**	3	76	28	**107**	2	2	4	**8**
Total	176	2,541	4	**2,721**	899	70	296	**1,265**	103	2,117	827	**3,047**	35	74	144	**253**
App %	6%	93%	0%		71%	6%	23%		3%	69%	27%		14%	29%	57%	
PHF	0.50	0.69	0.13	**0.71**	0.56	0.36	0.30	**0.51**	0.54	0.65	0.59	**0.63**	0.27	0.39	0.50	**0.53**
HV %	9%	25%	25%	**24%**	3%	1%	4%	**3%**	9%	21%	4%	**16%**	20%	12%	2%	**8%**
Total %	2%	35%	0%	**37%**	12%	1%	4%	**17%**	1%	29%	11%	**42%**	0%	1%	2%	**3%**



Ohio DOT - Traffic Operations
1606 West Broad Street

Columbus, Ohio, United States 43223
+16144667170 D01trafficcounts@dot.ohio.gov

Count Name: VAN-127-10.85 Eastbound Entrance Ramp
Site Code:
Start Date: 01/12/2021

Turning Movement Data

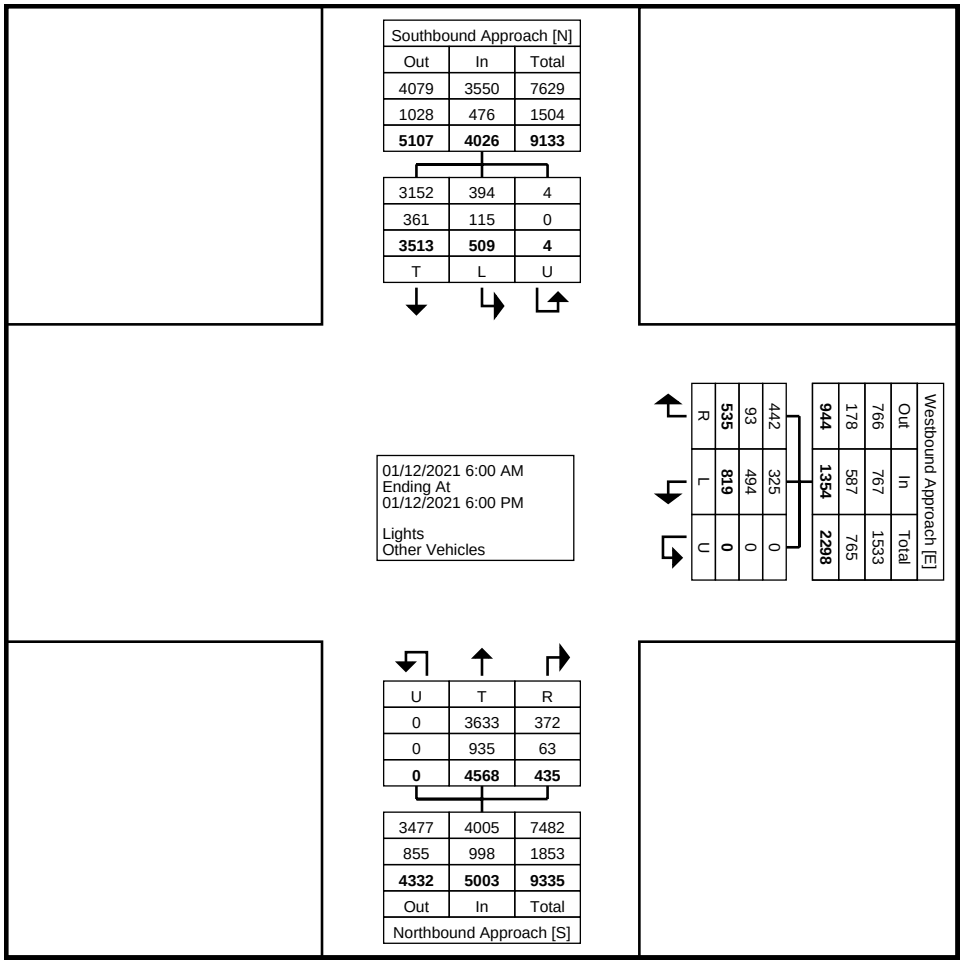
Start Time	Southbound Approach				Westbound Approach				Northbound Approach				
	Southbound				Westbound				Northbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
6:00 AM	33	3	0	36	4	9	0	13	12	46	0	58	107
6:15 AM	36	5	0	41	3	12	0	15	8	40	0	48	104
6:30 AM	41	8	0	49	8	9	0	17	10	55	0	65	131
6:45 AM	47	6	0	53	13	13	0	26	6	65	0	71	150
Hourly Total	157	22	0	179	28	43	0	71	36	206	0	242	492
7:00 AM	34	7	0	41	4	15	0	19	10	82	0	92	152
7:15 AM	59	6	0	65	15	9	0	24	8	72	0	80	169
7:30 AM	60	8	0	68	17	12	0	29	15	80	0	95	192
7:45 AM	50	5	0	55	22	25	0	47	11	80	0	91	193
Hourly Total	203	26	0	229	58	61	0	119	44	314	0	358	706
8:00 AM	56	7	0	63	13	10	0	23	5	62	0	67	153
8:15 AM	40	9	0	49	13	20	0	33	3	69	0	72	154
8:30 AM	54	5	0	59	9	15	0	24	5	73	0	78	161
8:45 AM	62	7	0	69	8	25	0	33	8	66	0	74	176
Hourly Total	212	28	0	240	43	70	0	113	21	270	0	291	644
9:00 AM	65	6	0	71	7	19	0	26	2	69	0	71	168
9:15 AM	64	5	0	69	12	12	0	24	14	72	0	86	179
9:30 AM	60	8	0	68	10	21	0	31	8	60	0	68	167
9:45 AM	75	9	0	84	8	18	0	26	8	93	0	101	211
Hourly Total	264	28	0	292	37	70	0	107	32	294	0	326	725
10:00 AM	54	11	0	65	9	15	0	24	13	76	0	89	178
10:15 AM	57	7	1	65	10	11	0	21	8	85	0	93	179
10:30 AM	69	6	0	75	9	12	0	21	4	91	0	95	191
10:45 AM	72	9	0	81	8	21	0	29	5	86	0	91	201
Hourly Total	252	33	1	286	36	59	0	95	30	338	0	368	749
11:00 AM	77	5	0	82	9	18	0	27	10	89	0	99	208
11:15 AM	71	10	0	81	8	21	0	29	6	84	0	90	200
11:30 AM	87	12	0	99	9	20	0	29	6	110	0	116	244
11:45 AM	86	8	1	95	7	10	0	17	8	104	0	112	224
Hourly Total	321	35	1	357	33	69	0	102	30	387	0	417	876
12:00 PM	88	10	0	98	12	12	0	24	7	130	0	137	259
12:15 PM	85	14	0	99	22	19	0	41	7	108	0	115	255
12:30 PM	101	15	0	116	17	15	0	32	10	101	0	111	259
12:45 PM	83	12	0	95	9	23	0	32	8	121	0	129	256
Hourly Total	357	51	0	408	60	69	0	129	32	460	0	492	1029
1:00 PM	79	11	0	90	10	12	0	22	4	95	0	99	211

1:15 PM	83	11	0	94	7	25	0	32	9	119	0	128	254
1:30 PM	80	14	0	94	6	10	0	16	5	110	0	115	225
1:45 PM	57	14	1	72	11	16	0	27	10	108	0	118	217
Hourly Total	299	50	1	350	34	63	0	97	28	432	0	460	907
2:00 PM	63	15	0	78	11	21	0	32	10	101	0	111	221
2:15 PM	104	9	0	113	6	17	0	23	3	107	0	110	246
2:30 PM	99	8	0	107	14	18	0	32	10	131	0	141	280
2:45 PM	95	13	0	108	5	20	0	25	11	134	0	145	278
Hourly Total	361	45	0	406	36	76	0	112	34	473	0	507	1025
3:00 PM	98	25	0	123	10	19	0	29	10	116	0	126	278
3:15 PM	82	17	0	99	10	13	0	23	11	108	0	119	241
3:30 PM	96	12	0	108	20	31	0	51	14	125	0	139	298
3:45 PM	89	23	0	112	12	12	0	24	21	126	0	147	283
Hourly Total	365	77	0	442	52	75	0	127	56	475	0	531	1100
4:00 PM	90	17	0	107	16	30	0	46	10	104	0	114	267
4:15 PM	101	14	0	115	10	22	0	32	13	109	0	122	269
4:30 PM	97	17	0	114	11	11	0	22	17	125	0	142	278
4:45 PM	86	13	0	99	14	25	0	39	8	119	0	127	265
Hourly Total	374	61	0	435	51	88	0	139	48	457	0	505	1079
5:00 PM	97	17	1	115	14	22	0	36	12	108	0	120	271
5:15 PM	77	11	0	88	22	21	0	43	17	138	0	155	286
5:30 PM	79	13	0	92	17	19	0	36	9	124	0	133	261
5:45 PM	95	12	0	107	14	14	0	28	6	92	0	98	233
Hourly Total	348	53	1	402	67	76	0	143	44	462	0	506	1051
Grand Total	3513	509	4	4026	535	819	0	1354	435	4568	0	5003	10383
Approach %	87.3	12.6	0.1	-	39.5	60.5	0.0	-	8.7	91.3	0.0	-	-
Total %	33.8	4.9	0.0	38.8	5.2	7.9	0.0	13.0	4.2	44.0	0.0	48.2	-
Lights	3152	394	4	3550	442	325	0	767	372	3633	0	4005	8322
% Lights	89.7	77.4	100.0	88.2	82.6	39.7	-	56.6	85.5	79.5	-	80.1	80.2
Other Vehicles	361	115	0	476	93	494	0	587	63	935	0	998	2061
% Other Vehicles	10.3	22.6	0.0	11.8	17.4	60.3	-	43.4	14.5	20.5	-	19.9	19.8

Ohio DOT - Traffic Operations
1606 West Broad Street

Columbus, Ohio, United States 43223
+16144667170 D01trafficcounts@dot.ohio.gov

Count Name: VAN-127-10.85 Eastbound Entrance Ramp
Site Code:
Start Date: 01/12/2021



Turning Movement Data Plot

Ohio DOT - Traffic Operations
1606 West Broad Street

Columbus, Ohio, United States 43223
+16144667170 D01trafficcounts@dot.ohio.gov

Count Name: VAN-127-10.85 Eastbound Entrance Ramp
Site Code:
Start Date: 01/12/2021

Turning Movement Peak Hour Data (11:00 AM)

Start Time	Southbound Approach				Westbound Approach				Northbound Approach				
	Southbound				Westbound				Northbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
11:00 AM	77	5	0	82	9	18	0	27	10	89	0	99	208
11:15 AM	71	10	0	81	8	21	0	29	6	84	0	90	200
11:30 AM	87	12	0	99	9	20	0	29	6	110	0	116	244
11:45 AM	86	8	1	95	7	10	0	17	8	104	0	112	224
Total	321	35	1	357	33	69	0	102	30	387	0	417	876
Approach %	89.9	9.8	0.3	-	32.4	67.6	0.0	-	7.2	92.8	0.0	-	-
Total %	36.6	4.0	0.1	40.8	3.8	7.9	0.0	11.6	3.4	44.2	0.0	47.6	-
PHF	0.922	0.729	0.250	0.902	0.917	0.821	0.000	0.879	0.750	0.880	0.000	0.899	0.898
Lights	284	29	1	314	25	28	0	53	26	297	0	323	690
% Lights	88.5	82.9	100.0	88.0	75.8	40.6	-	52.0	86.7	76.7	-	77.5	78.8
Other Vehicles	37	6	0	43	8	41	0	49	4	90	0	94	186
% Other Vehicles	11.5	17.1	0.0	12.0	24.2	59.4	-	48.0	13.3	23.3	-	22.5	21.2

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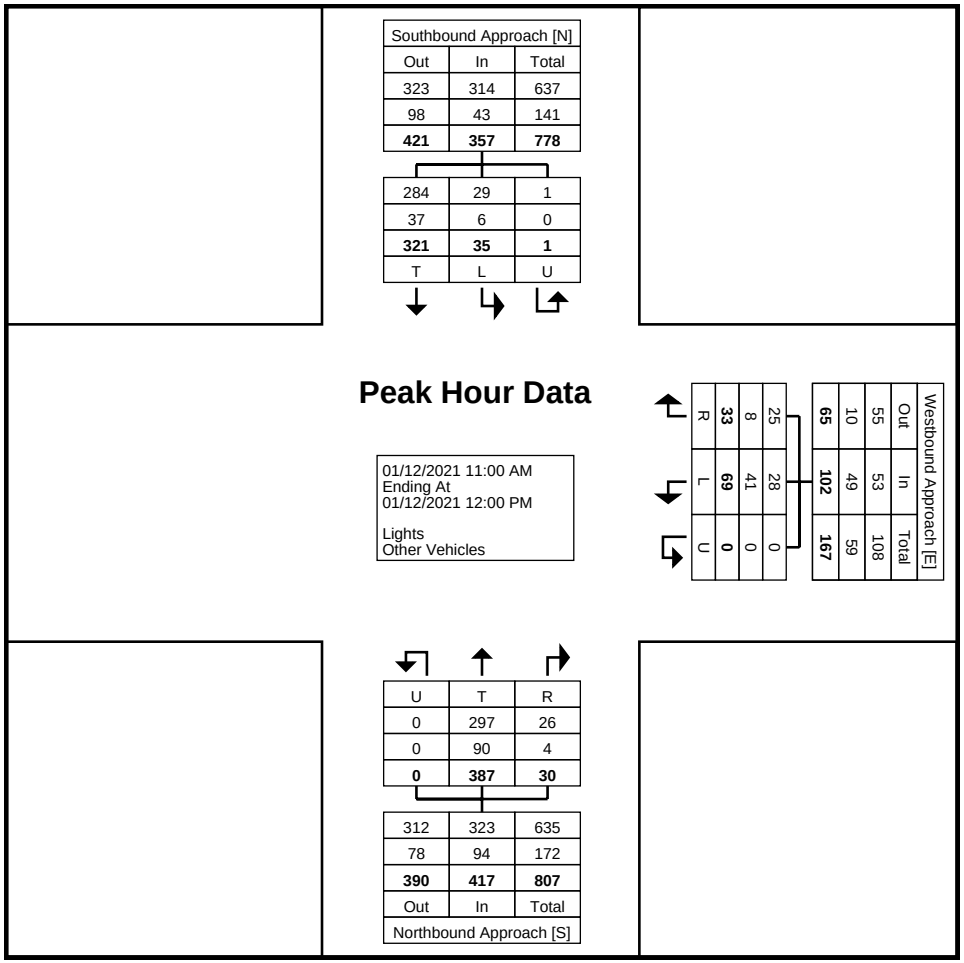
Site Code:
Start Date: 01/12/2021



Turning Movement Peak Hour Data Plot (11:00 AM)

Ohio DOT - Traffic Operations
1606 West Broad Street

Columbus, Ohio, United States 43223
+16144667170 D01trafficcounts@dot.ohio.gov

Count Name: VAN-127-10.85 Eastbound Entrance Ramp
Site Code:
Start Date: 01/12/2021

Turning Movement Peak Hour Data (3:30 PM)

Start Time	Southbound Approach				Westbound Approach				Northbound Approach				
	Southbound				Westbound				Northbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
3:30 PM	96	12	0	108	20	31	0	51	14	125	0	139	298
3:45 PM	89	23	0	112	12	12	0	24	21	126	0	147	283
4:00 PM	90	17	0	107	16	30	0	46	10	104	0	114	267
4:15 PM	101	14	0	115	10	22	0	32	13	109	0	122	269
Total	376	66	0	442	58	95	0	153	58	464	0	522	1117
Approach %	85.1	14.9	0.0	-	37.9	62.1	0.0	-	11.1	88.9	0.0	-	-
Total %	33.7	5.9	0.0	39.6	5.2	8.5	0.0	13.7	5.2	41.5	0.0	46.7	-
PHF	0.931	0.717	0.000	0.961	0.725	0.766	0.000	0.750	0.690	0.921	0.000	0.888	0.937
Lights	352	58	0	410	52	36	0	88	54	403	0	457	955
% Lights	93.6	87.9	-	92.8	89.7	37.9	-	57.5	93.1	86.9	-	87.5	85.5
Other Vehicles	24	8	0	32	6	59	0	65	4	61	0	65	162
% Other Vehicles	6.4	12.1	-	7.2	10.3	62.1	-	42.5	6.9	13.1	-	12.5	14.5

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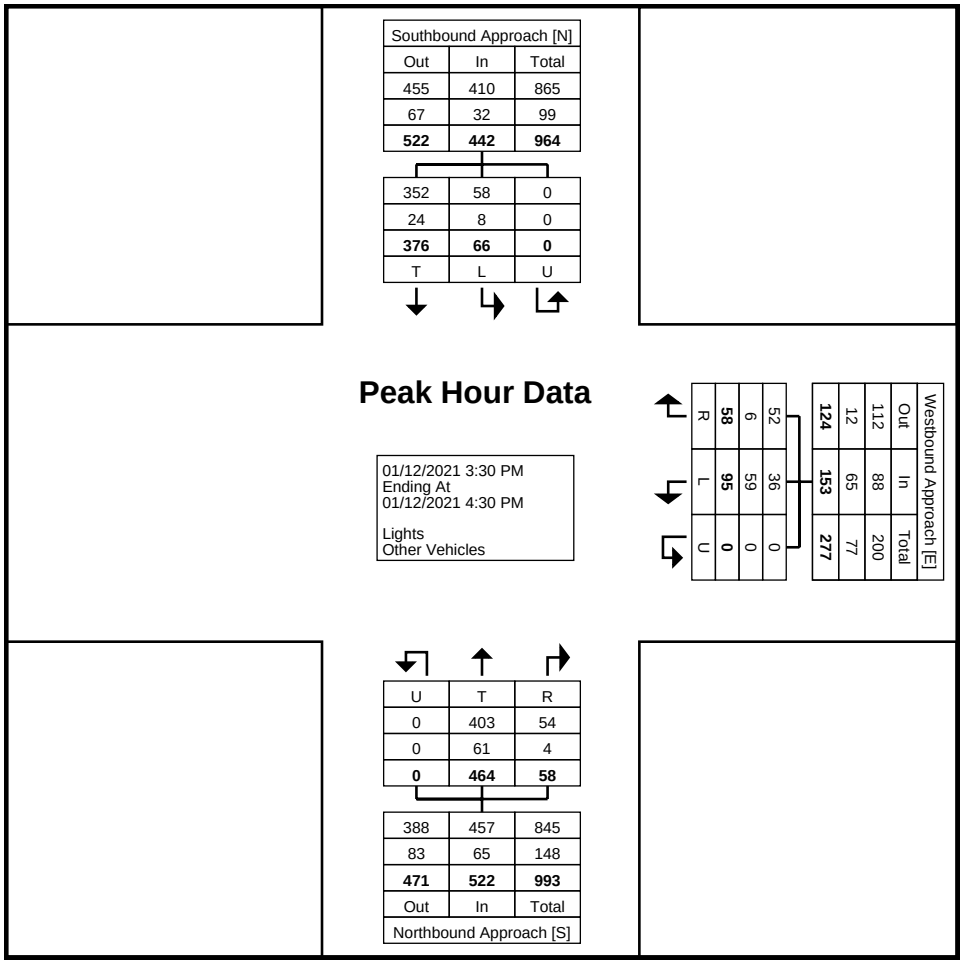
Count Name: VAN-127-10.85 Eastbound Entrance Ramp
Site Code:
Start Date: 01/12/2021



Turning Movement Peak Hour Data Plot (3:30 PM)

Ohio DOT - Traffic Operations
1606 West Broad Street

Columbus, Ohio, United States 43223
+16144667170 D01trafficcounts@dot.ohio.gov

Count Name: VAN-127-11.11 Westbound Entrance Ramp
Site Code:
Start Date: 01/12/2021

Turning Movement Data

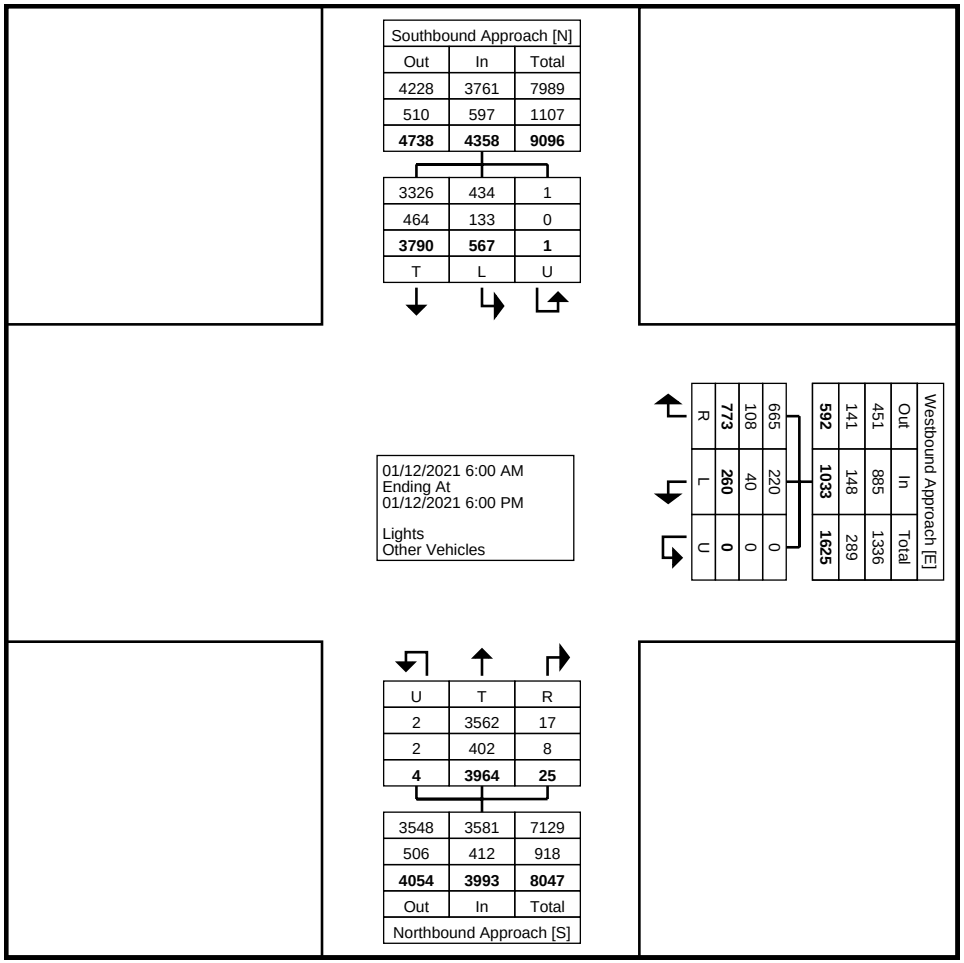
Start Time	Southbound Approach Southbound				Westbound Approach Westbound				Northbound Approach Northbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
6:00 AM	35	9	0	44	2	3	0	5	0	32	0	32	81
6:15 AM	37	6	0	43	7	3	0	10	0	23	0	23	76
6:30 AM	48	6	0	54	6	3	0	9	0	42	0	42	105
6:45 AM	49	1	0	50	19	2	0	21	1	53	0	54	125
Hourly Total	169	22	0	191	34	11	0	45	1	150	0	151	387
7:00 AM	37	8	0	45	23	3	0	26	0	60	0	60	131
7:15 AM	56	13	0	69	21	9	0	30	0	58	0	58	157
7:30 AM	60	10	0	70	27	6	0	33	0	77	0	77	180
7:45 AM	48	12	0	60	33	7	0	40	2	80	0	82	182
Hourly Total	201	43	0	244	104	25	0	129	2	275	0	277	650
8:00 AM	60	11	0	71	15	3	0	18	0	55	0	55	144
8:15 AM	45	5	0	50	11	4	0	15	0	62	0	62	127
8:30 AM	61	14	0	75	13	1	0	14	0	59	0	59	148
8:45 AM	71	10	0	81	19	2	0	21	0	54	0	54	156
Hourly Total	237	40	0	277	58	10	0	68	0	230	0	230	575
9:00 AM	66	6	0	72	16	3	0	19	0	59	0	59	150
9:15 AM	64	9	0	73	21	4	0	25	0	68	0	68	166
9:30 AM	63	7	0	70	13	6	0	19	0	48	1	49	138
9:45 AM	78	9	0	87	15	8	0	23	0	68	0	68	178
Hourly Total	271	31	0	302	65	21	0	86	0	243	1	244	632
10:00 AM	61	10	0	71	8	4	0	12	0	65	0	65	148
10:15 AM	60	9	0	69	18	5	0	23	0	80	1	81	173
10:30 AM	66	11	0	77	17	5	0	22	0	68	0	68	167
10:45 AM	75	8	0	83	15	2	0	17	0	76	0	76	176
Hourly Total	262	38	0	300	58	16	0	74	0	289	1	290	664
11:00 AM	81	10	0	91	24	3	0	27	0	72	0	72	190
11:15 AM	72	14	0	86	11	9	0	20	0	68	0	68	174
11:30 AM	99	17	0	116	22	13	0	35	1	94	1	96	247
11:45 AM	89	8	0	97	12	4	0	16	0	86	0	86	199
Hourly Total	341	49	0	390	69	29	0	98	1	320	1	322	810
12:00 PM	98	13	0	111	14	2	0	16	0	105	0	105	232
12:15 PM	97	14	0	111	15	9	0	24	4	108	0	112	247
12:30 PM	103	14	0	117	18	6	0	24	1	100	0	101	242
12:45 PM	91	14	0	105	13	8	0	21	0	104	0	104	230
Hourly Total	389	55	0	444	60	25	0	85	5	417	0	422	951
1:00 PM	87	9	0	96	13	5	0	18	0	82	0	82	196

1:15 PM	98	10	0	108	11	1	0	12	0	98	0	98	218
1:30 PM	79	8	0	87	13	3	0	16	1	88	0	89	192
1:45 PM	69	17	0	86	13	4	0	17	0	88	0	88	191
Hourly Total	333	44	0	377	50	13	0	63	1	356	0	357	797
2:00 PM	85	10	0	95	18	3	0	21	4	93	0	97	213
2:15 PM	97	13	1	111	12	6	0	18	0	90	0	90	219
2:30 PM	103	16	0	119	13	3	0	16	2	119	0	121	256
2:45 PM	118	29	0	147	11	2	0	13	1	110	0	111	271
Hourly Total	403	68	1	472	54	14	0	68	7	412	0	419	959
3:00 PM	112	12	0	124	13	6	0	19	0	108	0	108	251
3:15 PM	91	14	0	105	22	8	0	30	0	99	0	99	234
3:30 PM	102	19	0	121	18	5	0	23	0	123	0	123	267
3:45 PM	112	10	0	122	17	3	0	20	0	112	0	112	254
Hourly Total	417	55	0	472	70	22	0	92	0	442	0	442	1006
4:00 PM	105	20	0	125	11	5	0	16	1	96	0	97	238
4:15 PM	104	18	0	122	13	11	0	24	0	96	0	96	242
4:30 PM	110	19	0	129	16	6	0	22	1	105	0	106	257
4:45 PM	94	17	0	111	18	5	0	23	2	99	0	101	235
Hourly Total	413	74	0	487	58	27	0	85	4	396	0	400	972
5:00 PM	104	13	0	117	17	11	0	28	0	98	0	98	243
5:15 PM	81	16	0	97	21	14	0	35	0	133	1	134	266
5:30 PM	78	10	0	88	24	7	0	31	3	116	0	119	238
5:45 PM	91	9	0	100	31	15	0	46	1	87	0	88	234
Hourly Total	354	48	0	402	93	47	0	140	4	434	1	439	981
Grand Total	3790	567	1	4358	773	260	0	1033	25	3964	4	3993	9384
Approach %	87.0	13.0	0.0	-	74.8	25.2	0.0	-	0.6	99.3	0.1	-	-
Total %	40.4	6.0	0.0	46.4	8.2	2.8	0.0	11.0	0.3	42.2	0.0	42.6	-
Lights	3326	434	1	3761	665	220	0	885	17	3562	2	3581	8227
% Lights	87.8	76.5	100.0	86.3	86.0	84.6	-	85.7	68.0	89.9	50.0	89.7	87.7
Other Vehicles	464	133	0	597	108	40	0	148	8	402	2	412	1157
% Other Vehicles	12.2	23.5	0.0	13.7	14.0	15.4	-	14.3	32.0	10.1	50.0	10.3	12.3

Ohio DOT - Traffic Operations
1606 West Broad Street

Columbus, Ohio, United States 43223
+16144667170 D01trafficcounts@dot.ohio.gov

Count Name: VAN-127-11.11 Westbound Entrance Ramp
Site Code:
Start Date: 01/12/2021



Turning Movement Data Plot

Ohio DOT - Traffic Operations
1606 West Broad Street

Columbus, Ohio, United States 43223
+16144667170 D01trafficcounts@dot.ohio.gov

Count Name: VAN-127-11.11 Westbound Entrance Ramp
Site Code:
Start Date: 01/12/2021

Turning Movement Peak Hour Data (11:00 AM)

Start Time	Southbound Approach				Westbound Approach				Northbound Approach				
	Southbound				Westbound				Northbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
11:00 AM	81	10	0	91	24	3	0	27	0	72	0	72	190
11:15 AM	72	14	0	86	11	9	0	20	0	68	0	68	174
11:30 AM	99	17	0	116	22	13	0	35	1	94	1	96	247
11:45 AM	89	8	0	97	12	4	0	16	0	86	0	86	199
Total	341	49	0	390	69	29	0	98	1	320	1	322	810
Approach %	87.4	12.6	0.0	-	70.4	29.6	0.0	-	0.3	99.4	0.3	-	-
Total %	42.1	6.0	0.0	48.1	8.5	3.6	0.0	12.1	0.1	39.5	0.1	39.8	-
PHF	0.861	0.721	0.000	0.841	0.719	0.558	0.000	0.700	0.250	0.851	0.250	0.839	0.820
Lights	299	31	0	330	58	23	0	81	1	284	1	286	697
% Lights	87.7	63.3	-	84.6	84.1	79.3	-	82.7	100.0	88.8	100.0	88.8	86.0
Other Vehicles	42	18	0	60	11	6	0	17	0	36	0	36	113
% Other Vehicles	12.3	36.7	-	15.4	15.9	20.7	-	17.3	0.0	11.3	0.0	11.2	14.0

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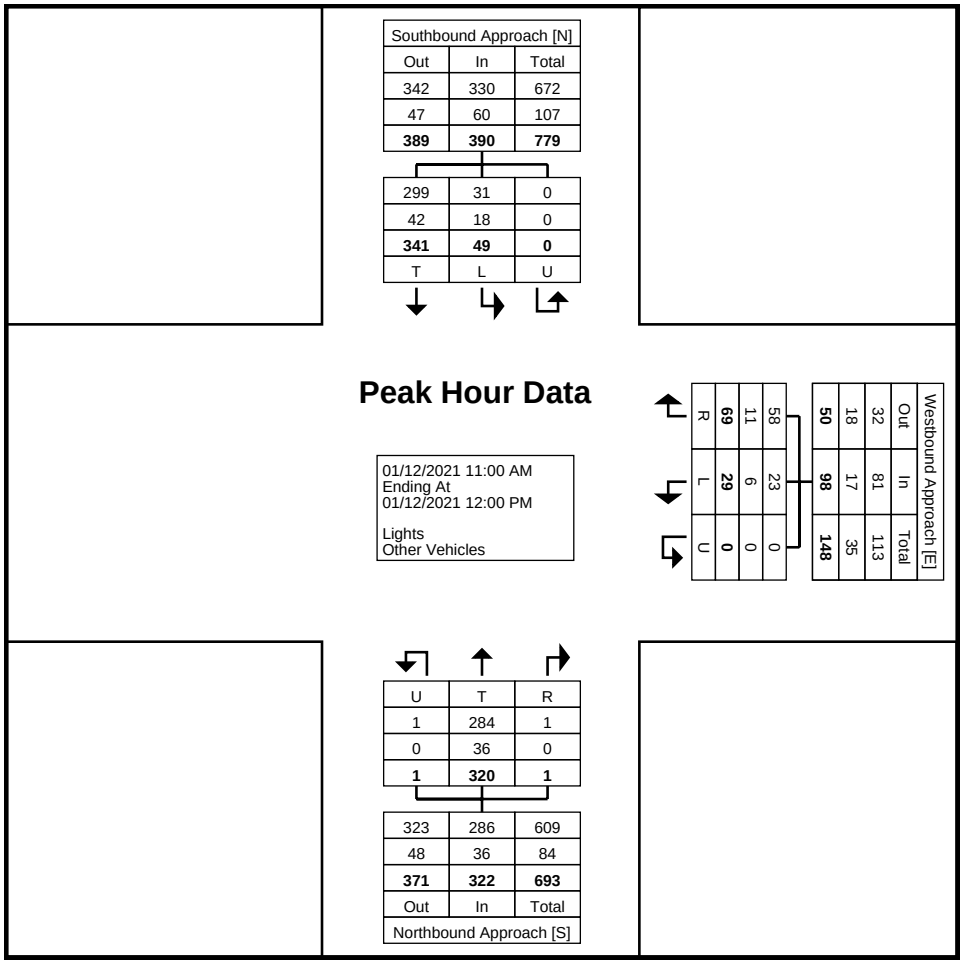

Turning Movement Peak Hour Data Plot (11:00 AM)

Ohio DOT - Traffic Operations
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Columbus, Ohio, United States 43223
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Count Name: VAN-127-11.11 Westbound Entrance Ramp
Site Code:
Start Date: 01/12/2021

Turning Movement Peak Hour Data (2:45 PM)

Start Time	Southbound Approach				Westbound Approach				Northbound Approach				
	Southbound				Westbound				Northbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
2:45 PM	118	29	0	147	11	2	0	13	1	110	0	111	271
3:00 PM	112	12	0	124	13	6	0	19	0	108	0	108	251
3:15 PM	91	14	0	105	22	8	0	30	0	99	0	99	234
3:30 PM	102	19	0	121	18	5	0	23	0	123	0	123	267
Total	423	74	0	497	64	21	0	85	1	440	0	441	1023
Approach %	85.1	14.9	0.0	-	75.3	24.7	0.0	-	0.2	99.8	0.0	-	-
Total %	41.3	7.2	0.0	48.6	6.3	2.1	0.0	8.3	0.1	43.0	0.0	43.1	-
PHF	0.896	0.638	0.000	0.845	0.727	0.656	0.000	0.708	0.250	0.894	0.000	0.896	0.944
Lights	380	59	0	439	52	18	0	70	1	415	0	416	925
% Lights	89.8	79.7	-	88.3	81.3	85.7	-	82.4	100.0	94.3	-	94.3	90.4
Other Vehicles	43	15	0	58	12	3	0	15	0	25	0	25	98
% Other Vehicles	10.2	20.3	-	11.7	18.8	14.3	-	17.6	0.0	5.7	-	5.7	9.6

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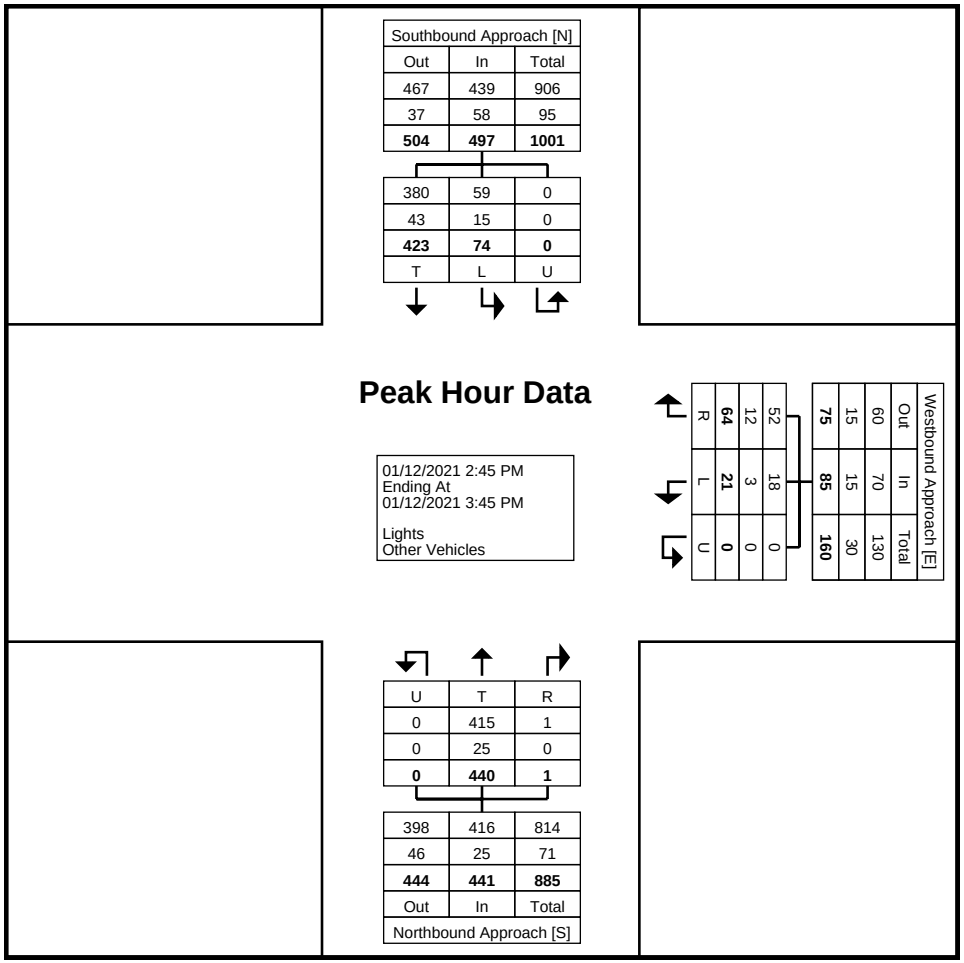
Site Code:
Start Date: 01/12/2021



Turning Movement Peak Hour Data Plot (2:45 PM)

OHIO DEPARTMENT OF TRANSPORTATION

Peak Hour Data for Intersection

Int ID:	22581		
Community:	VAN WERT	**Zone:**	N/A
Road 1:	US127	**Road 2:**	TOWNE CENTER BLVD
Road 3:	US127	**Road 4:**	

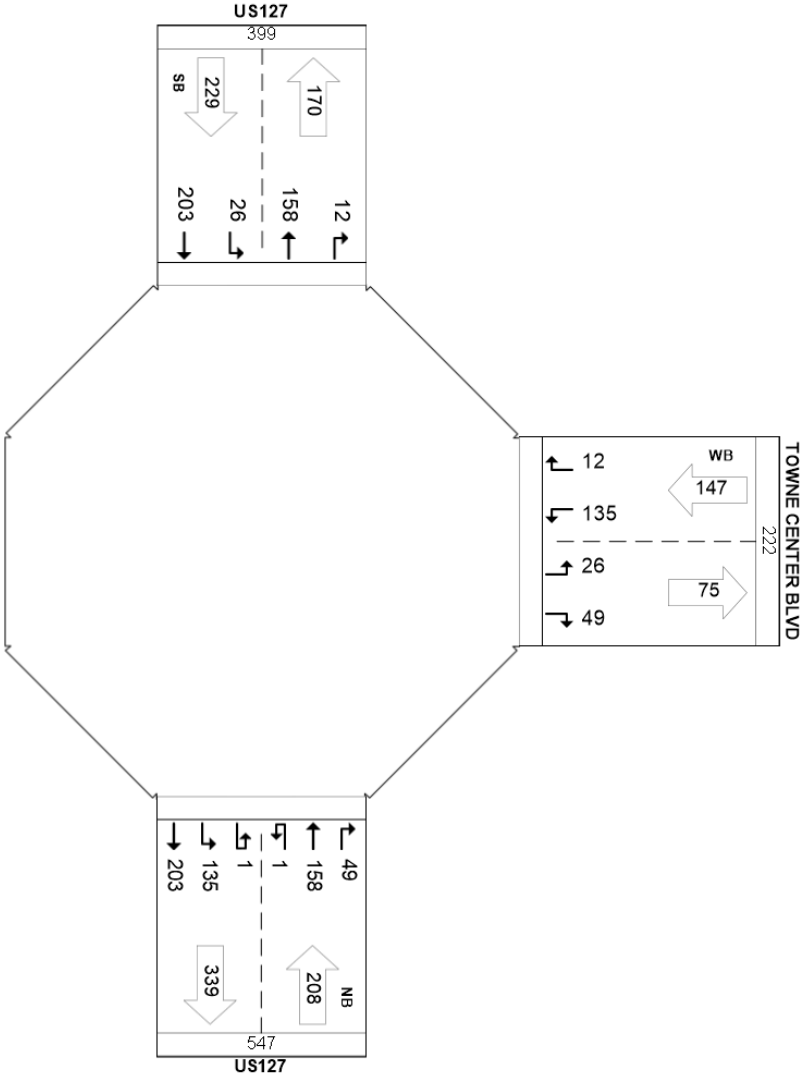
AM Peak Hour (09/23/2021)

☑ Articulated Trucks ☑ Bus ☑ Cars & Light Goods ☑ Motorcycles ☑ Single unit truck (2 axles)

	NB					SB					WB				
Start Time	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total
7:15 AM	0	44	10	1	**55**	2	48	0	0	**50**	38	0	2	0	**40**
7:30 AM	0	37	13	0	**50**	7	58	0	0	**65**	33	0	3	0	**36**
7:45 AM	0	37	18	0	**55**	9	50	0	0	**59**	25	0	5	0	**30**
8:00 AM	0	40	8	0	**48**	8	47	0	0	**55**	39	0	2	0	**41**
Total	0	158	49	1	**208**	26	203	0	0	**229**	135	0	12	0	**147**
App %	0%	76%	24%	0%		11%	89%	0%	0%		92%	0%	8%	0%	
PHF		0.90	0.68	0.25	**0.95**	0.72	0.88			**0.88**	0.87		0.60		**0.90**
HV %		20%	6%		**16%**	12%	14%			**14%**	6%				**5%**
Total %	0%	27%	8%	0%	**36%**	4%	35%	0%	0%	**39%**	23%	0%	2%	0%	**25%**

ID 22581 **09/23/2021** **7:15 AM-8:15 AM**

Articulated Trucks & Bus & Cars & Light Goods & Motorcycles & Single unit truck (2 axles)



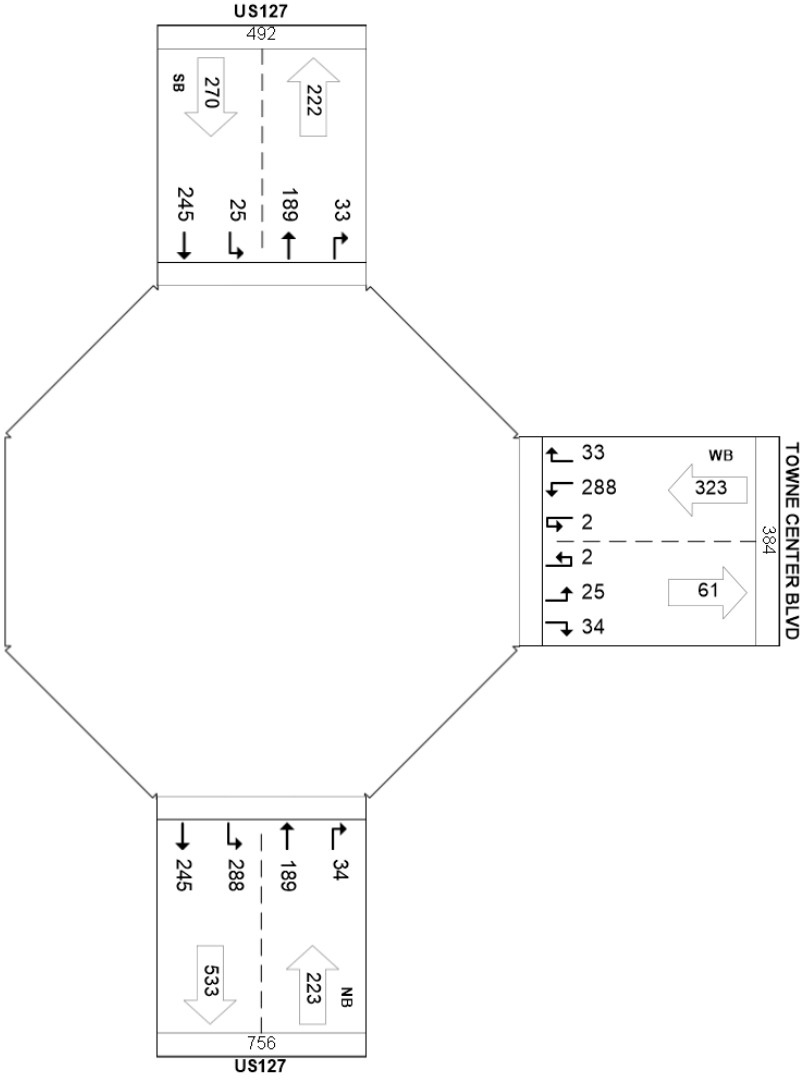
Midday Peak Hour (09/23/2021)

☑ Articulated Trucks ☑ Bus ☑ Cars & Light Goods ☑ Motorcycles ☑ Single unit truck (2 axles)

	NB					SB					WB				
Start Time	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total
2:00 PM	0	47	9	0	**56**	1	38	0	0	**39**	68	0	7	0	**75**
2:15 PM	0	40	9	0	**49**	8	56	0	0	**64**	47	0	8	1	**56**
2:30 PM	0	49	9	0	**58**	11	88	0	0	**99**	57	0	9	0	**66**
2:45 PM	0	53	7	0	**60**	5	63	0	0	**68**	116	0	9	1	**126**
Total	0	189	34	0	**223**	25	245	0	0	**270**	288	0	33	2	**323**
App %	0%	85%	15%	0%		9%	91%	0%	0%		89%	0%	10%	1%	
PHF		0.89	0.94		**0.93**	0.57	0.70			**0.68**	0.62		0.92	0.50	**0.64**
HV %		16%	18%		**16%**	4%	19%			**18%**	1%		9%		**2%**
Total %	0%	23%	4%	0%	**27%**	3%	30%	0%	0%	**33%**	35%	0%	4%	0%	**40%**

ID 22581 **09/23/2021** **2:00 PM-3:00 PM**

Articulated Trucks & Bus & Cars & Light Goods & Motorcycles & Single unit truck (2 axles)



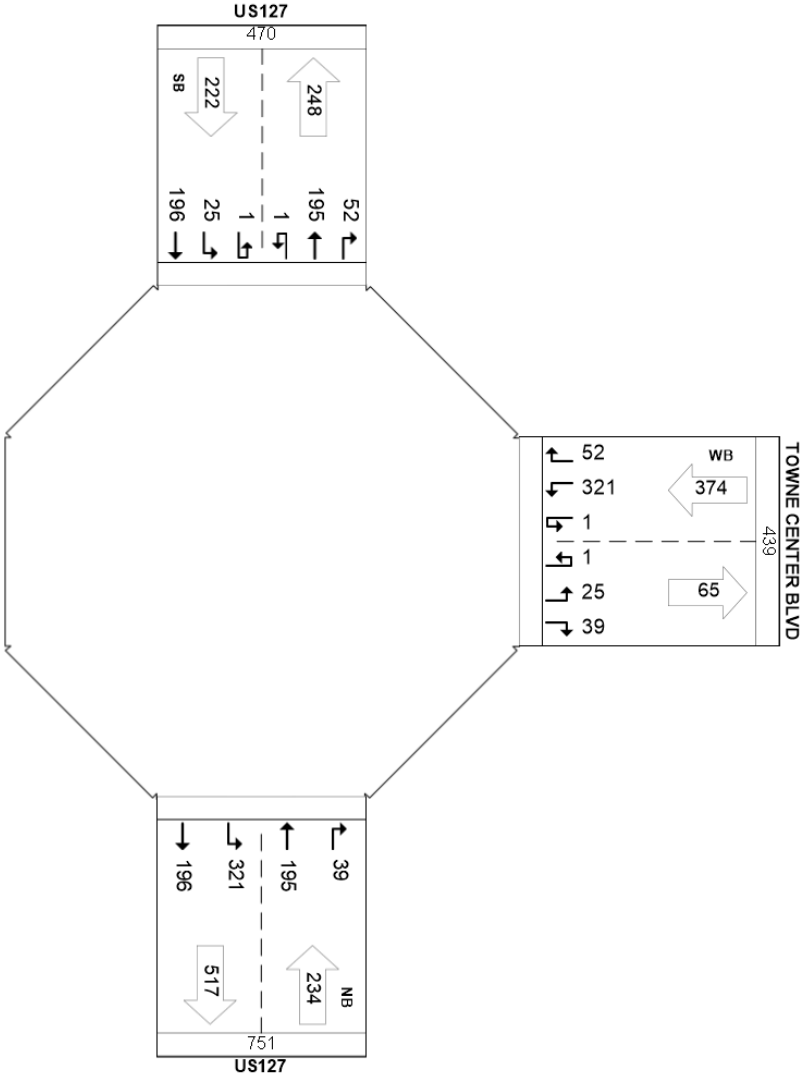
PM Peak Hour (09/23/2021)

☑ Articulated Trucks ☑ Bus ☑ Cars & Light Goods ☑ Motorcycles ☑ Single unit truck (2 axles)

	NB					SB					WB				
Start Time	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total
3:15 PM	0	50	9	0	**59**	6	53	0	0	**59**	71	0	13	0	**84**
3:30 PM	0	47	11	0	**58**	11	48	0	0	**59**	88	0	11	0	**99**
3:45 PM	0	50	10	0	**60**	5	50	0	1	**56**	76	0	12	0	**88**
4:00 PM	0	48	9	0	**57**	3	45	0	0	**48**	86	0	16	1	**103**
Total	0	195	39	0	**234**	25	196	0	1	**222**	321	0	52	1	**374**
App %	0%	83%	17%	0%		11%	88%	0%	0%		86%	0%	14%	0%	
PHF		0.98	0.89		**0.98**	0.57	0.92		0.25	**0.94**	0.91		0.81	0.25	**0.91**
HV %		10%	13%		**10%**		25%		100%	**23%**	2%				**1%**
Total %	0%	23%	5%	0%	**28%**	3%	24%	0%	0%	**27%**	39%	0%	6%	0%	**45%**

ID 22581 **09/23/2021** **3:15 PM-4:15 PM**

Articulated Trucks & Bus & Cars & Light Goods & Motorcycles & Single unit truck (2 axles)



AllDay (09/23/2021)

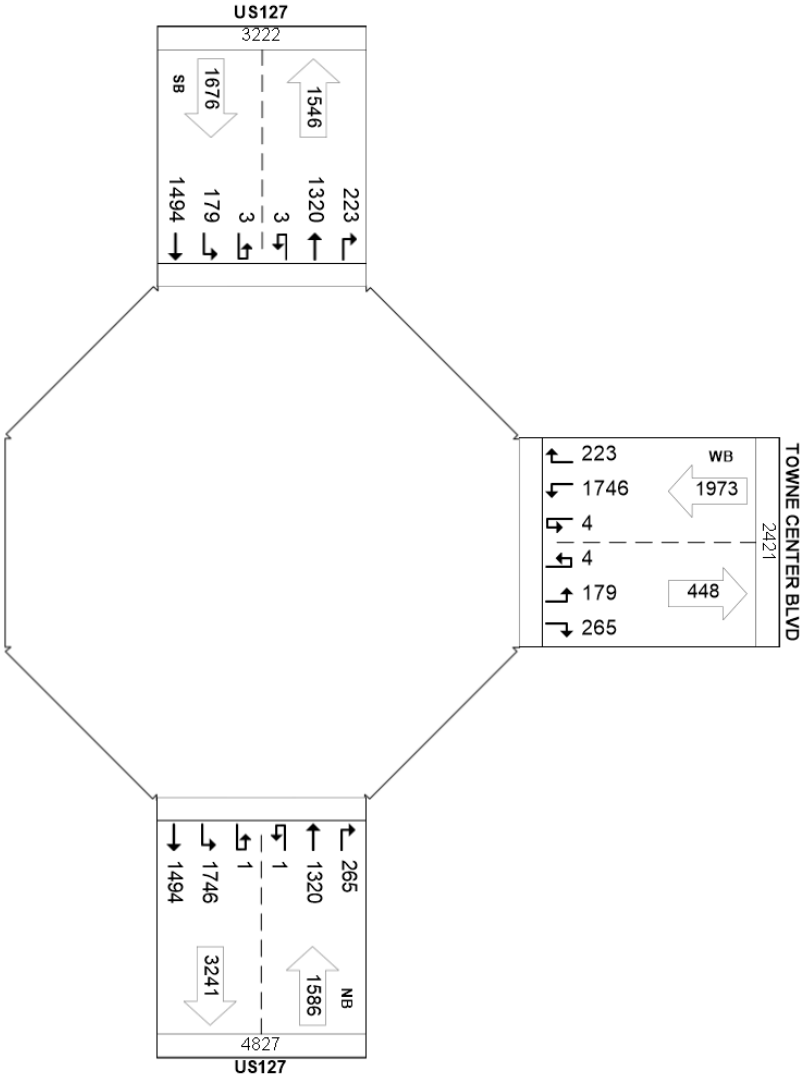
☑ Articulated Trucks ☑ Bus ☑ Cars & Light Goods ☑ Motorcycles ☑ Single unit truck (2 axles)

	NB					SB					WB				
Start Time	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total
6:00 AM	0	19	3	0	**22**	6	31	0	0	**37**	11	0	2	0	**13**
6:15 AM	0	41	6	0	**47**	5	32	0	0	**37**	13	0	3	0	**16**
6:30 AM	0	48	5	0	**53**	5	49	0	0	**54**	16	0	2	0	**18**
6:45 AM	0	47	4	0	**51**	7	55	0	0	**62**	19	0	6	0	**25**
7:00 AM	0	51	9	0	**60**	7	29	0	0	**36**	35	0	3	0	**38**
7:15 AM	0	44	10	1	**55**	2	48	0	0	**50**	38	0	2	0	**40**
7:30 AM	0	37	13	0	**50**	7	58	0	0	**65**	33	0	3	0	**36**
7:45 AM	0	37	18	0	**55**	9	50	0	0	**59**	25	0	5	0	**30**
8:00 AM	0	40	8	0	**48**	8	47	0	0	**55**	39	0	2	0	**41**
8:15 AM	0	37	7	0	**44**	3	44	0	0	**47**	37	0	9	0	**46**
8:30 AM	0	29	6	0	**35**	3	45	0	0	**48**	31	0	6	0	**37**
8:45 AM	0	25	4	0	**29**	7	43	0	0	**50**	39	0	2	0	**41**
9:00 AM	0	33	4	0	**37**	4	46	0	0	**50**	31	0	3	0	**34**
9:15 AM	0	29	8	0	**37**	5	37	0	0	**42**	29	0	2	0	**31**
9:30 AM	0	45	5	0	**50**	4	41	0	0	**45**	46	0	6	0	**52**
9:45 AM	0	31	8	0	**39**	4	29	0	0	**33**	40	0	4	0	**44**
2:00 PM	0	47	9	0	**56**	1	38	0	0	**39**	68	0	7	0	**75**
2:15 PM	0	40	9	0	**49**	8	56	0	0	**64**	47	0	8	1	**56**
2:30 PM	0	49	9	0	**58**	11	88	0	0	**99**	57	0	9	0	**66**
2:45 PM	0	53	7	0	**60**	5	63	0	0	**68**	116	0	9	1	**126**
3:00 PM	0	31	9	0	**40**	7	46	0	1	**54**	97	0	10	0	**107**
3:15 PM	0	50	9	0	**59**	6	53	0	0	**59**	71	0	13	0	**84**
3:30 PM	0	47	11	0	**58**	11	48	0	0	**59**	88	0	11	0	**99**
3:45 PM	0	50	10	0	**60**	5	50	0	1	**56**	76	0	12	0	**88**
4:00 PM	0	48	9	0	**57**	3	45	0	0	**48**	86	0	16	1	**103**
4:15 PM	0	44	7	0	**51**	3	38	0	0	**41**	91	0	11	0	**102**
4:30 PM	0	46	9	0	**55**	5	61	0	1	**67**	73	0	11	0	**84**
4:45 PM	0	56	10	0	**66**	5	42	0	0	**47**	82	0	8	0	**90**

	NB					SB					WB				
Start Time	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total	Left	Thru	Right	U-Turn	Total
5:00 PM	0	42	6	0	**48**	6	36	0	0	**42**	91	0	12	0	**103**
5:15 PM	0	50	10	0	**60**	7	60	0	0	**67**	72	0	10	0	**82**
5:30 PM	0	39	11	0	**50**	6	37	0	0	**43**	87	0	8	1	**96**
5:45 PM	0	35	12	0	**47**	4	49	0	0	**53**	62	0	8	0	**70**
Total	0	1,320	265	1	**1,586**	179	1,494	0	3	**1,676**	1,746	0	223	4	**1,973**
App %	0%	83%	17%	0%		11%	89%	0%	0%		88%	0%	11%	0%	
PHF		0.74	0.46	0.03	**0.75**	0.51	0.53		0.09	**0.53**	0.47		0.44	0.13	**0.49**
HV %		19%	15%		**18%**	7%	20%		100%	**19%**	3%		3%		**3%**
Total %	0%	25%	5%	0%	**30%**	3%	29%	0%	0%	**32%**	33%	0%	4%	0%	**38%**

ID 22581: Total Count **09/23/2021** **6:00 AM-10:00 AM,2:00 PM-6:00 PM**

Articulated Trucks & Bus & Cars & Light Goods & Motorcycles & Single unit truck (2 axles)



Appendix B

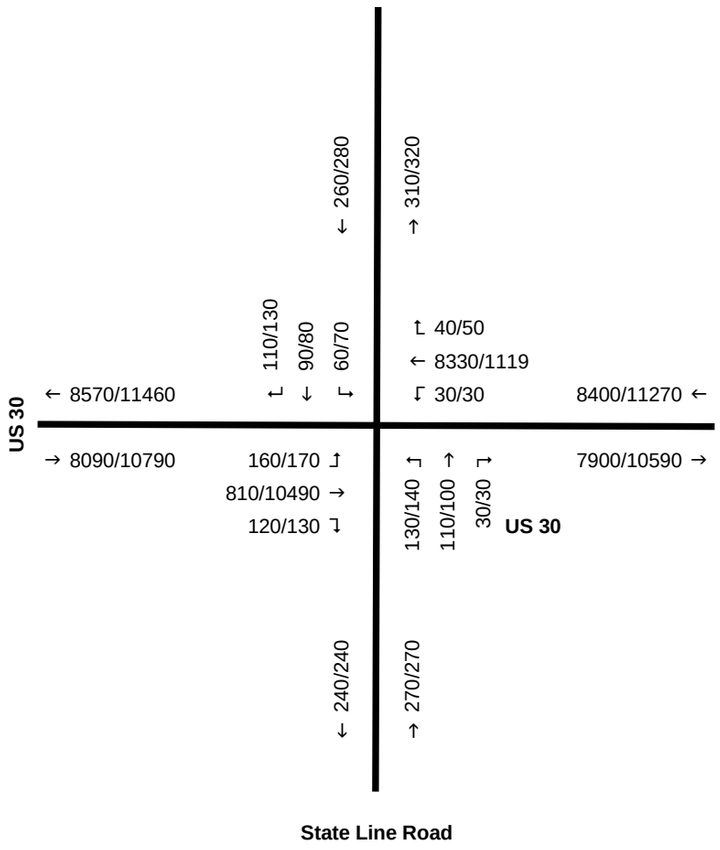
Planning Level Traffic Volumes

Appendix B

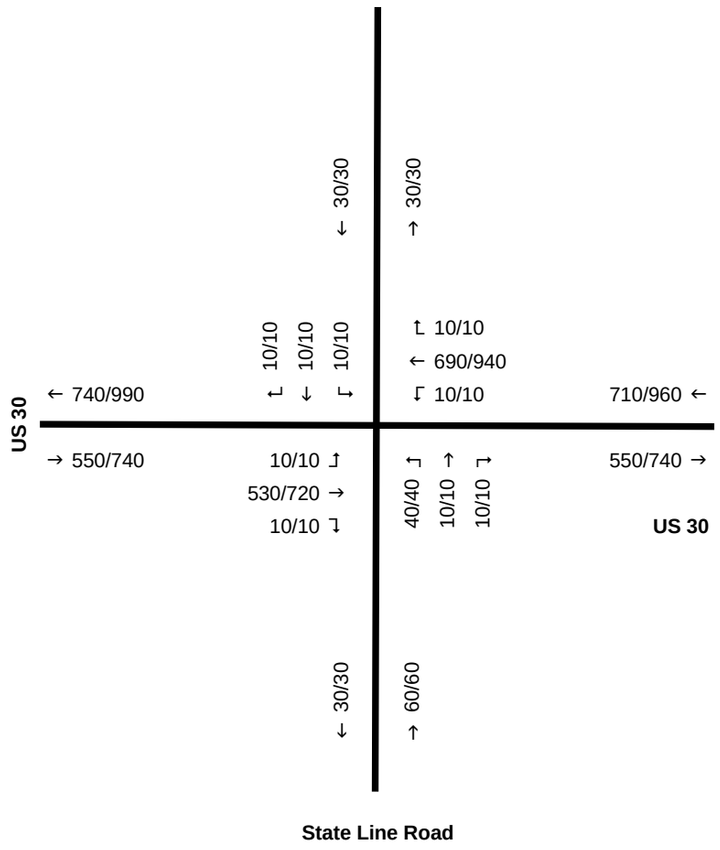
Planning Level Traffic Volumes - No-Build Alternative - U.S. 30

PAU-VAN US 30
PID113196
PLATE 1 OF 20

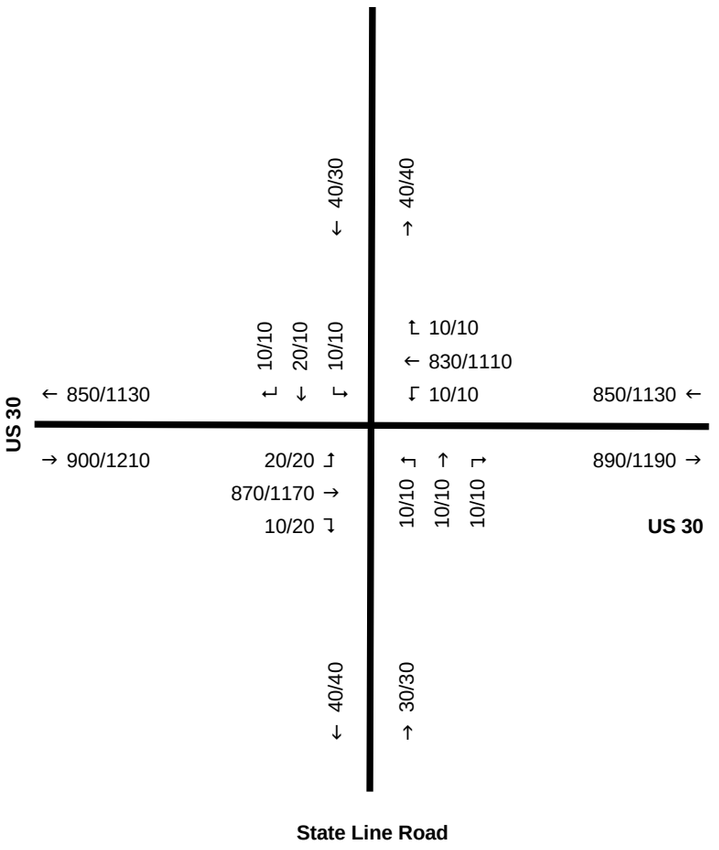
2027/2047 ADT



2027/2047 A.M. DHV



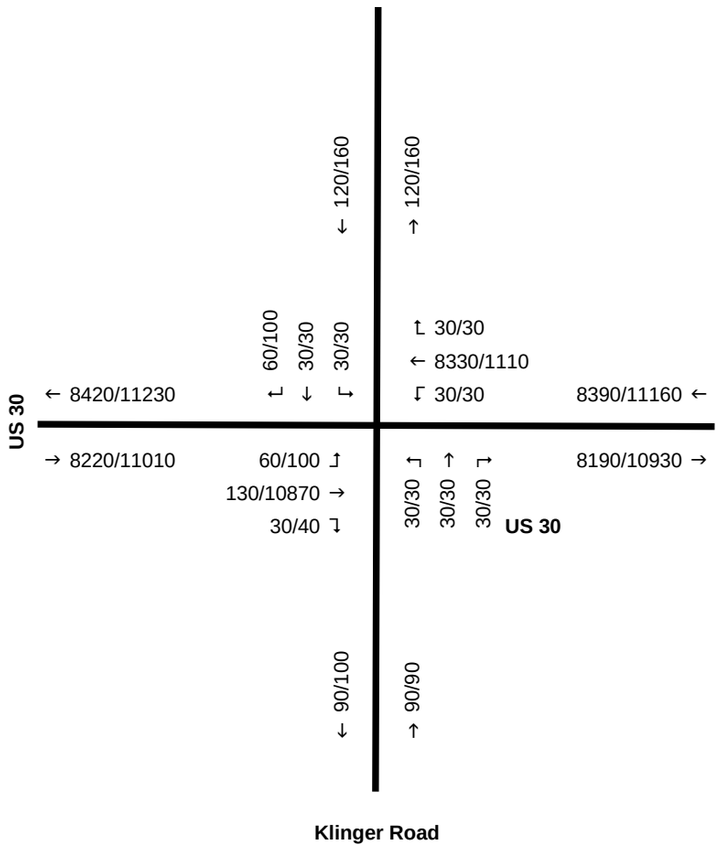
2027/2047 P.M. DHV



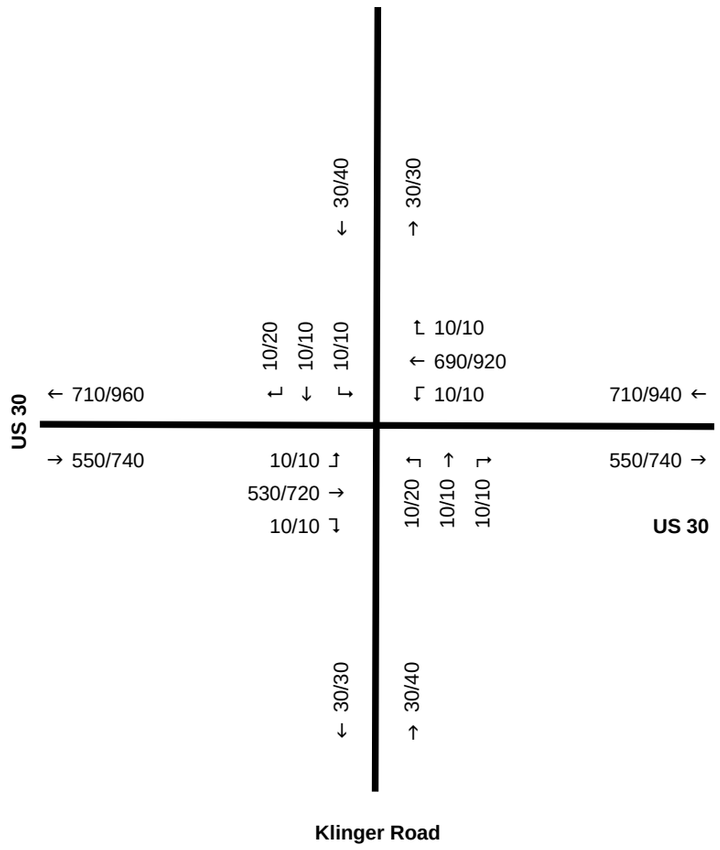
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 2 OF 20

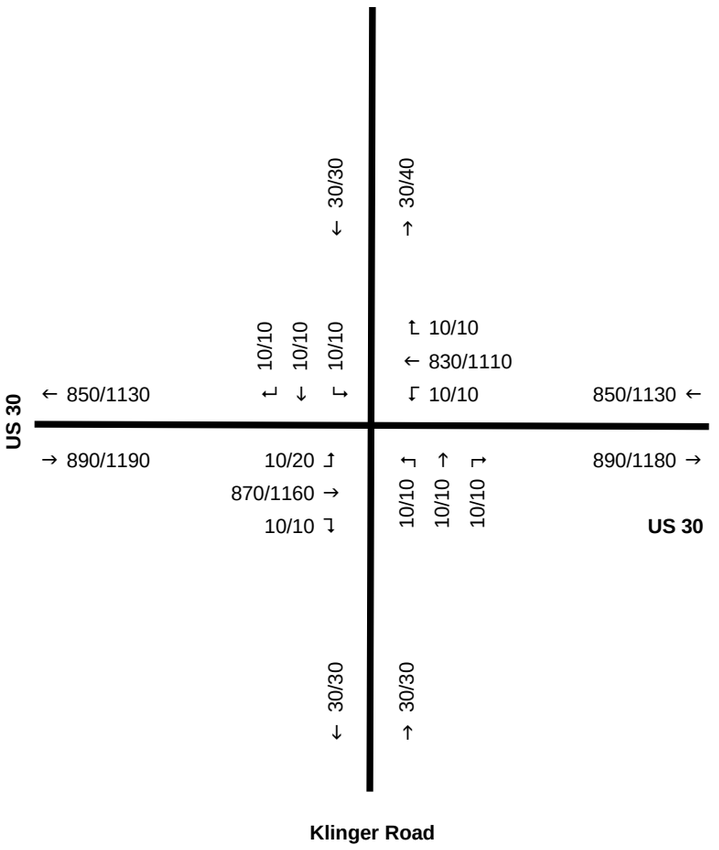
2027/2047 ADT



2027/2047 A.M. DHV



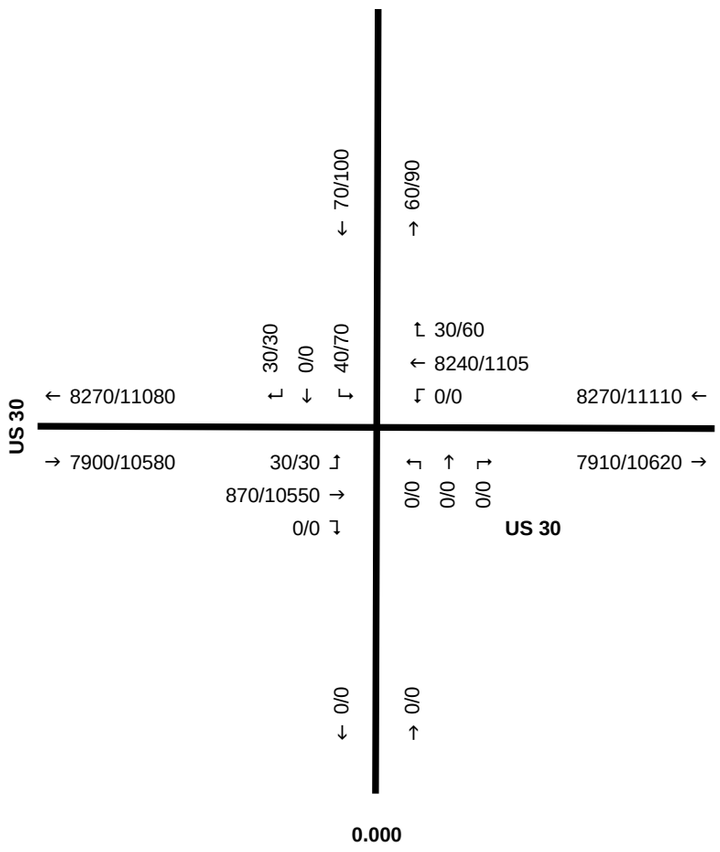
2027/2047 P.M. DHV



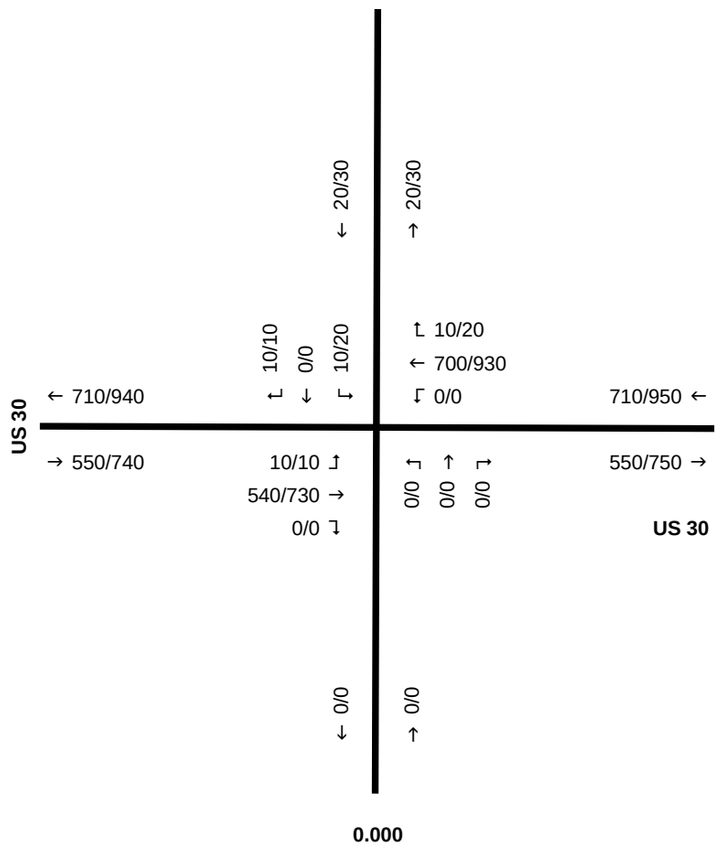
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 3 OF 20

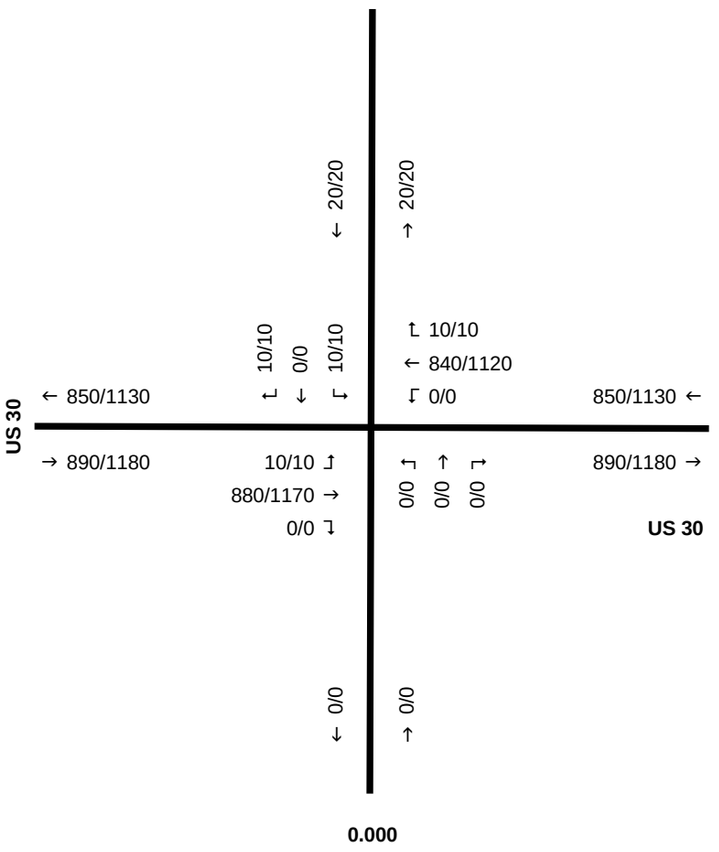
2027/2047 ADT



2027/2047 A.M. DHV



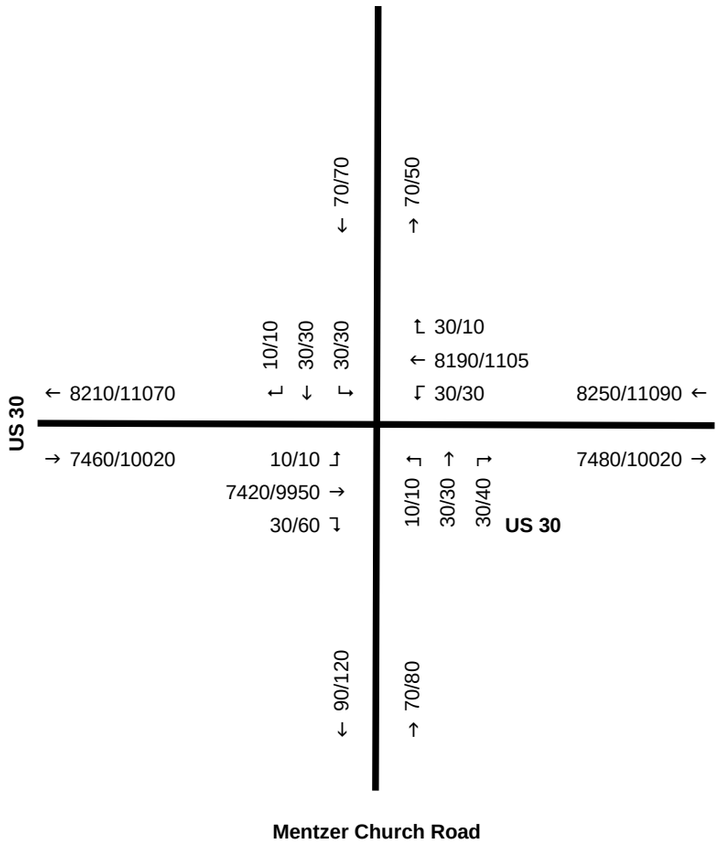
2027/2047 P.M. DHV



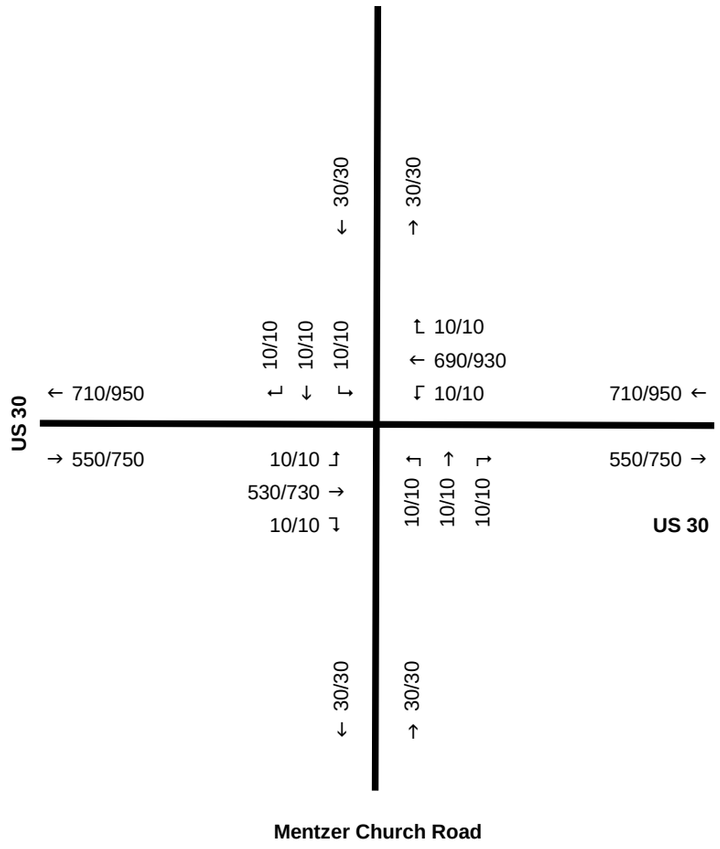
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 4 OF 20

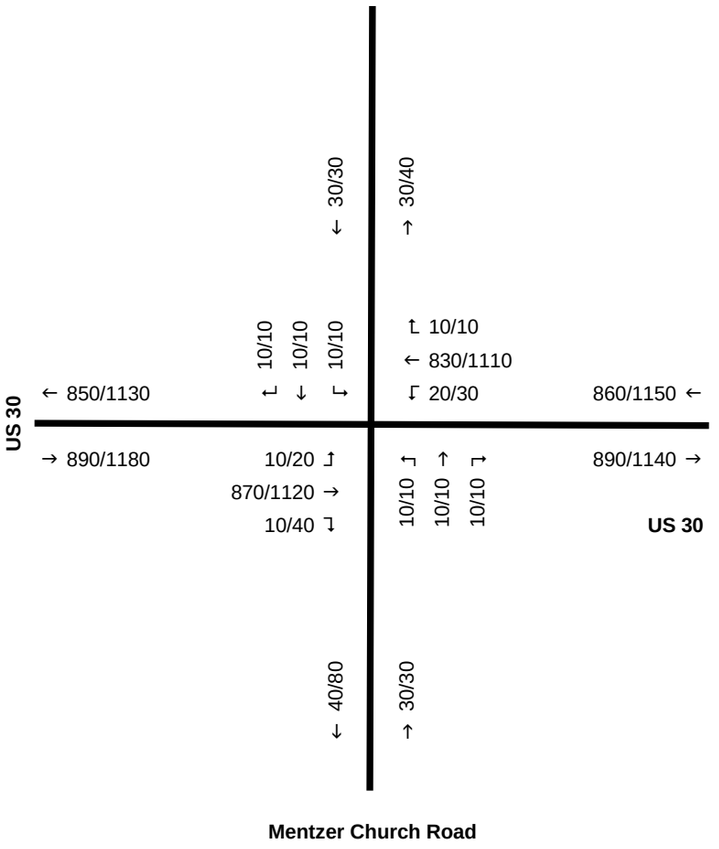
2027/2047 ADT



2027/2047 A.M. DHV



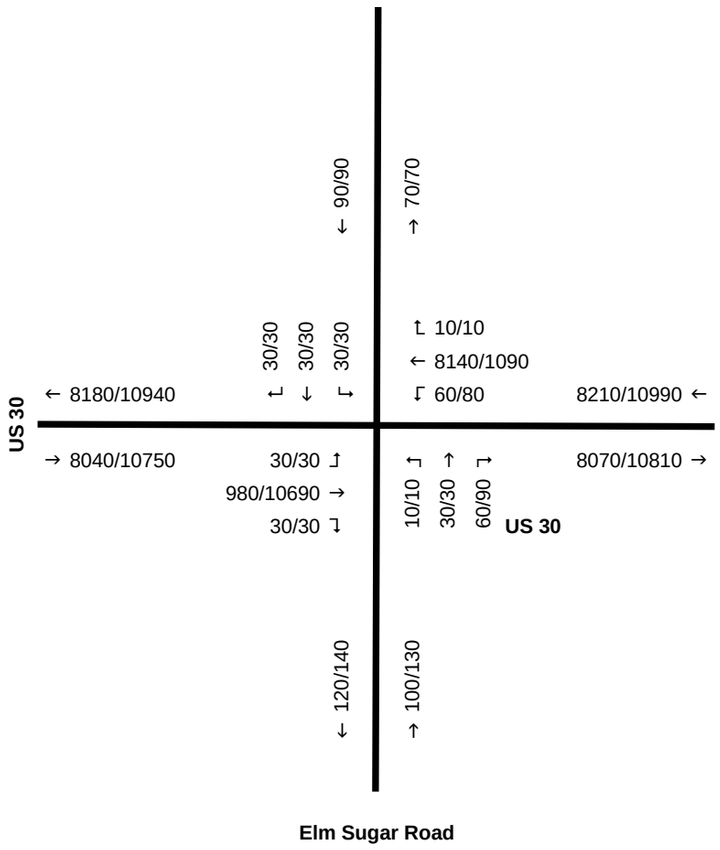
2027/2047 P.M. DHV



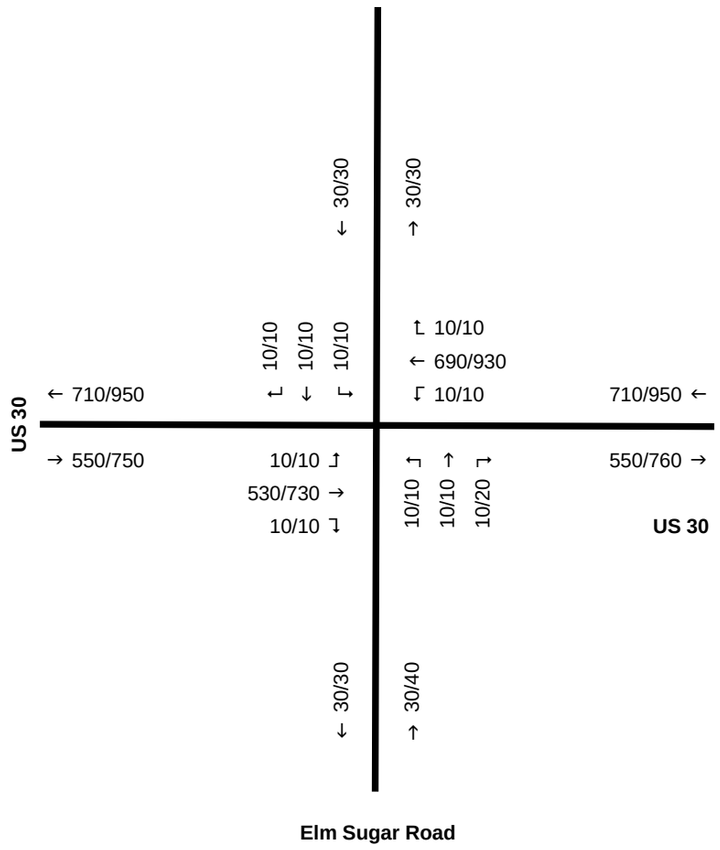
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 5 OF 20

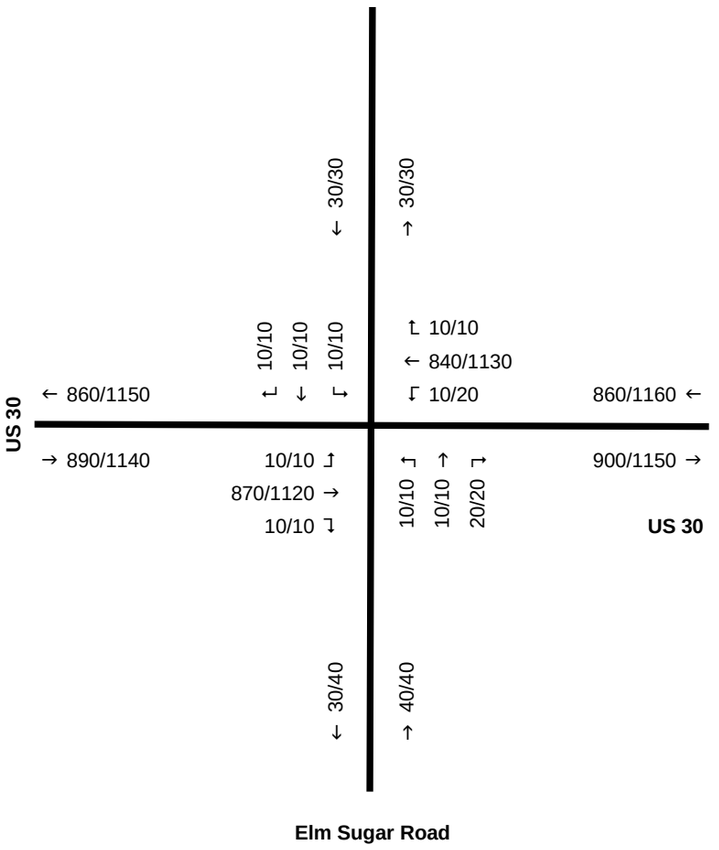
2027/2047 ADT



2027/2047 A.M. DHV



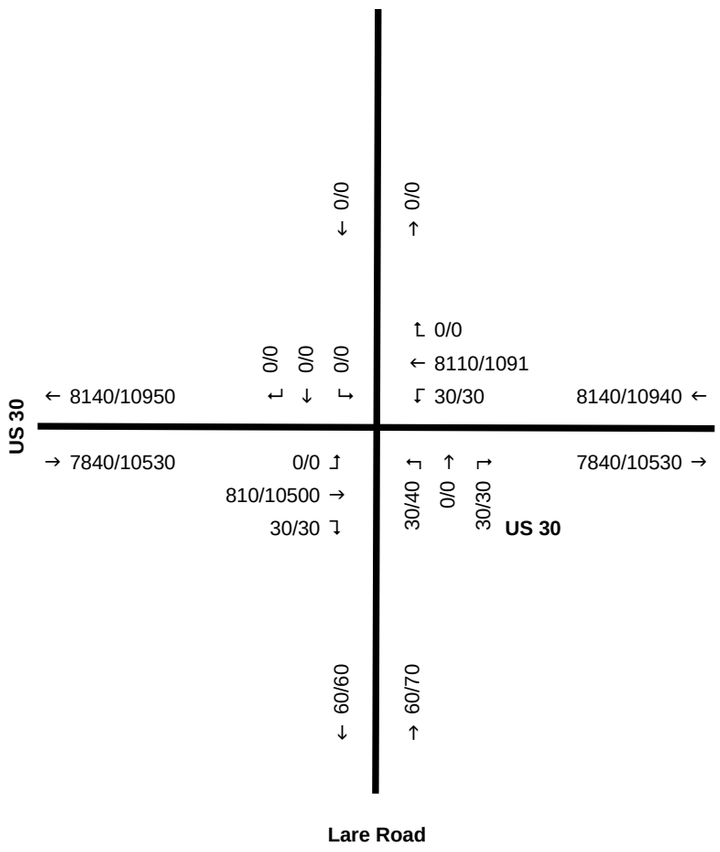
2027/2047 P.M. DHV



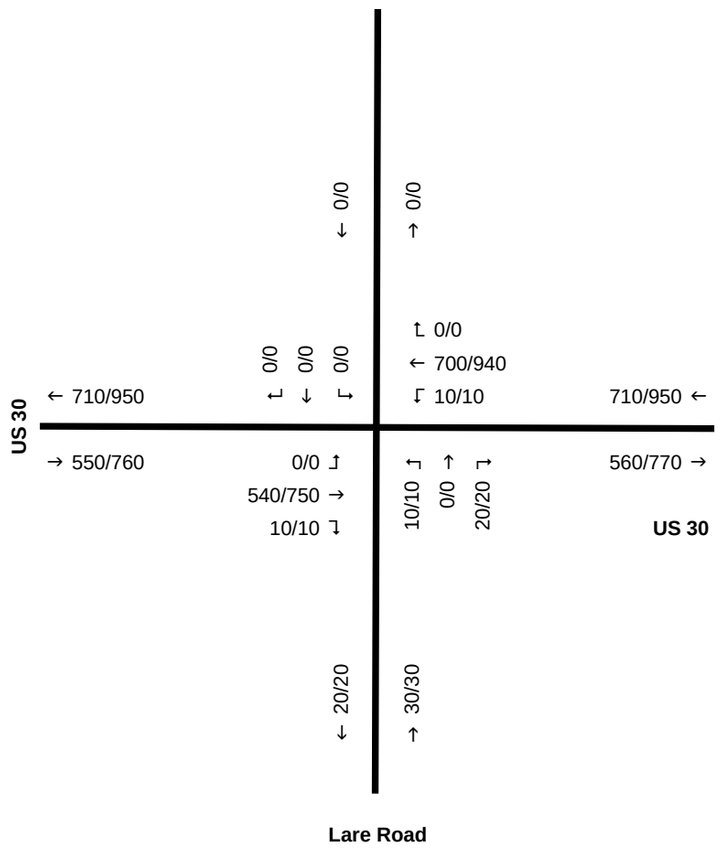
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 6 OF 20

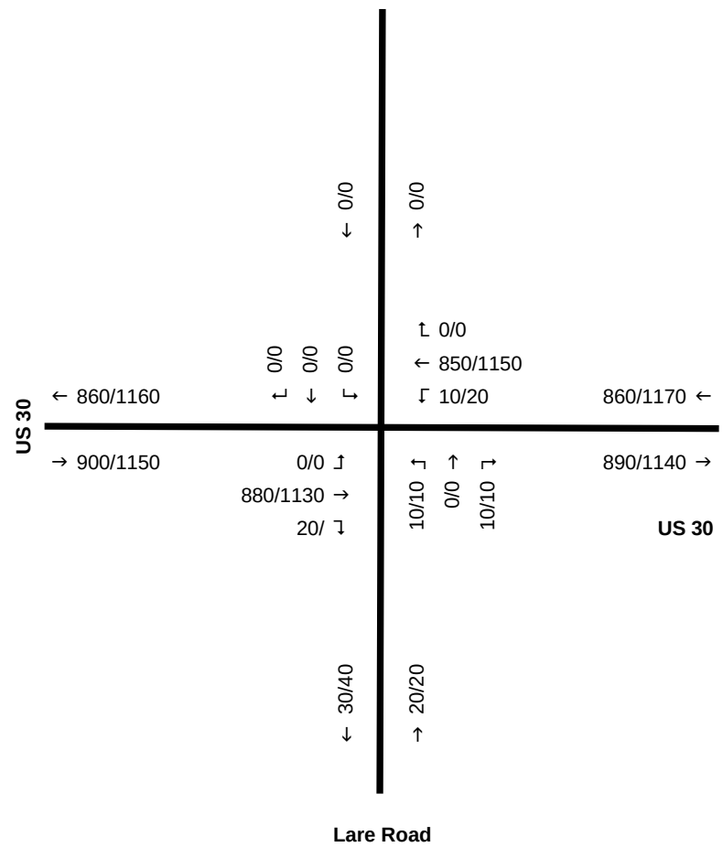
2027/2047 ADT



2027/2047 A.M. DHV



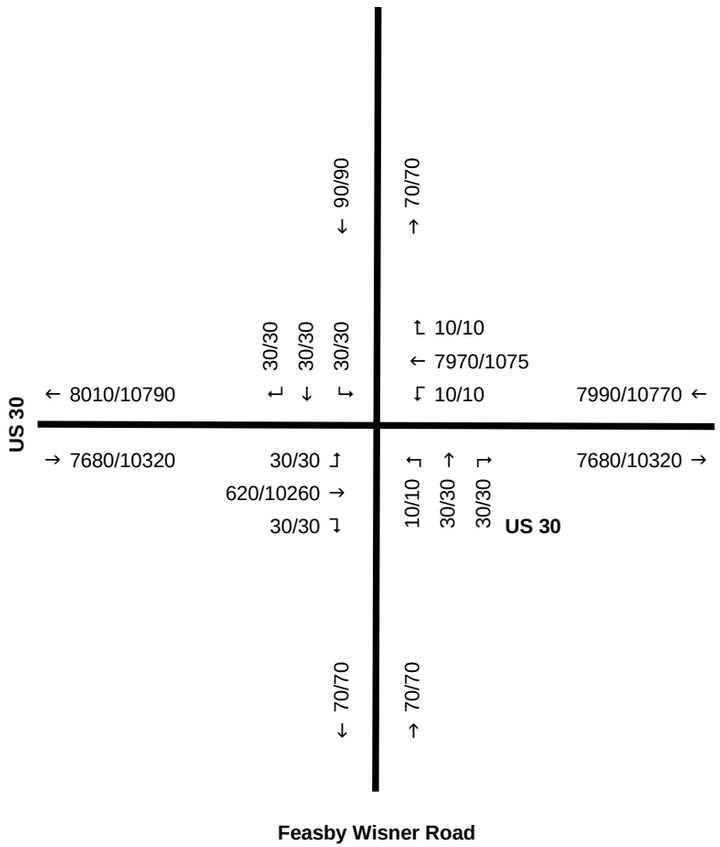
2027/2047 P.M. DHV



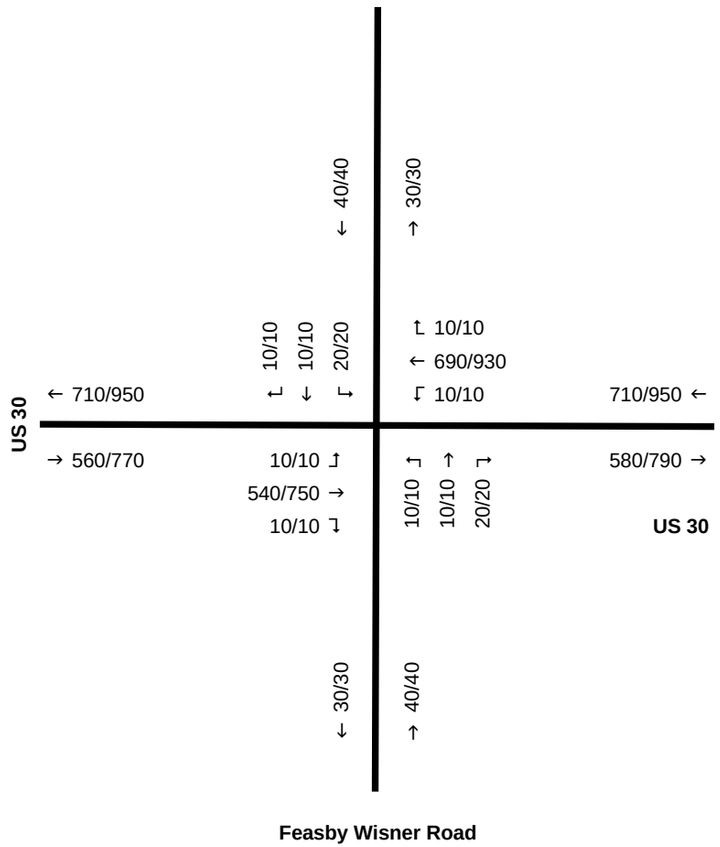
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 7 OF 20

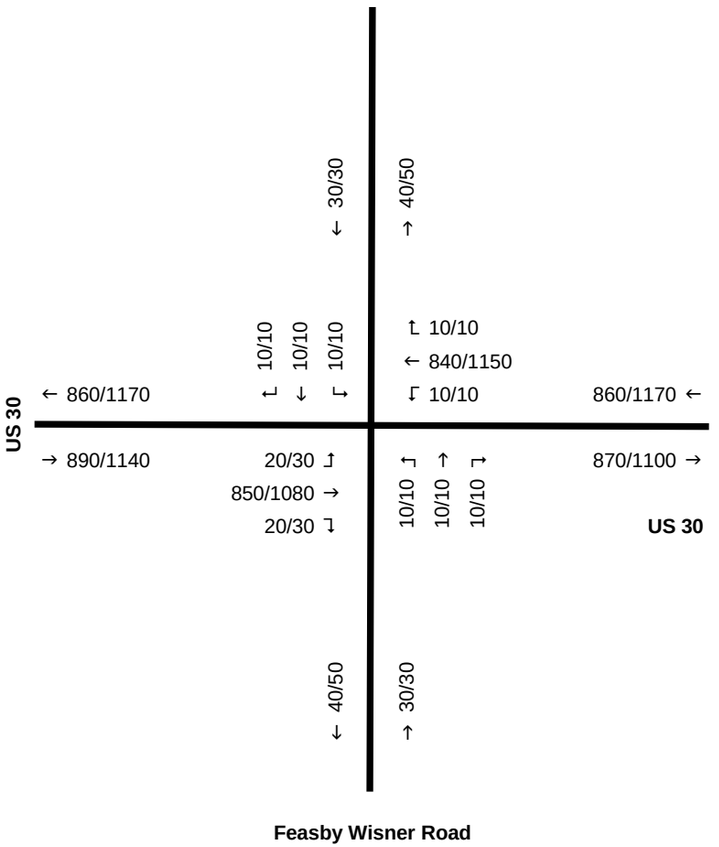
2027/2047 ADT



2027/2047 A.M. DHV



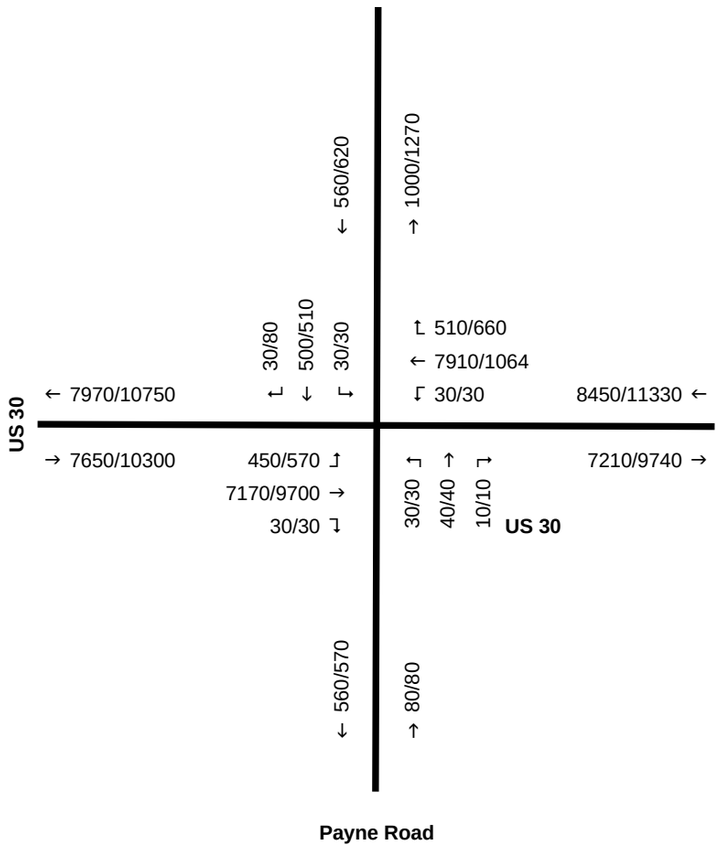
2027/2047 P.M. DHV



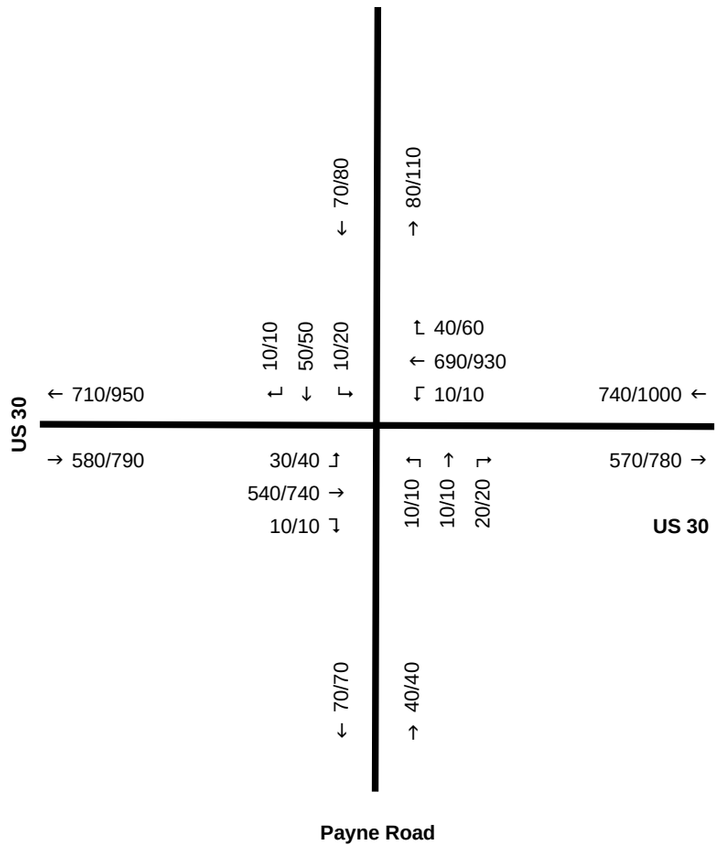
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 8 OF 20

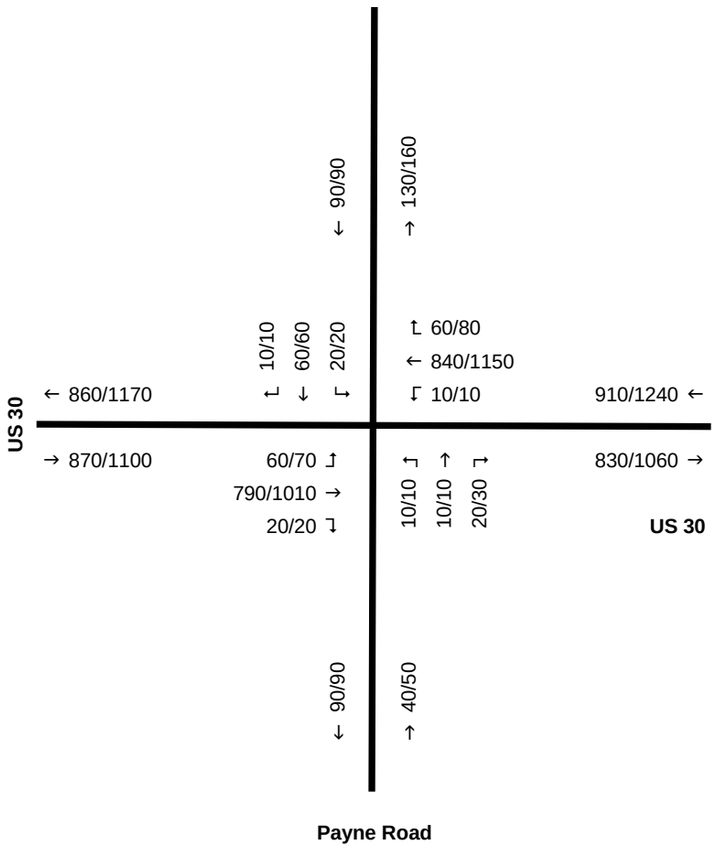
2027/2047 ADT



2027/2047 A.M. DHV



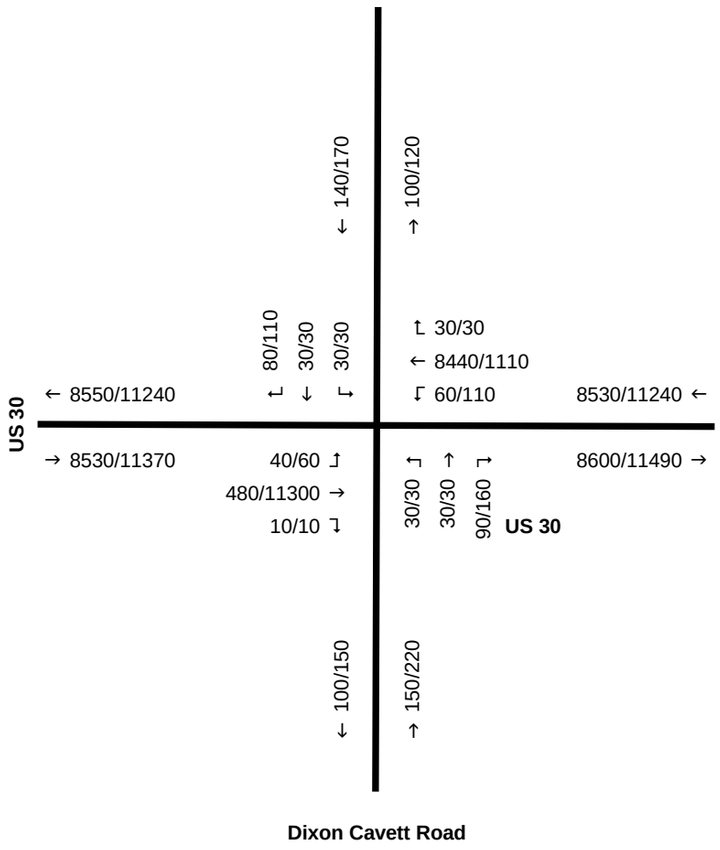
2027/2047 P.M. DHV



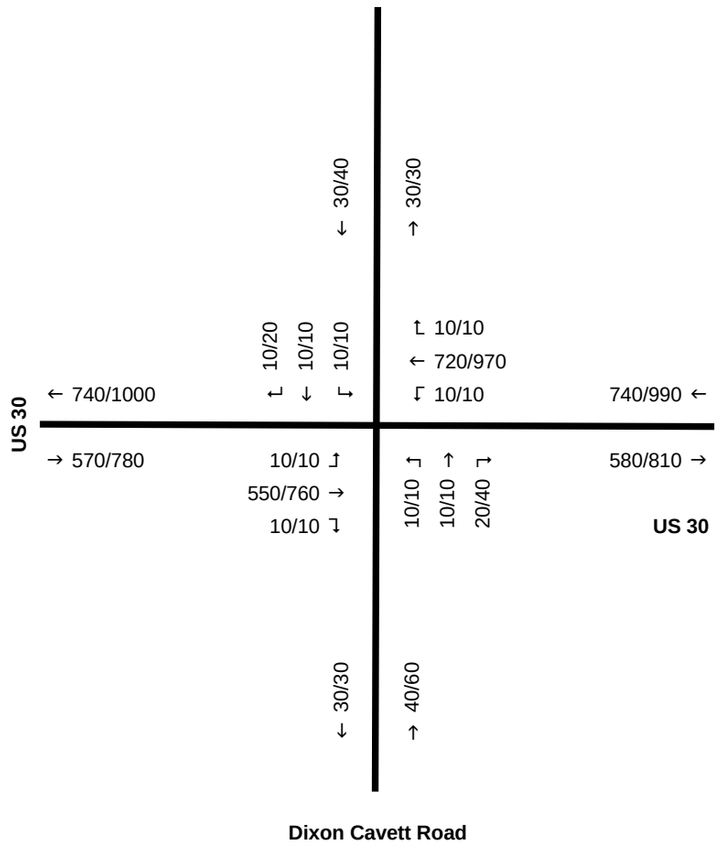
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 9 OF 20

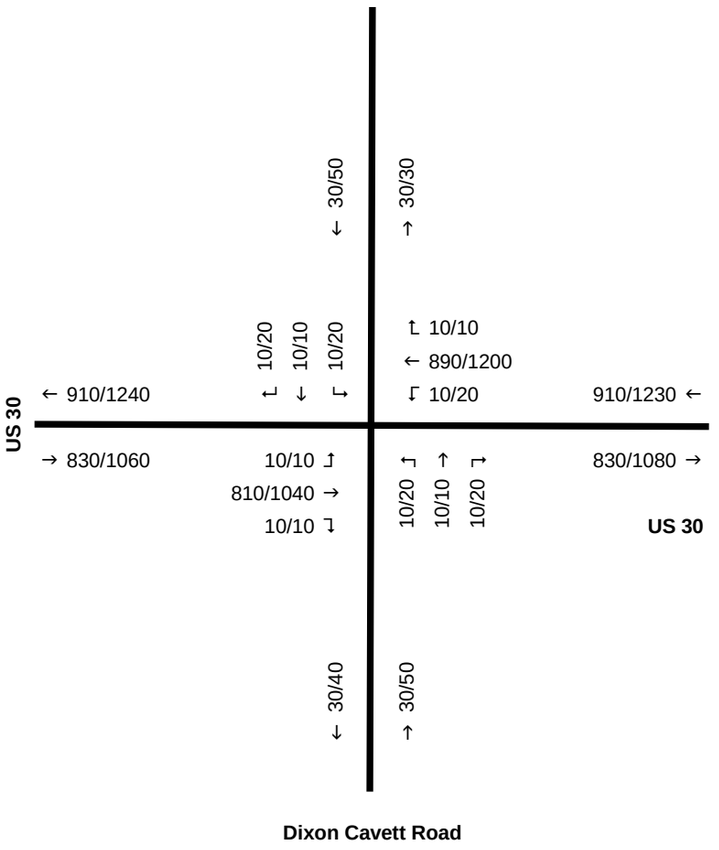
2027/2047 ADT



2027/2047 A.M. DHV



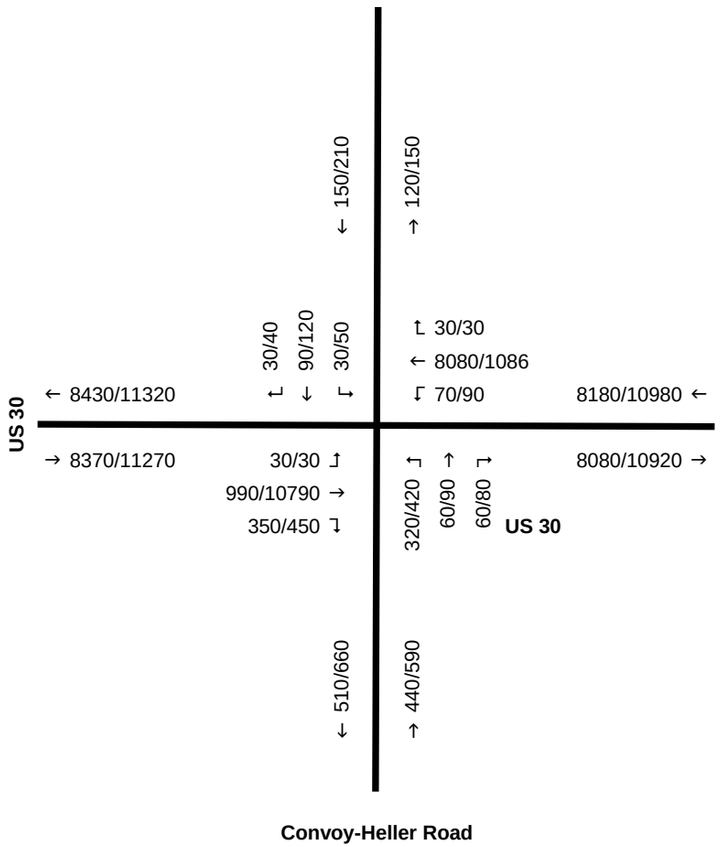
2027/2047 P.M. DHV



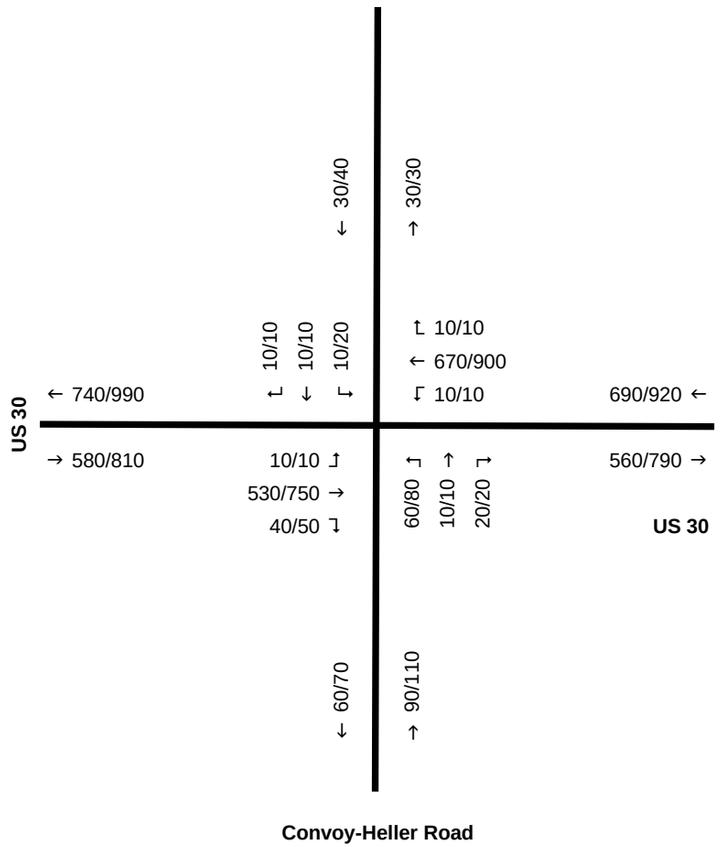
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 10 OF 20

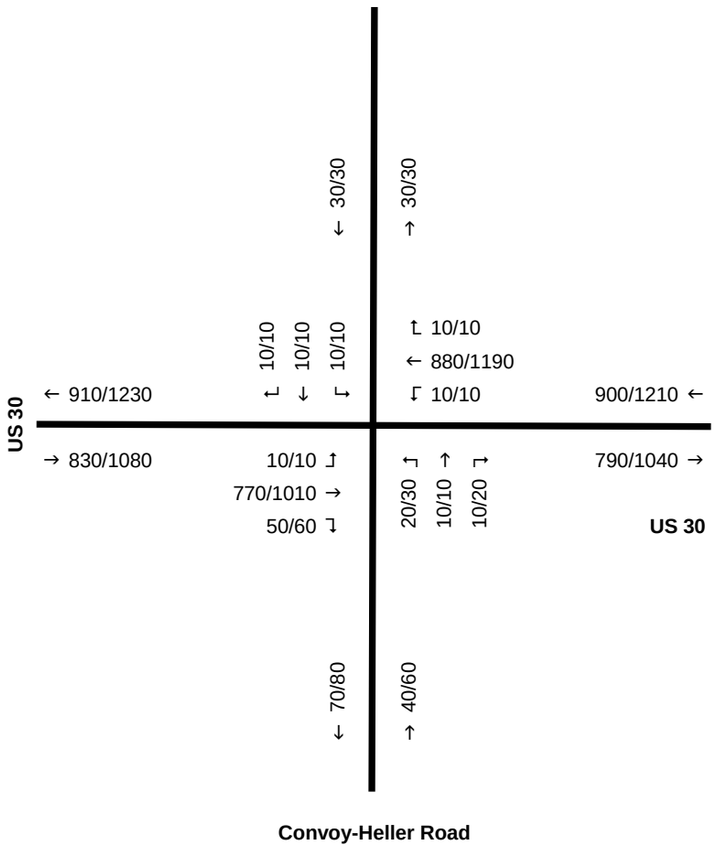
2027/2047 ADT



2027/2047 A.M. DHV



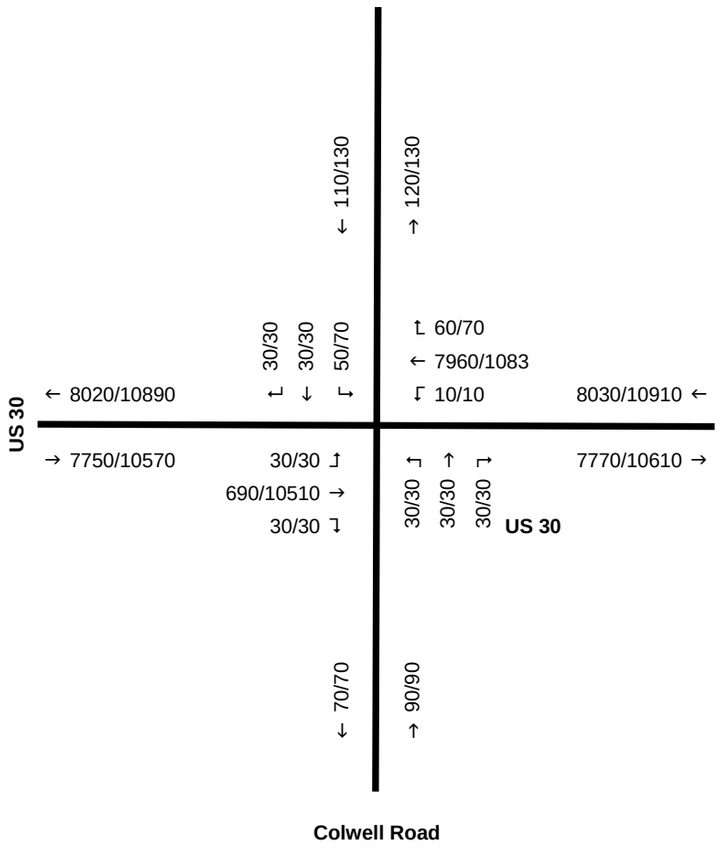
2027/2047 P.M. DHV



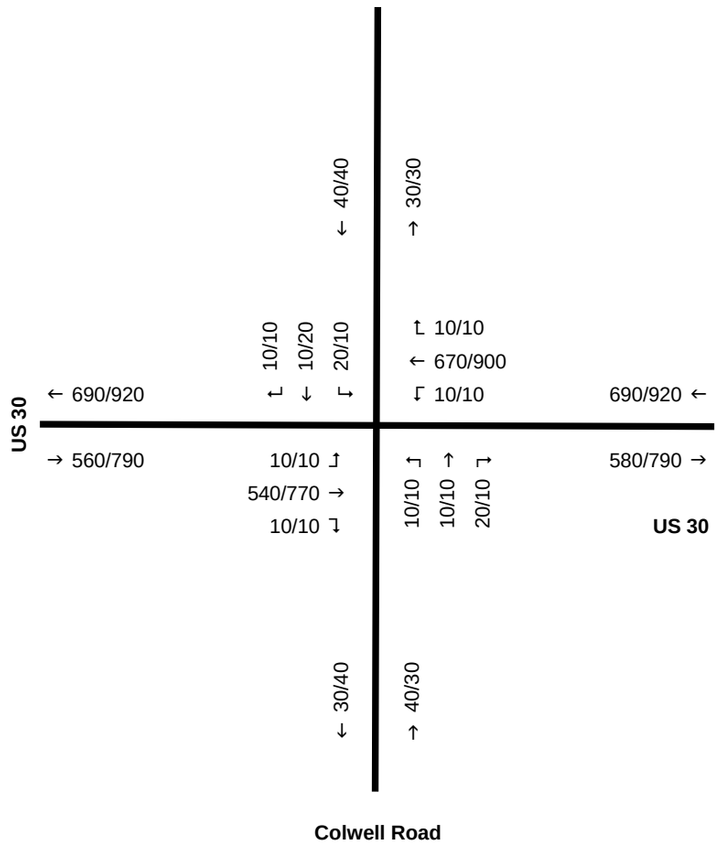
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 11 OF 20

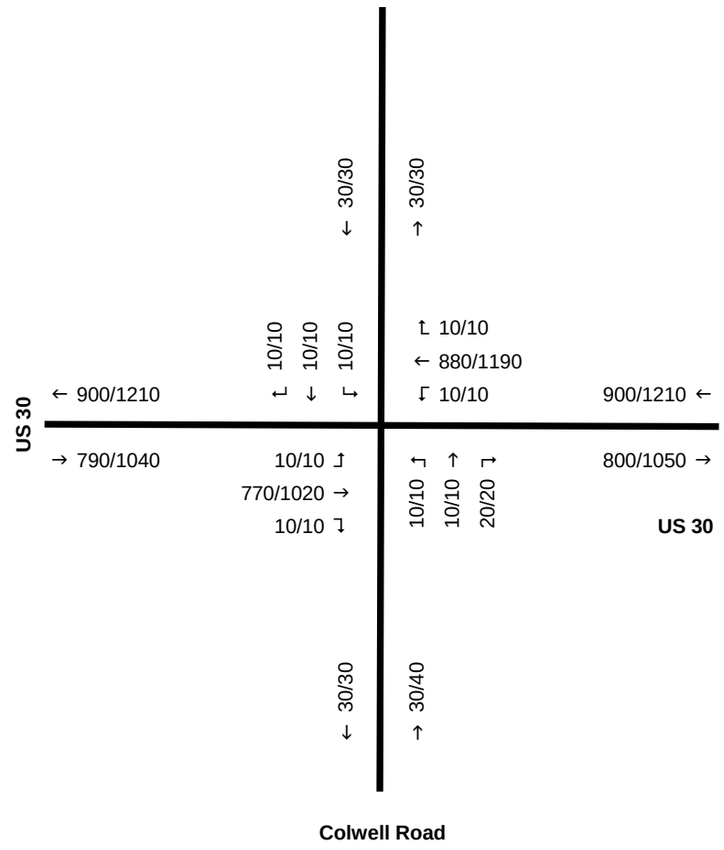
2027/2047 ADT



2027/2047 A.M. DHV



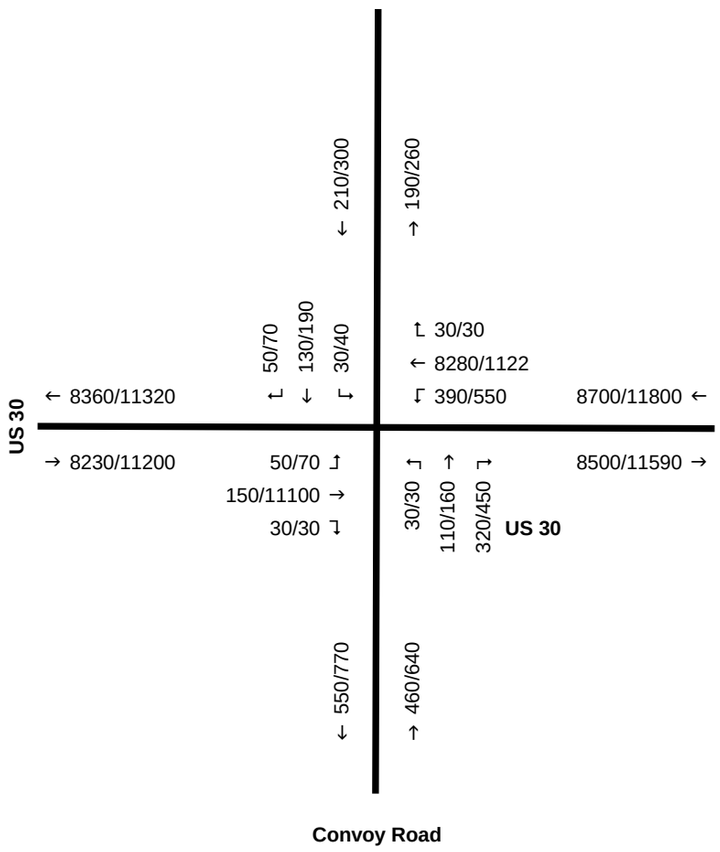
2027/2047 P.M. DHV



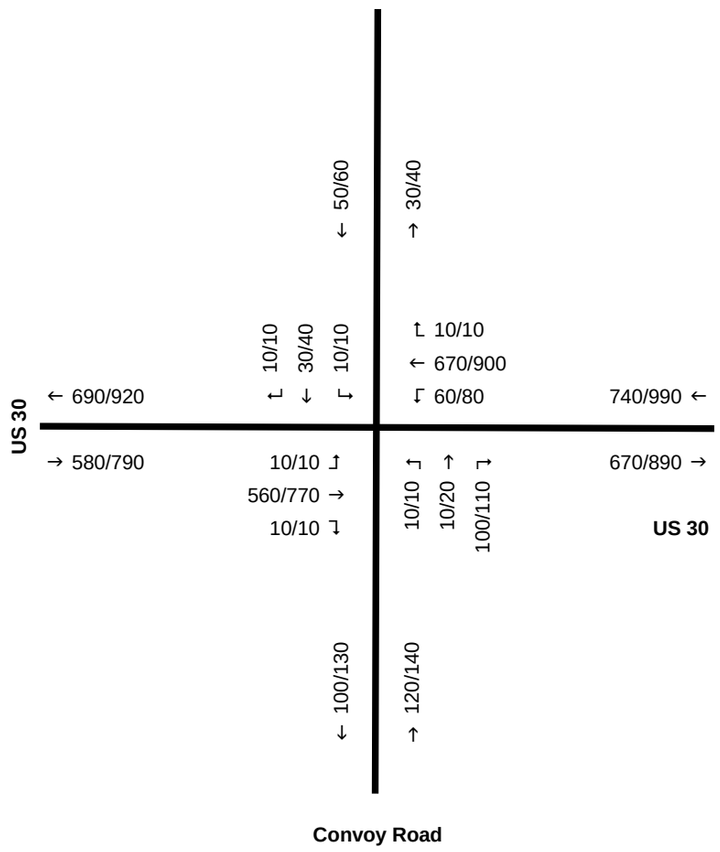
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 12 OF 20

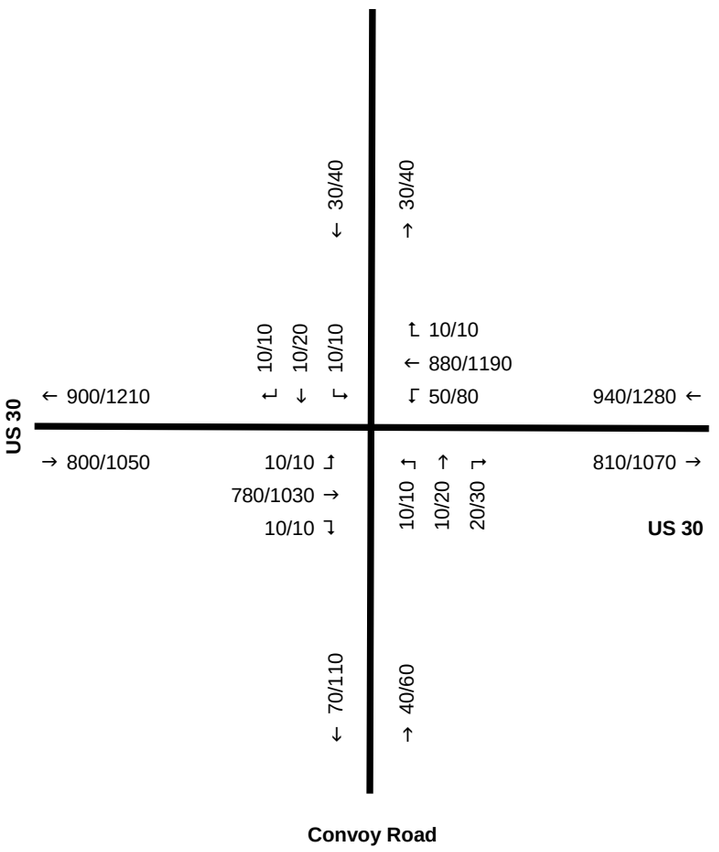
2027/2047 ADT



2027/2047 A.M. DHV



2027/2047 P.M. DHV



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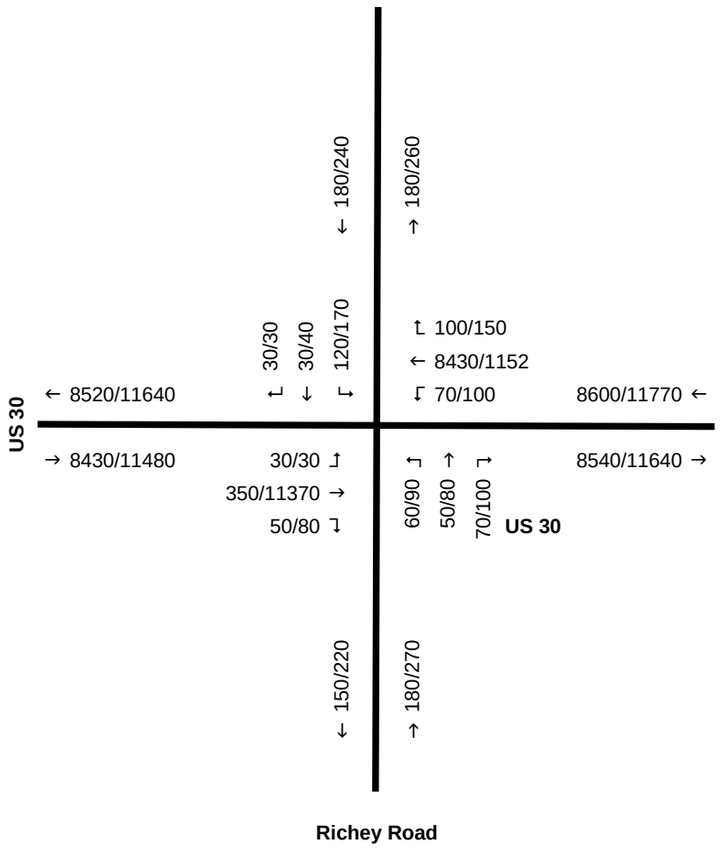
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 13 OF 20

2027/2047 ADT



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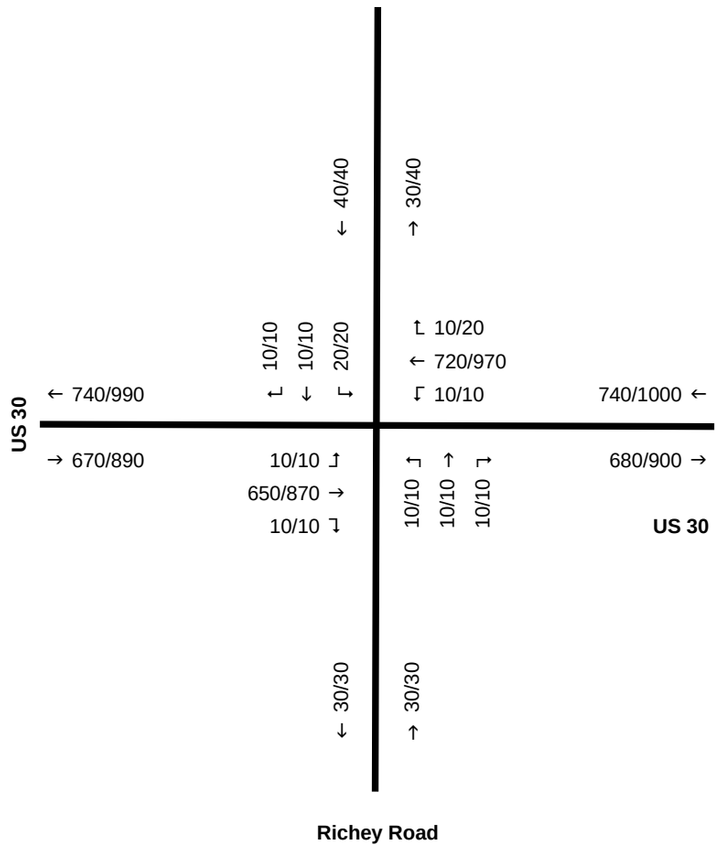
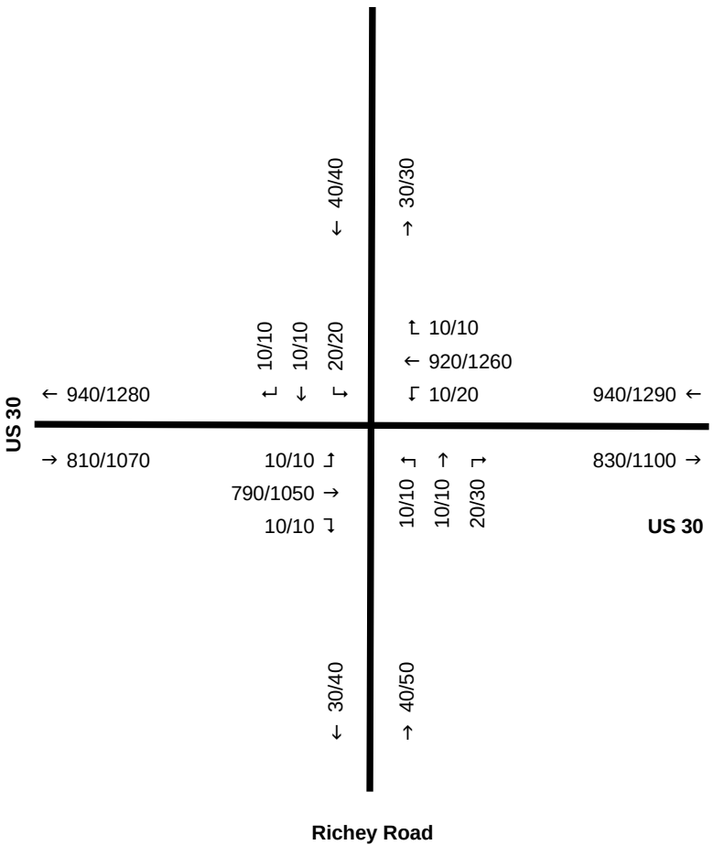


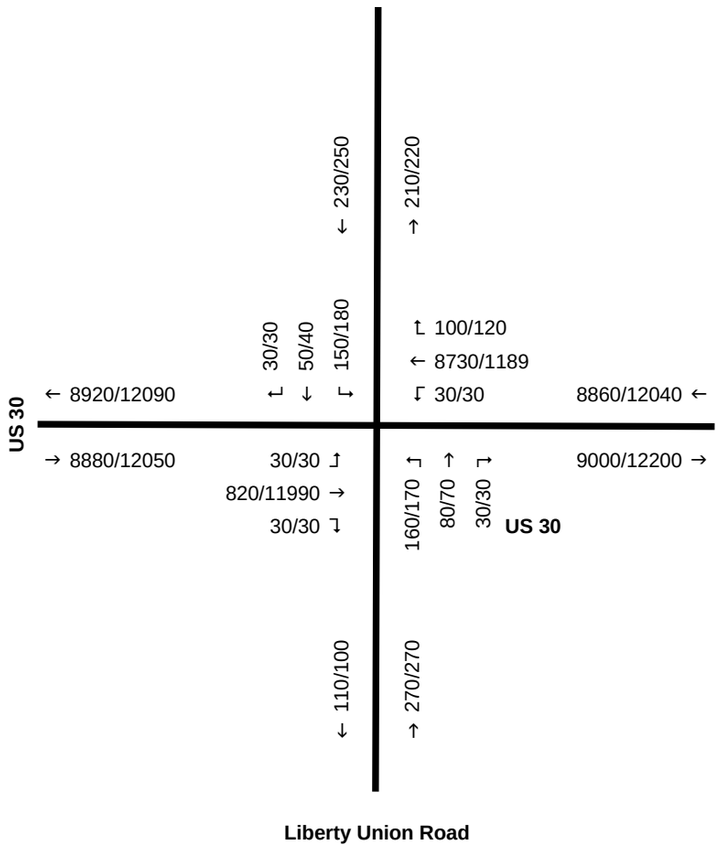
2027/2047 P.M. DHV



PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 14 OF 20

2027/2047 ADT



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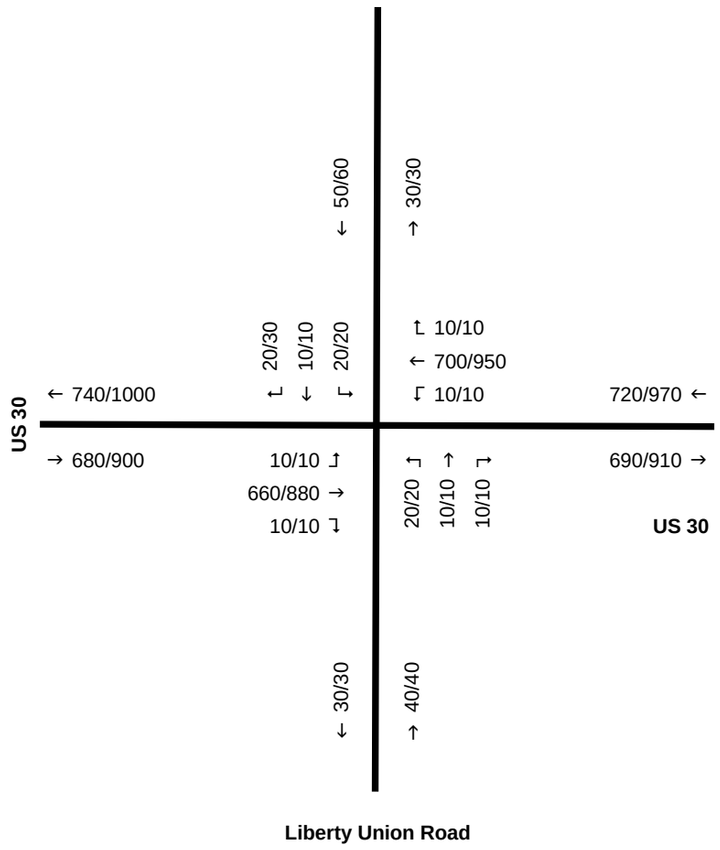
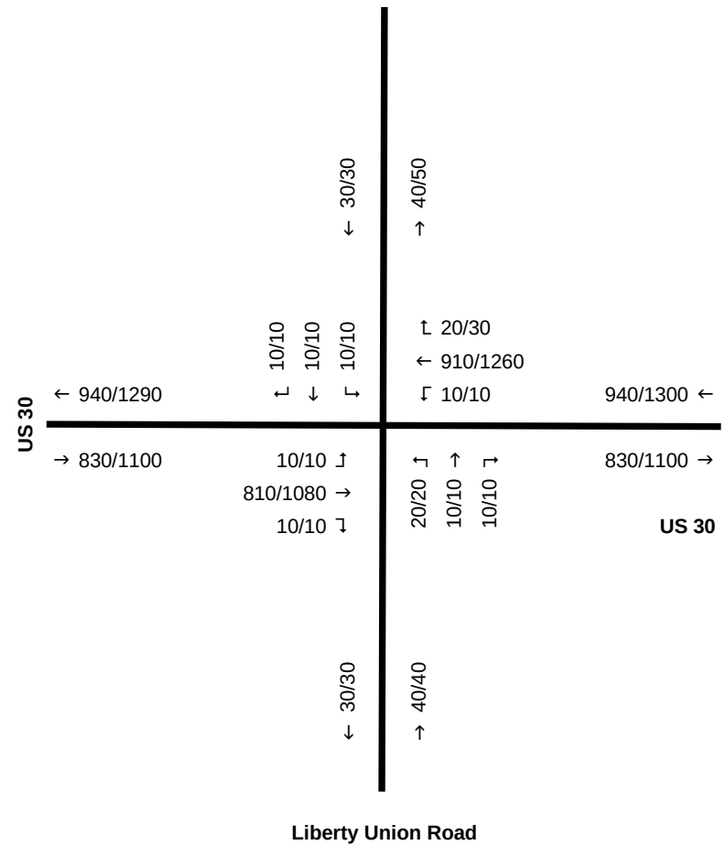


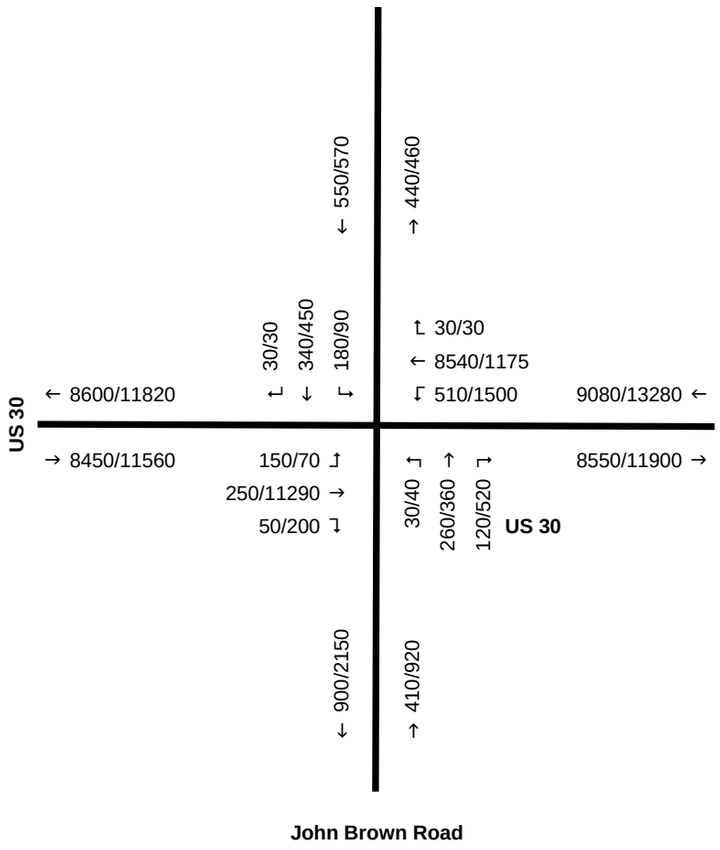
2027/2047 P.M. DHV



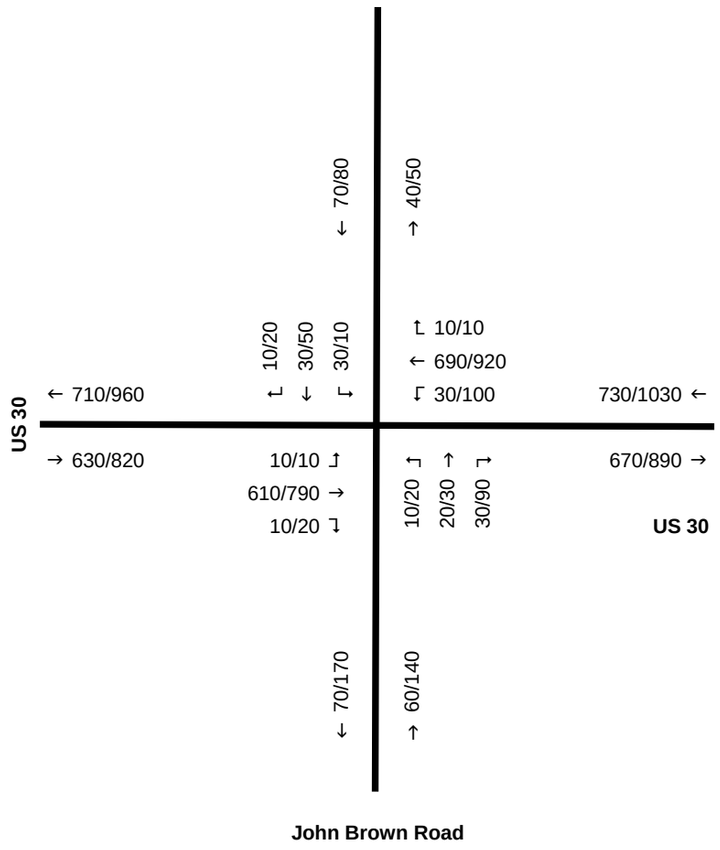
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 15 OF 20

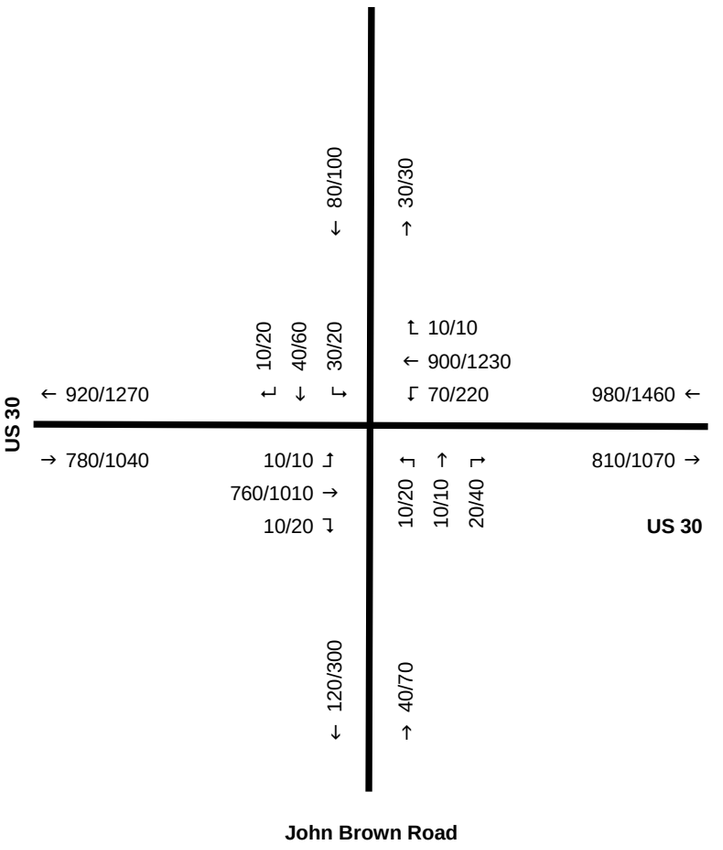
2027/2047 ADT



2027/2047 A.M. DHV



2027/2047 P.M. DHV



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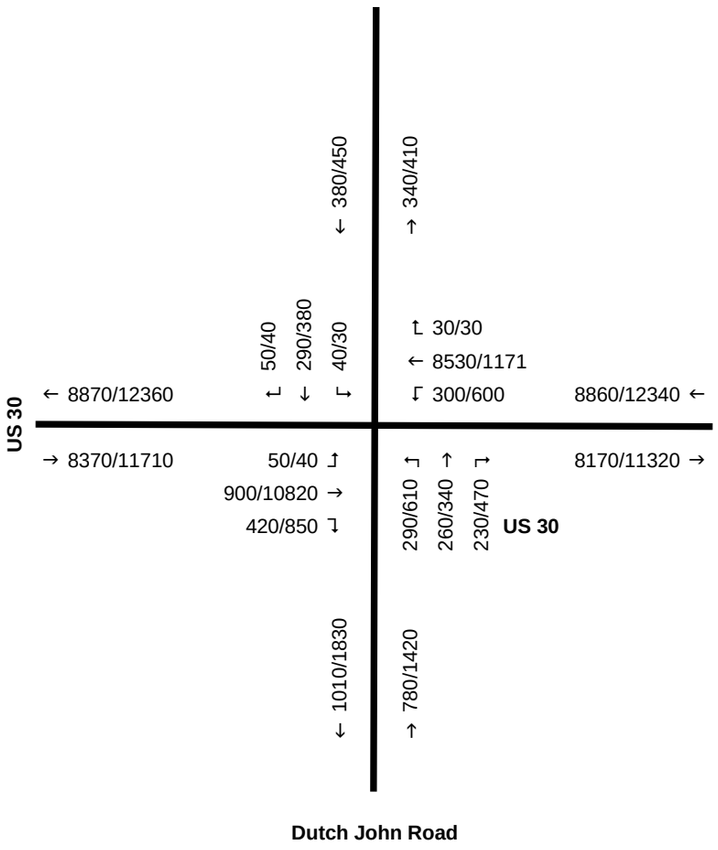
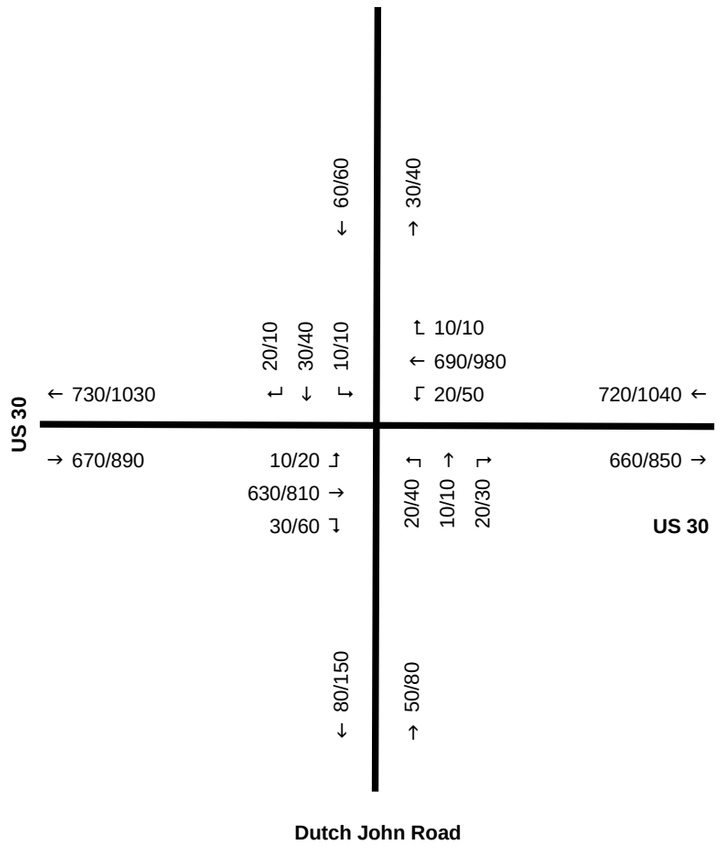
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 16 OF 20

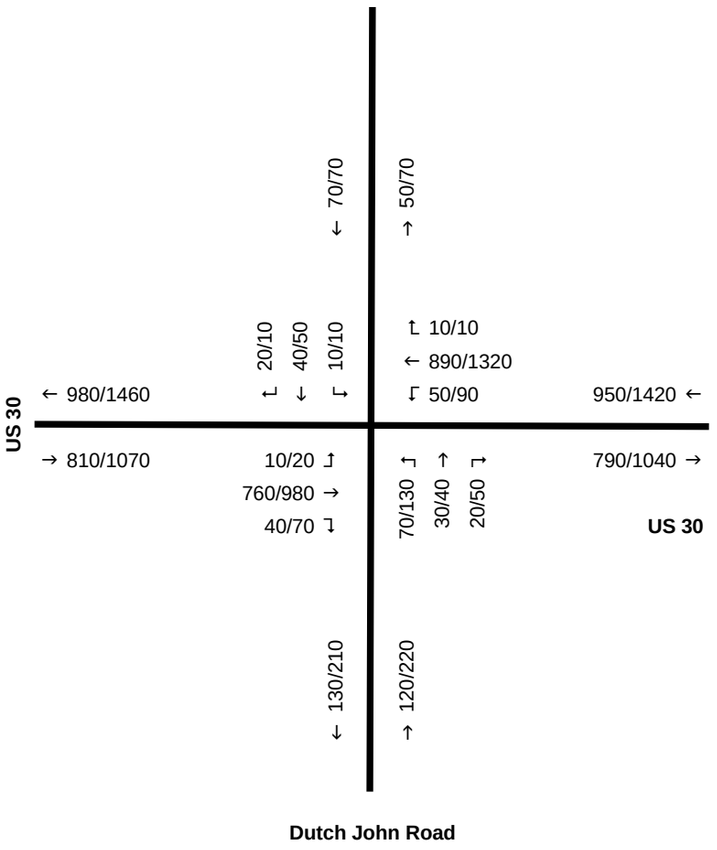
2027/2047 ADT



2027/2047 A.M. DHV



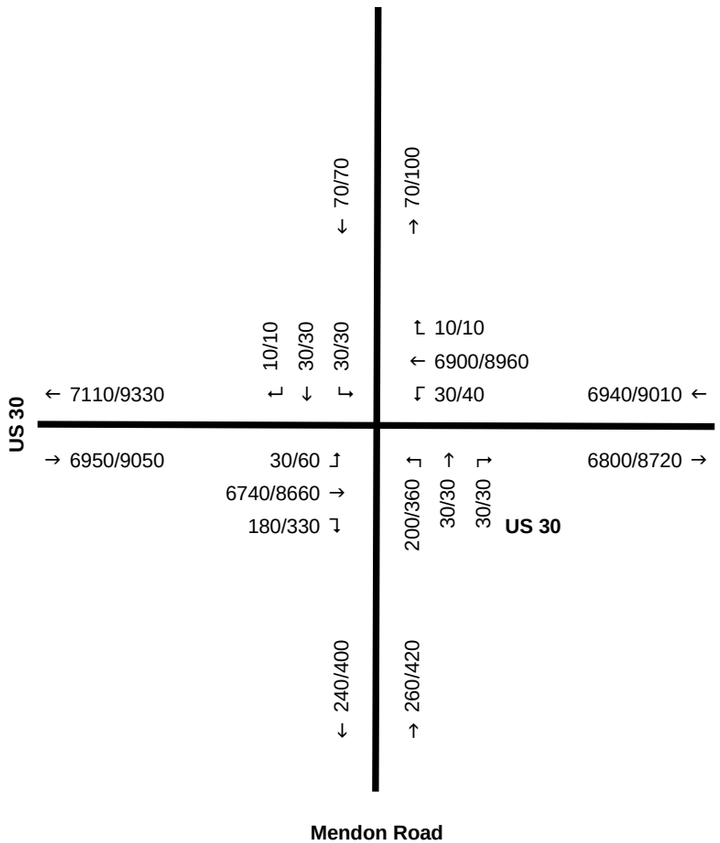
2027/2047 P.M. DHV



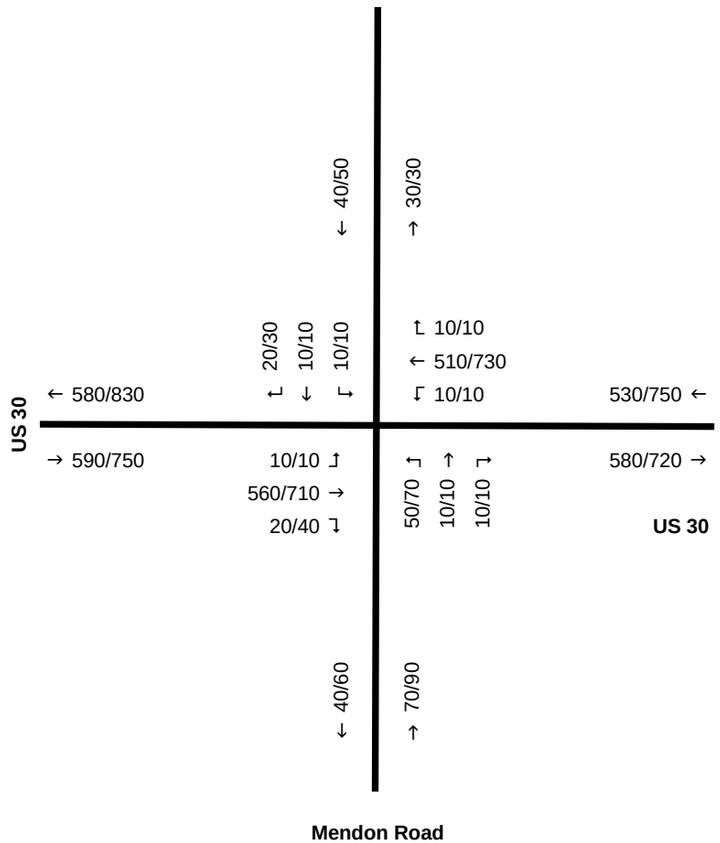
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 17 OF 20

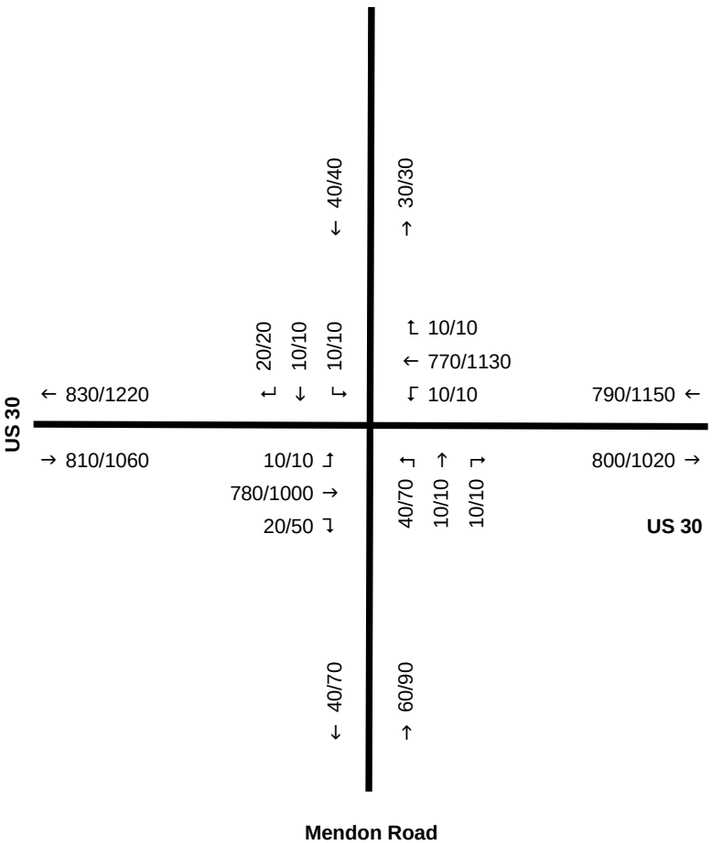
2027/2047 ADT



2027/2047 A.M. DHV



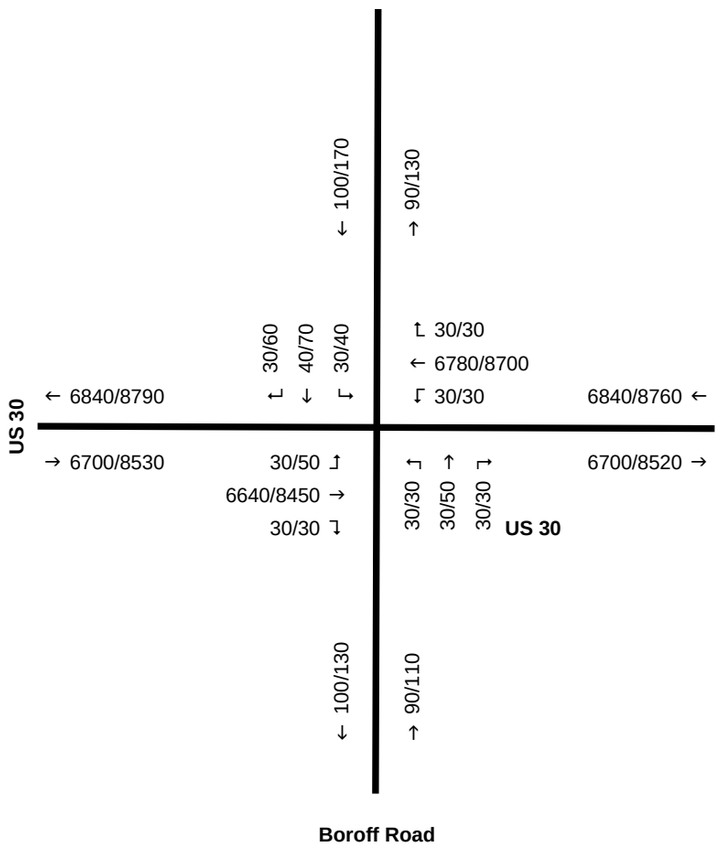
2027/2047 P.M. DHV



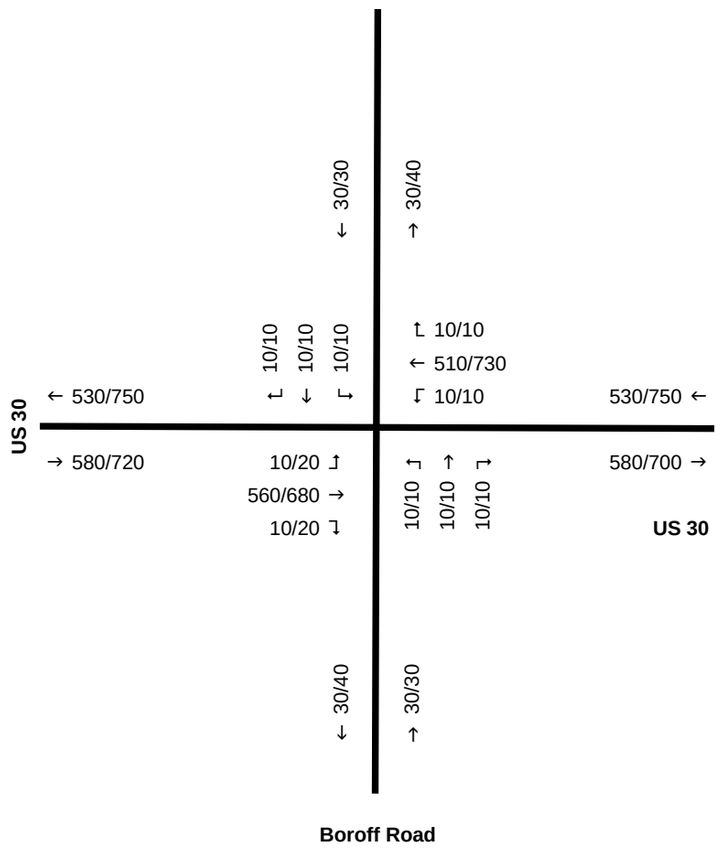
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 18 OF 20

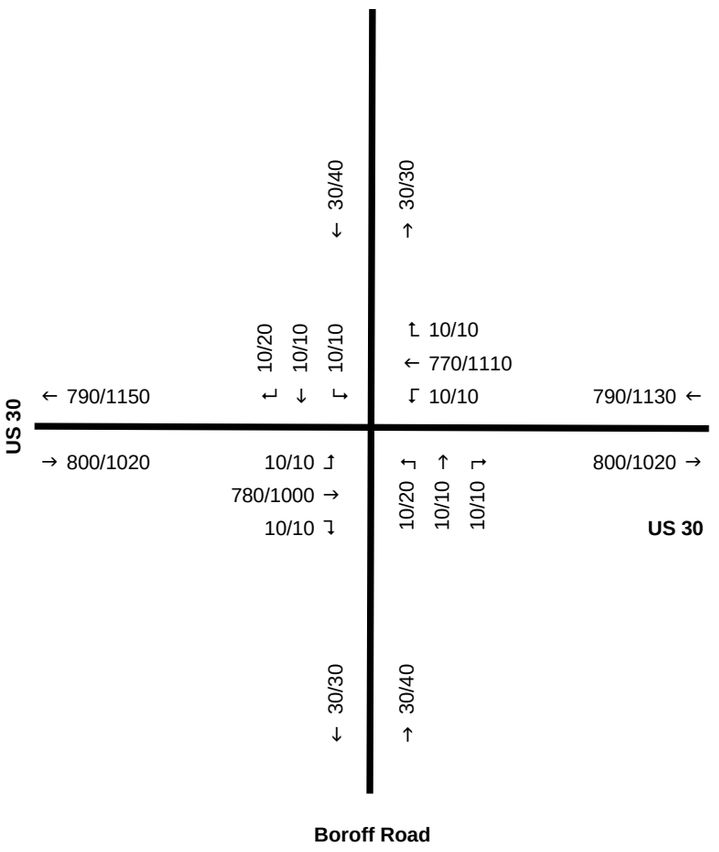
2027/2047 ADT



2027/2047 A.M. DHV



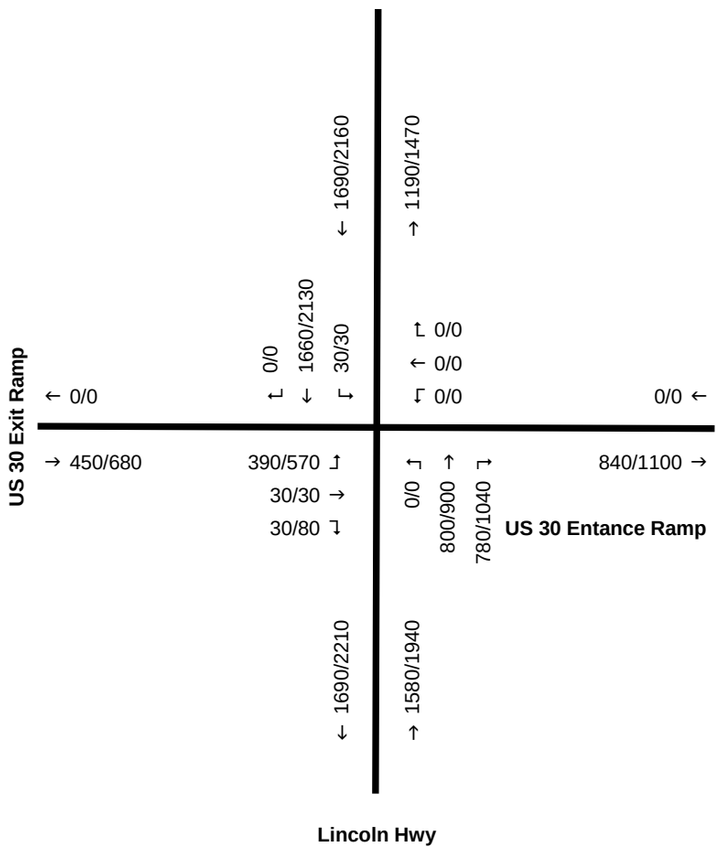
2027/2047 P.M. DHV



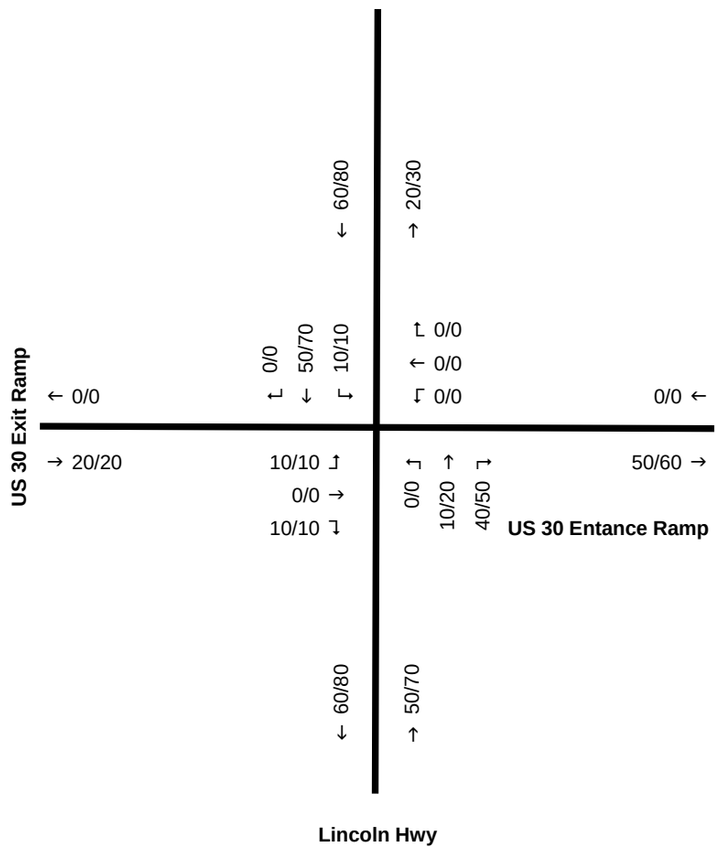
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 19 OF 20

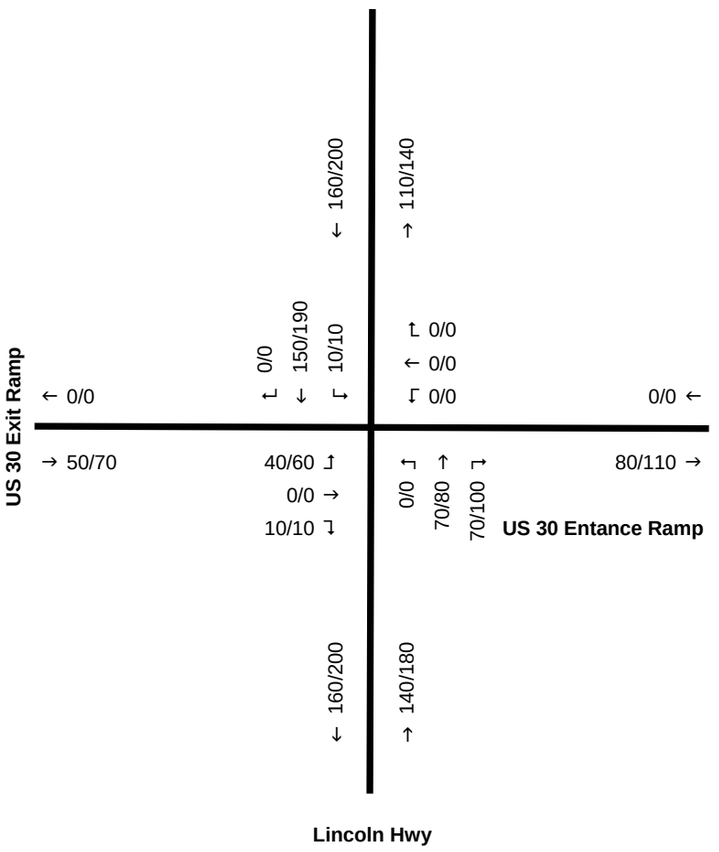
2027/2047 ADT



2027/2047 A.M. DHV



2027/2047 P.M. DHV



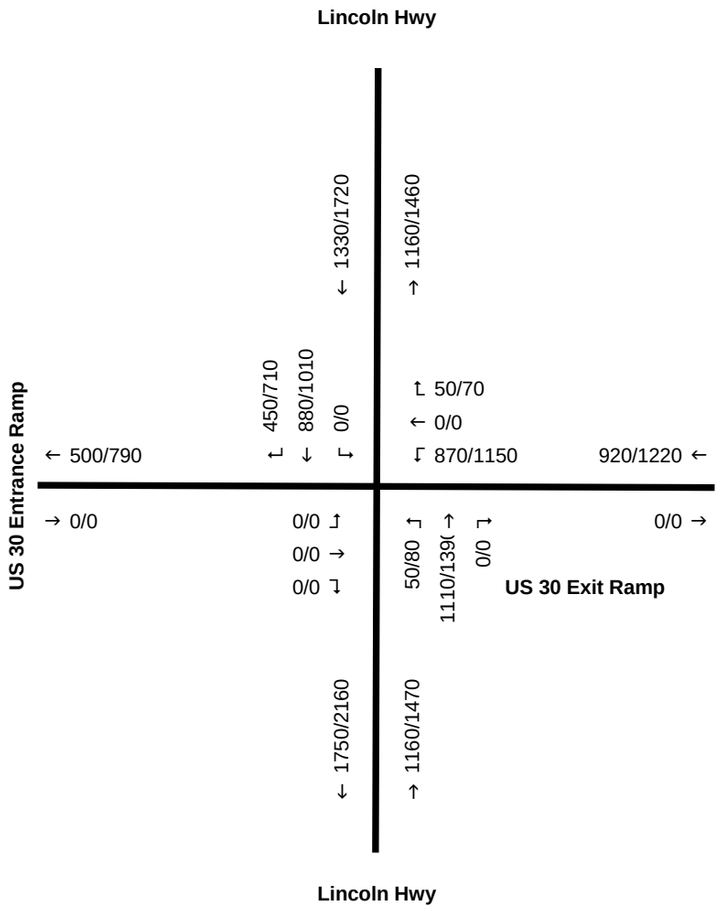
STATE OF OHIO DEPARTMENT OF TRANSPORTATION

N

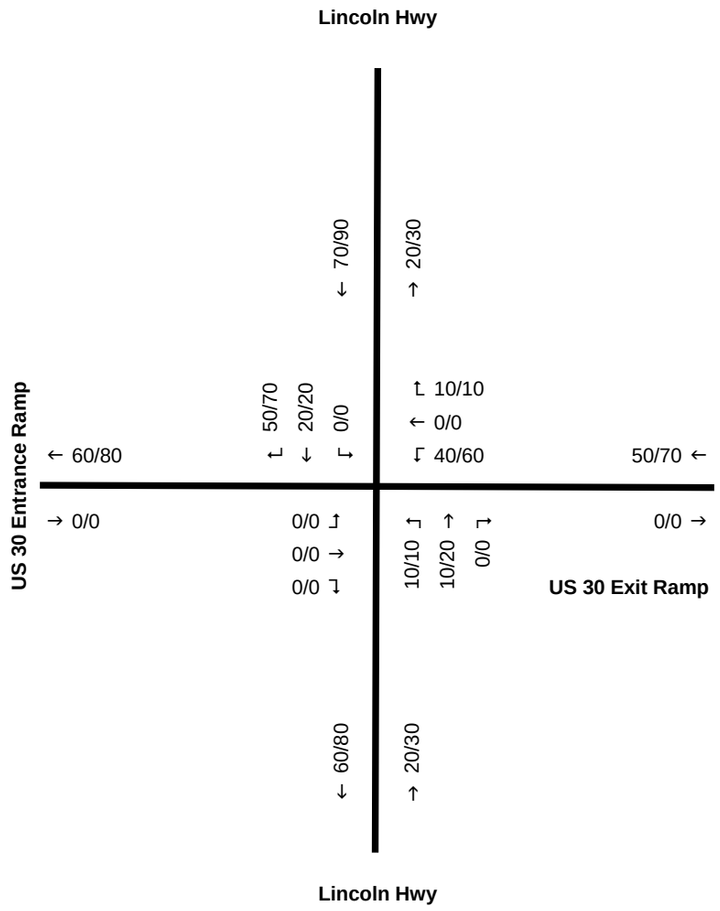
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 20 OF 20

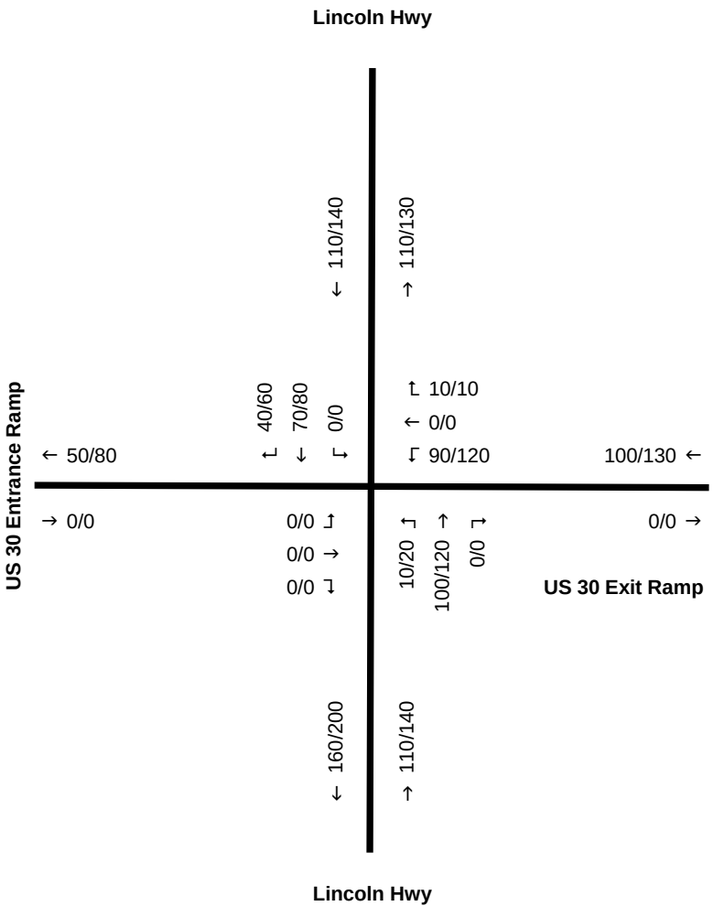
2027/2047 ADT



2027/2047 A.M. DHV



2027/2047 P.M. DHV



STATE OF OHIO DEPARTMENT OF TRANSPORTATION

N

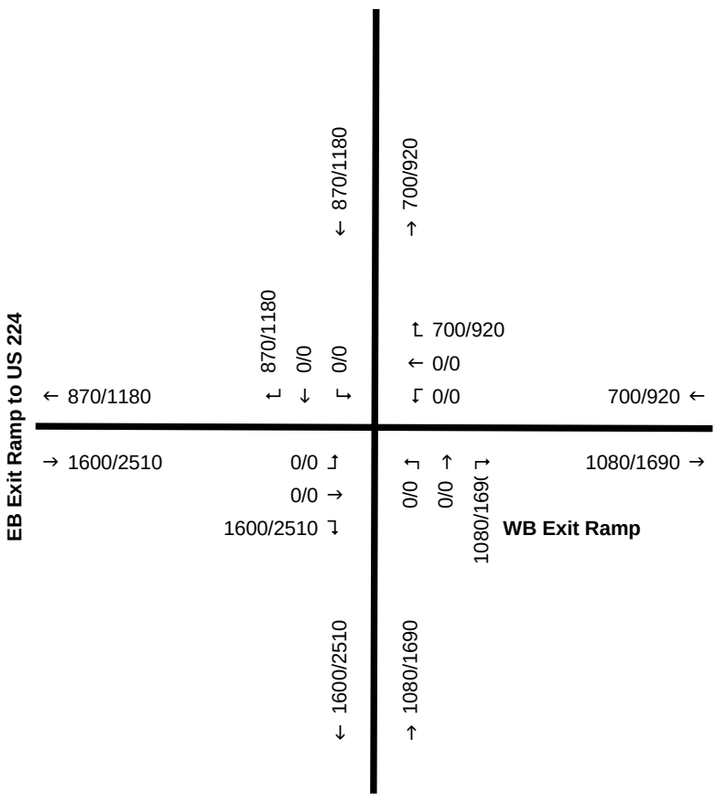
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

Appendix B

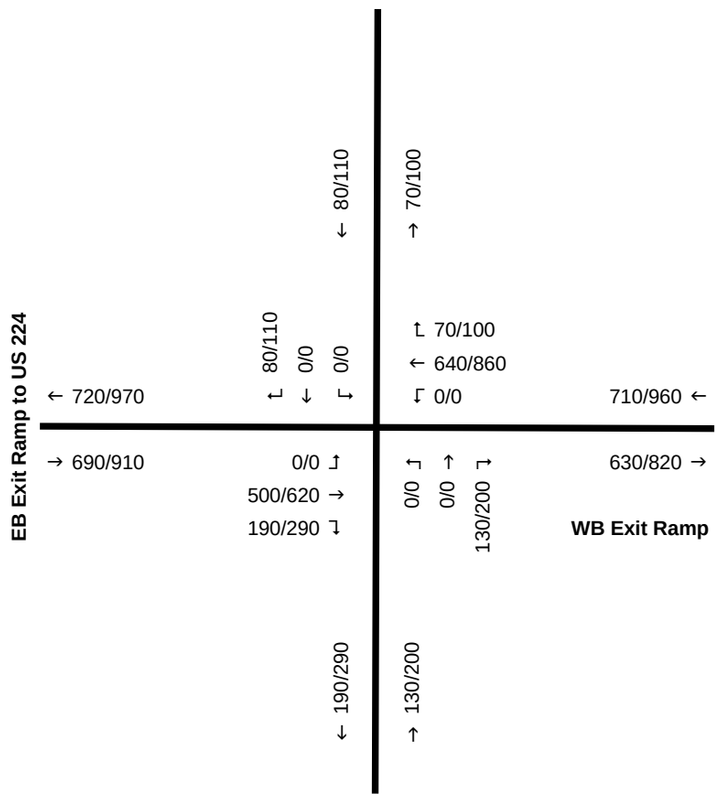
Planning Level Traffic Volumes - No-Build Alternative - U.S. 224 at the Lincoln Highway

PAU-VAN US 30
PID113196
PLATE 1 OF 2

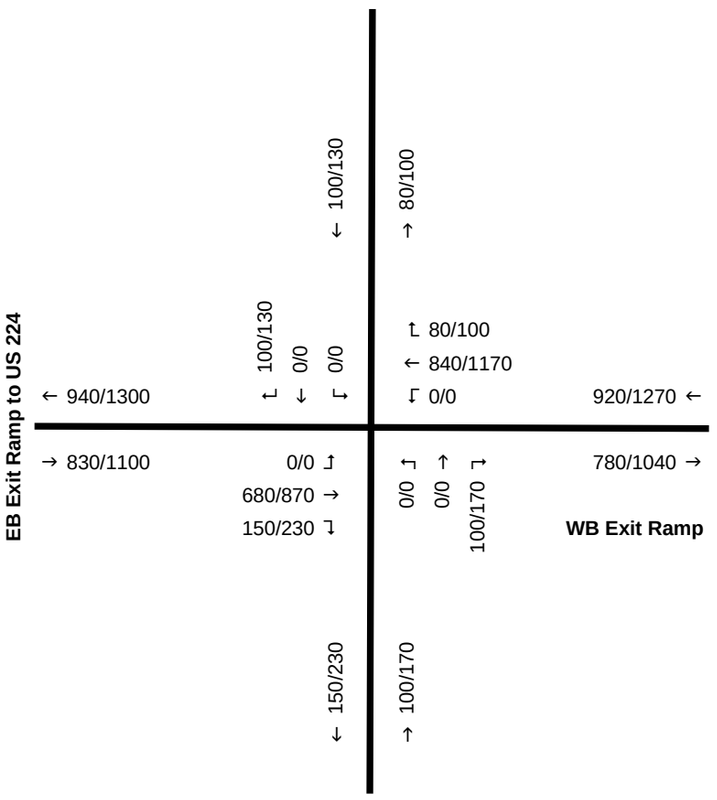
2027/2047 ADT



2027/2047 A.M. DHV



2027/2047 P.M. DHV



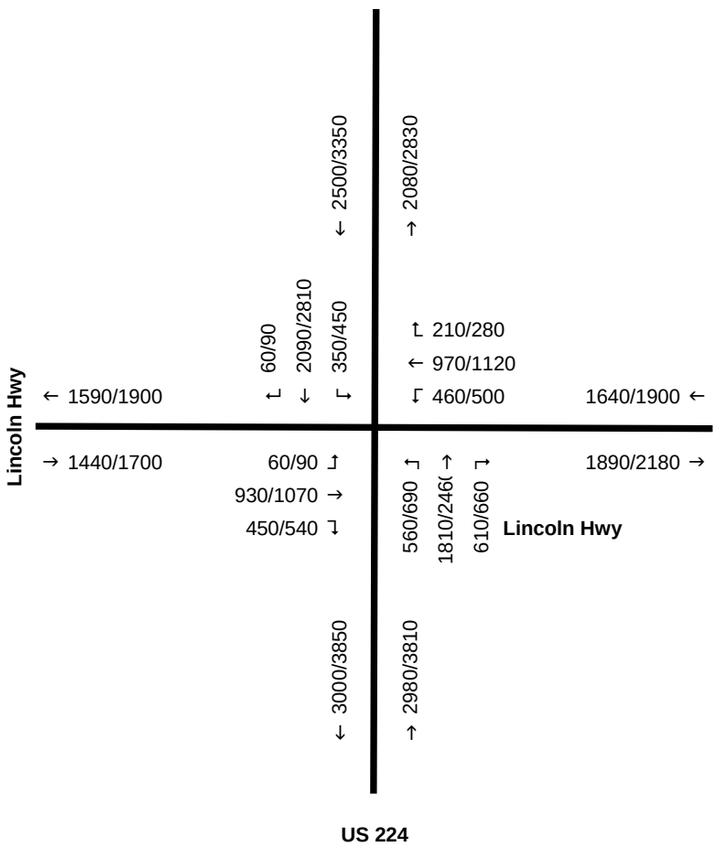
STATE OF OHIO DEPARTMENT OF TRANSPORTATION

N

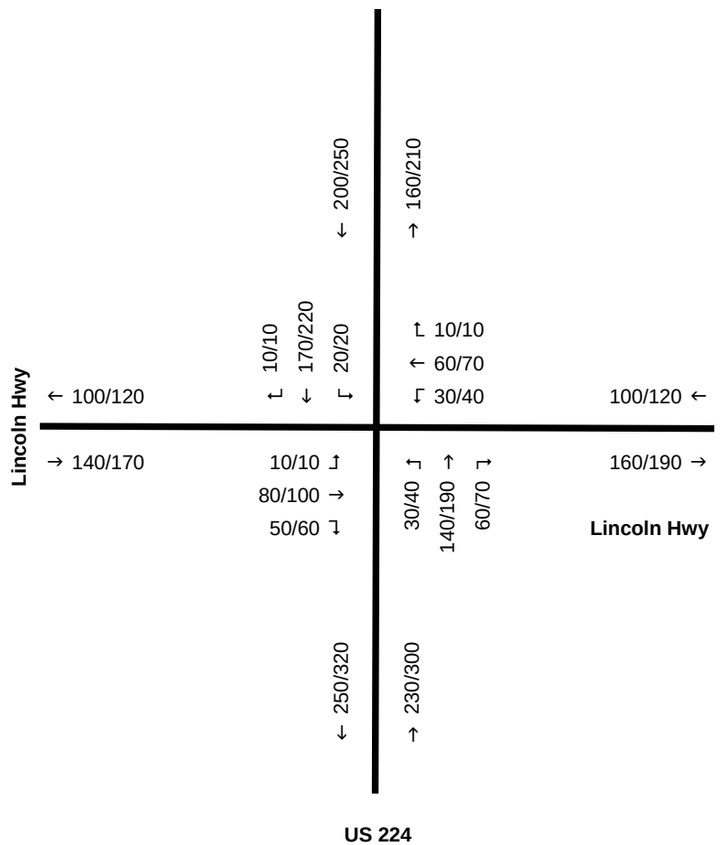
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 2 OF 2

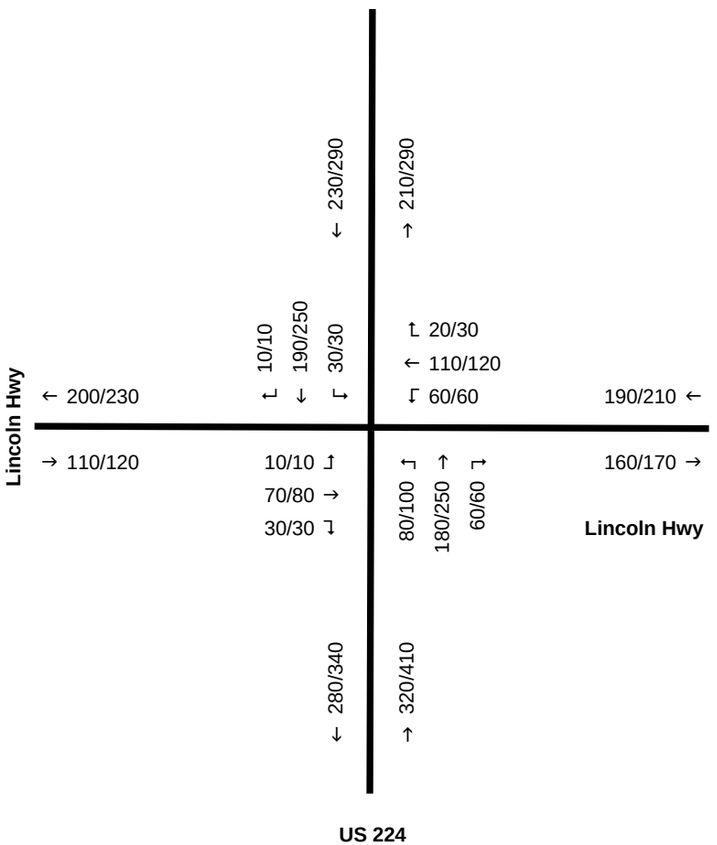
2027/2047 ADT



2027/2047 A.M. DHV



2027/2047 P.M. DHV



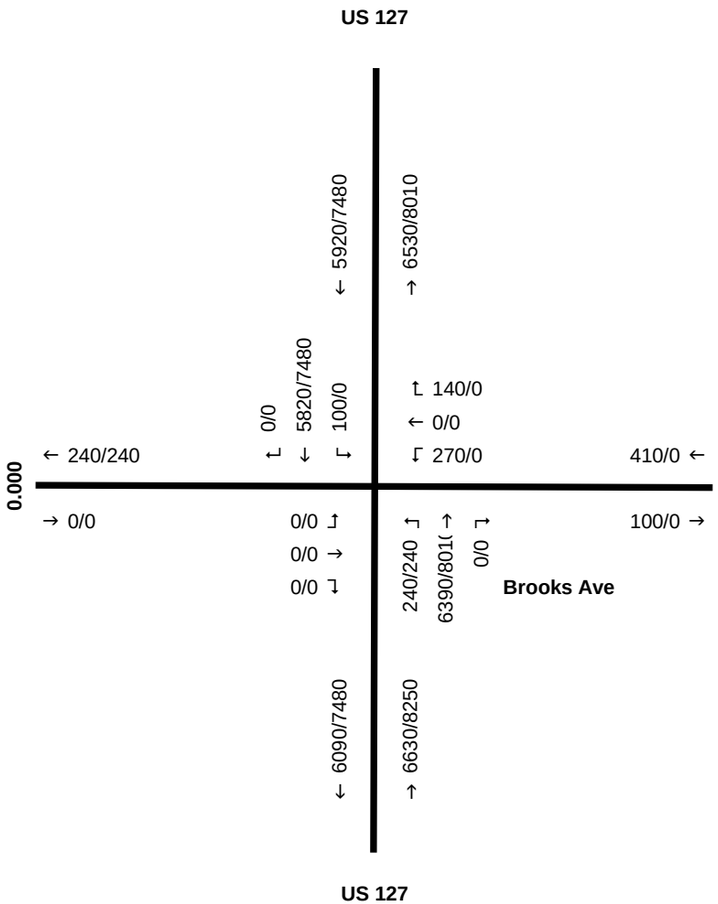
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
July 21, 2022	NOT TO SCALE

Appendix B

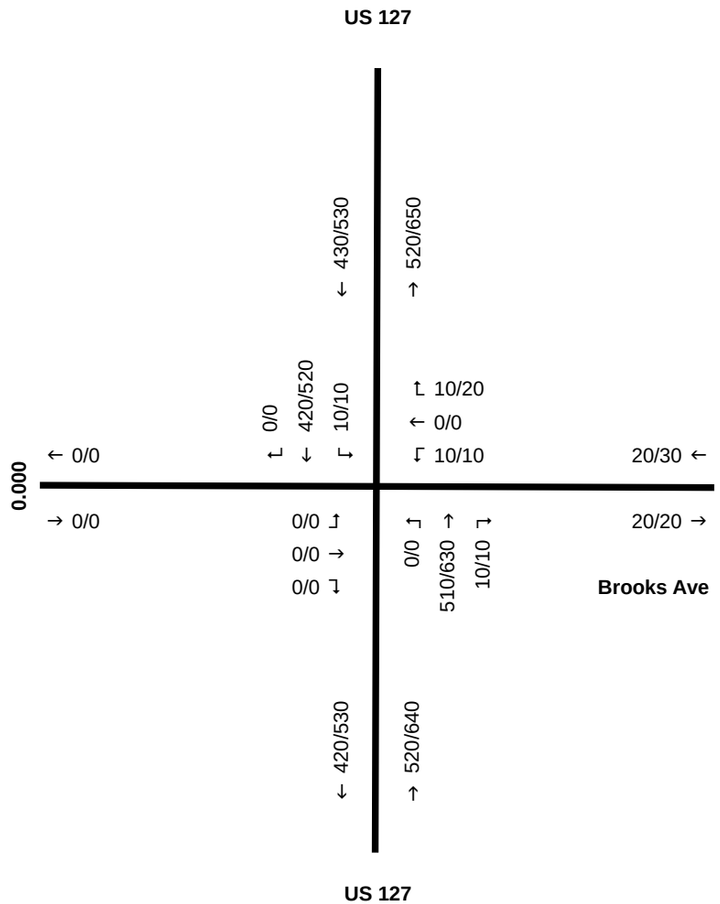
Planning Level Traffic Volumes - No-Build Alternative - U.S. 127

PAU-VAN US 30
PID113196
PLATE 1 OF 5

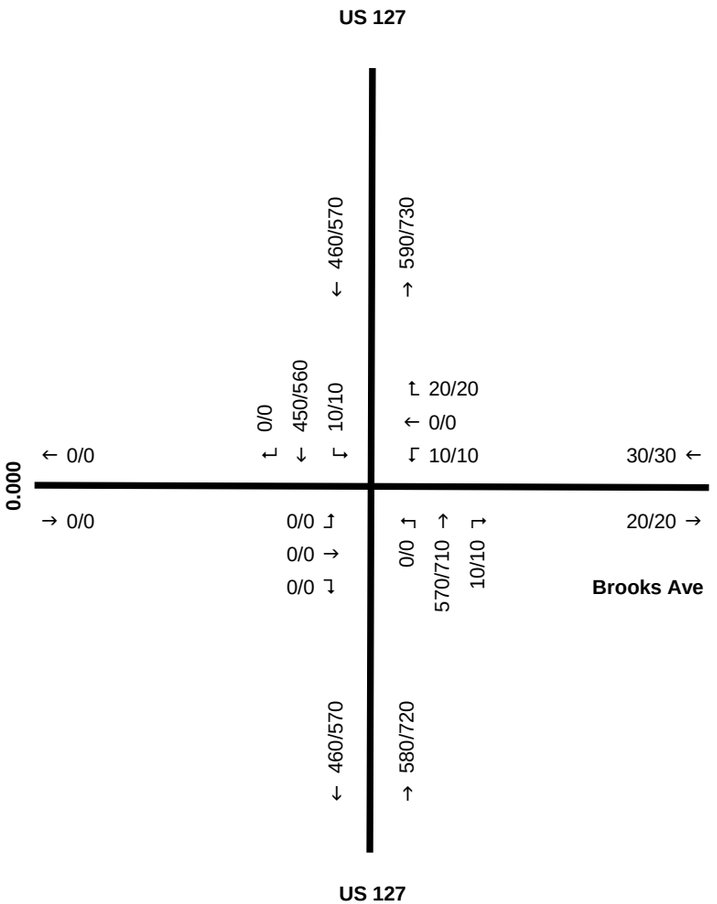
2027/2047 ADT



2027/2047 A.M. DHV



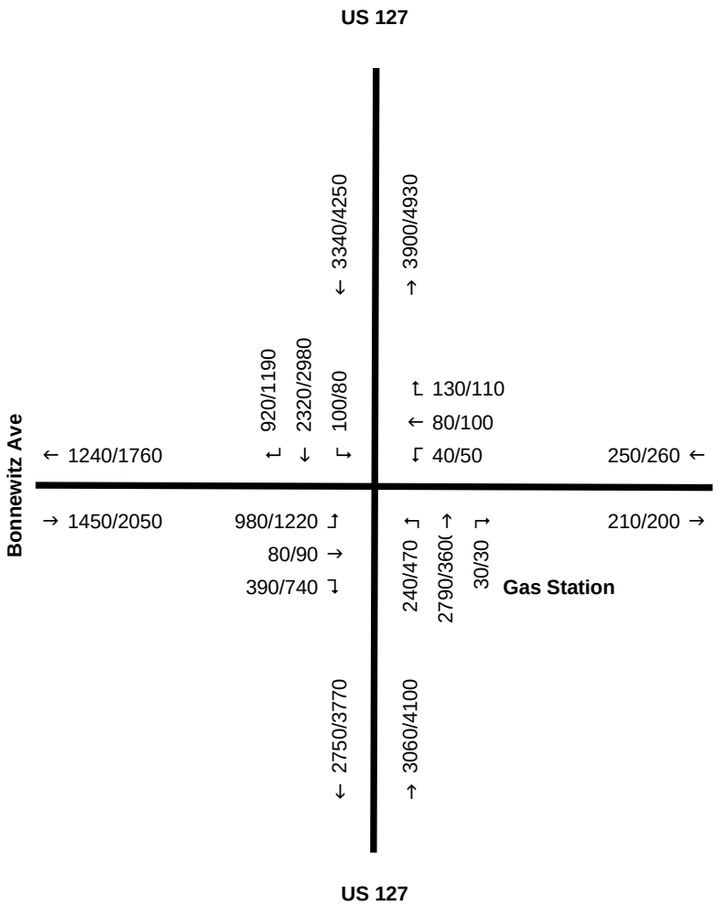
2027/2047 P.M. DHV



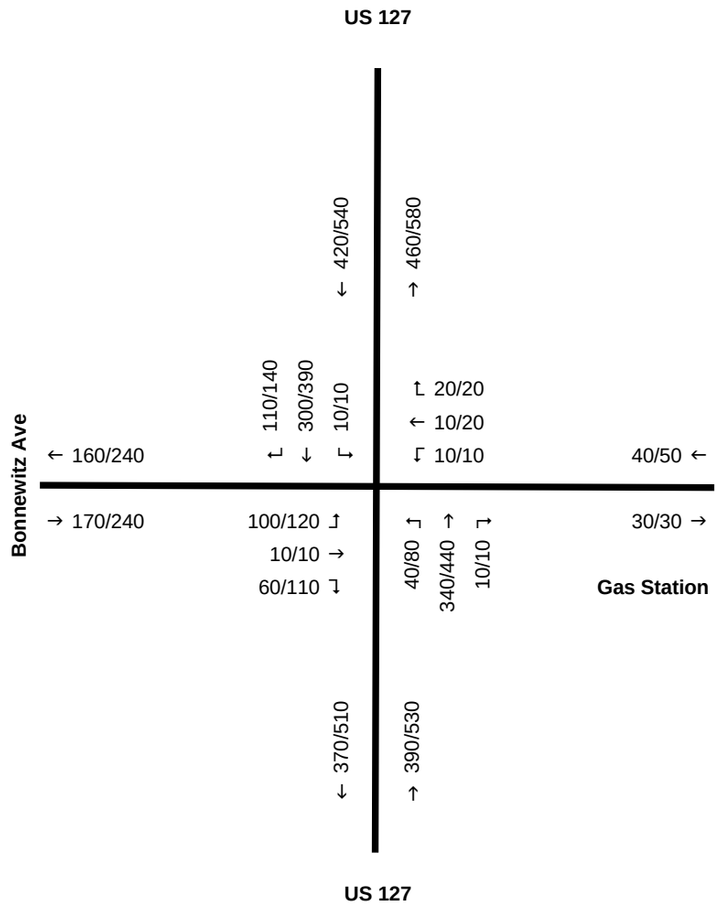
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 2 OF 5

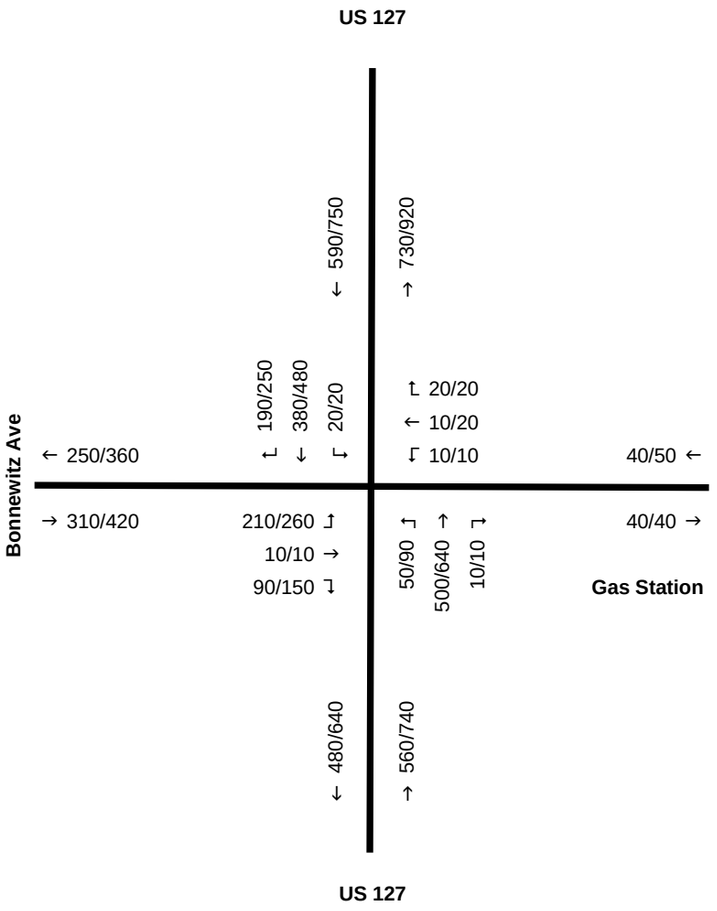
2027/2047 ADT



2027/2047 A.M. DHV



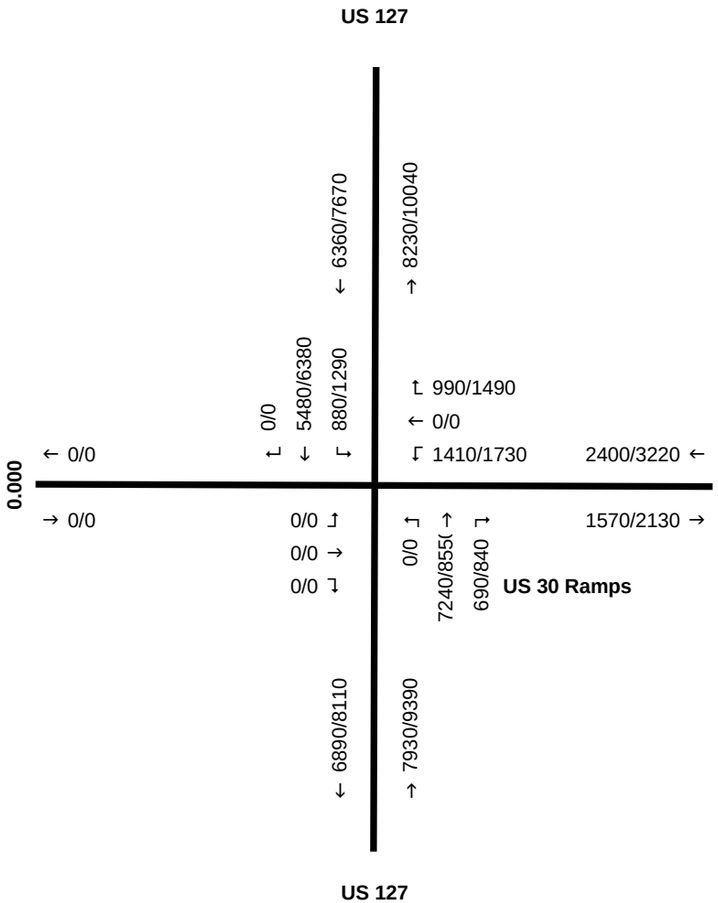
2027/2047 P.M. DHV



PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 3 OF 5

2027/2047 ADT



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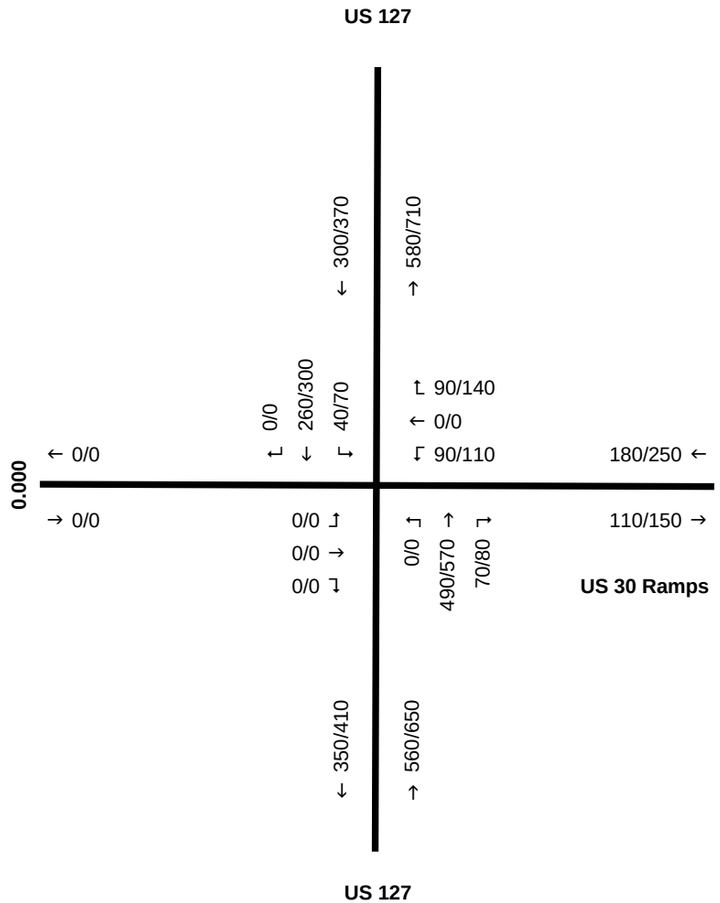

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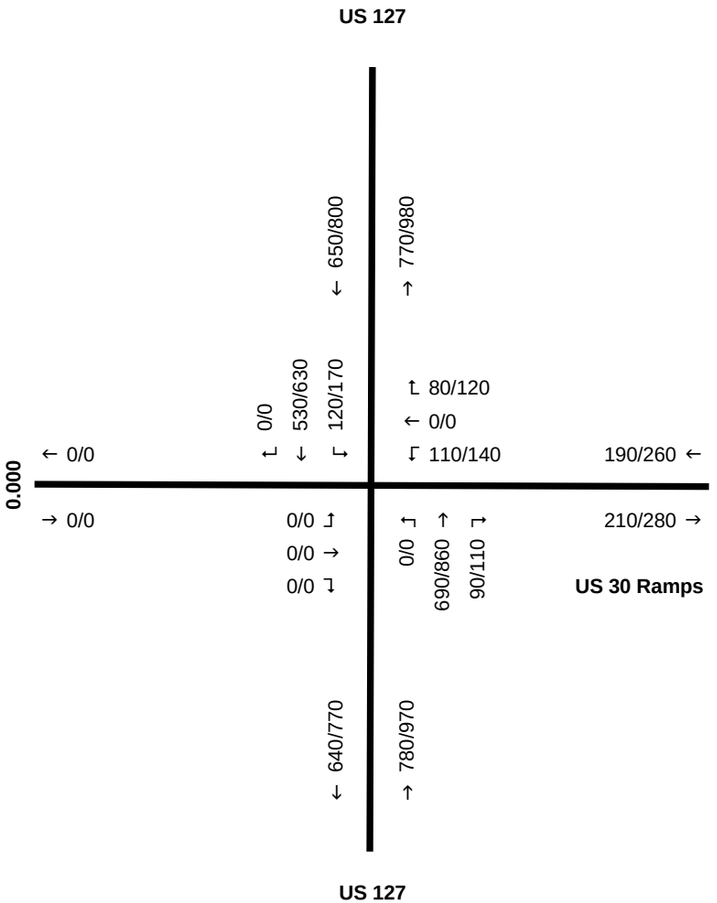

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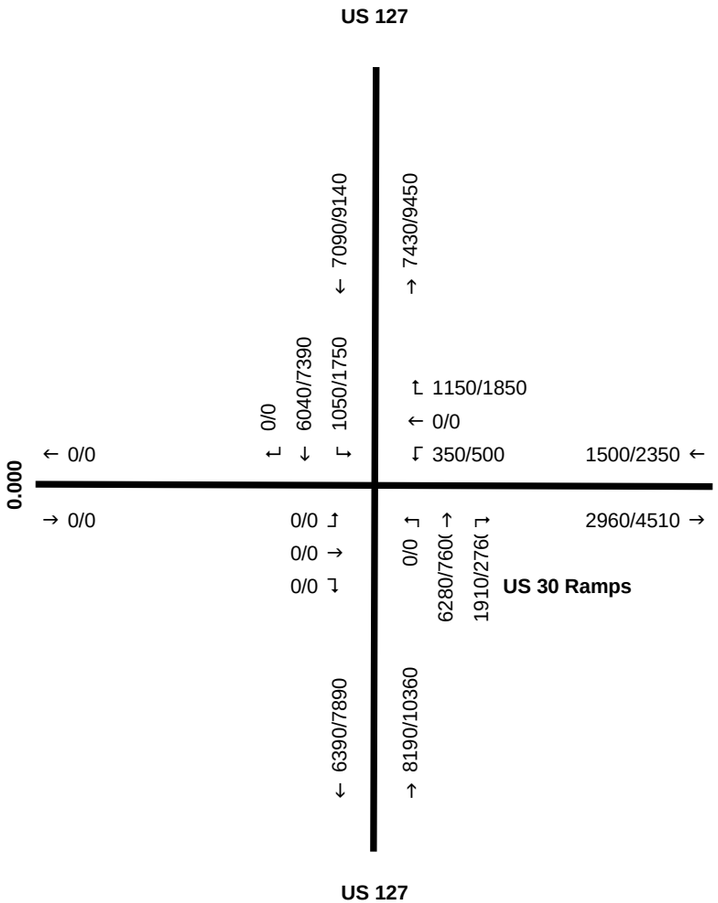
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 4 OF 5

2027/2047 ADT



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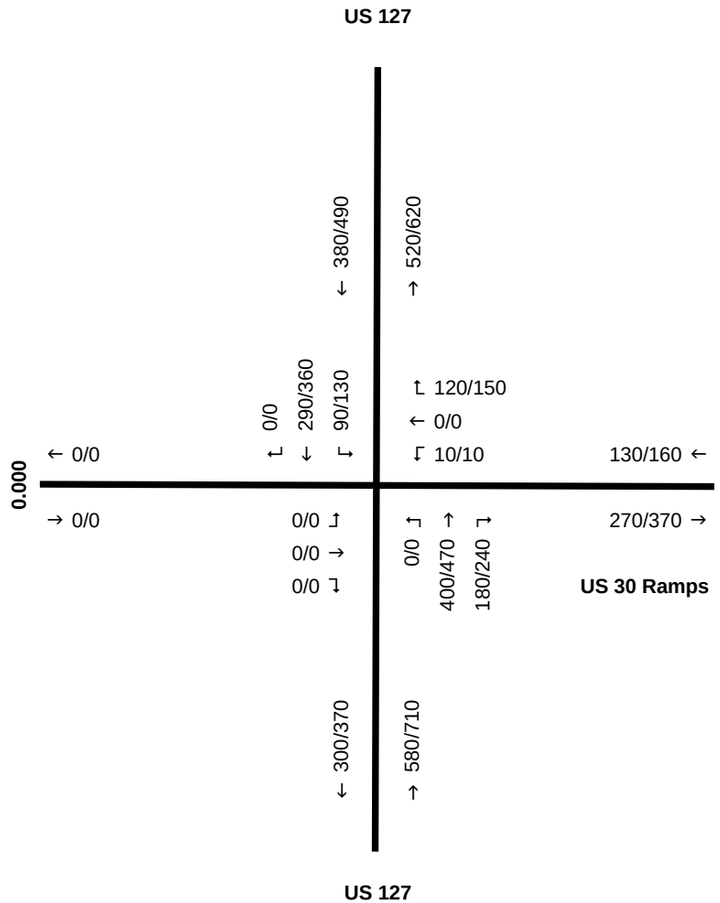
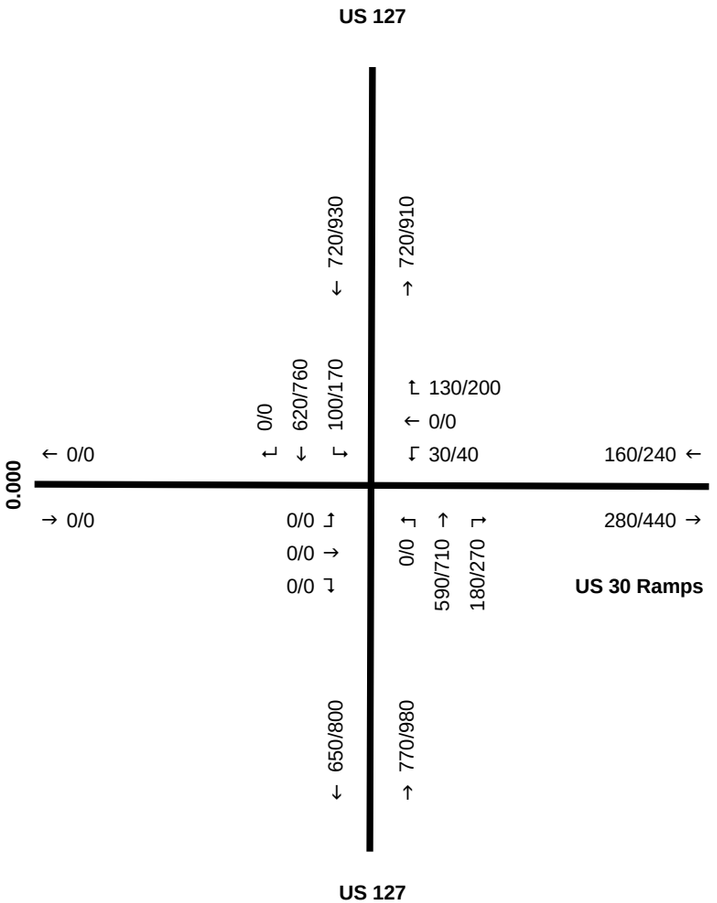


2027/2047 P.M. DHV



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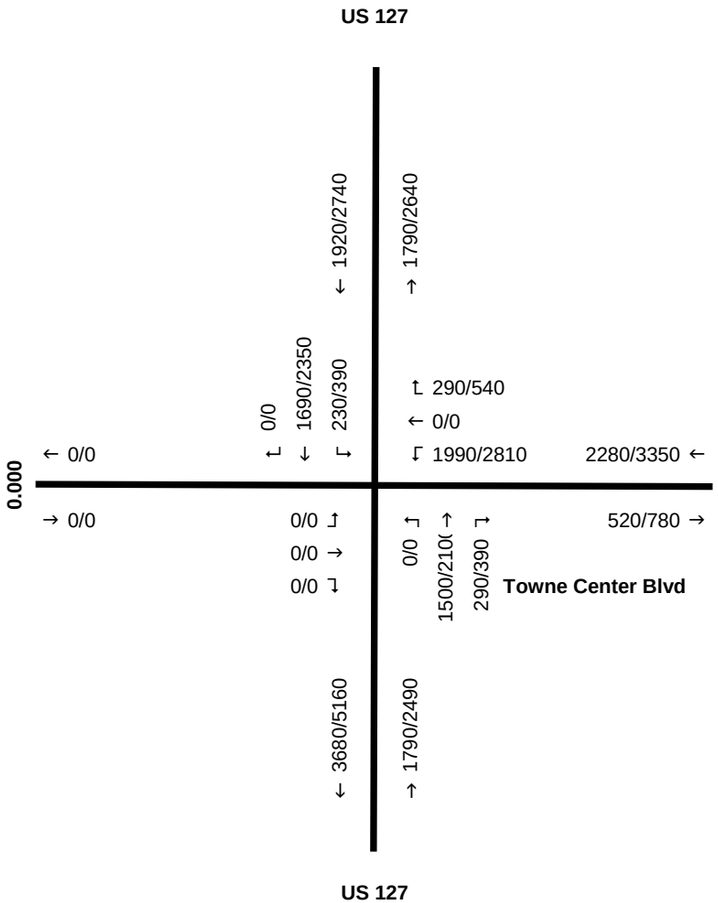
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 5 OF 5

2027/2047 ADT



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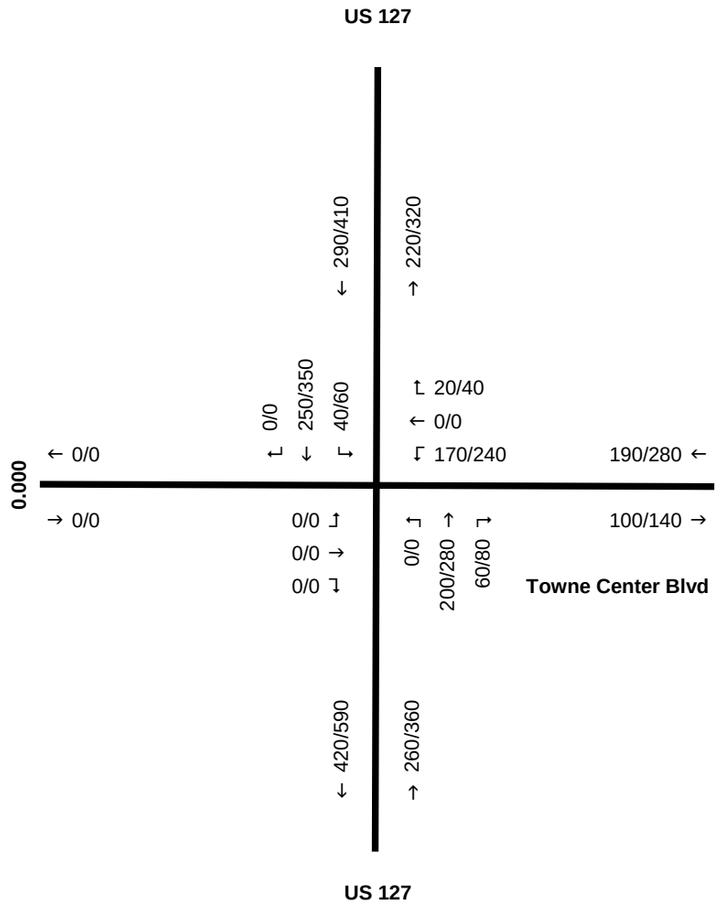
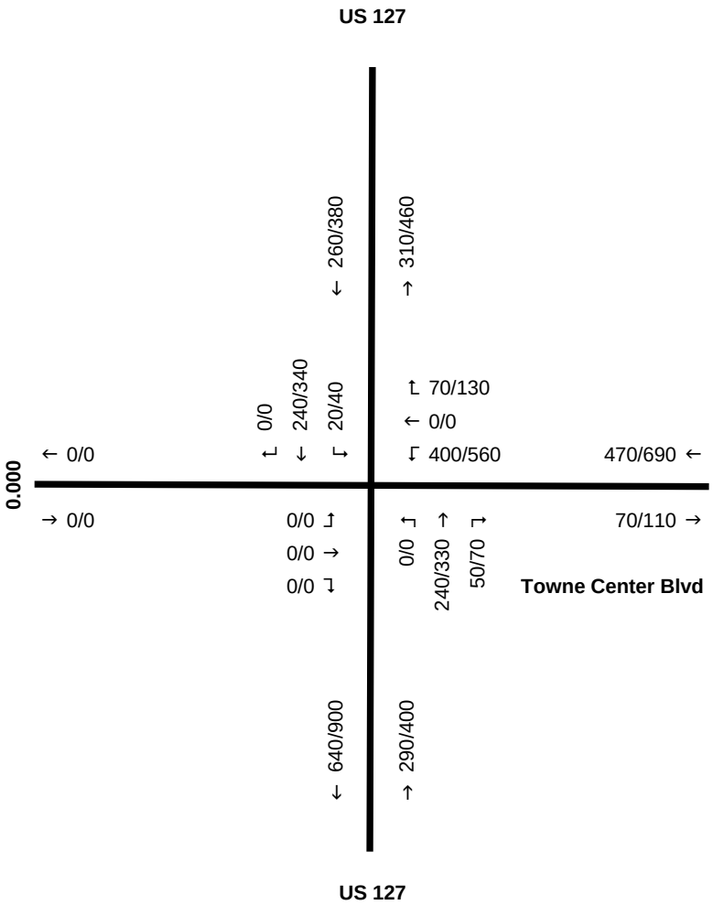


2027/2047 P.M. DHV



PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
July 21, 2022	NOT TO SCALE

Appendix B

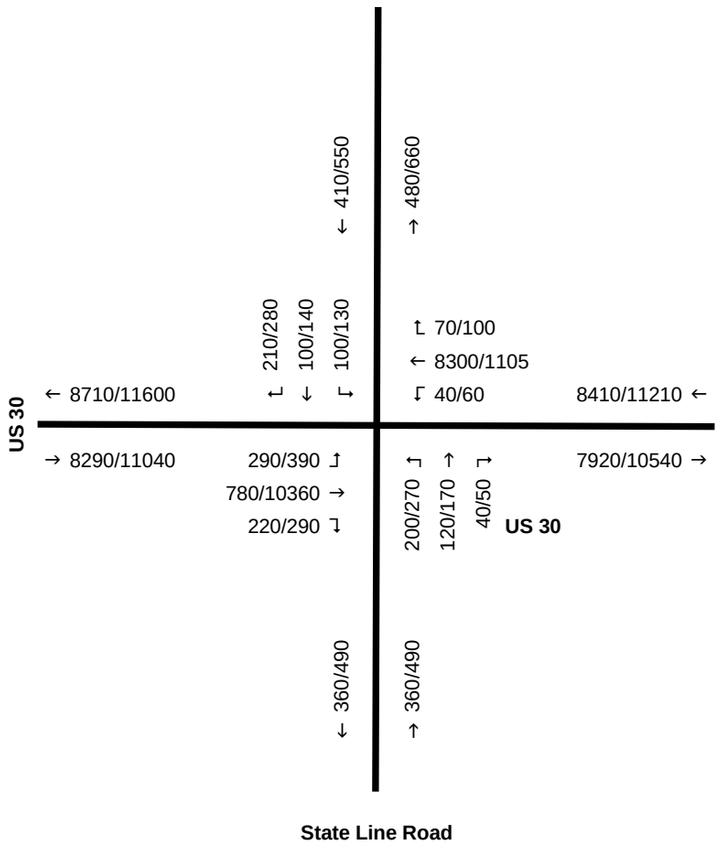
Planning Level Traffic Volumes - Build Alternative

Appendix B

Planning Level Traffic Volumes - Build Alternative - U.S. 30

PAU-VAN US 30
PID113196
PLATE 1 OF 5

2027/2047 ADT



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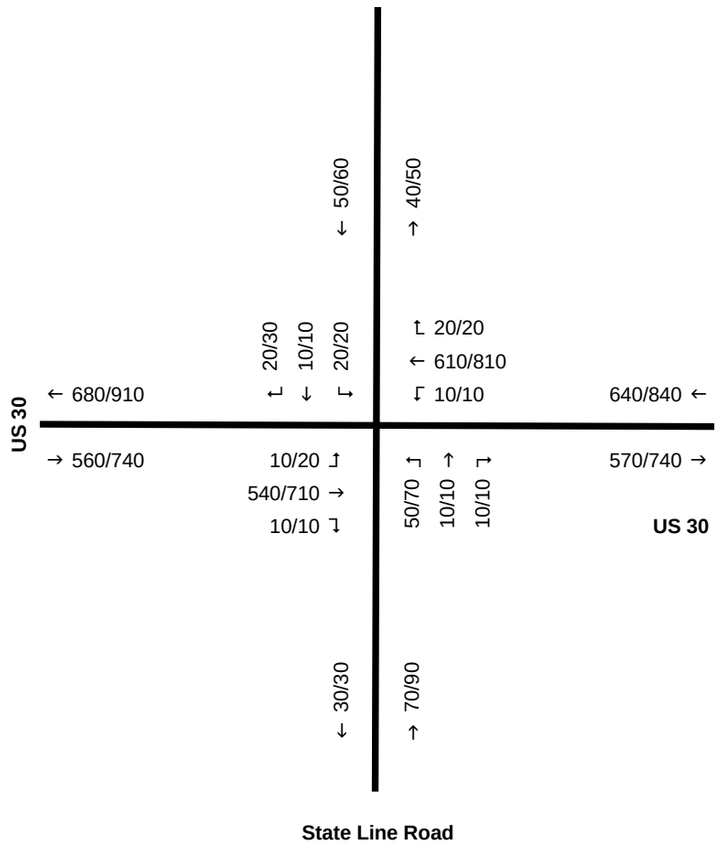

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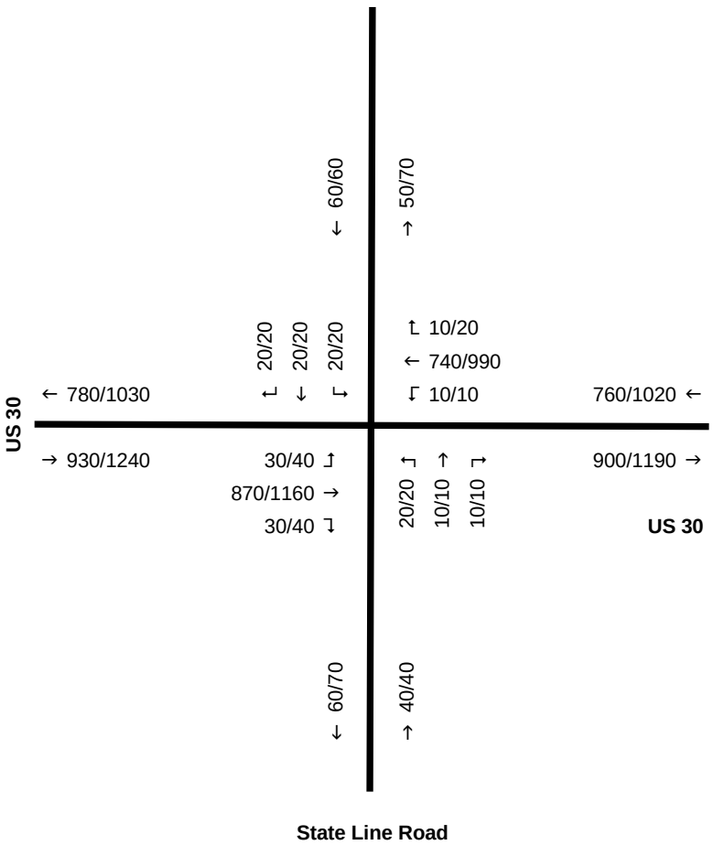
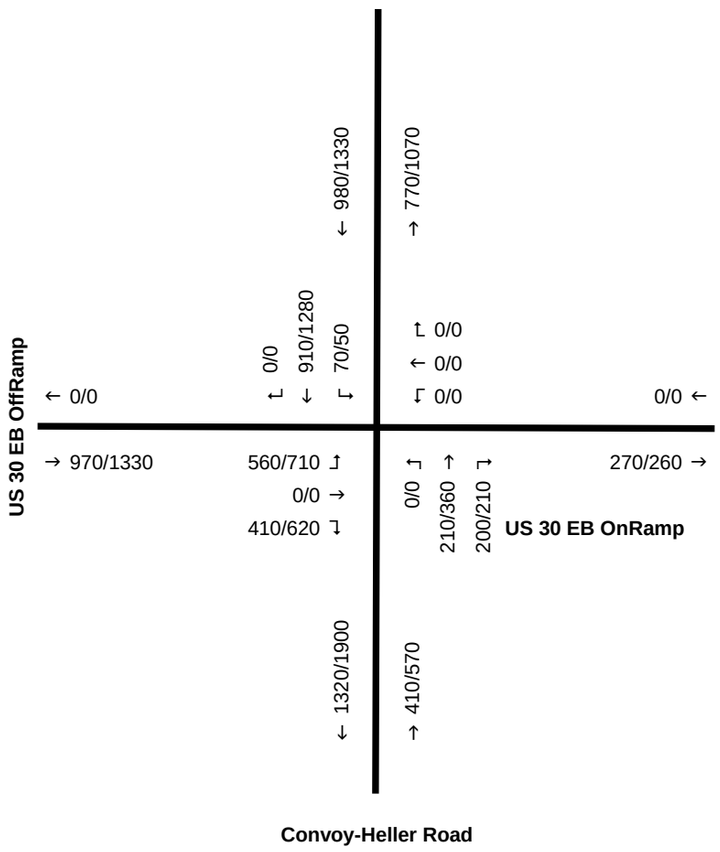


PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
September 1, 2022	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 2 OF 5

2027/2047 ADT



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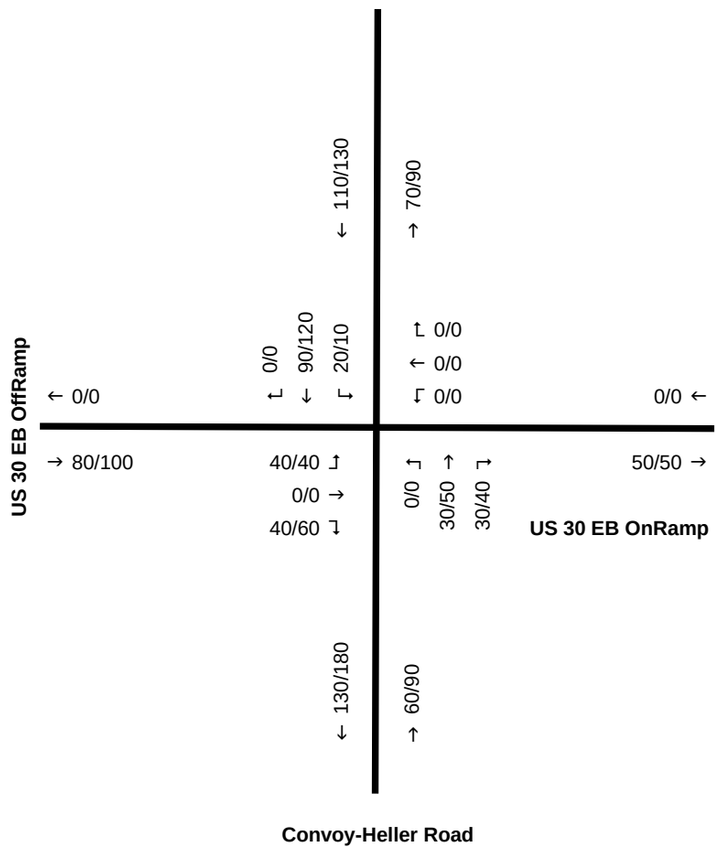

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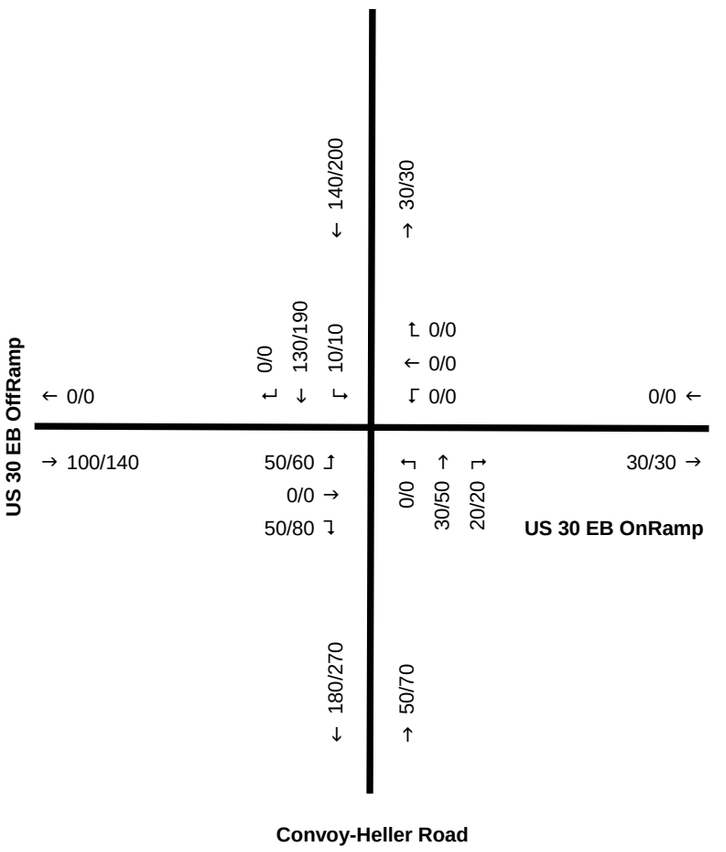

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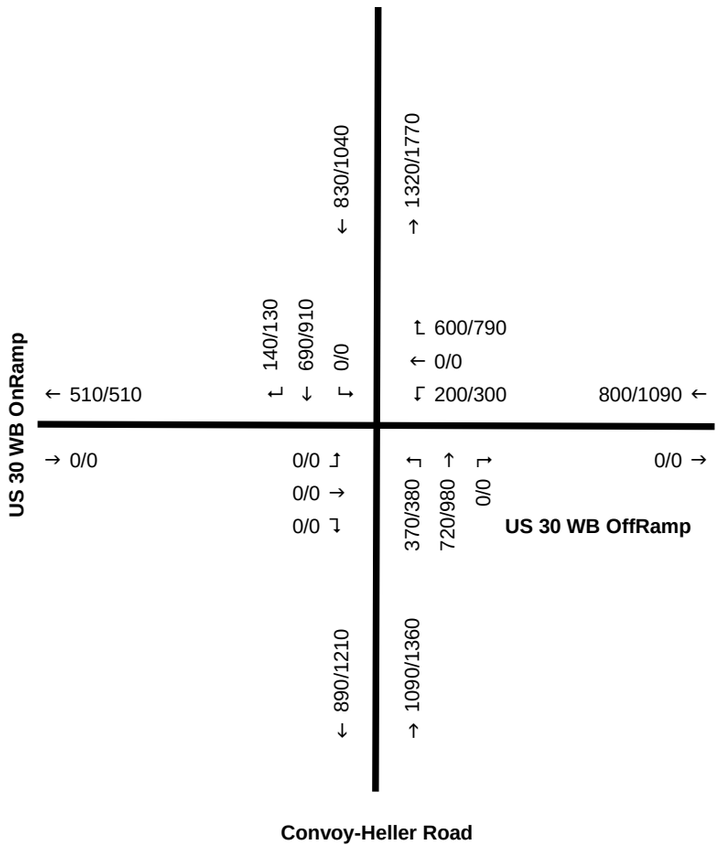
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 3 OF 5

2027/2047 ADT



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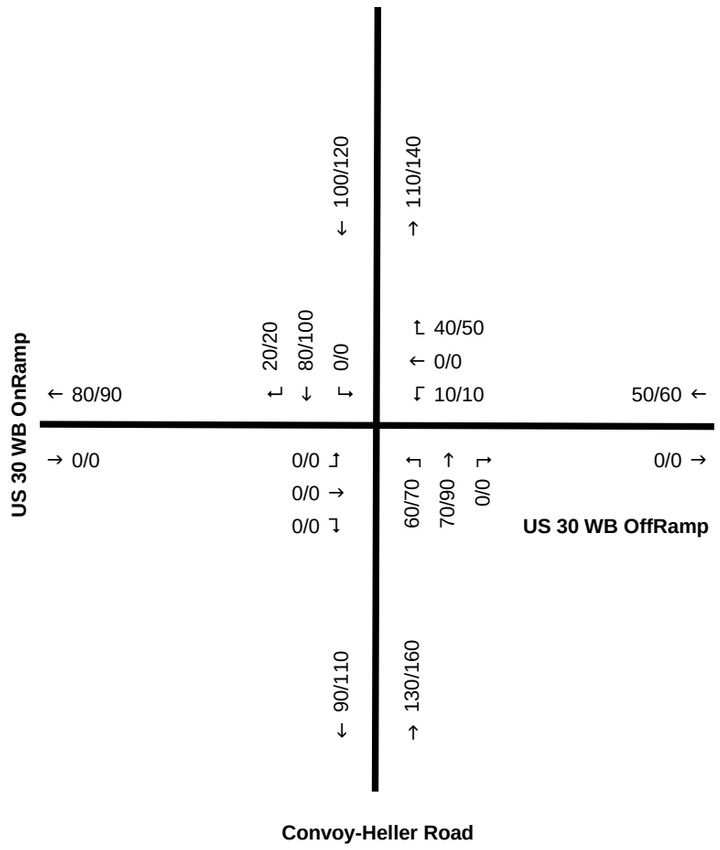

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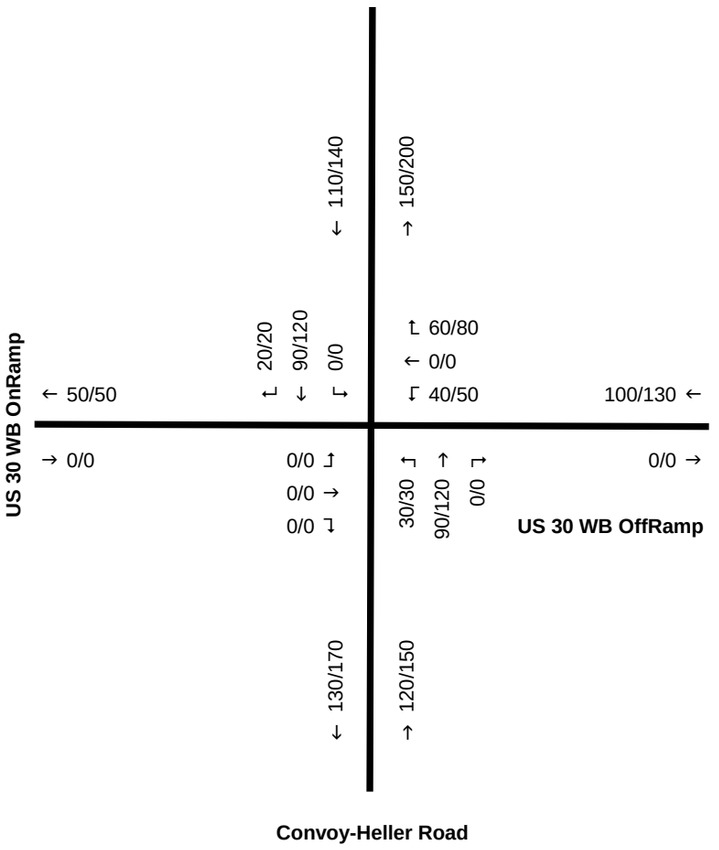
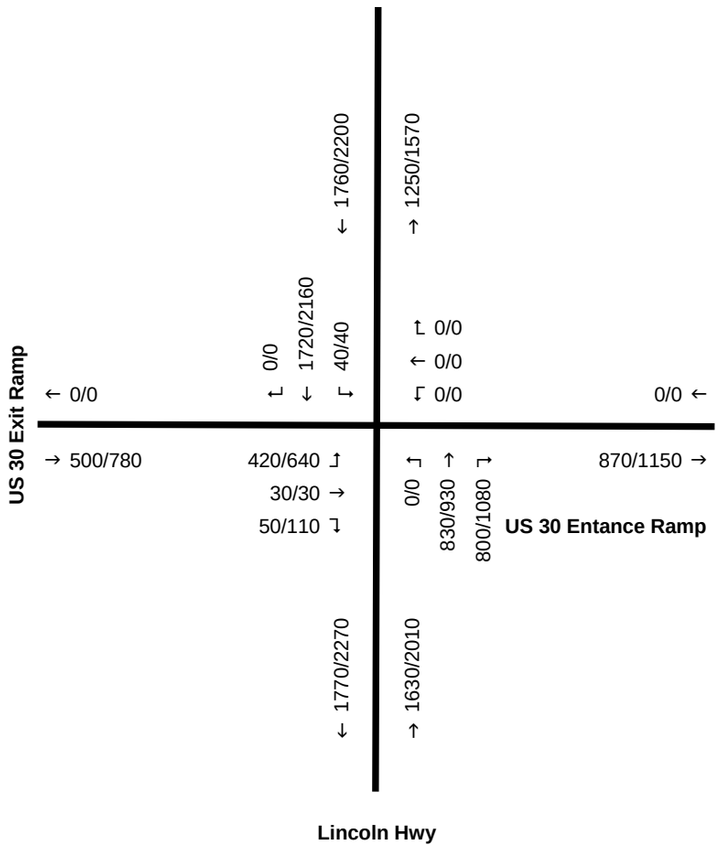


PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 4 OF 5

2027/2047 ADT



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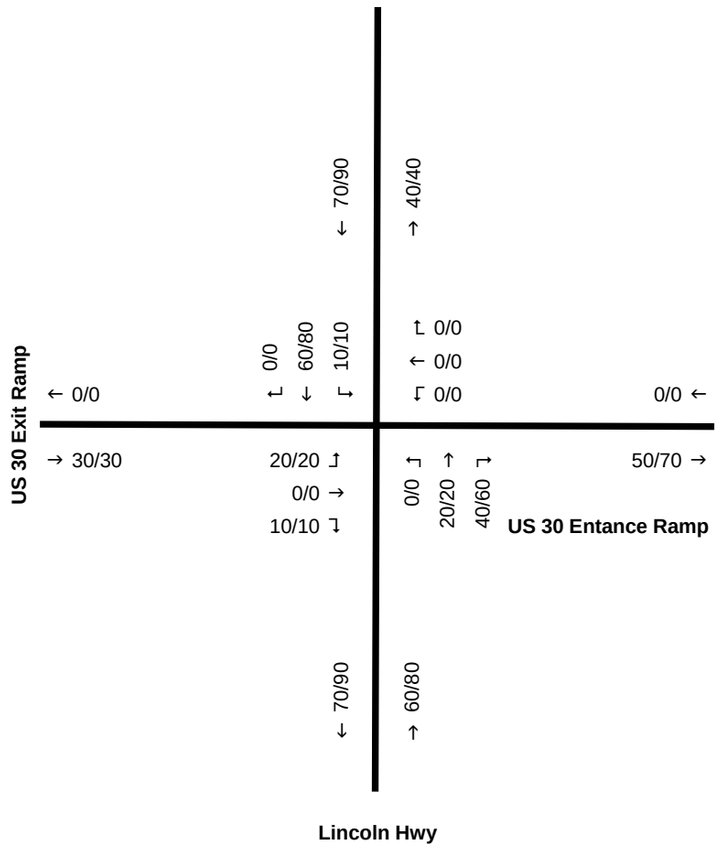

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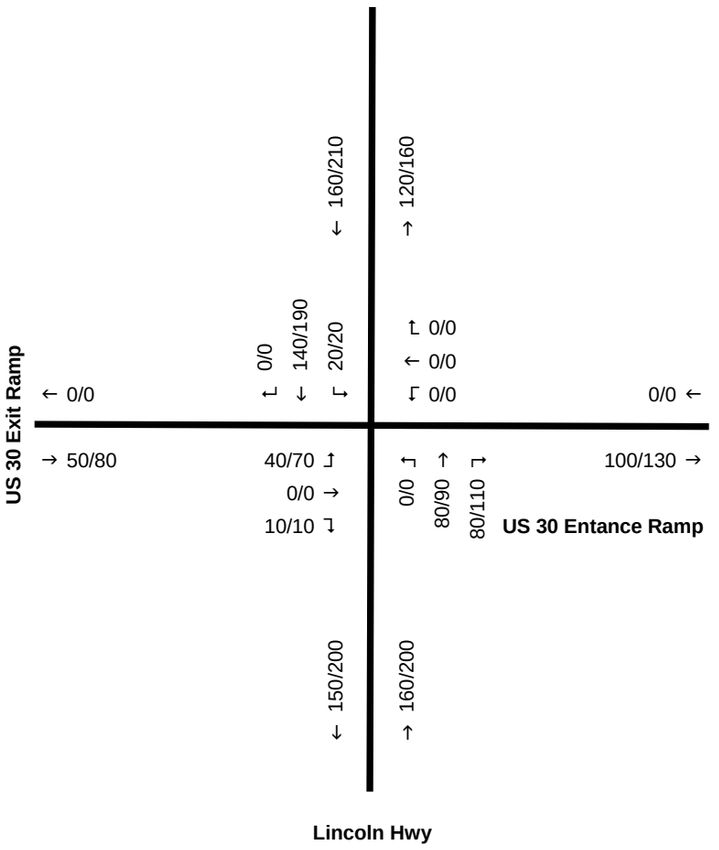

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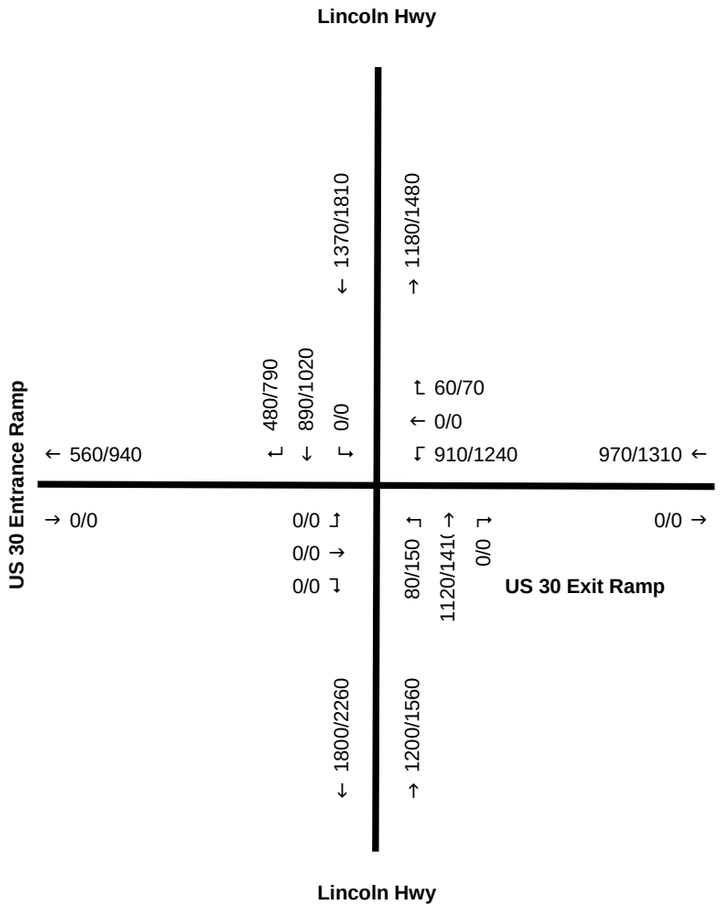
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
September 1, 2022	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 5 OF 5

2027/2047 ADT



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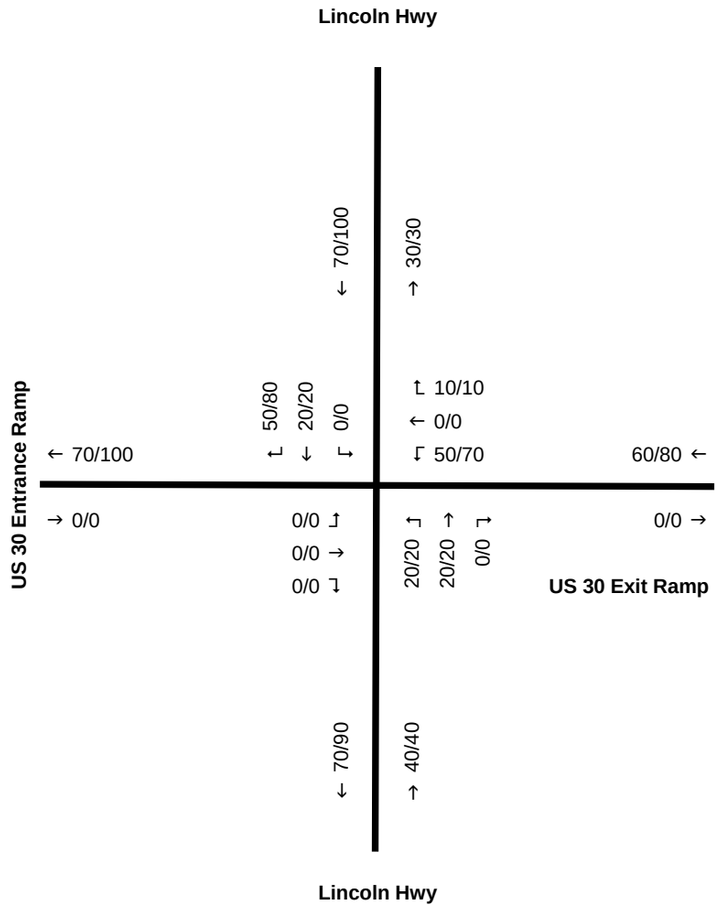
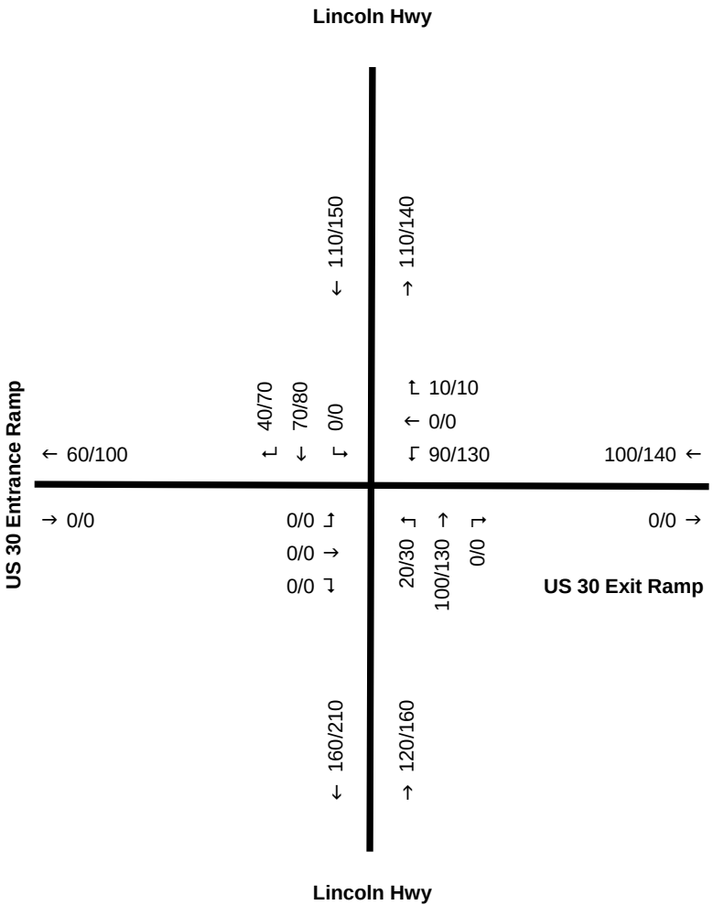


2027/2047 P.M. DHV



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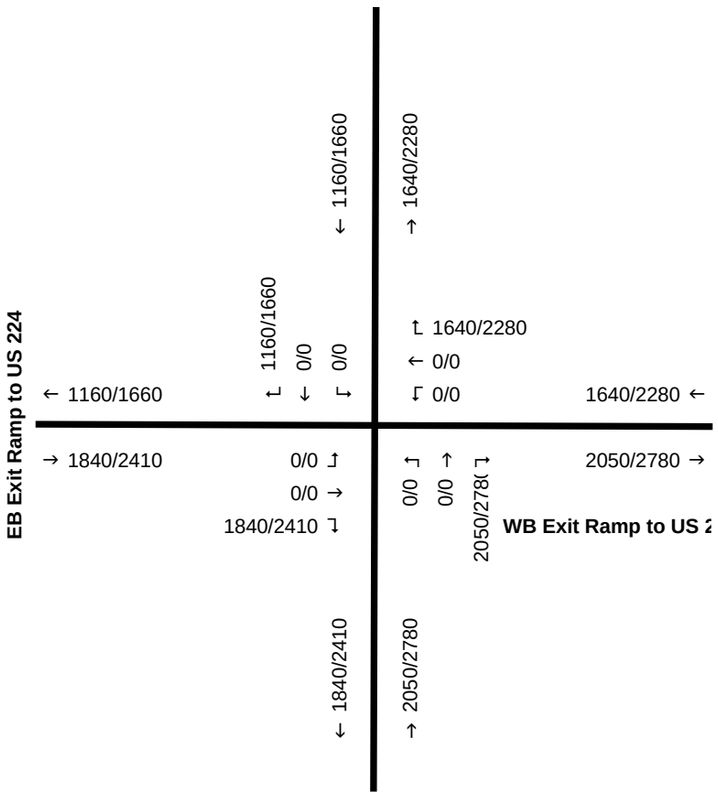
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
September 1, 2022	NOT TO SCALE

Appendix B

Planning Level Traffic Volumes - Build Alternative - U.S. 224 at the Lincoln Highway

PAU-VAN US 30
PID113196
PLATE 1 OF 2

2027/2047 ADT



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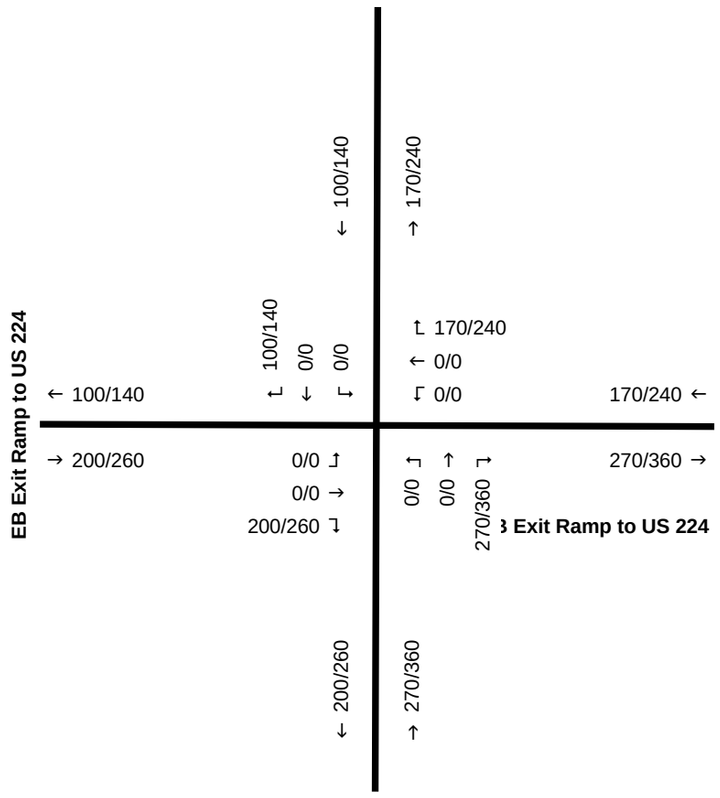

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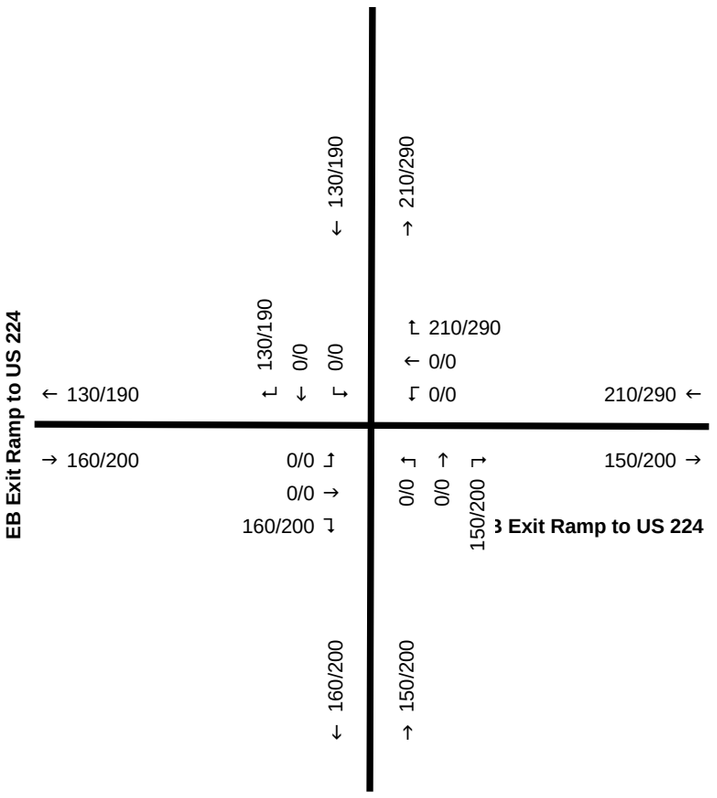
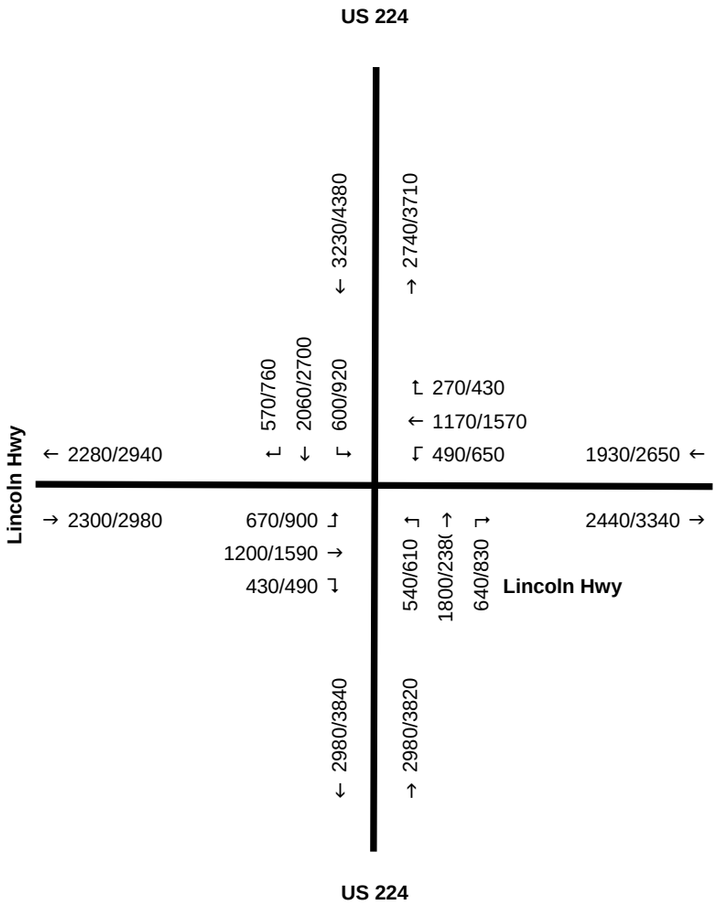


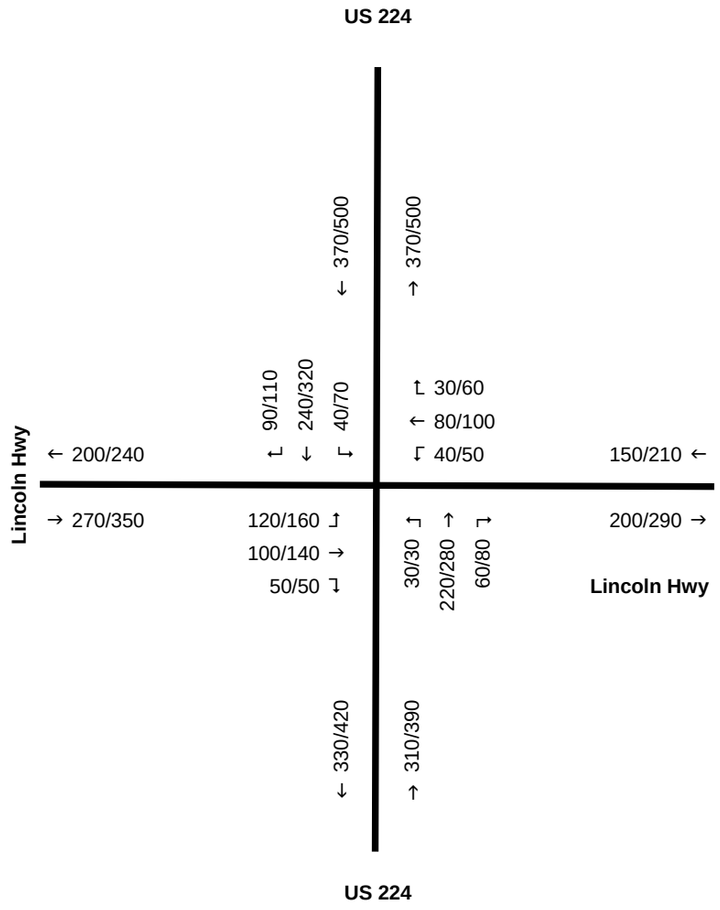
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 2 OF 2

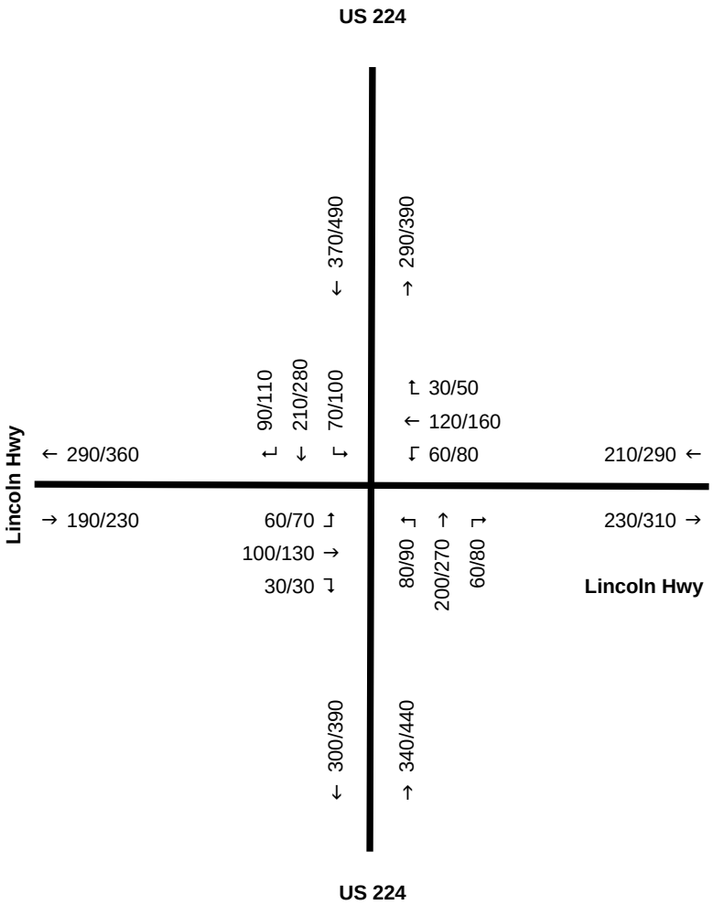
2027/2047 ADT



2027/2047 A.M. DHV



2027/2047 P.M. DHV



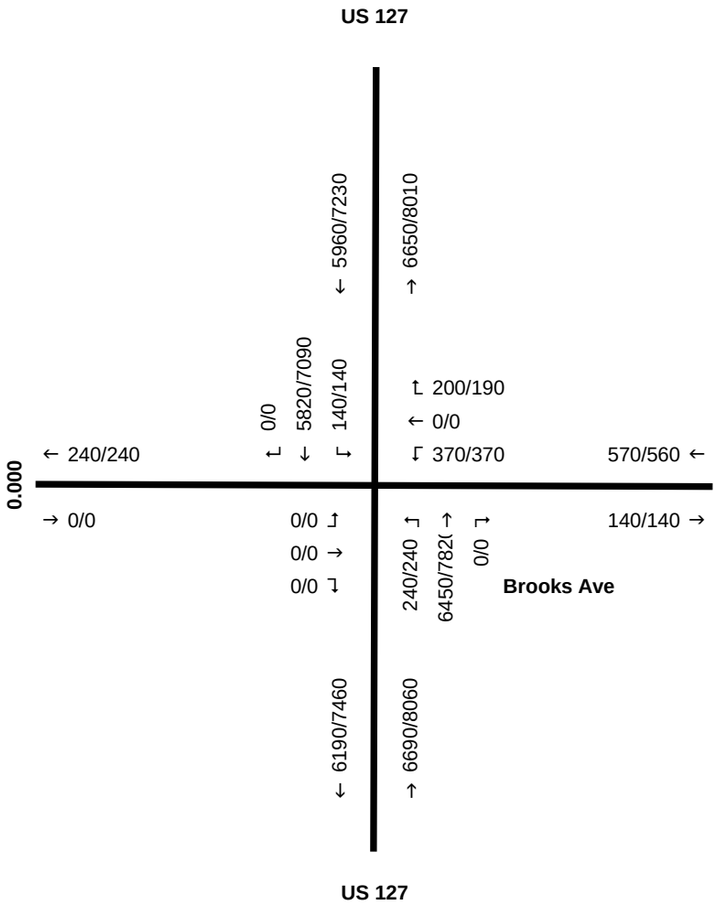
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
July 21, 2022	NOT TO SCALE

Appendix B

Planning Level Traffic Volumes - Build Alternative - U.S. 127

PAU-VAN US 30
PID113196
PLATE 1 OF 5

2027/2047 ADT



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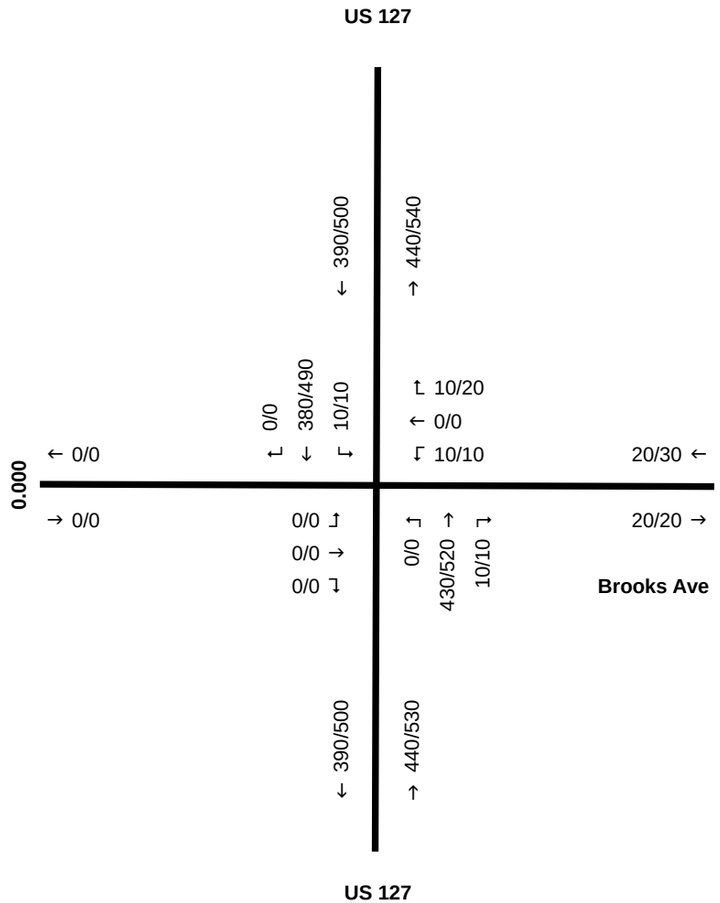

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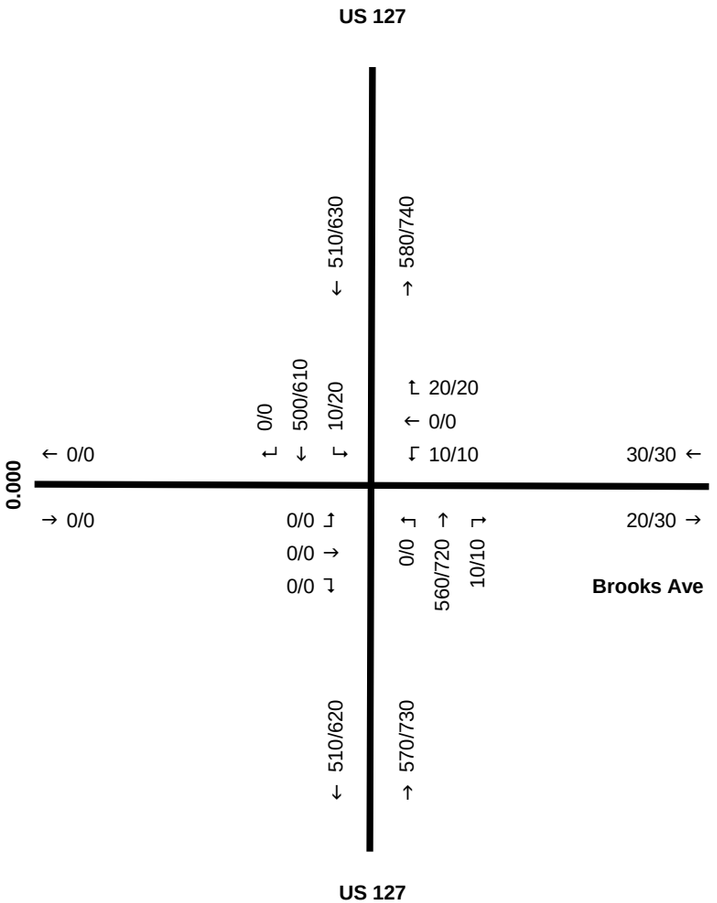
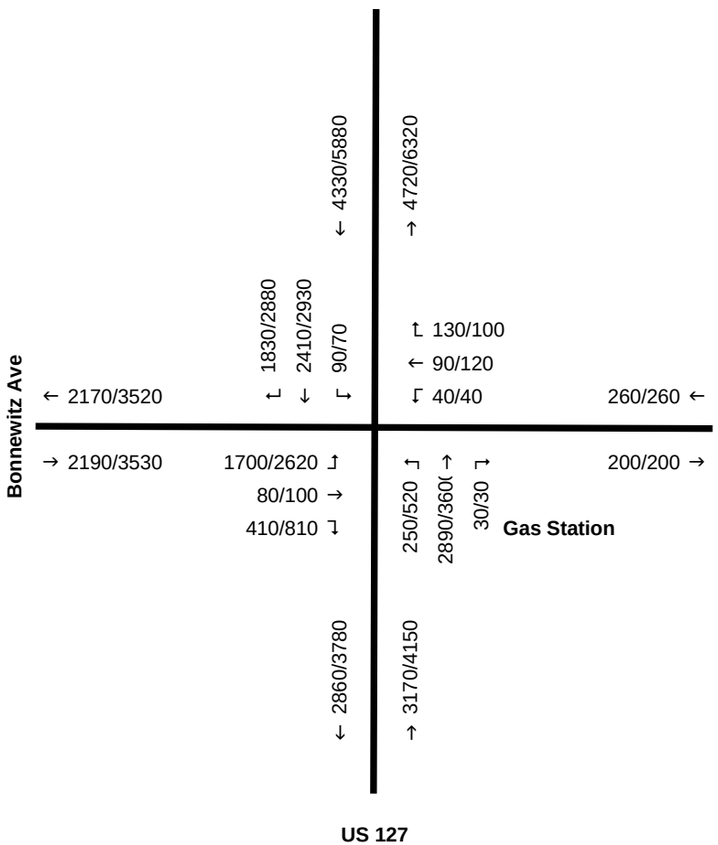


PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
September 1, 2022	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 2 OF 5

2027/2047 ADT



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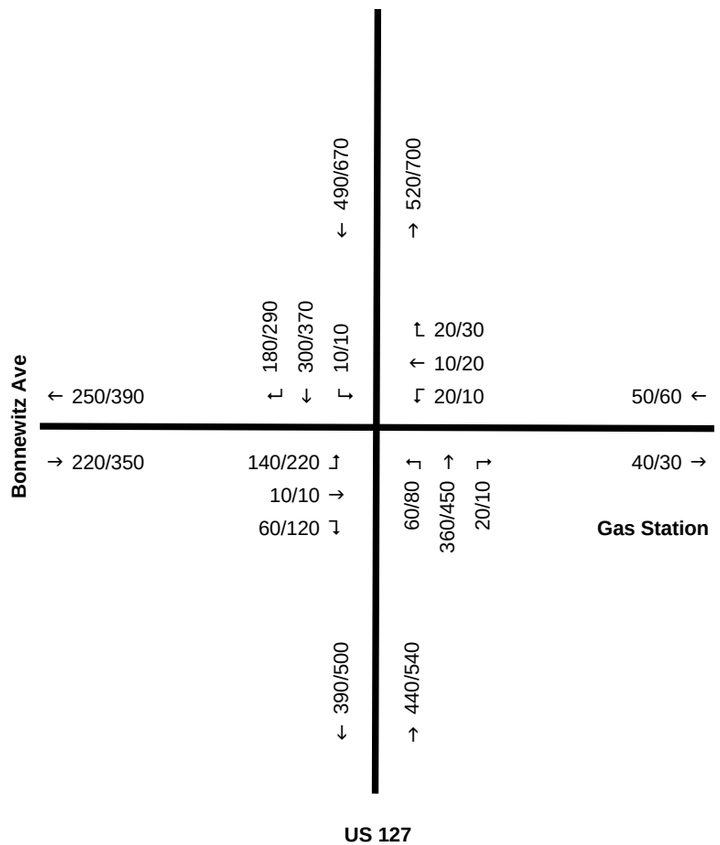

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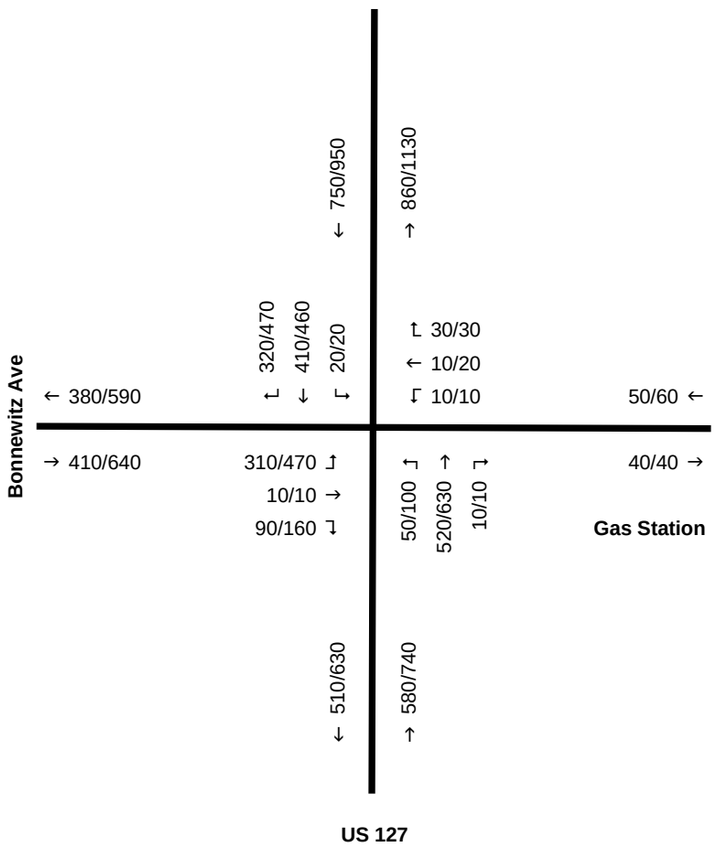
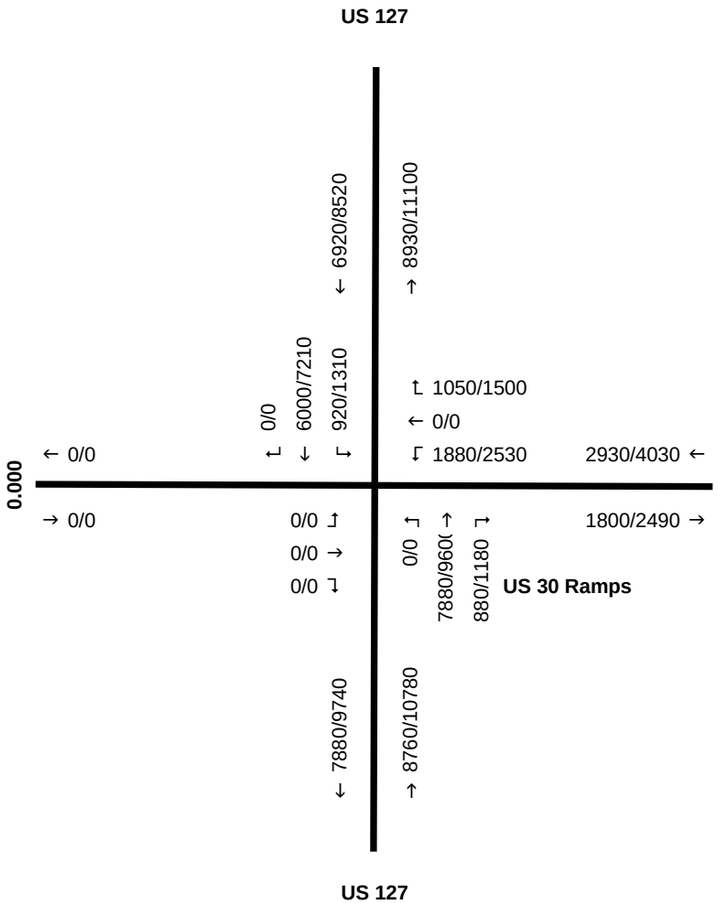


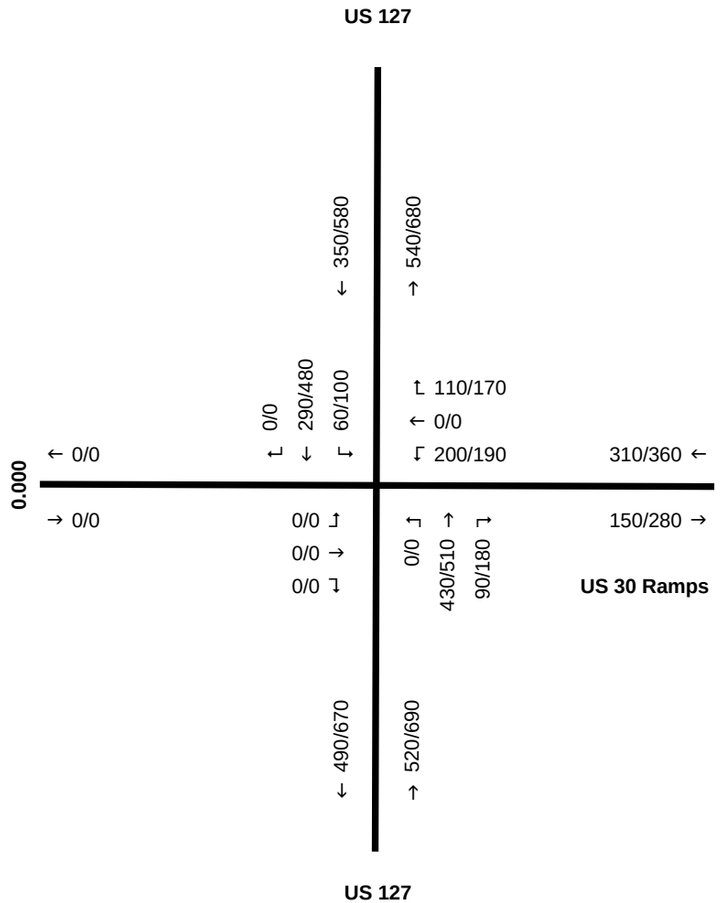
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
April 21, 2021	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 3 OF 5

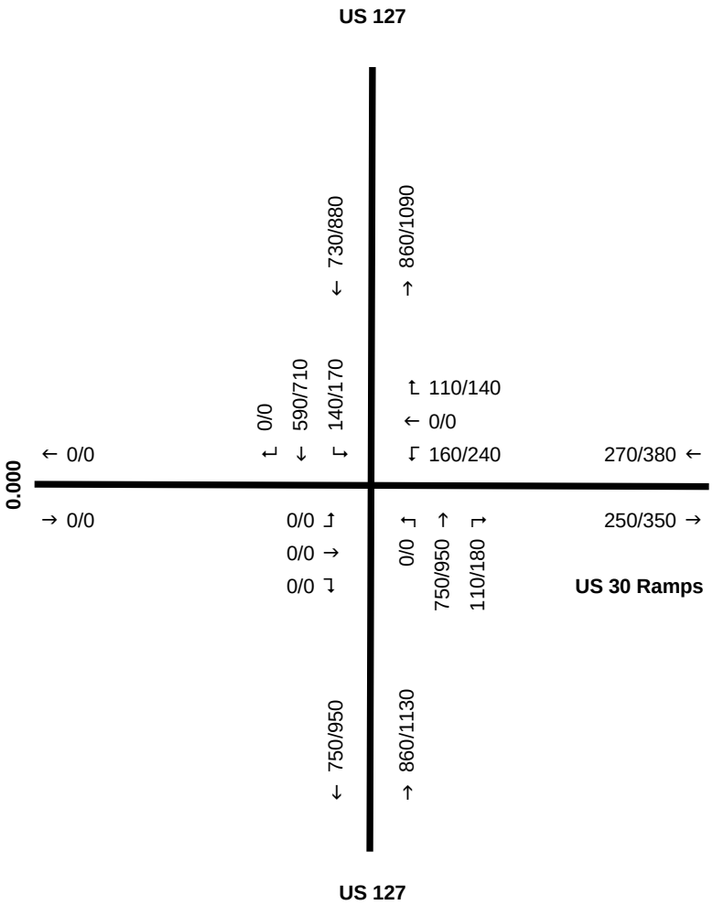
2027/2047 ADT



2027/2047 A.M. DHV



2027/2047 P.M. DHV



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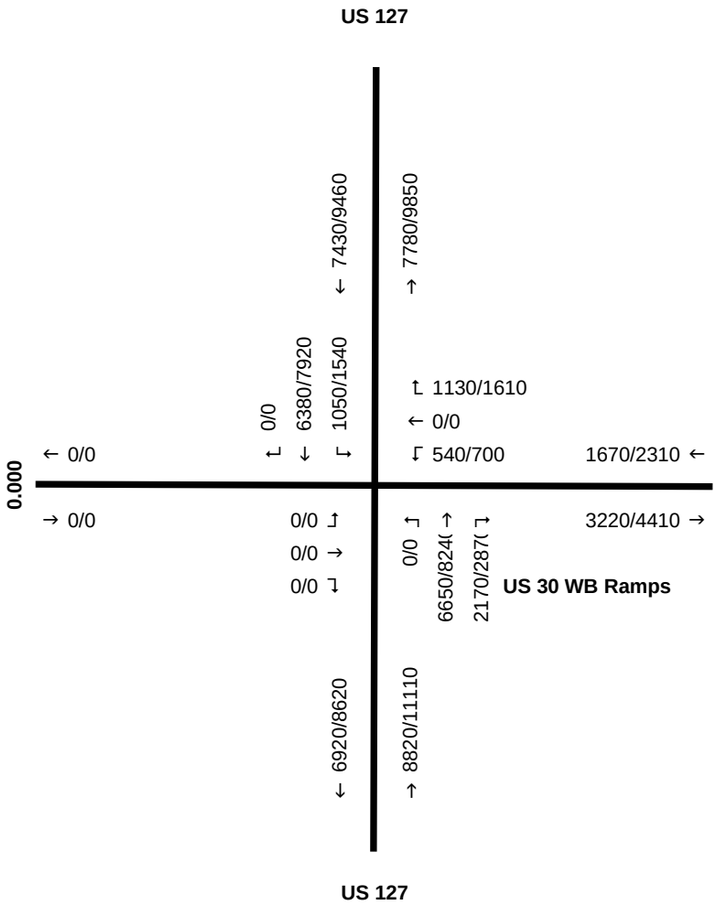
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
September 1, 2022	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 4 OF 5

2027/2047 ADT



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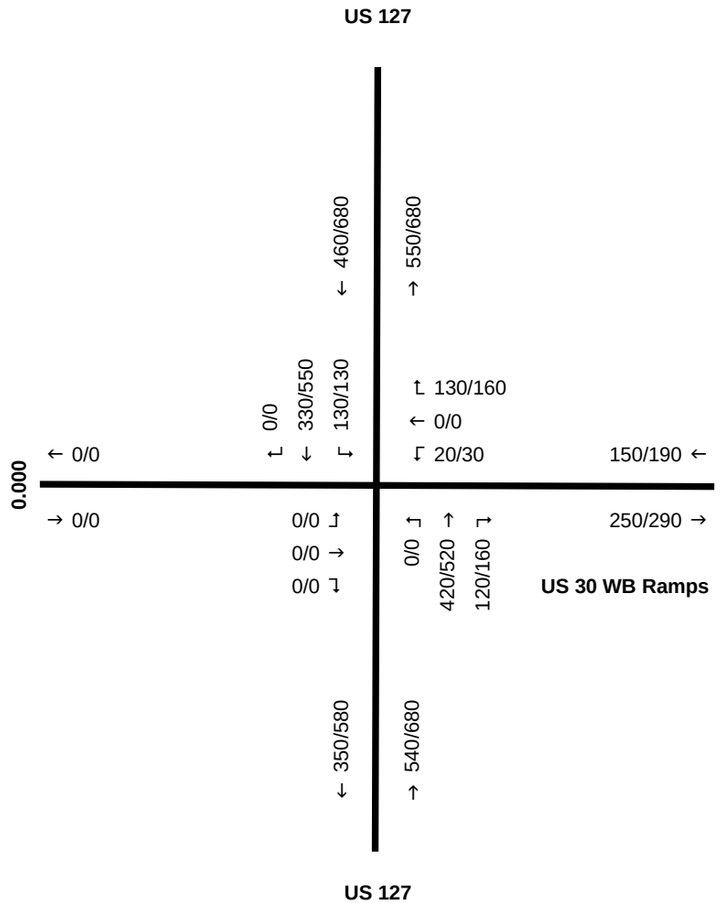

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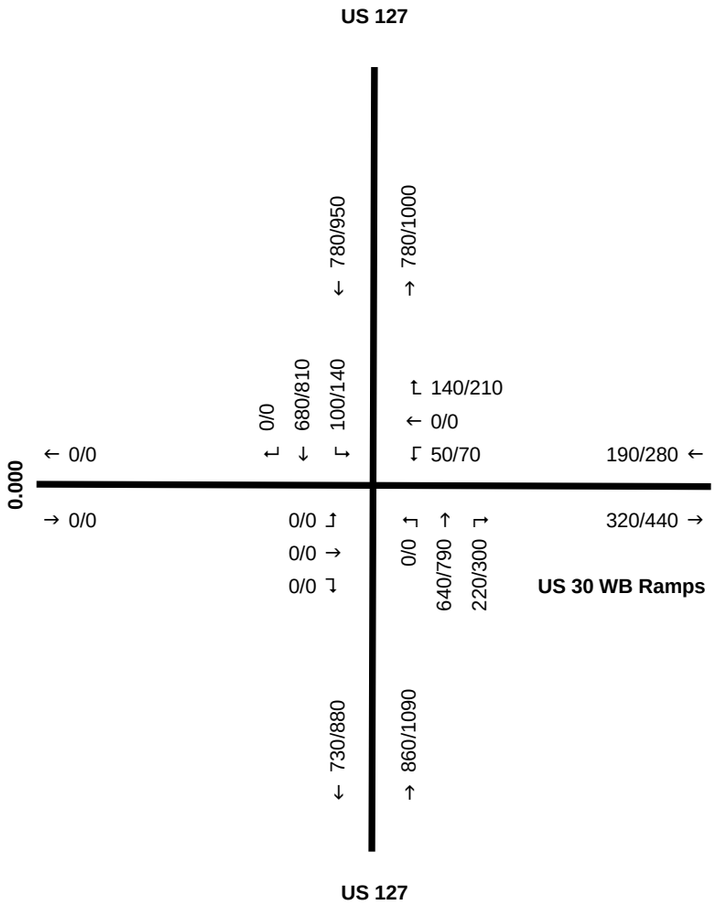

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

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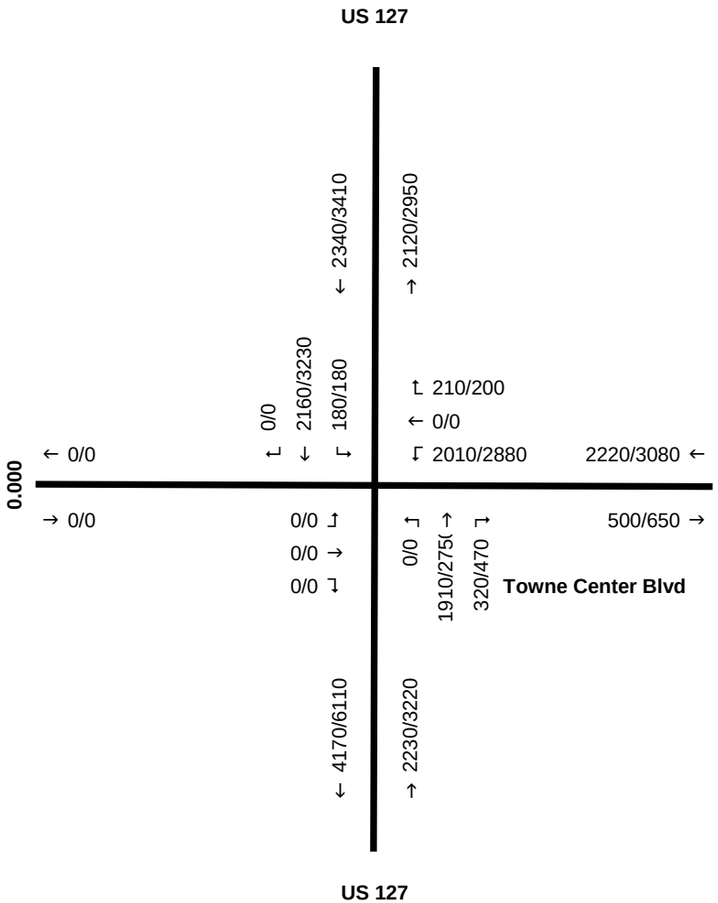
PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
September 1, 2022	NOT TO SCALE

PAU-VAN US 30
PID113196
PLATE 5 OF 5

2027/2047 ADT



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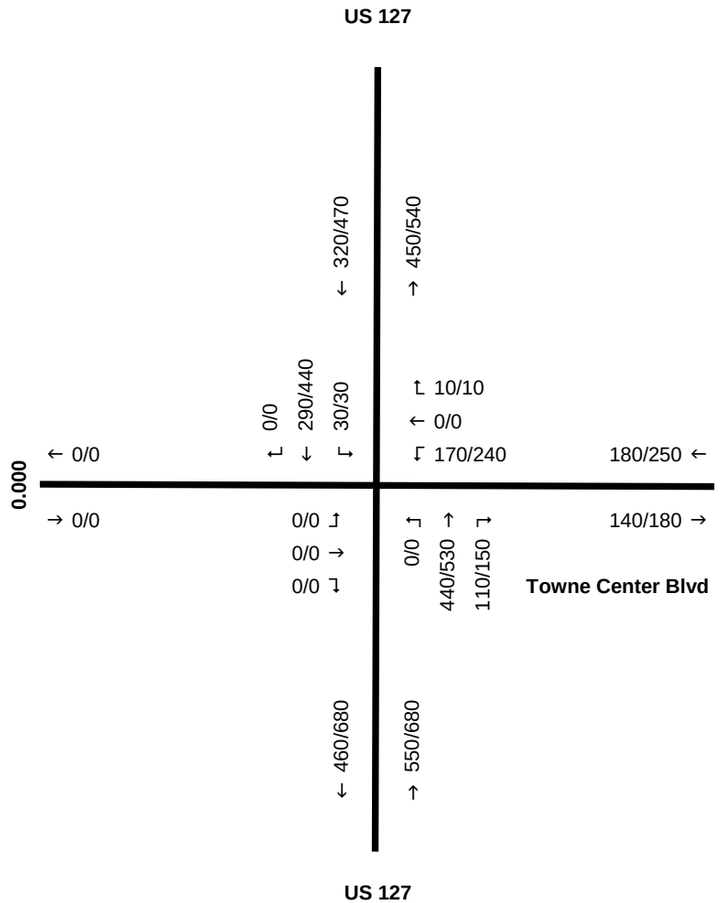
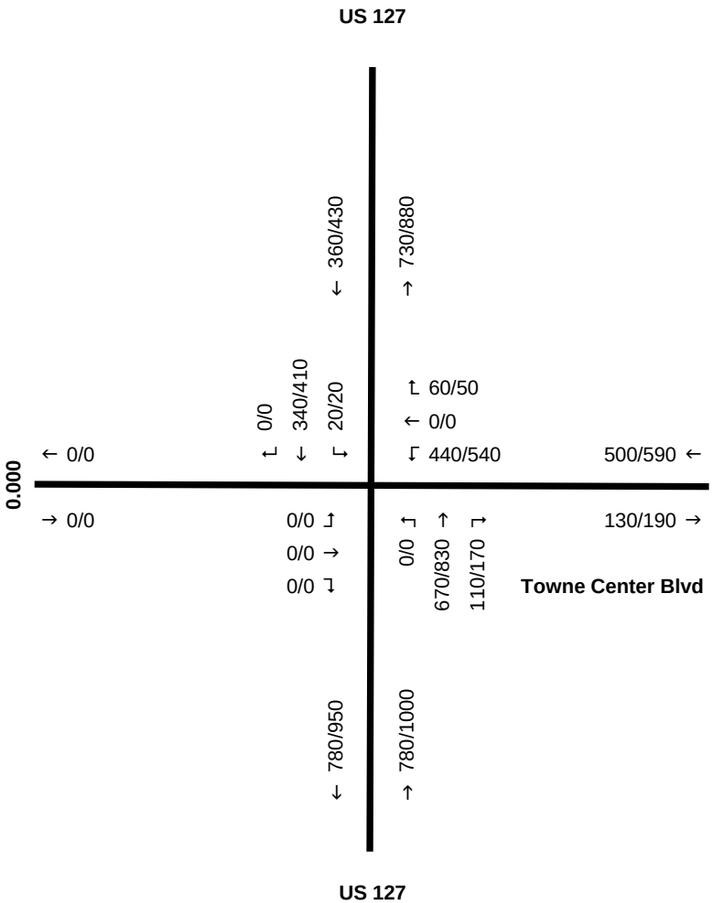


2027/2047 P.M. DHV



PAU-VAN US 30	PID113196
2027/2047 ADT, AM DHV, PM DHV	
OHIO DEPARTMENT OF TRANSPORATION	
July 21, 2022	NOT TO SCALE

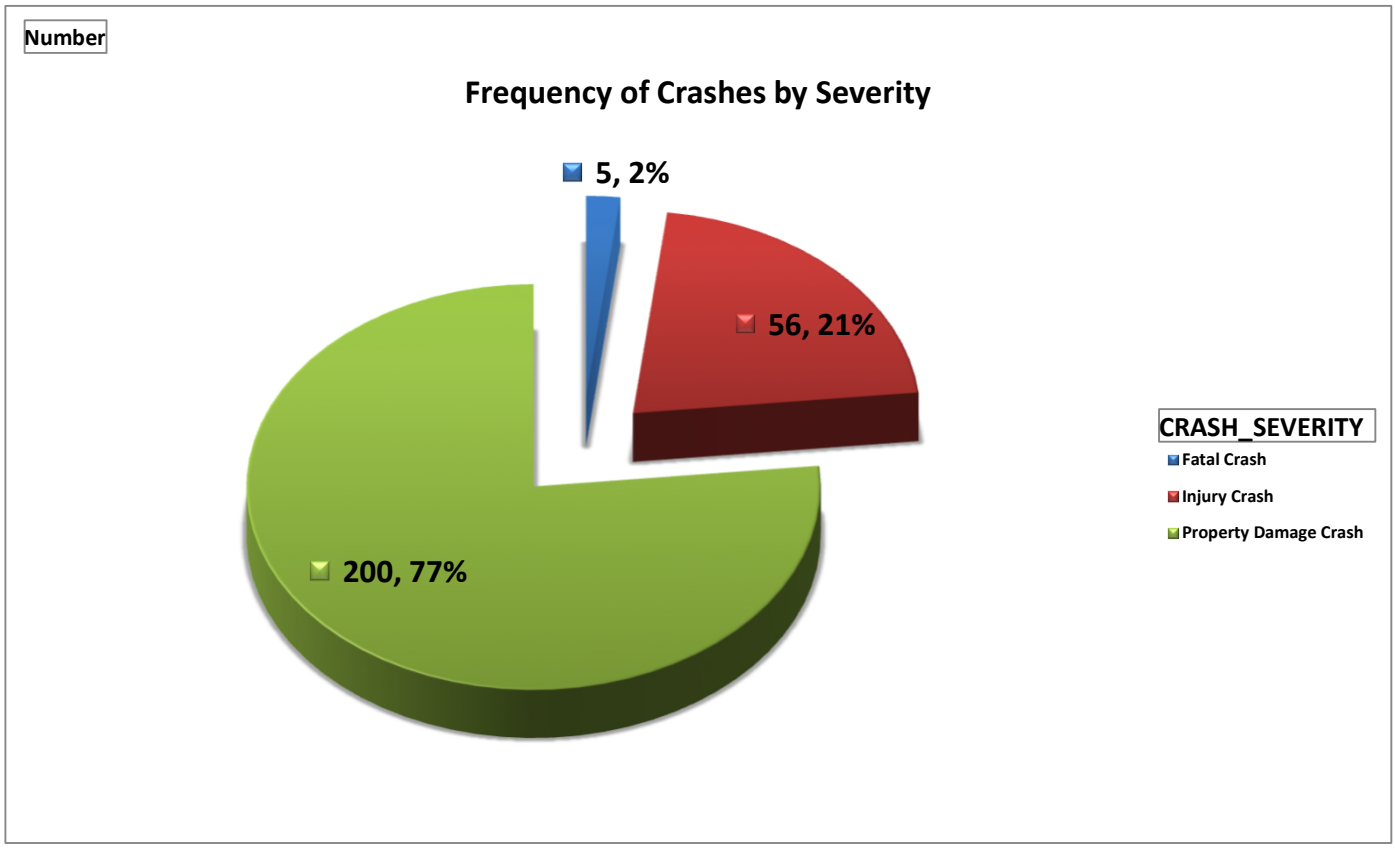
Appendix C

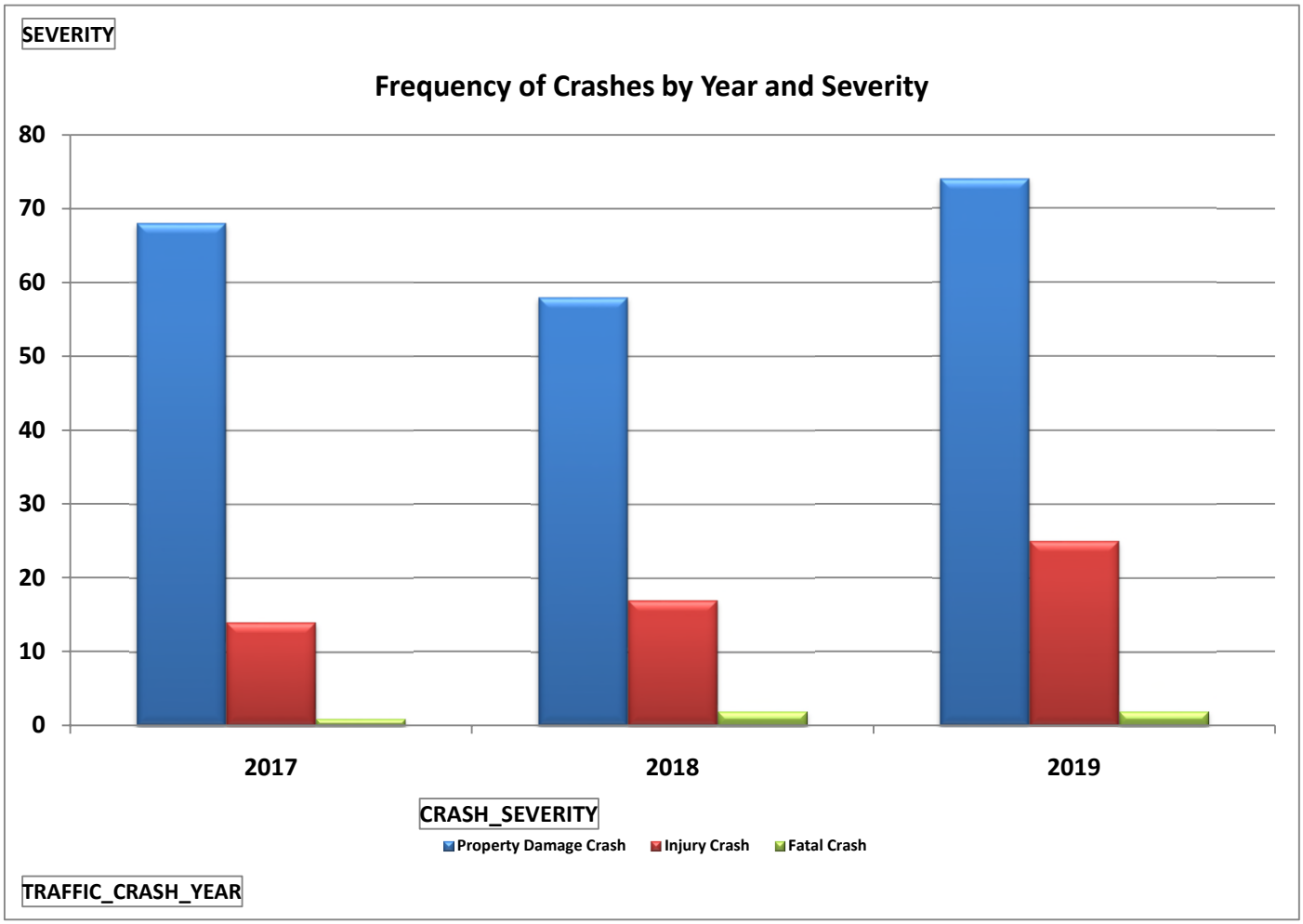
Safety

Appendix C

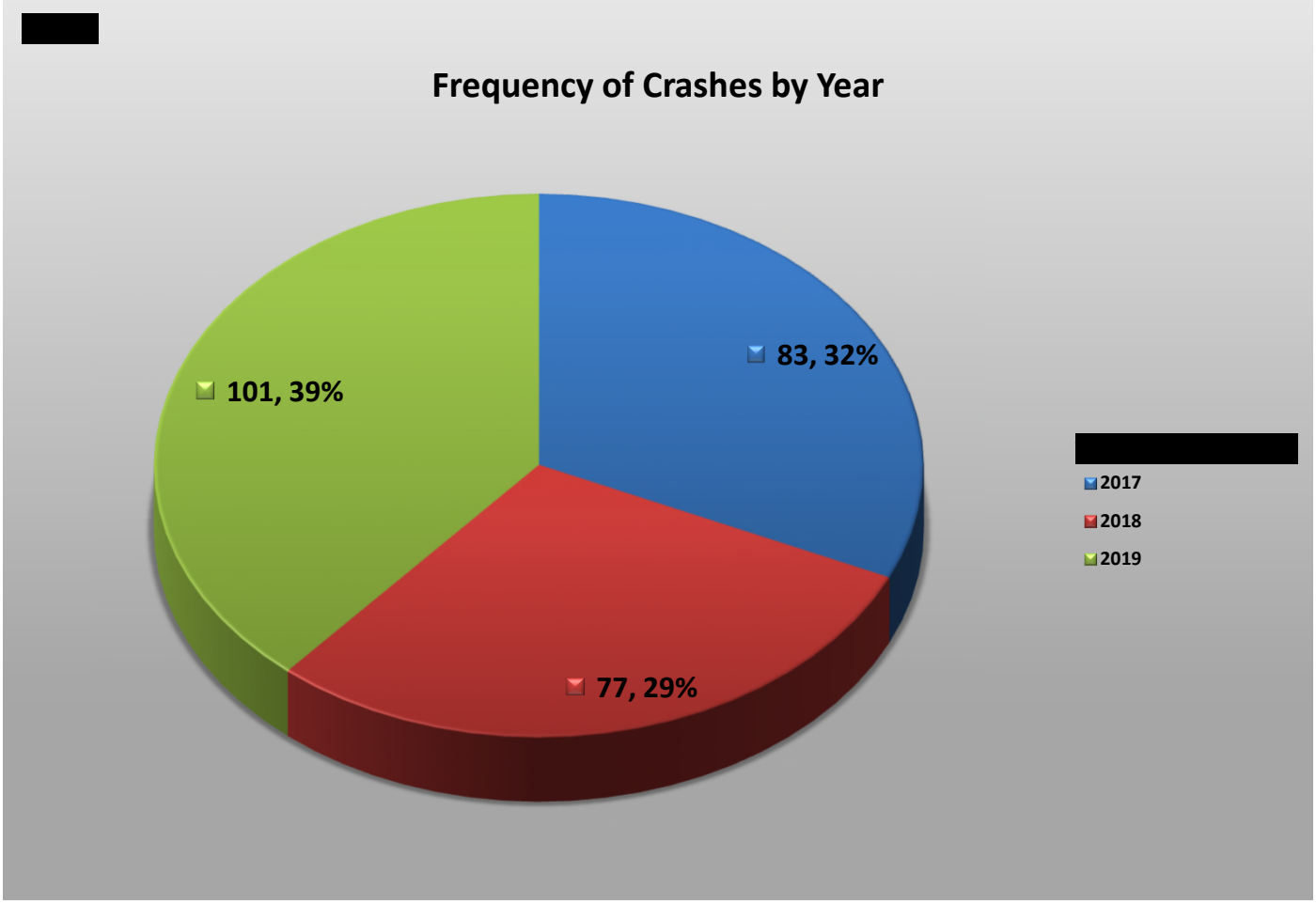
Safety - U.S. 30

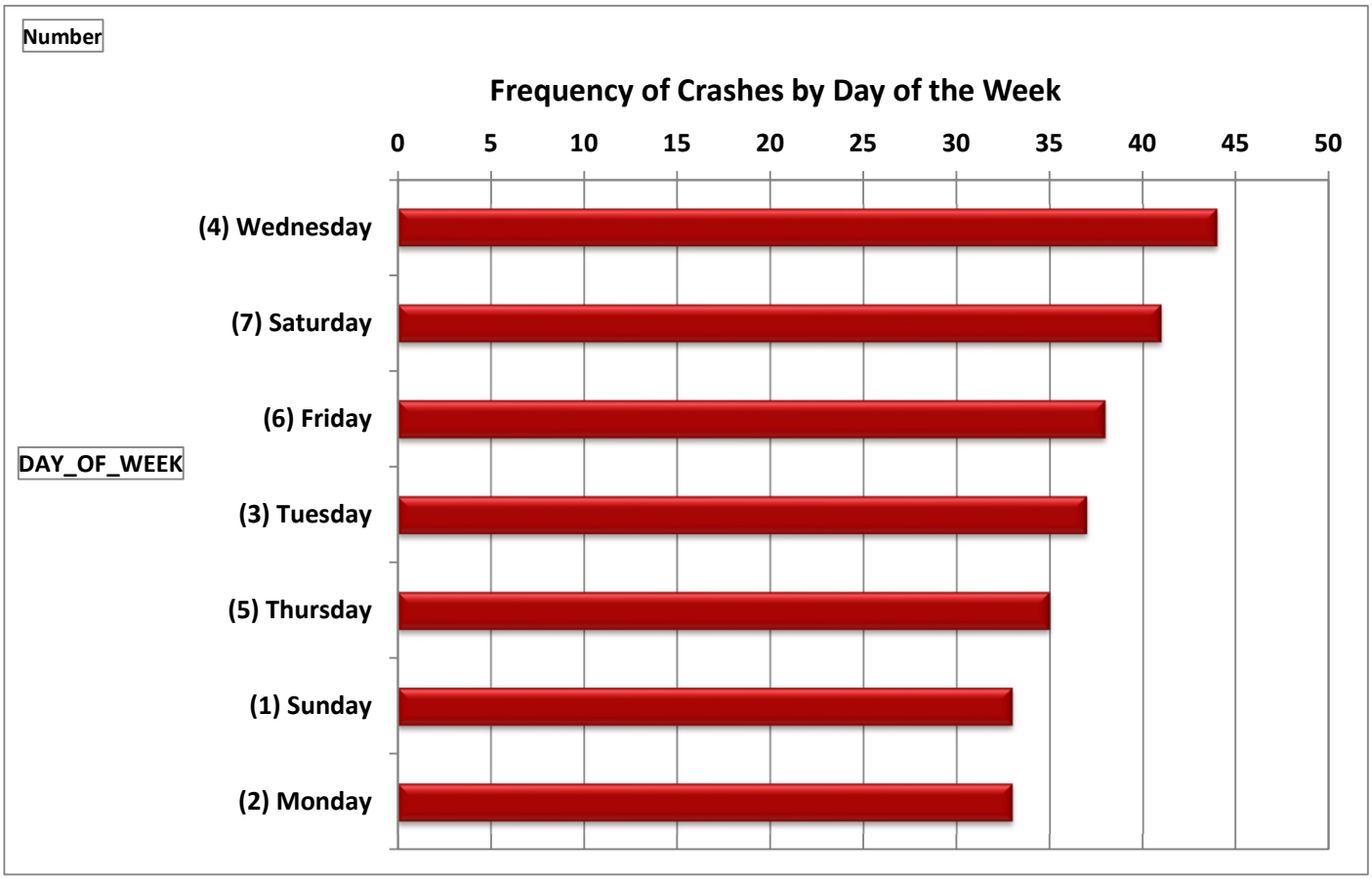
US 30


Number
Frequency of Crashes by Severity
5, 2%
56, 21%
200, 77%
CRASH_SEVERITY
Fatal Crash
Injury Crash
Property Damage Crash


SEVERITY
Frequency of Crashes by Year and Severity
80
70
60
50
40
30
20
10
0
2017
2018
2019
CRASH_SEVERITY
Property Damage Crash
Injury Crash
Fatal Crash
TRAFFIC_CRASH_YEAR

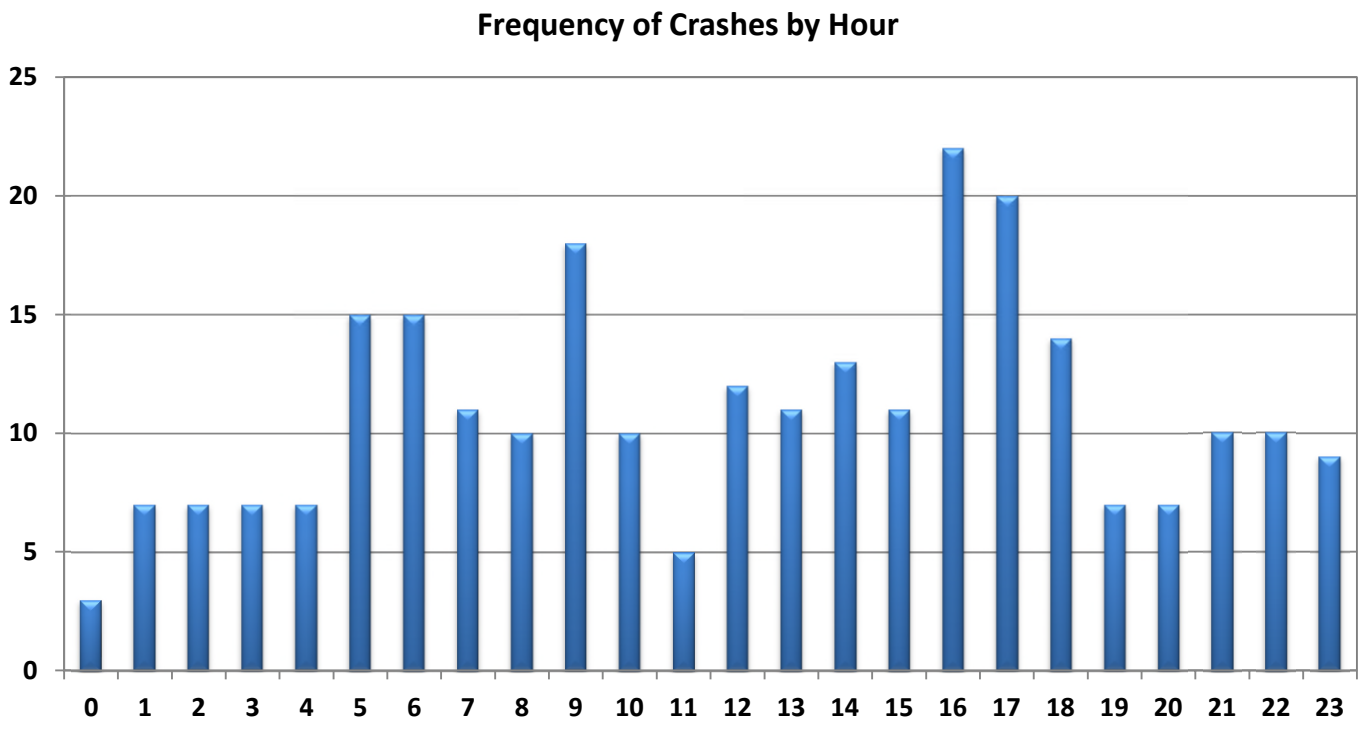
US 30


Frequency of Crashes by Year
83, 32%
101, 39%
77, 29%
2017
2018
2019


Number
Frequency of Crashes by Day of the Week
0
5
10
15
20
25
30
35
40
45
50
(4) Wednesday
(7) Saturday
(6) Friday
DAY_OF_WEEK
(3) Tuesday
(5) Thursday
(1) Sunday
(2) Monday

US 30

[redacted]



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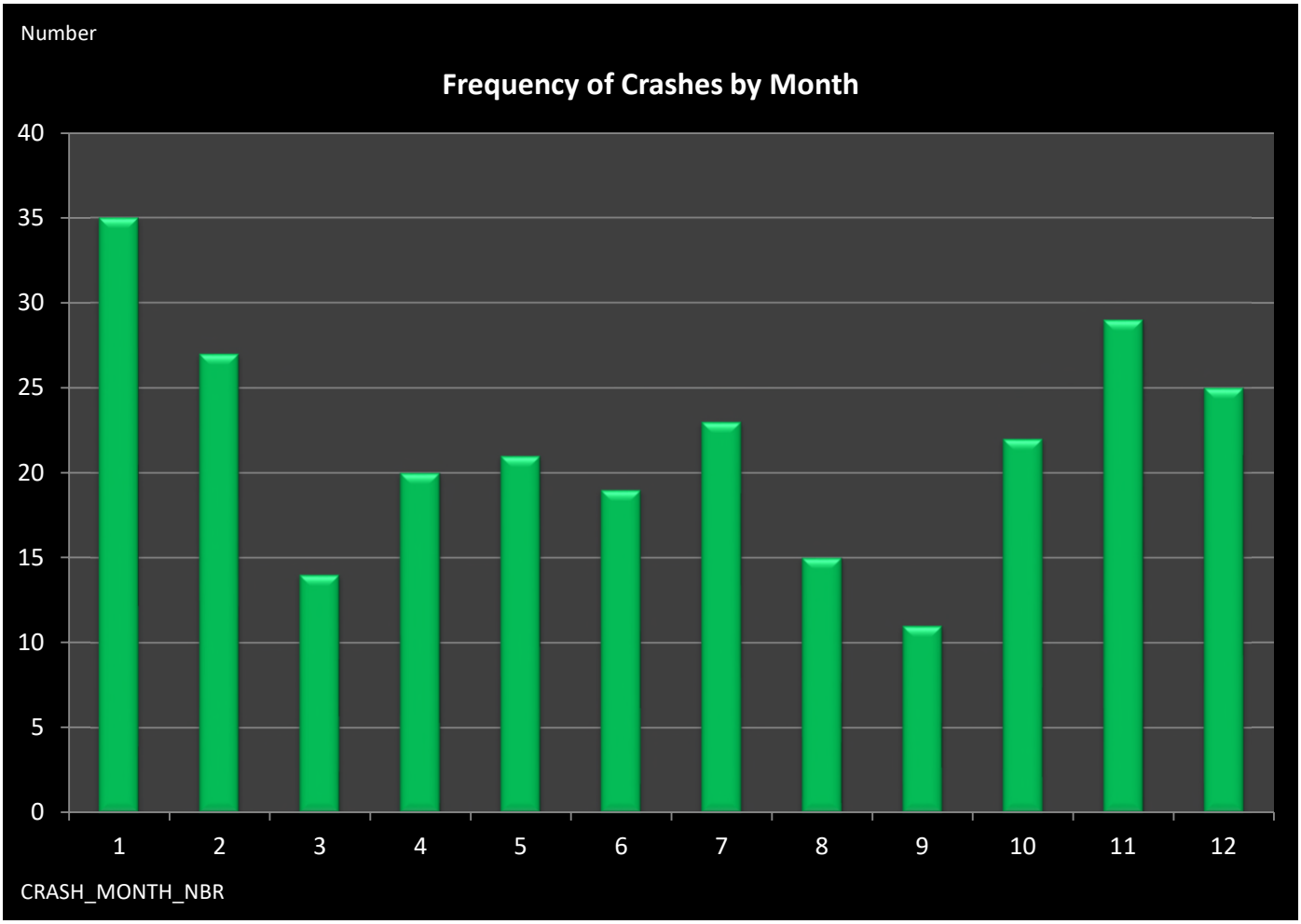
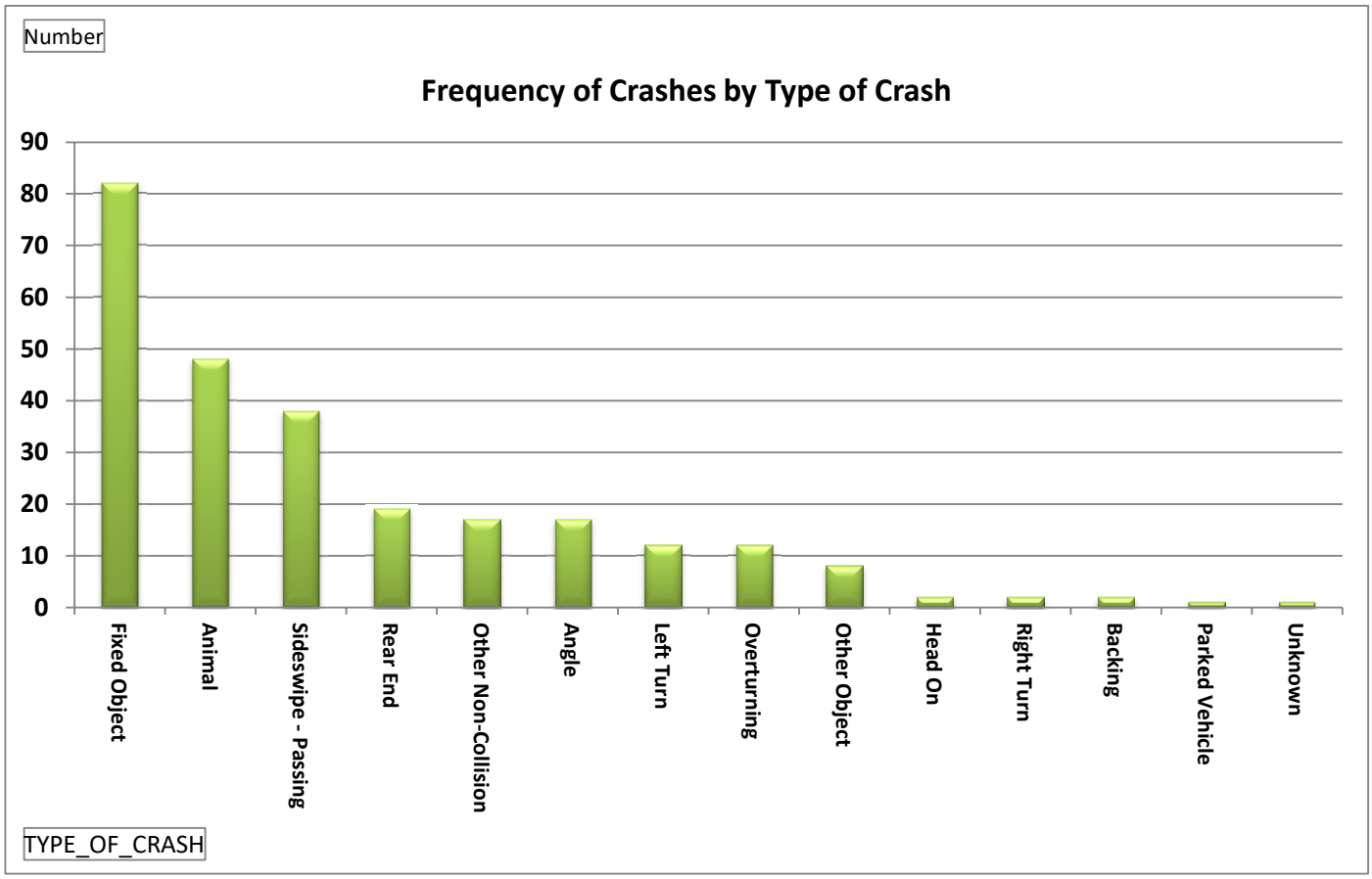
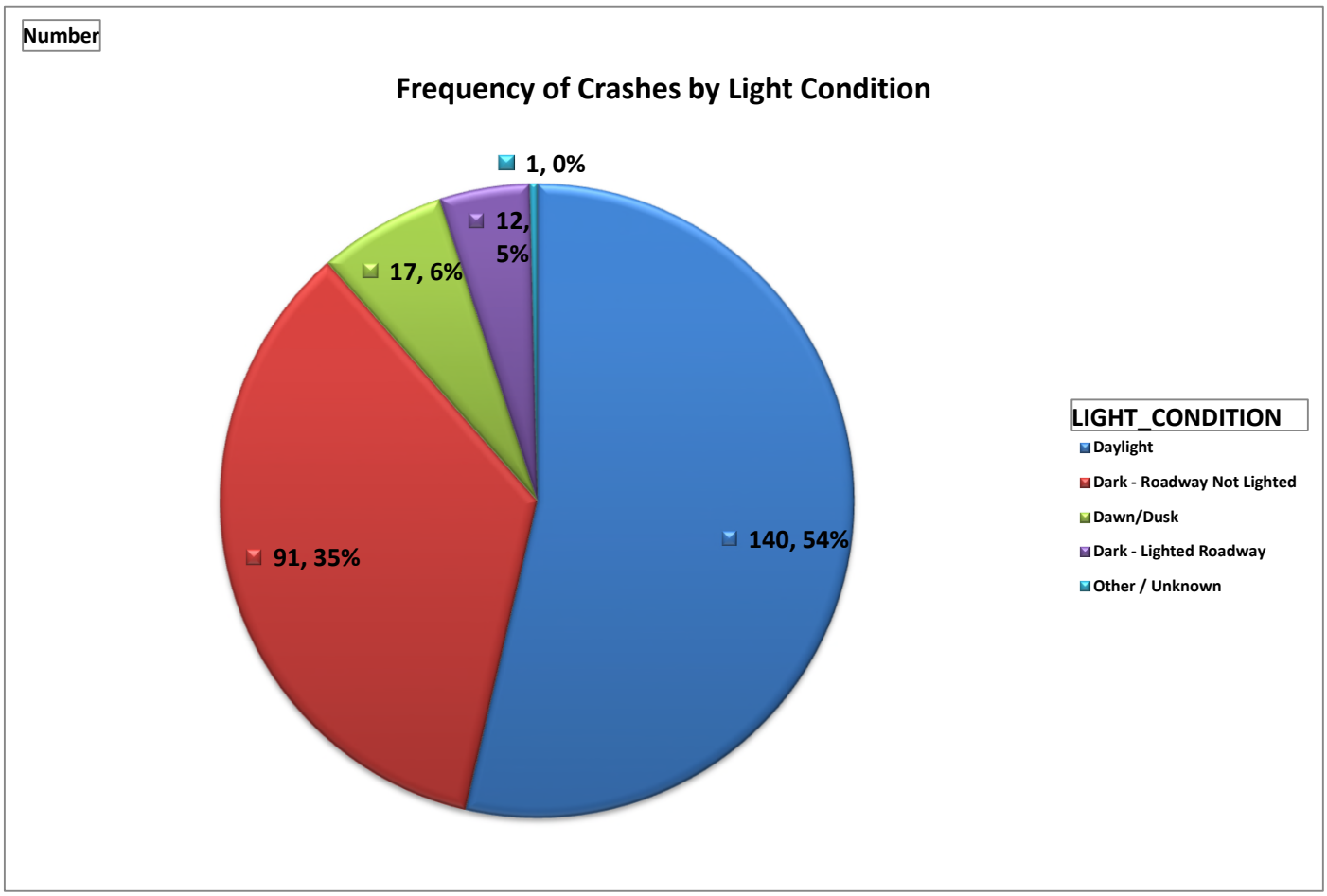
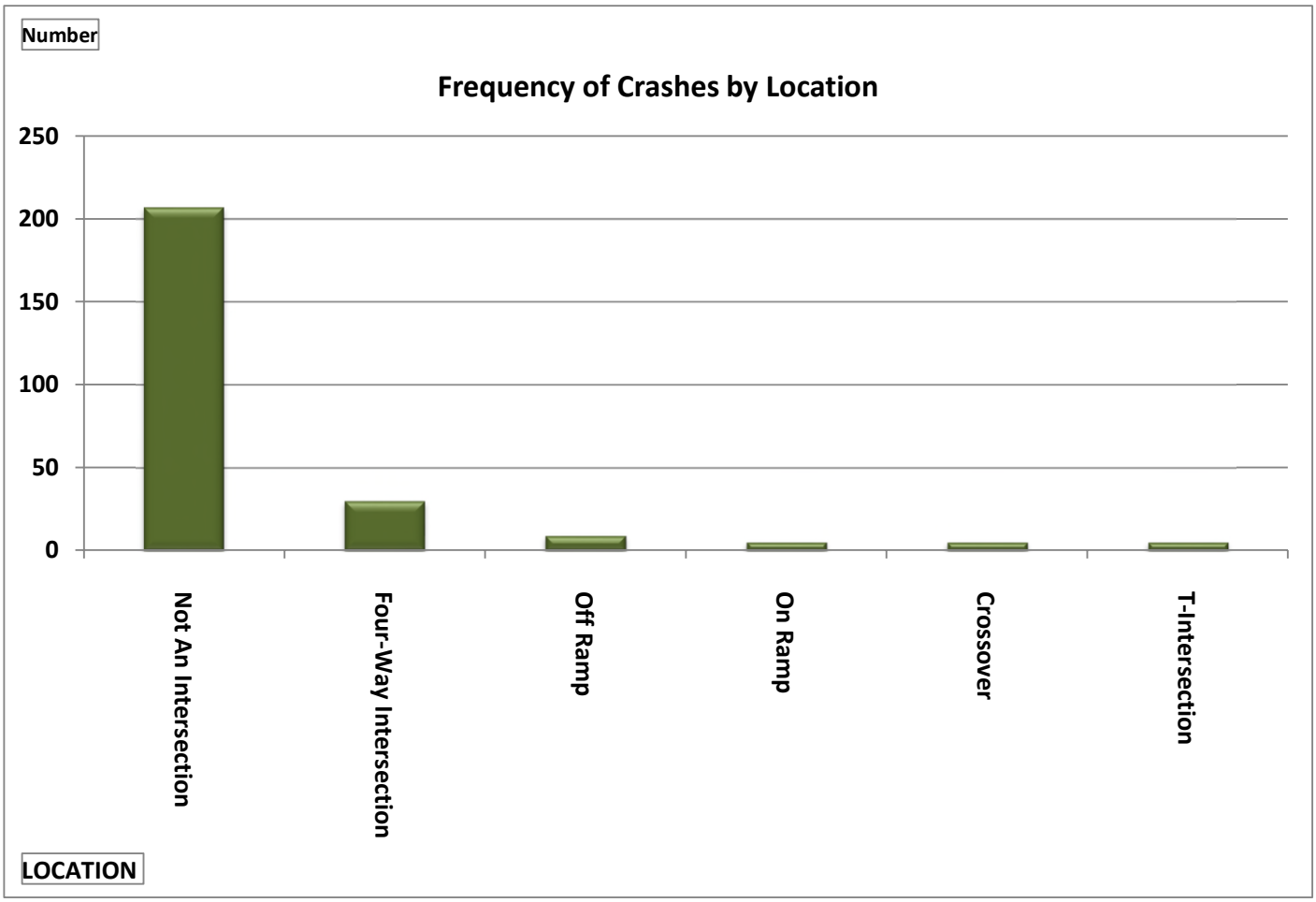


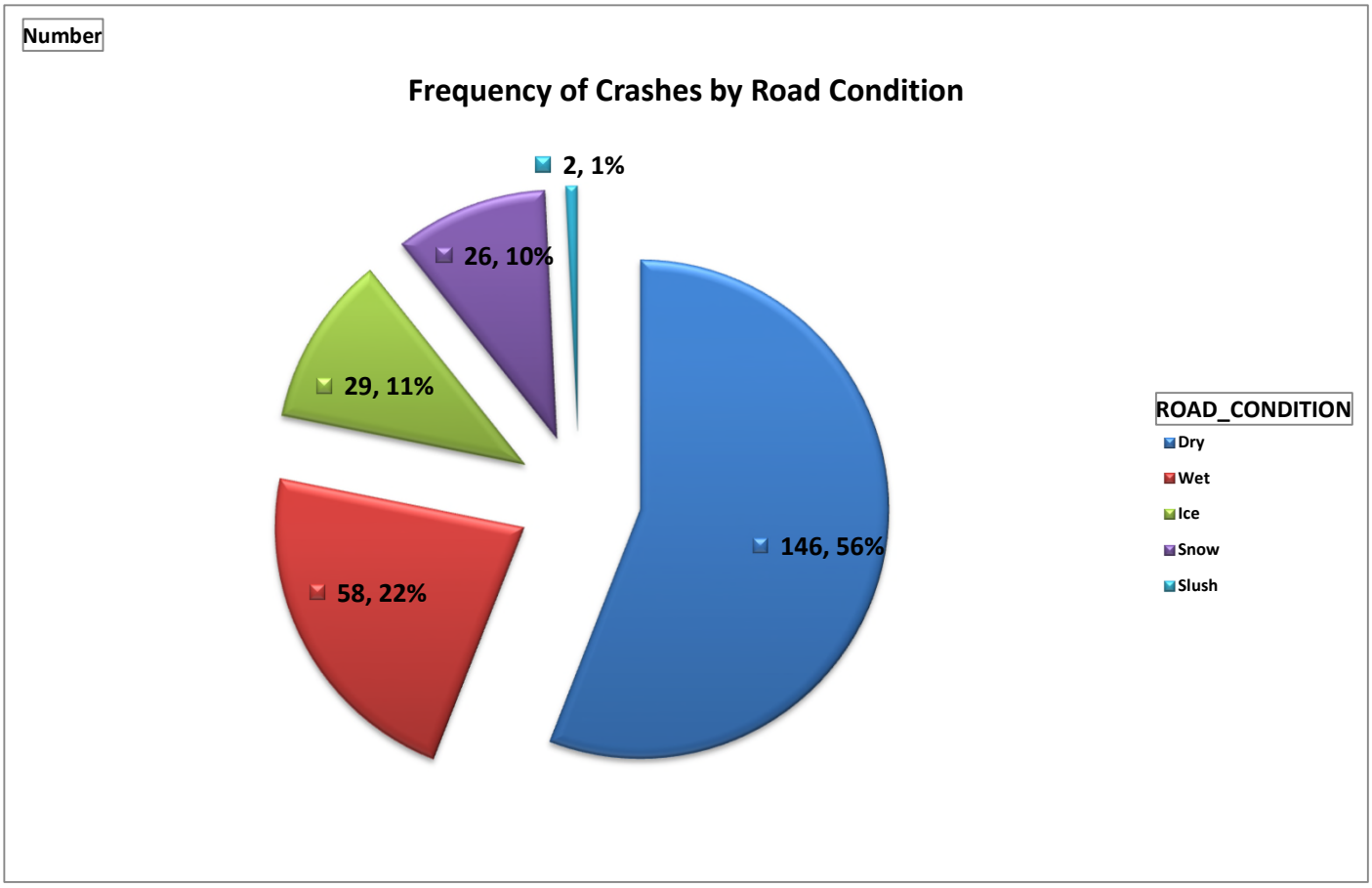
US 30


Number
Frequency of Crashes by Type of Crash
90
80
70
60
50
40
30
20
10
0
Fixed Object
Animal
Sideswipe - Passing
Rear End
Other Non-Collision
Angle
Left Turn
Overturning
Other Object
Head On
Right Turn
Backing
Parked Vehicle
Unknown
TYPE_OF_CRASH

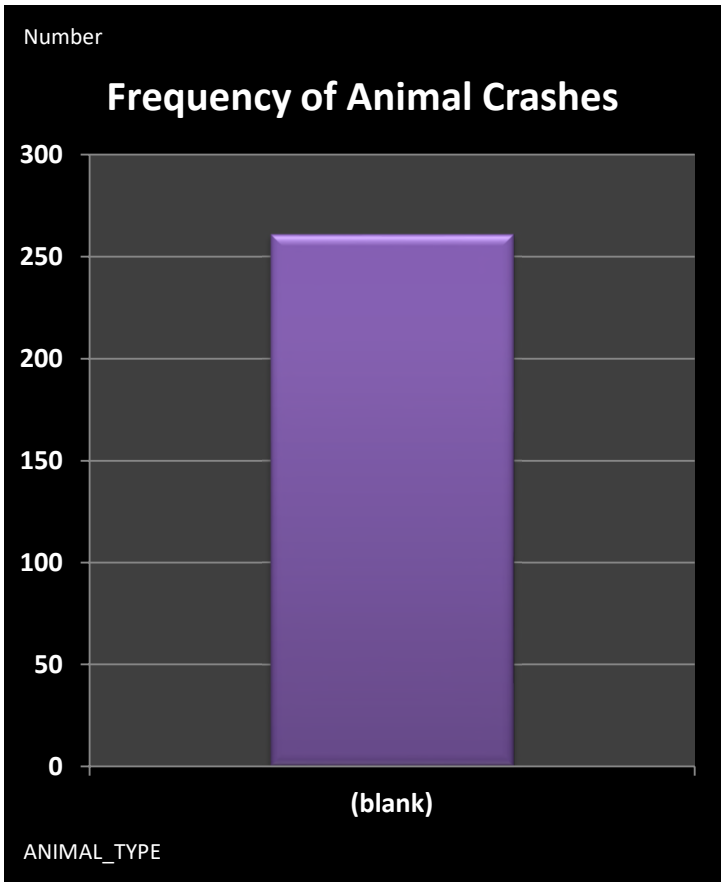

Number
Frequency of Crashes by Light Condition
1, 0%
12, 5%
17, 6%
91, 35%
140, 54%
LIGHT_CONDITION
Daylight
Dark - Roadway Not Lighted
Dawn/Dusk
Dark - Lighted Roadway
Other / Unknown

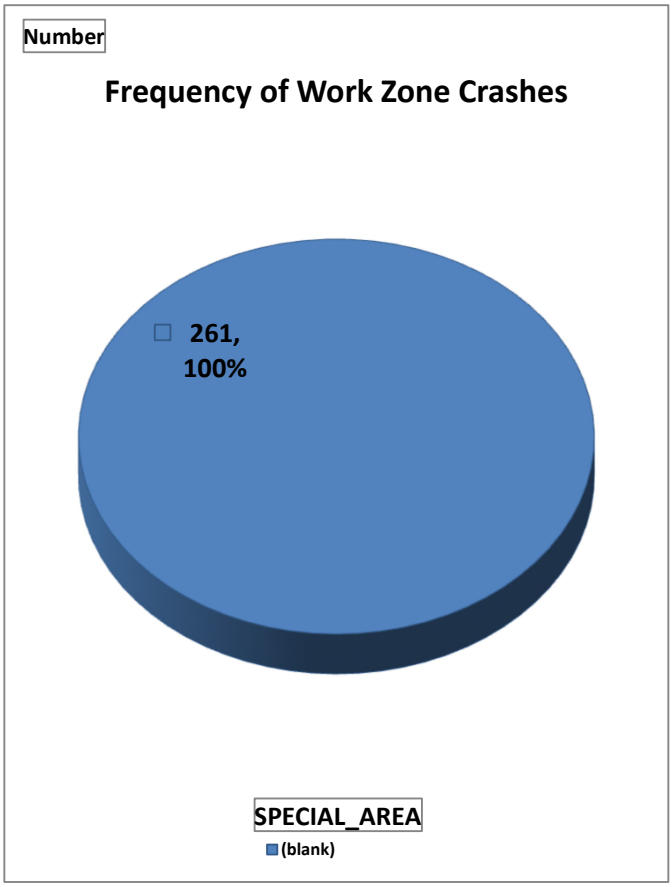
US 30

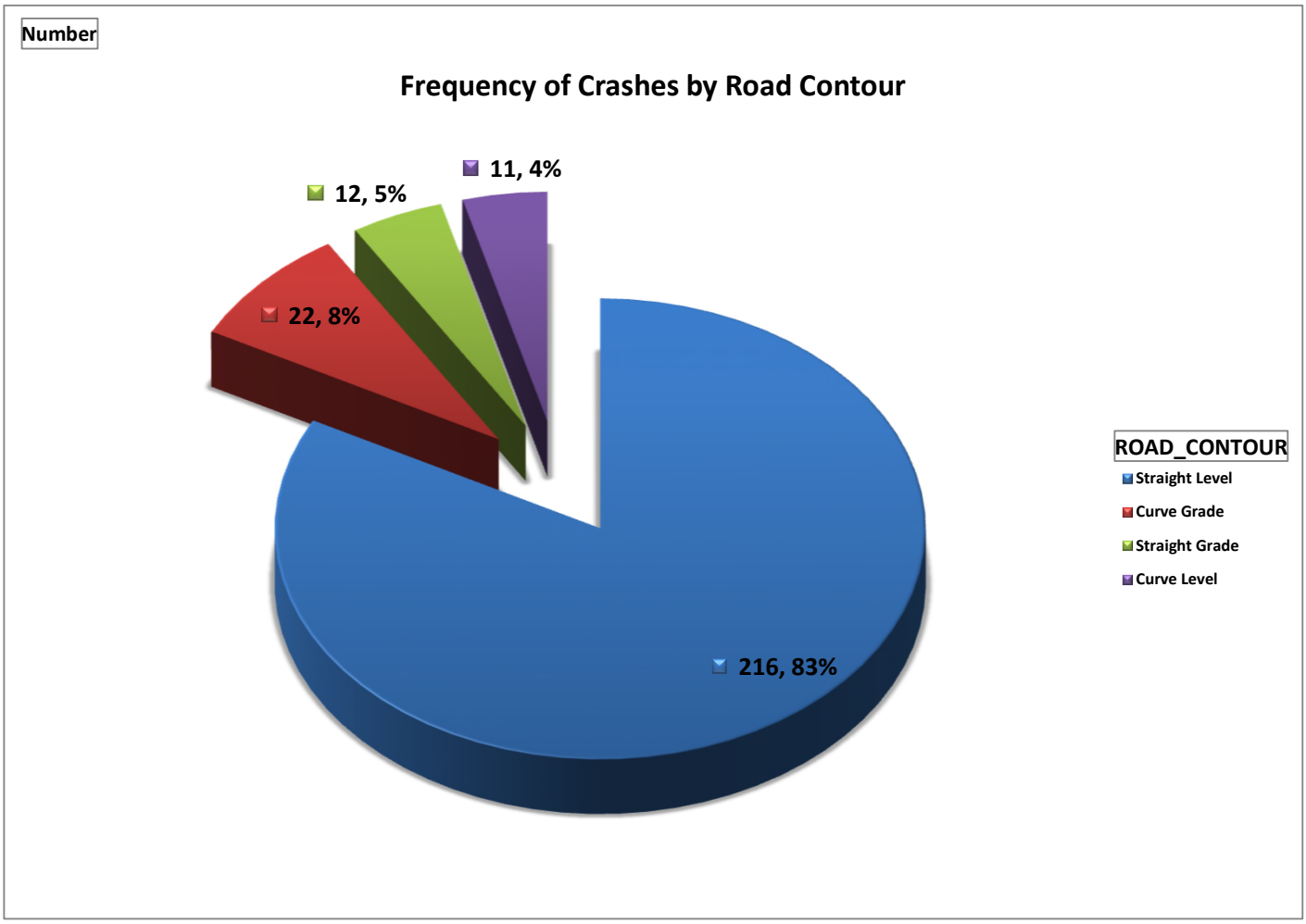

Number
Frequency of Crashes by Location
250
200
150
100
50
0
Not An Intersection
Four-Way Intersection
Off Ramp
On Ramp
Crossover
T-Intersection
LOCATION


Number
Frequency of Crashes by Road Condition
2, 1%
26, 10%
29, 11%
146, 56%
58, 22%
ROAD_CONDITION
Dry
Wet
Ice
Snow
Slush

US 30

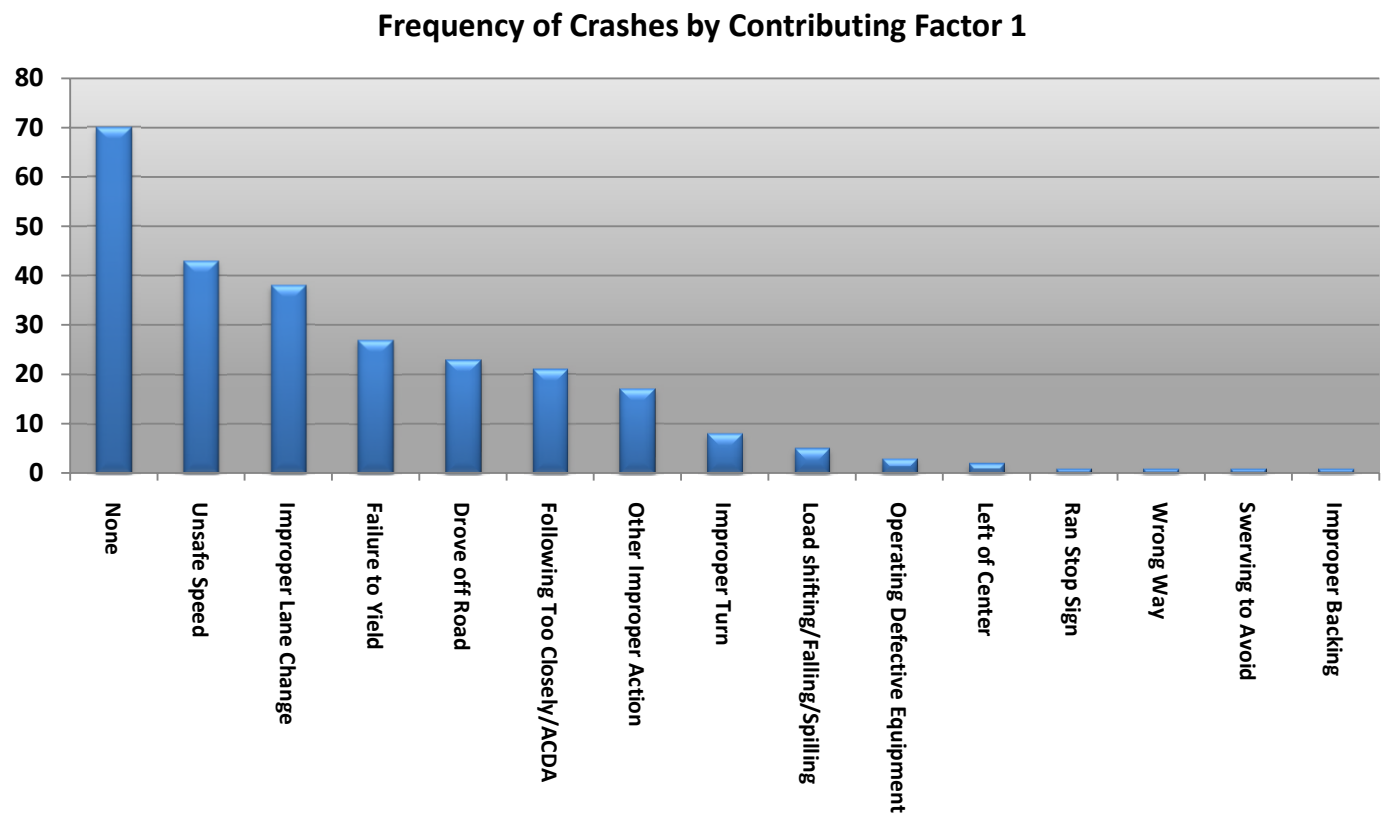

Number
Frequency of Animal Crashes
300
250
200
150
100
50
0
(blank)
ANIMAL_TYPE


Number
Frequency of Work Zone Crashes
261, 100%
SPECIAL_AREA
(blank)


Number
Frequency of Crashes by Road Contour
11, 4%
12, 5%
22, 8%
216, 83%
ROAD_CONTOUR
Straight Level
Curve Grade
Straight Grade
Curve Level

US 30

[redacted]



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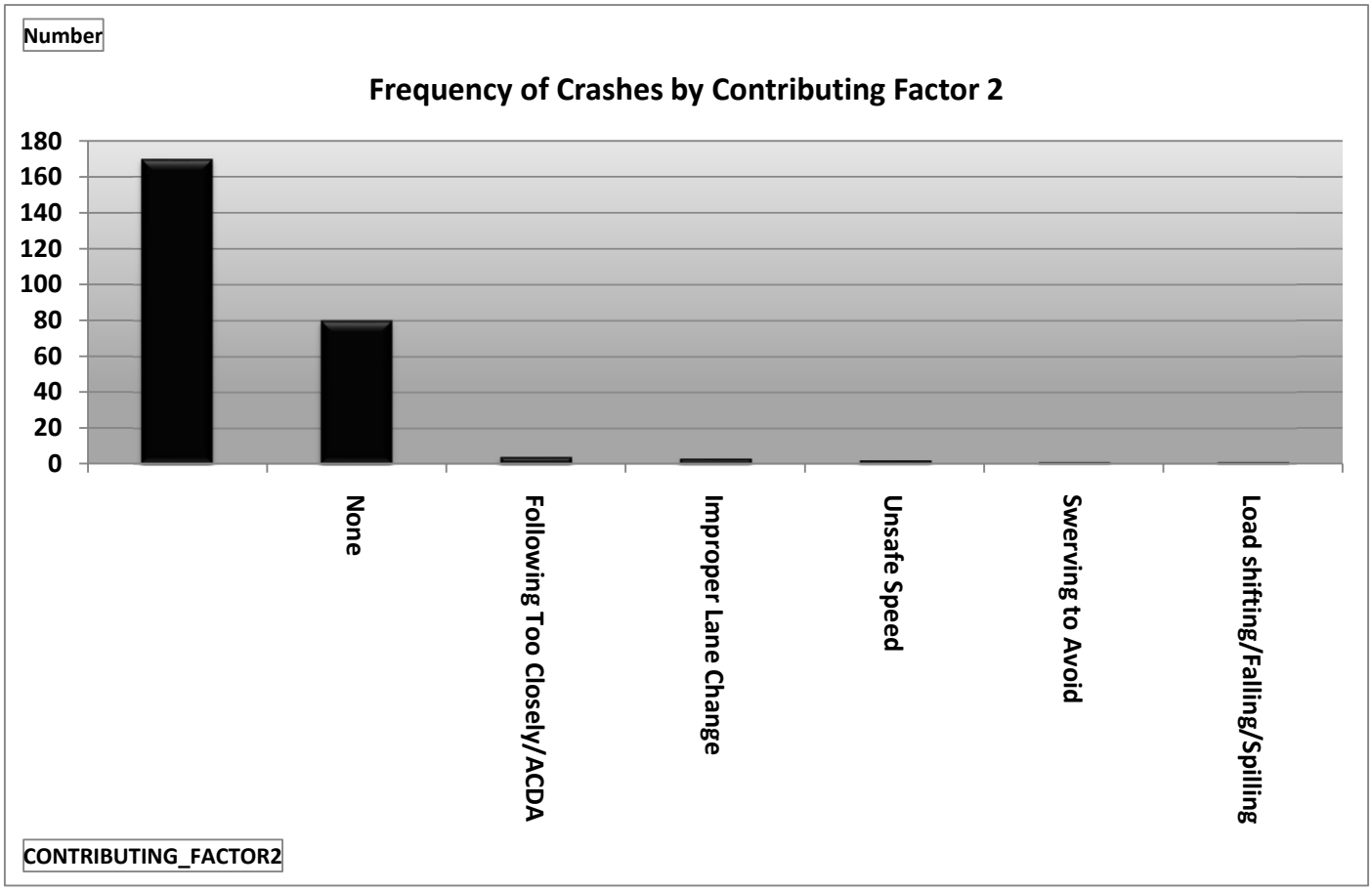
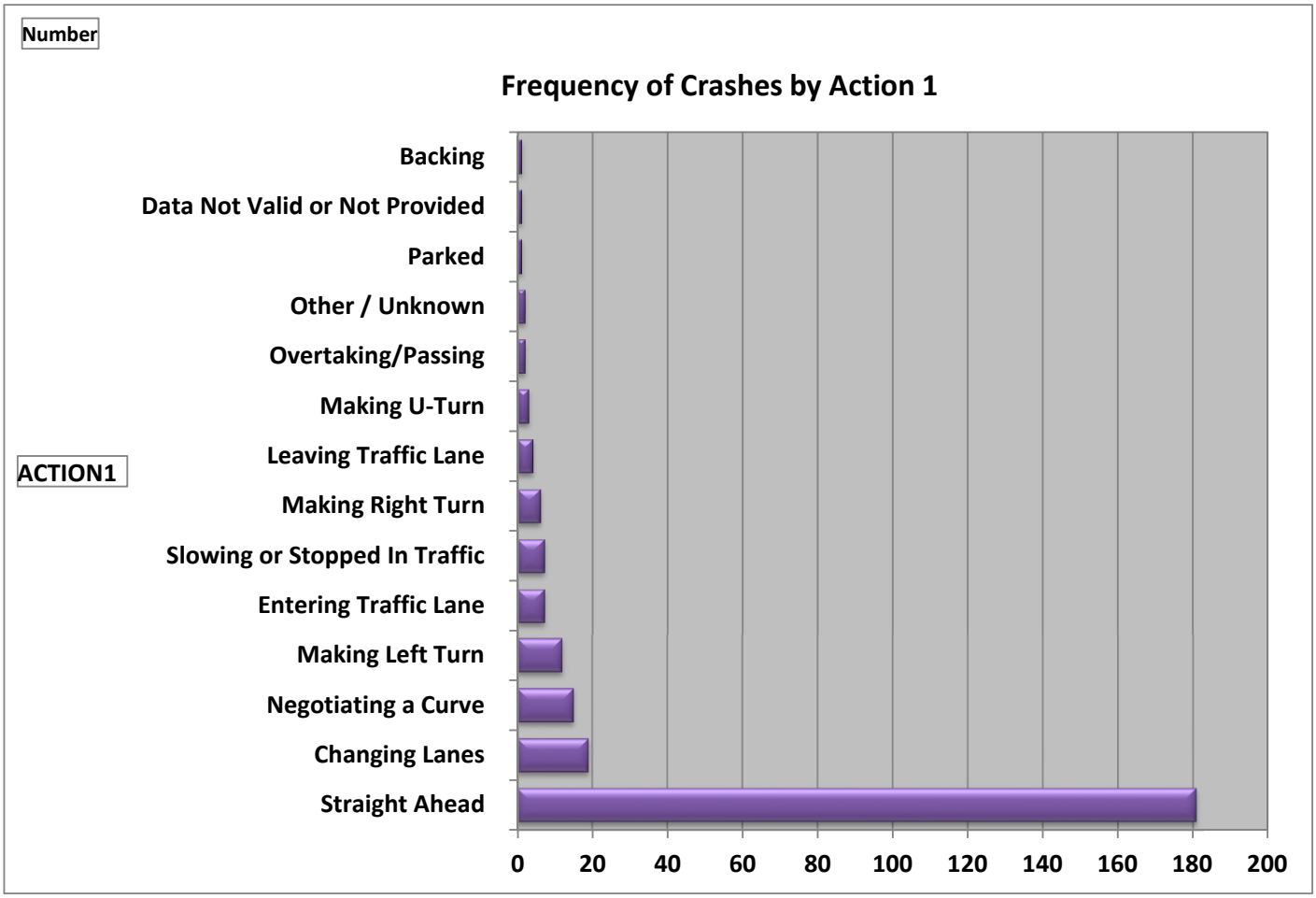
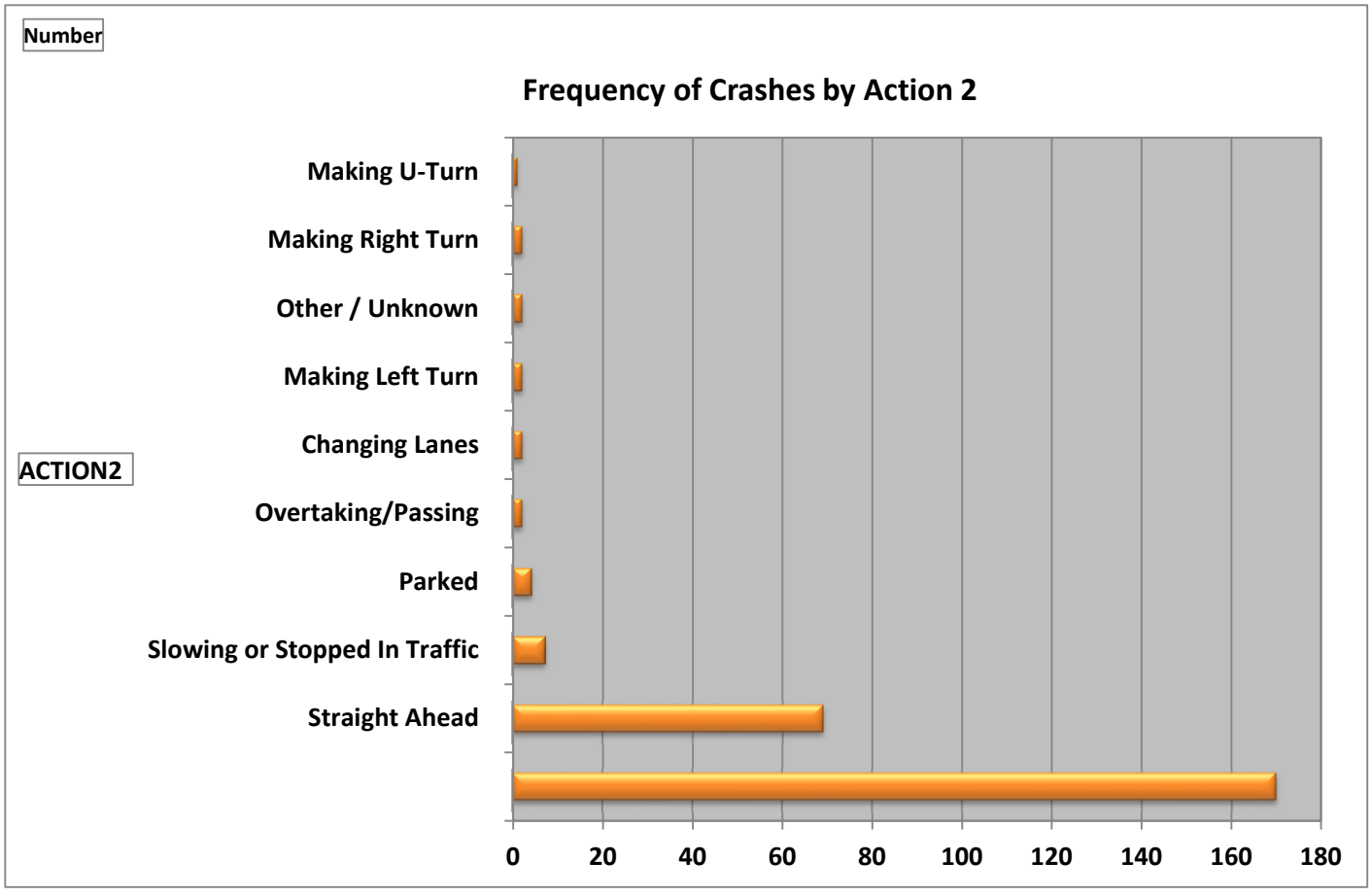
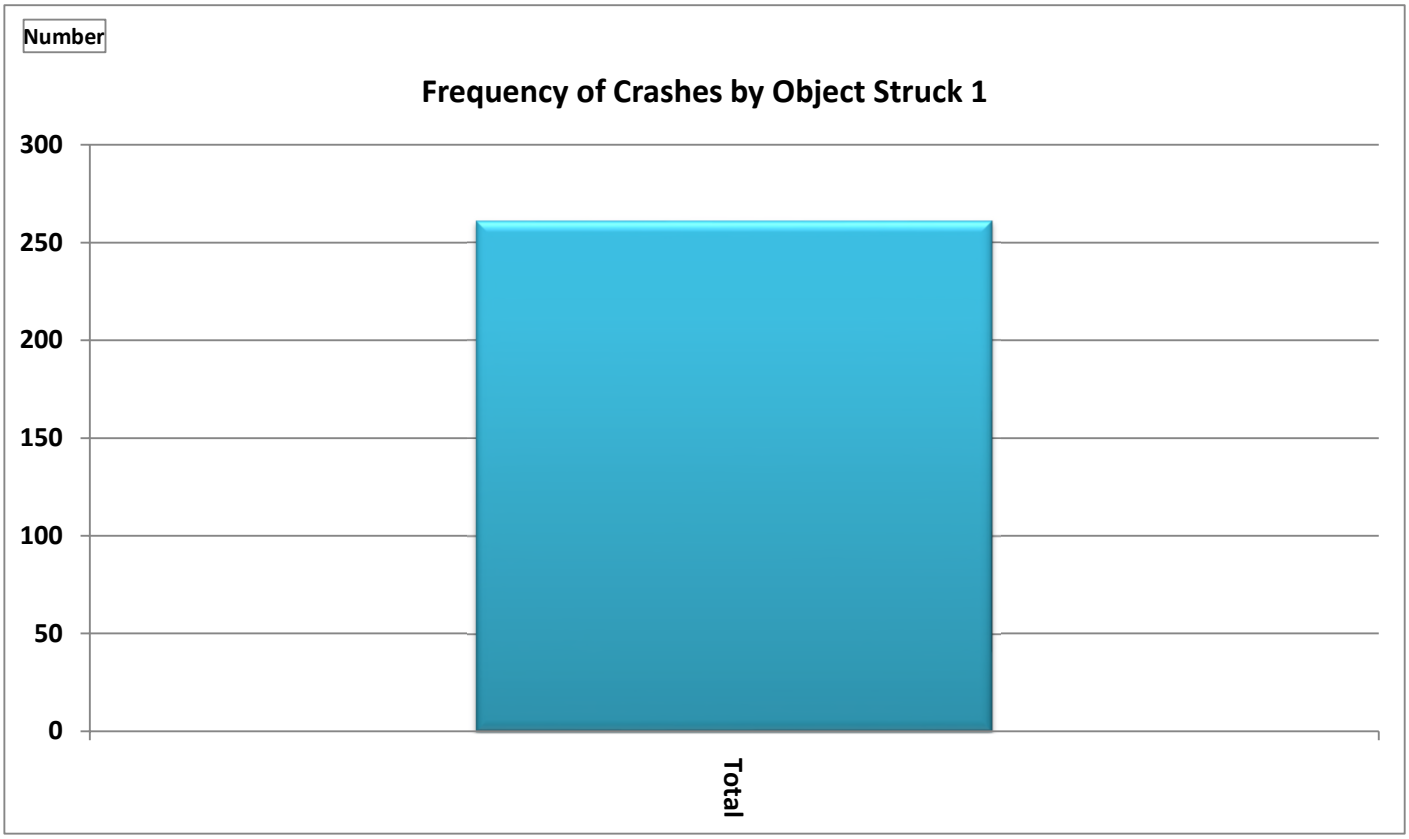


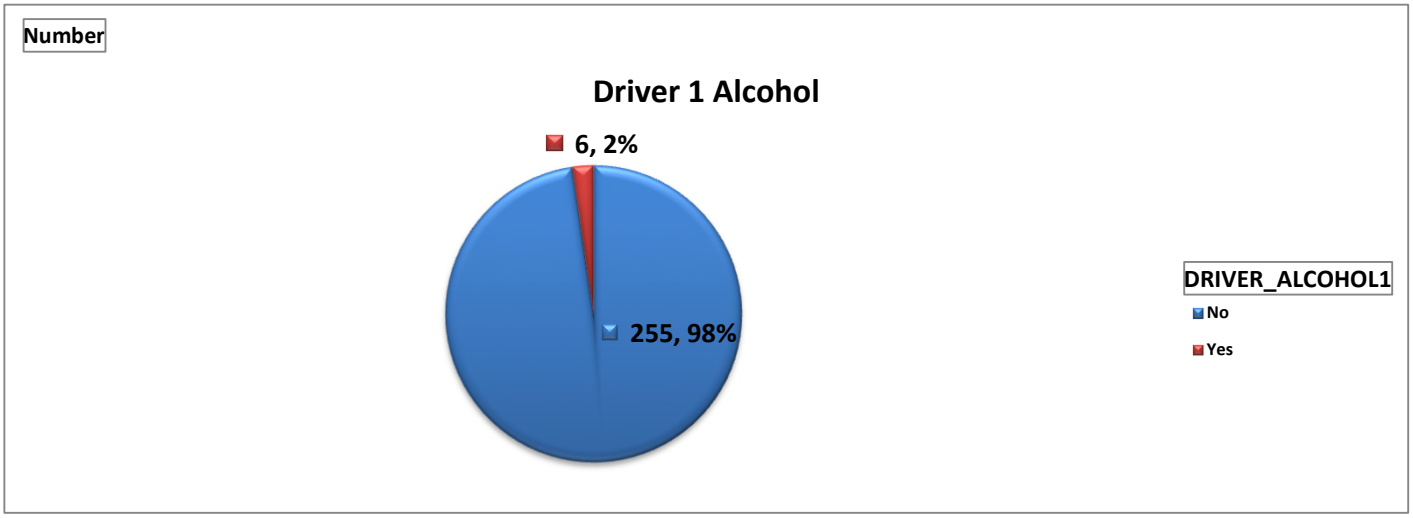
US 30

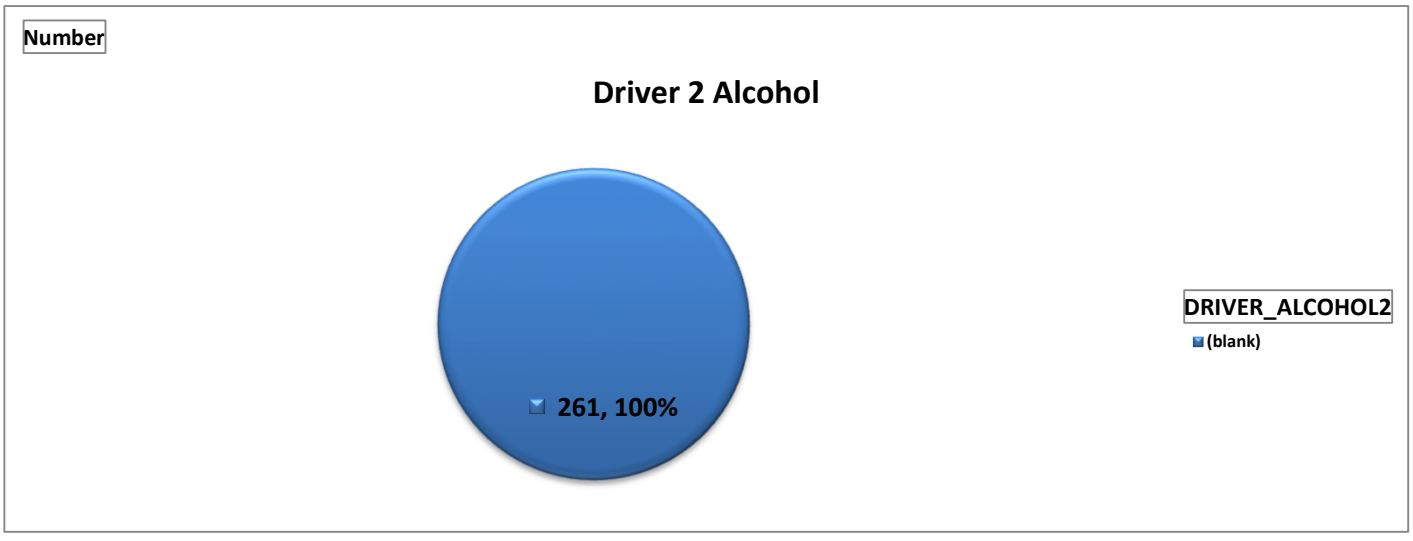

Number
Frequency of Crashes by Action 1
Backing
Data Not Valid or Not Provided
Parked
Other / Unknown
Overtaking/Passing
Making U-Turn
Leaving Traffic Lane
Making Right Turn
Slowing or Stopped In Traffic
Entering Traffic Lane
Making Left Turn
Negotiating a Curve
Changing Lanes
Straight Ahead
ACTION1
0
20
40
60
80
100
120
140
160
180
200


Number
Frequency of Crashes by Action 2
Making U-Turn
Making Right Turn
Other / Unknown
Making Left Turn
Changing Lanes
Overtaking/Passing
Parked
Slowing or Stopped In Traffic
Straight Ahead
ACTION2
0
20
40
60
80
100
120
140
160
180

US 30


Number
Frequency of Crashes by Object Struck 1
300
250
200
150
100
50
0
Total


Number
Driver 1 Alcohol
6, 2%
255, 98%
DRIVER_ALCOHOL1
No
Yes


Number
Driver 2 Alcohol
261, 100%
DRIVER_ALCOHOL2
(blank)

Select Site Type	Seg/Rur; 2-lane

Crash Severity	Site Average		Statewide Average
	Total (2017-2019)	Total (%)	Total (%)
Fatal Crash	5	1.90%	0.95%
Serious Injury Suspected Crash	17	6.46%	3.98%
Minor Injury Suspected Crash	29	11.03%	14.38%
Injury Possible Crash	11	4.18%	7.43%
Property-Damage-Only	201	76.43%	73.26%
Total	**263**		

Crashes by Crash Type				
	Total (%)		Fatal & All Injury (%)	
Crash Type	Site Average	Statewide Average	Site Average	Statewide Average
Unknown	0.40%	0.28%	0.40%	0.08%
Head On	0.76%	2.67%	0.76%	5.60%
Rear End	7.22%	9.11%	7.22%	13.67%
Backing	0.76%	1.15%	0.76%	0.64%
Sideswipe - Meeting	0.00%	0.12%	0.00%	0.15%
Sideswipe - Passing	14.45%	3.93%	14.45%	4.29%
Angle	6.84%	3.13%	6.84%	5.47%
Parked Vehicle	0.38%	0.86%	0.38%	1.03%
Pedestrian	0.00%	0.27%	0.00%	0.96%
Animal	18.25%	32.25%	18.25%	5.65%
Train	0.00%	0.02%	0.00%	0.04%
Pedalcycles	0.00%	0.14%	0.00%	0.48%
Other Non-Vehicle	0.00%	0.01%	0.00%	0.02%
Fixed Object	31.56%	36.90%	31.56%	49.03%
Other Object	3.04%	0.68%	3.04%	0.18%
Falling From Or In Vehicle	0.00%	0.00%	0.00%	0.01%
Overturning	4.56%	2.55%	4.56%	5.98%
Other Non-Collision	6.46%	1.69%	6.46%	0.93%
Left Turn	4.56%	3.72%	4.56%	5.21%
Right Turn	0.76%	0.52%	0.76%	0.58%

Crashes by Light Conditions				
	Total (%)		Fatal & All Injury (%)	
Light Conditions	Site Average	Statewide Average	Site Average	Statewide Average
Daylight	53.82%	48.09%	53.82%	61.94%
Dawn/Dusk	6.87%	0.00%	6.87%	0.00%
Dark - Lighted Roadway	4.58%	1.70%	4.58%	1.49%
Dark - Roadway Not Lighted	34.73%	42.11%	34.73%	30.87%
Dark - Unknown Roadway Lighting	0.00%	0.33%	0.00%	0.20%
Other / Unknown	0.00%	7.77%	0.00%	5.50%

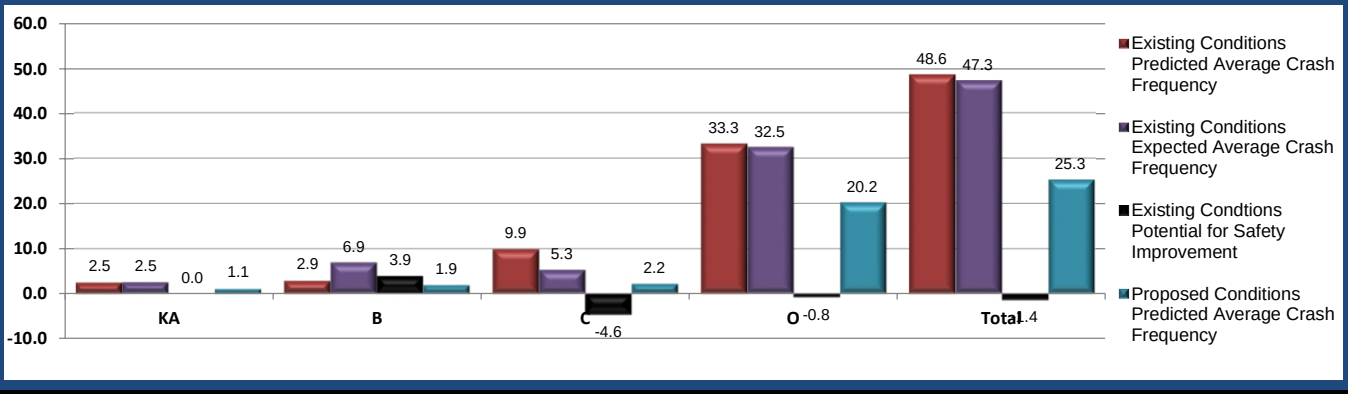
Crashes by Road Conditions				
	Total (%)		Fatal & All Injury (%)	
Road Conditions	Site Average	Statewide Average	Site Average	Statewide Average
Dry	55.68%	72.14%	55.68%	73.20%
Wet	21.97%	18.64%	21.97%	18.95%
Snow	9.85%	5.78%	9.85%	4.63%
Ice	11.36%	2.48%	11.36%	2.42%
Sand, Mud, Dirt, Oil, Gravel	0.00%	0.08%	0.00%	0.13%
Water (Standing, Moving)	0.00%	0.12%	0.00%	0.09%
Slush	0.76%	0.53%	0.76%	0.51%
Other / Unknown	0.38%	0.23%	0.38%	0.07%

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	3/21/2023
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Summary of Anticipated Safety Performance of the Project (average crashes/year)



Project Summary Results (Without Animal Crashes)

	KA	B	C	O	Total
$N_{predicted}$ - Existing Conditions	2.4981	2.9321	9.9171	33.2975	48.6448
$N_{expected}$ - Existing Conditions	2.5388	6.8723	5.3131	32.5434	47.2676
$N_{potential\ for\ improvement}$ - Existing Conditions	**0.0407**	**3.9402**	-4.6040	-0.7541	-1.3772
$N_{expected}$ - Proposed Conditions	1.0581	1.8640	2.1965	20.2197	25.3383

Project Safety Performance Report

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Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	3/21/2023
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
1; 0-0.3	US 127 to US 30 EB Ramp	0.0196	0.1362	0.1636	0.5039	0.8233
2; 0-0.3	WB US 30 to US 127 Ramp	0.0132	0.0434	0.0823	0.3012	0.4401
3; 0-0.3	EB US 30 to US 224 WB Ramp	0.0025	0.0409	0.0493	0.1742	0.2669
4; 0-0.3	US 224 to US 30 WB Ramp	0.0241	0.0684	0.0862	0.2245	0.4032
RA81020; 0-0.384	US 30 from Klinger Road to Krick Road	0.0587	0.0587	0.2104	0.6911	1.0189
RA81022; 0-0.367	US 30 from Krick Road to Mentzer Church Roa	0.0676	0.0676	0.2422	0.7939	1.1713
RA81024; 0.01-0.336	US 30 from Mentzer Church Road to Elm Suga	0.025	0.025	0.0906	0.2956	0.4362
RA81027; 0.001-0.705	US 30 from Elm Sugar Road to Lare Road	0.0953	0.0953	0.3426	1.1221	1.6553
US224; 11.877-12.213	US 30 from Lare Road to Feasby Wisener Roa	0.0505	0.0505	0.1814	0.593	0.8754
US224; 14.216-14.495	US 30 from Feasby Wisener Road to Payne R	0.0719	0.0719	0.2589	0.8439	1.2466
US224N; 11.853-12.52	US 30 from Payne Road to Dixon Cavett Road	0.0775	0.0775	0.2769	0.9142	1.3461
US224N; 14.442-14.69	US 30 from Dixon Cavett Road to Convoy-Hell	0.0764	0.0764	0.2736	0.9029	1.3293
US30; 0-15.044	US 30 from Convoy-Heller Road to Colwell Ro	0.1634	0.1634	0.586	1.9202	2.833

Project Safety Performance Report

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Reference Number	PID #113196	Date Performed	3/21/2023
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Expected Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
1; 0-0.3	US 127 to US 30 EB Ramp	0.0184	0.1303	0.1567	0.433	0.7384
2; 0-0.3	WB US 30 to US 127 Ramp	0.0137	0.0455	0.0812	0.2722	0.4126
3; 0-0.3	EB US 30 to US 224 WB Ramp	0.0024	0.0399	0.0486	0.1663	0.2572
4; 0-0.3	US 224 to US 30 WB Ramp	0.0236	0.067	0.085	0.2076	0.3832
RA81020; 0-0.384	US 30 from Klinger Road to Krick Road	0.0586	0.1506	0.0815	0.4783	0.769
RA81022; 0-0.367	US 30 from Krick Road to Mentzer Church Roa	0.0614	0.1577	0.0855	0.7933	1.0979
RA81024; 0.01-0.336	US 30 from Mentzer Church Road to Elm Suga	0.0228	0.0587	0.0319	0.2841	0.3975
RA81027; 0.001-0.705	US 30 from Elm Sugar Road to Lare Road	0.0973	0.2497	0.1354	1.196	1.6784
US224; 11.877-12.213	US 30 from Lare Road to Feasby Wisener Roa	0.046	0.118	0.0638	0.6671	0.8949
US224; 14.216-14.495	US 30 from Feasby Wisener Road to Payne R	0.0759	0.1952	0.1055	0.825	1.2016
US224N; 11.853-12.52	US 30 from Payne Road to Dixon Cavett Road	0.0699	0.1793	0.0969	0.6605	1.0066
US224N; 14.442-14.69	US 30 from Dixon Cavett Road to Convoy-Hell	0.069	0.1769	0.0958	0.5506	0.8923
US30; 0-15.044	US 30 from Convoy-Heller Road to Colwell Ro	0.1591	0.4084	0.2212	1.695	2.4837

Project Safety Performance Report

General Information

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Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	3/21/2023
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Potential for Safety Improvement Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
1; 0-0.3	US 127 to US 30 EB Ramp	-0.0012	-0.0059	-0.0069	-0.0709	-0.0849
2; 0-0.3	WB US 30 to US 127 Ramp	**0.0005**	**0.0021**	-0.0011	-0.029	-0.0275
3; 0-0.3	EB US 30 to US 224 WB Ramp	-0.0001	-0.001	-0.0007	-0.0079	-0.0097
4; 0-0.3	US 224 to US 30 WB Ramp	-0.0005	-0.0014	-0.0012	-0.0169	-0.02
RA81020; 0-0.384	US 30 from Klinger Road to Krick Road	-0.0001	**0.0919**	-0.1289	-0.2128	-0.2499
RA81022; 0-0.367	US 30 from Krick Road to Mentzer Church Roa	-0.0062	**0.0901**	-0.1567	-0.0006	-0.0734
RA81024; 0.01-0.336	US 30 from Mentzer Church Road to Elm Suga	-0.0022	**0.0337**	-0.0587	-0.0115	-0.0387
RA81027; 0.001-0.705	US 30 from Elm Sugar Road to Lare Road	**0.002**	**0.1544**	-0.2072	**0.0739**	**0.0231**
US224; 11.877-12.213	US 30 from Lare Road to Feasby Wisener Roa	-0.0045	**0.0675**	-0.1176	**0.0741**	**0.0195**
US224; 14.216-14.495	US 30 from Feasby Wisener Road to Payne R	**0.004**	**0.1233**	-0.1534	-0.0189	-0.045
US224N; 11.853-12.52	US 30 from Payne Road to Dixon Cavett Road	-0.0076	**0.1018**	-0.18	-0.2537	-0.3395
US224N; 14.442-14.69	US 30 from Dixon Cavett Road to Convoy-Hell	-0.0074	**0.1005**	-0.1778	-0.3523	-0.437
US30; 0-15.044	US 30 from Convoy-Heller Road to Colwell Ro	-0.0043	**0.245**	-0.3648	-0.2252	-0.3493

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	3/21/2023
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Proposed Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
1; 0-0.3	SR 49 to US 30 EB Ramp	0.0046	0.0129	0.0172	0.0355	0.0702
2; 0-0.3	US 30 EB to SR 49 Ramp	0.0112	0.037	0.0696	0.2591	0.3769
3; 0-0.3	SR 49 to US 30 WB Ramp	0.0072	0.0202	0.0261	0.0621	0.1156
4; 0-0.3	US 30 WB to SR 49 Ramp	0.0017	0.0281	0.0343	0.1214	0.1855
RA81020; 0-0.384	US 127 to US 30 EB Ramp	0.0295	0.2006	0.2408	0.8643	1.3352
RA81022; 0-0.367	WB US 30 to US 127 Ramp	0.0201	0.0662	0.1223	0.5217	0.7303
RA81024; 0.01-0.336	EB US 30 to US 224 WB Ramp	0.0039	0.0624	0.0742	0.3086	0.4491
RA81027; 0.001-0.705	US 224 to US 30 WB Ramp	0.0397	0.1146	0.1408	0.4448	0.7399
US224; 11.877-12.213	US 224 to US 30 EB Ramp	0.0339	0.0981	0.1196	0.3954	0.647
US224; 14.216-14.495	EB US 30 to US 127 Ramp	0.0247	0.0814	0.1515	0.7138	0.9714
US224N; 11.853-12.52	WB US 30 to US 224 WB Ramp	0.0076	0.1226	0.146	0.5762	0.8524
US224N; 14.442-14.69	US 127 to US 30 WB Ramp	0.0247	0.1706	0.2048	0.8909	1.291
US30; 0-15.044	US 30	0.8493	0.8493	0.8493	15.0259	17.5738

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	3/21/2023
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Summary by Crash Type

Crash Type	Existing			Proposed
	Predicted Crash Frequency	Expected Crash Frequency	PSI	Predicted Crash Frequency
Unknown	0.3011	0.1403	-0.1608	0.3011
Head On	0.0627	0.0475	-0.0152	0.0627
Rear End	5.6552	4.1881	-1.4671	5.6552
Backing	0.2317	0.1279	-0.1038	0.2317
Sideswipe - Meeting	0.3167	0.1652	-0.1515	0.3167
Sideswipe - Passing	3.8621	2.3903	-1.4718	3.8621
Angle	1.1094	0.6572	-0.4522	1.1094
Parked Vehicle	0.4904	0.3007	-0.1897	0.4904
Pedestrian	0.0949	0.0653	-0.0296	0.0949
Animal	31.9231	15.7158	-16.2073	31.9231
Train	0.0000	0.0000	0.0000	0.0000
Pedalcycles	0.0280	0.0198	-0.0082	0.0280
Other Non-Vehicle	0.0000	0.0000	0.0000	0.0000
Fixed Object	9.5797	5.8483	-3.7314	9.5797
Other Object	1.0952	0.4474	-0.6478	1.0952
Overturning	0.9017	0.6985	-0.2032	0.9017
Other Non-Collision	1.3101	0.5751	-0.7350	1.3101
Left Turn	0.2994	0.1610	-0.1384	0.2994
Right Turn	0.0000	0.0000	0.0000	0.0000

Safety Benefit - Cost Analysis

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	3/21/2023
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Select Site Types to be used in Benefit-Cost Analysis:

All Sites

Comments:

Countermeasure Service Lives, Costs, and Safety Benefits

Countermeasures	Service Life (Years)	Initial Cost of Countermeasure	Annual Maintenance & Energy Costs	Salvage Value	Net Present Cost of Countermeasure	Total Cost of Countermeasures	Summary of Annual Crash Modifications	Net Present Value of Safety Benefits
Site Characteristic Improvements (i.e. Lane widening)	25	$33,846,000.00			$33,846,000.00	$33,846,000.00	-23.307	$23,726,821
Site Characteristic Improvements (i.e. Lighting)	25	$0.00			$0.00	$0.00		
Site Characteristic Improvements (i.e. Signal Phasing)	25	$0.00			$0.00	$0.00		
Site Characteristic Improvements (i.e. Added Right Turn Lane)	25	$0.00			$0.00	$0.00		
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
Totals		**$33,846,000.00**	**$0.00**	**$0.00**	**$33,846,000.00**	**$33,846,000.00**	**-23.307**	**$23,726,821**

Safety Benefit - Cost Analysis

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
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Reference Number	PID #113196	Date Performed	3/21/2023
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Benefit - Cost Calculator

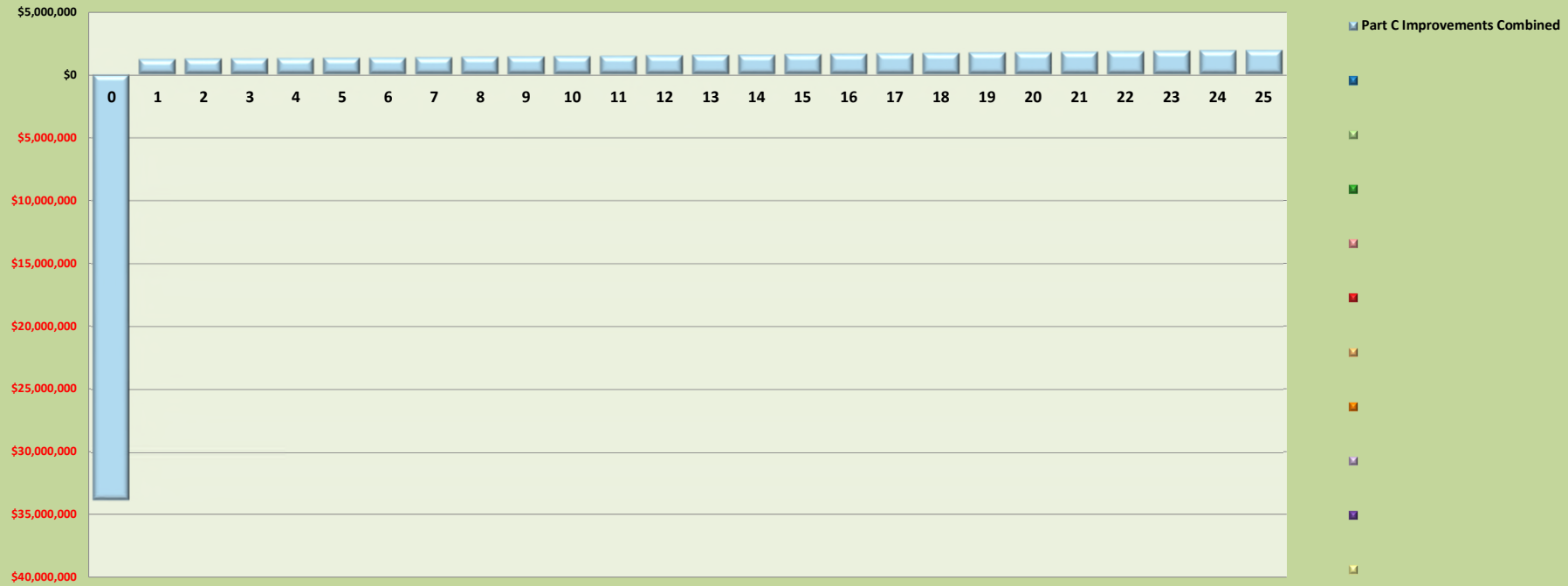
Net Present Value of Project	$33,846,000.00
Net Present Value of Safety Benefits	$23,726,820.93
Net Benefit	($10,119,179.07)
Benefit / Cost Ratio	0.70

Expected Annual Crash Adjustment

Number of Fatal & Incapacitating Injury Crashes	-1.440
Number of Injury Crashes	-10.229
Number of Total Crashes	-23.307

Comments:

Safety Benefits and Project Costs Combined Cash Flows By Countermeasure Per Year

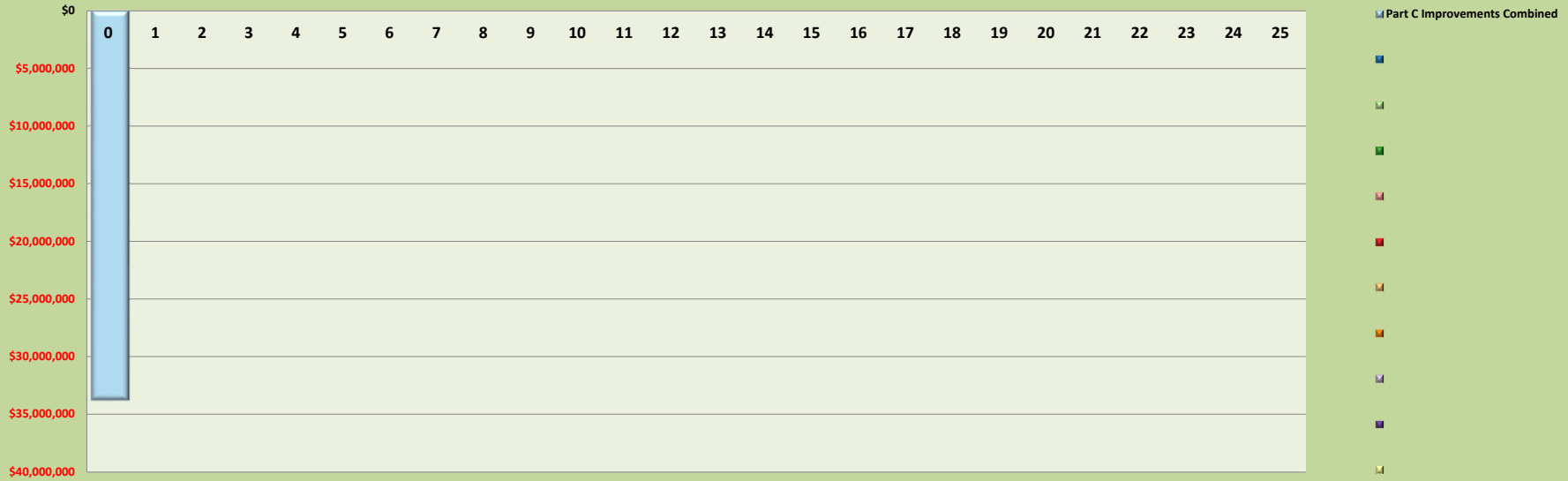


Safety Benefit - Cost Analysis

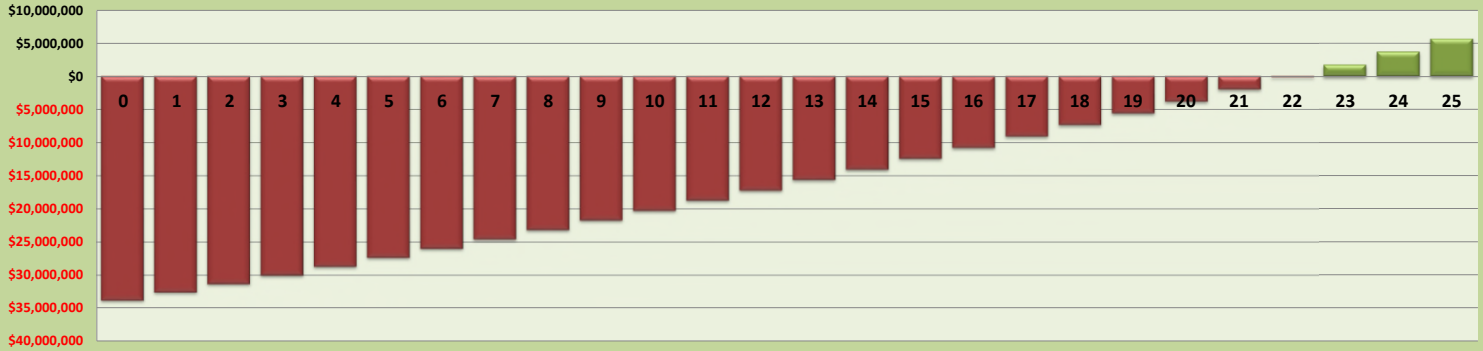
General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	3/21/2023
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Project Costs Only Cash Flows By Countermeasure Per Year



Return on Investment (Safety Benefits and Project Investments)



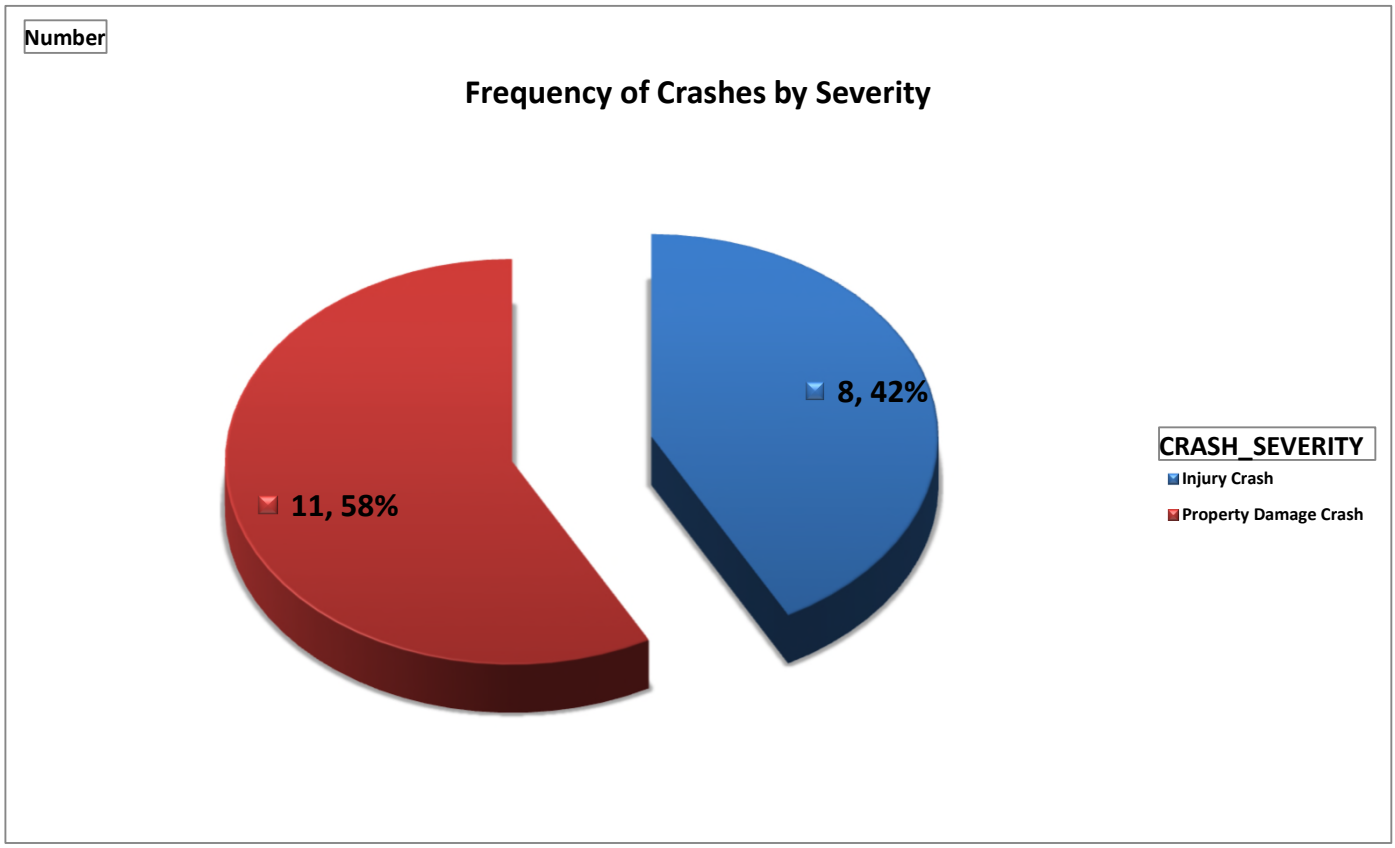
First year to observe a positive return on investiment: 2070 (23 years)

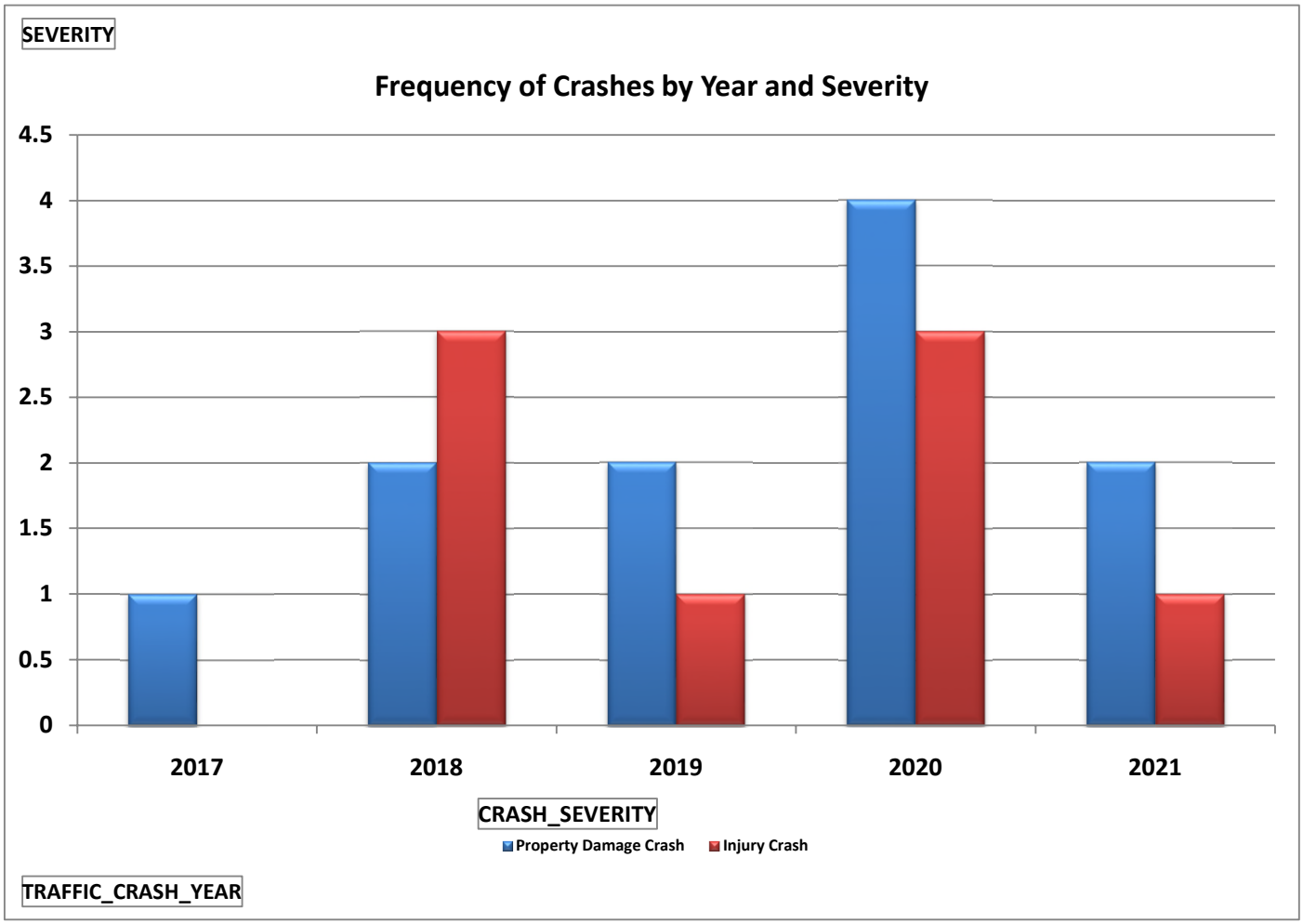
Percentage of Service Life to observe a continuous Positive Return on Investment: 12.00%

Appendix D

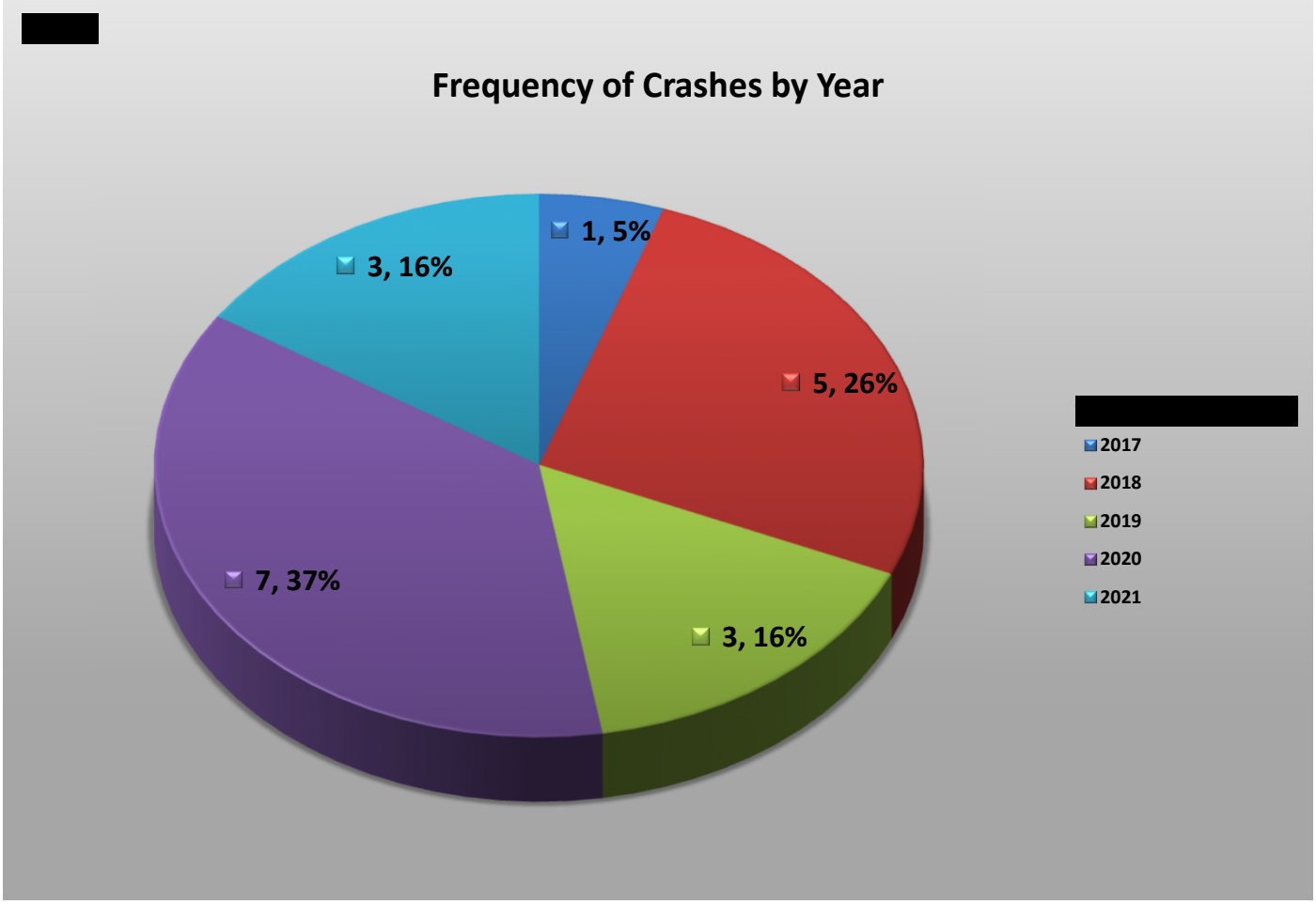
Safety - U.S. 224 and the Lincoln Highway - Roundabout

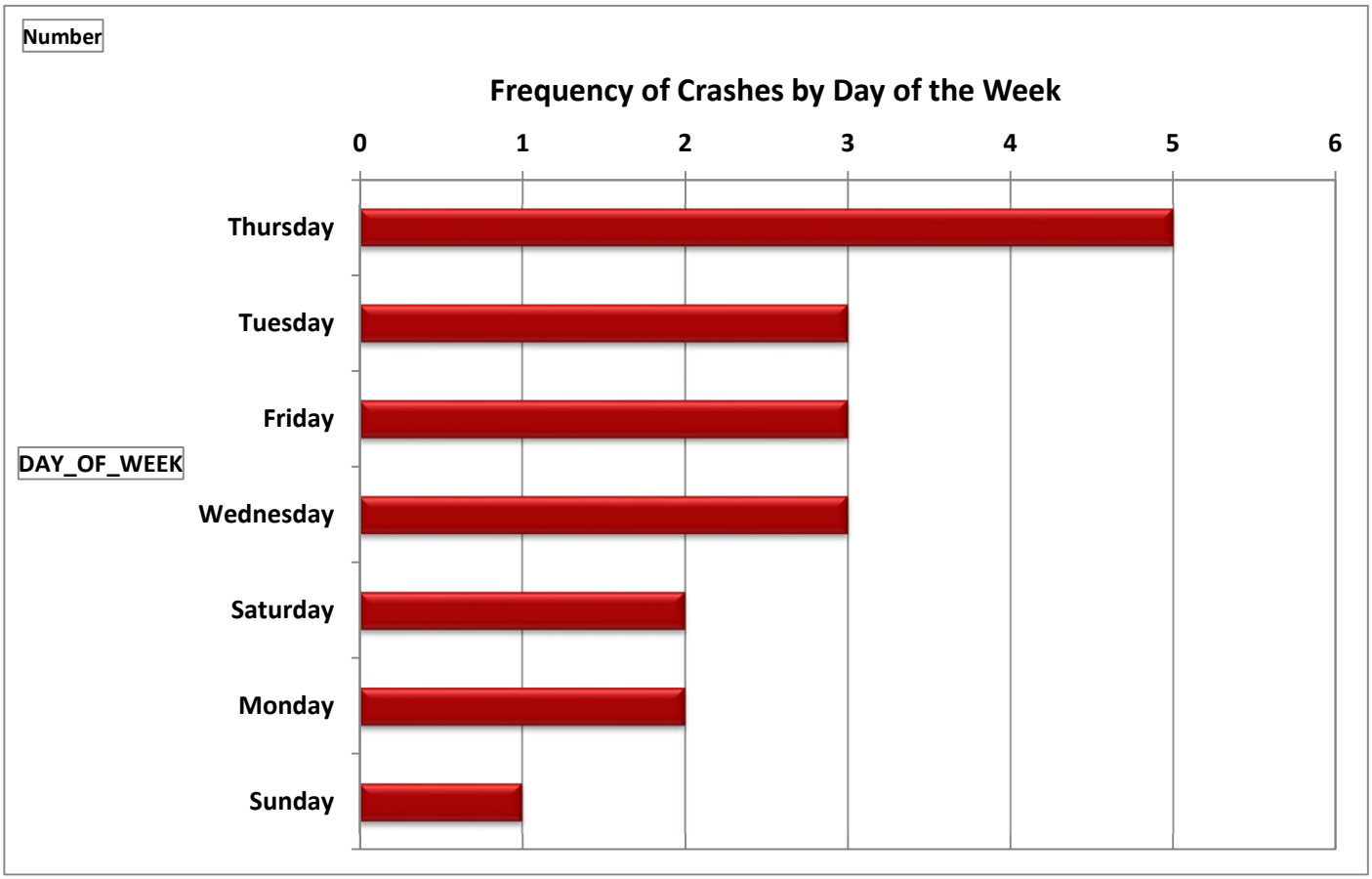
US 224 and Lincoln Hwy





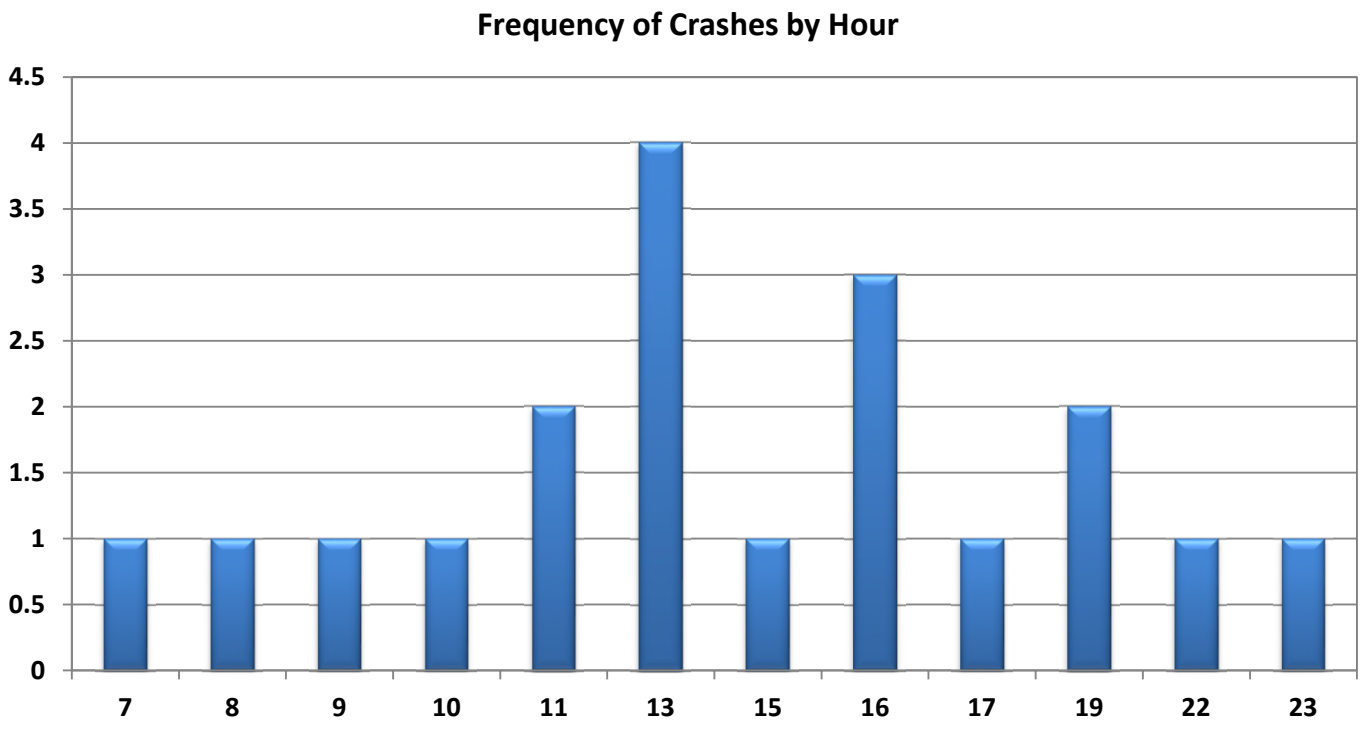
US 224 and Lincoln Hwy





US 224 and Lincoln Hwy

[redacted]



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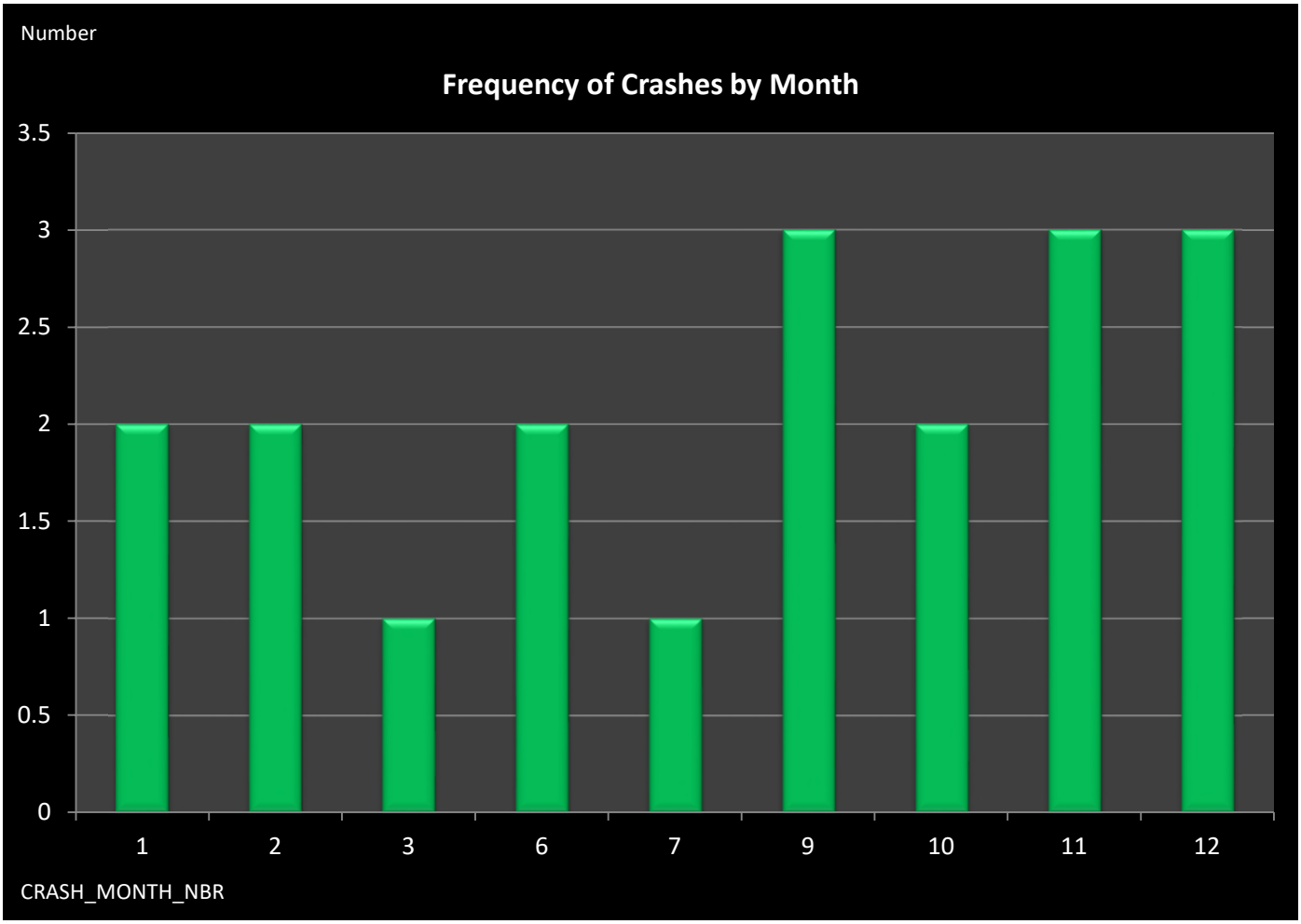
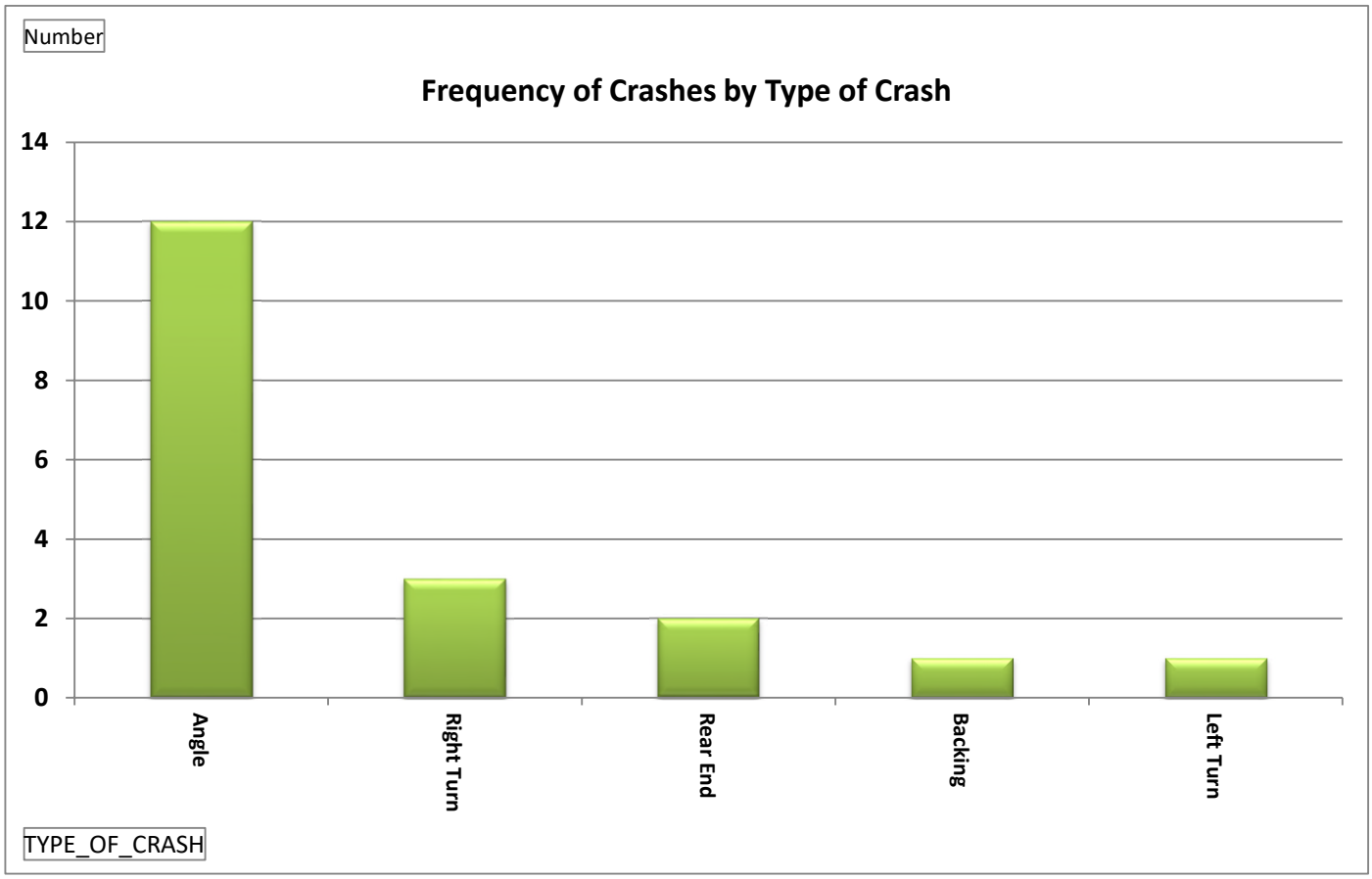
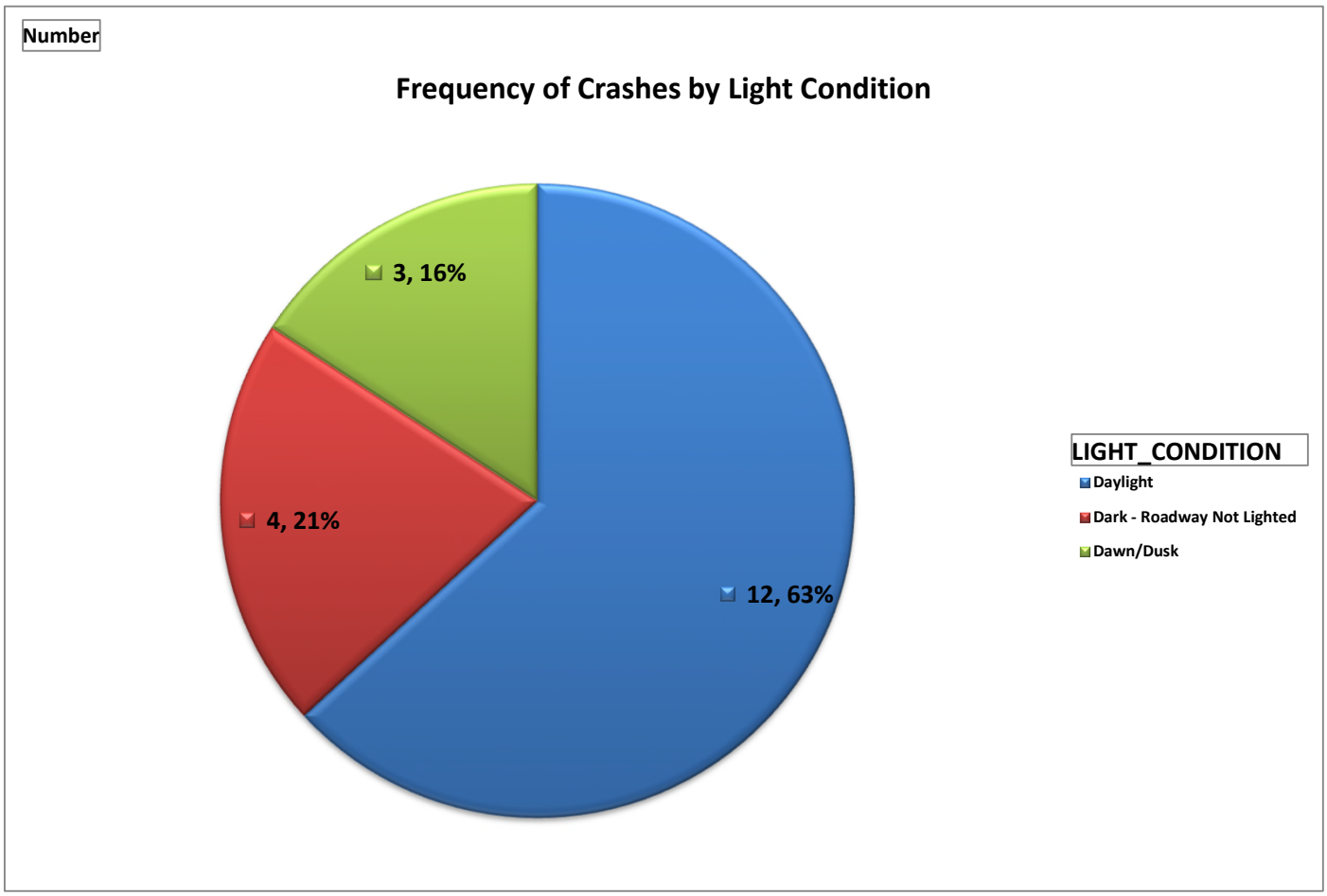
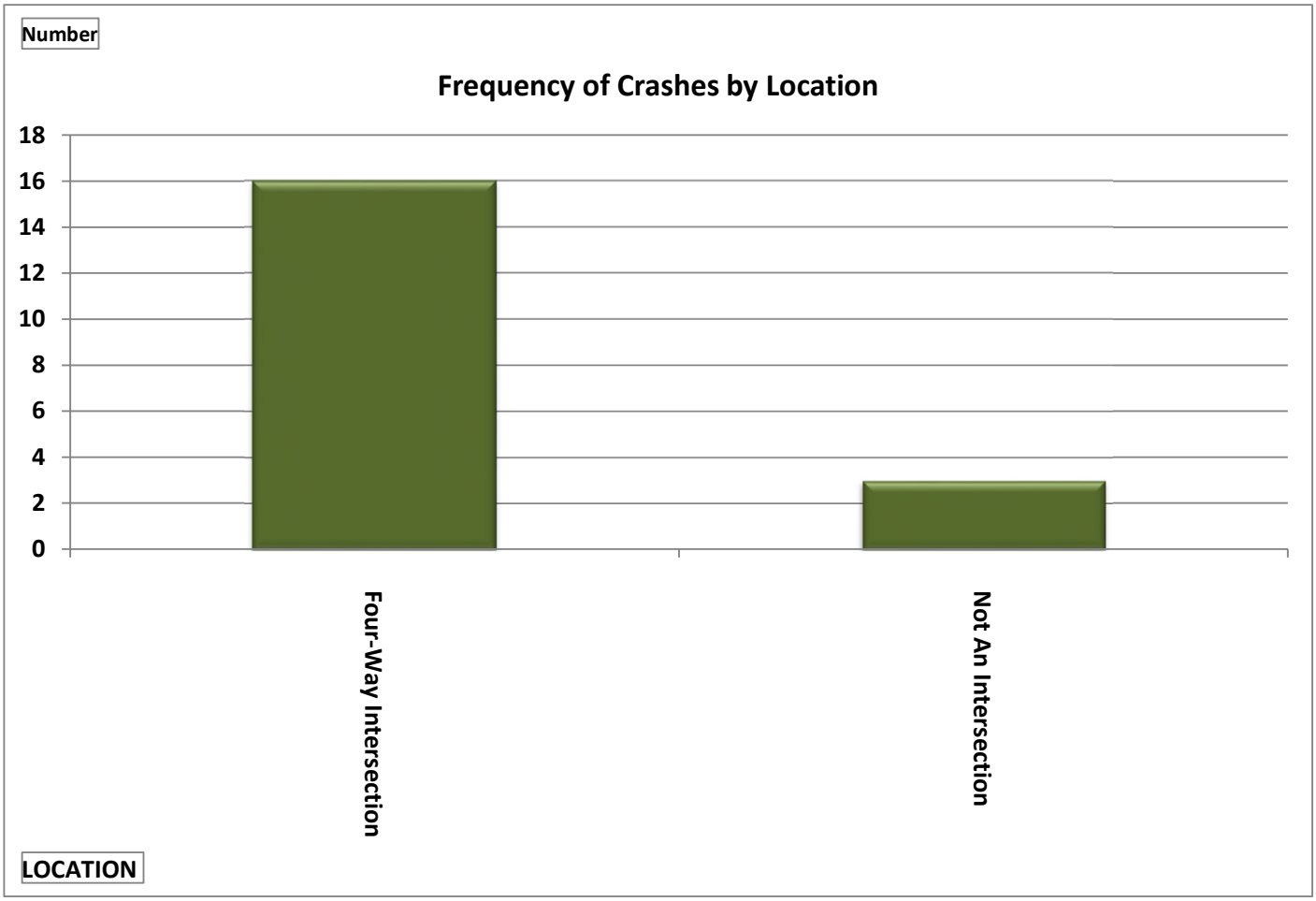


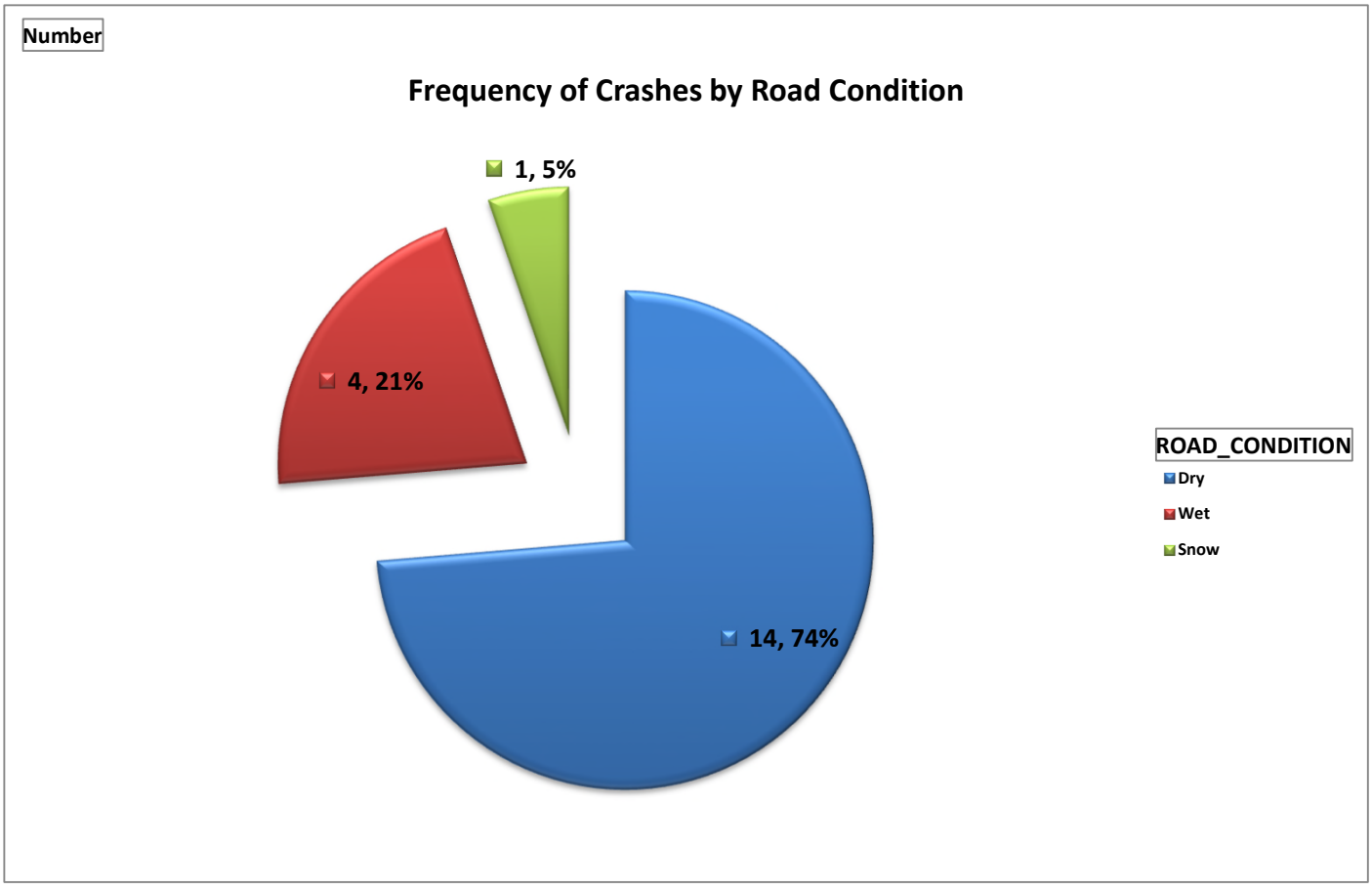
US 224 and Lincoln Hwy



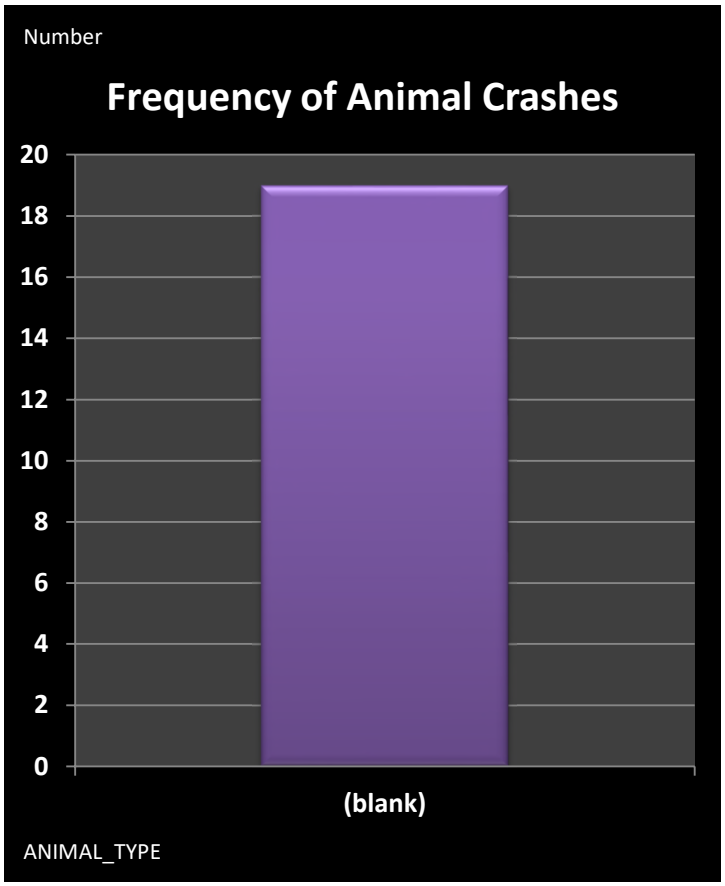


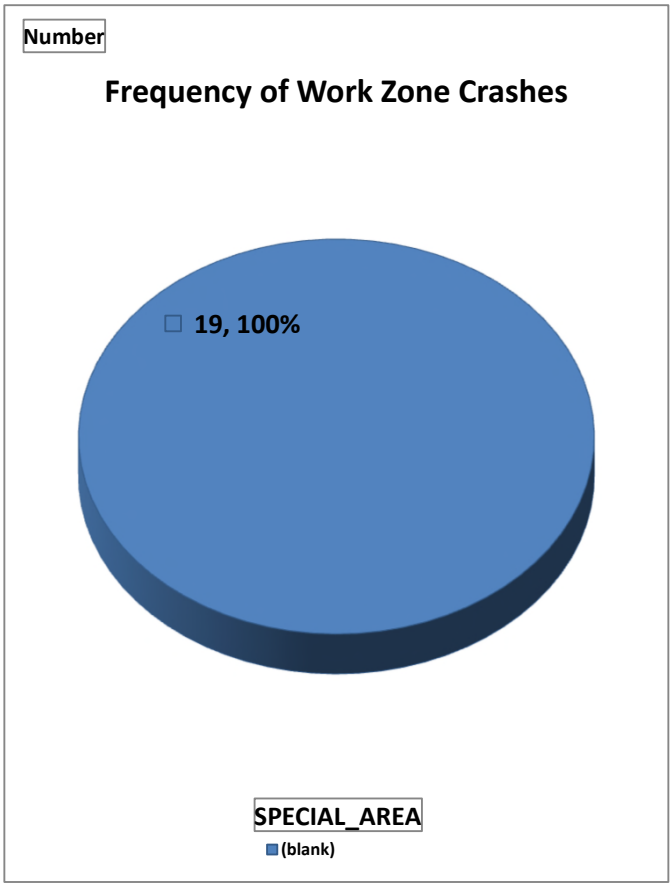
US 224 and Lincoln Hwy

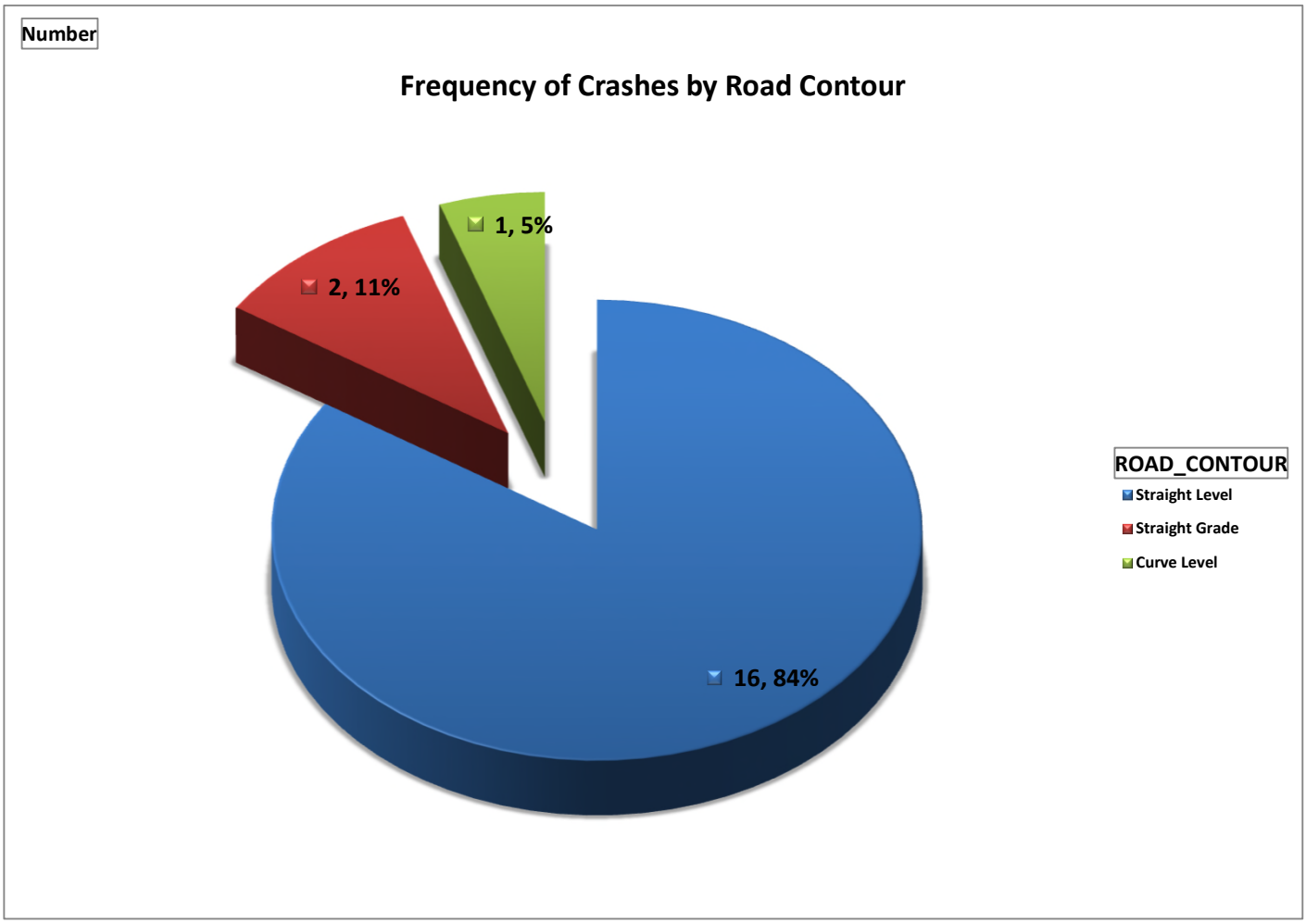




US 224 and Lincoln Hwy







US 224 and Lincoln Hwy

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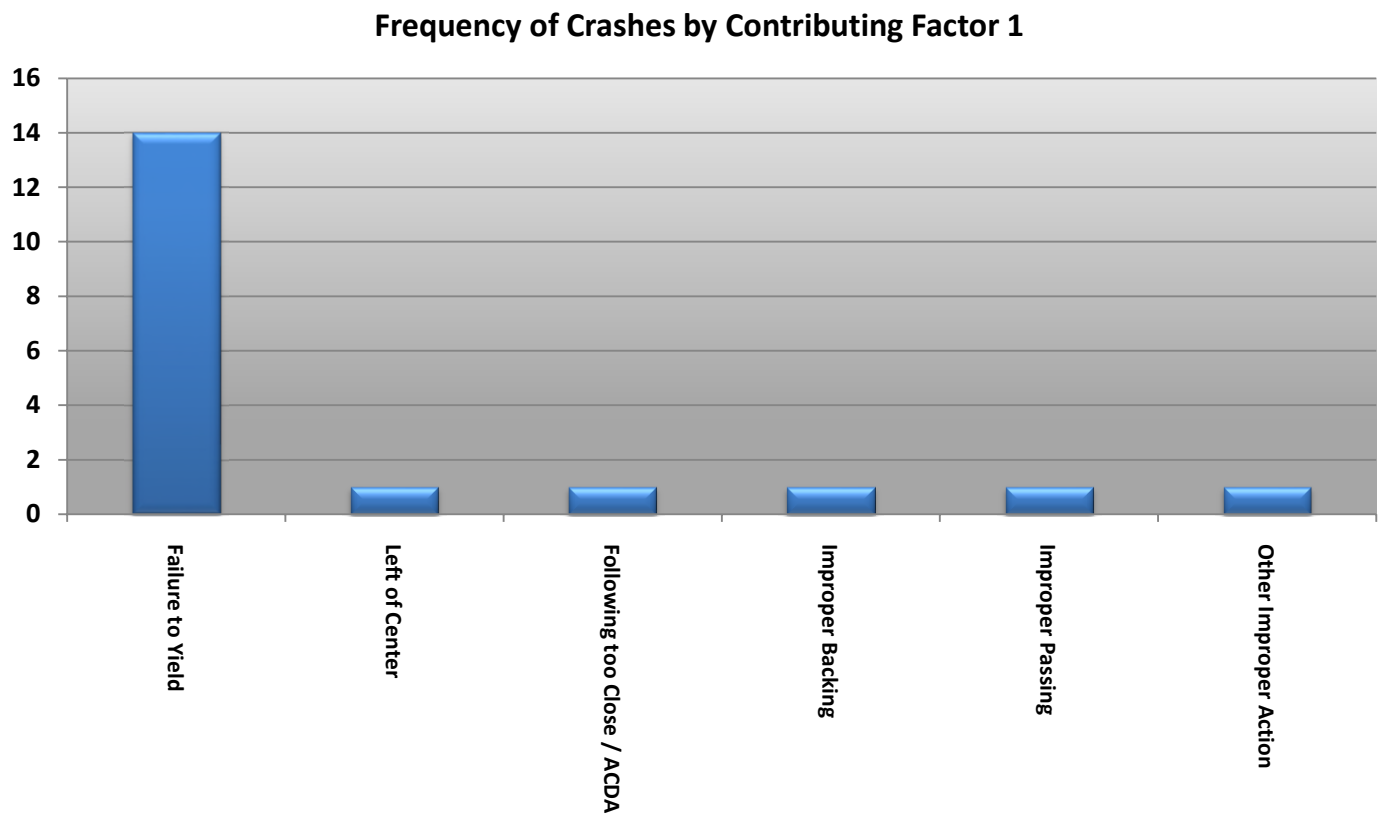

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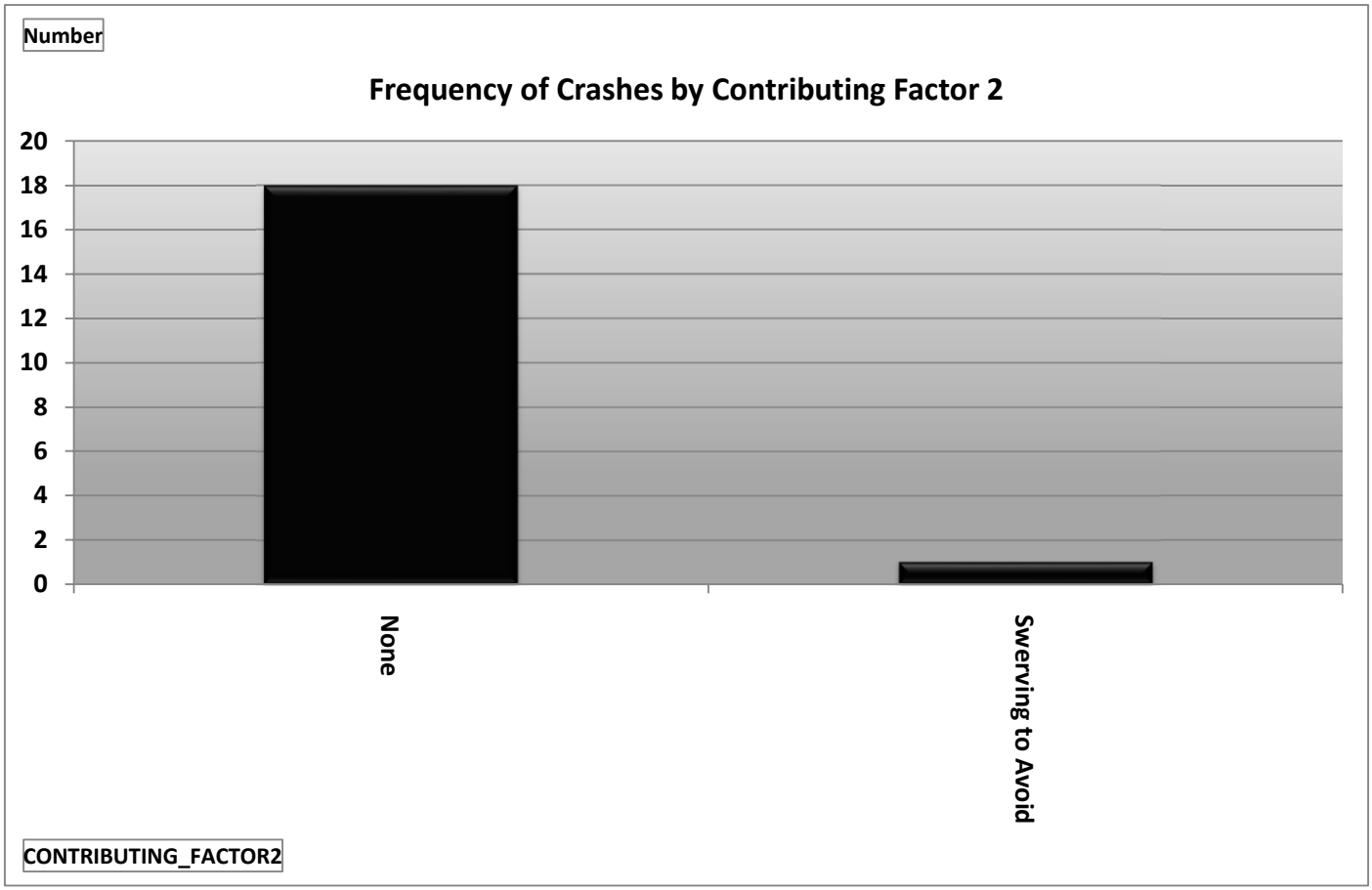
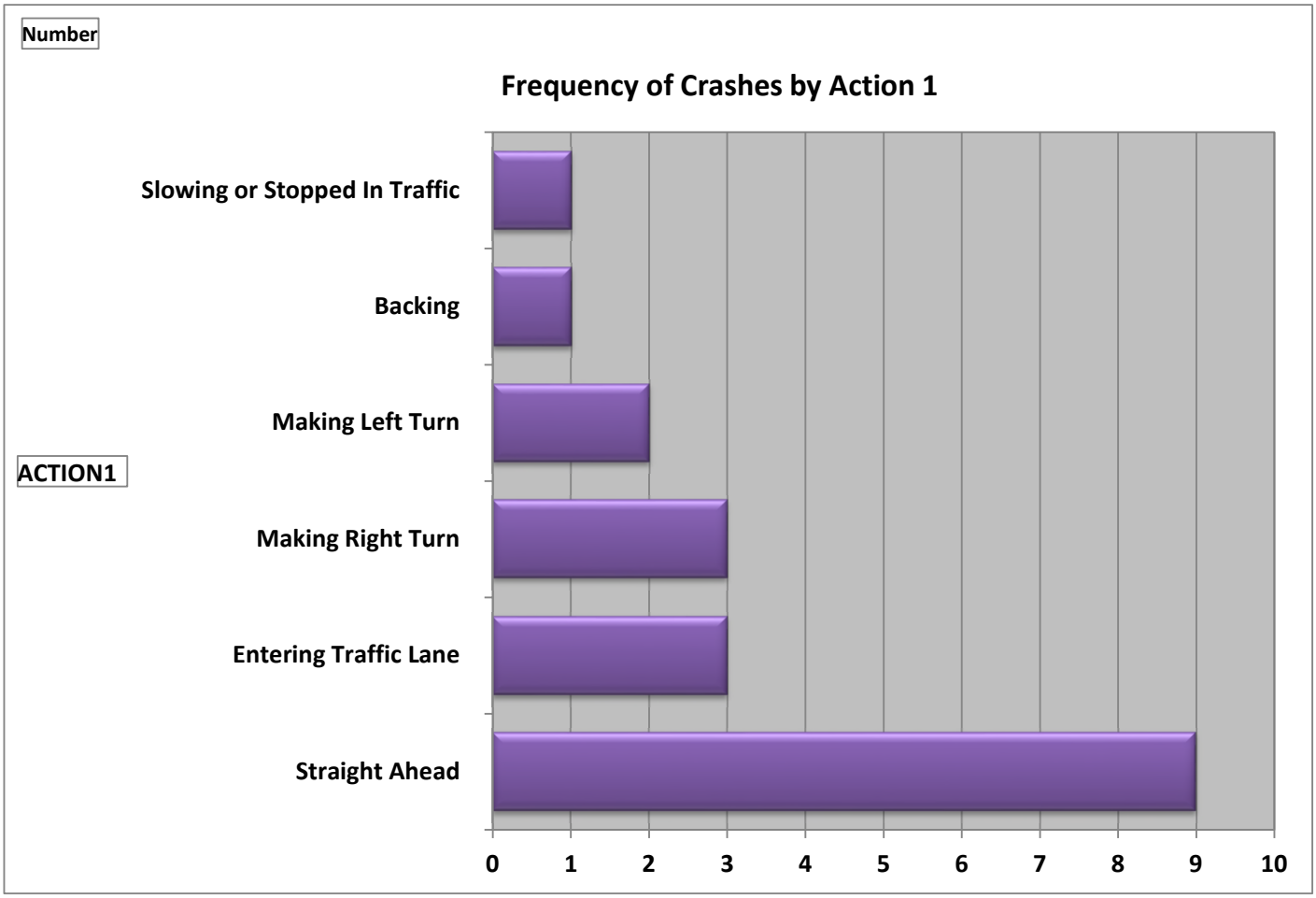
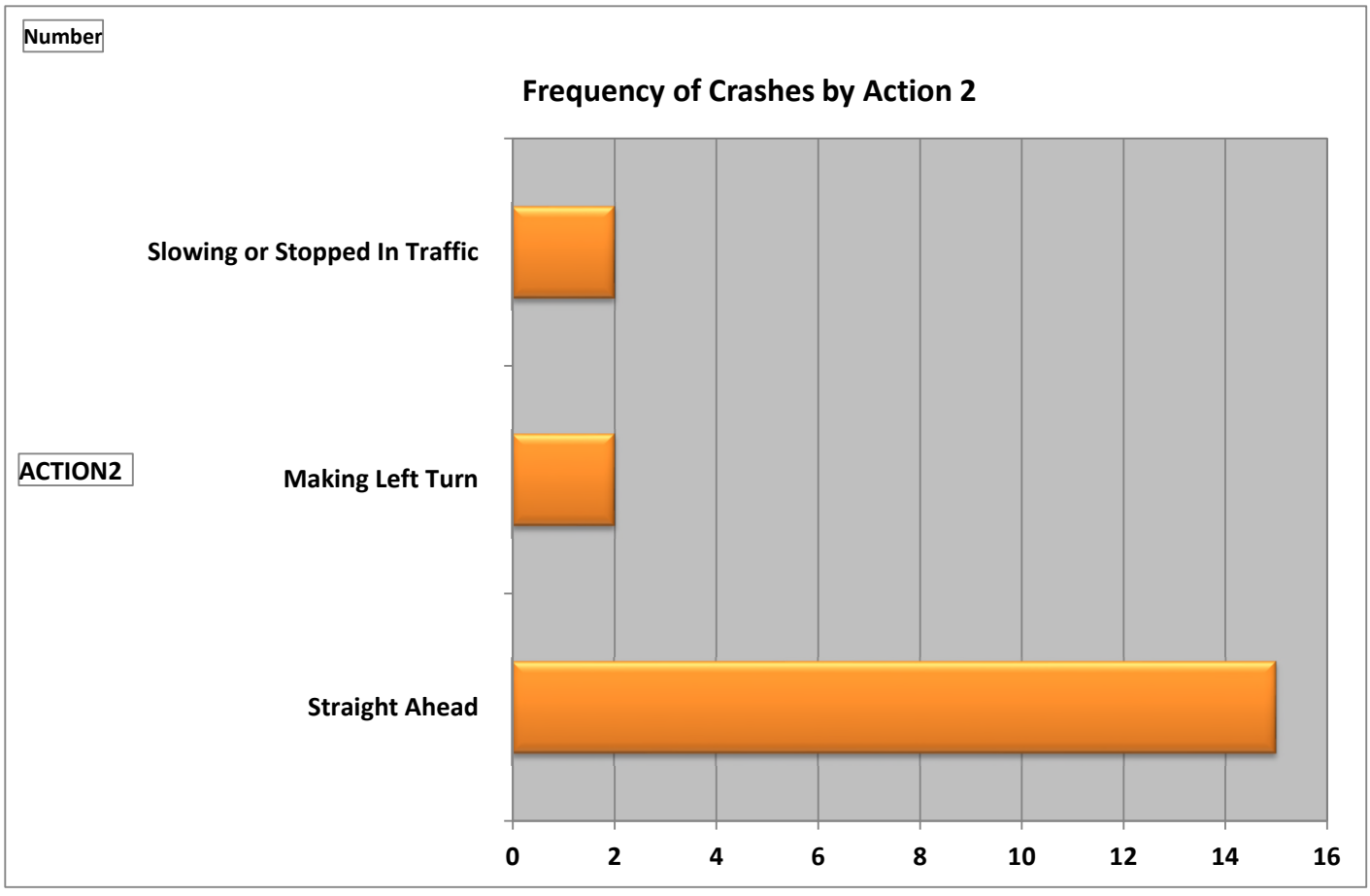
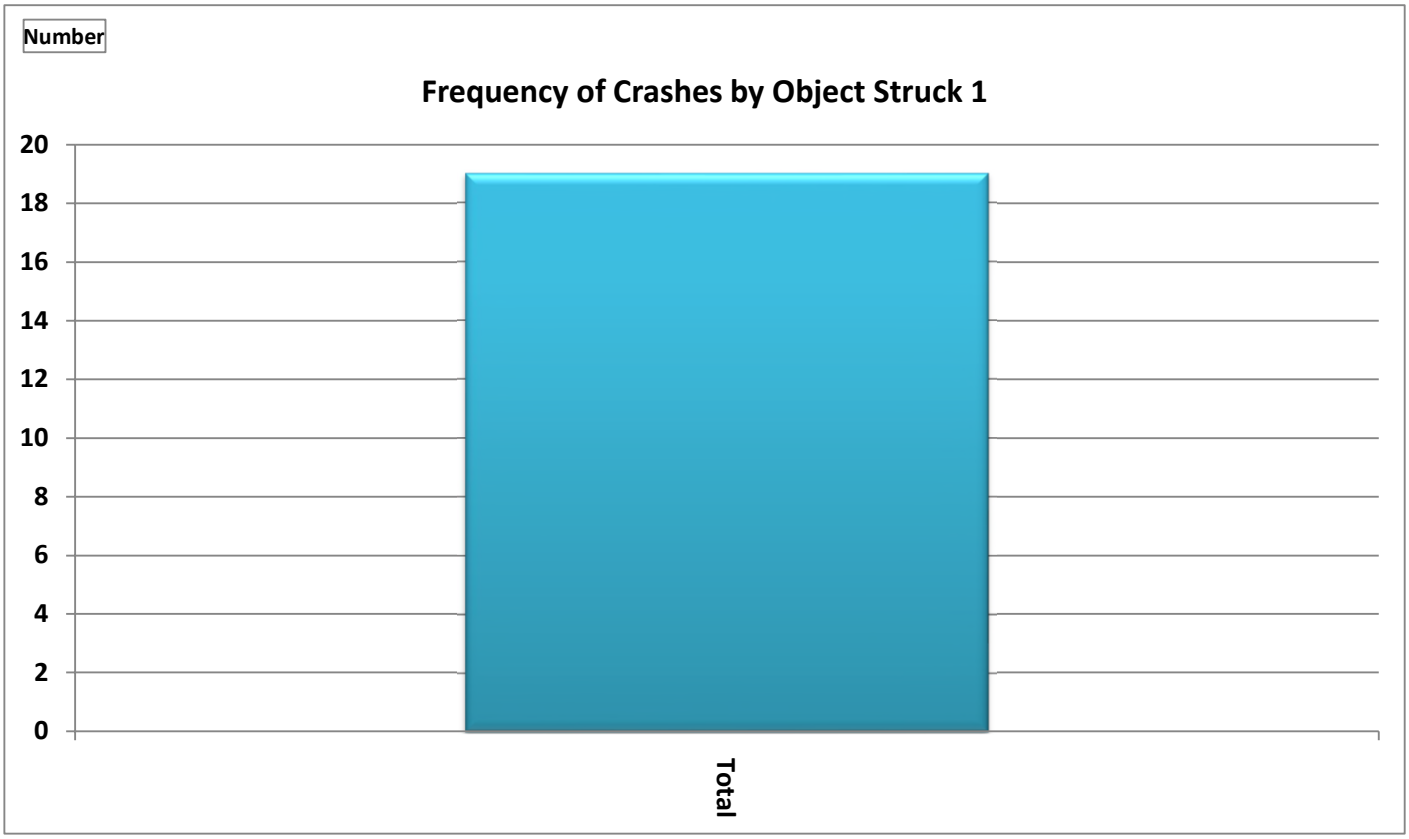


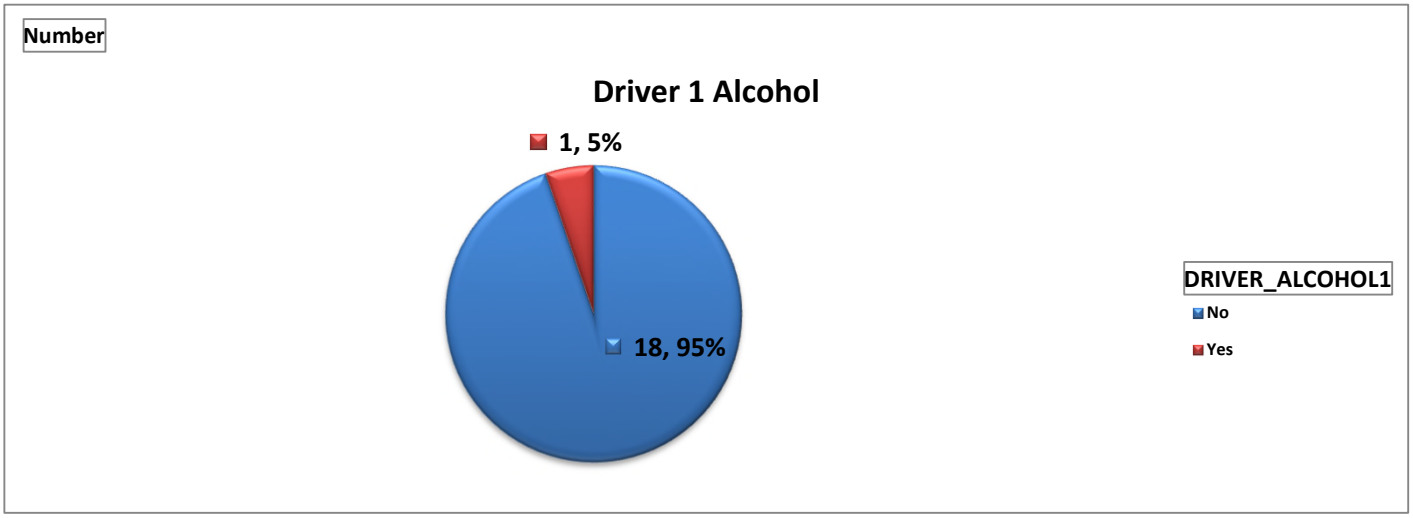
US 224 and Lincoln Hwy

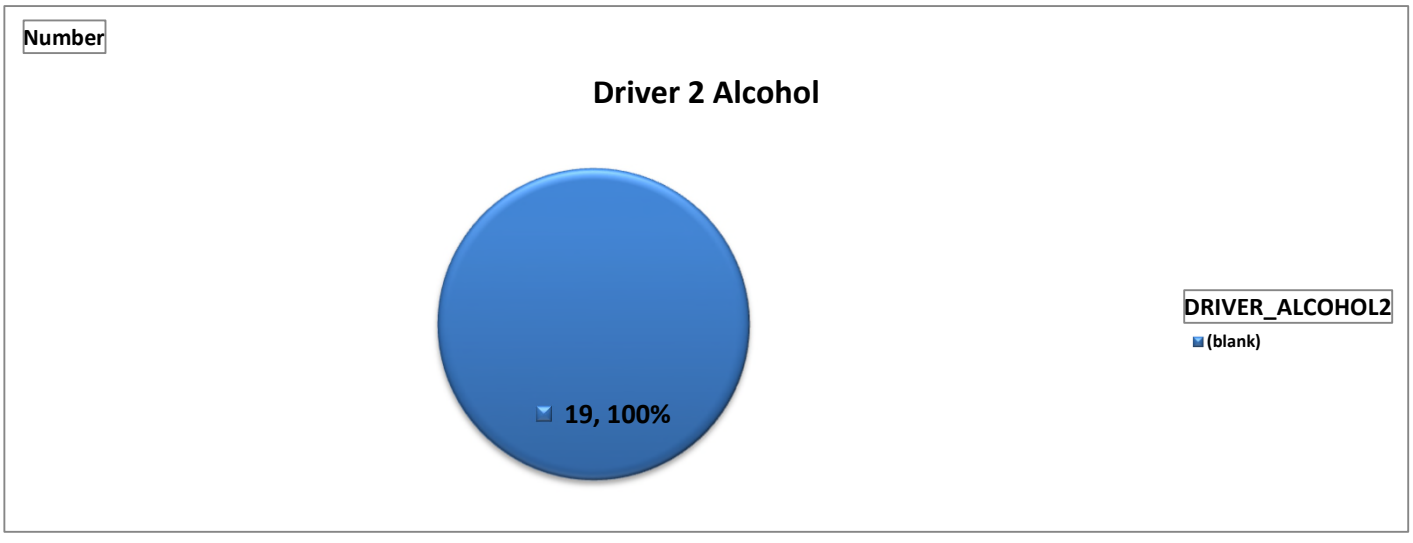




US 224 and Lincoln Hwy







Select Site Type	Seg/Rur; 2-lane

Crash Severity	Site Average		Statewide Average
	Total (2017-2021)	Total (%)	Total (%)
Fatal Crash	0	0.00%	0.93%
Serious Injury Suspected Crash	1	5.26%	4.50%
Minor Injury Suspected Crash	7	36.84%	14.06%
Injury Possible Crash	0	0.00%	7.65%
Property-Damage-Only	11	57.89%	72.86%
Total	**19**		

Crashes by Crash Type				
	Total (%)		Fatal & All Injury (%)	
Crash Type	Site Average	Statewide Average	Site Average	Statewide Average
Unknown	0.00%	0.19%	0.00%	0.12%
Head On	0.00%	2.86%	0.00%	5.74%
Rear End	10.53%	10.26%	0.00%	15.40%
Backing	5.26%	1.12%	0.00%	0.56%
Sideswipe - Meeting	0.00%	2.30%	0.00%	3.00%
Sideswipe - Passing	0.00%	3.66%	0.00%	3.92%
Angle	63.16%	2.36%	75.00%	4.64%
Parked Vehicle	0.00%	0.81%	0.00%	0.79%
Pedestrian	0.00%	0.26%	0.00%	0.88%
Animal	0.00%	33.28%	0.00%	5.60%
Train	0.00%	0.02%	0.00%	0.03%
Pedalcycles	0.00%	0.14%	0.00%	0.48%
Other Non-Vehicle	0.00%	0.01%	0.00%	0.04%
Fixed Object	0.00%	34.58%	0.00%	47.05%
Other Object	0.00%	0.92%	0.00%	0.21%
Falling From Or In Vehicle	0.00%	0.00%	0.00%	0.00%
Overturning	0.00%	2.75%	0.00%	6.35%
Other Non-Collision	0.00%	1.30%	0.00%	0.54%
Left Turn	5.26%	2.66%	12.50%	4.09%
Right Turn	15.79%	0.52%	12.50%	0.56%

Crashes by Light Conditions				
	Total (%)		Fatal & All Injury (%)	
Light Conditions	Site Average	Statewide Average	Site Average	Statewide Average
Daylight	63.16%	48.48%	62.50%	63.03%
Dawn/Dusk	15.79%	6.46%	25.00%	4.79%
Dark - Lighted Roadway	0.00%	1.78%	0.00%	1.47%
Dark - Roadway Not Lighted	21.05%	42.57%	12.50%	30.27%
Dark - Unknown Roadway Lighting	0.00%	0.28%	0.00%	0.16%
Other / Unknown	0.00%	0.43%	0.00%	0.28%

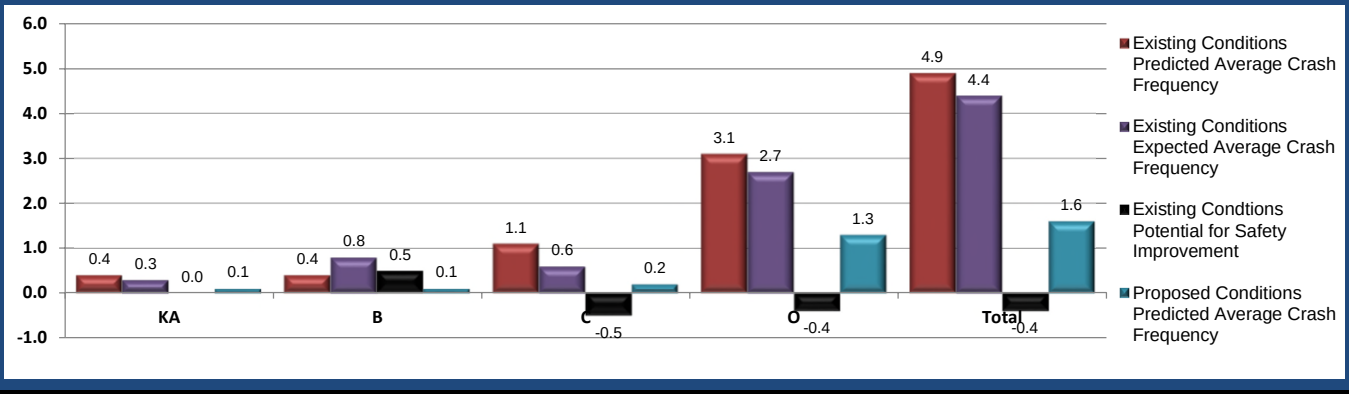
Crashes by Road Conditions				
	Total (%)		Fatal & All Injury (%)	
Road Conditions	Site Average	Statewide Average	Site Average	Statewide Average
Dry	70.00%	69.75%	66.67%	69.58%
Wet	20.00%	18.12%	22.22%	19.13%
Snow	5.00%	8.08%	0.00%	7.31%
Ice	0.00%	3.11%	0.00%	3.16%
Sand, Mud, Dirt, Oil, Gravel	0.00%	0.04%	0.00%	0.06%
Water (Standing, Moving)	0.00%	0.10%	0.00%	0.08%
Slush	0.00%	0.54%	0.00%	0.55%
Other / Unknown	5.00%	0.26%	11.11%	0.13%

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Summary of Anticipated Safety Performance of the Project (average crashes/year)



Project Summary Results (Without Animal Crashes)

	KA	B	C	O	Total
$N_{predicted}$ - Existing Conditions	0.3537	0.3537	1.0748	3.0687	4.8509
$N_{expected}$ - Existing Conditions	0.3430	0.8311	0.5536	2.7005	4.4282
$N_{potential\ for\ improvement}$ - Existing Conditions	-0.0107	**0.4774**	-0.5212	-0.3682	-0.4227
$N_{predicted}$ - Proposed Conditions	0.0659	0.0659	0.2003	1.2761	1.6082

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US224; 10.886	Lincon Highway at US 224	0.3537	0.3537	1.0748	3.0687	4.8509

Project Safety Performance Report

General Information

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Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Expected Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US224; 10.886	Lincon Highway at US 224	0.343	0.8311	0.5536	2.7005	4.4282

Project Safety Performance Report

General Information

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Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Potential for Safety Improvement Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US224; 10.886	Lincon Highway at US 224	-0.0107	**0.4774**	-0.5212	-0.3682	-0.4227

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
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Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Proposed Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US224; 10.886	Lincon Highway at US 224	0.0659	0.0659	0.2003	1.2761	1.6082

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Summary by Crash Type

Crash Type	Existing			Proposed
	Predicted Crash Frequency	Expected Crash Frequency	PSI	Predicted Crash Frequency
Unknown	1.0594	0.0213	-1.0381	0.1409
Head On	0.0597	0.0489	-0.0108	0.0111
Rear End	1.1403	1.1578	**0.0175**	0.3121
Backing	0.2658	0.2096	-0.0562	0.0771
Sideswipe - Meeting	0.1911	0.1595	-0.0316	0.0441
Sideswipe - Passing	0.2784	0.2420	-0.0364	0.0750
Angle	2.2454	2.1201	-0.1253	0.5106
Parked Vehicle	0.2278	0.1870	-0.0408	0.0650
Pedestrian	0.0329	0.0285	-0.0044	0.0051
Animal	0.0000	0.0000	0.0000	0.0000
Train	0.0004	0.0010	**0.0006**	0.0001
Pedalcycles	0.0213	0.0212	-0.0001	0.0038
Other Non-Vehicle	0.0000	0.0004	**0.0004**	0.0000
Fixed Object	1.0253	0.9053	-0.1200	0.2666
Other Object	0.0385	0.0308	-0.0077	0.0108
Overturning	0.0633	0.0573	-0.0060	0.0125
Other Non-Collision	0.0882	0.0704	-0.0178	0.0239
Left Turn	0.2179	0.2015	-0.0164	0.0498
Right Turn	0.0000	0.0000	0.0000	0.0000

Safety Benefit - Cost Analysis

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Select Site Types to be used in Benefit-Cost Analysis:

All Sites

Comments:

Countermeasure Service Lives, Costs, and Safety Benefits

Countermeasures	Service Life (Years)	Initial Cost of Countermeasure	Annual Maintenance & Energy Costs	Salvage Value	Net Present Cost of Countermeasure	Total Cost of Countermeasures	Summary of Annual Crash Modifications	Net Present Value of Safety Benefits
	25	$0.00			$0.00	$0.00	2.105	($2,245,109)
Site Characteristic Improvements (i.e. Lighting)		$0.00			$0.00	$0.00		
Site Characteristic Improvements (i.e. Signal Phasing)		$0.00			$0.00	$0.00		
Site Characteristic Improvements (i.e. Added Right Turn Lane)		$0.00			$0.00	$0.00		
CMF 1 - Convert intersection with minor-road stop control to modern roundabout (Rural)	25	$2,025,000.00			$2,025,000.00	$2,025,000.00	-5.348	$6,310,908
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
Totals		**$2,025,000.00**	**$0.00**	**$0.00**	**$2,025,000.00**	**$2,025,000.00**	**-3.243**	**$4,065,799**

Safety Benefit - Cost Analysis

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Benefit - Cost Calculator

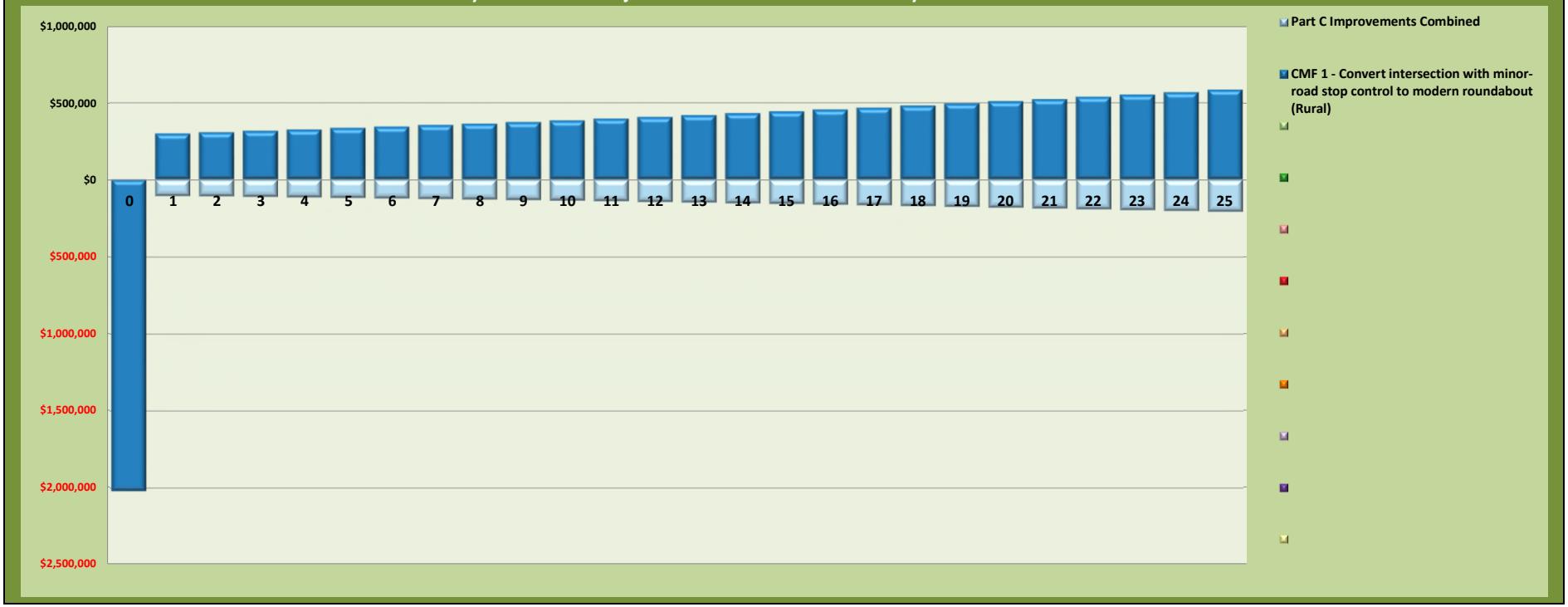
Net Present Value of Project	$2,025,000.00
Net Present Value of Safety Benefits	$4,065,799.40
Net Benefit	$2,040,799.40
Benefit / Cost Ratio	2.01

Expected Annual Crash Adjustment

Number of Fatal & Incapacitating Injury Crashes	-0.288
Number of Injury Crashes	-1.450
Number of Total Crashes	-3.243

Comments:

Safety Benefits and Project Costs Combined Cash Flows By Countermeasure Per Year

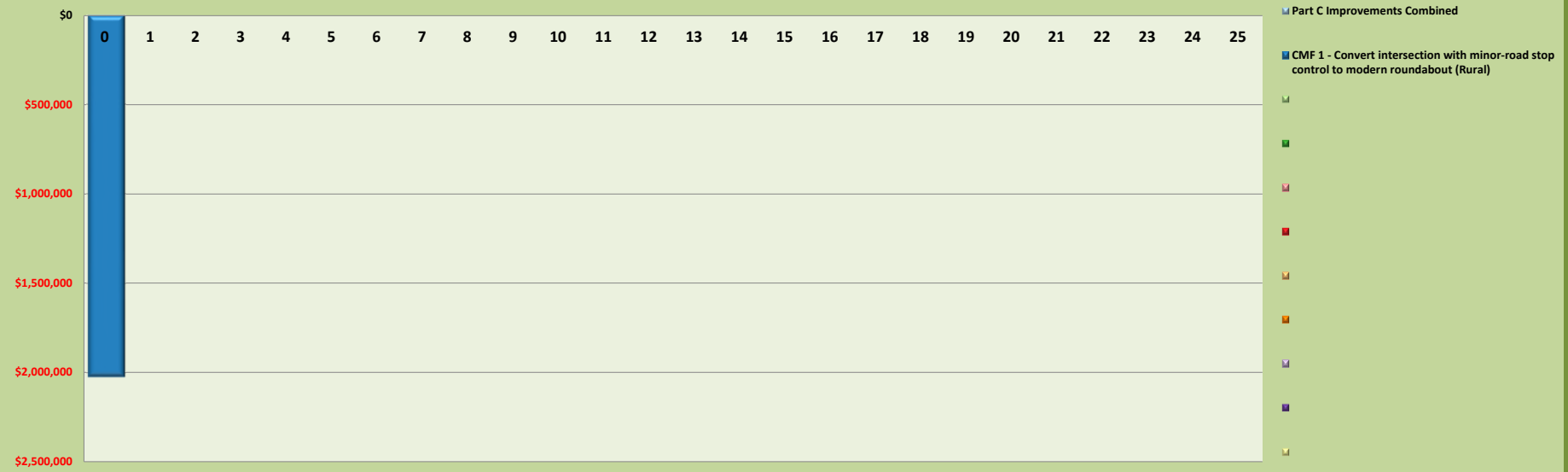


Safety Benefit - Cost Analysis

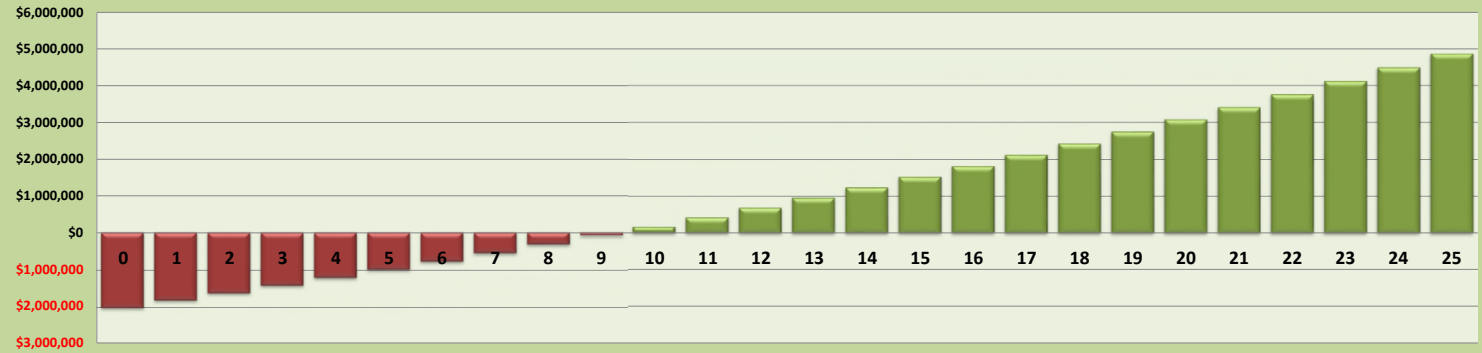
General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Project Costs Only Cash Flows By Countermeasure Per Year



Return on Investment (Safety Benefits and Project Investments)



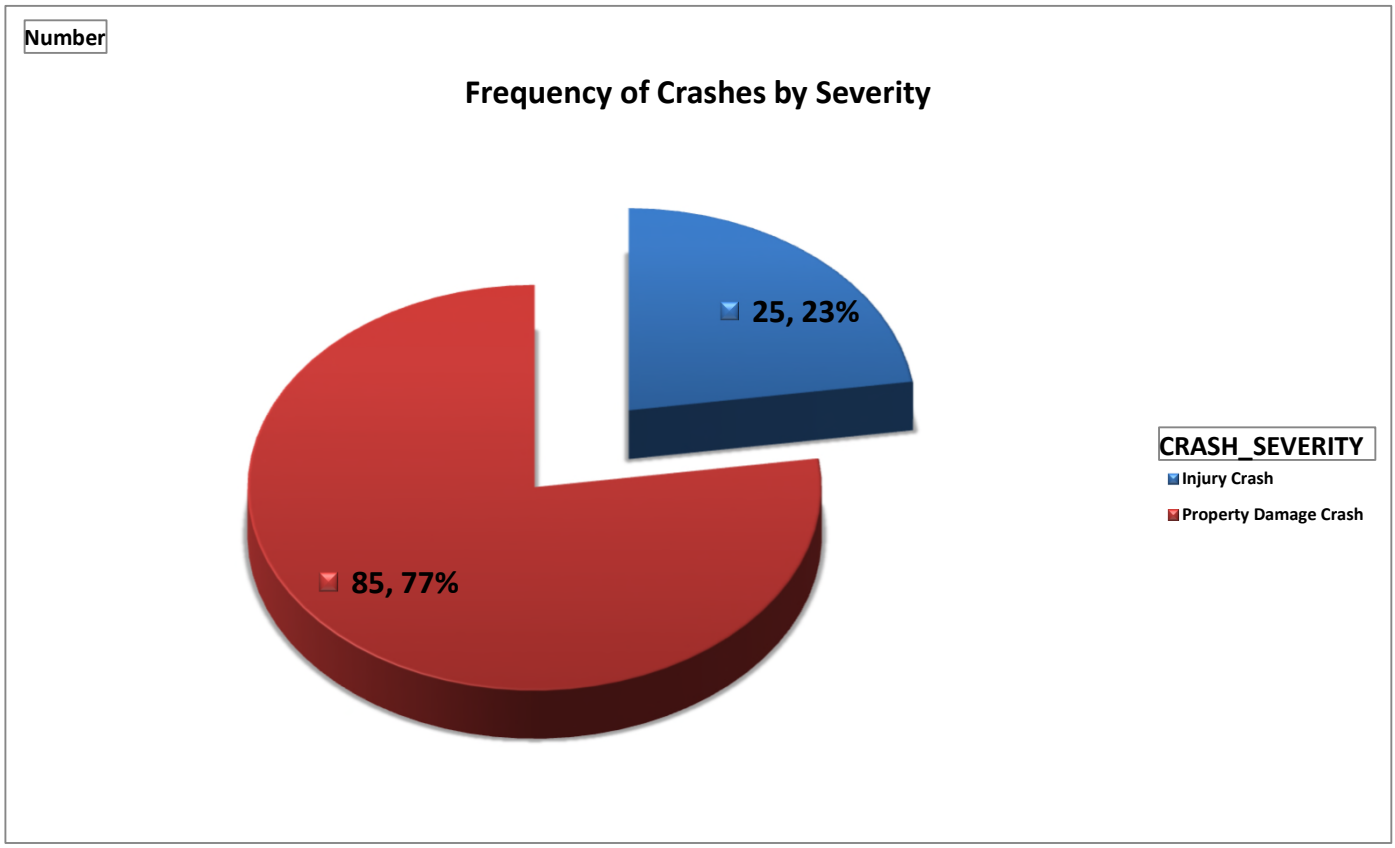
First year to observe a positive return on investiment: 2057 (10 years)

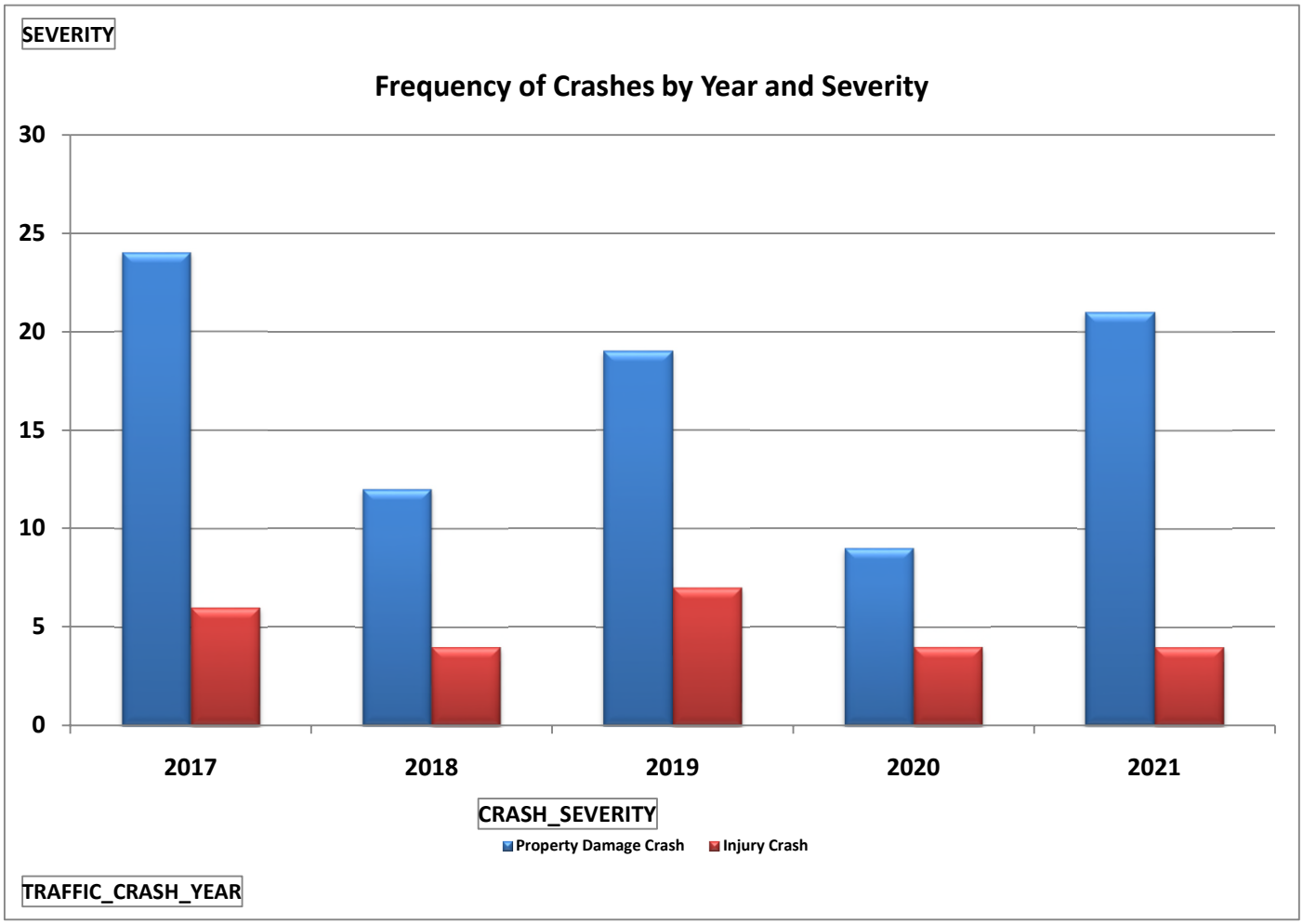
Percentage of Service Life to observe a continuous Positive Return on Investment: 64.00%

Appendix D

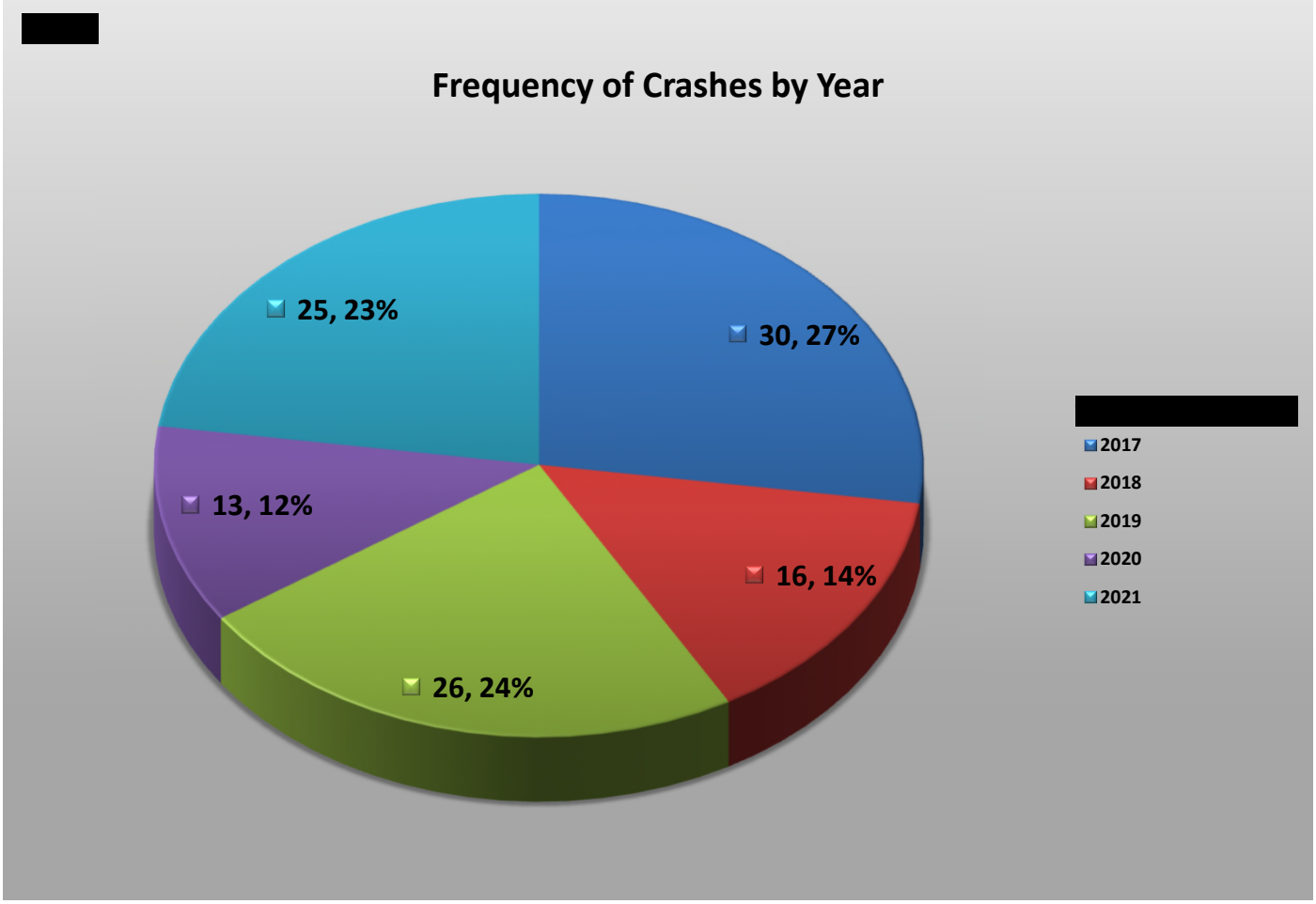
Safety - U.S. 127 - Widening

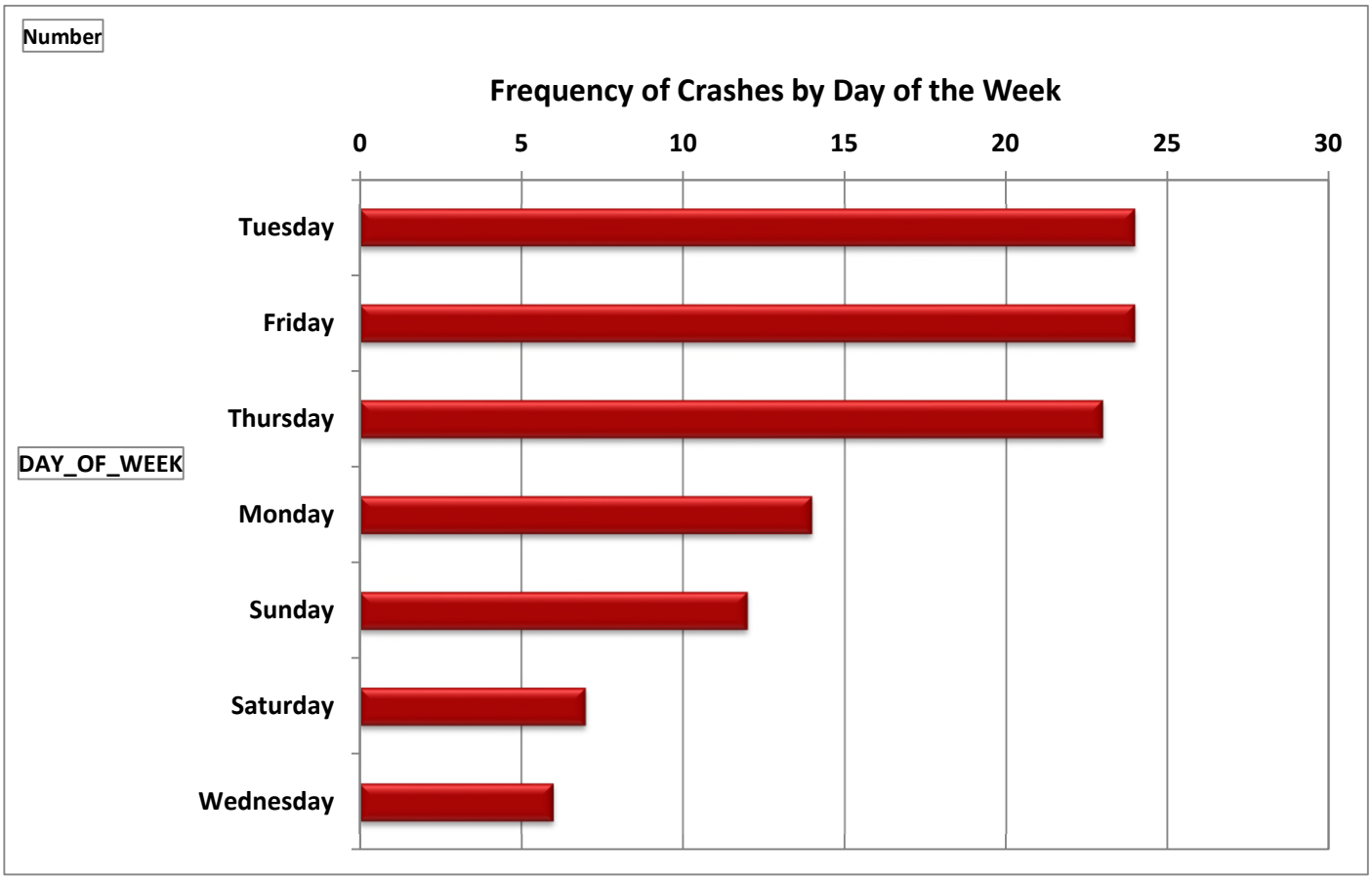
US 127 From Brooks Avenue to Towne Center Blvd





US 127 From Brooks Avenue to Towne Center Blvd





US 127 From Brooks Avenue to Towne Center Blvd

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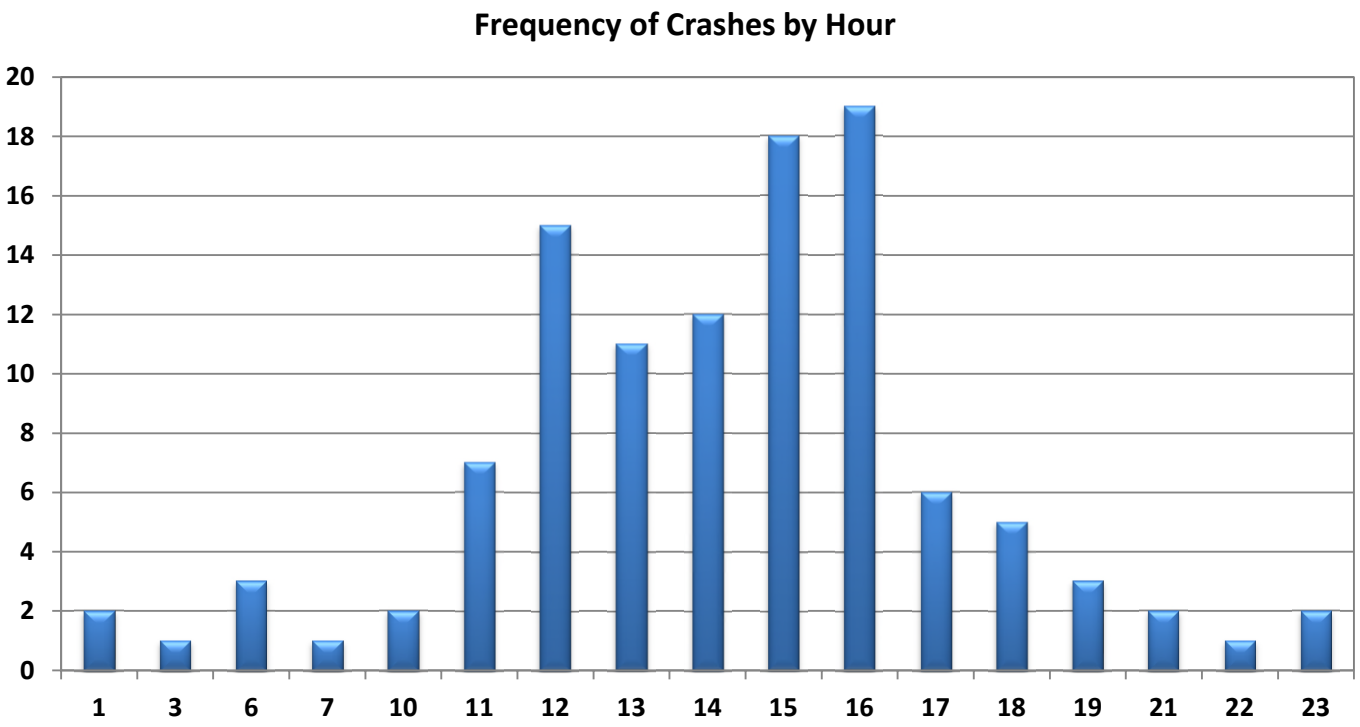

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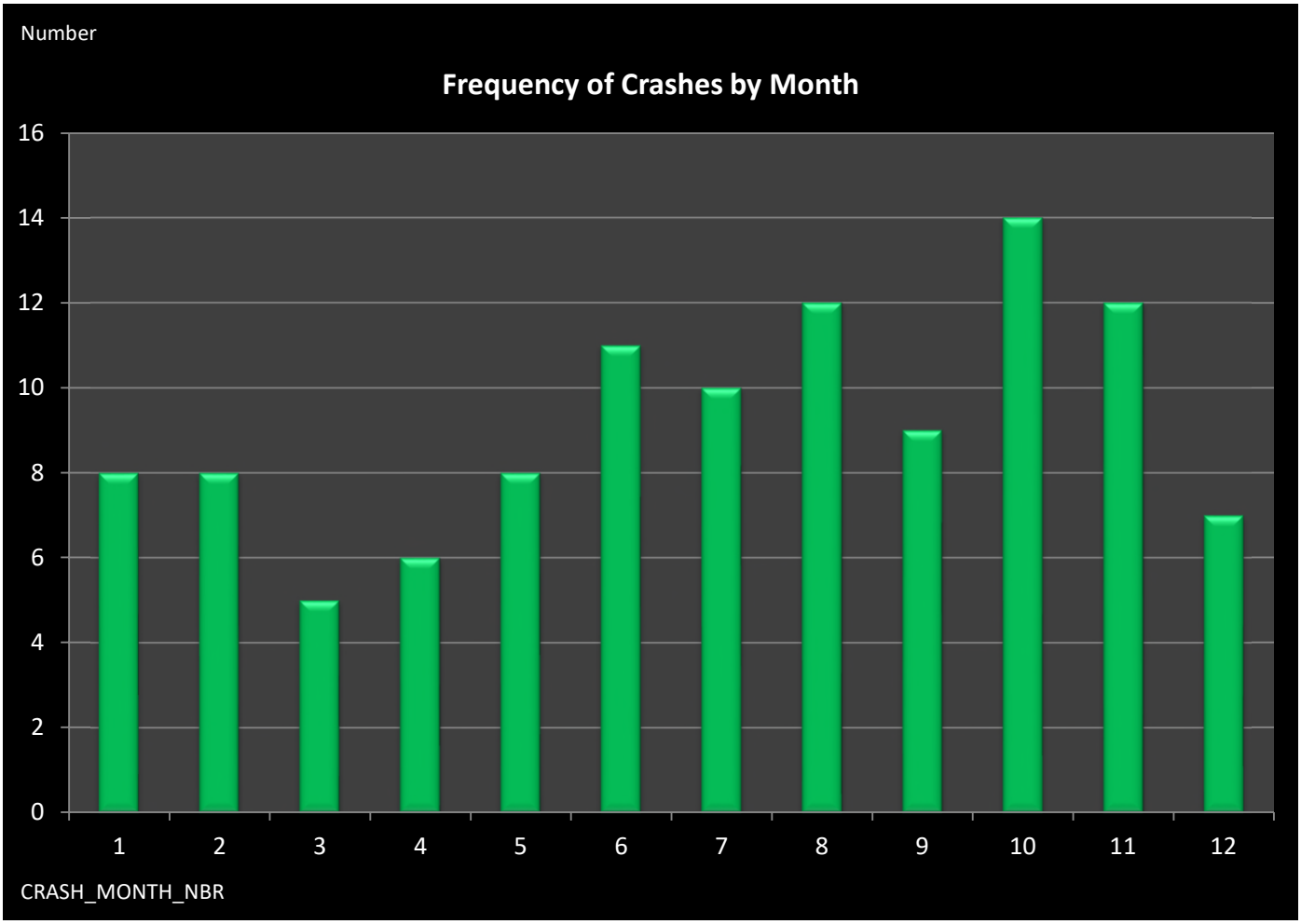
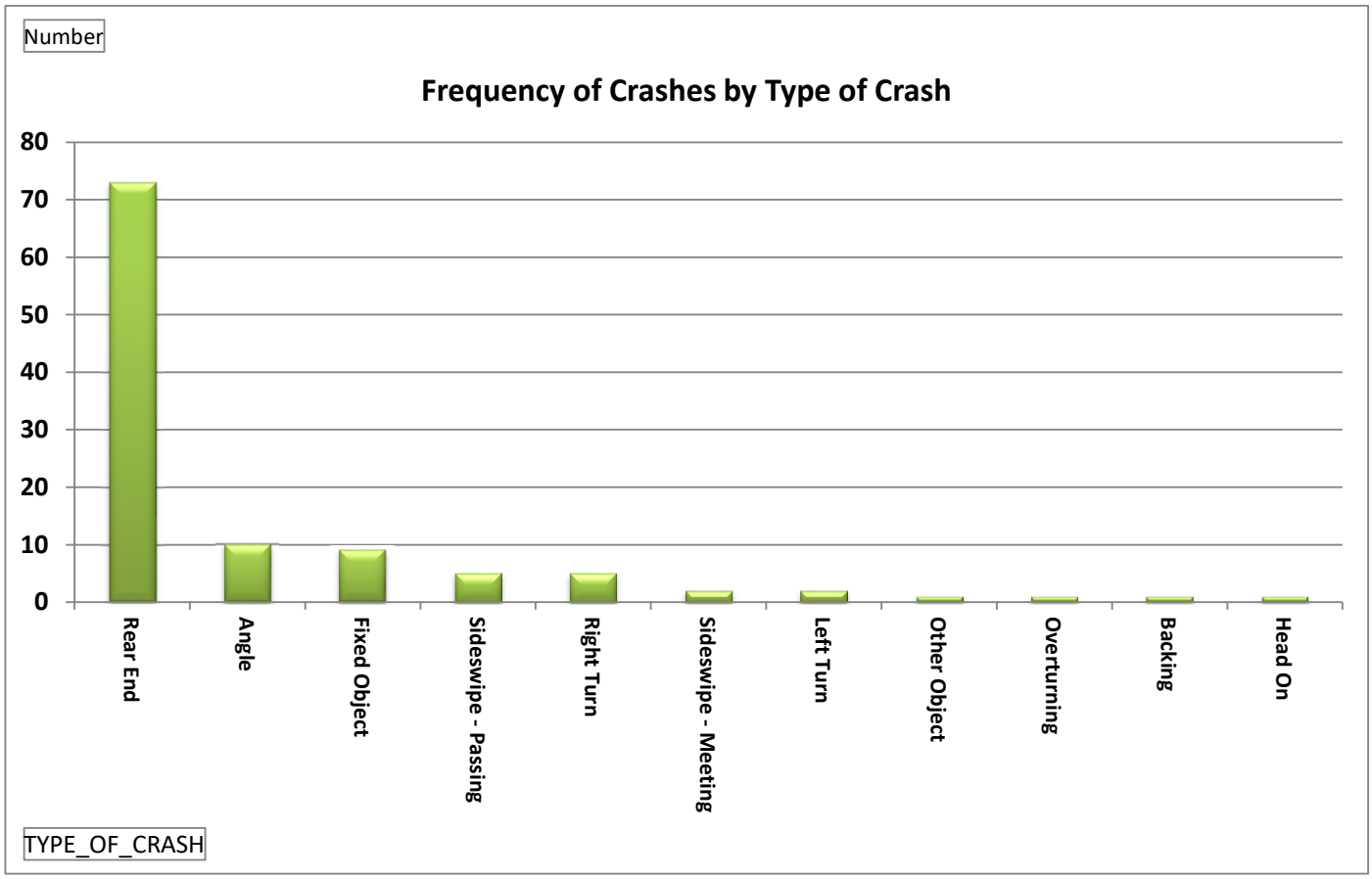
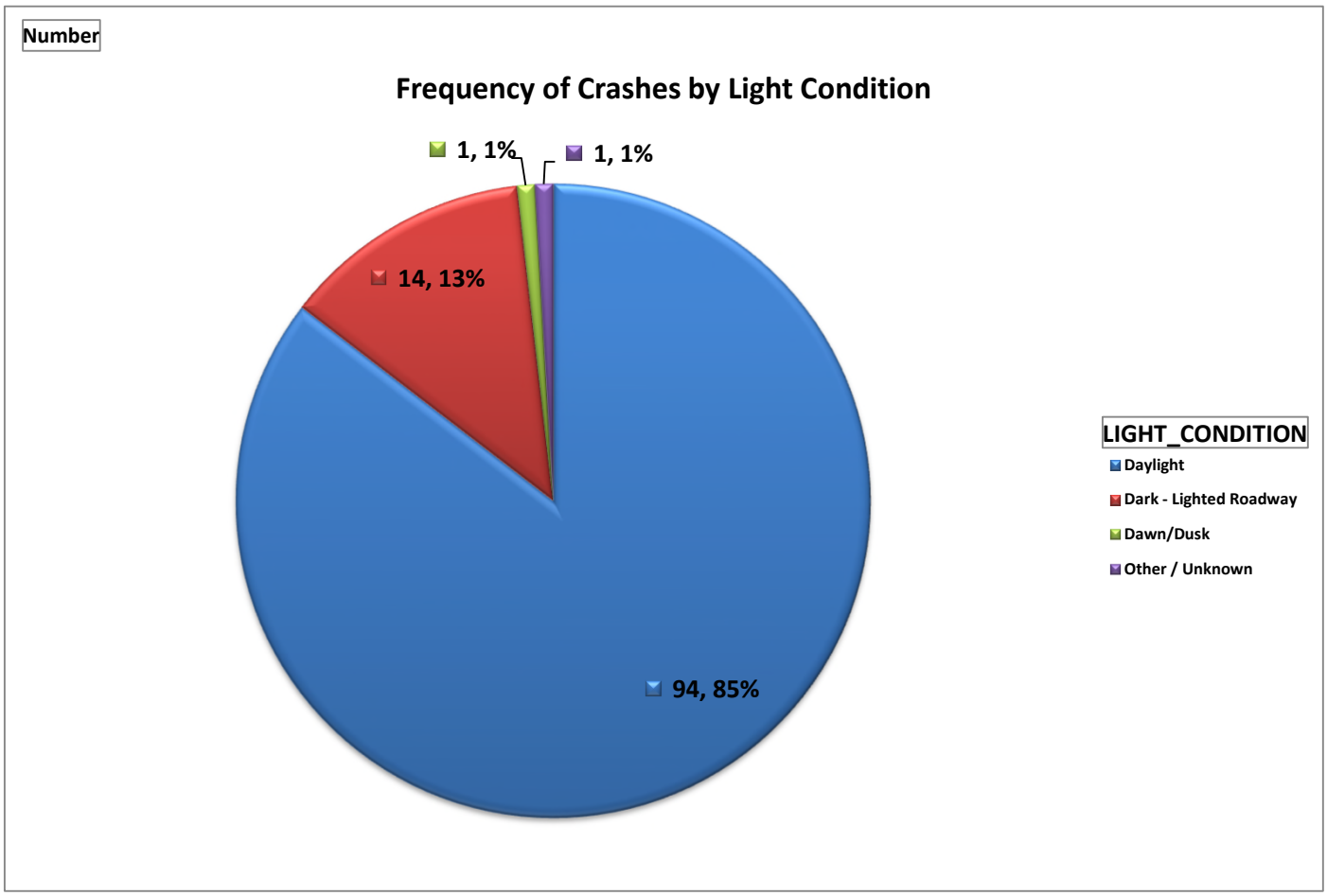
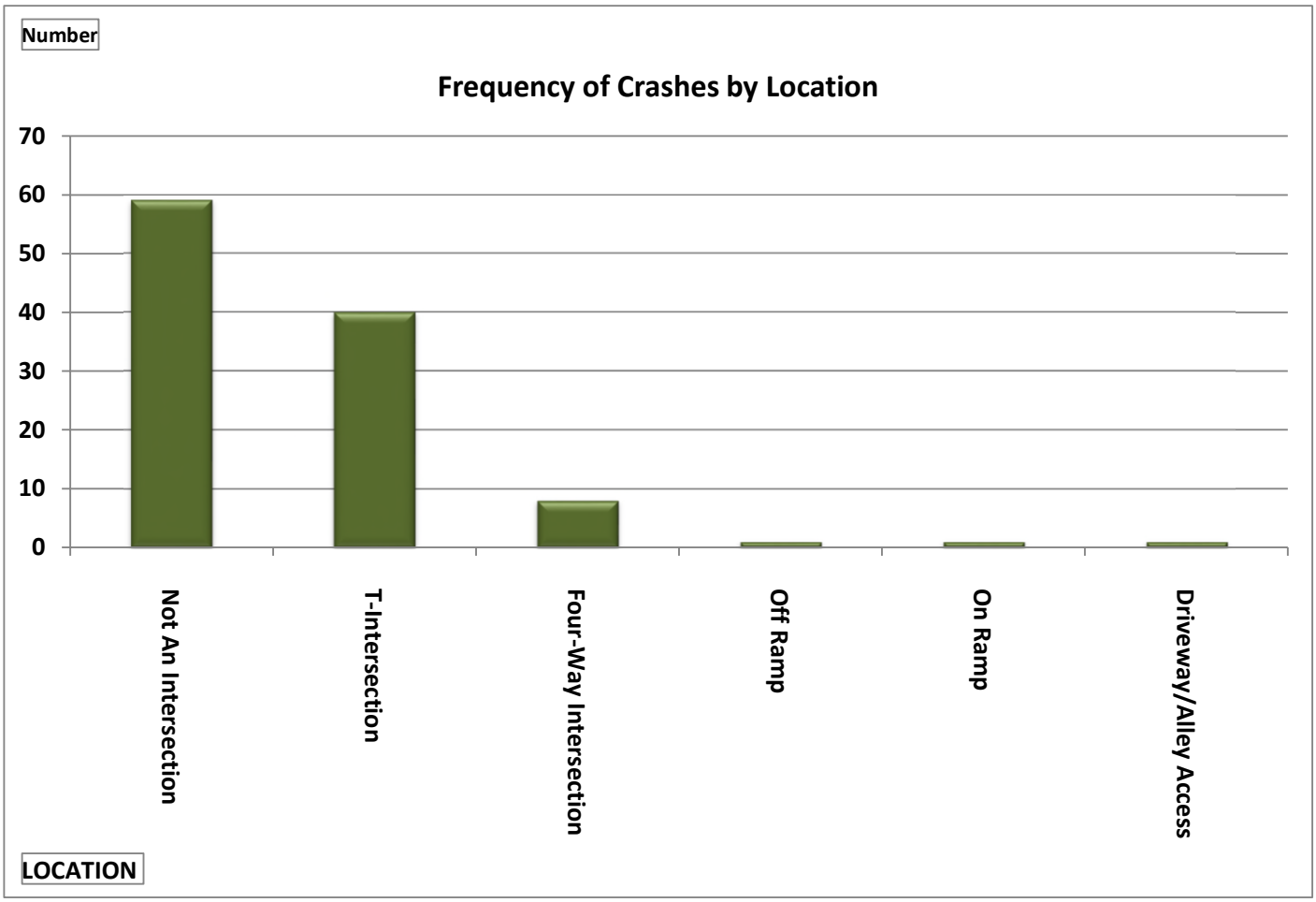


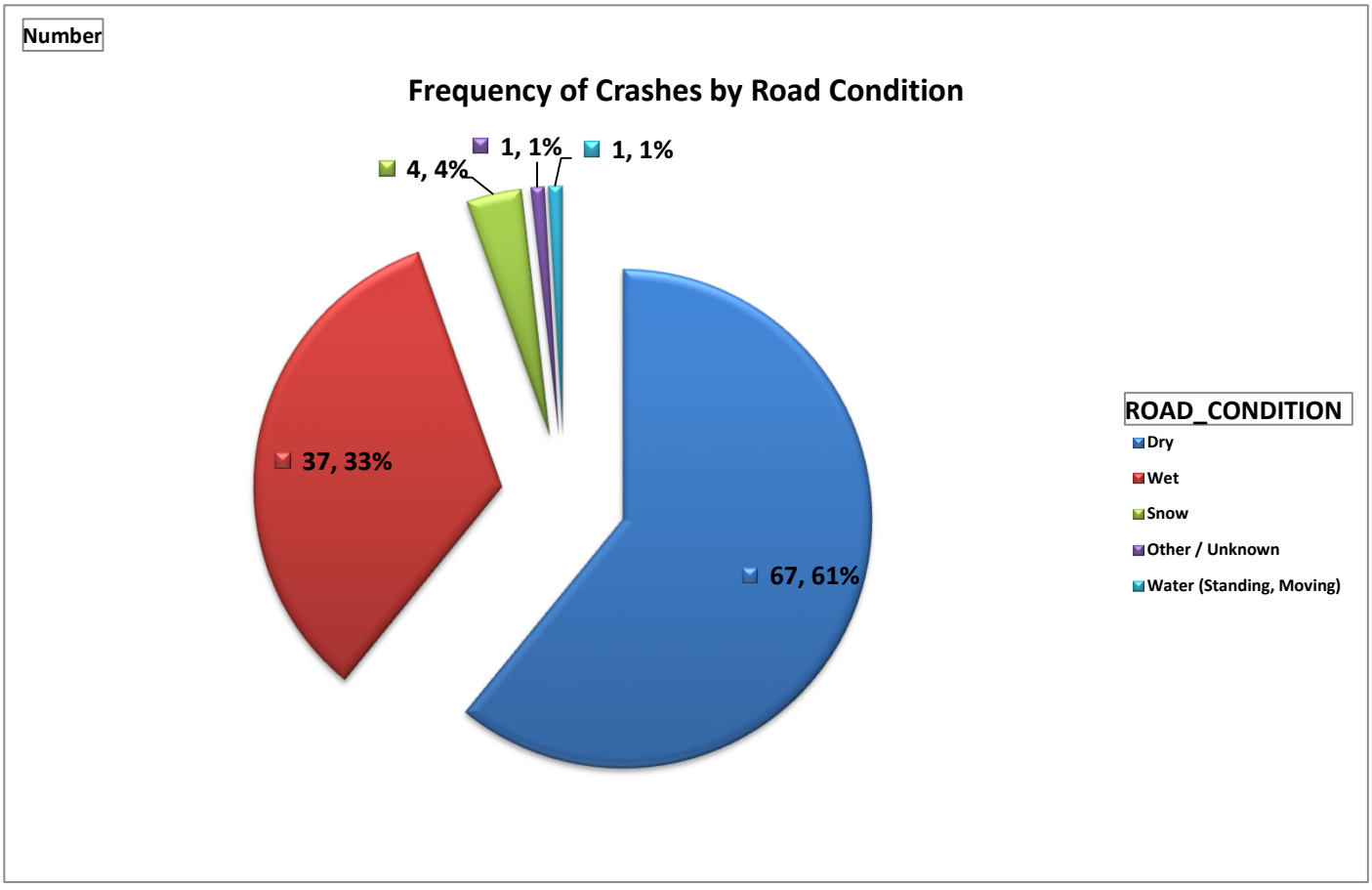
US 127 From Brooks Avenue to Towne Center Blvd



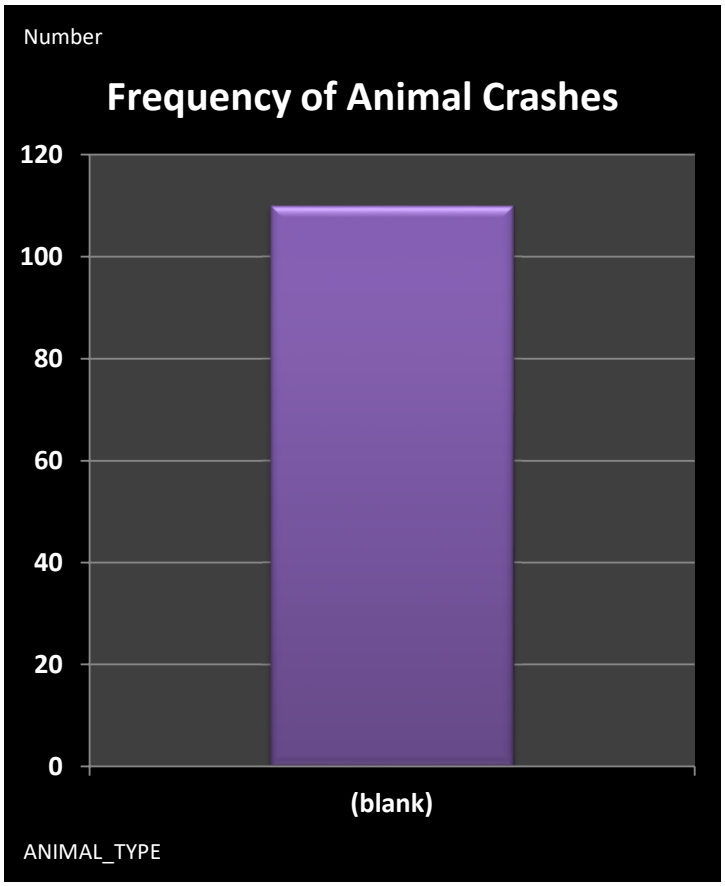


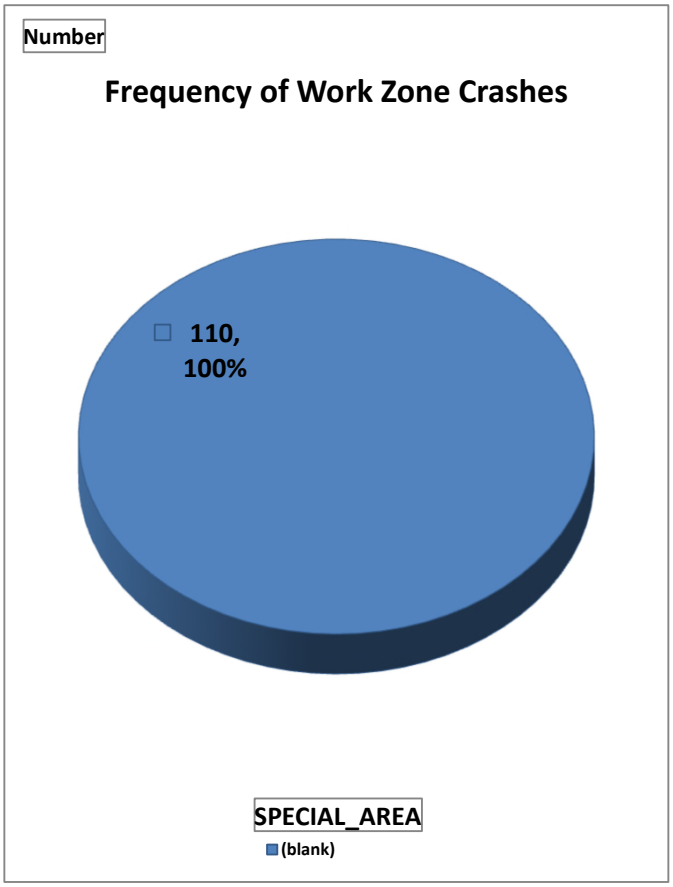
US 127 From Brooks Avenue to Towne Center Blvd

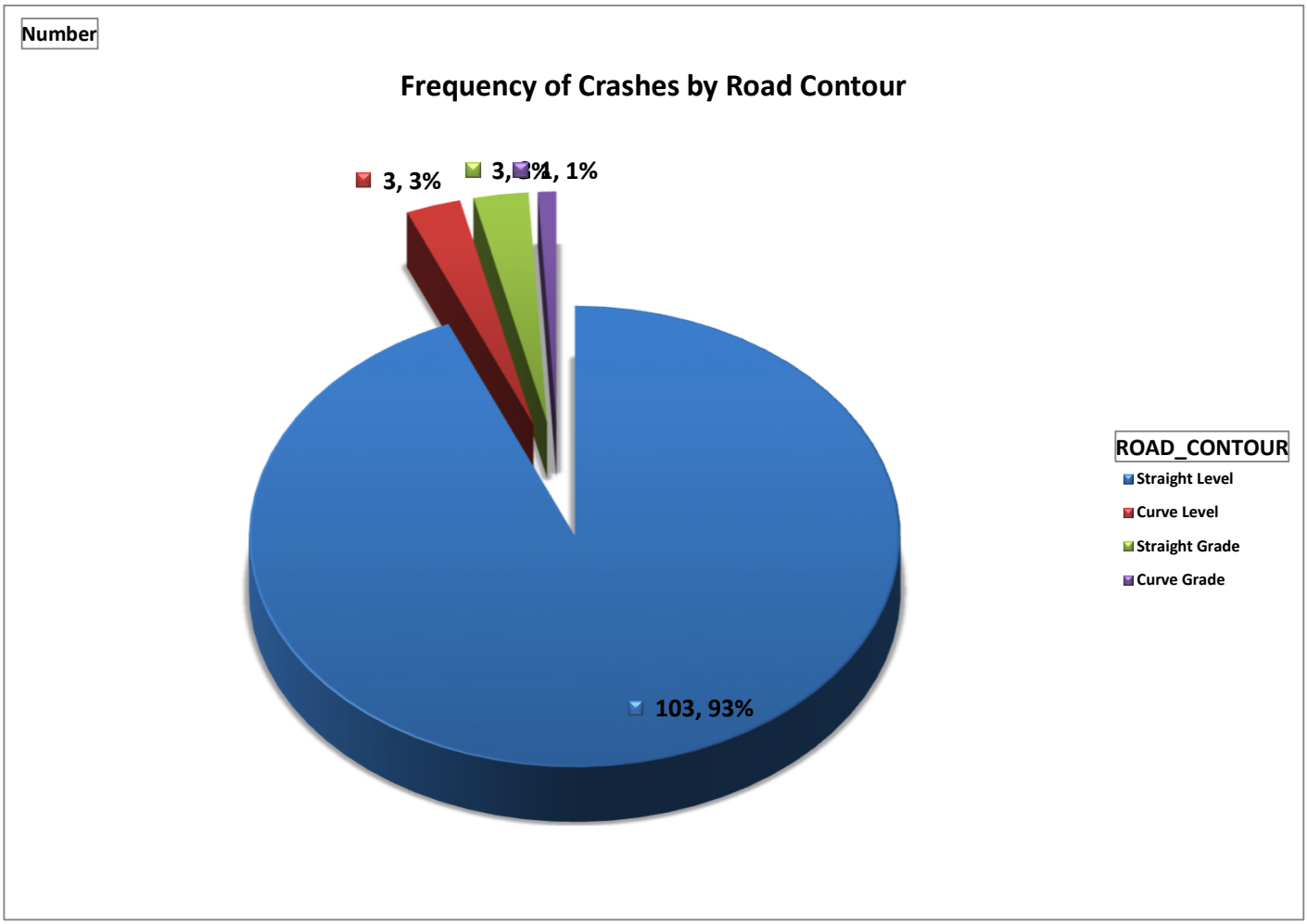




US 127 From Brooks Avenue to Towne Center Blvd







US 127 From Brooks Avenue to Towne Center Blvd

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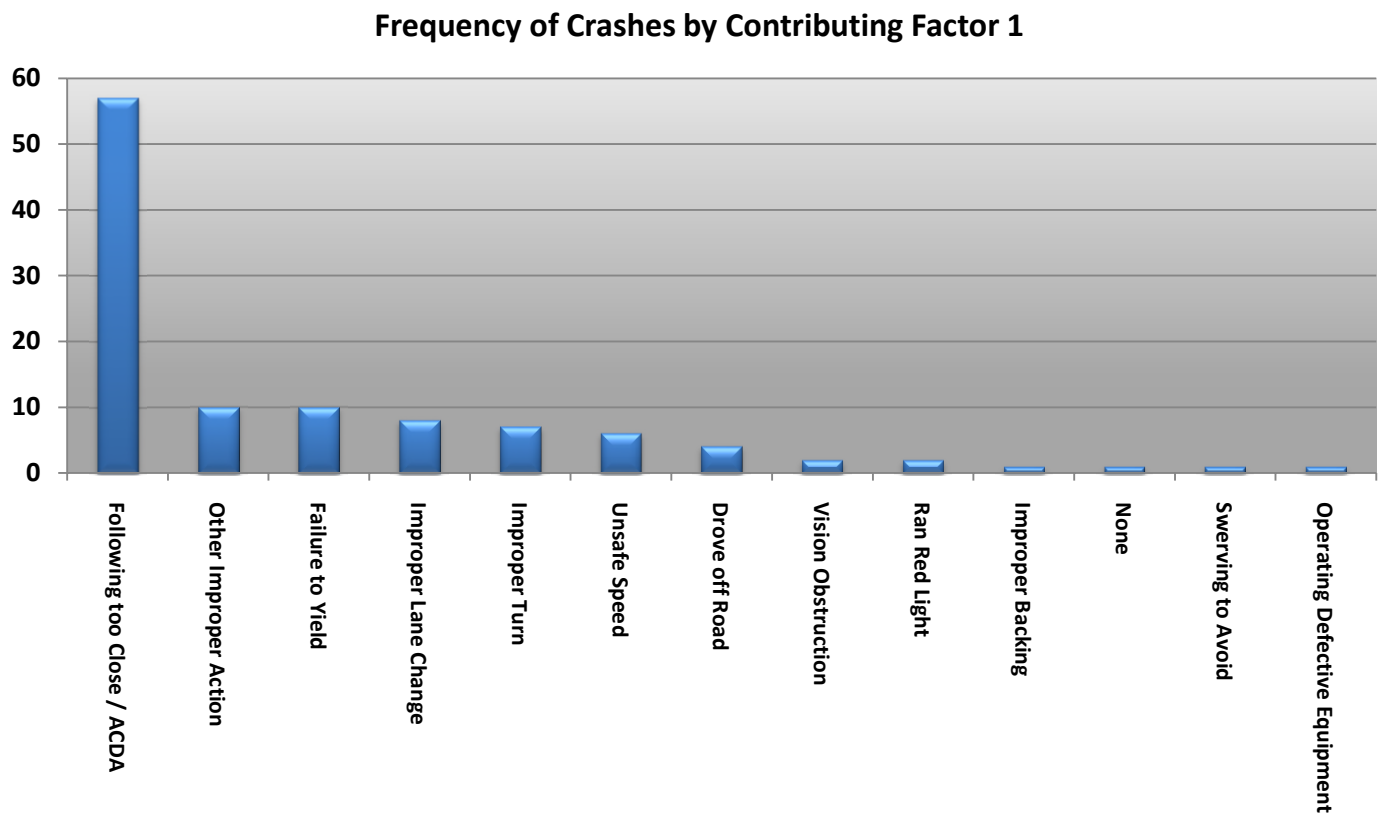

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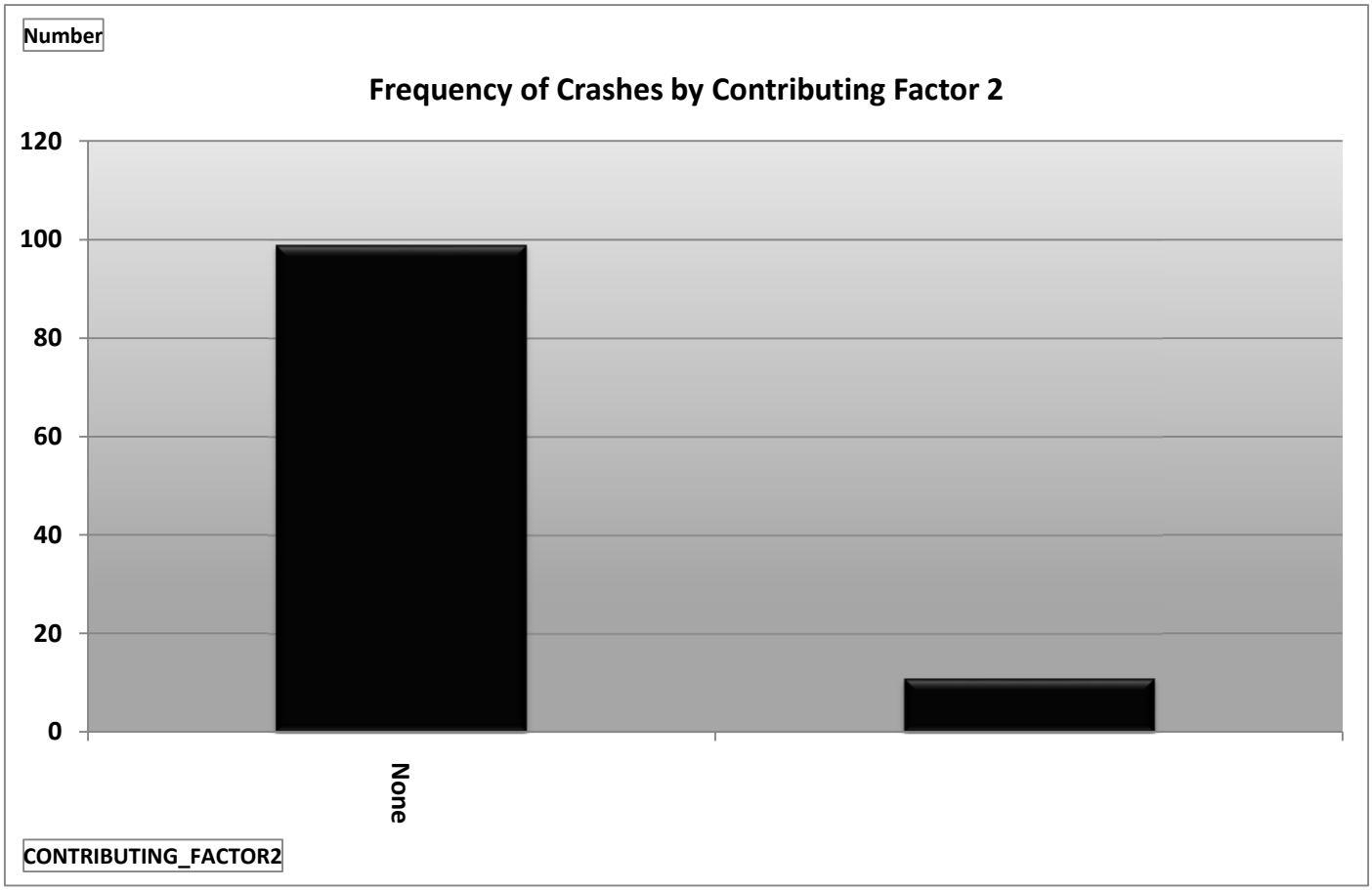
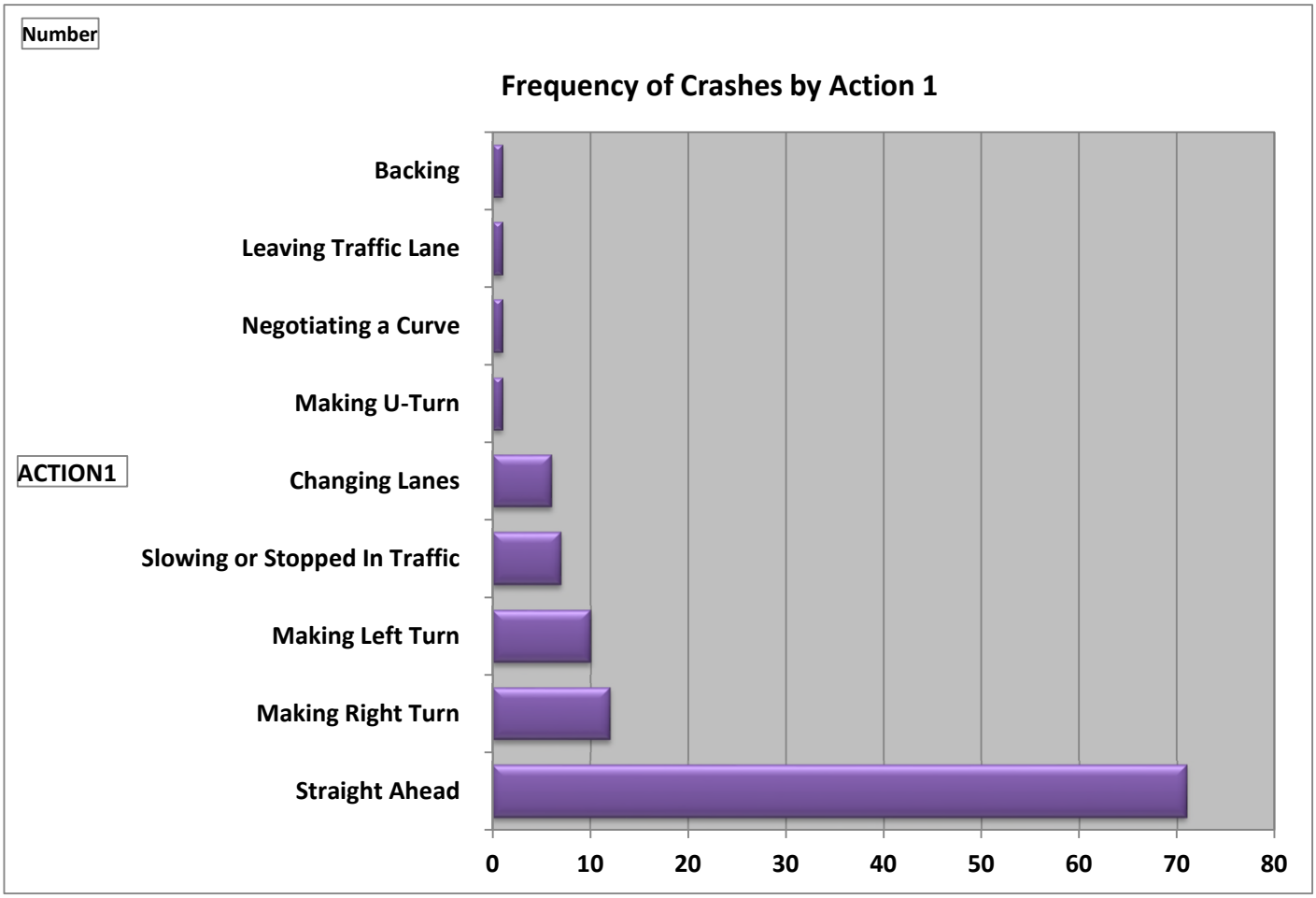
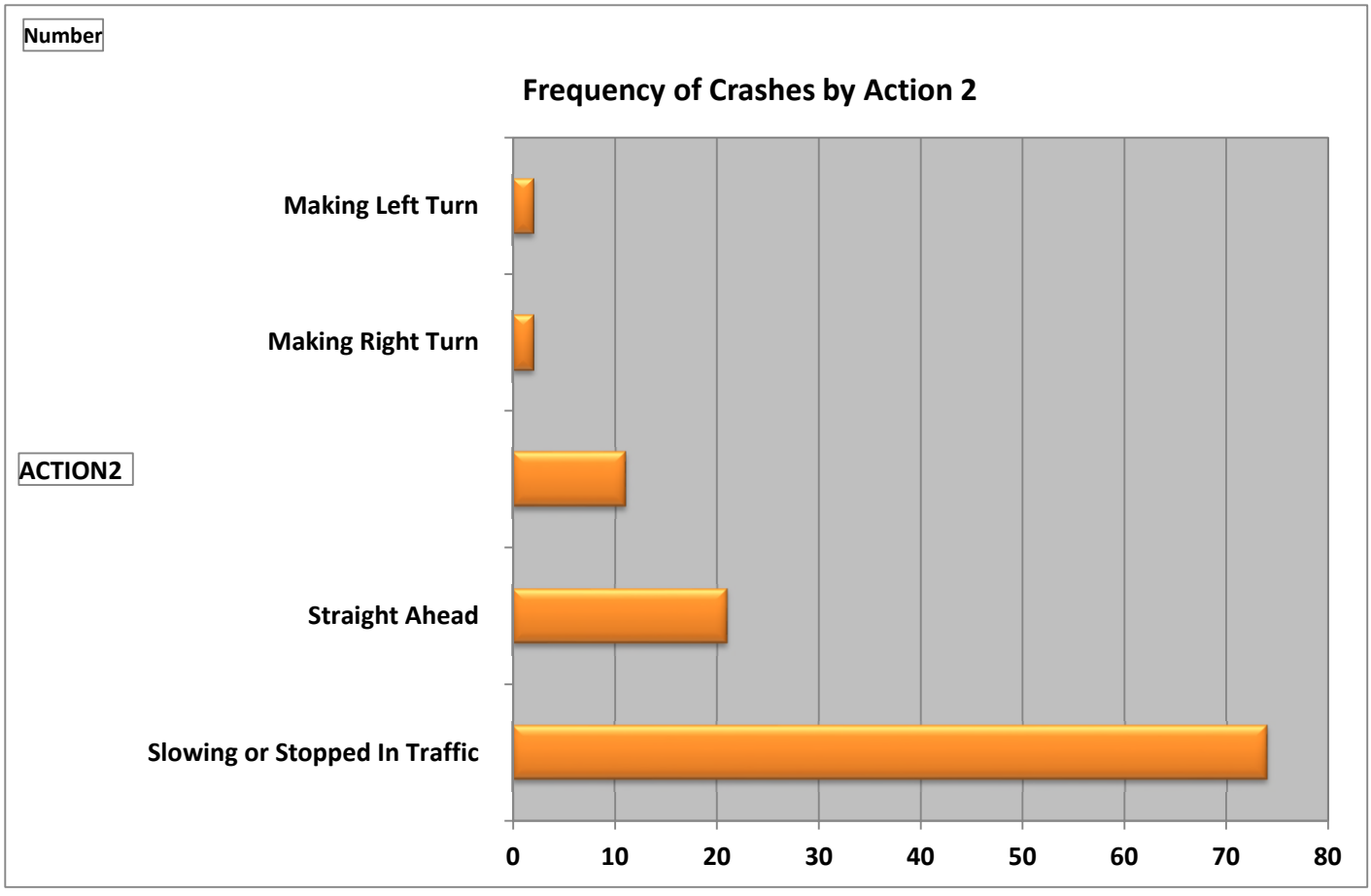
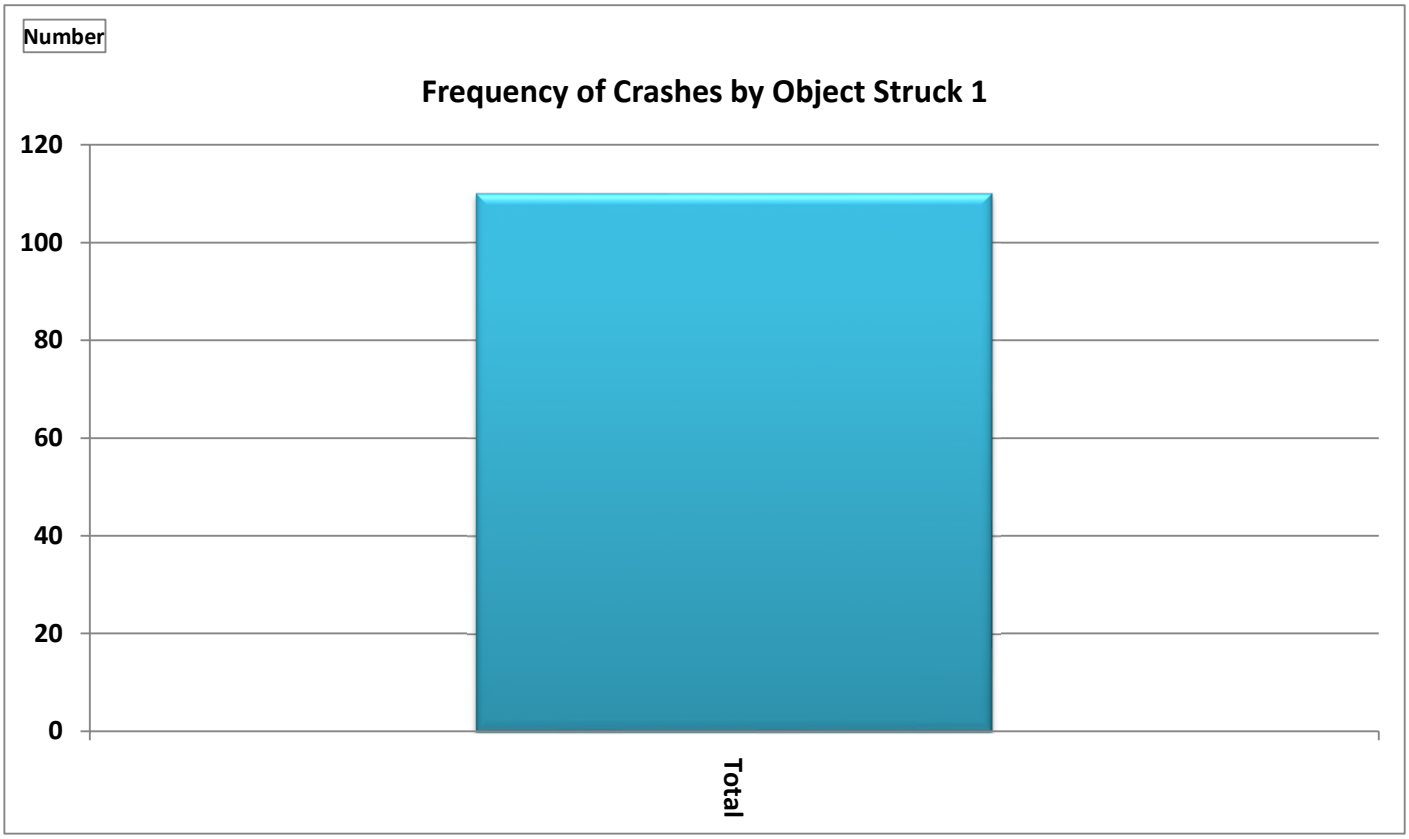


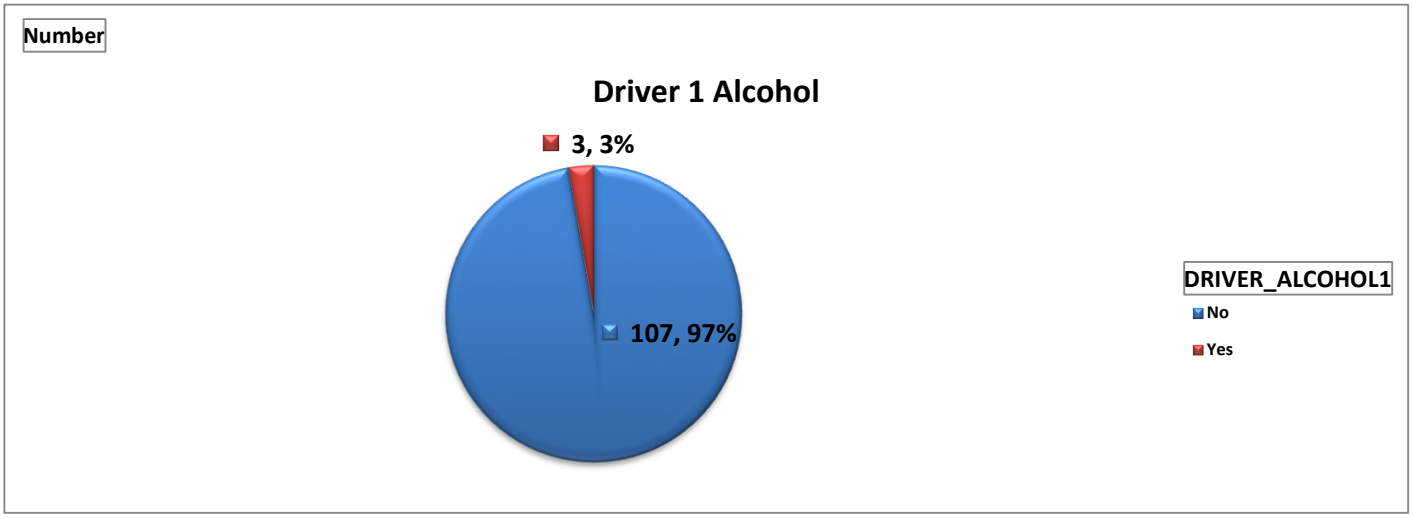
US 127 From Brooks Avenue to Towne Center Blvd

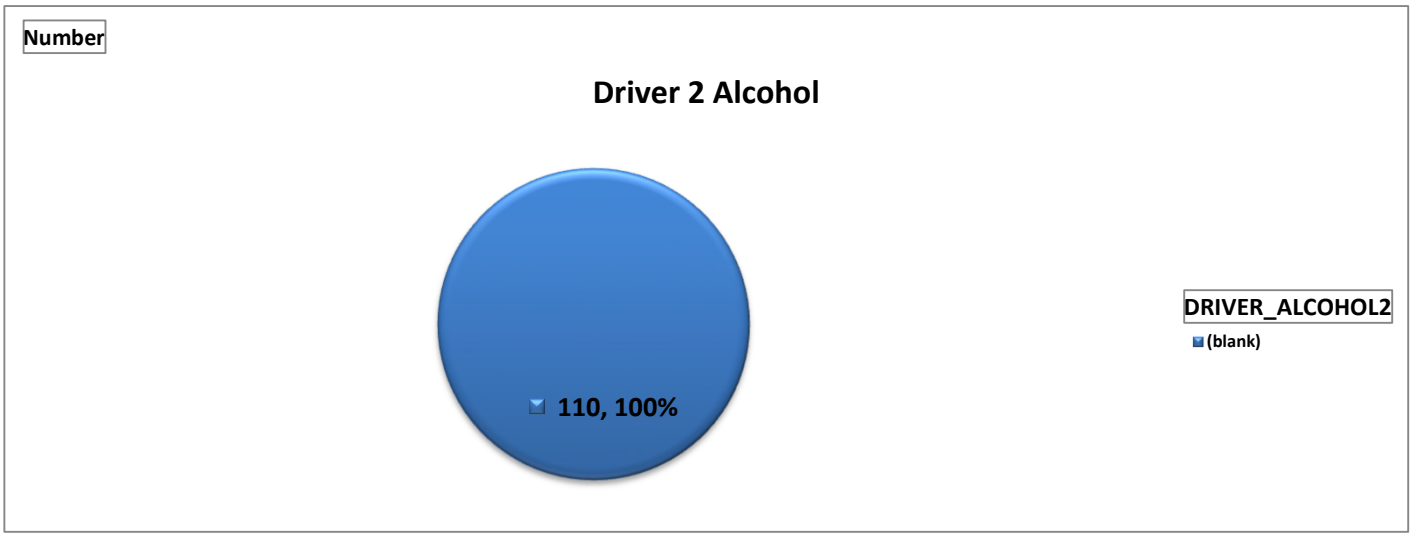




US 127 From Brooks Avenue to Towne Center Blvd







Select Site Type	Seg/Rur; 2-lane

Crash Severity	Site Average		Statewide Average
	Total (2017-2021)	Total (%)	Total (%)
Fatal Crash	0	0.00%	0.93%
Serious Injury Suspected Crash	2	1.82%	4.50%
Minor Injury Suspected Crash	7	6.36%	14.06%
Injury Possible Crash	16	14.55%	7.65%
Property-Damage-Only	85	77.27%	72.86%
Total	**110**		

Crashes by Crash Type				
	Total (%)		Fatal & All Injury (%)	
Crash Type	Site Average	Statewide Average	Site Average	Statewide Average
Unknown	-0.01%	0.19%	0.00%	0.12%
Head On	0.91%	2.86%	4.00%	5.74%
Rear End	66.36%	10.26%	68.00%	15.40%
Backing	0.91%	1.12%	4.00%	0.56%
Sideswipe - Meeting	1.82%	2.30%	0.00%	3.00%
Sideswipe - Passing	4.55%	3.66%	0.00%	3.92%
Angle	9.09%	2.36%	12.00%	4.64%
Parked Vehicle	0.00%	0.81%	0.00%	0.79%
Pedestrian	0.00%	0.26%	0.00%	0.88%
Animal	0.00%	33.28%	0.00%	5.60%
Train	0.00%	0.02%	0.00%	0.03%
Pedalcycles	0.00%	0.14%	0.00%	0.48%
Other Non-Vehicle	0.00%	0.01%	0.00%	0.04%
Fixed Object	8.18%	34.58%	0.00%	47.05%
Other Object	0.91%	0.92%	0.00%	0.21%
Falling From Or In Vehicle	0.00%	0.00%	0.00%	0.00%
Overturning	0.91%	2.75%	4.00%	6.35%
Other Non-Collision	0.00%	1.30%	0.00%	0.54%
Left Turn	1.82%	2.66%	0.00%	4.09%
Right Turn	4.55%	0.52%	8.00%	0.56%

Crashes by Light Conditions				
	Total (%)		Fatal & All Injury (%)	
Light Conditions	Site Average	Statewide Average	Site Average	Statewide Average
Daylight	86.24%	48.48%	88.00%	63.03%
Dawn/Dusk	0.92%	6.46%	0.00%	4.79%
Dark - Lighted Roadway	12.84%	1.78%	12.00%	1.47%
Dark - Roadway Not Lighted	0.00%	42.57%	0.00%	30.27%
Dark - Unknown Roadway Lighting	0.00%	0.28%	0.00%	0.16%
Other / Unknown	0.00%	0.43%	0.00%	0.28%

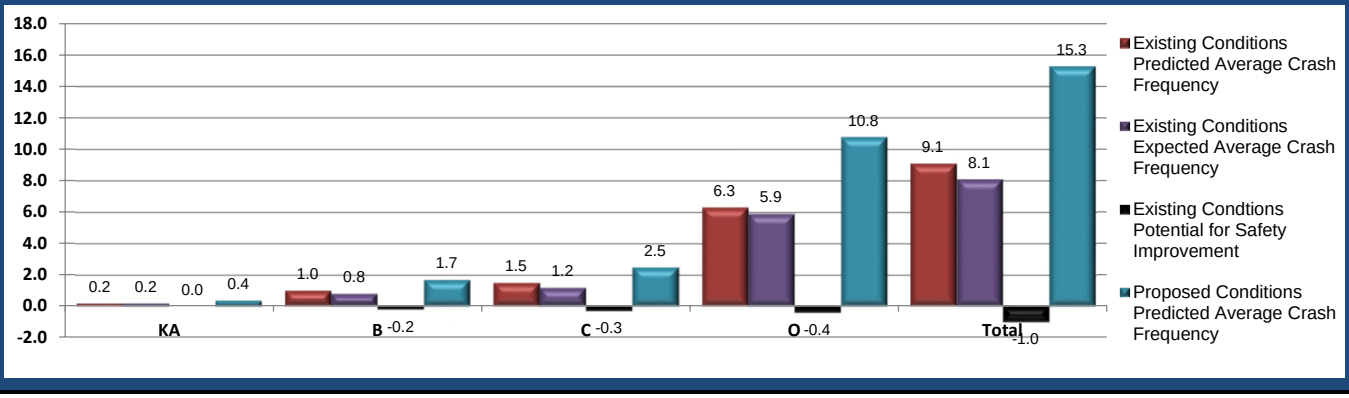
Crashes by Road Conditions				
	Total (%)		Fatal & All Injury (%)	
Road Conditions	Site Average	Statewide Average	Site Average	Statewide Average
Dry	60.36%	69.75%	76.92%	69.58%
Wet	33.33%	18.12%	19.23%	19.13%
Snow	3.60%	8.08%	0.00%	7.31%
Ice	0.00%	3.11%	0.00%	3.16%
Sand, Mud, Dirt, Oil, Gravel	0.00%	0.04%	0.00%	0.06%
Water (Standing, Moving)	0.90%	0.10%	0.00%	0.08%
Slush	0.00%	0.54%	0.00%	0.55%
Other / Unknown	1.81%	0.26%	3.85%	0.13%

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Summary of Anticipated Safety Performance of the Project (average crashes/year)



Project Summary Results (Without Animal Crashes)

	KA	B	C	O	Total
$N_{predicted}$ - Existing Conditions	0.2338	1.0390	1.5267	6.2564	9.0559
$N_{expected}$ - Existing Conditions	0.1865	0.8196	1.1852	5.8788	8.0701
$N_{potential\ for\ improvement}$ - Existing Conditions	-0.0473	-0.2194	-0.3415	-0.3776	-0.9858
$N_{expected}$ - Proposed Conditions	0.3717	1.6709	2.4734	10.8117	15.3277

Project Safety Performance Report

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Agency/Company	Arcadis		

Existing Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US127; 10.614-10.642	US 127 between Brooks Ave and Bonnewitz A	0.0069	0.0166	0.015	0.0785	0.117
US127; 10.642-10.858	US 127 between Bonnewitz Ave and US 30 EB	0.022	0.0647	0.0709	0.4198	0.5774
US127; 10.614	US 127 at Brooks Ave	0.0166	0.0688	0.0925	0.2978	0.4757
US127; 10.642	US 127 at Bonnewitz Ave	0.0637	0.3412	0.5293	2.6127	3.5469
US127N; 10.858	US 127 at US 30 EB Ramps	0.1246	0.5477	0.819	2.8476	4.3389

Project Safety Performance Report

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Agency/Company	Arcadis		

Existing Conditions Project Element Expected Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US127; 10.614-10.642	US 127 between Brooks Ave and Bonnewitz A	0.0068	0.0165	0.0148	0.1773	0.2154
US127; 10.642-10.858	US 127 between Bonnewitz Ave and US 30 EB	0.025	0.0745	0.0845	1.5254	1.7094
US127; 10.614	US 127 at Brooks Ave	0.0169	0.0703	0.0948	0.7055	0.8875
US127; 10.642	US 127 at Bonnewitz Ave	0.0572	0.3039	0.4611	1.5222	2.3444
US127N; 10.858	US 127 at US 30 EB Ramps	0.0806	0.3544	0.53	1.9484	2.9134

Project Safety Performance Report

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Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Potential for Safety Improvement Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US127; 10.614-10.642	US 127 between Brooks Ave and Bonnewitz A	-0.0001	-0.0001	-0.0002	**0.0988**	**0.0984**
US127; 10.642-10.858	US 127 between Bonnewitz Ave and US 30 EB	**0.003**	**0.0098**	**0.0136**	**1.1056**	**1.132**
US127; 10.614	US 127 at Brooks Ave	**0.0003**	**0.0015**	**0.0023**	**0.4077**	**0.4118**
US127; 10.642	US 127 at Bonnewitz Ave	-0.0065	-0.0373	-0.0682	-1.0905	-1.2025
US127N; 10.858	US 127 at US 30 EB Ramps	-0.044	-0.1933	-0.289	-0.8992	-1.4255

Project Safety Performance Report

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Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Proposed Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US127; 10.614-10.642	US 127 between Brooks Ave and Bonnewitz A	0.0096	0.0233	0.0216	0.1134	0.1679
US127; 10.642-10.858	US 127 between Bonnewitz Ave and US 30 EB	0.0312	0.079	0.0752	0.5298	0.7152
US127; 10.614	US 127 at Brooks Ave	0.0244	0.102	0.1377	0.4808	0.7449
US127; 10.642	US 127 at Bonnewitz Ave	0.1132	0.6172	0.9694	4.5587	6.2585
US127N; 10.858	US 127 at US 30 EB Ramps	0.1933	0.8494	1.2695	5.129	7.4412

Project Safety Performance Report

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Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Summary by Crash Type

Crash Type	Existing			Proposed
	Predicted Crash Frequency	Expected Crash Frequency	PSI	Predicted Crash Frequency
Unknown	0.0198	0.0180	-0.0018	0.0198
Head On	0.1885	0.1343	-0.0542	0.1885
Rear End	7.0450	5.3747	-1.6703	7.0450
Backing	0.3816	0.3027	-0.0790	0.3816
Sideswipe - Meeting	0.1337	0.3033	**0.1697**	0.1337
Sideswipe - Passing	1.7141	1.4934	-0.2207	1.7141
Angle	2.5908	1.9242	-0.6665	2.5908
Parked Vehicle	0.2198	0.1593	-0.0605	0.2198
Pedestrian	0.0297	0.0263	-0.0034	0.0297
Animal	0.1056	0.1320	**0.0264**	0.1056
Train	0.0009	0.0009	0.0000	0.0009
Pedalcycles	0.2632	0.2422	-0.0210	0.2633
Other Non-Vehicle	0.0002	0.0002	0.0000	0.0002
Fixed Object	0.6480	0.4922	-0.1558	0.6480
Other Object	0.0187	0.0159	-0.0028	0.0187
Overturning	0.0271	0.0201	-0.0070	0.0271
Other Non-Collision	0.0701	0.0493	-0.0208	0.0701
Left Turn	1.6330	0.9981	-0.6349	1.6330
Right Turn	0.3440	0.2044	-0.1396	0.3440

Safety Benefit - Cost Analysis

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Select Site Types to be used in Benefit-Cost Analysis:

All Sites

Comments:

Countermeasure Service Lives, Costs, and Safety Benefits

Countermeasures	Service Life (Years)	Initial Cost of Countermeasure	Annual Maintenance & Energy Costs	Salvage Value	Net Present Cost of Countermeasure	Total Cost of Countermeasures	Summary of Annual Crash Modifications	Net Present Value of Safety Benefits
Road widening	25	$2,295,000.00			$2,295,000.00	$2,295,000.00	6.272	($4,596,077)
Site Characteristic Improvements (i.e. Lighting)	25	$0.00			$0.00	$0.00		
Site Characteristic Improvements (i.e. Signal Phasing)	25	$0.00			$0.00	$0.00		
Site Characteristic Improvements (i.e. Added Right Turn Lane)	25	$0.00			$0.00	$0.00		
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
Totals		**$2,295,000.00**	**$0.00**	**$0.00**	**$2,295,000.00**	**$2,295,000.00**	**6.272**	**($4,596,077)**

Safety Benefit - Cost Analysis

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Benefit - Cost Calculator

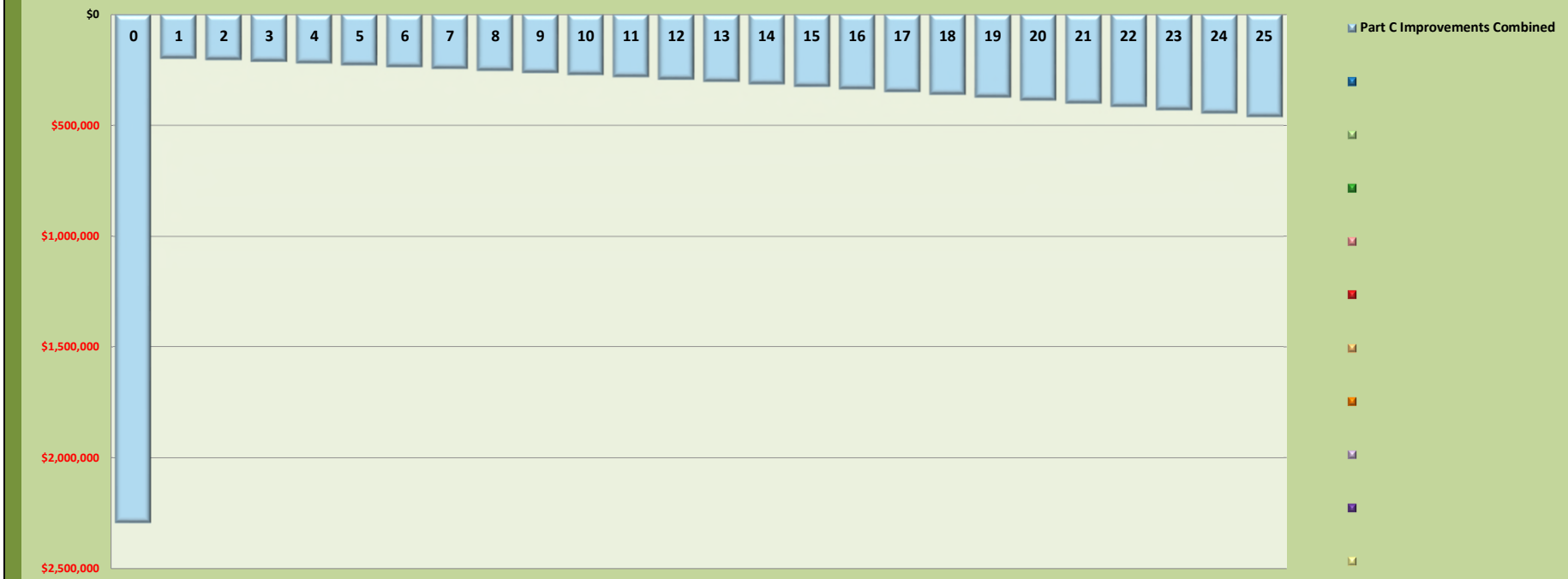
Net Present Value of Project	$2,295,000.00
Net Present Value of Safety Benefits	($4,596,076.69)
Net Benefit	($6,891,076.69)
Benefit / Cost Ratio	-2.00

Expected Annual Crash Adjustment

Number of Fatal & Incapacitating Injury Crashes	0.138
Number of Injury Crashes	1.717
Number of Total Crashes	6.272

Comments:

Safety Benefits and Project Costs Combined Cash Flows By Countermeasure Per Year

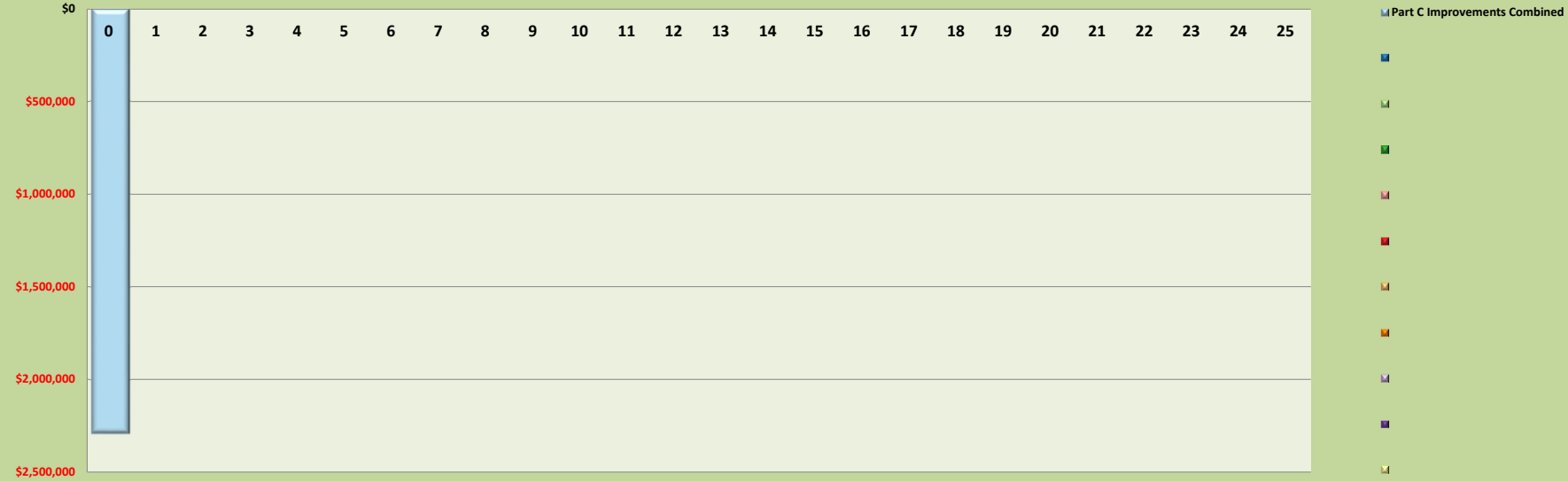


Safety Benefit - Cost Analysis

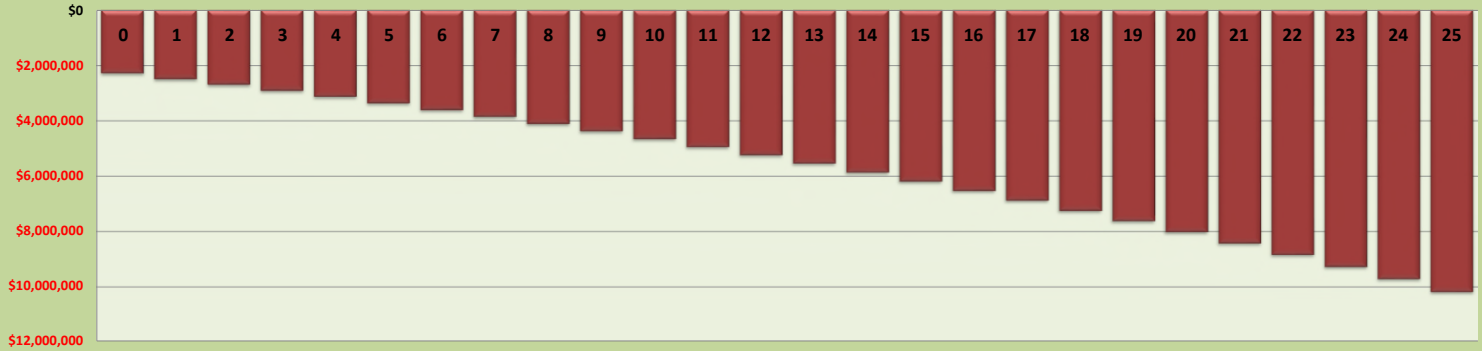
General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Project Costs Only Cash Flows By Countermeasure Per Year



Return on Investment (Safety Benefits and Project Investments)



First year to observe a positive return on investiment: Unknown (Unknown years)

Percentage of Service Life to observe a continuous Positive Return on Investment: Unknown%

Appendix D

Safety - U.S. 30 and S.R. 49/Payne Road, Dixon Cavett Road & SR 49/Convoy

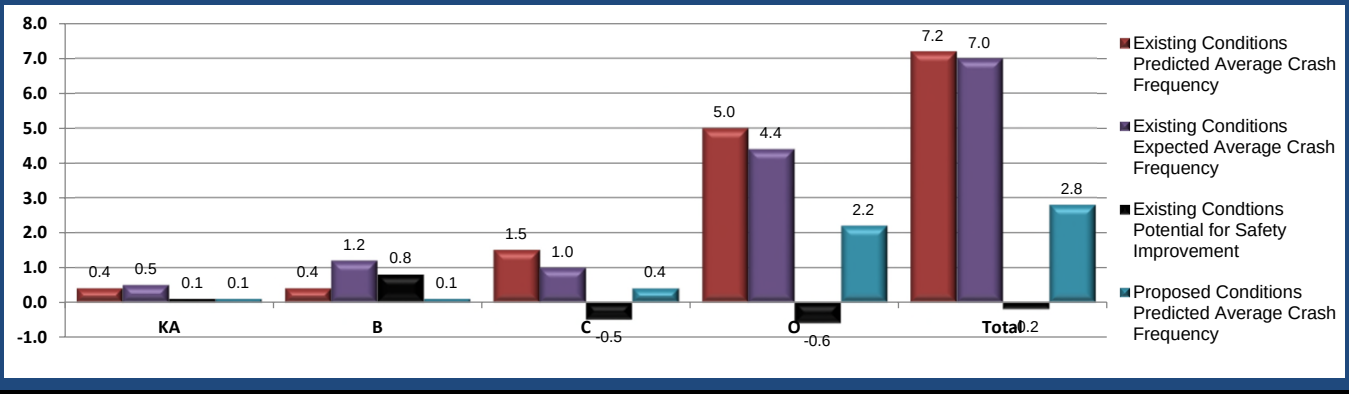
Heller Road - RCUT, Cul-de-Sac, RCUT

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Summary of Anticipated Safety Performance of the Project (average crashes/year)



Project Summary Results (Without Animal Crashes)

	KA	B	C	O	Total
$N_{predicted}$ - Existing Conditions	0.3772	0.3772	1.4939	4.9776	7.2259
$N_{expected}$ - Existing Conditions	0.4519	1.1882	0.9967	4.3717	7.0085
$N_{potential\ for\ improvement}$ - Existing Conditions	**0.0747**	**0.8110**	-0.4972	-0.6059	-0.2174
$N_{predicted}$ - Proposed Conditions	0.1089	0.1089	0.4326	2.1977	2.8481

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30: 3.92	US 30 from Payne Road to Dixon Cavett Road	0.0775	0.0775	0.2769	0.9142	1.3461
US30: 5.242	US 30 from Dixon Cavett Road to Convoy-Hel	0.0764	0.0764	0.2736	0.9029	1.3293
US30: 0-0.26	US 30 at Payne Road	0.0997	0.0997	0.4223	1.3363	1.958

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Expected Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30: 3.92	US 30 from Payne Road to Dixon Cavett Road	0.0699	0.1793	0.0969	0.6605	1.0066
US30: 5.242	US 30 from Dixon Cavett Road to Convoy-Hel	0.069	0.1769	0.0958	0.5506	0.8923
US30: 0-0.26	US 30 at Payne Road	0.1698	0.451	0.4359	1.3363	2.393

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Potential for Safety Improvement Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30: 3.92	US 30 from Payne Road to Dixon Cavett Road	-0.0076	**0.1018**	-0.18	-0.2537	-0.3395
US30: 5.242	US 30 from Dixon Cavett Road to Convoy-Hel	-0.0074	**0.1005**	-0.1778	-0.3523	-0.437
US30: 0-0.26	US 30 at Payne Road	**0.0701**	**0.3513**	**0.0136**	0	**0.435**

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Proposed Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30: 3.92	US 30 at SR 49N/Payne Road	0.0402	0.0402	0.1652	0.9288	1.1744
US30: 5.242	US 30 at Convoy-Heller Road	0.0394	0.0394	0.1624	0.9182	1.1594
US30: 0-0.26	US 30 Dixon Cavett Road	0.0293	0.0293	0.105	0.3507	0.5143

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Summary by Crash Type

Crash Type	Existing			Proposed
	Predicted Crash Frequency	Expected Crash Frequency	PSI	Predicted Crash Frequency
Unknown	0.4824	0.0191	-0.4633	0.3411
Head On	0.0119	0.0162	**0.0043**	0.0089
Rear End	0.7517	0.9473	**0.1956**	0.6443
Backing	0.0961	0.0982	**0.0021**	0.0860
Sideswipe - Meeting	0.0496	0.0555	**0.0059**	0.0432
Sideswipe - Passing	0.3749	0.4035	**0.0286**	0.3374
Angle	0.7028	0.9072	**0.2044**	0.4597
Parked Vehicle	0.1271	0.1370	**0.0099**	0.1134
Pedestrian	0.0202	0.0286	**0.0084**	0.0141
Animal	0.5392	0.3307	-0.2085	0.5392
Train	0.0004	0.0004	0.0000	0.0004
Pedalcycles	0.0111	0.0204	**0.0093**	0.0081
Other Non-Vehicle	0.0000	0.0000	0.0000	0.0000
Fixed Object	0.5321	0.5726	**0.0405**	0.4830
Other Object	0.0454	0.0383	-0.0071	0.0427
Overturning	0.0419	0.0409	-0.0010	0.0364
Other Non-Collision	0.0765	0.0675	-0.0090	0.0698
Left Turn	0.1920	0.2582	**0.0662**	0.1597
Right Turn	0.0000	0.0000	0.0000	0.0000

Safety Benefit - Cost Analysis

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Select Site Types to be used in Benefit-Cost Analysis:

All Sites

Comments:

Countermeasure Service Lives, Costs, and Safety Benefits

Countermeasures	Service Life (Years)	Initial Cost of Countermeasure	Annual Maintenance & Energy Costs	Salvage Value	Net Present Cost of Countermeasure	Total Cost of Countermeasures	Summary of Annual Crash Modifications	Net Present Value of Safety Benefits
RCUT	25	$6,075,000.00			$6,075,000.00	$6,075,000.00	-3.710	$3,302,314
Site Characteristic Improvements (i.e. Lighting)	25	$0.00			$0.00	$0.00		
Site Characteristic Improvements (i.e. Signal Phasing)	25	$0.00			$0.00	$0.00		
Site Characteristic Improvements (i.e. Added Right Turn Lane)	25	$0.00			$0.00	$0.00		
RCUT	25	$0.00			$0.00	$0.00	-0.668	$611,682
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
Totals		**$6,075,000.00**	**$0.00**	**$0.00**	**$6,075,000.00**	**$6,075,000.00**	**-4.378**	**$3,913,995**

Safety Benefit - Cost Analysis

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Benefit - Cost Calculator

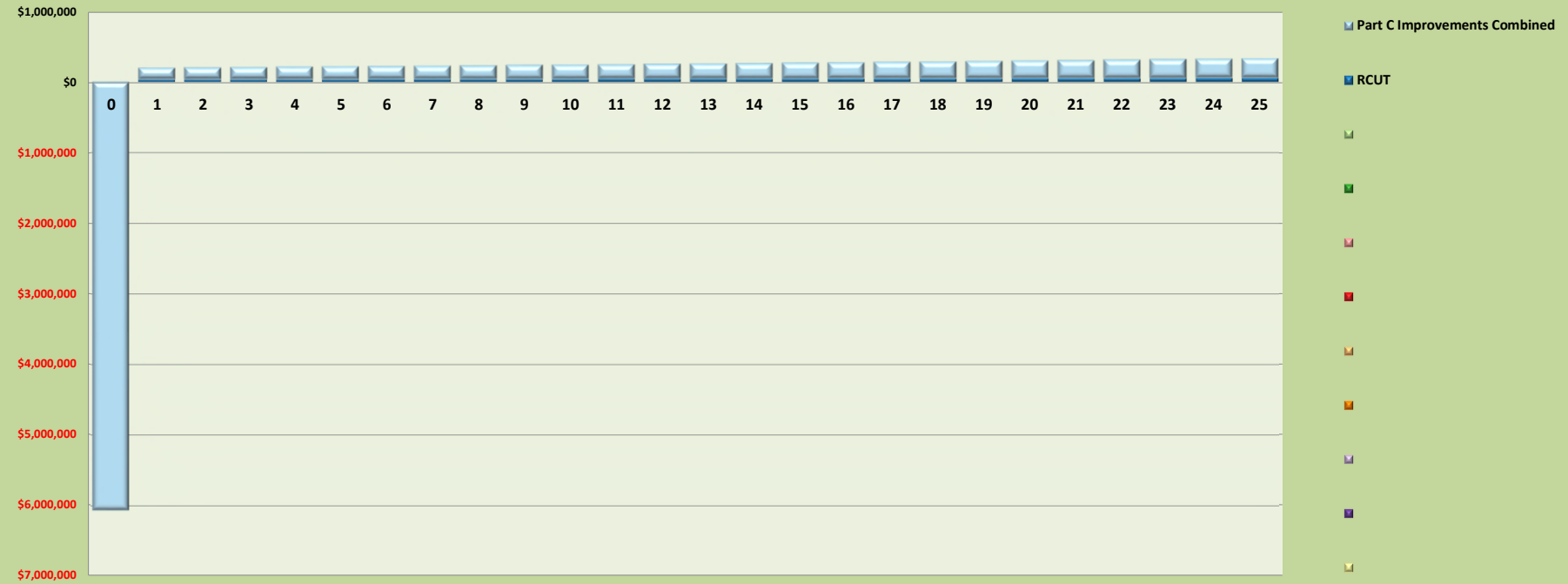
Net Present Value of Project	$6,075,000.00
Net Present Value of Safety Benefits	$3,913,995.48
Net Benefit	($2,161,004.52)
Benefit / Cost Ratio	0.64

Expected Annual Crash Adjustment

Number of Fatal & Incapacitating Injury Crashes	-0.268
Number of Injury Crashes	-1.598
Number of Total Crashes	-4.378

Comments:

Safety Benefits and Project Costs Combined Cash Flows By Countermeasure Per Year

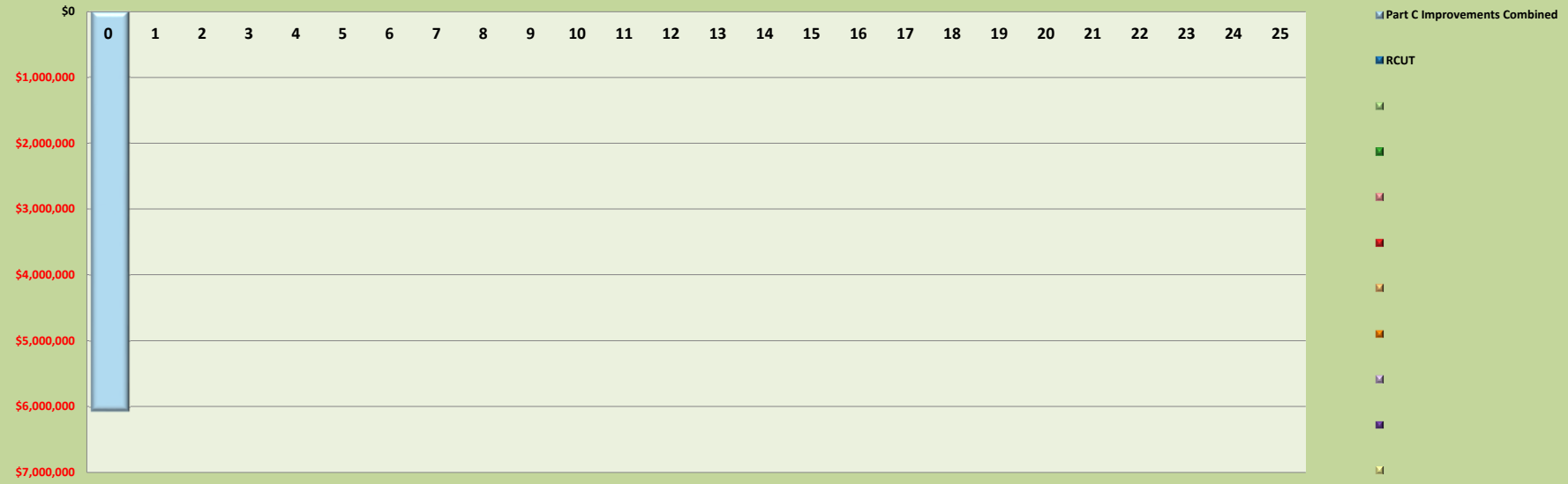


Safety Benefit - Cost Analysis

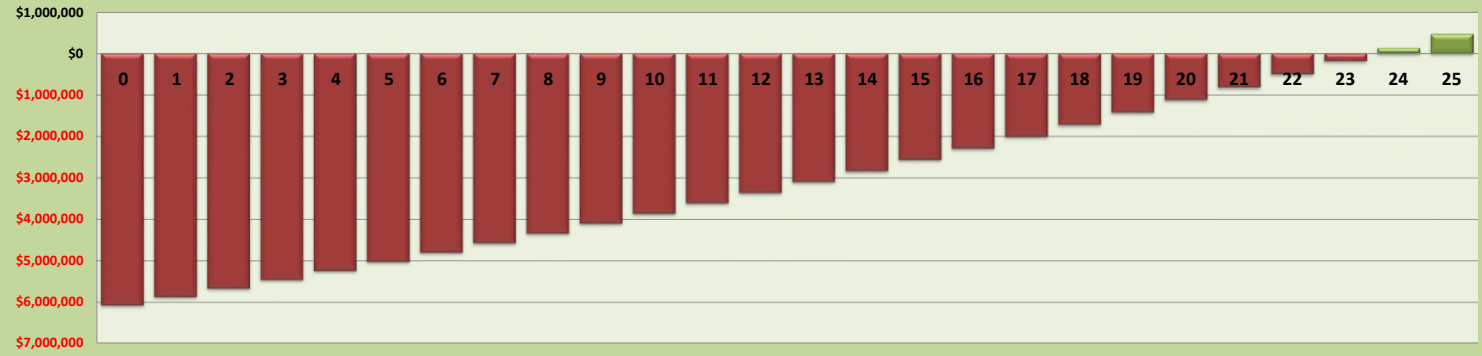
General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Project Costs Only Cash Flows By Countermeasure Per Year



Return on Investment (Safety Benefits and Project Investments)



First year to observe a positive return on investiment: 2071 (24 years)

Percentage of Service Life to observe a continuous Positive Return on Investment: 08.00%

Appendix C

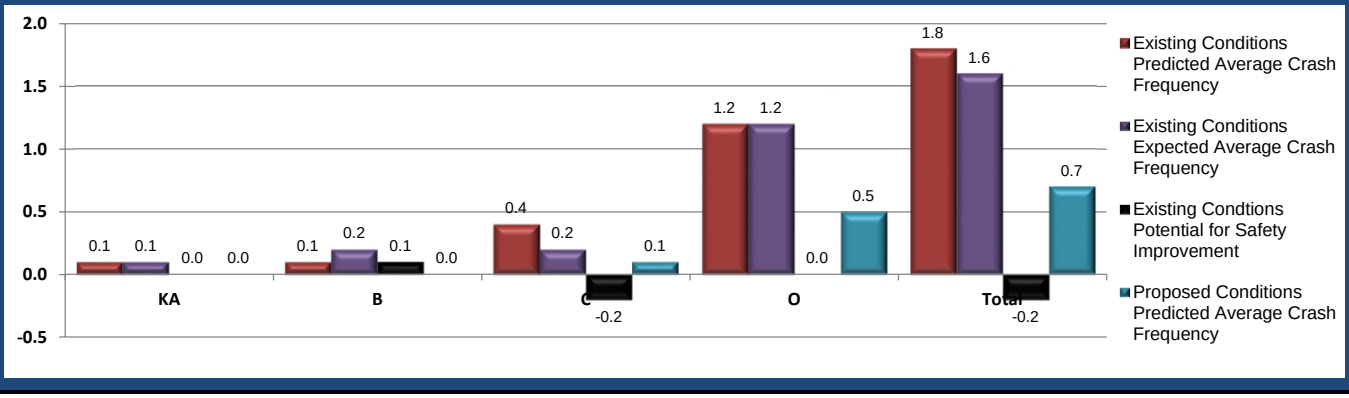
Safety - U.S. 30 and Convoy Road - Overpass

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Summary of Anticipated Safety Performance of the Project (average crashes/year)



Project Summary Results (Without Animal Crashes)

	KA	B	C	O	Total
$N_{predicted}$ - Existing Conditions	0.0872	0.0872	0.3679	1.2093	1.7516
$N_{expected}$ - Existing Conditions	0.0621	0.1649	0.1594	1.2091	1.5955
$N_{potential\ for\ improvement}$ - Existing Conditions	-0.0251	**0.0777**	-0.2085	-0.0002	-0.1561
$N_{expected}$ - Proposed Conditions	0.0406	0.0406	0.1443	0.5009	0.7264

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30; 0-0.26	US 30 at Convoy Road	0.0872	0.0872	0.3679	1.2093	1.7516

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Expected Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30; 0-0.26	US 30 at Convoy Road	0.0621	0.1649	0.1594	1.2091	1.5955

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Potential for Safety Improvement Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30; 0-0.26	US 30 at Convoy Road	-0.0251	**0.0777**	-0.2085	-0.0002	-0.1561

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Proposed Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30; 0-0.26	US 30 at Convoy Road	0.0406	0.0406	0.1443	0.5009	0.7264

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Summary by Crash Type

Crash Type	Existing			Proposed
	Predicted Crash Frequency	Expected Crash Frequency	PSI	Predicted Crash Frequency
Unknown	0.1128	0.0049	-0.1079	0.1128
Head On	0.0011	0.0006	-0.0005	0.0011
Rear End	0.1142	0.0895	-0.0247	0.1142
Backing	0.0057	0.0033	-0.0024	0.0057
Sideswipe - Meeting	0.0112	0.0068	-0.0044	0.0112
Sideswipe - Passing	0.0861	0.0531	-0.0330	0.0861
Angle	0.0385	0.0259	-0.0126	0.0385
Parked Vehicle	0.0110	0.0072	-0.0038	0.0110
Pedestrian	0.0030	0.0017	-0.0013	0.0030
Animal	0.7697	0.4027	-0.3670	0.7697
Train	0.0000	0.0000	0.0000	0.0000
Pedalcycles	0.0006	0.0002	-0.0004	0.0006
Other Non-Vehicle	0.0000	0.0000	0.0000	0.0000
Fixed Object	0.2344	0.1600	-0.0744	0.2344
Other Object	0.0341	0.0180	-0.0161	0.0341
Overturning	0.0254	0.0206	-0.0048	0.0254
Other Non-Collision	0.0374	0.0196	-0.0178	0.0374
Left Turn	0.0109	0.0070	-0.0039	0.0109
Right Turn	0.0000	0.0000	0.0000	0.0000

Safety Benefit - Cost Analysis

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Select Site Types to be used in Benefit-Cost Analysis:

All Sites

Comments:

Countermeasure Service Lives, Costs, and Safety Benefits

Countermeasures	Service Life (Years)	Initial Cost of Countermeasure	Annual Maintenance & Energy Costs	Salvage Value	Net Present Cost of Countermeasure	Total Cost of Countermeasures	Summary of Annual Crash Modifications	Net Present Value of Safety Benefits
Site Characteristic Improvements (i.e. Lane widening)	25	$5,370,000.00			$5,370,000.00	$5,370,000.00	-1.025	$766,183
Site Characteristic Improvements (i.e. Lighting)	25	$0.00			$0.00	$0.00		
Site Characteristic Improvements (i.e. Signal Phasing)	25	$0.00			$0.00	$0.00		
Site Characteristic Improvements (i.e. Added Right Turn Lane)	25	$0.00			$0.00	$0.00		
CMF 1 - Replace direct left-turn with right-turn/U-turn	25	$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
Totals		**$5,370,000.00**	**$0.00**	**$0.00**	**$5,370,000.00**	**$5,370,000.00**	**-1.025**	**$766,183**

Safety Benefit - Cost Analysis

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Benefit - Cost Calculator

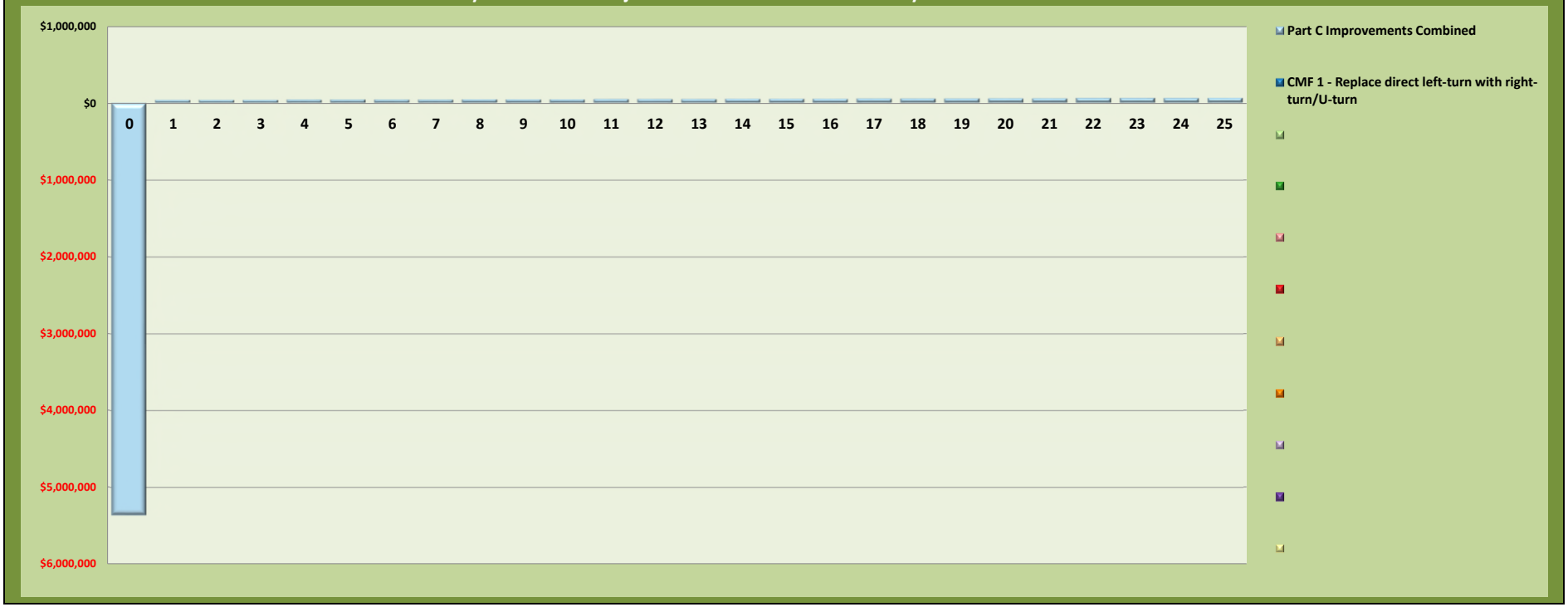
Net Present Value of Project	$5,370,000.00
Net Present Value of Safety Benefits	$766,183.26
Net Benefit	($4,603,816.74)
Benefit / Cost Ratio	0.14

Expected Annual Crash Adjustment

Number of Fatal & Incapacitating Injury Crashes	-0.047
Number of Injury Crashes	-0.317
Number of Total Crashes	-1.025

Comments:

Safety Benefits and Project Costs Combined Cash Flows By Countermeasure Per Year

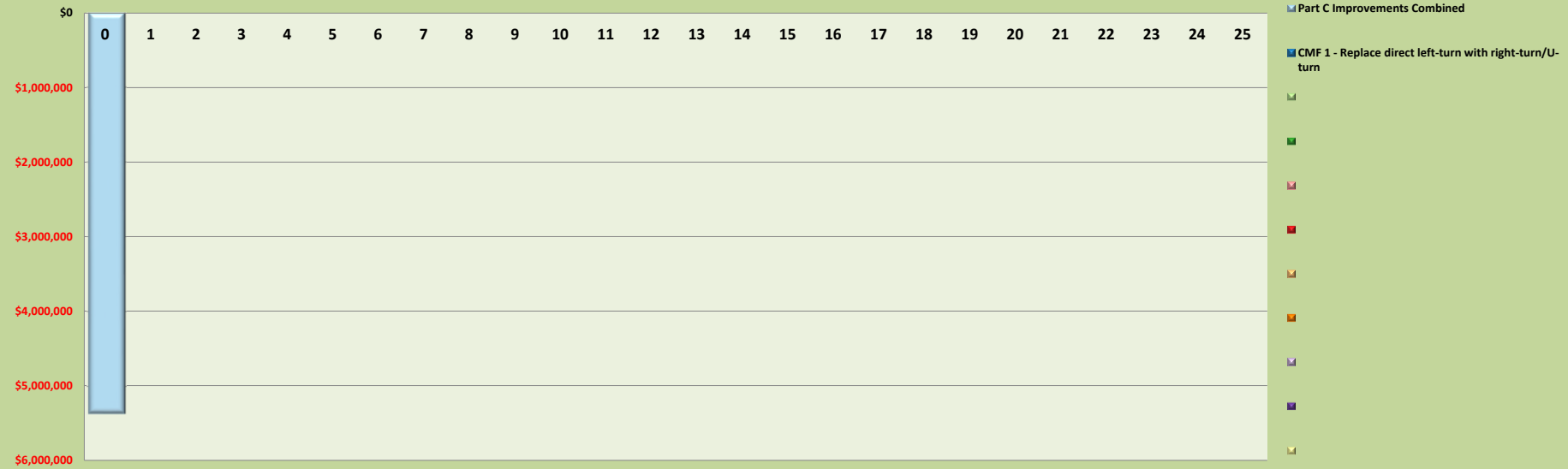


Safety Benefit - Cost Analysis

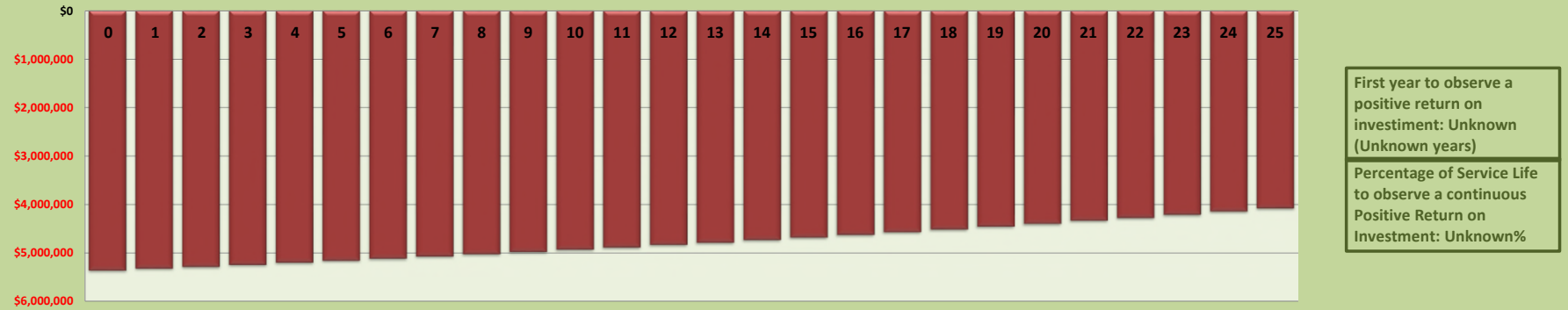
General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Project Costs Only Cash Flows By Countermeasure Per Year



Return on Investment (Safety Benefits and Project Investments)



First year to observe a positive return on investiment: Unknown (Unknown years)

Percentage of Service Life to observe a continuous Positive Return on Investment: Unknown%

Appendix C

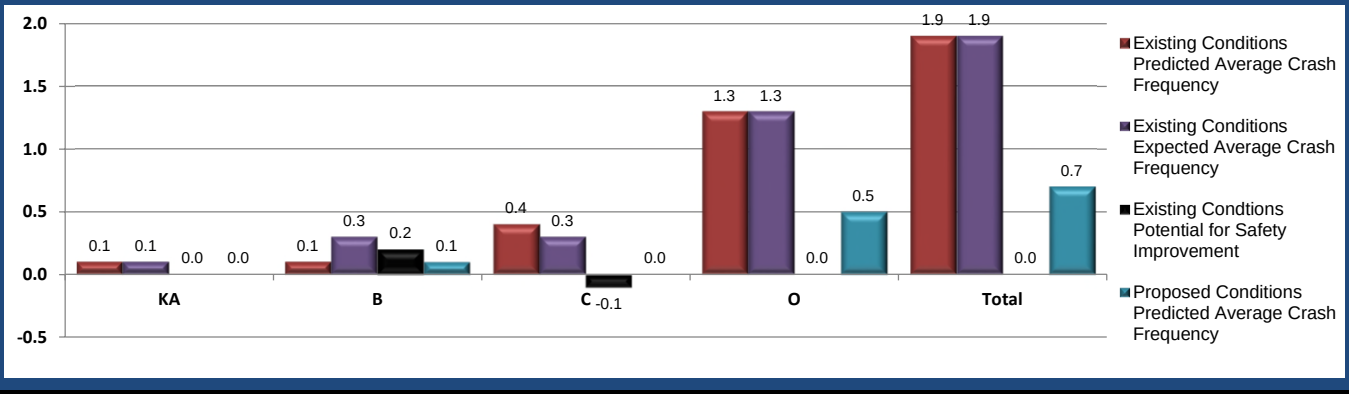
Safety - U.S. 30 and John Brown Road - RCUT

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Summary of Anticipated Safety Performance of the Project (average crashes/year)



Project Summary Results (Without Animal Crashes)

	KA	B	C	O	Total
$N_{predicted}$ - Existing Conditions	0.0953	0.0953	0.4031	1.3009	1.8946
$N_{expected}$ - Existing Conditions	0.0990	0.2630	0.2543	1.3008	1.9171
$N_{potential\ for\ improvement}$ - Existing Conditions	**0.0037**	**0.1677**	-0.1488	-0.0001	**0.0225**
$N_{expected}$ - Proposed Conditions	0.0272	0.0573	0.0340	0.5370	0.6555

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30; 11.473	US 30 at John Brown Road	0.0953	0.0953	0.4031	1.3009	1.8946

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Expected Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30; 11.473	US 30 at John Brown Road	0.099	0.263	0.2543	1.3008	1.9171

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Potential for Safety Improvement Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30; 11.473	US 30 at John Brown Road	**0.0037**	**0.1677**	-0.1488	-1E-04	**0.0225**

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Proposed Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30; 11.473	US 30 at John Brown Road	0.0272	0.0573	0.034	0.537	0.6555

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Summary by Crash Type

Crash Type	Existing			Proposed
	Predicted Crash Frequency	Expected Crash Frequency	PSI	Predicted Crash Frequency
Unknown	0.0005	0.0007	**0.0002**	0.0004
Head On	0.0084	0.0114	**0.0030**	0.0071
Rear End	0.1339	0.1824	**0.0485**	0.1125
Backing	0.0467	0.0649	**0.0182**	0.0413
Sideswipe - Meeting	0.0007	0.0009	**0.0002**	0.0006
Sideswipe - Passing	0.0846	0.1157	**0.0311**	0.0720
Angle	0.2716	0.3602	**0.0886**	0.1738
Parked Vehicle	0.0282	0.0389	**0.0107**	0.0244
Pedestrian	0.0020	0.0024	**0.0004**	0.0013
Animal	0.0000	0.0000	0.0000	0.0000
Train	0.0000	0.0000	0.0000	0.0000
Pedalcycles	0.0007	0.0009	**0.0002**	0.0006
Other Non-Vehicle	0.0000	0.0000	0.0000	0.0000
Fixed Object	0.1532	0.2112	**0.0580**	0.1325
Other Object	0.0049	0.0067	**0.0018**	0.0043
Overturning	0.0065	0.0085	**0.0020**	0.0051
Other Non-Collision	0.0176	0.0244	**0.0068**	0.0153
Left Turn	0.0486	0.0650	**0.0164**	0.0396
Right Turn	0.0286	0.0394	**0.0108**	0.0247

Safety Benefit - Cost Analysis

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Select Site Types to be used in Benefit-Cost Analysis:

All Sites

Comments:

Countermeasure Service Lives, Costs, and Safety Benefits

Countermeasures	Service Life (Years)	Initial Cost of Countermeasure	Annual Maintenance & Energy Costs	Salvage Value	Net Present Cost of Countermeasure	Total Cost of Countermeasures	Summary of Annual Crash Modifications	Net Present Value of Safety Benefits
Site Characteristic Improvements (i.e. Lane widening)	25	$0.00			$0.00	$0.00	-1.058	$1,145,899
Site Characteristic Improvements (i.e. Lighting)	25	$0.00			$0.00	$0.00		
Site Characteristic Improvements (i.e. Signal Phasing)	25	$0.00			$0.00	$0.00		
Site Characteristic Improvements (i.e. Added Right Turn Lane)	25	$0.00			$0.00	$0.00		
CMF 1 - Replace direct left-turn with right-turn/U-turn	25	$2,430,000.00			$2,430,000.00	$2,430,000.00	-0.181	$253,093
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
Totals		**$2,430,000.00**	**$0.00**	**$0.00**	**$2,430,000.00**	**$2,430,000.00**	**-1.239**	**$1,398,992**

Safety Benefit - Cost Analysis

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Benefit - Cost Calculator

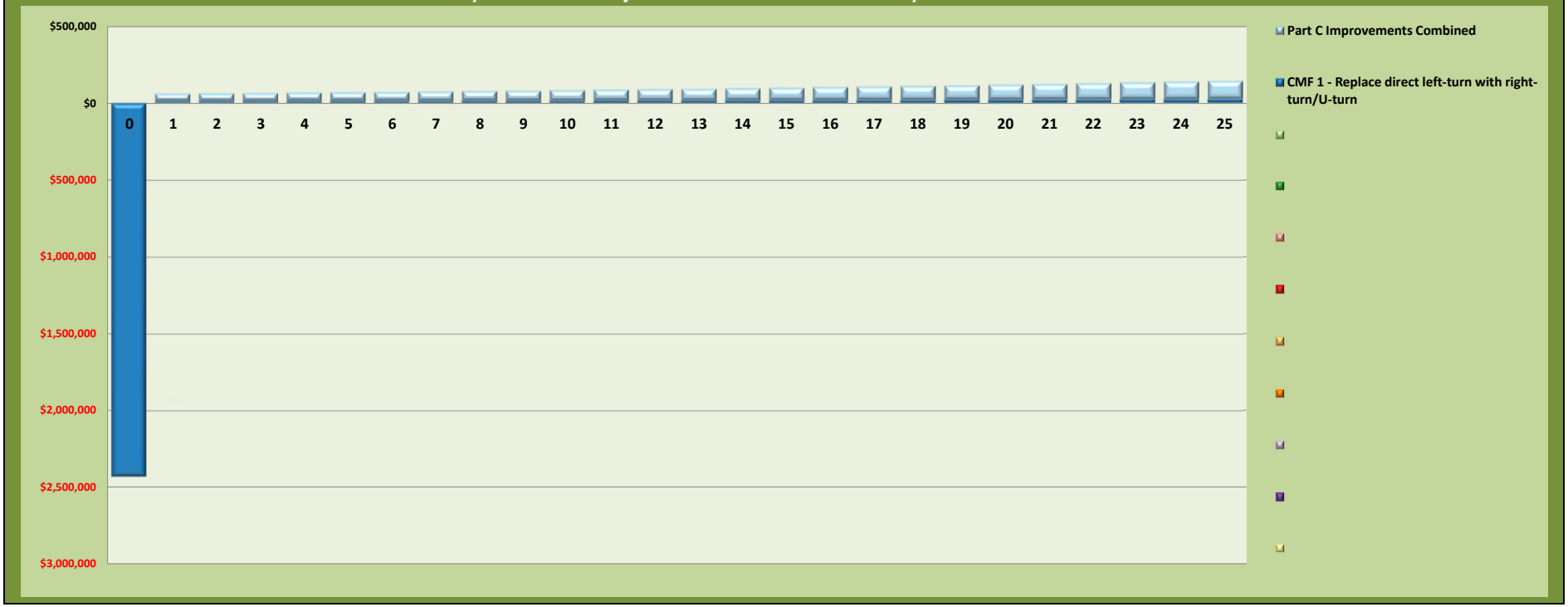
Net Present Value of Project	$2,430,000.00
Net Present Value of Safety Benefits	$1,398,991.96
Net Benefit	($1,031,008.04)
Benefit / Cost Ratio	0.58

Expected Annual Crash Adjustment

Number of Fatal & Incapacitating Injury Crashes	-0.068
Number of Injury Crashes	-0.475
Number of Total Crashes	-1.239

Comments:

Safety Benefits and Project Costs Combined Cash Flows By Countermeasure Per Year

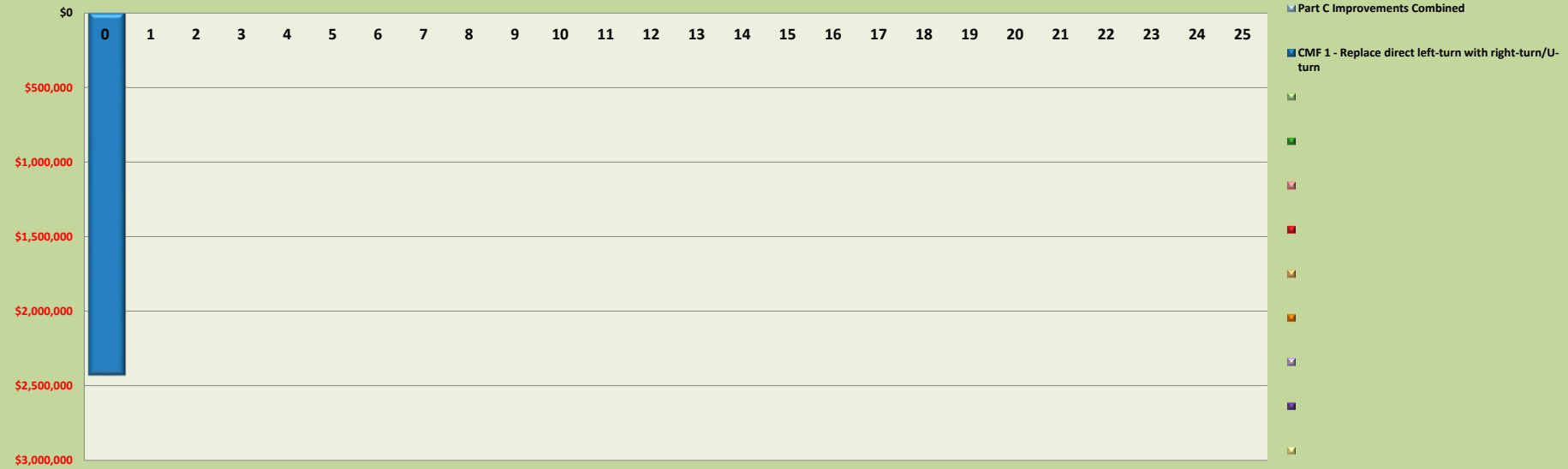


Safety Benefit - Cost Analysis

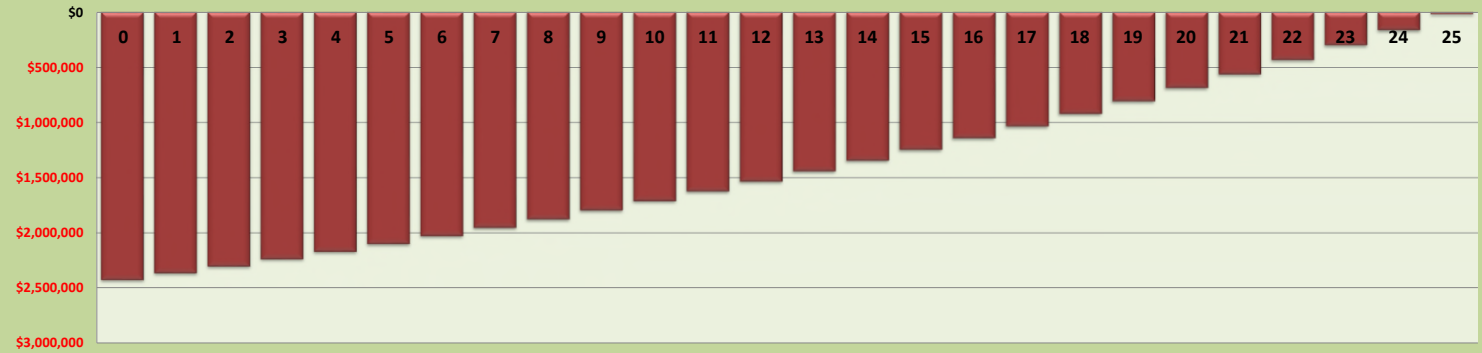
General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Project Costs Only Cash Flows By Countermeasure Per Year



Return on Investment (Safety Benefits and Project Investments)



First year to observe a positive return on investiment: Unknown (Unknown years)

Percentage of Service Life to observe a continuous Positive Return on Investment: Unknown%

Appendix C

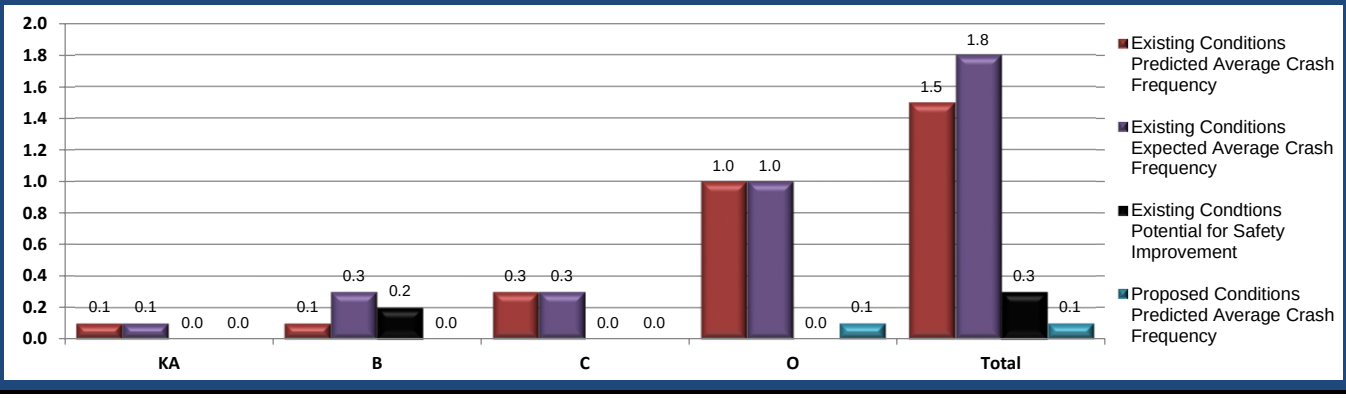
Safety - U.S. 30 and Liberty Union Road - Cul-de-Sac

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Summary of Anticipated Safety Performance of the Project (average crashes/year)



Project Summary Results (Without Animal Crashes)

	KA	B	C	O	Total
$N_{predicted}$ - Existing Conditions	0.0715	0.0715	0.3026	1.0432	1.4888
$N_{expected}$ - Existing Conditions	0.1204	0.3196	0.3089	1.0432	1.7921
$N_{potential\ for\ improvement}$ - Existing Conditions	**0.0489**	**0.2481**	**0.0063**	0.0000	**0.3033**
$N_{expected}$ - Proposed Conditions	0.0065	0.0065	0.0065	0.1151	0.1346

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30; 10.427	US 30 at Liberty-Union Road	0.0715	0.0715	0.3026	1.0432	1.4888

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Expected Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30; 10.427	US 30 at Liberty-Union Road	0.1204	0.3196	0.3089	1.0432	1.7921

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Existing Conditions Project Element Potential for Safety Improvement Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30; 10.427	US 30 at Liberty-Union Road	0.0489	0.2481	0.0063	0	0.3033

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Proposed Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US30; 0-0.14	US 30	0.0065	0.0065	0.0065	0.1151	0.1346

Project Safety Performance Report

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Summary by Crash Type

Crash Type	Existing			Proposed
	Predicted Crash Frequency	Expected Crash Frequency	PSI	Predicted Crash Frequency
Unknown	0.2371	0.0080	-0.2291	0.0018
Head On	0.0061	0.0106	**0.0045**	0.0001
Rear End	0.3150	0.4695	**0.1545**	0.0248
Backing	0.0427	0.0451	**0.0024**	0.0013
Sideswipe - Meeting	0.0203	0.0274	**0.0071**	0.0024
Sideswipe - Passing	0.1471	0.1826	**0.0355**	0.0192
Angle	0.3358	0.5139	**0.1781**	0.0078
Parked Vehicle	0.0553	0.0646	**0.0093**	0.0023
Pedestrian	0.0106	0.0195	**0.0089**	0.0006
Animal	0.0000	0.0000	0.0000	0.1762
Train	0.0002	0.0002	0.0000	0.0000
Pedalcycles	0.0059	0.0138	**0.0079**	0.0000
Other Non-Vehicle	0.0000	0.0000	0.0000	0.0000
Fixed Object	0.1747	0.2366	**0.0619**	0.0508
Other Object	0.0100	0.0117	**0.0017**	0.0079
Overturning	0.0124	0.0149	**0.0025**	0.0049
Other Non-Collision	0.0238	0.0255	**0.0017**	0.0086
Left Turn	0.0918	0.1482	**0.0564**	0.0021
Right Turn	0.0000	0.0000	0.0000	0.0000

Safety Benefit - Cost Analysis

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Select Site Types to be used in Benefit-Cost Analysis:

All Sites

Comments:

Countermeasure Service Lives, Costs, and Safety Benefits

Countermeasures	Service Life (Years)	Initial Cost of Countermeasure	Annual Maintenance & Energy Costs	Salvage Value	Net Present Cost of Countermeasure	Total Cost of Countermeasures	Summary of Annual Crash Modifications	Net Present Value of Safety Benefits
Site Characteristic Improvements (i.e. Lane widening)	25	$0.00			$0.00	$0.00	-1.354	$1,244,303
Site Characteristic Improvements (i.e. Lighting)	25	$0.00			$0.00	$0.00		
Site Characteristic Improvements (i.e. Signal Phasing)	25	$0.00			$0.00	$0.00		
Site Characteristic Improvements (i.e. Added Right Turn Lane)	25	$0.00			$0.00	$0.00		
CMF 1 - Replace direct left-turn with right-turn/U-turn	25	$945,000.00			$945,000.00	$945,000.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
		$0.00			$0.00	$0.00	0.000	$0
Totals		**$945,000.00**	**$0.00**	**$0.00**	**$945,000.00**	**$945,000.00**	**-1.354**	**$1,244,303**

Safety Benefit - Cost Analysis

General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Benefit - Cost Calculator

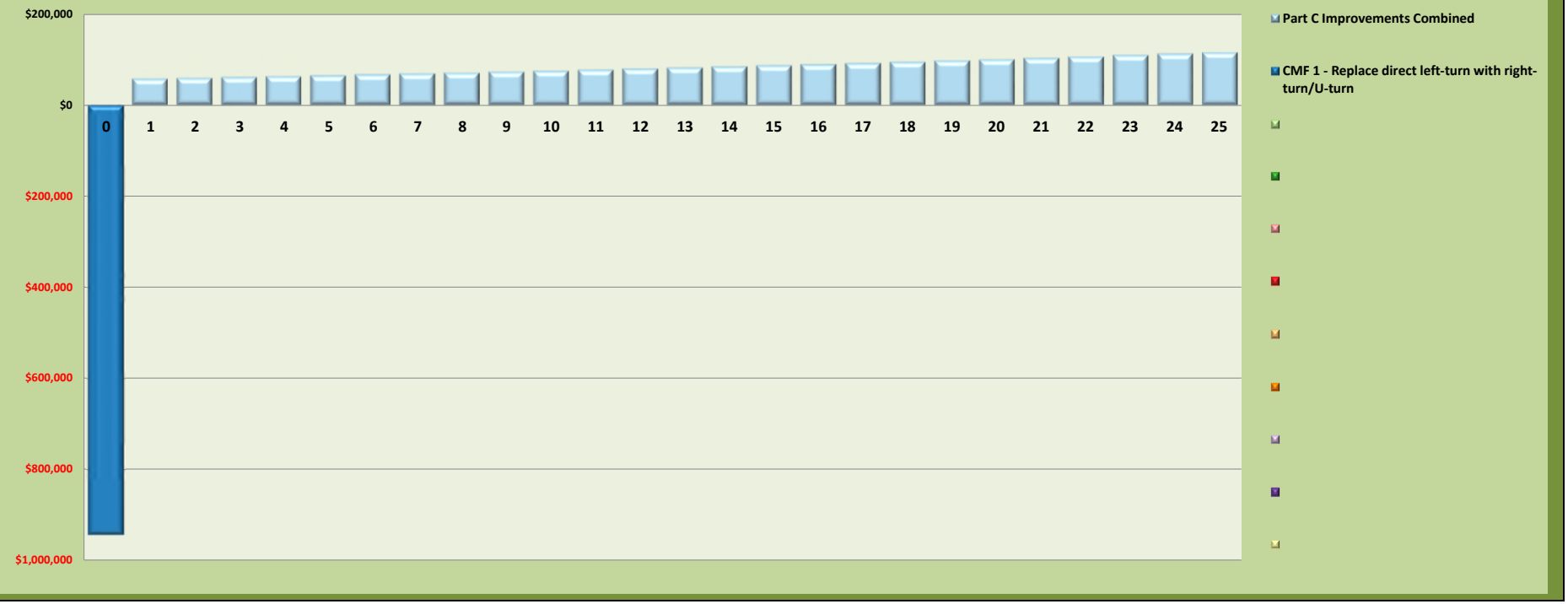
Net Present Value of Project	$945,000.00
Net Present Value of Safety Benefits	$1,244,303.38
Net Benefit	$299,303.38
Benefit / Cost Ratio	1.32

Expected Annual Crash Adjustment

Number of Fatal & Incapacitating Injury Crashes	-0.065
Number of Injury Crashes	-0.426
Number of Total Crashes	-1.354

Comments:

Safety Benefits and Project Costs Combined Cash Flows By Countermeasure Per Year

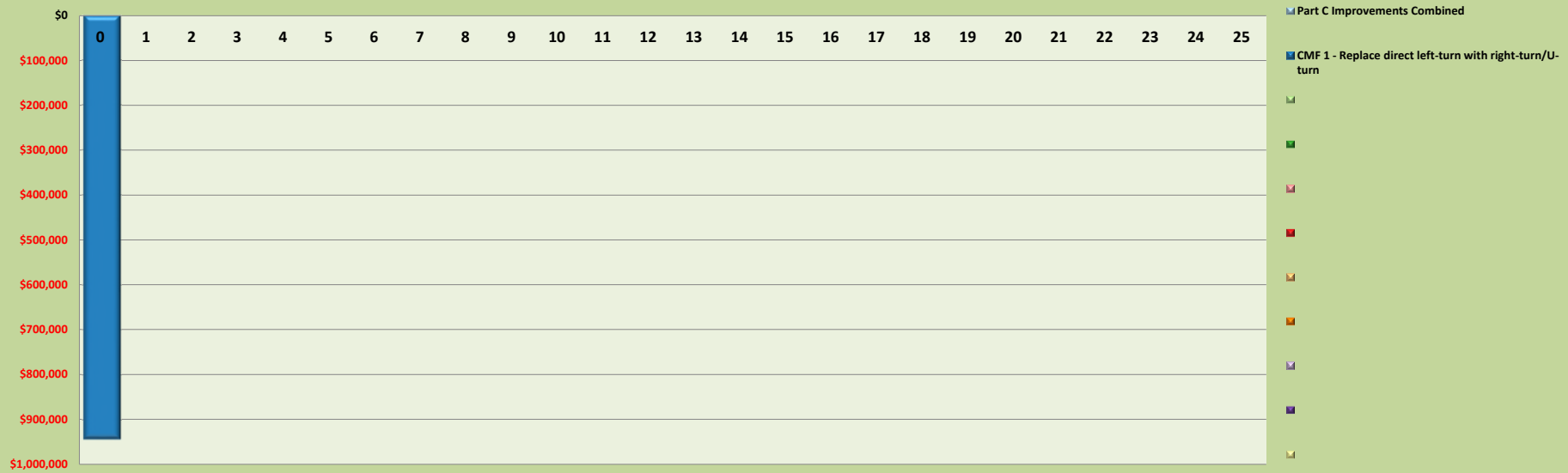


Safety Benefit - Cost Analysis

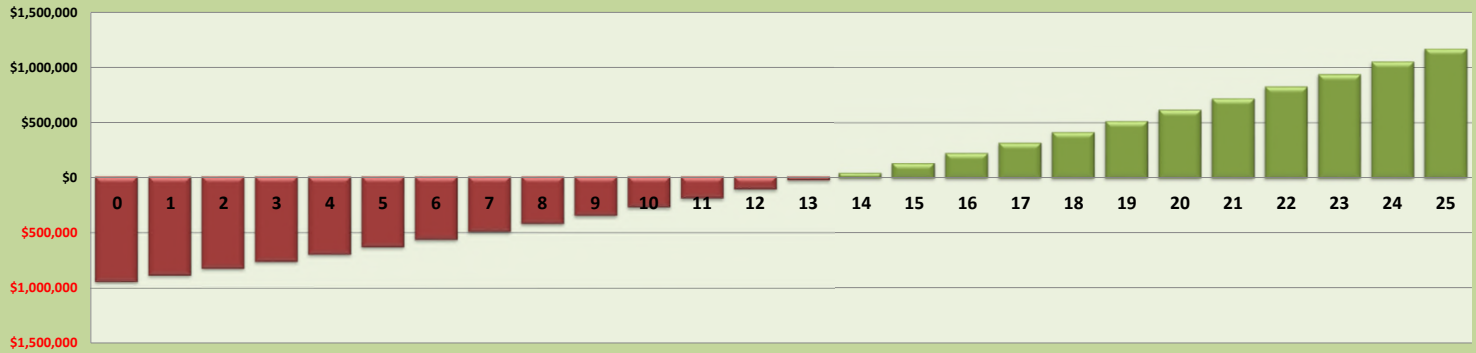
General Information

Project Name	PAU/VAN US 30	Contact Email	Justin.Maderia@arcadis.com
Project Description	Feasibility Study	Contact Phone	216-298-5239
Reference Number	PID #113196	Date Performed	4/6/2021
Analyst	Justin Maderia	Analysis Year	2047
Agency/Company	Arcadis		

Project Costs Only Cash Flows By Countermeasure Per Year



Return on Investment (Safety Benefits and Project Investments)



First year to observe a positive return on investiment: 2061 (14 years)

Percentage of Service Life to observe a continuous Positive Return on Investment: 48.00%

Appendix D

HCS Analysis

Appendix D

HCS Analysis - No-Build Alternative - 2027 A.M. Peak Hour

HCS7 Two-Way Stop-Control Report

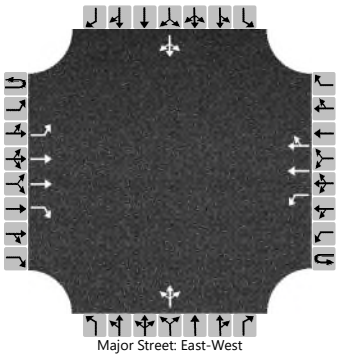
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at State Line Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	State Line Road
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	1	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	R		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	530	10	0	10	690	10		40	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				12	12	12		33	33	33
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No															
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.74	6.74	7.14		8.16	7.16	7.56
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.62	4.12	3.42		3.83	4.33	3.63

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				10					62				31	
Capacity, c (veh/h)		665				788					326				287	
v/c Ratio		0.02				0.01					0.19				0.11	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.7				0.4	
Control Delay (s/veh)		10.5				9.6					18.6				19.0	
Level of Service (LOS)		B				A					C				C	
Approach Delay (s/veh)	0.2				0.1				18.6				19.0			
Approach LOS									C				C			

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HCS7 Two-Way Stop-Control Report

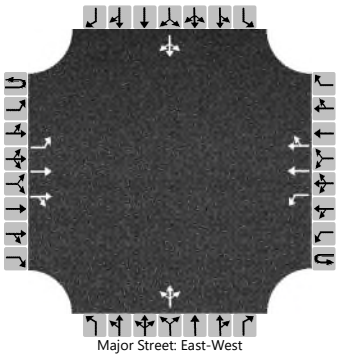
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Klinger Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Klinger Road
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	530	10	0	10	690	10		10	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				62	62	62		30	30	30
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				8.74	7.74	8.14		8.10	7.10	7.50
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				4.12	4.62	3.92		3.80	4.30	3.60

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					32				32	
Capacity, c (veh/h)		655				779					259				285	
v/c Ratio		0.02				0.01					0.12				0.11	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.4				0.4	
Control Delay (s/veh)		10.6				9.7					20.8				19.2	
Level of Service (LOS)		B				A					C				C	
Approach Delay (s/veh)	0.2				0.1				20.8				19.2			
Approach LOS									C				C			

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HCS7 Two-Way Stop-Control Report

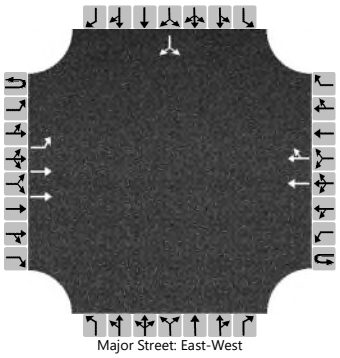
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Krick Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Krick Road
Peak Hour Factor	0.93
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	0	2	0		0	0	0		0	1	0
Configuration		L	T				T	TR							LR	
Volume (veh/h)	0	10	540				700	10						10		10
Percent Heavy Vehicles (%)	0	40												0		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.5		6.9
Critical Headway (sec)		4.90												6.80		6.90
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.60												3.50		3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11													22	
Capacity, c (veh/h)		637													433	
v/c Ratio		0.02													0.05	
95% Queue Length, Q_{95} (veh)		0.1													0.2	
Control Delay (s/veh)		10.7													13.7	
Level of Service (LOS)		B													B	
Approach Delay (s/veh)	0.2												13.7			
Approach LOS													B			

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HCS7 Two-Way Stop-Control Report

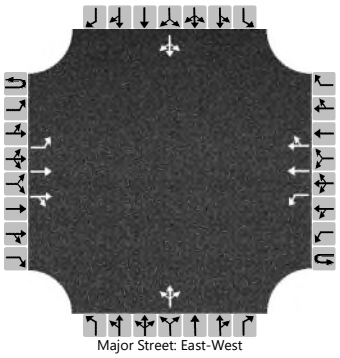
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US30 at Mentzer Church Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Mentzer Chruch Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	530	10	0	10	690	10		10	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					33				33	
Capacity, c (veh/h)		628				754					346				322	
v/c Ratio		0.02				0.01					0.10				0.10	
95% Queue Length, Q_{95} (veh)		0.1				0.0					0.3				0.3	
Control Delay (s/veh)		10.8				9.8					16.5				17.5	
Level of Service (LOS)		B				A					C				C	
Approach Delay (s/veh)	0.2				0.1				16.5				17.5			
Approach LOS									C				C			

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HCS7 Two-Way Stop-Control Report

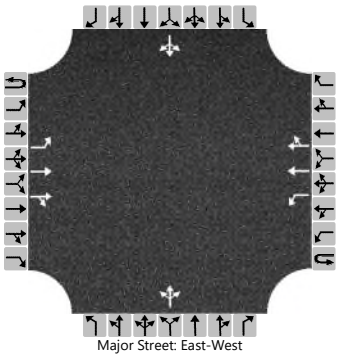
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Elm Sugar Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Elm Sugar Road
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	530	10	0	10	690	10		10	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				100	100	100		50	50	50
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				9.50	8.50	8.90		8.50	7.50	7.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				4.50	5.00	4.30		4.00	4.50	3.80

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				10					31				31	
Capacity, c (veh/h)		665				788					217				261	
v/c Ratio		0.02				0.01					0.14				0.12	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.5				0.4	
Control Delay (s/veh)		10.5				9.6					24.3				20.7	
Level of Service (LOS)		B				A					C				C	
Approach Delay (s/veh)		0.2				0.1				24.3				20.7		
Approach LOS										C				C		

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HCS7 Two-Way Stop-Control Report

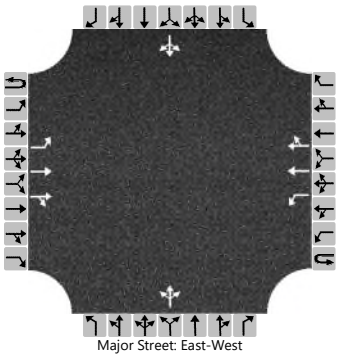
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Lare Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Lare Road
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	0	540	10	0	10	700	0		10	0	20		10	0	20
Percent Heavy Vehicles (%)	40	40			40	40				33	33	33		33	33	33
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				8.16	7.16	7.56		8.16	7.16	7.56
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.83	4.33	3.63		3.83	4.33	3.63

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				11					32				32	
Capacity, c (veh/h)		650				766					435				376	
v/c Ratio		0.00				0.01					0.07				0.08	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.2				0.3	
Control Delay (s/veh)		10.5				9.8					13.9				15.5	
Level of Service (LOS)		B				A					B				C	
Approach Delay (s/veh)	0.0				0.1				13.9				15.5			
Approach LOS									B				C			

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HCS7 Two-Way Stop-Control Report

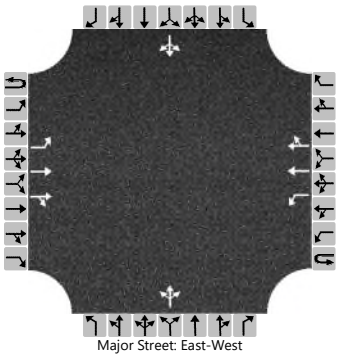
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US30 at Feasby Wisener Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Feasby Wisener Road
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	540	10	0	10	690	10		10	10	20		20	10	10
Percent Heavy Vehicles (%)	40	40			40	40				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left + Thru							1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					45				45	
Capacity, c (veh/h)		616				735					385				295	
v/c Ratio		0.02				0.02					0.12				0.15	
95% Queue Length, Q_{95} (veh)		0.1				0.0					0.4				0.5	
Control Delay (s/veh)		10.9				10.0					15.6				19.4	
Level of Service (LOS)		B				A					C				C	
Approach Delay (s/veh)		0.2				0.1				15.6				19.4		
Approach LOS										C				C		

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HCS7 Two-Way Stop-Control Report

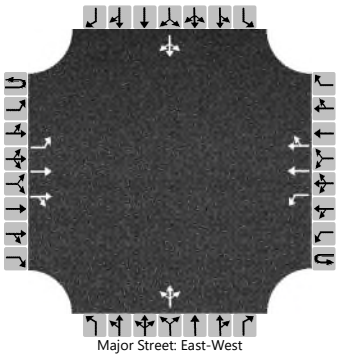
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at SR 49 Payne Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	SR 49 Payne Road
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	30	540	10	0	10	690	40		10	10	20		10	50	10
Percent Heavy Vehicles (%)	40	40			40	40				10	10	10		7	7	7
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.70	6.70	7.10		7.64	6.64	7.04
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.60	4.10	3.40		3.57	4.07	3.37

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		33				11					44				77	
Capacity, c (veh/h)		612				751					337				253	
v/c Ratio		0.05				0.01					0.13				0.30	
95% Queue Length, Q_{95} (veh)		0.2				0.0					0.4				1.2	
Control Delay (s/veh)		11.2				9.9					17.3				25.4	
Level of Service (LOS)		B				A					C				D	
Approach Delay (s/veh)	0.6				0.1				17.3				25.4			
Approach LOS									C				D			

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HCS7 Two-Way Stop-Control Report

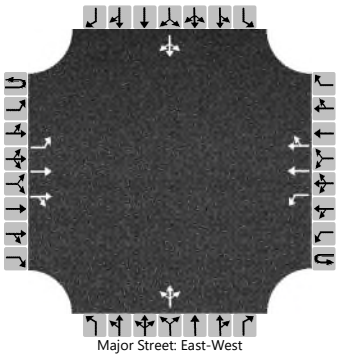
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Dixon Cavett Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Dixon Cavett Road
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	550	10	0	10	720	10		10	10	20		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left + Thru							1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				10					42				31	
Capacity, c (veh/h)		639				767					406				330	
v/c Ratio		0.02				0.01					0.10				0.09	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.3				0.3	
Control Delay (s/veh)		10.7				9.8					14.9				17.1	
Level of Service (LOS)		B				A					B				C	
Approach Delay (s/veh)		0.2				0.1				14.9				17.1		
Approach LOS										B				C		

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HCS7 Two-Way Stop-Control Report

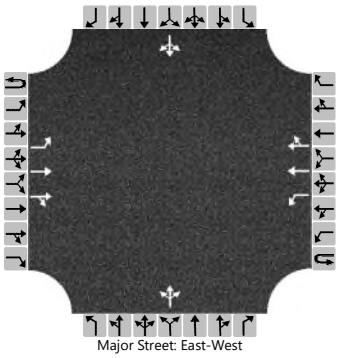
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy-Heller Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Convoy-Heller Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	530	40	0	10	670	10		60	10	20		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				8	8	8		5	5	5
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.66	6.66	7.06		7.60	6.60	7.00
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.58	4.08	3.38		3.55	4.05	3.35

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					98				33	
Capacity, c (veh/h)		653				739					328				322	
v/c Ratio		0.02				0.01					0.30				0.10	
95% Queue Length, Q_{95} (veh)		0.1				0.0					1.2				0.3	
Control Delay (s/veh)		10.6				9.9					20.6				17.4	
Level of Service (LOS)		B				A					C				C	
Approach Delay (s/veh)	0.2				0.1				20.6				17.4			
Approach LOS									C				C			

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HCS7 Two-Way Stop-Control Report

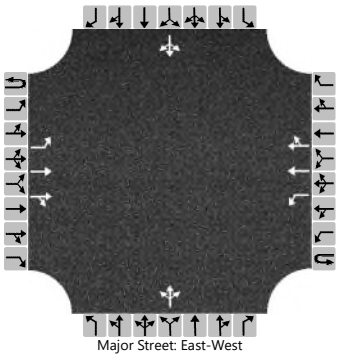
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Colwell Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Colwell Road
Peak Hour Factor	0.98
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	540	10	0	10	670	10		10	10	20		20	10	10
Percent Heavy Vehicles (%)	40	40			40	40				100	100	100		33	33	33
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				9.50	8.50	8.90		8.16	7.16	7.56
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				4.50	5.00	4.30		3.83	4.33	3.63

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				10					41				41	
Capacity, c (veh/h)		685				785					257				278	
v/c Ratio		0.01				0.01					0.16				0.15	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.6				0.5	
Control Delay (s/veh)		10.3				9.6					21.7				20.1	
Level of Service (LOS)		B				A					C				C	
Approach Delay (s/veh)	0.2				0.1				21.7				20.1			
Approach LOS									C				C			

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HCS7 Two-Way Stop-Control Report

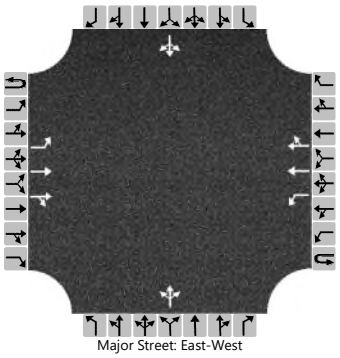
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Convoy Road
Peak Hour Factor	0.93
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	560	10	0	60	670	10		10	10	100		10	30	10
Percent Heavy Vehicles (%)	40	40			40	40				3	3	3		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.56	6.56	6.96		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.53	4.03	3.33		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				65					129				54	
Capacity, c (veh/h)		659				744					520				248	
v/c Ratio		0.02				0.09					0.25				0.22	
95% Queue Length, Q_{95} (veh)		0.0				0.3					1.0				0.8	
Control Delay (s/veh)		10.6				10.3					14.2				23.5	
Level of Service (LOS)		B				B					B				C	
Approach Delay (s/veh)	0.2				0.8				14.2				23.5			
Approach LOS									B				C			

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HCS7 Two-Way Stop-Control Report

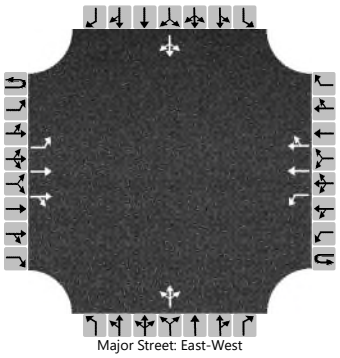
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Richey Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Richey Road
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	650	10	0	10	720	10		10	10	20		20	10	10
Percent Heavy Vehicles (%)	40	40			40	40				0	0	0		30	30	30
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.50	6.50	6.90		8.10	7.10	7.50
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.50	4.00	3.30		3.80	4.30	3.60

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					42				42	
Capacity, c (veh/h)		634				684					368				247	
v/c Ratio		0.02				0.02					0.11				0.17	
95% Queue Length, Q_{95} (veh)		0.1				0.0					0.4				0.6	
Control Delay (s/veh)		10.8				10.3					16.0				22.6	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)		0.2				0.1				16.0				22.6		
Approach LOS										C				C		

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HCS7 Two-Way Stop-Control Report

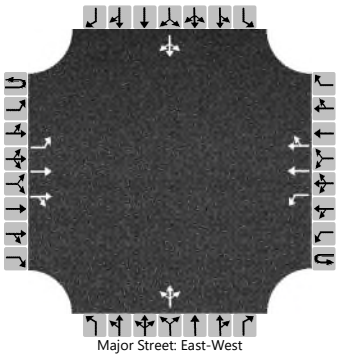
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Liberty-Union Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Liberty-Union Road
Peak Hour Factor	0.98
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	660	10	0	10	700	10		20	10	10		20	10	20
Percent Heavy Vehicles (%)	40	40			40	40				17	17	17		11	11	11
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.84	6.84	7.24		7.72	6.72	7.12
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.67	4.17	3.47		3.61	4.11	3.41

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				10					41				51	
Capacity, c (veh/h)		663				692					287				326	
v/c Ratio		0.02				0.01					0.14				0.16	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.5				0.5	
Control Delay (s/veh)		10.5				10.3					19.6				18.1	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)	0.2				0.1				19.6				18.1			
Approach LOS									C				C			

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.43		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		560	2
3	Basic	Basic		2475	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1028	4800	0.21	75.0	6.9	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.78	0.714	0.885	1028	275	4800	2100	0.21	0.13	64.3	64.3	8.0	8.1	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	745	4800	0.16	74.1	5.0	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.81	0.714	0.862	931	186	4800	2100	0.19	0.09	66.8	66.8	7.0	6.9	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	939	4800	0.20	74.3	6.3	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.8	6.3	4.5	1.20	B

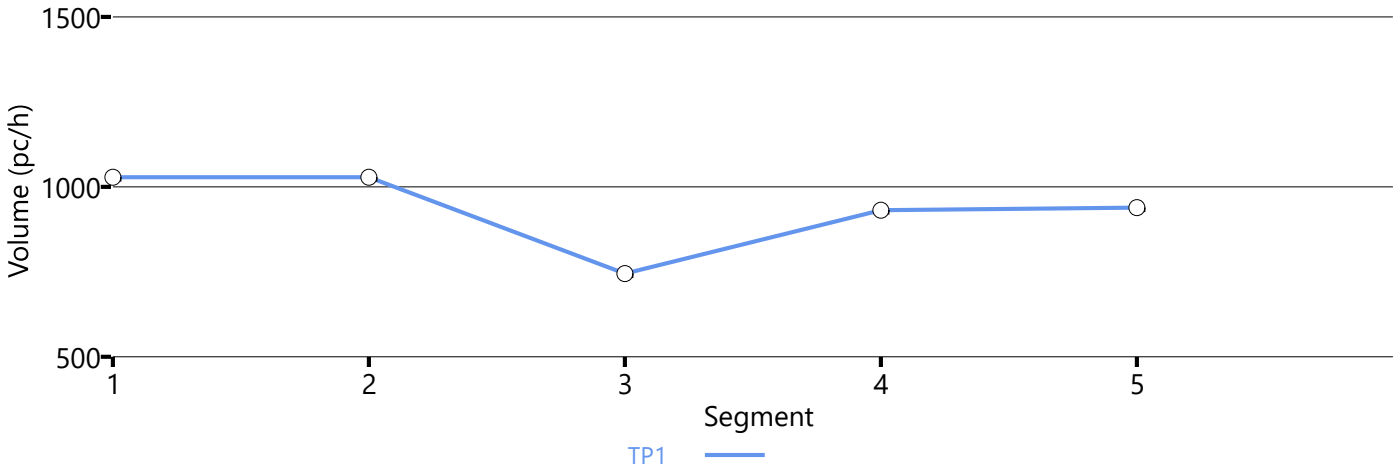
Facility Overall Results

Space Mean Speed, mi/h	71.8	Density, veh/mi/ln	4.5
Average Travel Time, min	1.20	Density, pc/mi/ln	6.3

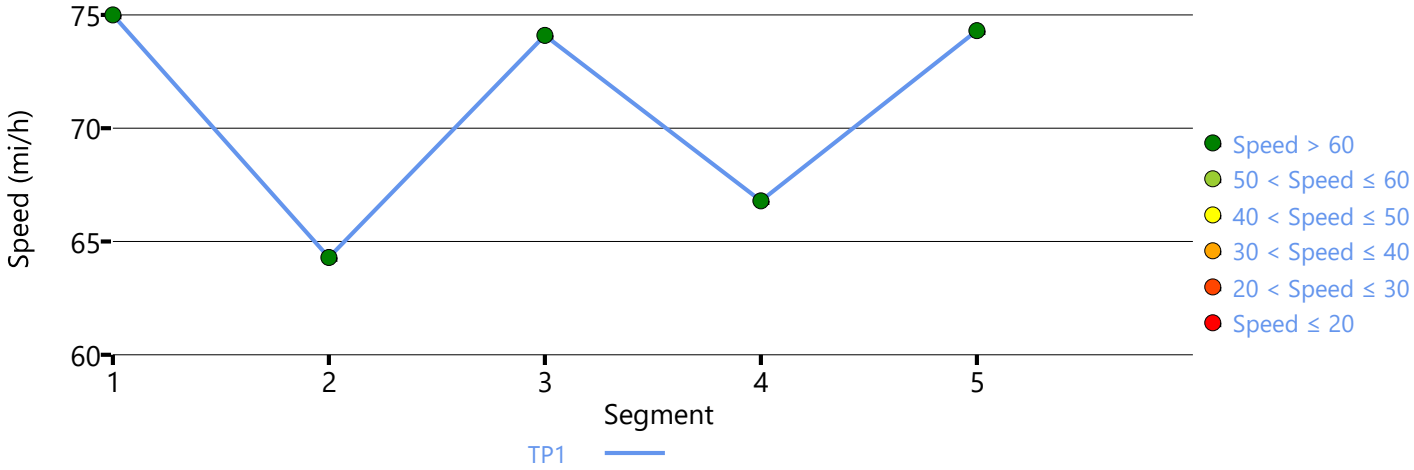
Messages

Comments

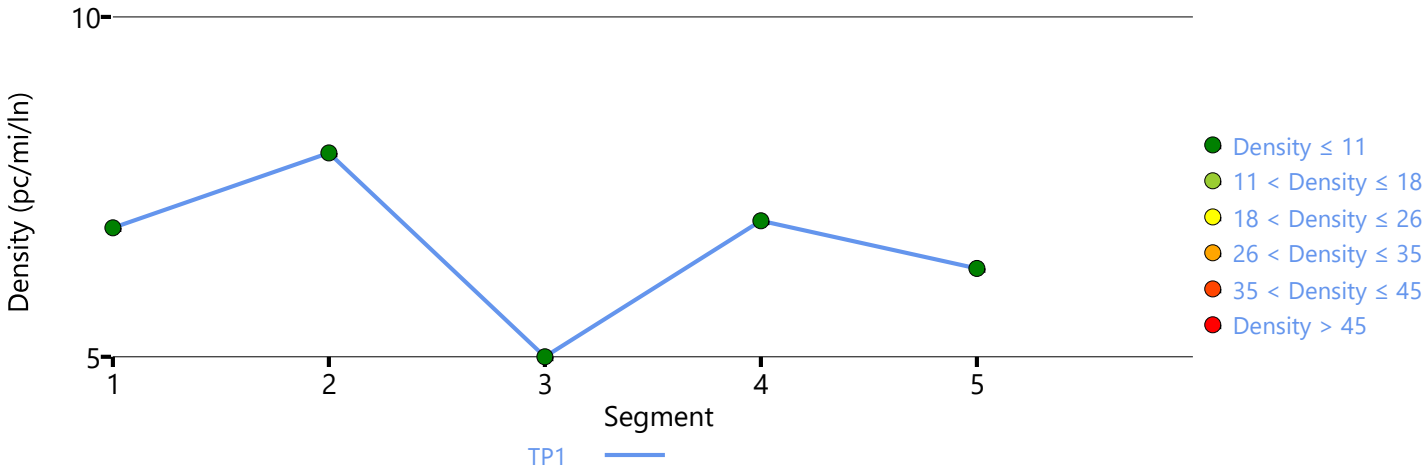
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	690	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	514
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	560	560
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	690	190
Peak Hour Factor (PHF)	0.94	0.78
Total Trucks, %	40.00	13.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.885
Flow Rate (vi),pc/h	1028	275
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.21	0.13

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.323
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1028	Ramp Junction Speed (S), mi/h	64.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.0
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	8.1

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2475	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	500	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	372
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.16
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	5.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	925
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	500	130
Peak Hour Factor (PHF)	0.94	0.81
Total Trucks, %	40.00	16.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.862
Flow Rate (vi),pc/h	745	186
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.19	0.09

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.248
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	745	Ramp Junction Speed (S), mi/h	66.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	931	Average Density (D), pc/mi/ln	7.0
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	6.9

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	630	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	470
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.20
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.60		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2465	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1058	4800	0.22	75.0	7.1	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.80	0.714	0.813	1058	108	4800	2100	0.22	0.05	64.8	64.8	8.2	10.1	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	954	4800	0.20	74.6	6.4	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.75	0.714	0.847	1080	126	4800	1900	0.22	0.07	65.7	65.7	8.2	8.6	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1073	4800	0.22	74.2	7.1	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.9	7.3	5.2	1.40	B

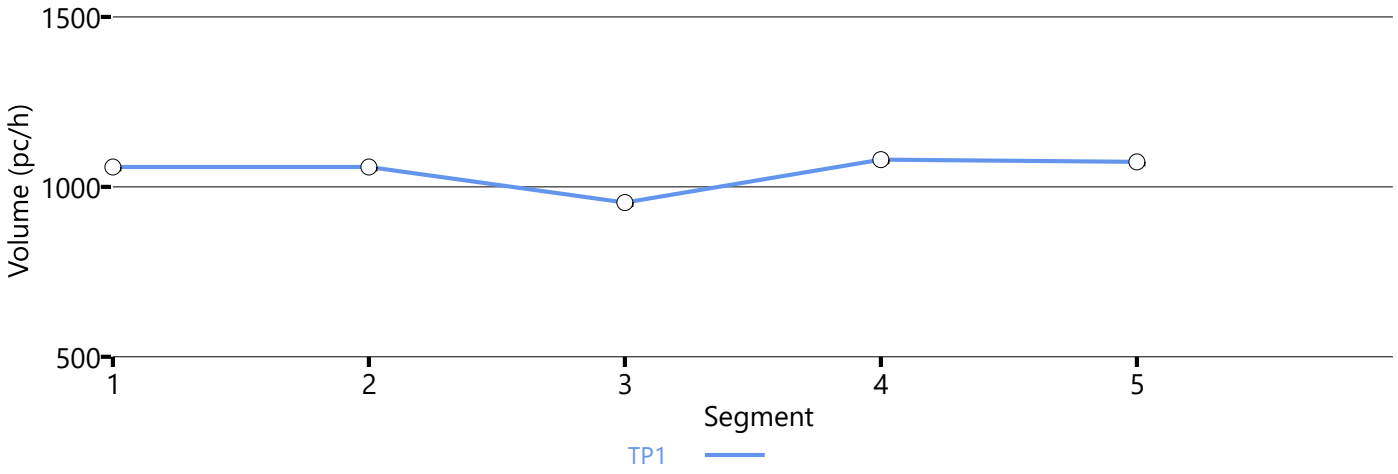
Facility Overall Results

Space Mean Speed, mi/h	70.9	Density, veh/mi/ln	5.2
Average Travel Time, min	1.40	Density, pc/mi/ln	7.3

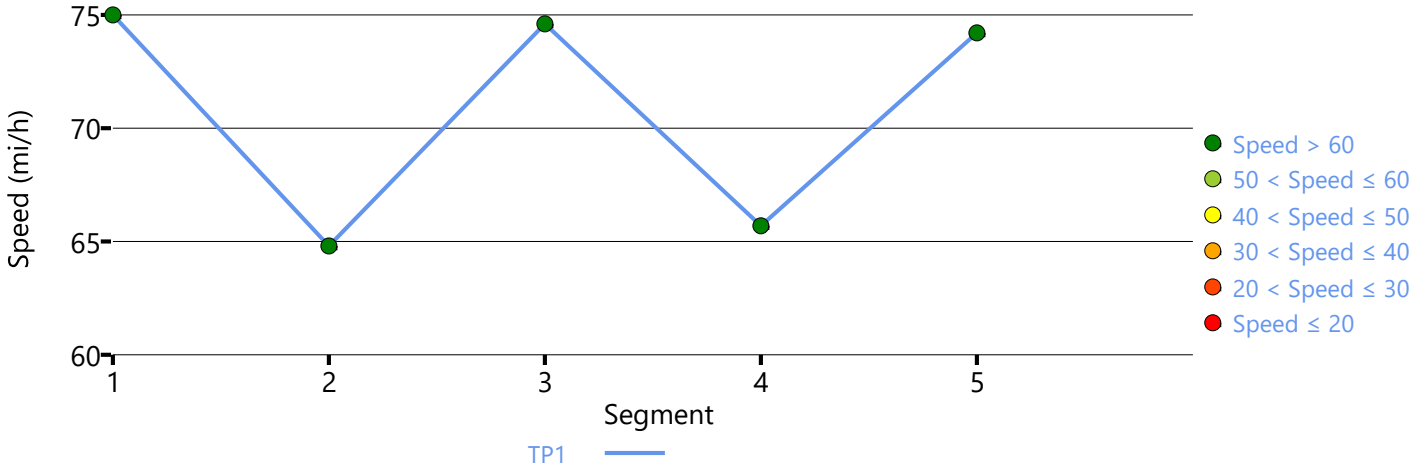
Messages

Comments

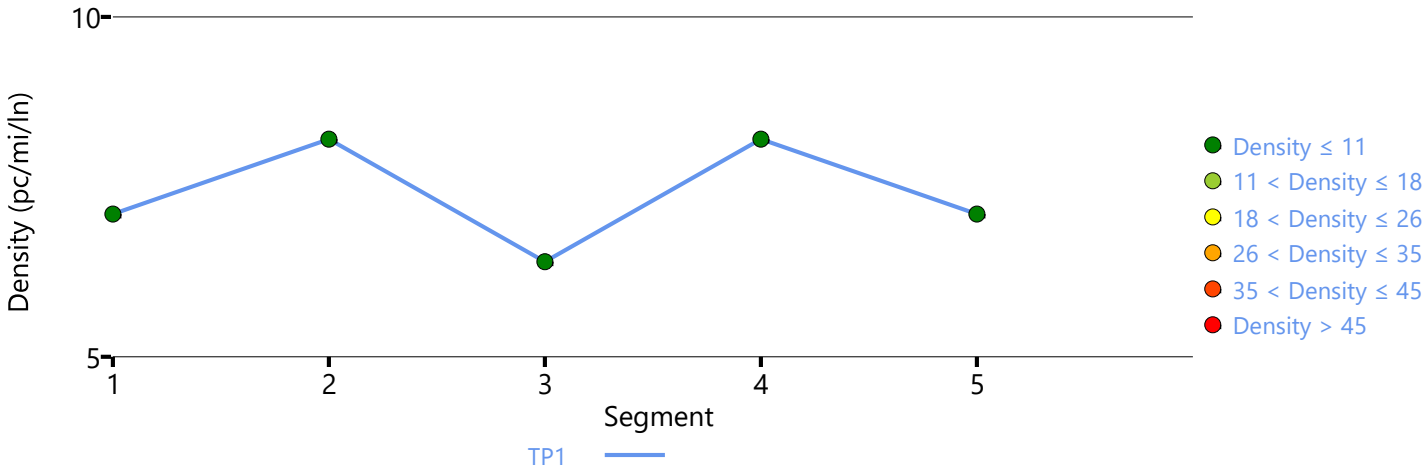
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	710	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	529
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.22
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	360
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	710	70
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	40.00	23.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.813
Flow Rate (vi),pc/h	1058	108
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.22	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.308
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1058	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.1

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2465	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	640	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	477
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.20
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	30.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	640	80
Peak Hour Factor (PHF)	0.94	0.75
Total Trucks, %	40.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.847
Flow Rate (vi),pc/h	954	126
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.22	0.07

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.282
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	954	Ramp Junction Speed (S), mi/h	65.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	1080	Average Density (D), pc/mi/ln	8.2
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	8.6

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	720	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	536
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.22
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

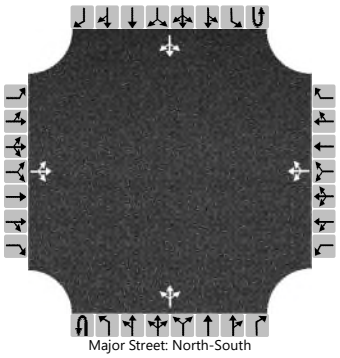
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	7/26/2022
Analysis Year	2027
Time Analyzed	No-Build AM
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Lincoln Hwy at US 224
Jurisdiction	
East/West Street	Lincoln Hwy
North/South Street	US 224
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	80	50		30	60	10		30	140	60		20	170	10
Percent Heavy Vehicles (%)		3	3	3		8	8	8		14				13		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.18	6.58	6.28		4.24				4.23		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.57	4.07	3.37		2.33				2.32		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			165				118			35				24		
Capacity, c (veh/h)			498				393			1290				1270		
v/c Ratio			0.33				0.30			0.03				0.02		
95% Queue Length, Q_{95} (veh)			1.4				1.2			0.1				0.1		
Control Delay (s/veh)			15.8				18.0			7.9				7.9		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)		15.8				18.0				1.2				0.9		
Approach LOS		C				C										

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HCS7 Two-Way Stop-Control Report

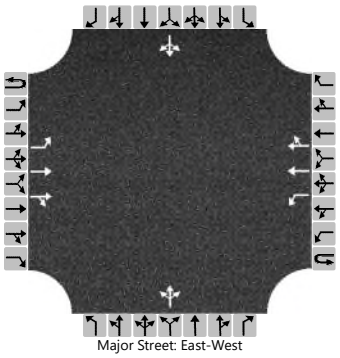
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at John Brown Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	John Brown Road
Peak Hour Factor	0.80
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	610	10	0	30	690	10		10	20	30		30	30	10
Percent Heavy Vehicles (%)	40	40			40	40				2	2	2		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.52	4.02	3.32		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		13				38					75				88	
Capacity, c (veh/h)		568				630					297				208	
v/c Ratio		0.02				0.06					0.25				0.42	
95% Queue Length, Q_{95} (veh)		0.1				0.2					1.0				1.9	
Control Delay (s/veh)		11.5				11.1					21.2				34.3	
Level of Service (LOS)		B				B					C				D	
Approach Delay (s/veh)	0.2				0.5				21.2				34.3			
Approach LOS									C				D			

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HCS7 Two-Way Stop-Control Report

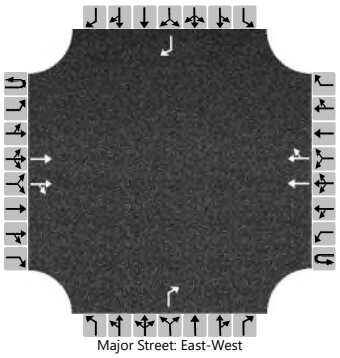
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Dutch John Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Dutch John Road
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	0	1		0	0	1
Configuration			T	TR			T	TR				R				R
Volume (veh/h)			630	40			690	30				50				60
Percent Heavy Vehicles (%)												14				6
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized									No				No			
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)												6.9				6.9
Critical Headway (sec)												7.18				7.02
Base Follow-Up Headway (sec)												3.3				3.3
Follow-Up Headway (sec)												3.44				3.36

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)												53				64
Capacity, c (veh/h)												607				604
v/c Ratio												0.09				0.11
95% Queue Length, Q_{95} (veh)												0.3				0.4
Control Delay (s/veh)												11.5				11.7
Level of Service (LOS)												B				B
Approach Delay (s/veh)									11.5				11.7			
Approach LOS									B				B			

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.50		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		1940	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	983	4800	0.20	75.0	6.6	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.88	0.714	0.758	983	270	4800	1900	0.20	0.14	55.8	55.8	8.8	7.4	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	715	4800	0.15	73.8	4.8	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.90	0.714	0.758	876	161	4800	2100	0.18	0.08	65.6	65.6	6.7	9.2	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	879	4800	0.18	74.2	5.9	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.9	6.5	4.6	1.30	B

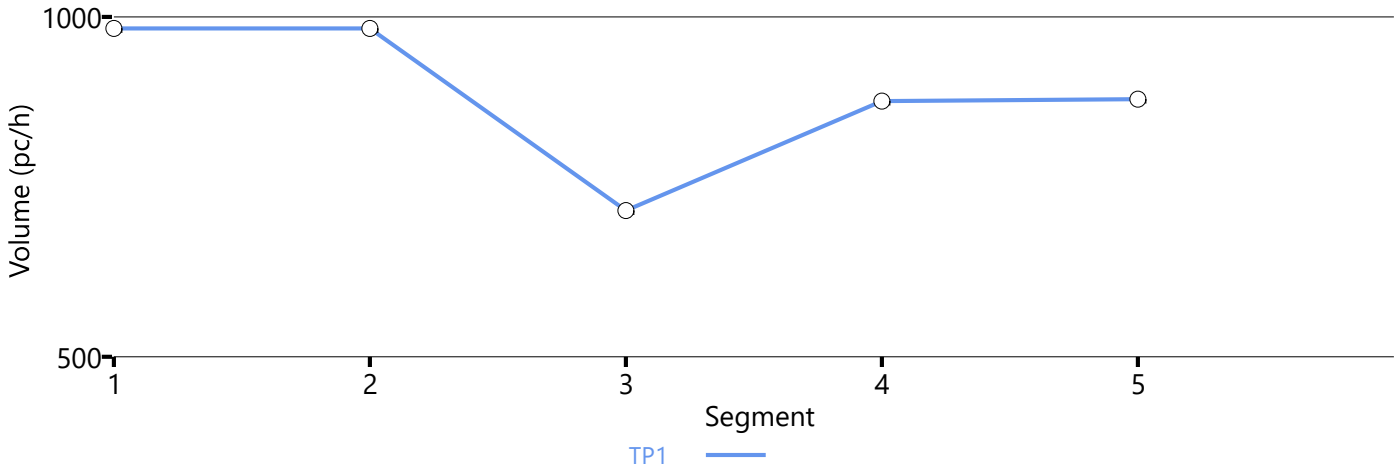
Facility Overall Results

Space Mean Speed, mi/h	67.9	Density, veh/mi/ln	4.6
Average Travel Time, min	1.30	Density, pc/mi/ln	6.5

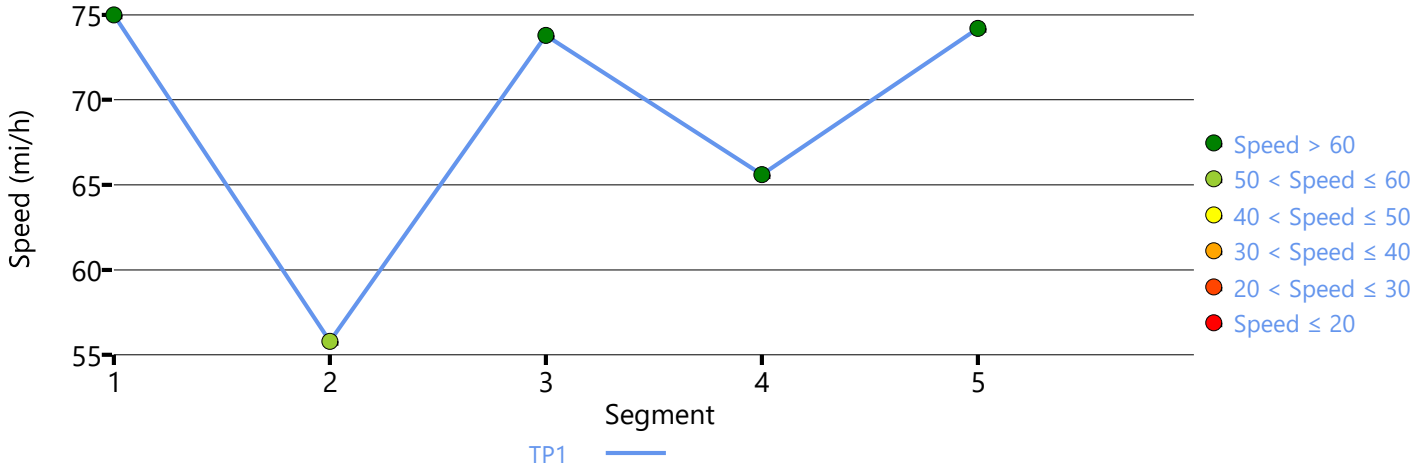
Messages

Comments

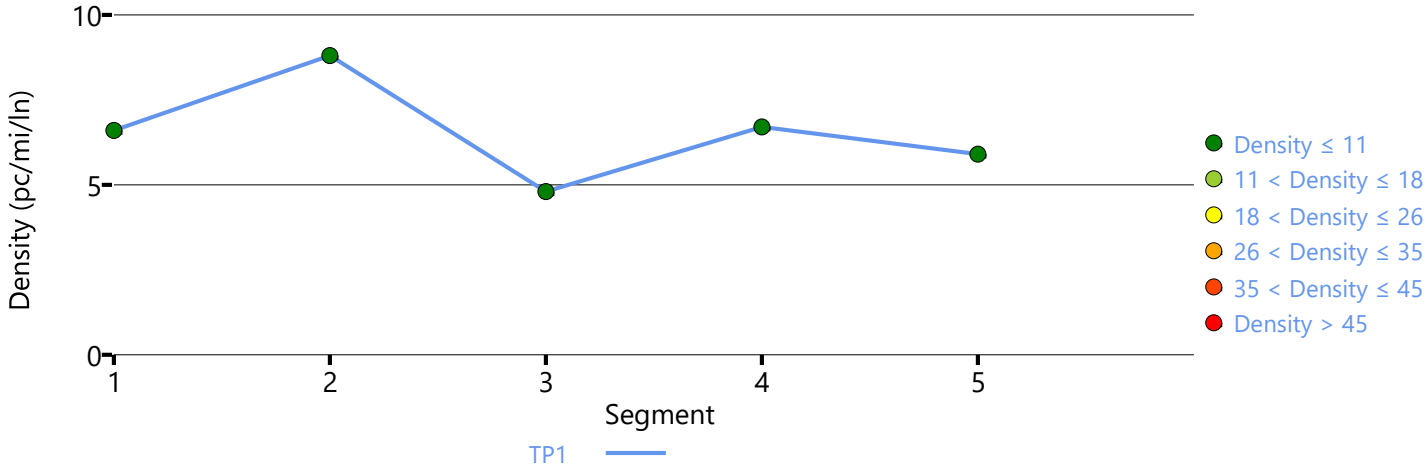
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	660	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	492
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.20
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Deceleration Length (LA),ft	1500	590
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	660	180
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	40.00	32.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.758
Flow Rate (vi),pc/h	983	270
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.20	0.14

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.582
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	983	Ramp Junction Speed (S), mi/h	55.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.8
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	7.4

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1940	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	480	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	358
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.15
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	4.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	480	110
Peak Hour Factor (PHF)	0.94	0.90
Total Trucks, %	40.00	32.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.758
Flow Rate (vi),pc/h	715	161
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.18	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.285
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	715	Ramp Junction Speed (S), mi/h	65.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	876	Average Density (D), pc/mi/ln	6.7
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.2

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	590	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	440
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.18
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	5.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.53		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2075	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	864	4800	0.18	75.0	5.8	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.70	0.714	0.763	864	243	4800	2100	0.18	0.12	64.4	64.4	6.7	7.2	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	670	4800	0.14	74.4	4.5	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.763	1046	376	4800	1900	0.22	0.20	65.0	65.0	8.0	10.0	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1073	4800	0.22	74.1	7.1	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.2	6.3	4.5	1.30	B

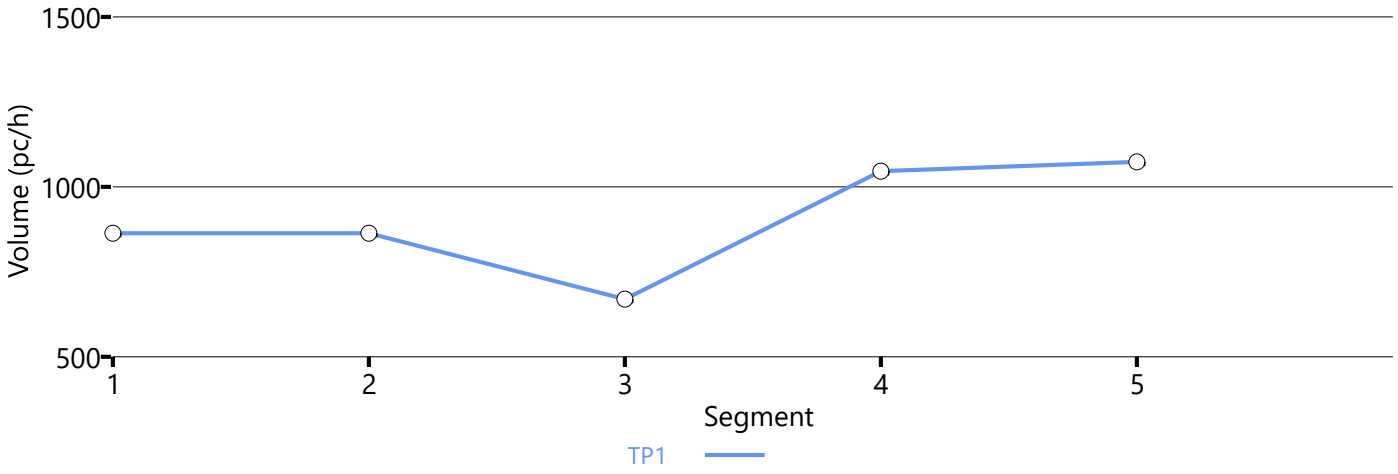
Facility Overall Results

Space Mean Speed, mi/h	70.2	Density, veh/mi/ln	4.5
Average Travel Time, min	1.30	Density, pc/mi/ln	6.3

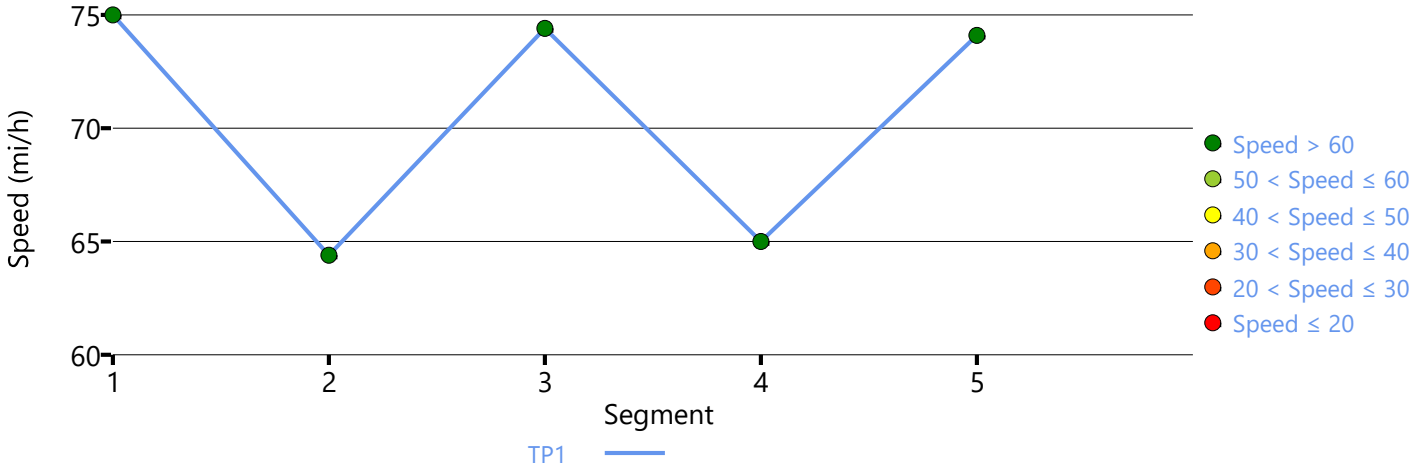
Messages

Comments

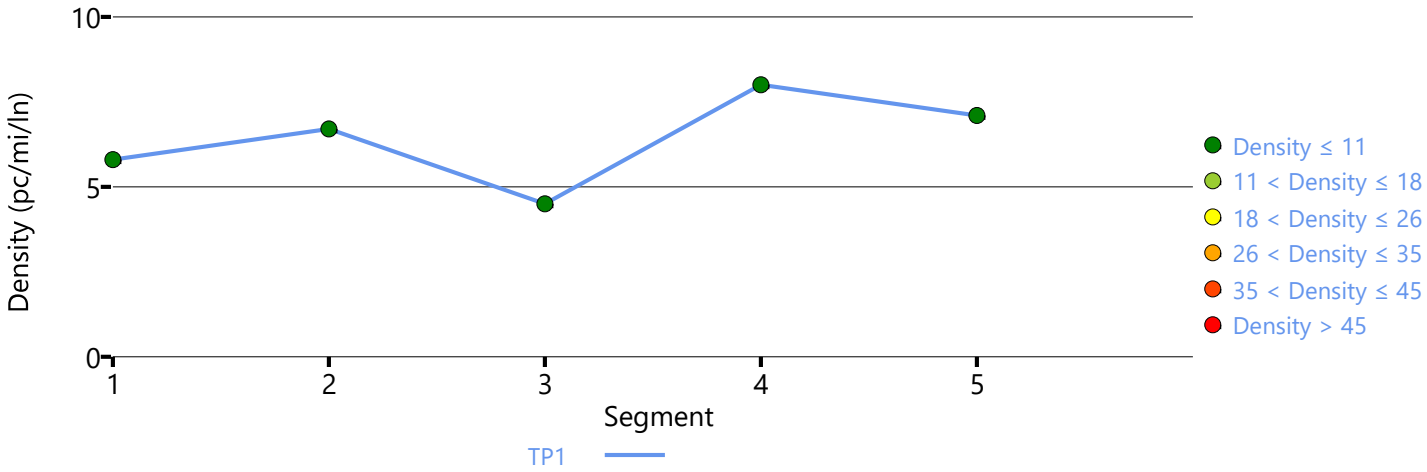
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	580	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	432
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.18
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	5.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	580	130
Peak Hour Factor (PHF)	0.94	0.70
Total Trucks, %	40.00	31.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.763
Flow Rate (vi),pc/h	864	243
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.18	0.12

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.320
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	864	Ramp Junction Speed (S), mi/h	64.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	6.7
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	7.2

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2075	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	450	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	335
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.14
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	4.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Acceleration Length (LA),ft	1500	570
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	450	270
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	31.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.763
Flow Rate (vi),pc/h	670	376
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.22	0.20

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.304
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	670	Ramp Junction Speed (S), mi/h	65.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	1046	Average Density (D), pc/mi/ln	8.0
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	10.0

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	720	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	536
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.22
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

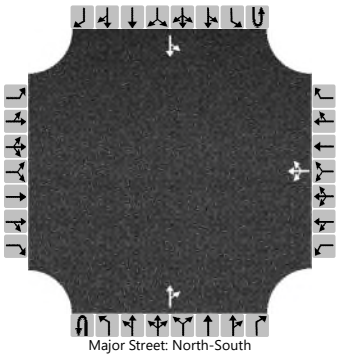
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	7/26/2022
Analysis Year	2027
Time Analyzed	No-Build AM
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	US 127 at Brooks Ave
Jurisdiction	
East/West Street	Brooks Ave
North/South Street	US 127
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR					TR		LT		
Volume (veh/h)						10	0	10			510	10		10	420	
Percent Heavy Vehicles (%)						19	19	19						25		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2						4.1		
Critical Headway (sec)						7.29	6.69	6.39						4.35		
Base Follow-Up Headway (sec)						3.5	4.0	3.3						2.2		
Follow-Up Headway (sec)						3.67	4.17	3.47						2.43		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							21							11		
Capacity, c (veh/h)							290							916		
v/c Ratio							0.07							0.01		
95% Queue Length, Q_{95} (veh)							0.2							0.0		
Control Delay (s/veh)							18.4							9.0		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)						18.4								0.3		
Approach LOS						C										

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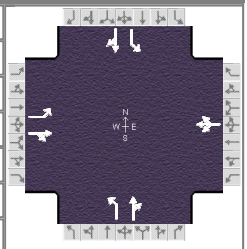
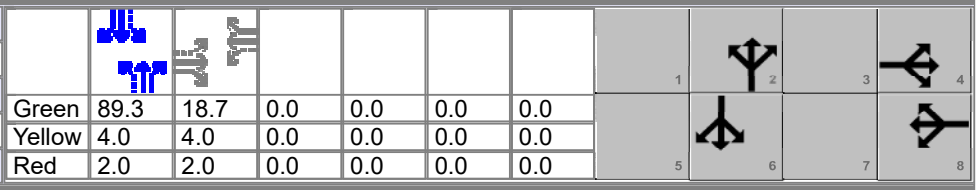
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	Jan 19, 2023	Area Type	Other
Jurisdiction	District 1	Time Period	AM Peak	PHF	0.86
Urban Street	US 127	Analysis Year	2027	Analysis Period	1> 7:00
Intersection	Bonnewitz Ave	File Name	18b-1. US 127 Street - No-Build 2027 AM.xus		
Project Description	No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	100	10	60	10	10	20	40	340	10	10	300	110

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	89.3	18.7	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	2.0	2.0	0.0	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		8.0		6.0		6.0
Phase Duration, s		24.7		24.7		95.3		95.3
Change Period, (*Y+R c*), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (*g s*), s		18.1		5.2				
Green Extension Time (*g e*), s		0.3		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.11		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	116	81			47		31	268		12	477	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1341	1582			1431		692	1404		971	1558	
Queue Service Time (*g s*), s	10.2	5.5			0.0		2.1	7.4		0.5	13.7	
Cycle Queue Clearance Time (*g c*), s	16.1	5.5			3.2		15.8	7.4		7.8	13.7	
Green Ratio (*g/C*)	0.16	0.16			0.16		0.74	0.74		0.74	0.74	
Capacity (*c*), veh/h	206	252			265		494	1040		720	1154	
Volume-to-Capacity Ratio (*X*)	0.564	0.324			0.175		0.062	0.258		0.016	0.413	
Back of Queue (*Q*), ft/ln (95 th percentile)	160.8	101			62.2		18	105.4		4.7	197.3	
Back of Queue (*Q*), veh/ln (95 th percentile)	6.2	3.9			2.2		0.6	3.3		0.2	6.9	
Queue Storage Ratio (*RQ*) (95 th percentile)	1.40	0.00			0.00		0.30	0.00		0.06	0.00	
Uniform Delay (*d 1*), s/veh	52.1	44.7			43.8		8.8	5.0		6.2	5.8	
Incremental Delay (*d 2*), s/veh	0.9	0.3			0.1		0.2	0.5		0.0	1.1	
Initial Queue Delay (*d 3*), s/veh	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	53.0	45.0			43.9		9.0	5.6		6.3	6.9	
Level of Service (LOS)	D	D			D		A	A		A	A	
Approach Delay, s/veh / LOS	49.7	D		43.9	D		5.9	A		6.9	A	
Intersection Delay, s/veh / LOS	16.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.95	B	1.95	B	1.63	B	1.85	B
Bicycle LOS Score / LOS	0.81	A	0.56	A	1.24	A	1.29	A

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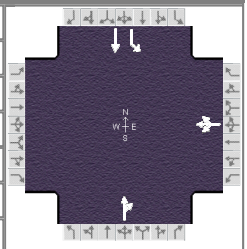
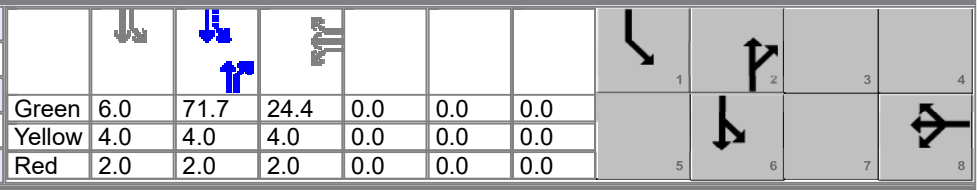
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	Jan 19, 2023	Area Type	Other
Jurisdiction	District 1	Time Period	AM Peak	PHF	0.90
Urban Street	US 127	Analysis Year	2027	Analysis Period	1> 7:00
Intersection	US 127 at US 30 EB Ra…	File Name	18b-1. US 127 Street - No-Build 2027 AM.xus		
Project Description	No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				90	0	90		490	70	40	260	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.0	71.7	24.4	0.0	0.0	0.0			
Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
Red	2.0	2.0	2.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				12.0		8.3	1.0	4.0
Phase Duration, s				30.4		77.7	12.0	89.6
Change Period, ($Y+R_c$), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.1		0.0	3.0	0.0
Queue Clearance Time (g_s), s				24.1			3.5	
Green Extension Time (g_e), s				0.3		0.0	0.1	0.0
Phase Call Probability				1.00			0.85	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h					200			227		57	373	
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1066			1525		1640	1722	
Queue Service Time (g_s), s					22.1			9.5		1.5	11.7	
Cycle Queue Clearance Time (g_c), s					22.1			9.5		1.5	11.7	
Green Ratio (*g/C*)					0.20			0.60		0.66	0.70	
Capacity (*c*), veh/h					216			911		692	1200	
Volume-to-Capacity Ratio (*X*)					0.924			0.249		0.083	0.311	
Back of Queue (*Q*), ft/ln (95 th percentile)					374.1			174.2		23.5	201.2	
Back of Queue (*Q*), veh/ln (95 th percentile)					10.8			5.9		0.9	7.3	
Queue Storage Ratio (*RQ*) (95 th percentile)					0.00			0.00		0.00	0.00	
Uniform Delay (d_1), s/veh					46.9			13.4		8.0	8.7	
Incremental Delay (d_2), s/veh					15.5			0.6		0.0	0.6	
Initial Queue Delay (d_3), s/veh					0.0			0.0		0.0	0.0	
Control Delay (*d*), s/veh					62.4			14.0		8.0	9.3	
Level of Service (LOS)					E			B		A	A	
Approach Delay, s/veh / LOS	0.0			62.4		E	14.0		B	9.1		A
Intersection Delay, s/veh / LOS	22.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.74	B	1.97	B	1.66	B	1.35	A
Bicycle LOS Score / LOS			0.82	A	1.51	B	1.04	A

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HCS7 Two-Way Stop-Control Report

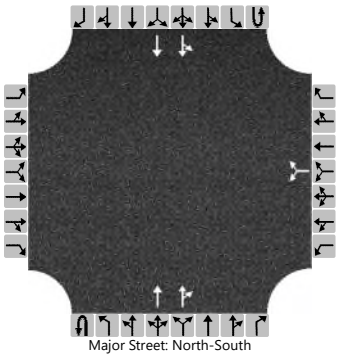
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/12/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 127 at US 30 Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	US 127
Peak Hour Factor	0.82
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	2	0	0	0	2	0
Configuration							LR				T	TR		LT	T	
Volume (veh/h)						10		120			400	180		90	290	
Percent Heavy Vehicles (%)						30		30						14		
Proportion Time Blocked						0.000		0.000						0.000		
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5		6.9						4.1		
Critical Headway (sec)						7.40		7.50						4.38		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.80		3.60						2.34		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							159							110		
Capacity, c (veh/h)							479							812		
v/c Ratio							0.33							0.14		
95% Queue Length, Q_{95} (veh)							1.4							0.5		
Control Delay (s/veh)							16.2							10.1		
Level of Service (LOS)							C							B		
Approach Delay (s/veh)						16.2								2.8		
Approach LOS						C										

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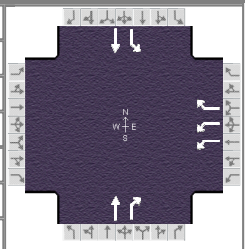
HCS7 Signalized Intersection Results Summary

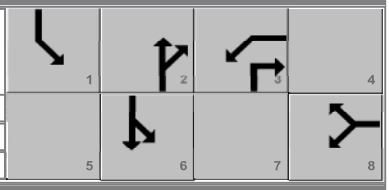
General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	Jan 19, 2023	Area Type	Other
Jurisdiction	District 1	Time Period	AM Peak	PHF	0.97
Urban Street	US 127	Analysis Year	2027	Analysis Period	1> 7:00
Intersection	Towne Center Blvd	File Name	18b-1. US 127 Street - No-Build 2027 AM.xus		
Project Description	No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				170		20		200	60	40	250	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.2	85.8	10.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		7.3	1.0	4.0
Phase Duration, s				16.0		91.8	12.2	104.0
Change Period, (*Y+R c*), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.1		0.0	3.0	0.0
Queue Clearance Time (*g s*), s				8.0			3.1	
Green Extension Time (*g e*), s				0.4		0.0	0.1	0.0
Phase Call Probability				1.00			0.89	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				175		21		206	62	65	408	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1689		1547		1663	1409	1612	1693	
Queue Service Time (*g s*), s				6.0		1.5		4.8	1.1	1.1	5.0	
Cycle Queue Clearance Time (*g c*), s				6.0		1.5		4.8	1.1	1.1	5.0	
Green Ratio (*g/C*)				0.08		0.08		0.72	0.80	0.78	0.82	
Capacity (*c*), veh/h				281		129		1189	1125	861	1382	
Volume-to-Capacity Ratio (*X*)				0.624		0.160		0.173	0.055	0.076	0.295	
Back of Queue (*Q*), ft/ln (95 th percentile)				120.4		27.2		76	11.9	12.5	52.3	
Back of Queue (*Q*), veh/ln (95 th percentile)				4.6		1.0		2.7	0.4	0.4	1.9	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.65		0.15		0.00	0.04	0.09	0.00	
Uniform Delay (*d 1*), s/veh				53.2		51.1		5.6	2.6	3.2	1.7	
Incremental Delay (*d 2*), s/veh				0.8		0.2		0.3	0.1	0.0	0.5	
Initial Queue Delay (*d 3*), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				54.0		51.3		5.9	2.6	3.2	2.2	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			53.8		D	5.1		A	2.3		A
Intersection Delay, s/veh / LOS	13.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.16	B	1.97	B	2.05	B	0.63	A
Bicycle LOS Score / LOS				F	0.93	A	0.98	A

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HCS7 Two-Way Stop-Control Report

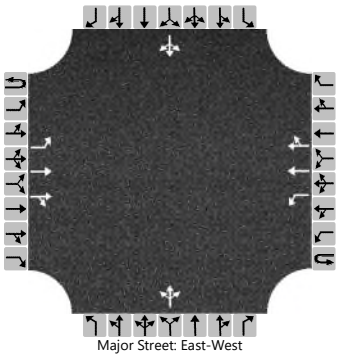
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Mendon Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Mendon Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	560	20	0	10	510	10		50	10	10		10	10	20
Percent Heavy Vehicles (%)	40	40			40	40				15	15	15		100	100	100
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.80	6.80	7.20		9.50	8.50	8.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.65	4.15	3.45		4.50	5.00	4.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					78				44	
Capacity, c (veh/h)		771				720					303				259	
v/c Ratio		0.01				0.02					0.26				0.17	
95% Queue Length, Q_{95} (veh)		0.0				0.0					1.0				0.6	
Control Delay (s/veh)		9.7				10.1					20.9				21.7	
Level of Service (LOS)		A				B					C				C	
Approach Delay (s/veh)	0.2				0.2				20.9				21.7			
Approach LOS									C				C			

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HCS7 Two-Way Stop-Control Report

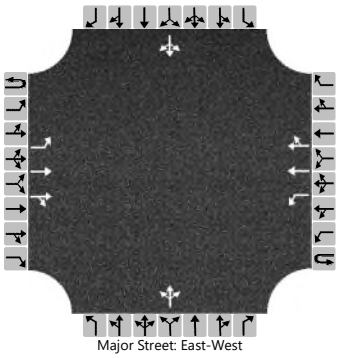
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Boroff Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Boroff Road
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	560	10	0	10	510	10		10	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				80	80	80		60	60	60
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				9.10	8.10	8.50		8.70	7.70	8.10
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				4.30	4.80	4.10		4.10	4.60	3.90

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					34				34	
Capacity, c (veh/h)		761				718					236				269	
v/c Ratio		0.01				0.02					0.14				0.13	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.5				0.4	
Control Delay (s/veh)		9.8				10.1					22.8				20.3	
Level of Service (LOS)		A				B					C				C	
Approach Delay (s/veh)	0.2				0.2				22.8				20.3			
Approach LOS									C				C			

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.72		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		3070	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	864	4800	0.18	75.0	5.8	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.72	0.714	0.877	864	32	4800	2100	0.18	0.02	65.1	65.1	6.6	7.2	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	834	4800	0.17	74.8	5.6	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.877	895	61	4800	2100	0.19	0.03	66.4	66.4	6.7	7.6	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	909	4800	0.19	74.2	6.1	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.4	6.1	4.3	1.40	B

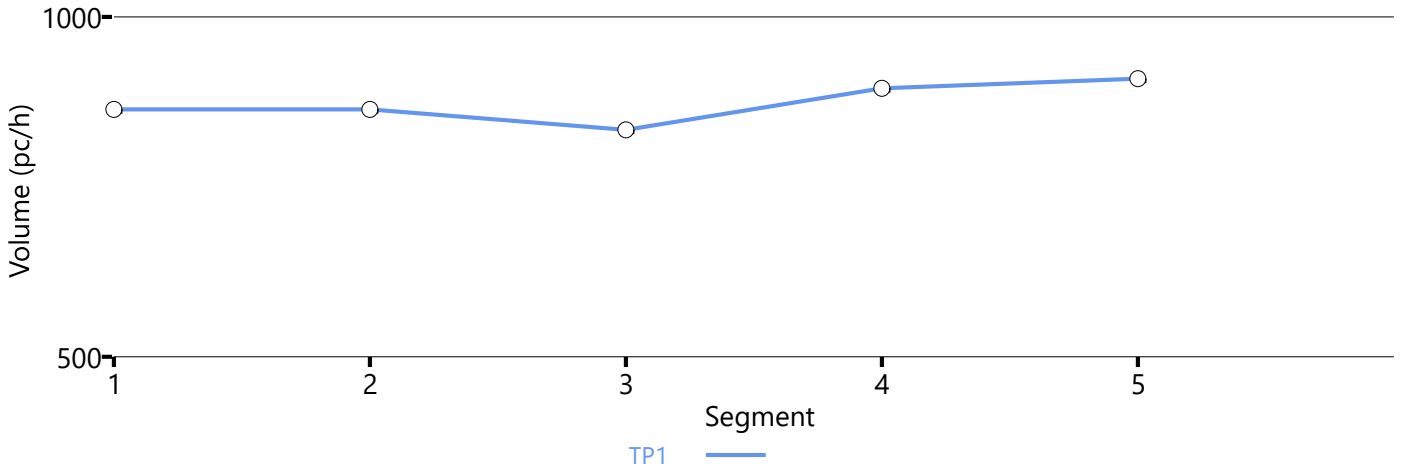
Facility Overall Results

Space Mean Speed, mi/h	71.4	Density, veh/mi/ln	4.3
Average Travel Time, min	1.40	Density, pc/mi/ln	6.1

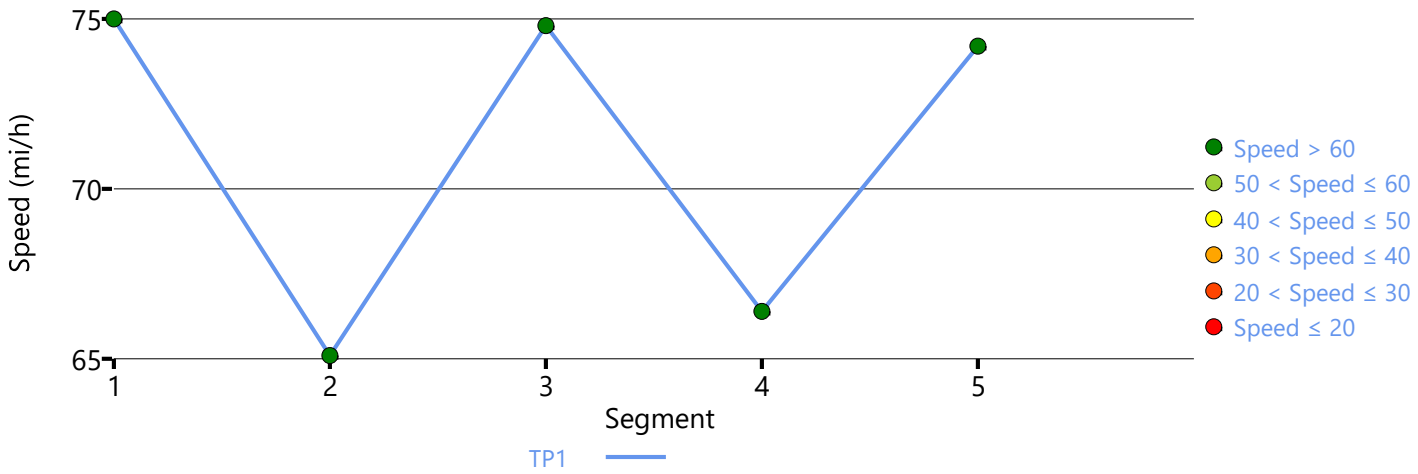
Messages

Comments

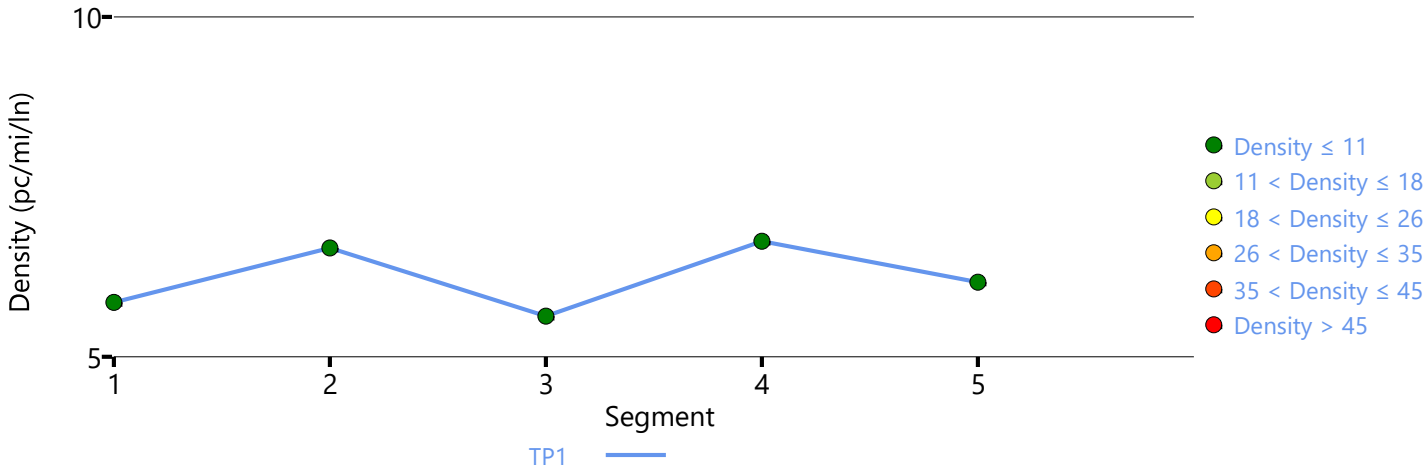
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	580	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	432
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.18
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	5.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	495
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	580	20
Peak Hour Factor (PHF)	0.94	0.72
Total Trucks, %	40.00	14.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.877
Flow Rate (vi),pc/h	864	32
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.18	0.02

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.301
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	65.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	864	Ramp Junction Speed (S), mi/h	65.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	6.6
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	7.2

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	3070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	560	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	417
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.17
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	5.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	785
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	560	50
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	14.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.877
Flow Rate (vi),pc/h	834	61
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.19	0.03

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.260
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	834	Ramp Junction Speed (S), mi/h	66.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	895	Average Density (D), pc/mi/ln	6.7
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	7.6

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	610	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	454
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.19
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.66		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2790	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	775	4800	0.16	75.0	5.2	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.77	0.714	0.962	775	68	4800	2100	0.16	0.03	65.0	65.0	6.0	6.8	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	700	4800	0.15	74.7	4.7	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.62	0.714	0.893	808	108	4800	2100	0.17	0.05	65.5	65.5	6.2	8.9	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	790	4800	0.16	74.2	5.3	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.0	5.4	3.8	1.40	A

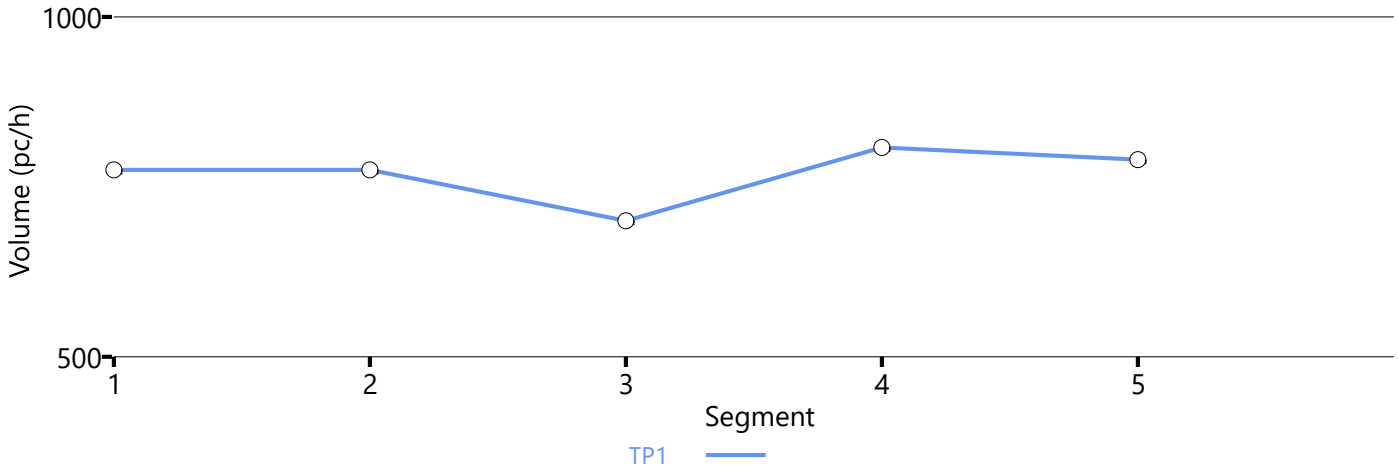
Facility Overall Results

Space Mean Speed, mi/h	71.0	Density, veh/mi/ln	3.8
Average Travel Time, min	1.40	Density, pc/mi/ln	5.4

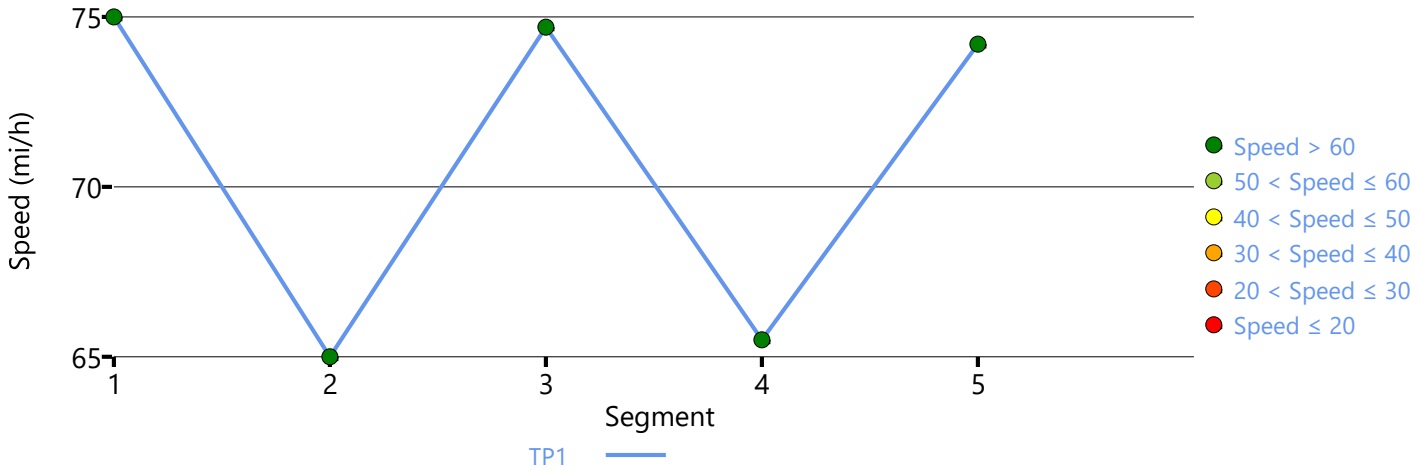
Messages

Comments

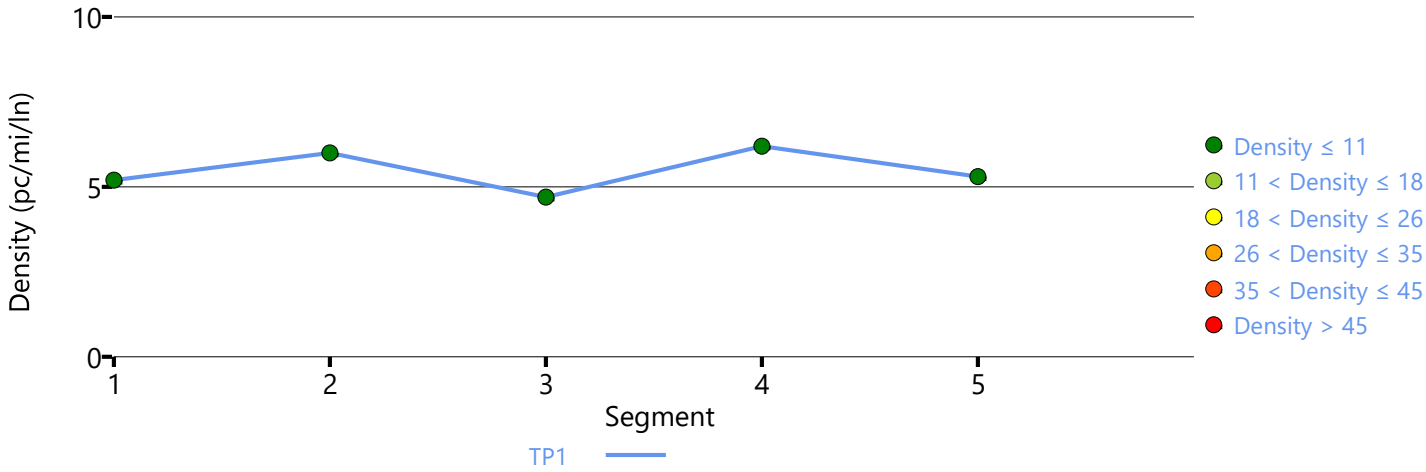
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	520	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	388
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.16
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	5.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	455
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	520	50
Peak Hour Factor (PHF)	0.94	0.77
Total Trucks, %	40.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.962
Flow Rate (vi),pc/h	775	68
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.16	0.03

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.304
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	65.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	775	Ramp Junction Speed (S), mi/h	65.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	6.0
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	6.8

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2790	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	470	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	350
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.15
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	4.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	460
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	470	60
Peak Hour Factor (PHF)	0.94	0.62
Total Trucks, %	40.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.893
Flow Rate (vi),pc/h	700	108
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.17	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.288
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	700	Ramp Junction Speed (S), mi/h	65.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	808	Average Density (D), pc/mi/ln	6.2
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	8.9

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	530	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	395
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.16
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	5.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

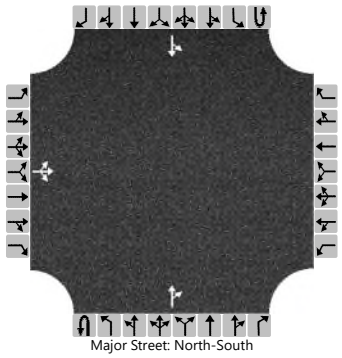
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/12/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.83
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LTR									TR		LT		
Volume (veh/h)		10	0	10							10	40		10	50	
Percent Heavy Vehicles (%)		14	14	14										5		
Proportion Time Blocked																
Percent Grade (%)			0													
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.24	6.64	6.34										4.15		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.63	4.13	3.43										2.25		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			24											12		
Capacity, c (veh/h)			891											1524		
v/c Ratio			0.03											0.01		
95% Queue Length, Q_{95} (veh)			0.1											0.0		
Control Delay (s/veh)			9.2											7.4		
Level of Service (LOS)			A											A		
Approach Delay (s/veh)		9.2												1.3		
Approach LOS		A														

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HCS7 Two-Way Stop-Control Report

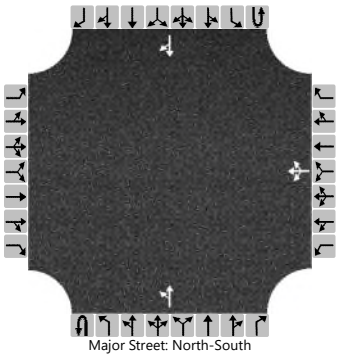
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/12/2021
Analysis Year	2027
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.73
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						40	0	10		10	10				20	50
Percent Heavy Vehicles (%)						4	4	4		7						
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						7.14	6.54	6.24		4.17						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.54	4.04	3.34		2.26						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							68			14						
Capacity, c (veh/h)							900			1467						
v/c Ratio							0.08			0.01						
95% Queue Length, Q_{95} (veh)							0.2			0.0						
Control Delay (s/veh)							9.3			7.5						
Level of Service (LOS)							A			A						
Approach Delay (s/veh)						9.3				3.8						
Approach LOS						A										

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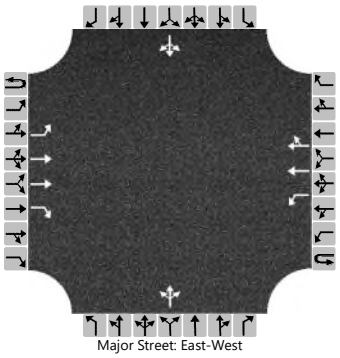
Appendix D

HCS Analysis - No-Build Alternative - 2027 P.M. Peak Hour

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	GBS	Intersection	US 30 at State Line Road
Agency/Co.	Arcadis	Jurisdiction	District 1
Date Performed	5/19/2021	East/West Street	US 30
Analysis Year	2027	North/South Street	State Line Road
Time Analyzed	No-Build PM Peak Hour	Peak Hour Factor	0.97
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	PAU-VAN US 30		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	1	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	R		L	T	TR			LTR				LTR	
Volume (veh/h)	0	20	870	10	0	10	830	10		10	10	10		10	20	10
Percent Heavy Vehicles (%)	40	40			40	40				4	4	4		2	2	2
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No														
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.58	6.58	6.98		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.54	4.04	3.34		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		21				10					31				41	
Capacity, c (veh/h)		573				549					239				230	
v/c Ratio		0.04				0.02					0.13				0.18	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.4				0.6	
Control Delay (s/veh)		11.5				11.7					22.3				24.0	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)		0.3				0.1				22.3				24.0		
Approach LOS										C				C		

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HCS7 Two-Way Stop-Control Report

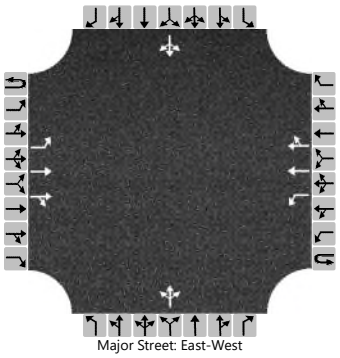
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Klinger Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Klinger Road
Peak Hour Factor	0.93
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	870	10	0	10	830	10		10	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left + Thru							1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					32				32	
Capacity, c (veh/h)		551				527					242				246	
v/c Ratio		0.02				0.02					0.13				0.13	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.5				0.4	
Control Delay (s/veh)		11.7				12.0					22.2				21.8	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)		0.1				0.1				22.2				21.8		
Approach LOS										C				C		

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HCS7 Two-Way Stop-Control Report

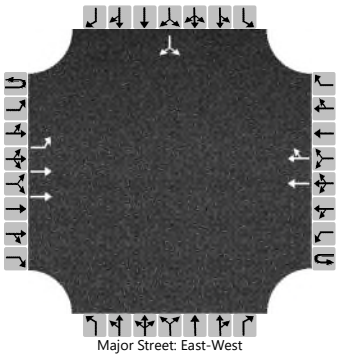
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Krick Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Krick Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	0	2	0		0	0	0		0	1	0
Configuration		L	T				T	TR							LR	
Volume (veh/h)	0	10	880				840	10						10		10
Percent Heavy Vehicles (%)	0	40												0		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.5		6.9
Critical Headway (sec)		4.90												6.80		6.90
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.60												3.50		3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11													22	
Capacity, c (veh/h)		540													347	
v/c Ratio		0.02													0.06	
95% Queue Length, Q_{95} (veh)		0.1													0.2	
Control Delay (s/veh)		11.8													16.1	
Level of Service (LOS)		B													C	
Approach Delay (s/veh)	0.1												16.1			
Approach LOS													C			

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HCS7 Two-Way Stop-Control Report

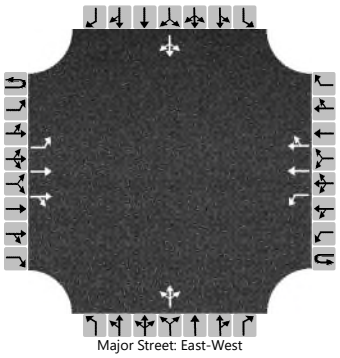
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US30 at Mentzer Church Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Mentzer Church Road
Peak Hour Factor	0.93
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	870	10	0	20	830	10		10	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				23	23	23		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.96	6.96	7.36		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.73	4.23	3.53		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				22					32				32	
Capacity, c (veh/h)		551				527					202				237	
v/c Ratio		0.02				0.04					0.16				0.14	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.6				0.5	
Control Delay (s/veh)		11.7				12.1					26.2				22.6	
Level of Service (LOS)		B				B					D				C	
Approach Delay (s/veh)		0.1				0.3				26.2				22.6		
Approach LOS										D				C		

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HCS7 Two-Way Stop-Control Report

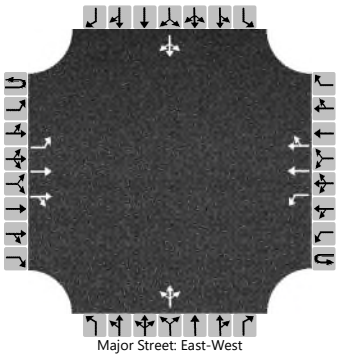
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Elm Sugar Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Elm Sugar Road
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	870	10	0	10	840	10		10	10	20		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				0	0	0		21	21	21
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.50	6.50	6.90		7.92	6.92	7.32
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.50	4.00	3.30		3.71	4.21	3.51

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					43				32	
Capacity, c (veh/h)		551				533					283				214	
v/c Ratio		0.02				0.02					0.15				0.15	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.5				0.5	
Control Delay (s/veh)		11.7				11.9					20.0				24.8	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)	0.1				0.1				20.0				24.8			
Approach LOS									C				C			

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HCS7 Two-Way Stop-Control Report

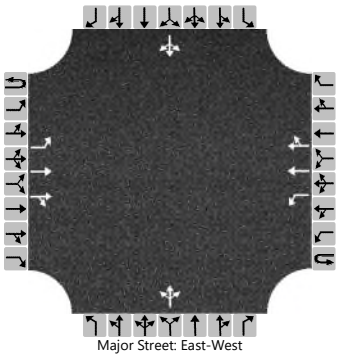
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Lare Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Lare Road
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	0	880	20	0	10	850	0		10	0	10		10	0	10
Percent Heavy Vehicles (%)	40	40			40	40				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left + Thru							1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				11					21				21	
Capacity, c (veh/h)		556				527					303				309	
v/c Ratio		0.00				0.02					0.07				0.07	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.2				0.2	
Control Delay (s/veh)		11.5				12.0					17.8				17.5	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)		0.0				0.1				17.8				17.5		
Approach LOS										C				C		

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HCS7 Two-Way Stop-Control Report

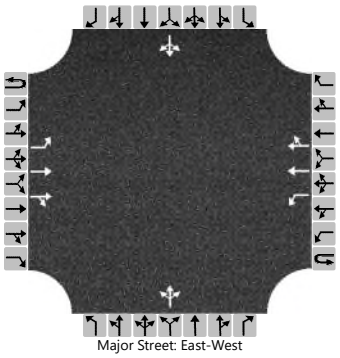
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US30 at Feasby Wisener Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Feasby Wisener Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	20	850	20	0	10	840	10		10	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				75	75	75		100	100	100
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				9.00	8.00	8.40		9.50	8.50	8.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				4.25	4.75	4.05		4.50	5.00	4.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		22				11					33				33	
Capacity, c (veh/h)		528				516					132				116	
v/c Ratio		0.04				0.02					0.25				0.29	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.9				1.1	
Control Delay (s/veh)		12.1				12.1					41.1				48.1	
Level of Service (LOS)		B				B					E				E	
Approach Delay (s/veh)	0.3				0.1				41.1				48.1			
Approach LOS									E				E			

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HCS7 Two-Way Stop-Control Report

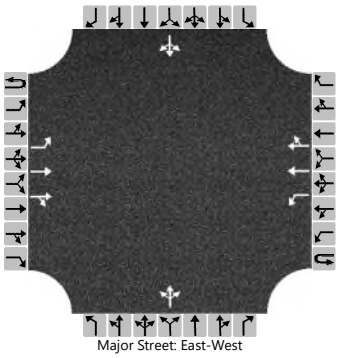
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at SR 49 Payne Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	SR 49 Payne Road
Peak Hour Factor	0.87
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	60	790	20	0	10	840	60		10	10	20		20	60	10
Percent Heavy Vehicles (%)	40	40			40	40				11	11	11		10	10	10
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left + Thru							1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.72	6.72	7.12		7.70	6.70	7.10
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.61	4.11	3.41		3.60	4.10	3.40

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		69				11					46				103	
Capacity, c (veh/h)		481				536					192				148	
v/c Ratio		0.14				0.02					0.24				0.70	
95% Queue Length, Q_{95} (veh)		0.5				0.1					0.9				4.0	
Control Delay (s/veh)		13.7				11.9					29.6				72.4	
Level of Service (LOS)		B				B					D				F	
Approach Delay (s/veh)		0.9				0.1				29.6				72.4		
Approach LOS										D				F		

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HCS7 Two-Way Stop-Control Report

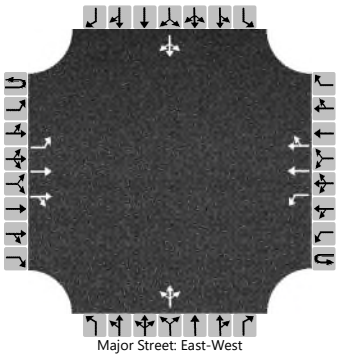
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Dixon Cavett Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Dixon Cavett Road
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	810	10	0	10	890	10		10	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				10	10	10		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.70	6.70	7.10		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.60	4.10	3.40		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				10					31				31	
Capacity, c (veh/h)		532				580					241				249	
v/c Ratio		0.02				0.02					0.13				0.13	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.4				0.4	
Control Delay (s/veh)		11.9				11.3					22.1				21.5	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)	0.1				0.1				22.1				21.5			
Approach LOS									C				C			

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HCS7 Two-Way Stop-Control Report

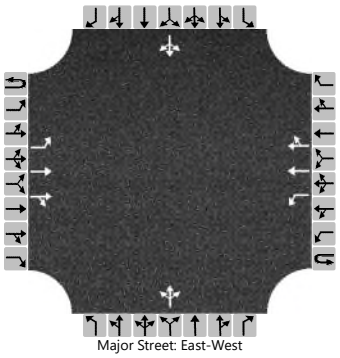
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy-Heller Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Convoy-Heller Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	770	50	0	10	880	10		20	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				4	4	4		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.58	6.58	6.98		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.54	4.04	3.34		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					43				33	
Capacity, c (veh/h)		516				558					232				239	
v/c Ratio		0.02				0.02					0.19				0.14	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.7				0.5	
Control Delay (s/veh)		12.1				11.6					24.1				22.4	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)	0.1				0.1				24.1				22.4			
Approach LOS									C				C			

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HCS7 Two-Way Stop-Control Report

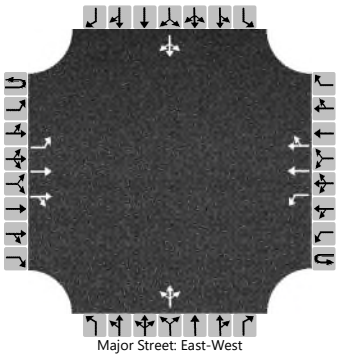
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Colwell Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Colwell Road
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	770	10	0	10	880	10		10	10	20		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				50	50	50		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				8.50	7.50	7.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				4.00	4.50	3.80		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				10					42				31	
Capacity, c (veh/h)		538				606					229				255	
v/c Ratio		0.02				0.02					0.18				0.12	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.7				0.4	
Control Delay (s/veh)		11.8				11.0					24.2				21.1	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)	0.1				0.1				24.2				21.1			
Approach LOS									C				C			

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HCS7 Two-Way Stop-Control Report

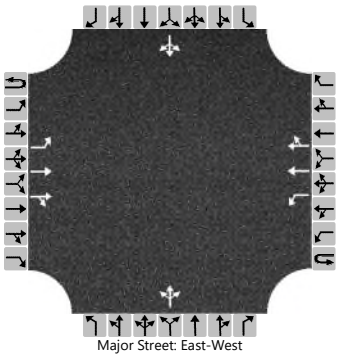
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Convoy Road
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	780	10	0	50	880	10		10	10	20		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				3	3	3		4	4	4
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.56	6.56	6.96		7.58	6.58	6.98
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.53	4.03	3.33		3.54	4.04	3.34

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				52					42				31	
Capacity, c (veh/h)		538				599					280				215	
v/c Ratio		0.02				0.09					0.15				0.15	
95% Queue Length, Q_{95} (veh)		0.1				0.3					0.5				0.5	
Control Delay (s/veh)		11.8				11.6					20.1				24.5	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)	0.1				0.6				20.1				24.5			
Approach LOS									C				C			

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HCS7 Two-Way Stop-Control Report

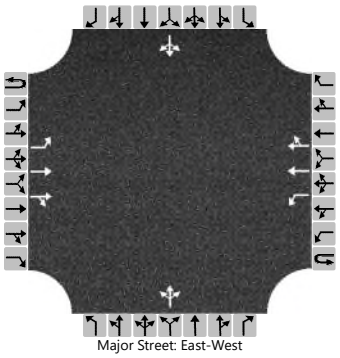
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Richey Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Richey Road
Peak Hour Factor	0.98
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	790	10	0	10	920	10		10	10	20		20	10	10
Percent Heavy Vehicles (%)	40	40			40	40				9	9	9		18	18	18
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.68	6.68	7.08		7.86	6.86	7.26
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.59	4.09	3.39		3.68	4.18	3.48

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				10					41				41	
Capacity, c (veh/h)		526				603					291				209	
v/c Ratio		0.02				0.02					0.14				0.20	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.5				0.7	
Control Delay (s/veh)		12.0				11.1					19.4				26.4	
Level of Service (LOS)		B				B					C				D	
Approach Delay (s/veh)	0.1				0.1				19.4				26.4			
Approach LOS									C				D			

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HCS7 Two-Way Stop-Control Report

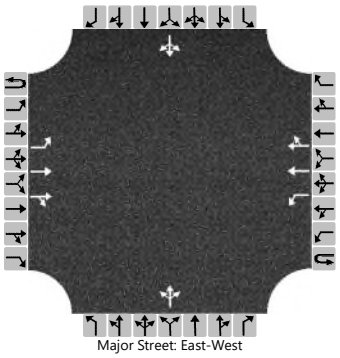
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Liberty-Union Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Liberty-Union Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	810	10	0	10	910	20		20	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				3	3	3		4	4	4
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.56	6.56	6.96		7.58	6.58	6.98
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.53	4.03	3.33		3.54	4.04	3.34

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					44				33	
Capacity, c (veh/h)		481				547					218				217	
v/c Ratio		0.02				0.02					0.20				0.15	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.7				0.5	
Control Delay (s/veh)		12.7				11.7					25.7				24.6	
Level of Service (LOS)		B				B					D				C	
Approach Delay (s/veh)	0.2				0.1				25.7				24.6			
Approach LOS									D				C			

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.43		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		560	2
3	Basic	Basic		2475	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1237	4800	0.26	75.0	8.2	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.89	0.714	0.885	1237	190	4800	2100	0.26	0.09	64.6	64.6	9.6	9.9	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1013	4800	0.21	74.1	6.7	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.862	1136	123	4800	2100	0.24	0.06	66.8	66.8	8.5	8.6	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1162	4800	0.24	74.3	7.7	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.9	7.8	5.6	1.20	B

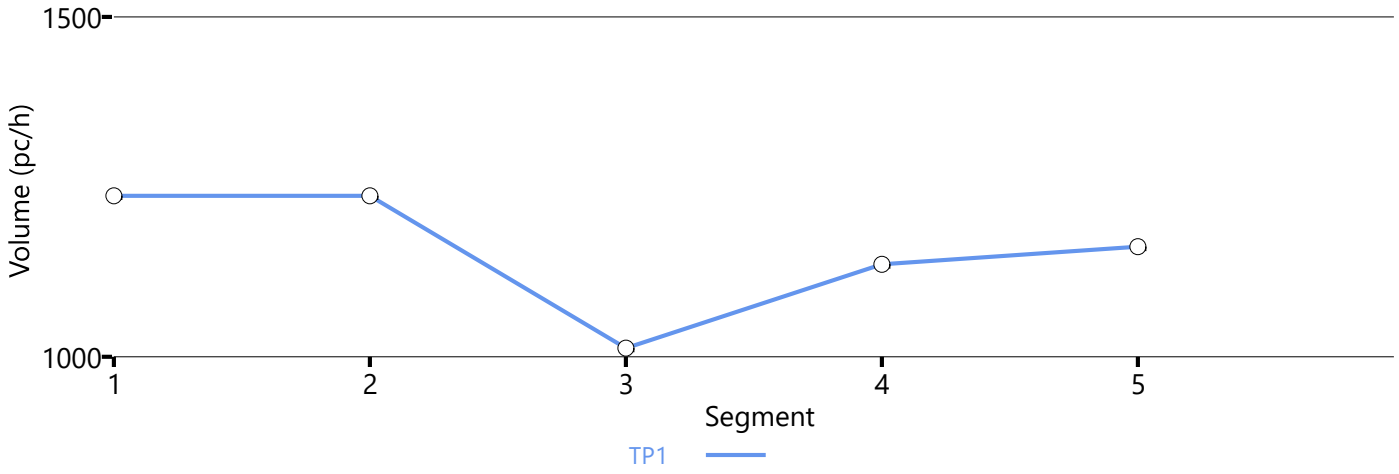
Facility Overall Results

Space Mean Speed, mi/h	71.9	Density, veh/mi/ln	5.6
Average Travel Time, min	1.20	Density, pc/mi/ln	7.8

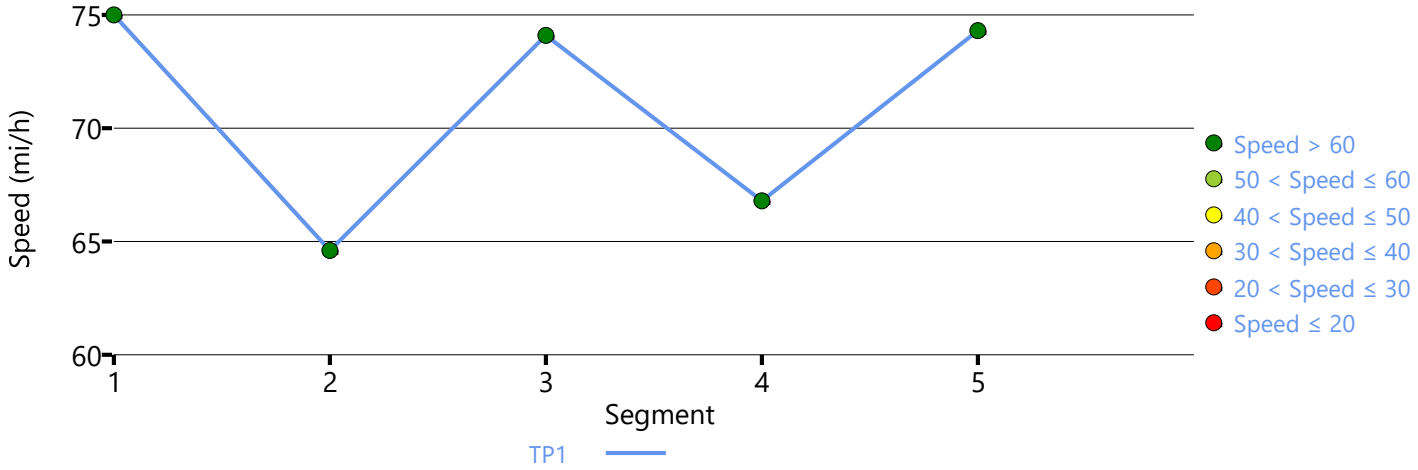
Messages

Comments

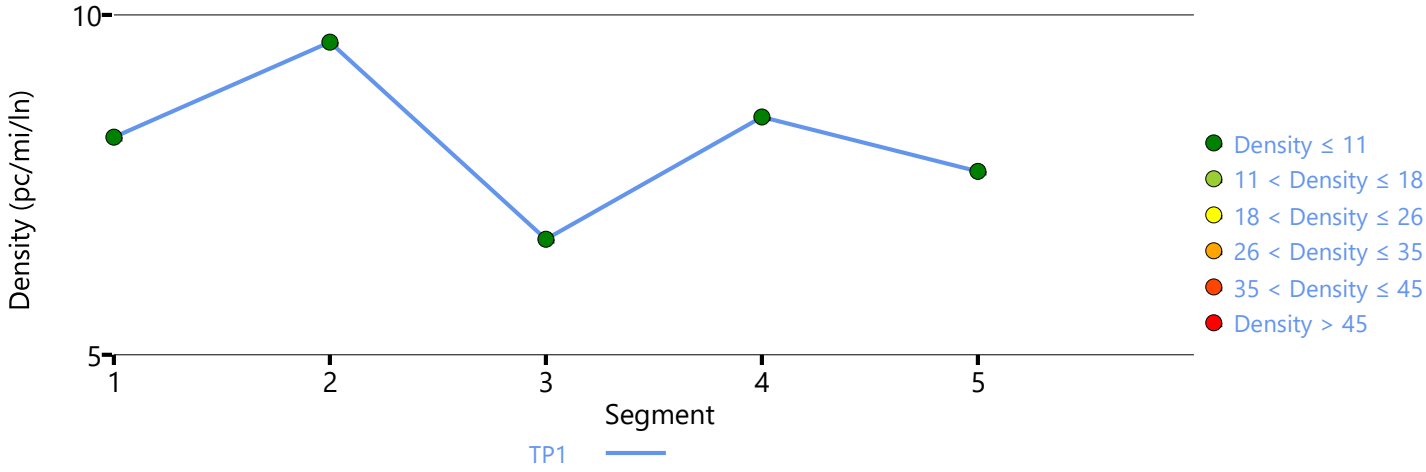
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	830	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	618
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	560	560
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	830	150
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	40.00	13.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.885
Flow Rate (vi),pc/h	1237	190
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.26	0.09

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.315
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1237	Ramp Junction Speed (S), mi/h	64.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.6
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.9

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2475	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	680	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	506
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	925
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	680	100
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	16.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.862
Flow Rate (vi),pc/h	1013	123
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.24	0.06

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.250
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1013	Ramp Junction Speed (S), mi/h	66.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	1136	Average Density (D), pc/mi/ln	8.5
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	8.6

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	780	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	581
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.24
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	920	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	686
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.29
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	360
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	920	80
Peak Hour Factor (PHF)	0.94	0.75
Total Trucks, %	40.00	22.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.820
Flow Rate (vi),pc/h	1371	130
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.29	0.06

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.310
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1371	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	10.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.8

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2465	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	840	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	626
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	30.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	840	100
Peak Hour Factor (PHF)	0.94	0.78
Total Trucks, %	40.00	17.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.855
Flow Rate (vi),pc/h	1252	150
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.29	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.286
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1252	Ramp Junction Speed (S), mi/h	65.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	1402	Average Density (D), pc/mi/ln	10.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.1

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	940	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	700
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.29
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.60		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2465	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1371	4800	0.29	75.0	9.1	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.75	0.714	0.820	1371	130	4800	2100	0.29	0.06	64.8	64.8	10.6	12.8	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1252	4800	0.26	74.6	8.3	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.78	0.714	0.855	1402	150	4800	1900	0.29	0.08	65.6	65.6	10.7	11.1	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1401	4800	0.29	74.2	9.3	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.9	9.5	6.7	1.40	B

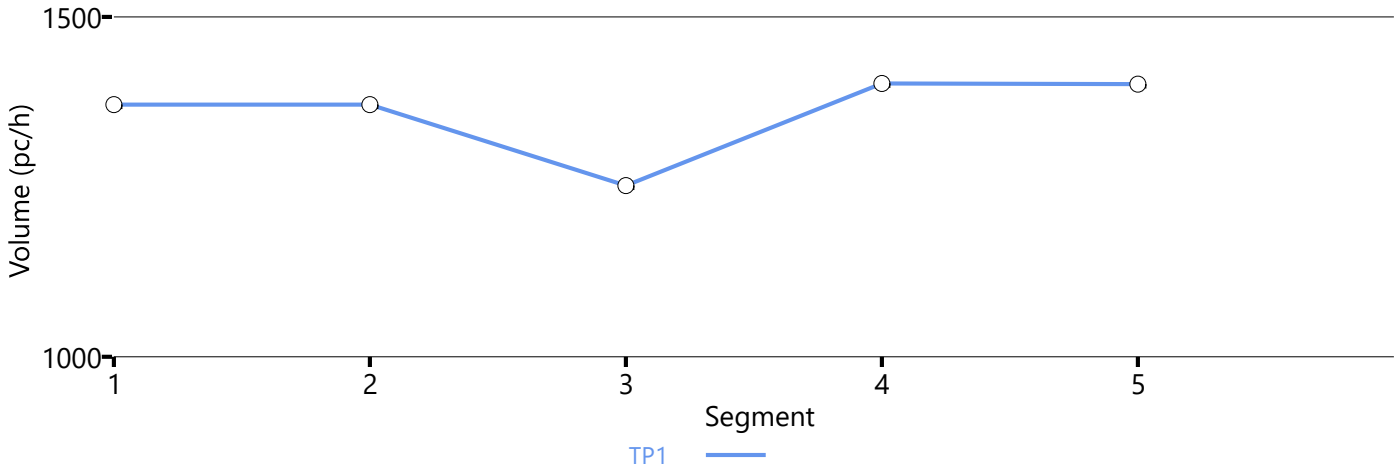
Facility Overall Results

Space Mean Speed, mi/h	70.9	Density, veh/mi/ln	6.7
Average Travel Time, min	1.40	Density, pc/mi/ln	9.5

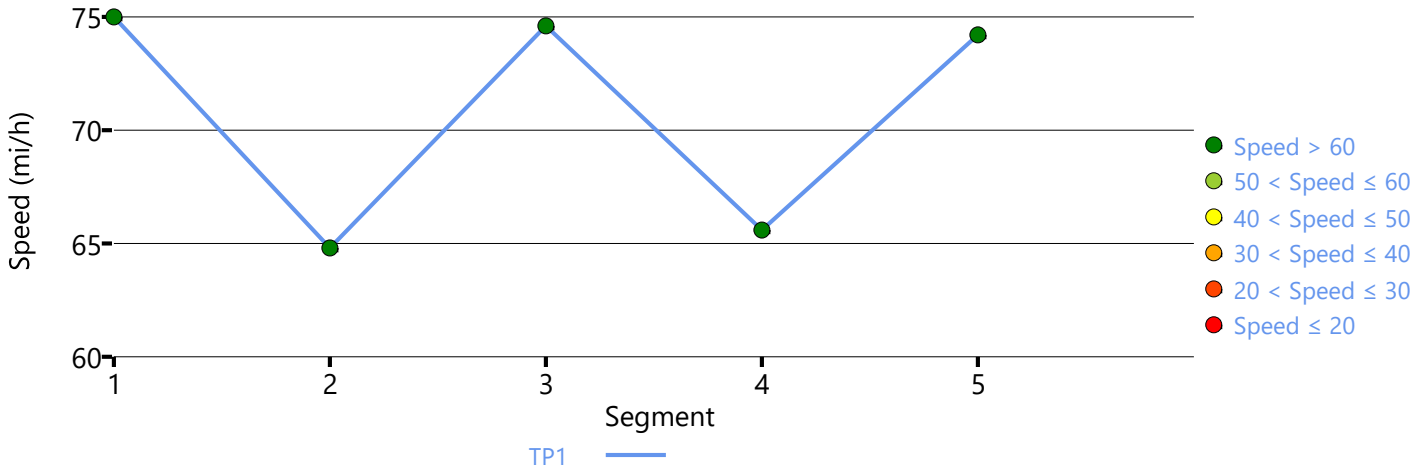
Messages

Comments

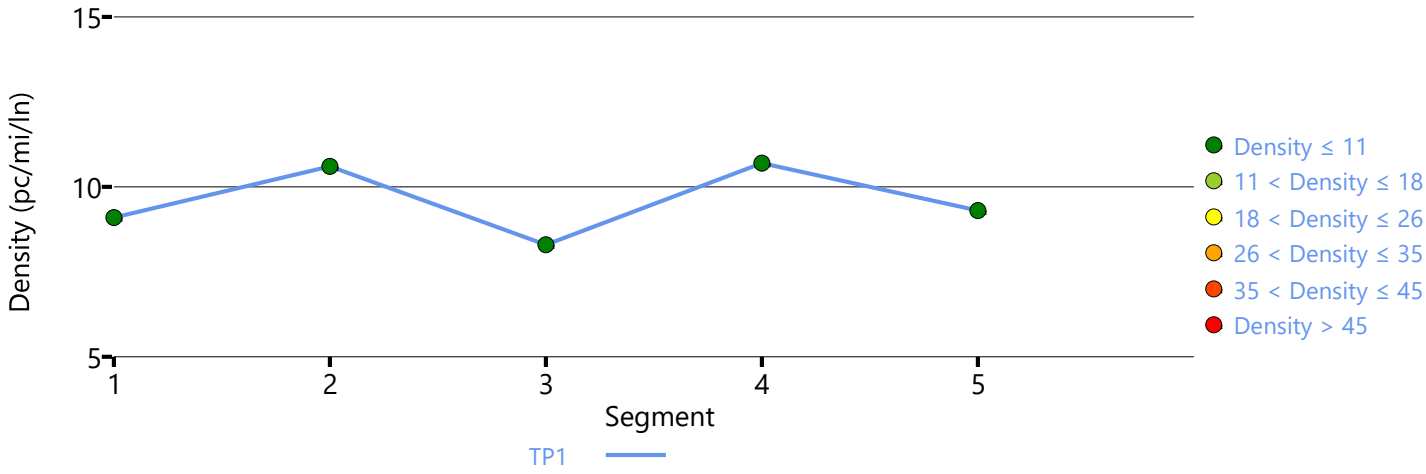
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Two-Way Stop-Control Report

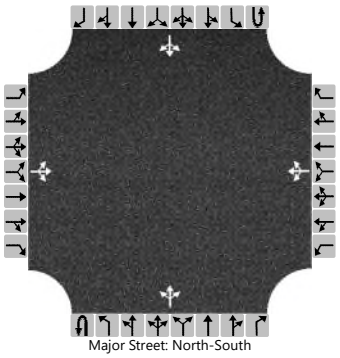
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	7/26/2022
Analysis Year	2027
Time Analyzed	No-Build PM
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Lincoln Hwy at US 224
Jurisdiction	
East/West Street	Lincoln Hwy
North/South Street	US 224
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	70	30		60	110	20		80	180	60		30	190	10
Percent Heavy Vehicles (%)		3	3	3		2	2	2		7				8		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.12	6.52	6.22		4.17				4.18		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.52	4.02	3.32		2.26				2.27		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			125				216			91				34		
Capacity, c (veh/h)			344				297			1312				1257		
v/c Ratio			0.36				0.73			0.07				0.03		
95% Queue Length, Q_{95} (veh)			1.6				5.3			0.2				0.1		
Control Delay (s/veh)			21.3				43.8			7.9				7.9		
Level of Service (LOS)			C				E			A				A		
Approach Delay (s/veh)	21.3				43.8				2.5				1.3			
Approach LOS	C				E											

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HCS7 Two-Way Stop-Control Report

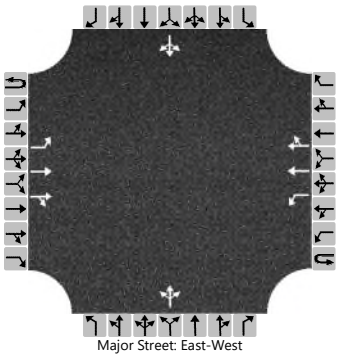
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at John Brown Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	John Brown Road
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	760	10	0	70	900	10		10	10	20		30	40	10
Percent Heavy Vehicles (%)	40	40			40	40				10	10	10		4	4	4
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.70	6.70	7.10		7.58	6.58	6.98
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.60	4.10	3.40		3.54	4.04	3.34

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				73					42				83	
Capacity, c (veh/h)		526				612					247				166	
v/c Ratio		0.02				0.12					0.17				0.50	
95% Queue Length, Q_{95} (veh)		0.1				0.4					0.6				2.5	
Control Delay (s/veh)		12.0				11.7					22.5				46.9	
Level of Service (LOS)		B				B					C				E	
Approach Delay (s/veh)		0.2				0.8				22.5				46.9		
Approach LOS										C				E		

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HCS7 Two-Way Stop-Control Report

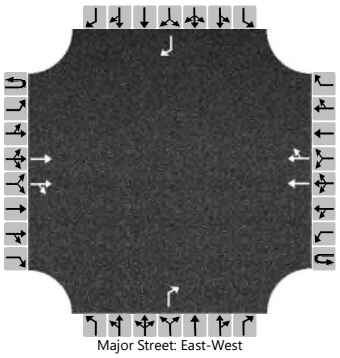
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Dutch John Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Dutch John Road
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	0	1		0	0	1
Configuration			T	TR			T	TR				R				R
Volume (veh/h)			760	50			890	60				120				70
Percent Heavy Vehicles (%)												6				6
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized									No				No			
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)												6.9				6.9
Critical Headway (sec)												7.02				7.02
Base Follow-Up Headway (sec)												3.3				3.3
Follow-Up Headway (sec)												3.36				3.36

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)												124				72
Capacity, c (veh/h)												573				514
v/c Ratio												0.22				0.14
95% Queue Length, Q_{95} (veh)												0.8				0.5
Control Delay (s/veh)												13.0				13.1
Level of Service (LOS)												B				B
Approach Delay (s/veh)									13.0				13.1			
Approach LOS									B				B			

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.50		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		1940	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1177	4800	0.25	75.0	7.8	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.75	0.714	0.800	1177	317	4800	1900	0.25	0.17	55.6	55.6	10.6	9.1	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	894	4800	0.19	73.8	6.0	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.70	0.714	0.800	1269	375	4800	2100	0.26	0.18	65.4	65.4	9.7	12.1	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1207	4800	0.25	74.2	8.1	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.9	8.3	5.9	1.30	B

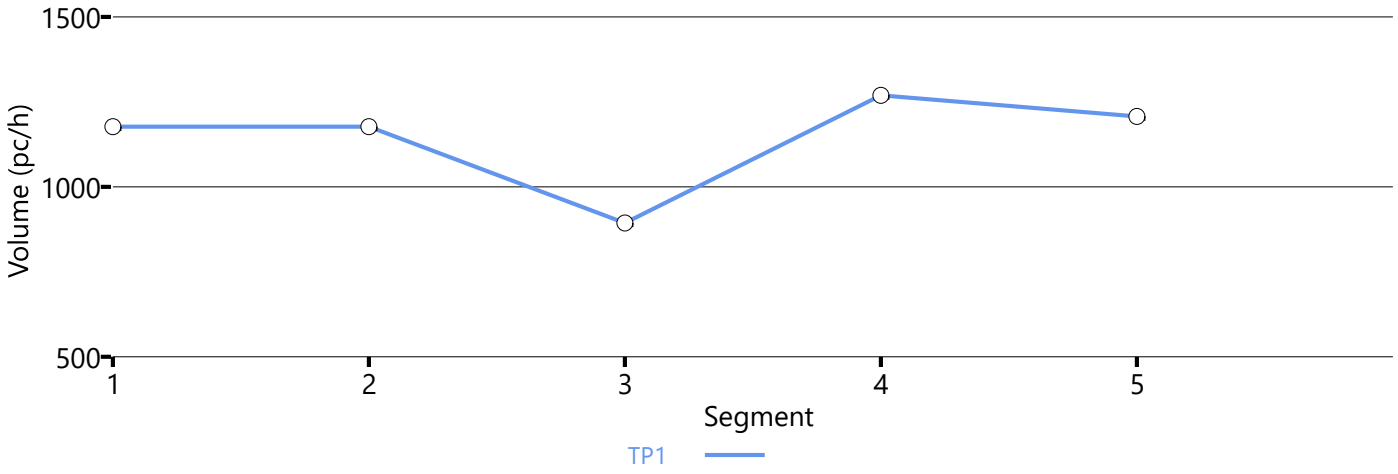
Facility Overall Results

Space Mean Speed, mi/h	67.9	Density, veh/mi/ln	5.9
Average Travel Time, min	1.30	Density, pc/mi/ln	8.3

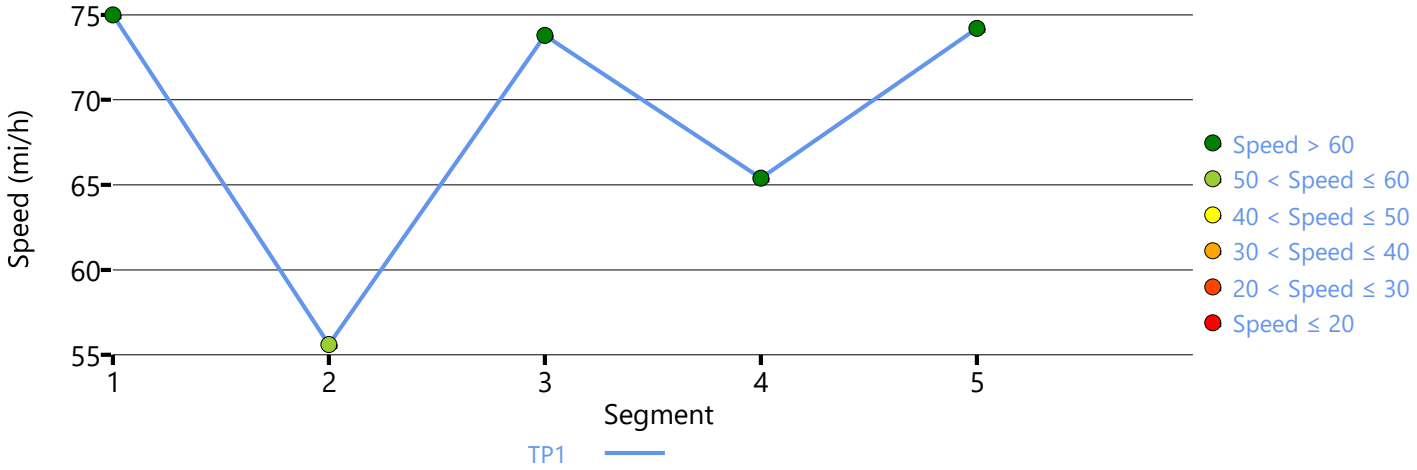
Messages

Comments

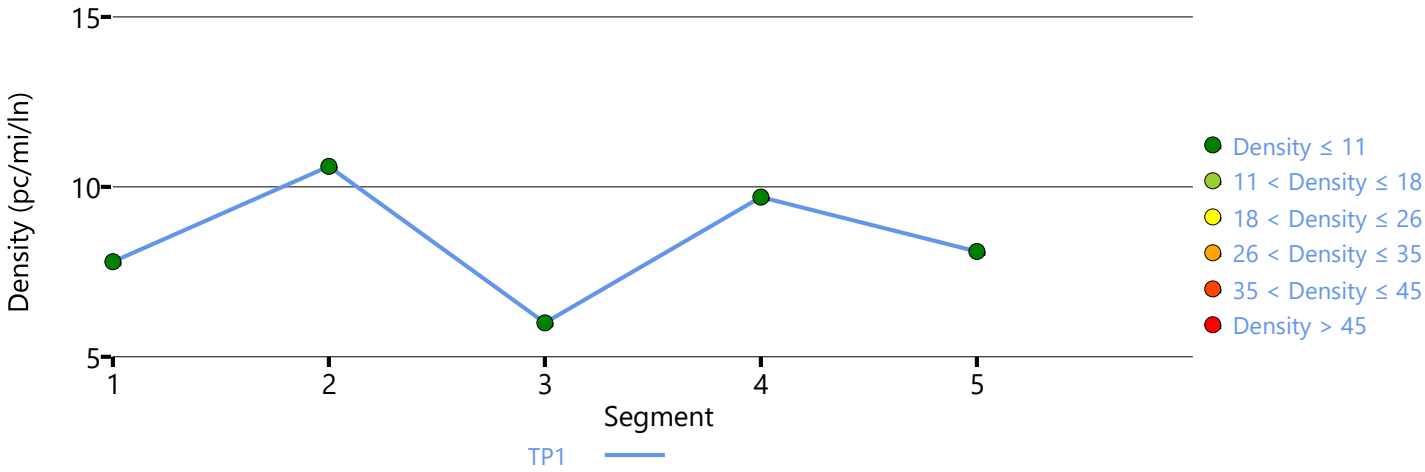
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	790	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	588
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Deceleration Length (LA),ft	1500	590
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	790	190
Peak Hour Factor (PHF)	0.94	0.75
Total Trucks, %	40.00	25.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.800
Flow Rate (vi),pc/h	1177	317
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.25	0.17

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.587
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1177	Ramp Junction Speed (S), mi/h	55.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	10.6
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.1

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1940	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	600	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	447
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.19
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	600	210
Peak Hour Factor (PHF)	0.94	0.70
Total Trucks, %	40.00	25.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.800
Flow Rate (vi),pc/h	894	375
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.26	0.18

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.290
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	894	Ramp Junction Speed (S), mi/h	65.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	1269	Average Density (D), pc/mi/ln	9.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.1

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	810	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	604
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.53		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2075	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1237	4800	0.26	75.0	8.2	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.71	0.714	0.787	1237	286	4800	2100	0.26	0.14	64.3	64.3	9.6	10.4	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	998	4800	0.21	74.4	6.7	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.787	1376	378	4800	1900	0.29	0.20	64.8	64.8	10.6	12.5	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1415	4800	0.29	74.1	9.4	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.2	8.7	6.3	1.30	B

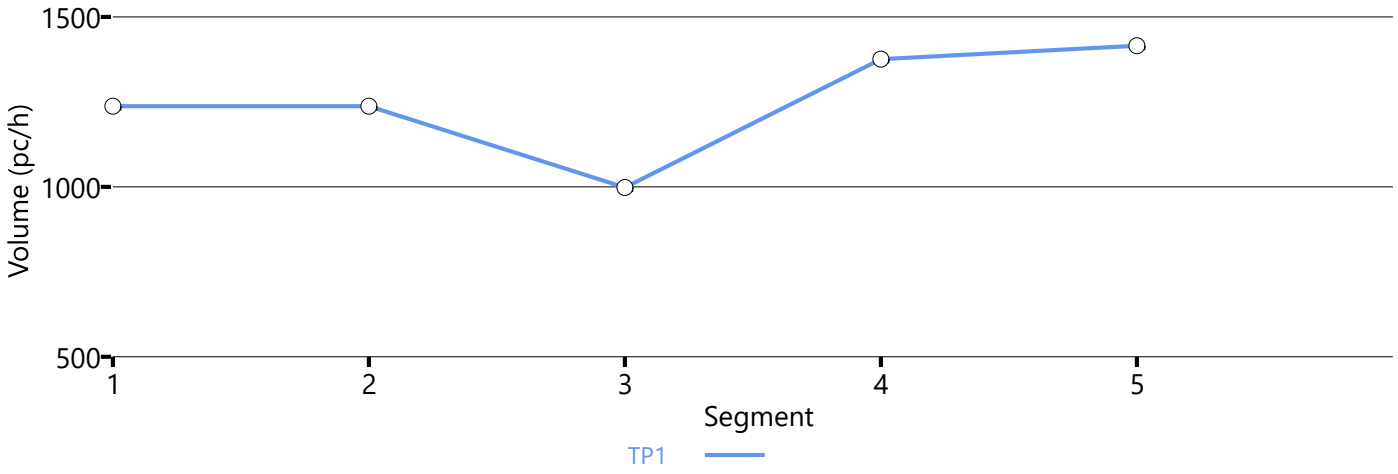
Facility Overall Results

Space Mean Speed, mi/h	70.2	Density, veh/mi/ln	6.3
Average Travel Time, min	1.30	Density, pc/mi/ln	8.7

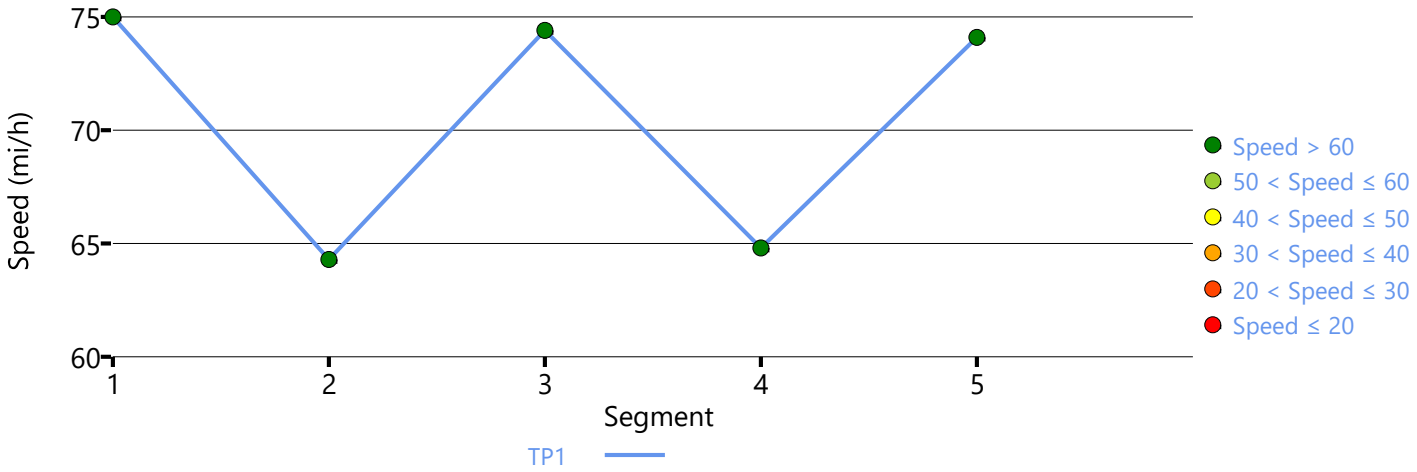
Messages

Comments

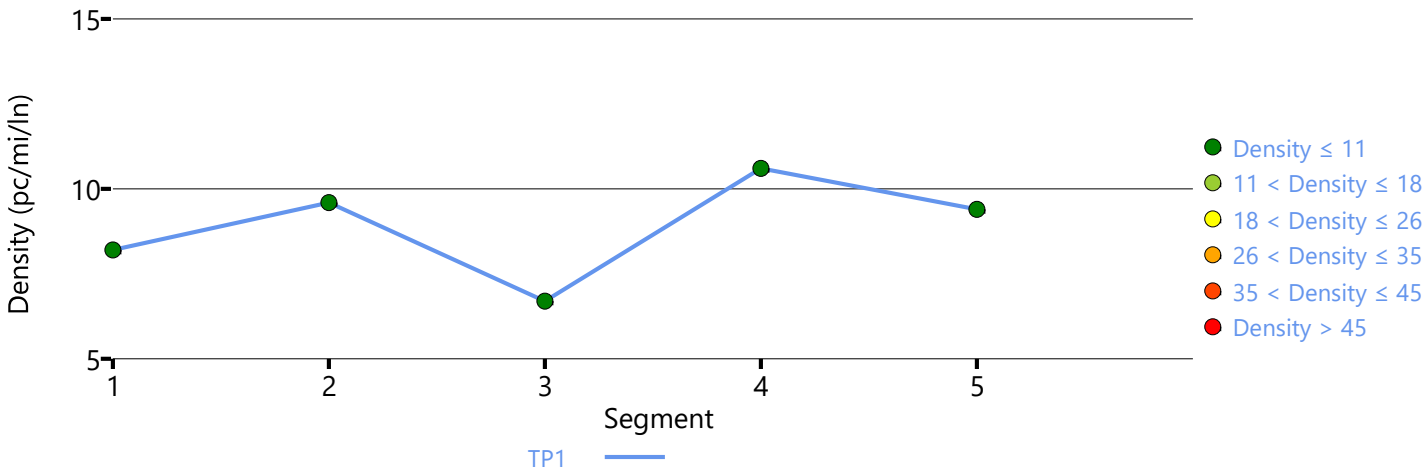
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	830	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	618
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	830	160
Peak Hour Factor (PHF)	0.94	0.71
Total Trucks, %	40.00	27.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.787
Flow Rate (vi),pc/h	1237	286
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.26	0.14

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.324
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1237	Ramp Junction Speed (S), mi/h	64.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.4

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2075	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	670	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	499
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Acceleration Length (LA),ft	1500	570
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	670	280
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	27.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.787
Flow Rate (vi),pc/h	998	378
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.29	0.20

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.308
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	64.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	998	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	1376	Average Density (D), pc/mi/ln	10.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.5

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	950	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	708
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.29
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

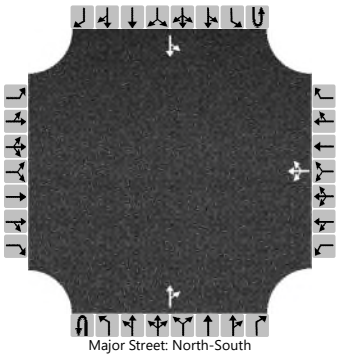
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	7/26/2022
Analysis Year	2027
Time Analyzed	No-Build PM
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	US 127 at Brooks Ave
Jurisdiction	
East/West Street	Brooks Ave
North/South Street	US 127
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR					TR		LT		
Volume (veh/h)						10	0	20			570	10		10	450	
Percent Heavy Vehicles (%)						13	13	13						21		
Proportion Time Blocked																
Percent Grade (%)							0									
Right Turn Channelized																
Median Type | Storage							Undivided									

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2						4.1		
Critical Headway (sec)						7.23	6.63	6.33						4.31		
Base Follow-Up Headway (sec)						3.5	4.0	3.3						2.2		
Follow-Up Headway (sec)						3.62	4.12	3.42						2.39		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							33							11		
Capacity, c (veh/h)							293							867		
v/c Ratio							0.11							0.01		
95% Queue Length, Q_{95} (veh)							0.4							0.0		
Control Delay (s/veh)							18.8							9.2		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)							18.8							0.4		
Approach LOS							C									

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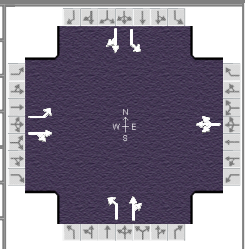
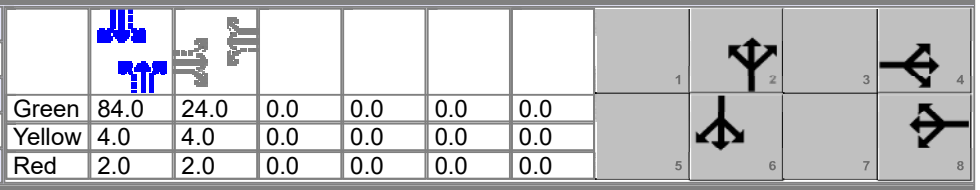
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	PM Peak	PHF	0.97
Urban Street	US 127	Analysis Year	2027	Analysis Period	1> 7:00
Intersection	Bonnewitz Ave	File Name	18b-1. US 127 Street - No-Build 2027 PM.xus		
Project Description	No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	210	10	90	10	10	20	50	500	10	20	380	190

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	84.0	24.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	2.0	2.0	0.0	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		8.0		6.0		6.0
Phase Duration, s		30.0		30.0		90.0		90.0
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		26.0		8.6				
Green Extension Time (g_e), s		0.0		0.6		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	216	103			41		33	338		21	588	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1368	1597			1566		710	1598		977	1653	
Queue Service Time (g_s), s	17.4	6.6			0.0		2.5	9.3		1.0	19.9	
Cycle Queue Clearance Time (g_c), s	24.0	6.6			6.6		22.5	9.3		10.3	19.9	
Green Ratio (*g/C*)	0.20	0.20			0.20		0.70	0.70		0.70	0.70	
Capacity (*c*), veh/h	258	319			351		440	1119		668	1157	
Volume-to-Capacity Ratio (*X*)	0.840	0.323			0.118		0.075	0.302		0.031	0.508	
Back of Queue (*Q*), ft/ln (95 th percentile)	323	120.6			45.9		22.1	145.8		10	284.4	
Back of Queue (*Q*), veh/ln (95 th percentile)	12.6	4.7			1.8		0.8	5.0		0.4	10.5	
Queue Storage Ratio (*RQ*) (95 th percentile)	2.81	0.00			0.00		0.37	0.00		0.12	0.00	
Uniform Delay (d_1), s/veh	52.1	41.1			39.3		12.7	6.5		8.7	8.4	
Incremental Delay (d_2), s/veh	20.2	0.2			0.1		0.3	0.6		0.1	1.6	
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	72.3	41.3			39.4		13.0	7.1		8.8	10.0	
Level of Service (LOS)	E	D			D		B	A		A	A	
Approach Delay, s/veh / LOS	62.3	E		39.4	D		7.7	A		9.9	A	
Intersection Delay, s/veh / LOS	22.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.64	B	1.87	B
Bicycle LOS Score / LOS	1.01	A	0.56	A	1.44	A	1.49	A

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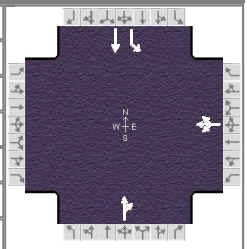
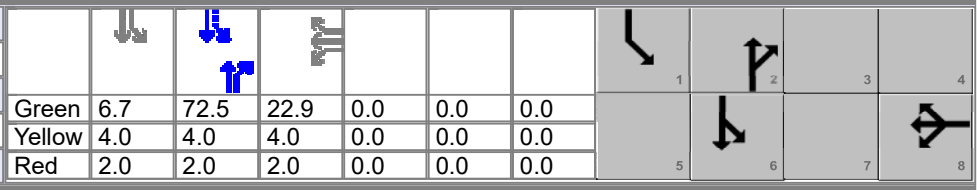
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	PM Peak	PHF	0.94
Urban Street	US 127	Analysis Year	2027	Analysis Period	1> 7:00
Intersection	US 127 at US 30 EB Ra…	File Name	18b-1. US 127 Street - No-Build 2027 PM.xus		
Project Description	No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				110	0	80		690	90	120	530	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.7	72.5	22.9	0.0	0.0	0.0			
Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
Red	2.0	2.0	2.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				12.0		8.3	1.0	4.0
Phase Duration, s				28.9		78.5	12.7	91.1
Change Period, ($Y+R_c$), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.1		0.0	3.0	0.0
Queue Clearance Time (g_s), s				22.6			4.2	
Green Extension Time (g_e), s				0.3		0.0	0.1	0.0
Phase Call Probability				1.00			0.95	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h					202			323		91	403	
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1156			1687		1711	1796	
Queue Service Time (g_s), s					20.6			14.1		2.2	13.3	
Cycle Queue Clearance Time (g_c), s					20.6			14.1		2.2	13.3	
Green Ratio (*g/C*)					0.19			0.60		0.68	0.71	
Capacity (*c*), veh/h					220			1019		649	1274	
Volume-to-Capacity Ratio (*X*)					0.918			0.317		0.141	0.317	
Back of Queue (*Q*), ft/ln (95 th percentile)					355.7			262.5		34.9	228.1	
Back of Queue (*Q*), veh/ln (95 th percentile)					10.7			9.6		1.3	8.6	
Queue Storage Ratio (*RQ*) (95 th percentile)					0.00			0.00		0.00	0.00	
Uniform Delay (d_1), s/veh					47.6			16.0		8.2	9.6	
Incremental Delay (d_2), s/veh					12.1			0.8		0.0	0.6	
Initial Queue Delay (d_3), s/veh					0.0			0.0		0.0	0.0	
Control Delay (*d*), s/veh					59.7			16.8		8.2	10.2	
Level of Service (LOS)					E			B		A	B	
Approach Delay, s/veh / LOS	0.0			59.7		E	16.8		B	9.8		A
Intersection Delay, s/veh / LOS	21.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.74	B	1.97	B	1.66	B	1.35	A
Bicycle LOS Score / LOS			0.82	A	1.86	B	1.63	B

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HCS7 Two-Way Stop-Control Report

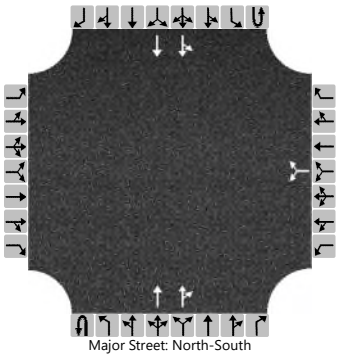
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 127 at US 30 Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	US 127
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	2	0	0	0	2	0
Configuration							LR				T	TR		LT	T	
Volume (veh/h)						30		130			590	180		100	620	
Percent Heavy Vehicles (%)						27		27						10		
Proportion Time Blocked						0.000		0.000						0.000		
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5		6.9						4.1		
Critical Headway (sec)						7.34		7.44						4.30		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.77		3.57						2.30		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							170							106		
Capacity, c (veh/h)							296							756		
v/c Ratio							0.57							0.14		
95% Queue Length, Q_{95} (veh)							3.3							0.5		
Control Delay (s/veh)							32.4							10.5		
Level of Service (LOS)							D							B		
Approach Delay (s/veh)						32.4								2.2		
Approach LOS						D										

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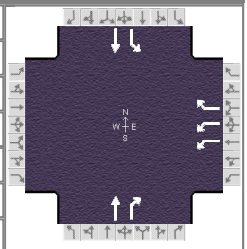
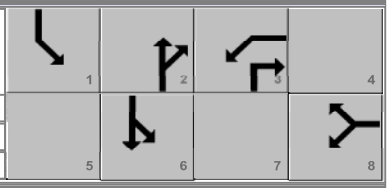
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	PM Peak	PHF	0.96
Urban Street	US 127	Analysis Year	2027	Analysis Period	1> 7:00
Intersection	Towne Center Blvd	File Name	18b-1. US 127 Street - No-Build 2027 PM.xus		
Project Description	No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				400		70		240	50	20	240	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	5.2	80.0	16.8	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		7.3	1.0	4.0
Phase Duration, s				22.8		86.0	11.2	97.2
Change Period, (*Y+R c*), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.0	0.0
Queue Clearance Time (*g s*), s				16.0			2.9	
Green Extension Time (*g e*), s				0.8		0.0	0.0	0.0
Phase Call Probability				1.00			0.74	
Max Out Probability				0.04			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				417		73		250	52	40	480	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1743		1598		1752	1485	1485	1559	
Queue Service Time (*g s*), s				14.0		4.9		6.7	0.8	0.9	8.8	
Cycle Queue Clearance Time (*g c*), s				14.0		4.9		6.7	0.8	0.9	8.8	
Green Ratio (*g/C*)				0.14		0.14		0.67	0.81	0.73	0.76	
Capacity (*c*), veh/h				489		224		1168	1198	699	1185	
Volume-to-Capacity Ratio (*X*)				0.852		0.325		0.214	0.043	0.057	0.406	
Back of Queue (*Q*), ft/ln (95 th percentile)				265.5		89.3		113.6	8.6	12.3	108.6	
Back of Queue (*Q*), veh/ln (95 th percentile)				10.5		3.5		4.2	0.3	0.4	3.7	
Queue Storage Ratio (*RQ*) (95 th percentile)				1.43		0.48		0.00	0.03	0.09	0.00	
Uniform Delay (*d 1*), s/veh				50.4		46.5		7.8	2.3	5.0	2.9	
Incremental Delay (*d 2*), s/veh				5.1		0.3		0.4	0.1	0.0	0.9	
Initial Queue Delay (*d 3*), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				55.5		46.8		8.2	2.4	5.0	3.9	
Level of Service (LOS)				E		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			54.2		D	7.2		A	3.9		A
Intersection Delay, s/veh / LOS	23.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.16	B	1.97	B	2.06	B	0.65	A
Bicycle LOS Score / LOS				F	0.99	A	0.93	A

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HCS7 Two-Way Stop-Control Report

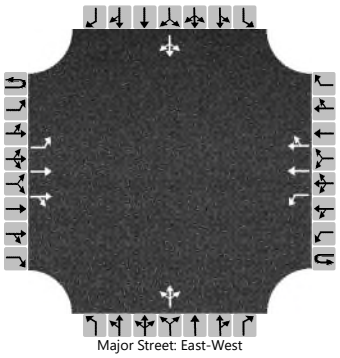
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Mendon Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Mendon Road
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	780	20	0	10	770	10		40	10	10		10	10	20
Percent Heavy Vehicles (%)	40	40			40	40				6	6	6		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.62	6.62	7.02		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.56	4.06	3.36		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					66				44	
Capacity, c (veh/h)		578				565					227				306	
v/c Ratio		0.02				0.02					0.29				0.14	
95% Queue Length, Q_{95} (veh)		0.1				0.1					1.2				0.5	
Control Delay (s/veh)		11.3				11.5					27.3				18.7	
Level of Service (LOS)		B				B					D				C	
Approach Delay (s/veh)	0.1				0.1				27.3				18.7			
Approach LOS									D				C			

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HCS7 Two-Way Stop-Control Report

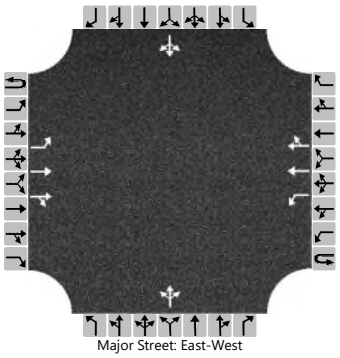
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Boroff Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Boroff Road
Peak Hour Factor	0.93
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	780	10	0	10	770	10		10	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				22	22	22		11	11	11
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.94	6.94	7.34		7.72	6.72	7.12
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.72	4.22	3.52		3.61	4.11	3.41

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					32				32	
Capacity, c (veh/h)		589				583					235				253	
v/c Ratio		0.02				0.02					0.14				0.13	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.5				0.4	
Control Delay (s/veh)		11.2				11.3					22.7				21.3	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)		0.1				0.1				22.7				21.3		
Approach LOS										C				C		

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.72		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		3070	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1192	4800	0.25	75.0	7.9	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.79	0.714	0.909	1192	70	4800	2100	0.25	0.03	65.0	65.0	9.2	10.0	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1117	4800	0.23	74.8	7.4	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.79	0.714	0.952	1223	106	4800	2100	0.25	0.05	66.3	66.3	9.2	10.1	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1237	4800	0.26	74.2	8.2	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.4	8.2	5.9	1.40	B

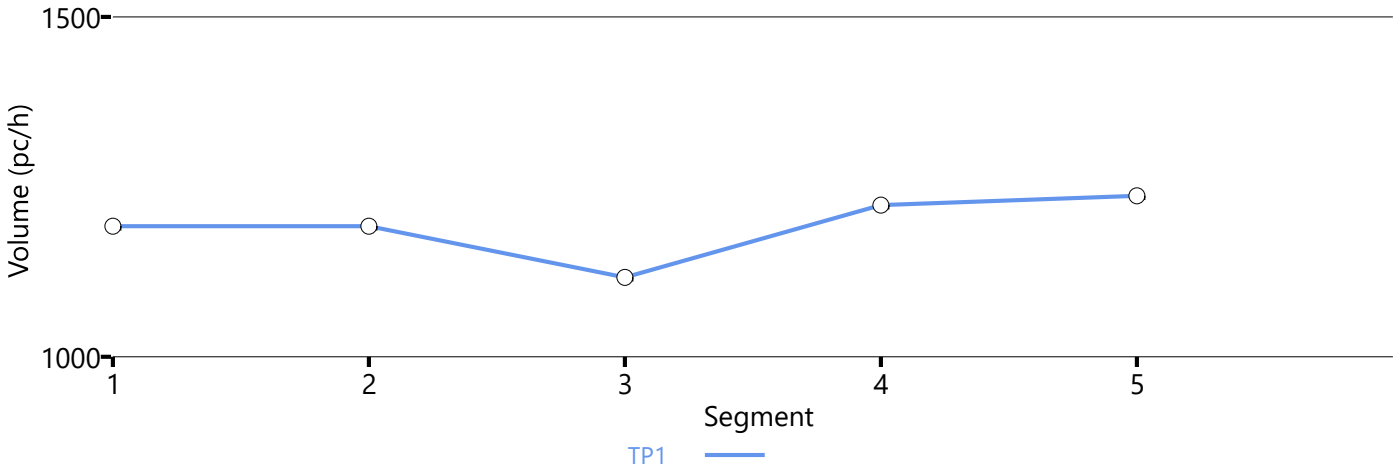
Facility Overall Results

Space Mean Speed, mi/h	71.4	Density, veh/mi/ln	5.9
Average Travel Time, min	1.40	Density, pc/mi/ln	8.2

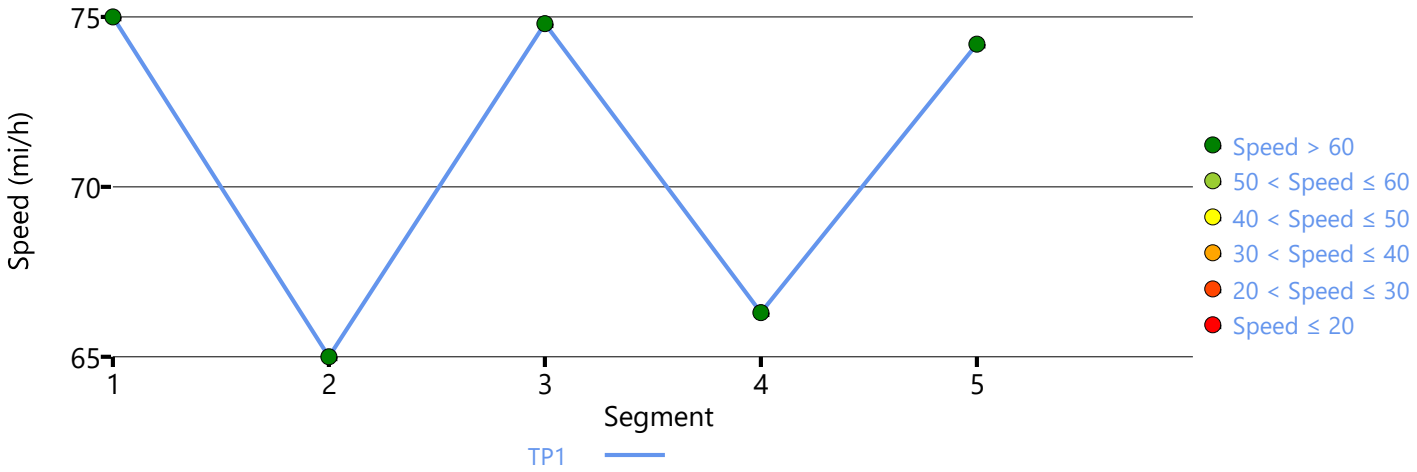
Messages

Comments

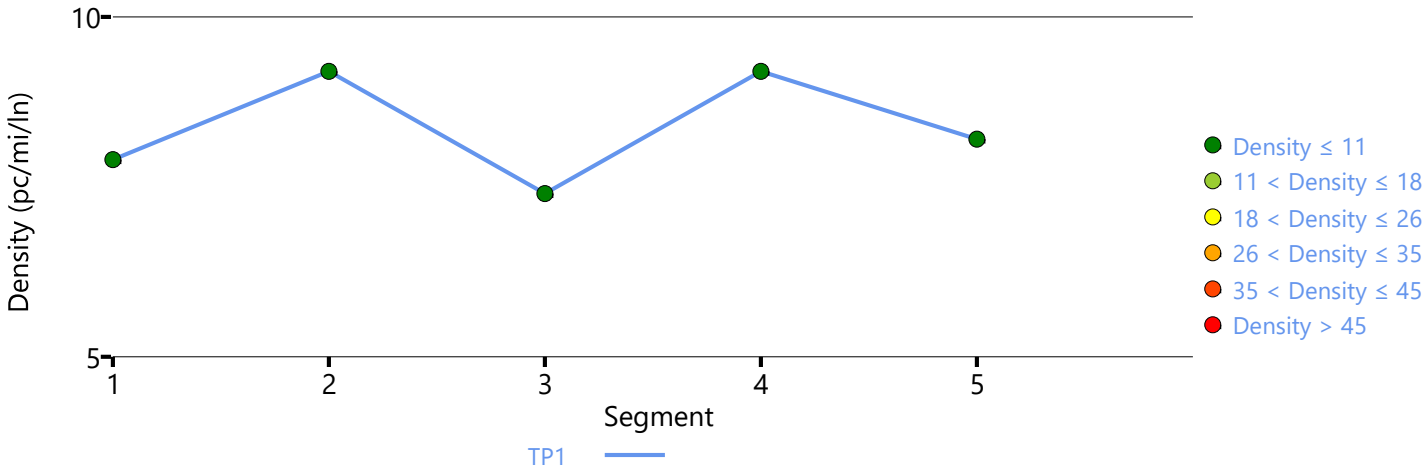
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	800	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	596
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	495
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	800	50
Peak Hour Factor (PHF)	0.94	0.79
Total Trucks, %	40.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.909
Flow Rate (vi),pc/h	1192	70
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.25	0.03

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.304
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	65.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1192	Ramp Junction Speed (S), mi/h	65.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.2
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	10.0

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	3070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	750	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	558
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	785
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	750	80
Peak Hour Factor (PHF)	0.94	0.79
Total Trucks, %	40.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.952
Flow Rate (vi),pc/h	1117	106
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.25	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.264
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1117	Ramp Junction Speed (S), mi/h	66.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	1223	Average Density (D), pc/mi/ln	9.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.1

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	830	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	618
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.66		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2790	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1252	4800	0.26	75.0	8.3	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.87	0.714	0.980	1252	117	4800	2100	0.26	0.06	64.8	64.8	9.7	10.9	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1103	4800	0.23	74.7	7.4	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.66	0.714	0.820	1195	92	4800	2100	0.25	0.04	65.4	65.4	9.1	11.9	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1177	4800	0.25	74.2	7.8	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.0	8.3	5.9	1.40	B

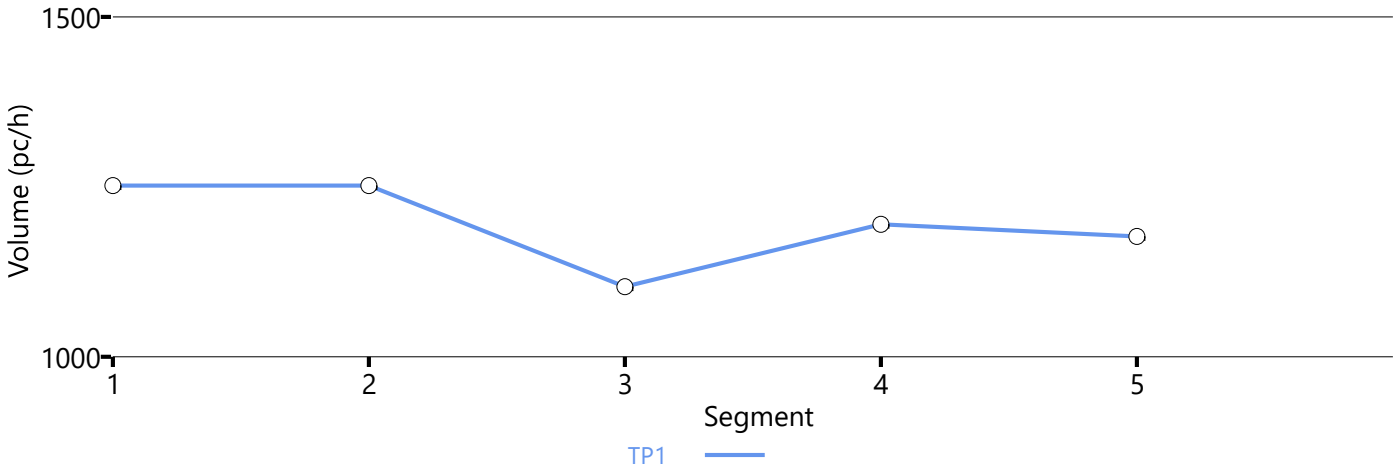
Facility Overall Results

Space Mean Speed, mi/h	71.0	Density, veh/mi/ln	5.9
Average Travel Time, min	1.40	Density, pc/mi/ln	8.3

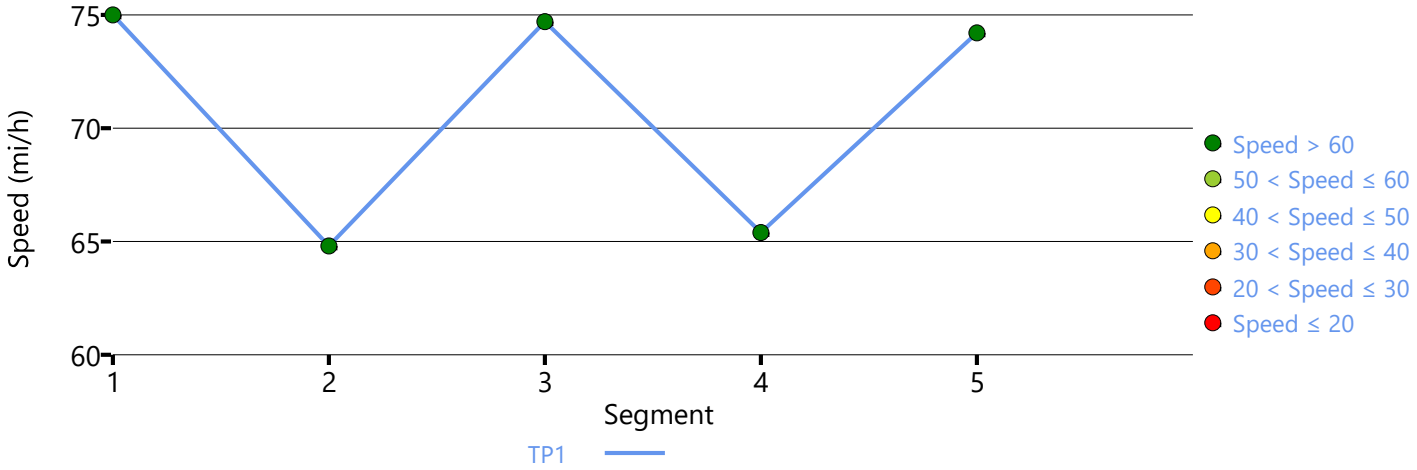
Messages

Comments

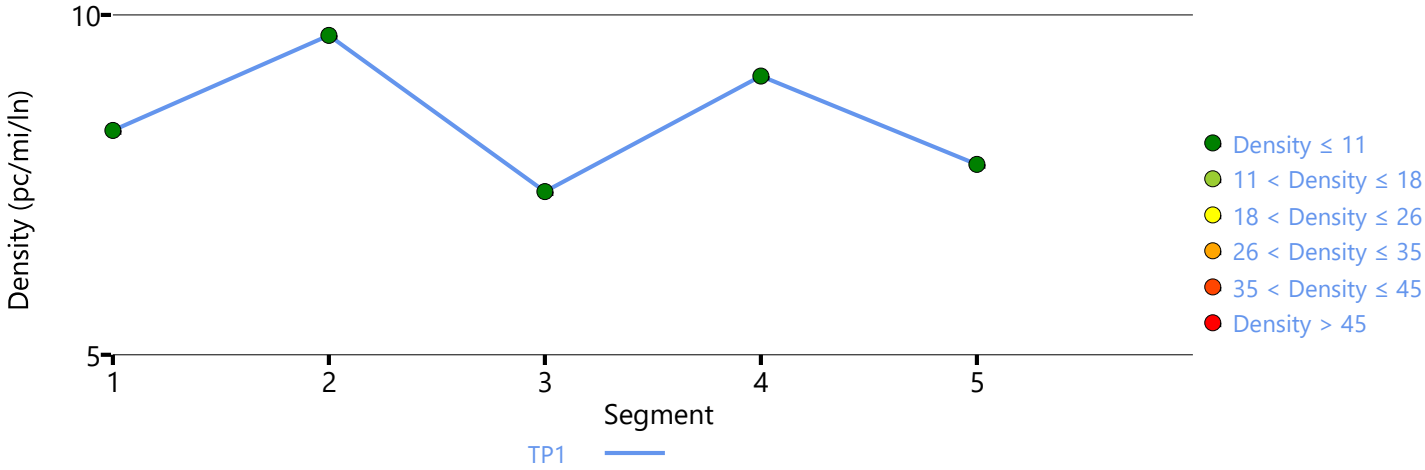
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	840	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	626
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	455
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	840	100
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	40.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.980
Flow Rate (vi),pc/h	1252	117
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.26	0.06

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.309
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1252	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.9

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2790	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	740	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	552
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	460
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	740	50
Peak Hour Factor (PHF)	0.94	0.66
Total Trucks, %	40.00	22.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.820
Flow Rate (vi),pc/h	1103	92
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.25	0.04

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.292
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1103	Ramp Junction Speed (S), mi/h	65.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	1195	Average Density (D), pc/mi/ln	9.1
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.9

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	790	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	588
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

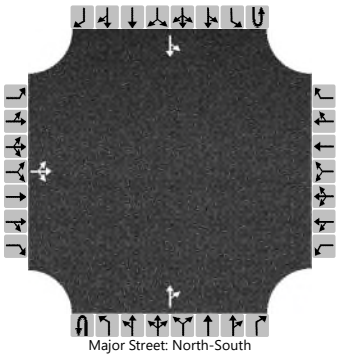
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LTR									TR		LT		
Volume (veh/h)		40	0	10							70	70		10	150	
Percent Heavy Vehicles (%)		10	10	10										4		
Proportion Time Blocked																
Percent Grade (%)			0													
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.20	6.60	6.30										4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.59	4.09	3.39										2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			54											11		
Capacity, c (veh/h)			669											1416		
v/c Ratio			0.08											0.01		
95% Queue Length, Q_{95} (veh)			0.3											0.0		
Control Delay (s/veh)			10.9											7.6		
Level of Service (LOS)			B											A		
Approach Delay (s/veh)		10.9												0.5		
Approach LOS		B														

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HCS7 Two-Way Stop-Control Report

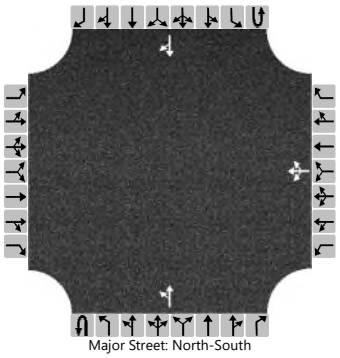
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2027
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						90	0	10		10	100				70	40
Percent Heavy Vehicles (%)						2	2	2		6						
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						7.12	6.52	6.22		4.16						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.52	4.02	3.32		2.25						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							105			11						
Capacity, c (veh/h)							748			1448						
v/c Ratio							0.14			0.01						
95% Queue Length, Q_{95} (veh)							0.5			0.0						
Control Delay (s/veh)							10.6			7.5						
Level of Service (LOS)							B			A						
Approach Delay (s/veh)						10.6				0.7						
Approach LOS						B										

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Appendix D

HCS Analysis - No-Build Alternative - 2047 A.M. Peak Hour

HCS7 Two-Way Stop-Control Report

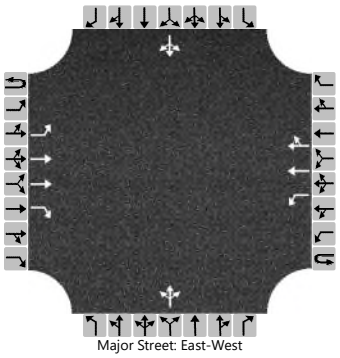
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at State Line Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	State Line Road
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	1	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	R		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	720	10	0	10	940	10		40	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				12	12	12		33	33	33
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No															
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.74	6.74	7.14		8.16	7.16	7.56
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.62	4.12	3.42		3.83	4.33	3.63

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				10					62				31	
Capacity, c (veh/h)		509				644					236				200	
v/c Ratio		0.02				0.02					0.26				0.15	
95% Queue Length, Q_{95} (veh)		0.1				0.0					1.0				0.5	
Control Delay (s/veh)		12.2				10.7					25.6				26.2	
Level of Service (LOS)		B				B					D				D	
Approach Delay (s/veh)	0.2				0.1				25.6				26.2			
Approach LOS									D				D			

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HCS7 Two-Way Stop-Control Report

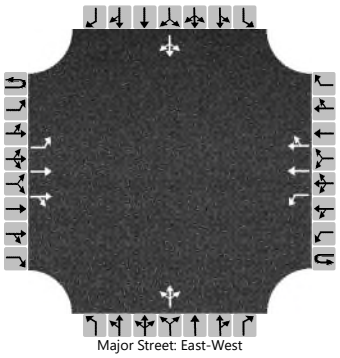
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Klinger Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Klinger Road
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	720	10	0	10	920	10		20	10	10		10	10	20
Percent Heavy Vehicles (%)	40	40			40	40				62	62	62		30	30	30
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				8.74	7.74	8.14		8.10	7.10	7.50
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				4.12	4.62	3.92		3.80	4.30	3.60

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					42				42	
Capacity, c (veh/h)		510				634					174				235	
v/c Ratio		0.02				0.02					0.24				0.18	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.9				0.6	
Control Delay (s/veh)		12.2				10.8					32.2				23.6	
Level of Service (LOS)		B				B					D				C	
Approach Delay (s/veh)	0.2				0.1				32.2				23.6			
Approach LOS									D				C			

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HCS7 Two-Way Stop-Control Report

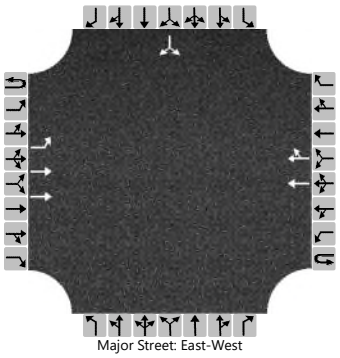
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Krick Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Krick Road
Peak Hour Factor	0.93
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	0	2	0		0	0	0		0	1	0
Configuration		L	T				T	TR							LR	
Volume (veh/h)	0	10	730				930	20						20		10
Percent Heavy Vehicles (%)	0	40												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.5		6.9
Critical Headway (sec)		4.90												6.80		6.90
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.60												3.50		3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11													32	
Capacity, c (veh/h)		487													293	
v/c Ratio		0.02													0.11	
95% Queue Length, Q_{95} (veh)		0.1													0.4	
Control Delay (s/veh)		12.6													18.8	
Level of Service (LOS)		B													C	
Approach Delay (s/veh)	0.2												18.8			
Approach LOS													C			

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HCS7 Two-Way Stop-Control Report

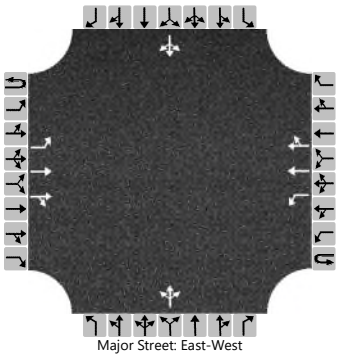
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US30 at Mentzer Church Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Mentzer Chruch Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	730	10	0	10	930	10		10	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					33				33	
Capacity, c (veh/h)		476				600					250				228	
v/c Ratio		0.02				0.02					0.13				0.15	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.5				0.5	
Control Delay (s/veh)		12.7				11.1					21.6				23.5	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)	0.2				0.1				21.6				23.5			
Approach LOS									C				C			

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HCS7 Two-Way Stop-Control Report

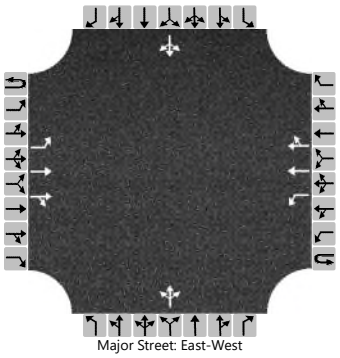
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Elm Sugar Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Elm Sugar Road
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	730	10	0	10	930	10		10	10	20		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				100	100	100		50	50	50
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				9.50	8.50	8.90		8.50	7.50	7.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				4.50	5.00	4.30		4.00	4.50	3.80

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				10					41				31	
Capacity, c (veh/h)		515				638					173				179	
v/c Ratio		0.02				0.02					0.24				0.17	
95% Queue Length, Q_{95} (veh)		0.1				0.0					0.9				0.6	
Control Delay (s/veh)		12.1				10.7					32.1				29.3	
Level of Service (LOS)		B				B					D				D	
Approach Delay (s/veh)		0.2				0.1				32.1				29.3		
Approach LOS										D				D		

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HCS7 Two-Way Stop-Control Report

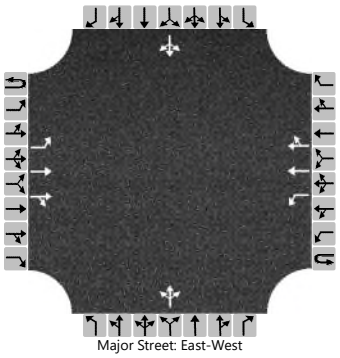
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Lare Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Lare Road
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	0	750	10	0	10	940	0		10	0	20		10	0	20
Percent Heavy Vehicles (%)	40	40			40	40				33	33	33		33	33	33
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left + Thru							1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				8.16	7.16	7.56		8.16	7.16	7.56
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.83	4.33	3.63		3.83	4.33	3.63

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				11					32				32	
Capacity, c (veh/h)		498				608					326				272	
v/c Ratio		0.00				0.02					0.10				0.12	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.3				0.4	
Control Delay (s/veh)		12.2				11.0					17.2				20.0	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)		0.0				0.1				17.2				20.0		
Approach LOS										C				C		

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HCS7 Two-Way Stop-Control Report

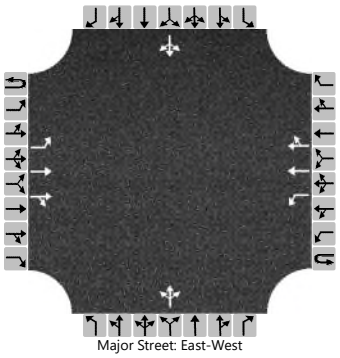
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US30 at Feasby Wisener Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Feasby Wisener Road
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	750	10	0	10	930	10		10	10	20		20	10	10
Percent Heavy Vehicles (%)	40	40			40	40				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left + Thru							1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					45				45	
Capacity, c (veh/h)		464				574					279				204	
v/c Ratio		0.02				0.02					0.16				0.22	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.6				0.8	
Control Delay (s/veh)		12.9				11.4					20.4				27.6	
Level of Service (LOS)		B				B					C				D	
Approach Delay (s/veh)		0.2				0.1				20.4				27.6		
Approach LOS										C				D		

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HCS7 Two-Way Stop-Control Report

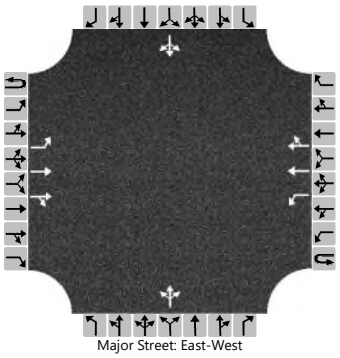
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at SR 49 Payne Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	SR 49 Payne Road
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	40	740	10	0	10	930	60		10	10	20		20	50	10
Percent Heavy Vehicles (%)	40	40			40	40				10	10	10		7	7	7
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.70	6.70	7.10		7.64	6.64	7.04
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.60	4.10	3.40		3.57	4.07	3.37

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		44				11					44				88	
Capacity, c (veh/h)		455				598					229				168	
v/c Ratio		0.10				0.02					0.19				0.52	
95% Queue Length, Q_{95} (veh)		0.3				0.1					0.7				2.6	
Control Delay (s/veh)		13.8				11.1					24.4				47.8	
Level of Service (LOS)		B				B					C				E	
Approach Delay (s/veh)	0.7				0.1				24.4				47.8			
Approach LOS									C				E			

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HCS7 Two-Way Stop-Control Report

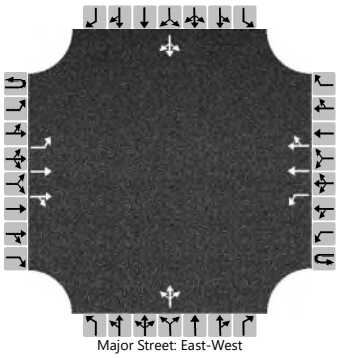
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Dixon Cavett Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Dixon Cavett Road
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	760	10	0	10	970	10		10	10	40		10	10	20
Percent Heavy Vehicles (%)	40	40			40	40				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				10					63				42	
Capacity, c (veh/h)		488				612					361				271	
v/c Ratio		0.02				0.02					0.17				0.15	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.6				0.5	
Control Delay (s/veh)		12.5				11.0					17.1				20.7	
Level of Service (LOS)		B				B					C				C	
Approach Delay (s/veh)	0.2				0.1				17.1				20.7			
Approach LOS									C				C			

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HCS7 Two-Way Stop-Control Report

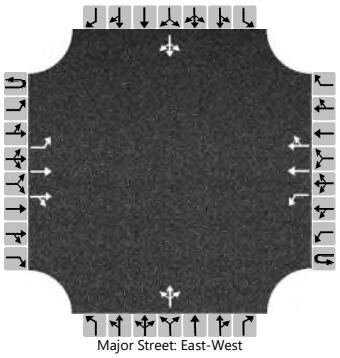
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy-Heller Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Convoy-Heller Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	750	50	0	10	900	10		80	10	20		20	10	10
Percent Heavy Vehicles (%)	40	40			40	40				8	8	8		5	5	5
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.66	6.66	7.06		7.60	6.60	7.00
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.58	4.08	3.38		3.55	4.05	3.35

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					120				43	
Capacity, c (veh/h)		504				571					223				215	
v/c Ratio		0.02				0.02					0.54				0.20	
95% Queue Length, Q_{95} (veh)		0.1				0.1					2.8				0.7	
Control Delay (s/veh)		12.3				11.4					38.3				26.0	
Level of Service (LOS)		B				B					E				D	
Approach Delay (s/veh)	0.2				0.1				38.3				26.0			
Approach LOS									E				D			

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HCS7 Two-Way Stop-Control Report

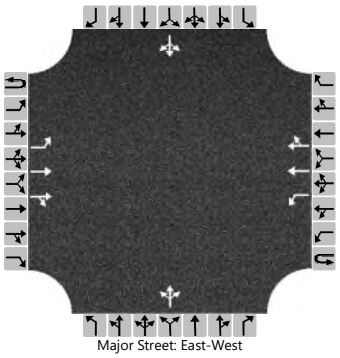
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Colwell Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Colwell Road
Peak Hour Factor	0.98
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	770	10	0	10	900	10		10	10	10		10	20	10
Percent Heavy Vehicles (%)	40	40			40	40				100	100	100		33	33	33
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				9.50	8.50	8.90		8.16	7.16	7.56
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				4.50	5.00	4.30		3.83	4.33	3.63

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				10					31				41	
Capacity, c (veh/h)		537				616					144				192	
v/c Ratio		0.02				0.02					0.21				0.21	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.8				0.8	
Control Delay (s/veh)		11.8				10.9					36.7				28.8	
Level of Service (LOS)		B				B					E				D	
Approach Delay (s/veh)		0.1				0.1				36.7				28.8		
Approach LOS										E				D		

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HCS7 Two-Way Stop-Control Report

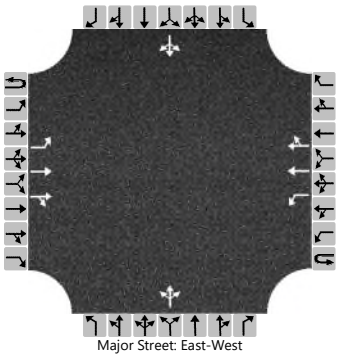
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Convoy Road
Peak Hour Factor	0.93
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	770	10	0	80	900	10		10	20	110		10	40	10
Percent Heavy Vehicles (%)	40	40			40	40				3	3	3		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.56	6.56	6.96		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.53	4.03	3.33		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				86					151				65	
Capacity, c (veh/h)		510				589					357				154	
v/c Ratio		0.02				0.15					0.42				0.42	
95% Queue Length, Q_{95} (veh)		0.1				0.5					2.0				1.9	
Control Delay (s/veh)		12.2				12.1					22.3				44.3	
Level of Service (LOS)		B				B					C				E	
Approach Delay (s/veh)	0.2				1.0				22.3				44.3			
Approach LOS									C				E			

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HCS7 Two-Way Stop-Control Report

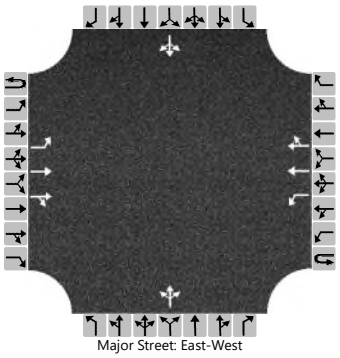
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Richey Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Richey Road
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	870	10	0	10	970	20		10	10	10		20	10	10
Percent Heavy Vehicles (%)	40	40			40	40				0	0	0		30	30	30
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left + Thru							1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.50	6.50	6.90		8.10	7.10	7.50
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.50	4.00	3.30		3.80	4.30	3.60

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					32				42	
Capacity, c (veh/h)		477				538					230				167	
v/c Ratio		0.02				0.02					0.14				0.25	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.5				1.0	
Control Delay (s/veh)		12.7				11.8					23.1				33.6	
Level of Service (LOS)		B				B					C				D	
Approach Delay (s/veh)		0.1				0.1				23.1				33.6		
Approach LOS										C				D		

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HCS7 Two-Way Stop-Control Report

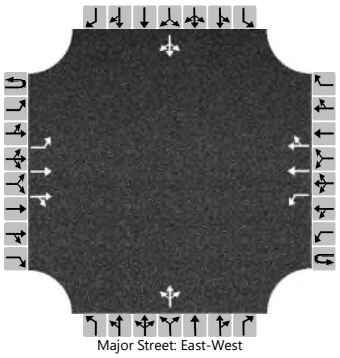
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Liberty-Union Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Liberty-Union Road
Peak Hour Factor	0.98
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	880	10	0	10	950	10		20	10	10		20	10	30
Percent Heavy Vehicles (%)	40	40			40	40				17	17	17		11	11	11
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.84	6.84	7.24		7.72	6.72	7.12
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.67	4.17	3.47		3.61	4.11	3.41

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				10					41				61	
Capacity, c (veh/h)		509				548					202				255	
v/c Ratio		0.02				0.02					0.20				0.24	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.7				0.9	
Control Delay (s/veh)		12.2				11.7					27.2				23.5	
Level of Service (LOS)		B				B					D				C	
Approach Delay (s/veh)		0.1				0.1				27.2				23.5		
Approach LOS										D				C		

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.43		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		560	2
3	Basic	Basic		2475	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1356	4800	0.28	75.0	9.0	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.78	0.714	0.885	1356	420	4800	2100	0.28	0.20	63.9	63.9	10.6	10.9	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	924	4800	0.19	74.1	6.2	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.81	0.714	0.862	1210	286	4800	2100	0.25	0.14	66.7	66.7	9.1	9.1	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1222	4800	0.25	74.3	8.1	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.7	8.0	5.7	1.20	B

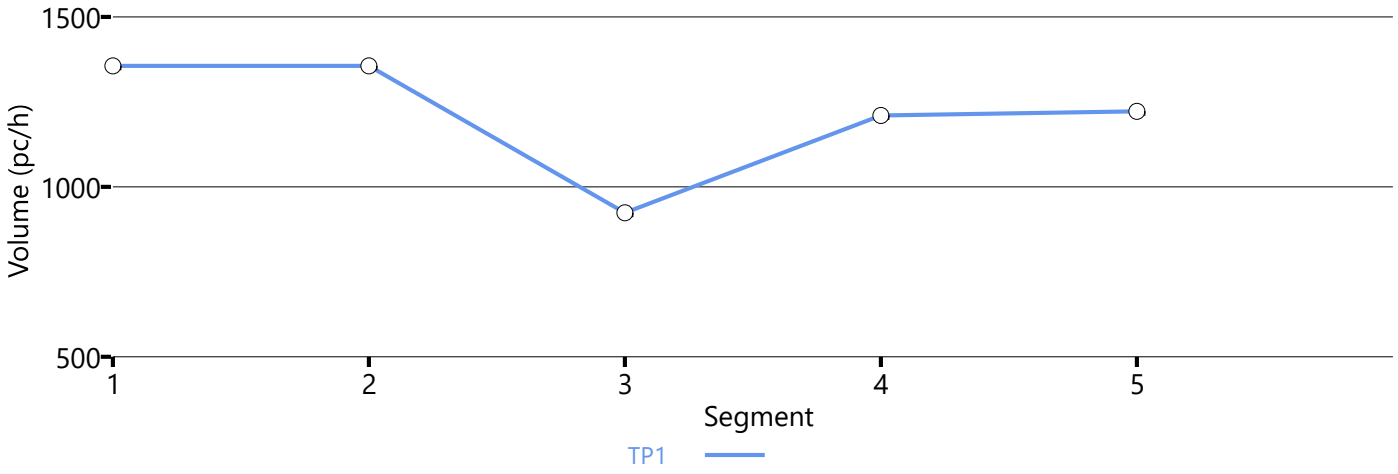
Facility Overall Results

Space Mean Speed, mi/h	71.7	Density, veh/mi/ln	5.7
Average Travel Time, min	1.20	Density, pc/mi/ln	8.0

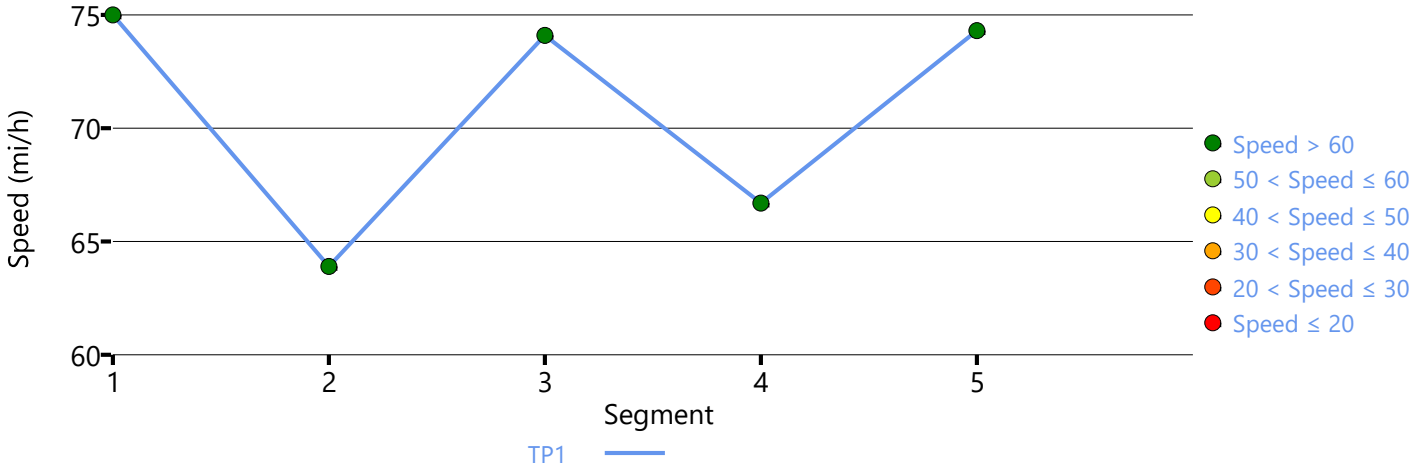
Messages

Comments

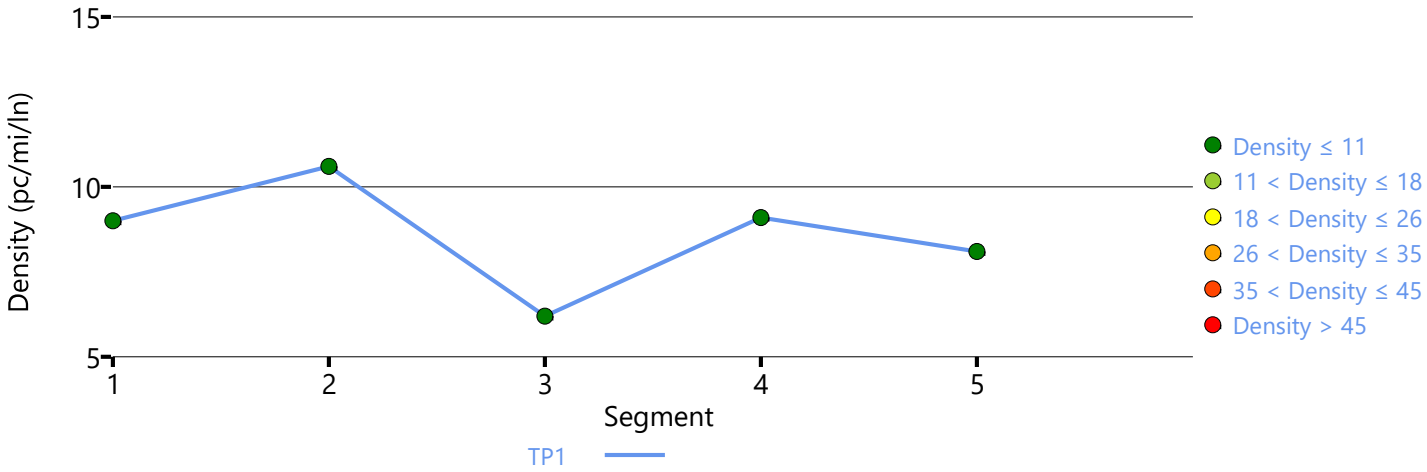
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	910	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	678
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.28
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	560	560
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	910	290
Peak Hour Factor (PHF)	0.94	0.78
Total Trucks, %	40.00	13.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.885
Flow Rate (vi),pc/h	1356	420
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.28	0.20

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.336
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	63.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1356	Ramp Junction Speed (S), mi/h	63.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	10.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.9

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2475	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	620	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	462
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.19
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	925
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	620	200
Peak Hour Factor (PHF)	0.94	0.81
Total Trucks, %	40.00	16.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.862
Flow Rate (vi),pc/h	924	286
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.25	0.14

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.251
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	924	Ramp Junction Speed (S), mi/h	66.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	1210	Average Density (D), pc/mi/ln	9.1
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.1

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	820	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	611
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.60		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2465	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1430	4800	0.30	75.0	9.5	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.80	0.714	0.813	1430	154	4800	2100	0.30	0.07	64.7	64.7	11.1	13.3	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1281	4800	0.27	74.6	8.5	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.75	0.714	0.847	1454	173	4800	1900	0.30	0.09	65.5	65.5	11.1	11.5	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1445	4800	0.30	74.2	9.6	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.8	9.8	7.0	1.40	B

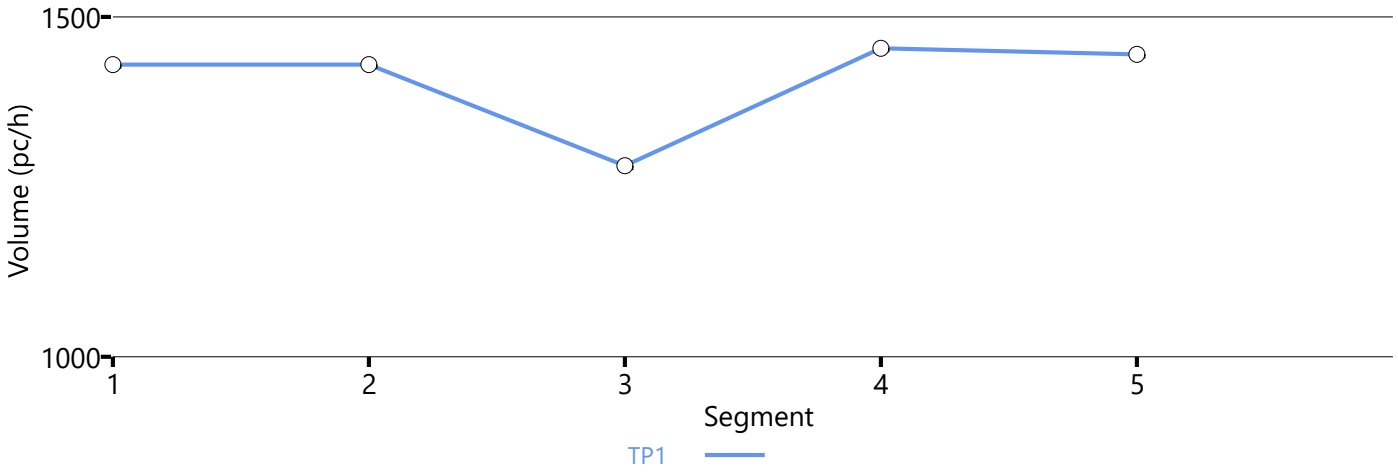
Facility Overall Results

Space Mean Speed, mi/h	70.8	Density, veh/mi/ln	7.0
Average Travel Time, min	1.40	Density, pc/mi/ln	9.8

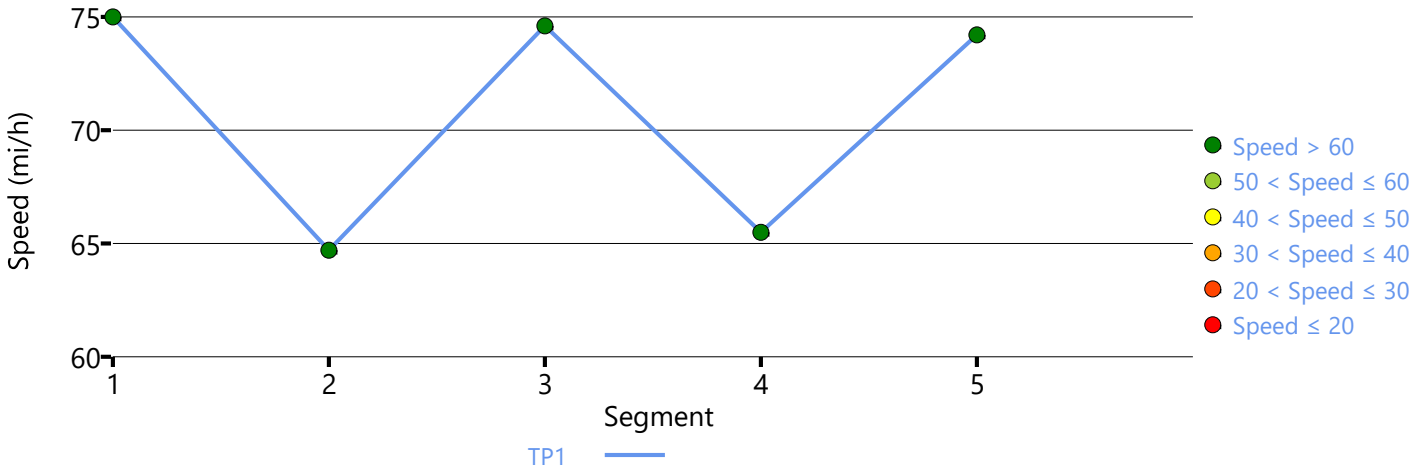
Messages

Comments

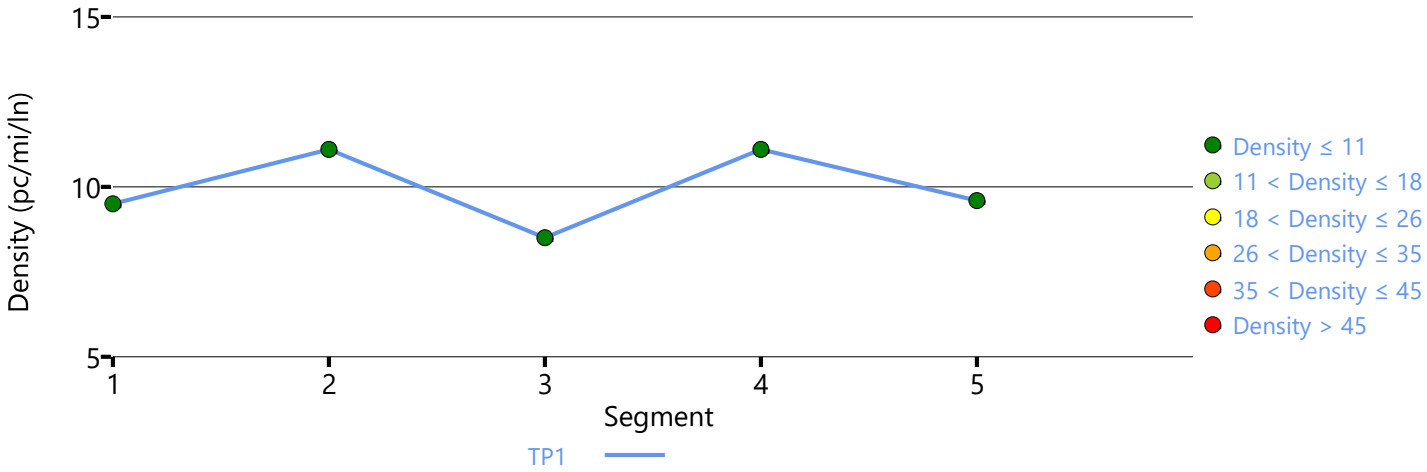
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	960	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	715
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.30
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	360
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	960	100
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	40.00	23.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.813
Flow Rate (vi),pc/h	1430	154
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.30	0.07

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.312
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1430	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	11.1
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	13.3

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2465	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	860	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	640
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.27
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	30.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	860	110
Peak Hour Factor (PHF)	0.94	0.75
Total Trucks, %	40.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.847
Flow Rate (vi),pc/h	1281	173
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.30	0.09

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.287
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1281	Ramp Junction Speed (S), mi/h	65.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	1454	Average Density (D), pc/mi/ln	11.1
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.5

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	970	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	722
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.30
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

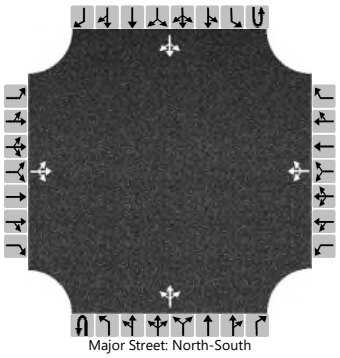
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	7/26/2022
Analysis Year	2047
Time Analyzed	No-Build AM
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Lincoln Hwy at US 224
Jurisdiction	
East/West Street	Lincoln Hwy
North/South Street	US 224
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	100	60		40	70	10		40	190	70		20	220	10
Percent Heavy Vehicles (%)		3	3	3		8	8	8		14				13		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.18	6.58	6.28		4.24				4.23		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.57	4.07	3.37		2.33				2.32		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			200				141			47				24		
Capacity, c (veh/h)			407				284			1227				1195		
v/c Ratio			0.49				0.50			0.04				0.02		
95% Queue Length, Q_{95} (veh)			2.6				2.6			0.1				0.1		
Control Delay (s/veh)			22.1				29.5			8.1				8.1		
Level of Service (LOS)			C				D			A				A		
Approach Delay (s/veh)	22.1				29.5				1.4				0.8			
Approach LOS	C				D											

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HCS7 Two-Way Stop-Control Report

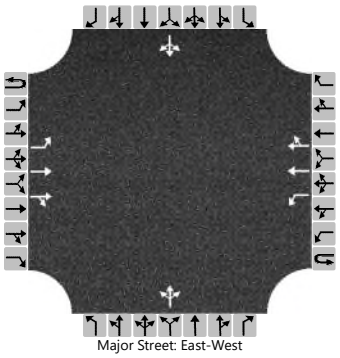
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at John Brown Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	John Brown Road
Peak Hour Factor	0.80
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	790	20	0	100	920	10		20	30	90		10	50	20
Percent Heavy Vehicles (%)	40	40			40	40				2	2	2		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.52	4.02	3.32		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		13				125					175				100	
Capacity, c (veh/h)		421				492					187				102	
v/c Ratio		0.03				0.25					0.94				0.98	
95% Queue Length, Q_{95} (veh)		0.1				1.0					7.4				6.0	
Control Delay (s/veh)		13.8				14.8					101.4				160.1	
Level of Service (LOS)		B				B					F				F	
Approach Delay (s/veh)	0.2				1.4				101.4				160.1			
Approach LOS									F				F			

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HCS7 Two-Way Stop-Control Report

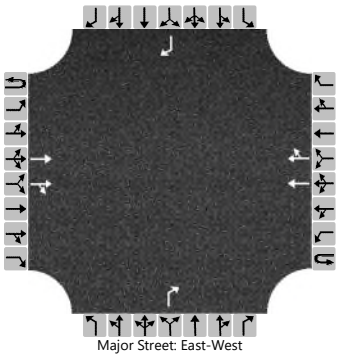
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Dutch John Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Dutch John Road
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	0	1		0	0	1
Configuration			T	TR			T	TR				R				R
Volume (veh/h)			810	80			980	60				80				60
Percent Heavy Vehicles (%)												14				6
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized									No				No			
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)												6.9				6.9
Critical Headway (sec)												7.18				7.02
Base Follow-Up Headway (sec)												3.3				3.3
Follow-Up Headway (sec)												3.44				3.36

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)												85				64
Capacity, c (veh/h)												506				466
v/c Ratio												0.17				0.14
95% Queue Length, Q_{95} (veh)												0.6				0.5
Control Delay (s/veh)												13.5				13.9
Level of Service (LOS)												B				B
Approach Delay (s/veh)									13.5				13.9			
Approach LOS									B				B			

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.50		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		1940	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1266	4800	0.26	75.0	8.4	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.88	0.714	0.758	1266	375	4800	1900	0.26	0.20	55.5	55.5	11.4	9.8	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	894	4800	0.19	73.8	6.0	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.758	1105	211	4800	2100	0.23	0.10	65.5	65.5	8.4	10.9	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1117	4800	0.23	74.2	7.4	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.7	8.2	5.9	1.30	B

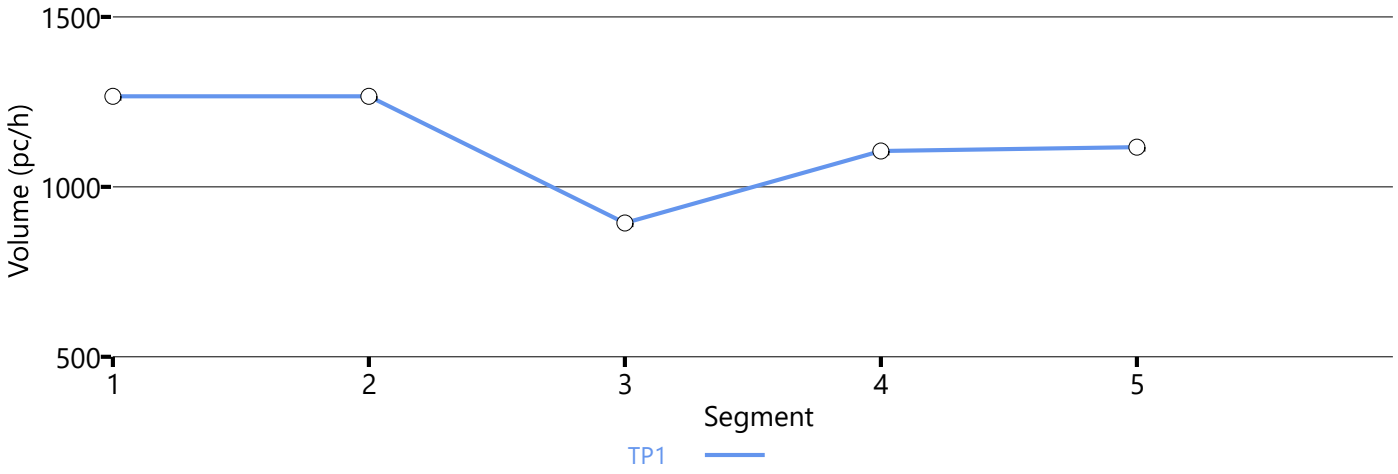
Facility Overall Results

Space Mean Speed, mi/h	67.7	Density, veh/mi/ln	5.9
Average Travel Time, min	1.30	Density, pc/mi/ln	8.2

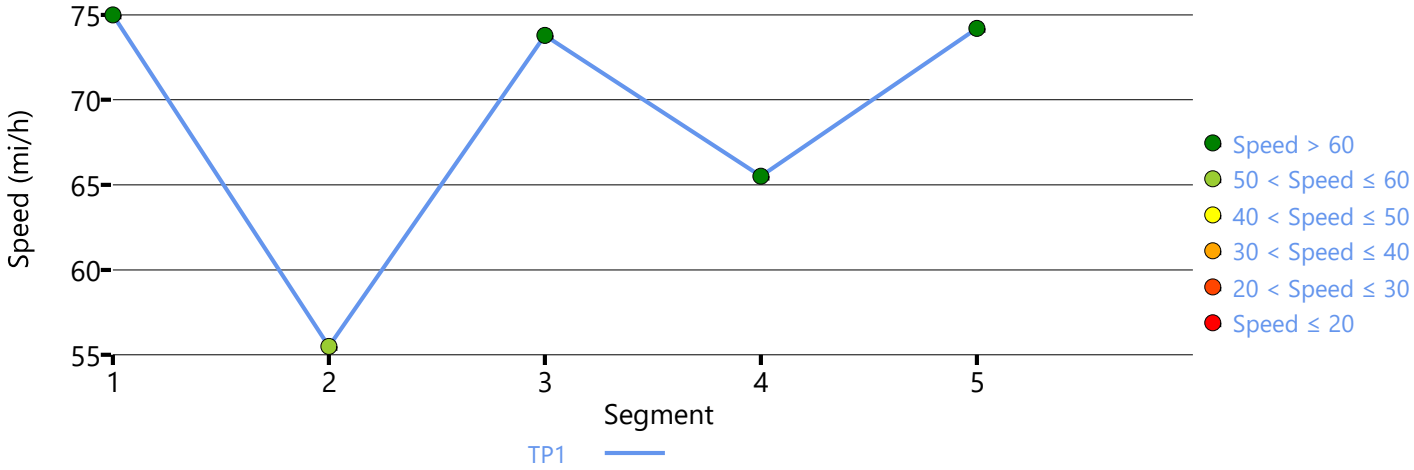
Messages

Comments

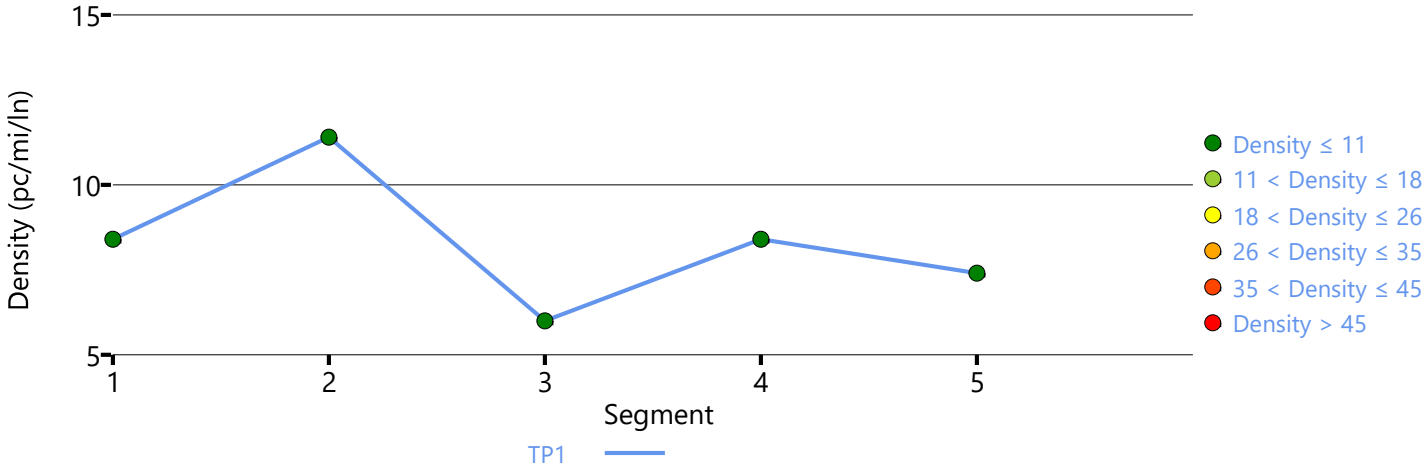
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	850	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	633
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Deceleration Length (LA),ft	1500	590
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	850	250
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	40.00	32.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.758
Flow Rate (vi),pc/h	1266	375
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.26	0.20

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.592
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1266	Ramp Junction Speed (S), mi/h	55.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	11.4
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.8

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1940	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	600	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	447
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.19
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	600	150
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	32.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.758
Flow Rate (vi),pc/h	894	211
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.23	0.10

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.288
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	894	Ramp Junction Speed (S), mi/h	65.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	1105	Average Density (D), pc/mi/ln	8.4
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.9

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	750	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	558
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.53		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2075	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1237	4800	0.26	75.0	8.2	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.70	0.714	0.763	1237	300	4800	2100	0.26	0.14	64.3	64.3	9.6	10.4	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	998	4800	0.21	74.4	6.7	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.763	1514	516	4800	1900	0.32	0.27	64.8	64.8	11.7	13.5	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1550	4800	0.32	74.1	10.3	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.2	9.1	6.6	1.30	B

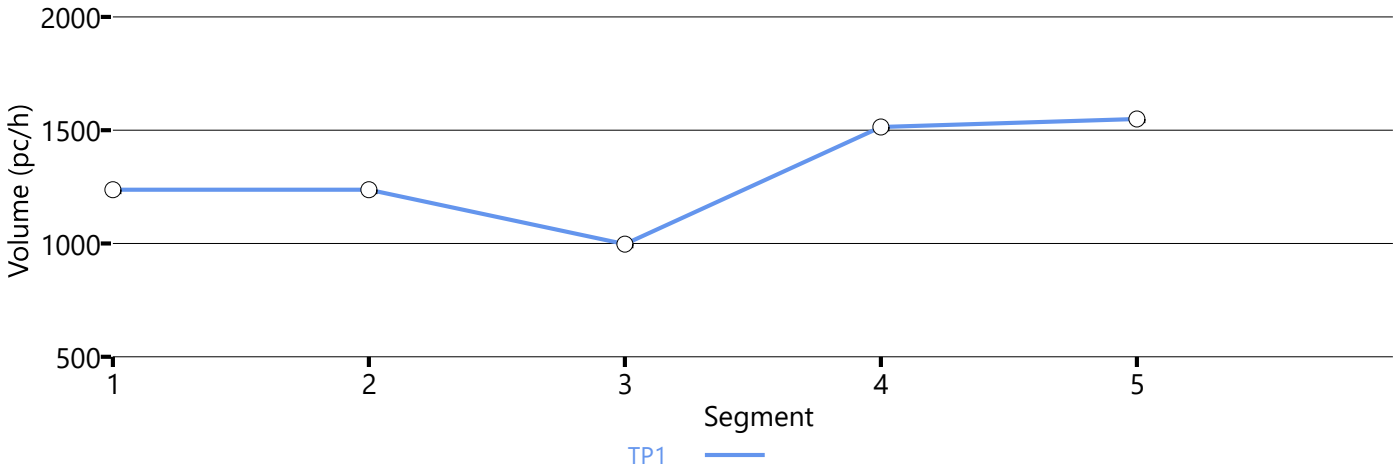
Facility Overall Results

Space Mean Speed, mi/h	70.2	Density, veh/mi/ln	6.6
Average Travel Time, min	1.30	Density, pc/mi/ln	9.1

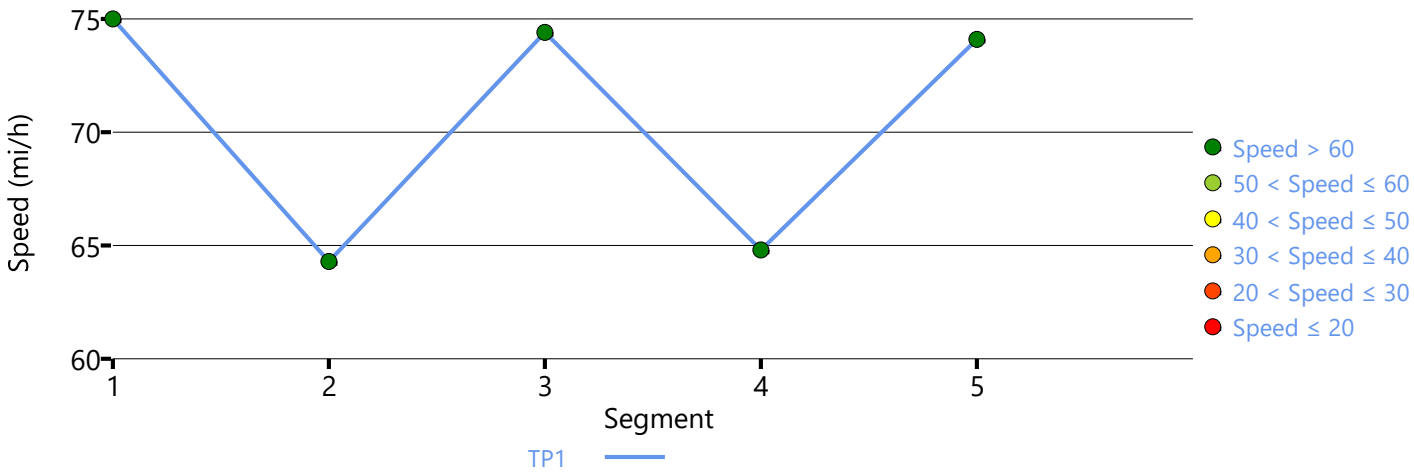
Messages

Comments

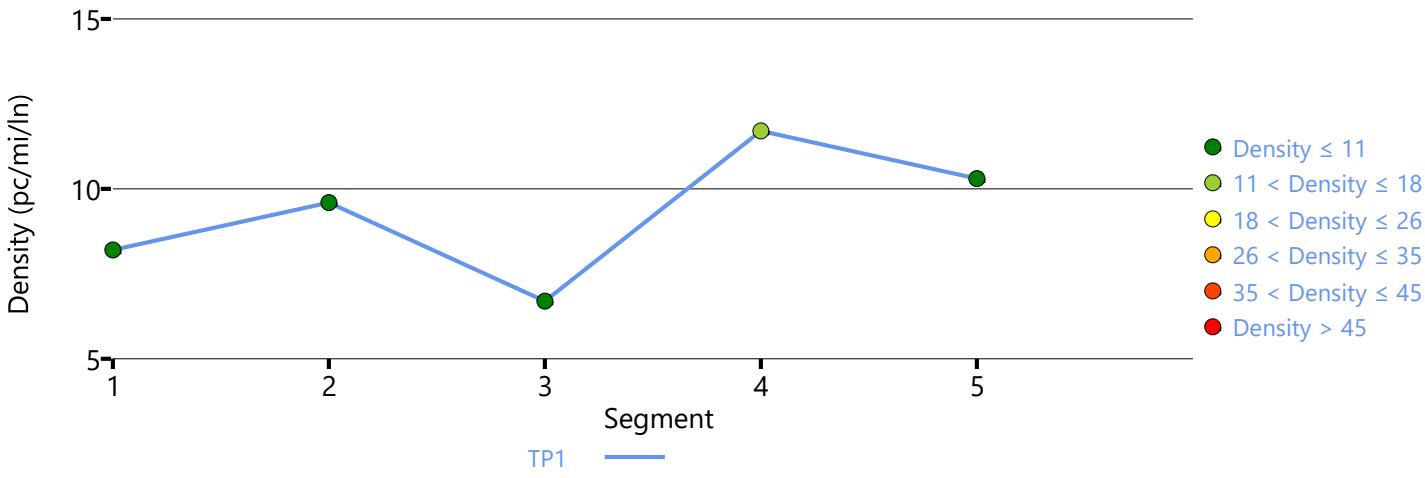
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	830	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	618
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	830	160
Peak Hour Factor (PHF)	0.94	0.70
Total Trucks, %	40.00	31.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.763
Flow Rate (vi),pc/h	1237	300
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.26	0.14

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.325
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1237	Ramp Junction Speed (S), mi/h	64.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.4

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2075	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	670	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	499
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Acceleration Length (LA),ft	1500	570
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	670	370
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	31.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.763
Flow Rate (vi),pc/h	998	516
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.32	0.27

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.310
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	64.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	998	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	1514	Average Density (D), pc/mi/ln	11.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	13.5

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1040	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	775
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.32
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

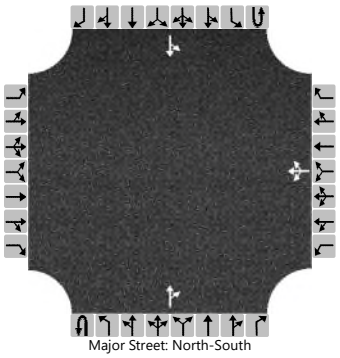
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	7/26/2022
Analysis Year	2047
Time Analyzed	No-Build AM
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	US 127 at Brooks Ave
Jurisdiction	
East/West Street	Brooks Ave
North/South Street	US 127
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR					TR		LT		
Volume (veh/h)						10	0	20			630	10		10	520	
Percent Heavy Vehicles (%)						19	19	19						25		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2						4.1		
Critical Headway (sec)						7.29	6.69	6.39						4.35		
Base Follow-Up Headway (sec)						3.5	4.0	3.3						2.2		
Follow-Up Headway (sec)						3.67	4.17	3.47						2.43		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							32							11		
Capacity, c (veh/h)							253							818		
v/c Ratio							0.12							0.01		
95% Queue Length, Q_{95} (veh)							0.4							0.0		
Control Delay (s/veh)							21.2							9.5		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)					21.2								0.3			
Approach LOS					C											

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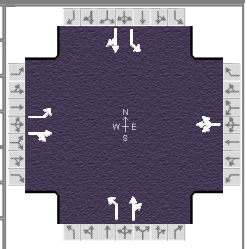
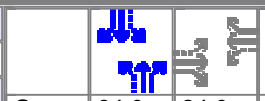
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	AM Peak	PHF	0.86
Urban Street	US 127	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Bonnewitz Ave	File Name	18b-1. US 127 Street - No-Build 2047 AM.xus		
Project Description	No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	120	10	110	10	20	20	80	440	10	10	390	140

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



							1	2	3	4
Green	84.0	24.0	0.0	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
Red	2.0	2.0	0.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		8.0		6.0		6.0
Phase Duration, s		30.0		30.0		90.0		90.0
Change Period, (*Y+R c*), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (*g s*), s		24.0		11.5				
Green Extension Time (*g e*), s		0.0		0.6		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	140	140			58		67	378		12	616	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1327	1567			1345		608	1405		878	1559	
Queue Service Time (*g s*), s	12.4	9.4			0.1		7.6	13.7		0.7	23.5	
Cycle Queue Clearance Time (*g c*), s	22.0	9.4			9.5		31.0	13.7		14.4	23.5	
Green Ratio (*g/C*)	0.20	0.20			0.20		0.70	0.70		0.70	0.70	
Capacity (*c*), veh/h	220	313			305		367	984		574	1091	
Volume-to-Capacity Ratio (*X*)	0.636	0.445			0.191		0.183	0.384		0.020	0.565	
Back of Queue (*Q*), ft/ln (95 th percentile)	202.6	170.4			74.1		61.6	207.1		6.7	331.7	
Back of Queue (*Q*), veh/ln (95 th percentile)	7.8	6.6			2.6		2.0	6.6		0.2	11.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	1.76	0.00			0.00		1.03	0.00		0.08	0.00	
Uniform Delay (*d 1*), s/veh	51.9	42.2			39.9		17.0	7.8		10.4	8.9	
Incremental Delay (*d 2*), s/veh	4.6	0.4			0.1		0.8	0.9		0.1	2.1	
Initial Queue Delay (*d 3*), s/veh	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	56.5	42.5			40.0		17.8	8.7		10.5	11.0	
Level of Service (LOS)	E	D			D		B	A		B	B	
Approach Delay, s/veh / LOS	49.5	D		40.0	D		10.1	B		11.0	B	
Intersection Delay, s/veh / LOS	19.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.64	B	1.87	B
Bicycle LOS Score / LOS	0.95	A	0.58	A	1.50	B	1.52	B

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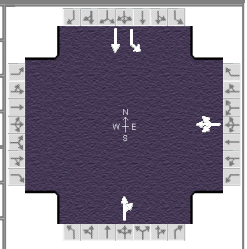
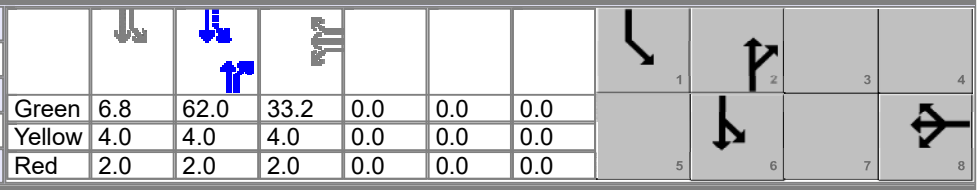
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	AM Peak	PHF	0.90
Urban Street	US 127	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	US 127 at US 30 EB Ra…	File Name	18b-1. US 127 Street - No-Build 2047 AM.xus		
Project Description	No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				110	0	140		570	80	70	300	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.8	62.0	33.2	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				12.0		8.3	1.0	4.0
Phase Duration, s				39.2		68.0	12.8	80.8
Change Period, ($Y+R_c$), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.0	0.0
Queue Clearance Time (g_s), s				32.9			5.6	
Green Extension Time (g_e), s				0.3		0.0	0.1	0.0
Phase Call Probability				1.00			0.98	
Max Out Probability				0.08			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h					278			330		112	481	
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1059			1525		1640	1722	
Queue Service Time (g_s), s					30.9			17.4		3.6	20.1	
Cycle Queue Clearance Time (g_c), s					30.9			17.4		3.6	20.1	
Green Ratio (*g/C*)					0.28			0.52		0.59	0.62	
Capacity (*c*), veh/h					293			788		513	1074	
Volume-to-Capacity Ratio (*X*)					0.949			0.419		0.219	0.448	
Back of Queue (*Q*), ft/ln (95 th percentile)					538			311.9		63.8	334.2	
Back of Queue (*Q*), veh/ln (95 th percentile)					15.5			10.5		2.3	12.2	
Queue Storage Ratio (*RQ*) (95 th percentile)					0.00			0.00		0.00	0.00	
Uniform Delay (d_1), s/veh					42.6			20.4		13.3	14.8	
Incremental Delay (d_2), s/veh					31.3			1.6		0.1	1.1	
Initial Queue Delay (d_3), s/veh					0.0			0.0		0.0	0.0	
Control Delay (*d*), s/veh					73.8			22.0		13.3	15.9	
Level of Service (LOS)					E			C		B	B	
Approach Delay, s/veh / LOS	0.0			73.8		E	22.0		C	15.4		B
Intersection Delay, s/veh / LOS	30.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.74	B	1.97	B	1.68	B	1.37	A
Bicycle LOS Score / LOS			0.95	A	1.68	B	1.17	A

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HCS7 Two-Way Stop-Control Report

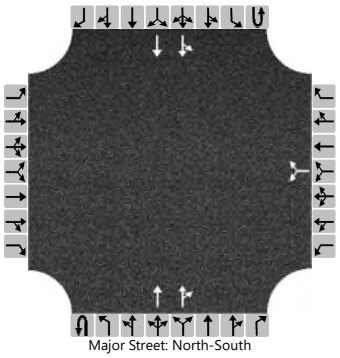
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/12/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 127 at US 30 Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	US 127
Peak Hour Factor	0.82
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	2	0	0	0	2	0
Configuration							LR				T	TR		LT	T	
Volume (veh/h)						10		150			470	240		130	360	
Percent Heavy Vehicles (%)						30		30						14		
Proportion Time Blocked						0.000		0.000						0.000		
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5		6.9						4.1		
Critical Headway (sec)						7.40		7.50						4.38		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.80		3.60						2.34		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							195							159		
Capacity, c (veh/h)							391							702		
v/c Ratio							0.50							0.23		
95% Queue Length, Q_{95} (veh)							2.7							0.9		
Control Delay (s/veh)							23.1							11.6		
Level of Service (LOS)							C							B		
Approach Delay (s/veh)						23.1								3.8		
Approach LOS						C										

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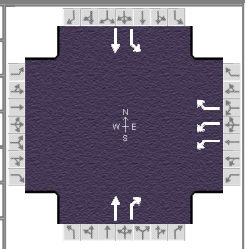
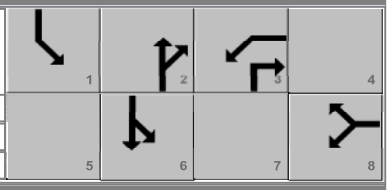
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	AM Peak	PHF	0.97
Urban Street	US 127	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Towne Center Blvd	File Name	18b-1. US 127 Street - No-Build 2047 AM.xus		
Project Description	No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				240		40		280	80	60	350	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.6	84.2	11.2	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		7.3	1.0	4.0
Phase Duration, s				17.2		90.2	12.6	102.8
Change Period, ($Y+R_c$), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.0	0.0
Queue Clearance Time (g_s), s				10.6			3.6	
Green Extension Time (g_e), s				0.6		0.0	0.1	0.0
Phase Call Probability				1.00			0.95	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				247		41		289	82	88	515	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1689		1547		1663	1409	1612	1693	
Queue Service Time (g_s), s				8.6		3.0		7.5	1.5	1.6	7.2	
Cycle Queue Clearance Time (g_c), s				8.6		3.0		7.5	1.5	1.6	7.2	
Green Ratio (*g/C*)				0.09		0.09		0.70	0.79	0.77	0.81	
Capacity (*c*), veh/h				314		144		1167	1120	780	1366	
Volume-to-Capacity Ratio (*X*)				0.788		0.287		0.247	0.074	0.113	0.377	
Back of Queue (*Q*), ft/ln (95 th percentile)				172.9		54.5		121.1	16.6	18.7	76	
Back of Queue (*Q*), veh/ln (95 th percentile)				6.7		2.1		4.3	0.6	0.7	2.7	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.93		0.29		0.00	0.06	0.14	0.00	
Uniform Delay (d_1), s/veh				53.3		50.7		6.5	2.7	3.7	2.0	
Incremental Delay (d_2), s/veh				1.7		0.4		0.5	0.1	0.0	0.6	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				54.9		51.1		7.0	2.8	3.7	2.7	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			54.4		D	6.0		A	2.8		A
Intersection Delay, s/veh / LOS	15.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.16	B	1.97	B	2.06	B	0.63	A
Bicycle LOS Score / LOS				F	1.10	A	1.19	A

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HCS7 Two-Way Stop-Control Report

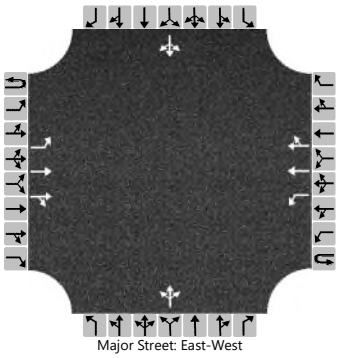
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Mendon Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Mendon Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	700	40	0	10	730	10		70	10	10		10	10	30
Percent Heavy Vehicles (%)	40	40			40	40				15	15	15		100	100	100
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.80	6.80	7.20		9.50	8.50	8.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.65	4.15	3.45		4.50	5.00	4.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					100				56	
Capacity, c (veh/h)		600				600					219				200	
v/c Ratio		0.02				0.02					0.46				0.28	
95% Queue Length, Q_{95} (veh)		0.1				0.1					2.2				1.1	
Control Delay (s/veh)		11.1				11.1					34.6				29.8	
Level of Service (LOS)		B				B					D				D	
Approach Delay (s/veh)	0.1				0.1				34.6				29.8			
Approach LOS									D				D			

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HCS7 Two-Way Stop-Control Report

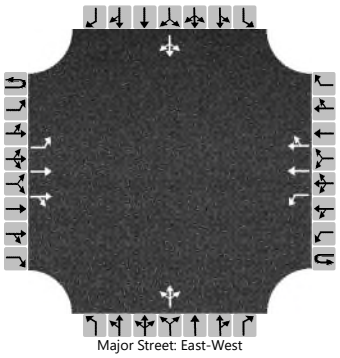
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/10/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Boroff Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Boroff Road
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	20	680	20	0	10	730	10		10	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				80	80	80		60	60	60
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				9.10	8.10	8.50		8.70	7.70	8.10
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				4.30	4.80	4.10		4.10	4.60	3.90

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		23				11					34				34	
Capacity, c (veh/h)		588				616					165				185	
v/c Ratio		0.04				0.02					0.21				0.18	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.7				0.7	
Control Delay (s/veh)		11.4				10.9					32.4				28.8	
Level of Service (LOS)		B				B					D				D	
Approach Delay (s/veh)	0.3				0.1				32.4				28.8			
Approach LOS									D				D			

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.72		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		3070	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1043	4800	0.22	75.0	7.0	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.72	0.714	0.877	1043	32	4800	2100	0.22	0.02	65.1	65.1	8.0	8.8	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1013	4800	0.21	74.8	6.7	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.877	1086	73	4800	2100	0.23	0.03	66.4	66.4	8.2	9.1	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1103	4800	0.23	74.2	7.4	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.4	7.3	5.3	1.40	B

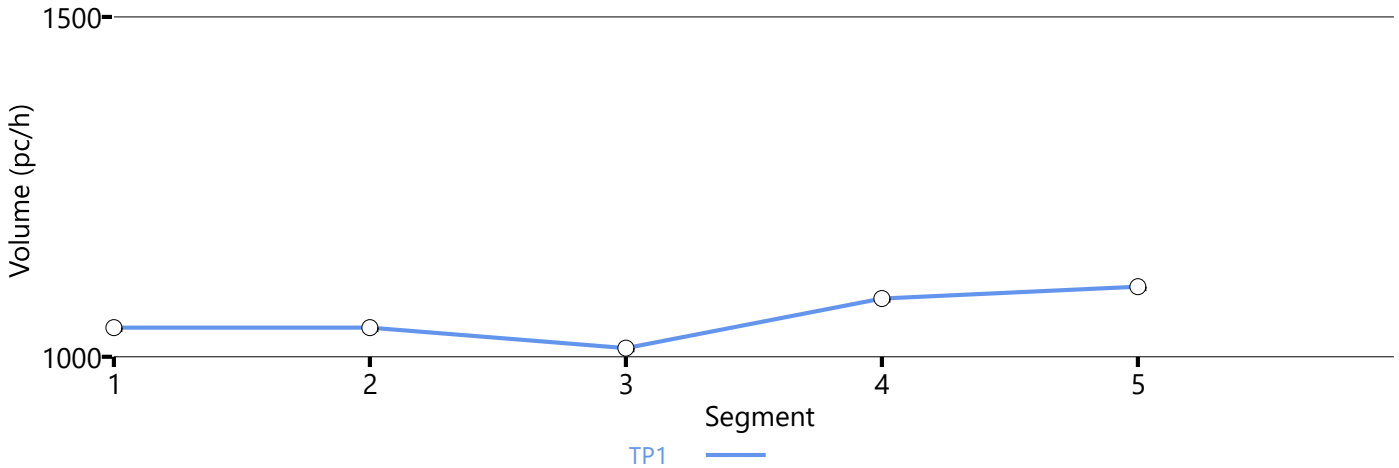
Facility Overall Results

Space Mean Speed, mi/h	71.4	Density, veh/mi/ln	5.3
Average Travel Time, min	1.40	Density, pc/mi/ln	7.3

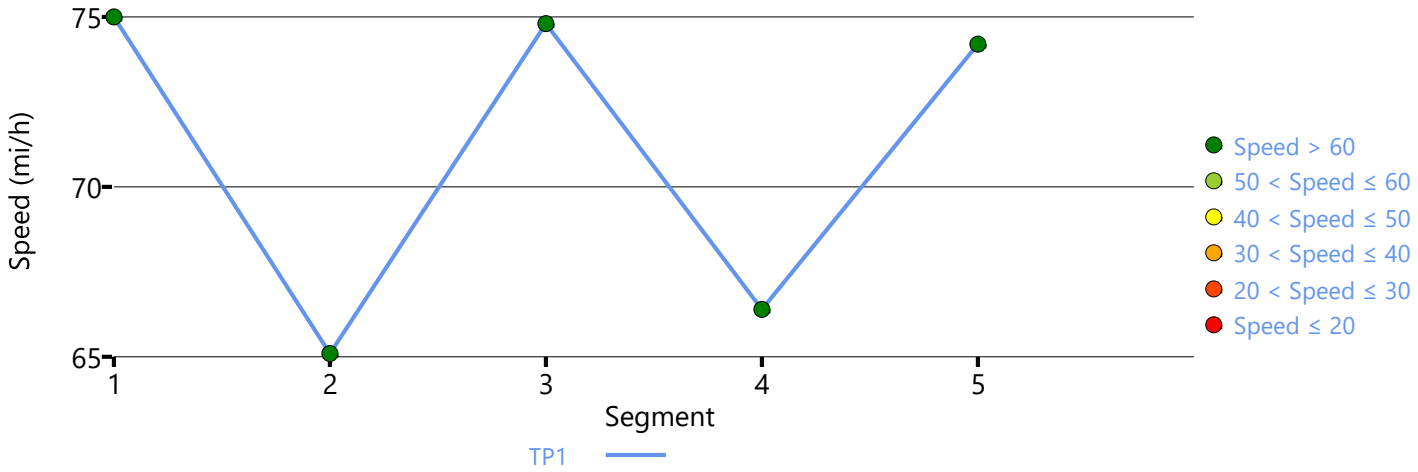
Messages

Comments

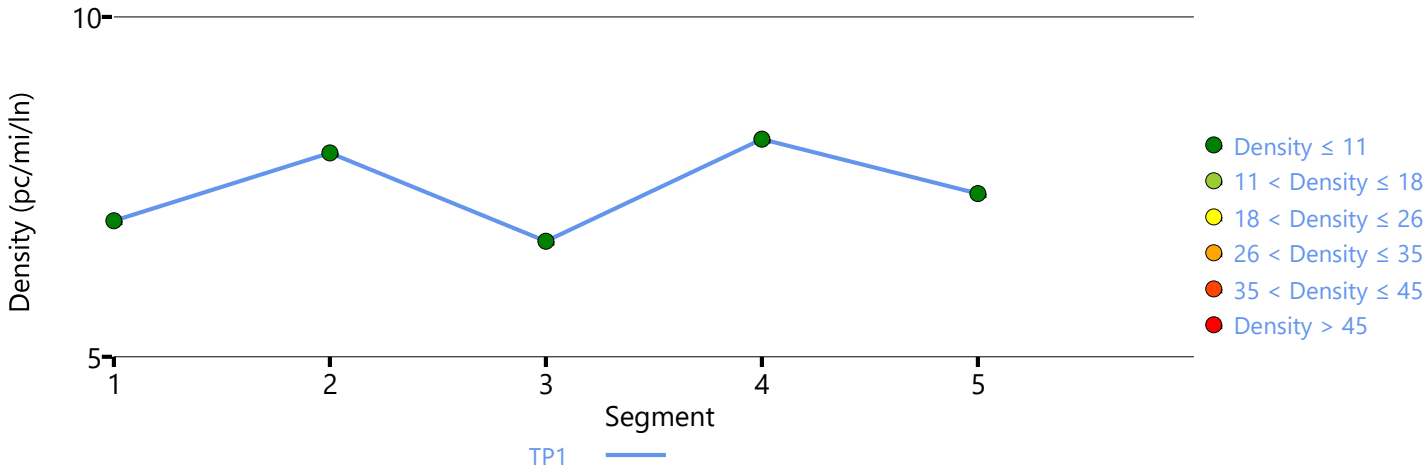
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	700	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	522
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.22
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	495
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	700	20
Peak Hour Factor (PHF)	0.94	0.72
Total Trucks, %	40.00	14.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.877
Flow Rate (vi),pc/h	1043	32
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.22	0.02

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.301
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	65.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1043	Ramp Junction Speed (S), mi/h	65.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.0
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	8.8

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	3070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	680	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	506
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	785
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	680	60
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	14.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.877
Flow Rate (vi),pc/h	1013	73
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.23	0.03

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.262
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1013	Ramp Junction Speed (S), mi/h	66.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	1086	Average Density (D), pc/mi/ln	8.2
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.1

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	740	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	552
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.66		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2790	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1103	4800	0.23	75.0	7.4	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.77	0.714	0.962	1103	95	4800	2100	0.23	0.05	64.9	64.9	8.5	9.6	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	998	4800	0.21	74.7	6.7	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.62	0.714	0.893	1142	144	4800	2100	0.24	0.07	65.4	65.4	8.7	11.5	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1117	4800	0.23	74.2	7.4	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.0	7.6	5.4	1.40	B

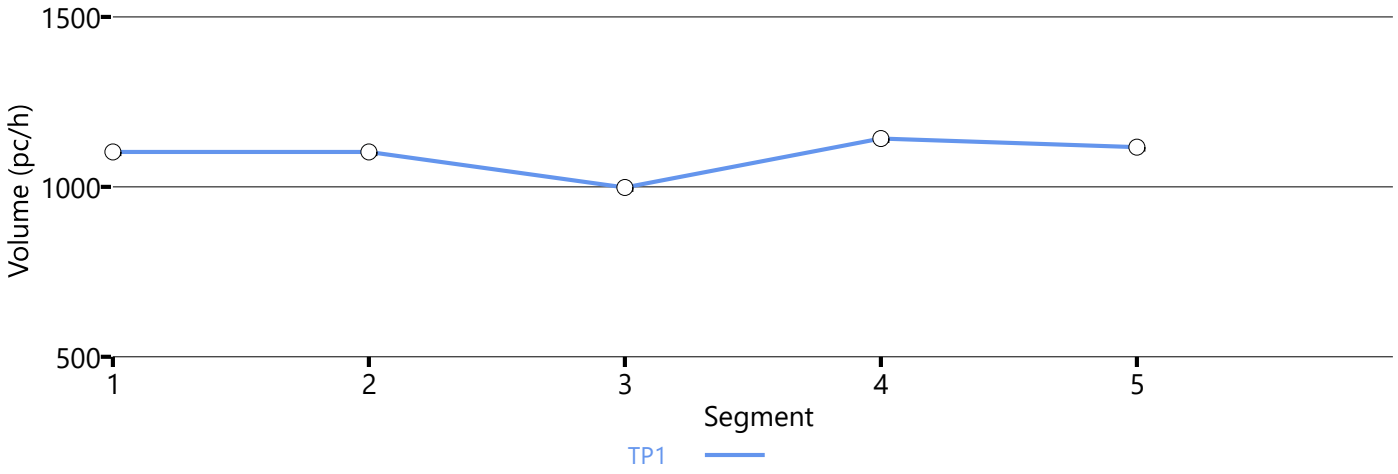
Facility Overall Results

Space Mean Speed, mi/h	71.0	Density, veh/mi/ln	5.4
Average Travel Time, min	1.40	Density, pc/mi/ln	7.6

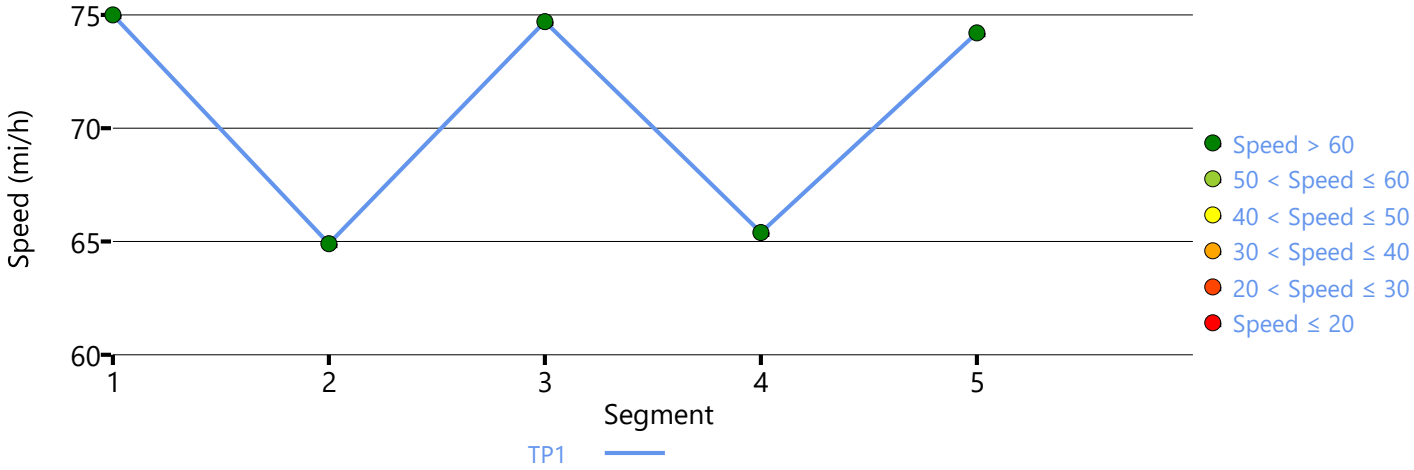
Messages

Comments

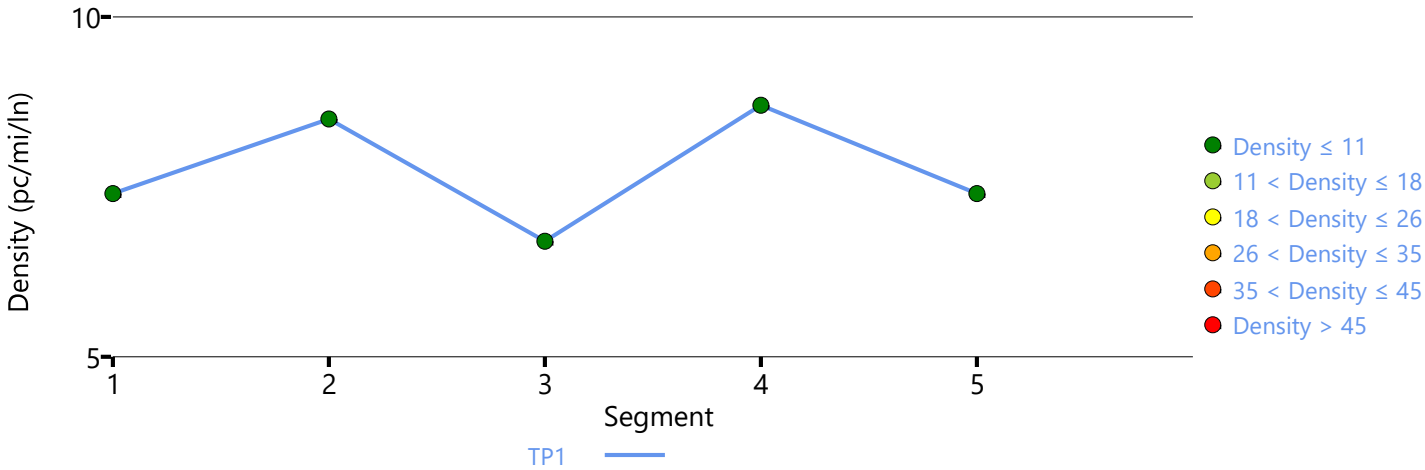
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	740	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	552
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	455
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	740	70
Peak Hour Factor (PHF)	0.94	0.77
Total Trucks, %	40.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.962
Flow Rate (vi),pc/h	1103	95
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.23	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.307
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1103	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.5
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.6

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2790	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	670	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	499
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	460
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	670	80
Peak Hour Factor (PHF)	0.94	0.62
Total Trucks, %	40.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.893
Flow Rate (vi),pc/h	998	144
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.24	0.07

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.292
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	998	Ramp Junction Speed (S), mi/h	65.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	1142	Average Density (D), pc/mi/ln	8.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.5

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	750	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	558
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

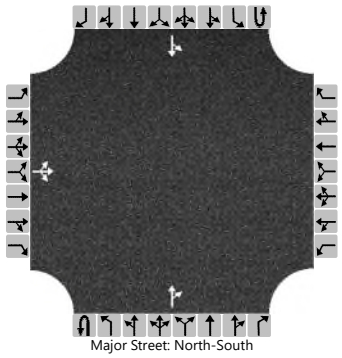
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/12/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.83
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LTR									TR		LT		
Volume (veh/h)		10	0	10							20	50		10	70	
Percent Heavy Vehicles (%)		14	14	14										5		
Proportion Time Blocked																
Percent Grade (%)			0													
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.24	6.64	6.34										4.15		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.63	4.13	3.43										2.25		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			24											12		
Capacity, c (veh/h)			848											1494		
v/c Ratio			0.03											0.01		
95% Queue Length, Q_{95} (veh)			0.1											0.0		
Control Delay (s/veh)			9.4											7.4		
Level of Service (LOS)			A											A		
Approach Delay (s/veh)		9.4												1.0		
Approach LOS		A														

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HCS7 Two-Way Stop-Control Report

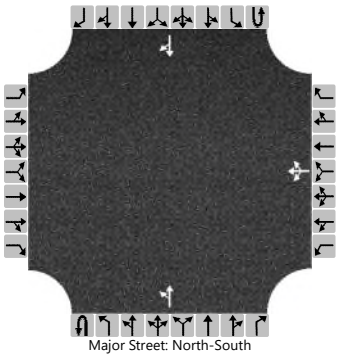
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/12/2021
Analysis Year	2047
Time Analyzed	No-Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.73
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						60	0	10		10	20				20	70
Percent Heavy Vehicles (%)						4	4	4		7						
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						7.14	6.54	6.24		4.17						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.54	4.04	3.34		2.26						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							96			14						
Capacity, c (veh/h)							856			1433						
v/c Ratio							0.11			0.01						
95% Queue Length, Q_{95} (veh)							0.4			0.0						
Control Delay (s/veh)							9.7			7.5						
Level of Service (LOS)							A			A						
Approach Delay (s/veh)						9.7				2.6						
Approach LOS						A										

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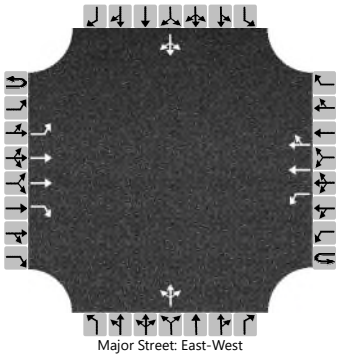
Appendix D

HCS Analysis - No-Build Alternative - 2047 P.M. Peak Hour

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	GBS	Intersection	US 30 at State Line Road
Agency/Co.	Arcadis	Jurisdiction	District 1
Date Performed	5/19/2021	East/West Street	US 30
Analysis Year	2047	North/South Street	State Line Road
Time Analyzed	No-Build PM Peak Hour	Peak Hour Factor	0.97
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	PAU-VAN US 30		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	1	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	R		L	T	TR			LTR				LTR	
Volume (veh/h)	0	20	1170	20	0	10	1110	10		10	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				4	4	4		2	2	2
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No														
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.58	6.58	6.98		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.54	4.04	3.34		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		21				10					31				31	
Capacity, c (veh/h)		424				393					159				168	
v/c Ratio		0.05				0.03					0.19				0.18	
95% Queue Length, Q_{95} (veh)		0.2				0.1					0.7				0.7	
Control Delay (s/veh)		13.9				14.4					33.0				31.3	
Level of Service (LOS)		B				B					D				D	
Approach Delay (s/veh)		0.2				0.1				33.0				31.3		
Approach LOS										D				D		

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HCS7 Two-Way Stop-Control Report

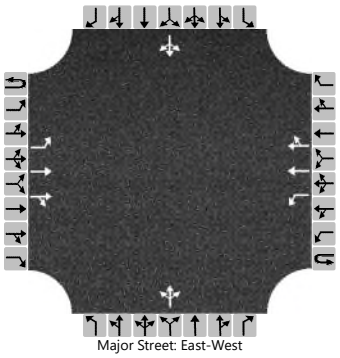
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Klinger Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Klinger Road
Peak Hour Factor	0.93
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	20	1160	10	0	10	1110	10		10	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left + Thru							1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		22				11					32				32	
Capacity, c (veh/h)		402				380					153				160	
v/c Ratio		0.05				0.03					0.21				0.20	
95% Queue Length, Q_{95} (veh)		0.2				0.1					0.8				0.7	
Control Delay (s/veh)		14.4				14.7					34.7				33.1	
Level of Service (LOS)		B				B					D				D	
Approach Delay (s/veh)		0.2				0.1				34.7				33.1		
Approach LOS										D				D		

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HCS7 Two-Way Stop-Control Report

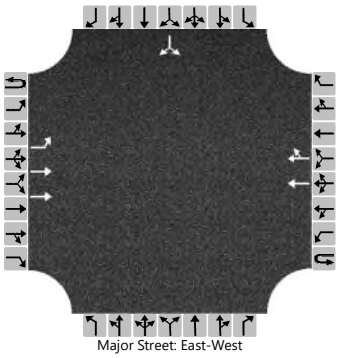
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Krick Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Krick Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	0	2	0		0	0	0		0	1	0
Configuration		L	T				T	TR							LR	
Volume (veh/h)	0	10	1170				1120	10						10		10
Percent Heavy Vehicles (%)	0	40												0		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.5		6.9
Critical Headway (sec)		4.90												6.80		6.90
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.60												3.50		3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11													22	
Capacity, c (veh/h)		392													247	
v/c Ratio		0.03													0.09	
95% Queue Length, Q_{95} (veh)		0.1													0.3	
Control Delay (s/veh)		14.4													21.0	
Level of Service (LOS)		B													C	
Approach Delay (s/veh)	0.1												21.0			
Approach LOS													C			

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HCS7 Two-Way Stop-Control Report

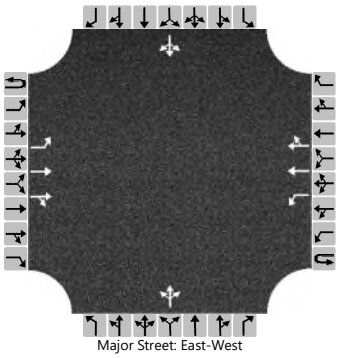
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US30 at Mentzer Church Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Mentzer Chruch Road
Peak Hour Factor	0.93
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	20	1120	40	0	30	1110	10		10	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				23	23	23		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.96	6.96	7.36		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.73	4.23	3.53		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		22				32					32				32	
Capacity, c (veh/h)		402				385					123				146	
v/c Ratio		0.05				0.08					0.26				0.22	
95% Queue Length, Q_{95} (veh)		0.2				0.3					1.0				0.8	
Control Delay (s/veh)		14.4				15.2					44.5				36.5	
Level of Service (LOS)		B				C					E				E	
Approach Delay (s/veh)		0.2				0.4				44.5				36.5		
Approach LOS										E				E		

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HCS7 Two-Way Stop-Control Report

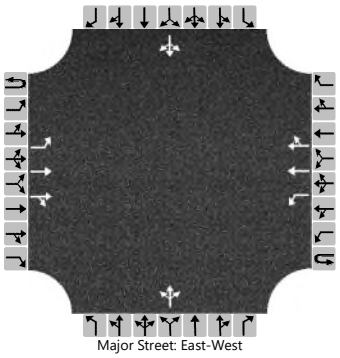
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Elm Sugar Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Elm Sugar Road
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	1120	10	0	20	1130	10		10	10	20		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				0	0	0		21	21	21
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.50	6.50	6.90		7.92	6.92	7.32
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.50	4.00	3.30		3.71	4.21	3.51

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				21					43				32	
Capacity, c (veh/h)		399				403					194				134	
v/c Ratio		0.03				0.05					0.22				0.24	
95% Queue Length, Q_{95} (veh)		0.1				0.2					0.8				0.9	
Control Delay (s/veh)		14.3				14.4					28.6				40.1	
Level of Service (LOS)		B				B					D				E	
Approach Delay (s/veh)	0.1				0.2				28.6				40.1			
Approach LOS									D				E			

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HCS7 Two-Way Stop-Control Report

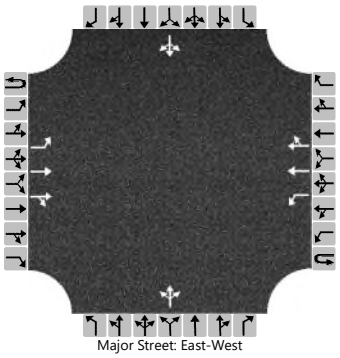
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Lare Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Lare Road
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	0	1130	20	0	20	1150	0		10	0	10		10	0	10
Percent Heavy Vehicles (%)	40	40			40	40				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left + Thru							1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.50	6.50	6.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				21					21				21	
Capacity, c (veh/h)		400				400					212				201	
v/c Ratio		0.00				0.05					0.10				0.10	
95% Queue Length, Q_{95} (veh)		0.0				0.2					0.3				0.3	
Control Delay (s/veh)		14.0				14.5					23.9				25.0	
Level of Service (LOS)		B				B					C				D	
Approach Delay (s/veh)		0.0				0.2				23.9				25.0		
Approach LOS										C				D		

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HCS7 Two-Way Stop-Control Report

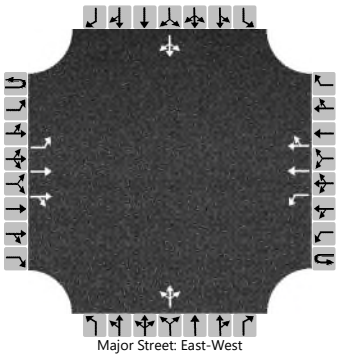
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US30 at Feasby Wisener Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Feasby Wisener Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	30	1080	30	0	10	1150	10		10	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				75	75	75		100	100	100
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				9.00	8.00	8.40		9.50	8.50	8.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				4.25	4.75	4.05		4.50	5.00	4.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		33				11					33				33	
Capacity, c (veh/h)		368				390					74				64	
v/c Ratio		0.09				0.03					0.45				0.52	
95% Queue Length, Q_{95} (veh)		0.3				0.1					1.8				2.1	
Control Delay (s/veh)		15.8				14.5					89.3				111.5	
Level of Service (LOS)		C				B					F				F	
Approach Delay (s/veh)	0.4				0.1				89.3				111.5			
Approach LOS									F				F			

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HCS7 Two-Way Stop-Control Report

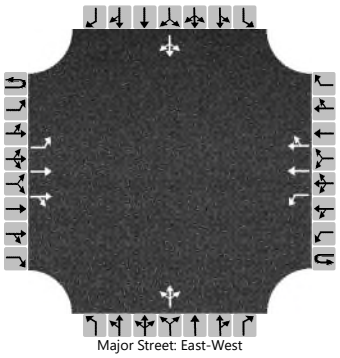
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at SR 49 Payne Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	SR 49 Payne Road
Peak Hour Factor	0.87
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	70	1010	20	0	10	1150	80		10	10	30		20	60	10
Percent Heavy Vehicles (%)	40	40			40	40				11	11	11		10	10	10
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.72	6.72	7.12		7.70	6.70	7.10
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.61	4.11	3.41		3.60	4.10	3.40

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		80				11					57				103	
Capacity, c (veh/h)		323				411					119				85	
v/c Ratio		0.25				0.03					0.48				1.21	
95% Queue Length, Q_{95} (veh)		1.0				0.1					2.2				7.5	
Control Delay (s/veh)		19.8				14.0					60.4				255.1	
Level of Service (LOS)		C				B					F				F	
Approach Delay (s/veh)		1.3				0.1				60.4				255.1		
Approach LOS										F				F		

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HCS7 Two-Way Stop-Control Report

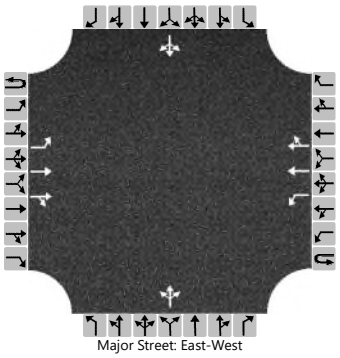
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Dixon Cavett Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Dixon Cavett Road
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	1040	10	0	20	1200	10		20	10	20		20	10	20
Percent Heavy Vehicles (%)	40	40			40	40				10	10	10		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.70	6.70	7.10		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.60	4.10	3.40		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				21					52				52	
Capacity, c (veh/h)		379				452					177				171	
v/c Ratio		0.03				0.05					0.29				0.30	
95% Queue Length, Q_{95} (veh)		0.1				0.1					1.2				1.2	
Control Delay (s/veh)		14.8				13.4					33.7				35.0	
Level of Service (LOS)		B				B					D				E	
Approach Delay (s/veh)	0.1				0.2				33.7				35.0			
Approach LOS									D				E			

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HCS7 Two-Way Stop-Control Report

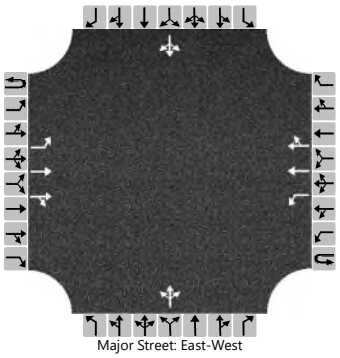
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy-Heller Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Convoy-Heller Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	1010	60	0	10	1190	10		30	10	20		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				4	4	4		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.58	6.58	6.98		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.54	4.04	3.34		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					65				33	
Capacity, c (veh/h)		362				420					169				157	
v/c Ratio		0.03				0.03					0.39				0.21	
95% Queue Length, Q_{95} (veh)		0.1				0.1					1.7				0.8	
Control Delay (s/veh)		15.2				13.8					39.1				33.9	
Level of Service (LOS)		C				B					E				D	
Approach Delay (s/veh)	0.1				0.1				39.1				33.9			
Approach LOS									E				D			

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HCS7 Two-Way Stop-Control Report

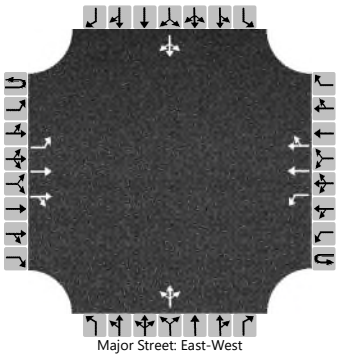
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Colwell Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Colwell Road
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	1020	10	0	10	1190	10		10	10	20		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				50	50	50		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				8.50	7.50	7.90		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				4.00	4.50	3.80		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				10					42				31	
Capacity, c (veh/h)		384				462					151				170	
v/c Ratio		0.03				0.02					0.28				0.18	
95% Queue Length, Q_{95} (veh)		0.1				0.1					1.1				0.7	
Control Delay (s/veh)		14.6				13.0					37.8				31.0	
Level of Service (LOS)		B				B					E				D	
Approach Delay (s/veh)	0.1				0.1				37.8				31.0			
Approach LOS									E				D			

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HCS7 Two-Way Stop-Control Report

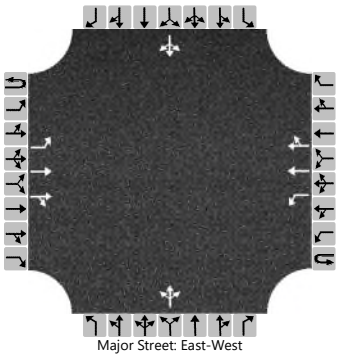
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Convoy Road
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	1030	10	0	80	1190	10		10	20	30		10	20	10
Percent Heavy Vehicles (%)	40	40			40	40				3	3	3		4	4	4
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.56	6.56	6.96		7.58	6.58	6.98
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.53	4.03	3.33		3.54	4.04	3.34

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				83					63				42	
Capacity, c (veh/h)		384				457					171				110	
v/c Ratio		0.03				0.18					0.37				0.38	
95% Queue Length, Q_{95} (veh)		0.1				0.7					1.6				1.5	
Control Delay (s/veh)		14.6				14.6					37.8				56.5	
Level of Service (LOS)		B				B					E				F	
Approach Delay (s/veh)	0.1				0.9				37.8				56.5			
Approach LOS									E				F			

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HCS7 Two-Way Stop-Control Report

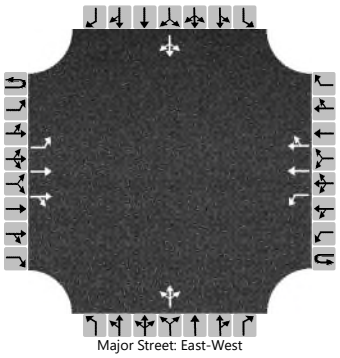
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Richey Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Richey Road
Peak Hour Factor	0.98
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	1050	10	0	20	1260	10		10	10	30		20	10	10
Percent Heavy Vehicles (%)	40	40			40	40				9	9	9		18	18	18
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.68	6.68	7.08		7.86	6.86	7.26
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.59	4.09	3.39		3.68	4.18	3.48

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				20					51				41	
Capacity, c (veh/h)		365				458					219				124	
v/c Ratio		0.03				0.04					0.23				0.33	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.9				1.3	
Control Delay (s/veh)		15.1				13.2					26.3				47.7	
Level of Service (LOS)		C				B					D				E	
Approach Delay (s/veh)		0.1				0.2				26.3				47.7		
Approach LOS										D				E		

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HCS7 Two-Way Stop-Control Report

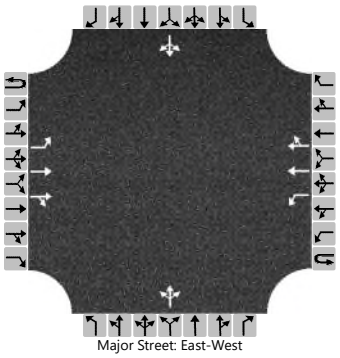
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Liberty-Union Rd
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Liberty-Union Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	1080	10	0	10	1260	30		20	10	10		10	10	10
Percent Heavy Vehicles (%)	40	40			40	40				3	3	3		4	4	4
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.56	6.56	6.96		7.58	6.58	6.98
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.53	4.03	3.33		3.54	4.04	3.34

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					44				33	
Capacity, c (veh/h)		316				400					138				132	
v/c Ratio		0.04				0.03					0.32				0.25	
95% Queue Length, Q_{95} (veh)		0.1				0.1					1.3				0.9	
Control Delay (s/veh)		16.8				14.3					43.0				41.1	
Level of Service (LOS)		C				B					E				E	
Approach Delay (s/veh)	0.2				0.1				43.0				41.1			
Approach LOS									E				E			

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.43		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		560	2
3	Basic	Basic		2475	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1639	4800	0.34	75.0	10.9	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.89	0.714	0.885	1639	292	4800	2100	0.34	0.14	64.3	64.3	12.7	13.3	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1296	4800	0.27	74.1	8.6	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.862	1506	210	4800	2100	0.31	0.10	66.6	66.6	11.3	11.4	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1550	4800	0.32	74.3	10.3	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.8	10.2	7.3	1.20	B

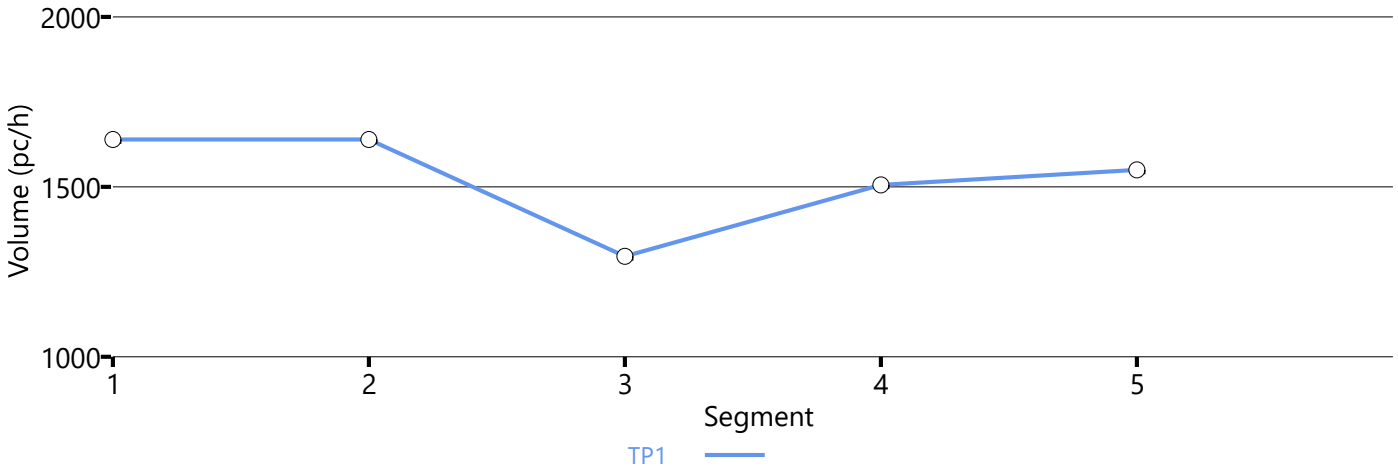
Facility Overall Results

Space Mean Speed, mi/h	71.8	Density, veh/mi/ln	7.3
Average Travel Time, min	1.20	Density, pc/mi/ln	10.2

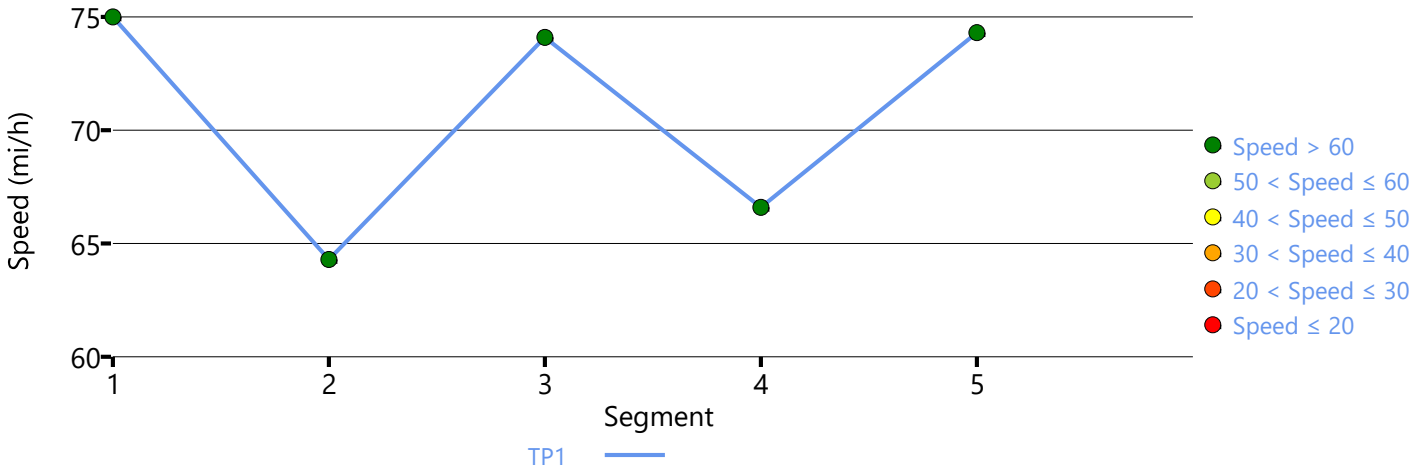
Messages

Comments

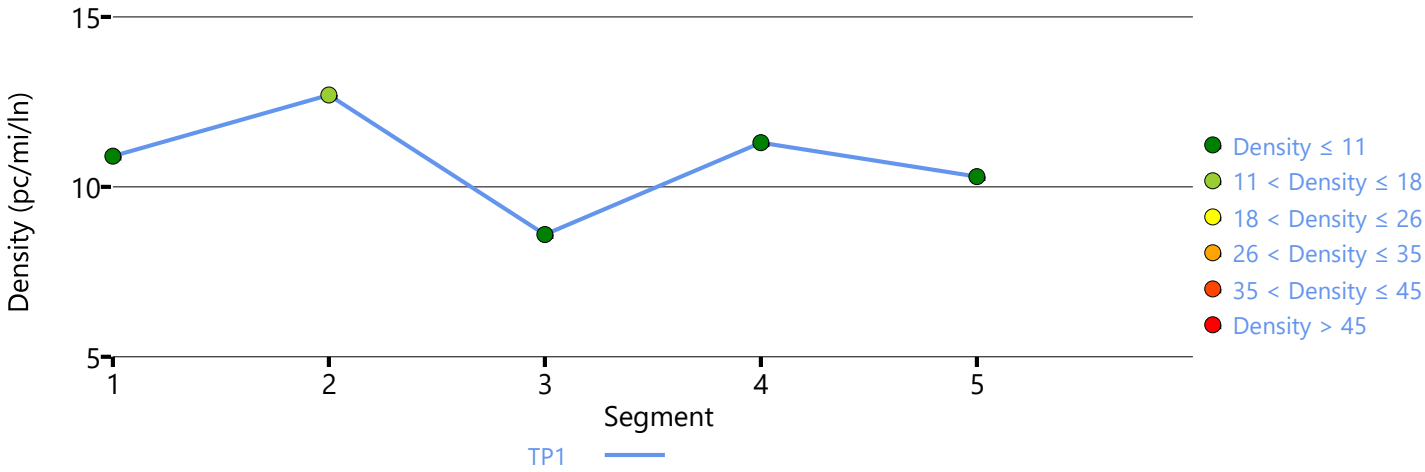
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1100	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	820
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	560	560
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1100	230
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	40.00	13.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.885
Flow Rate (vi),pc/h	1639	292
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.34	0.14

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.324
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1639	Ramp Junction Speed (S), mi/h	64.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	12.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	13.3

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2475	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	870	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	648
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.27
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	925
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	870	170
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	16.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.862
Flow Rate (vi),pc/h	1296	210
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.31	0.10

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.255
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1296	Ramp Junction Speed (S), mi/h	66.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	1506	Average Density (D), pc/mi/ln	11.3
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.4

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1040	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	775
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.32
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.60		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2465	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1892	4800	0.39	75.0	12.6	B

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.75	0.714	0.820	1892	163	4800	2100	0.39	0.08	64.7	64.7	14.6	17.3	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1743	4800	0.36	74.6	11.6	B

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.78	0.714	0.855	1938	195	4800	1900	0.40	0.10	65.2	65.2	14.9	15.3	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1937	4800	0.40	74.1	12.9	B

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.8	13.1	9.4	1.40	B

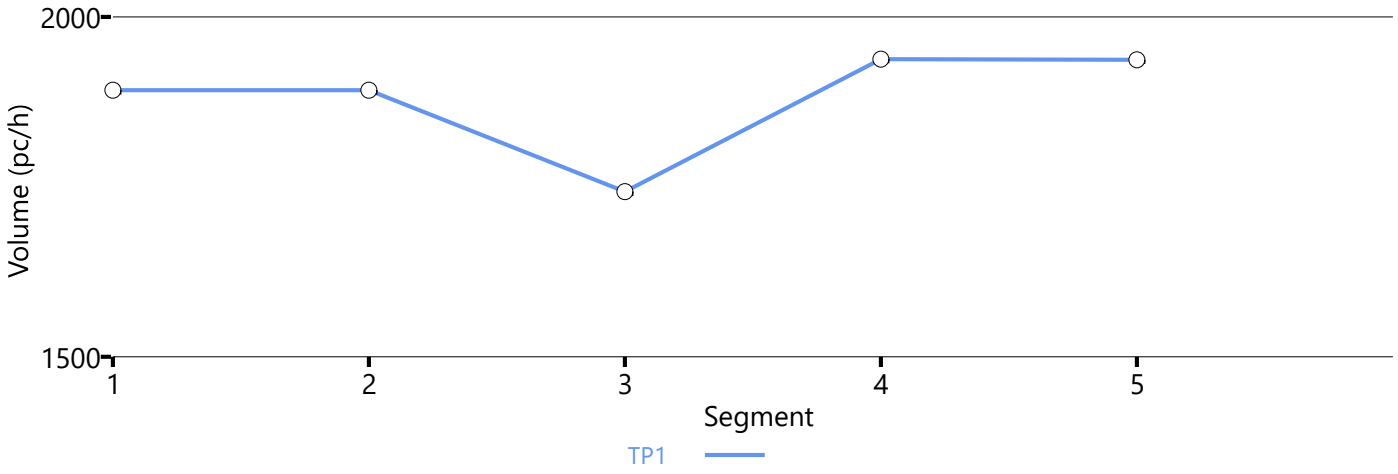
Facility Overall Results

Space Mean Speed, mi/h	70.8	Density, veh/mi/ln	9.4
Average Travel Time, min	1.40	Density, pc/mi/ln	13.1

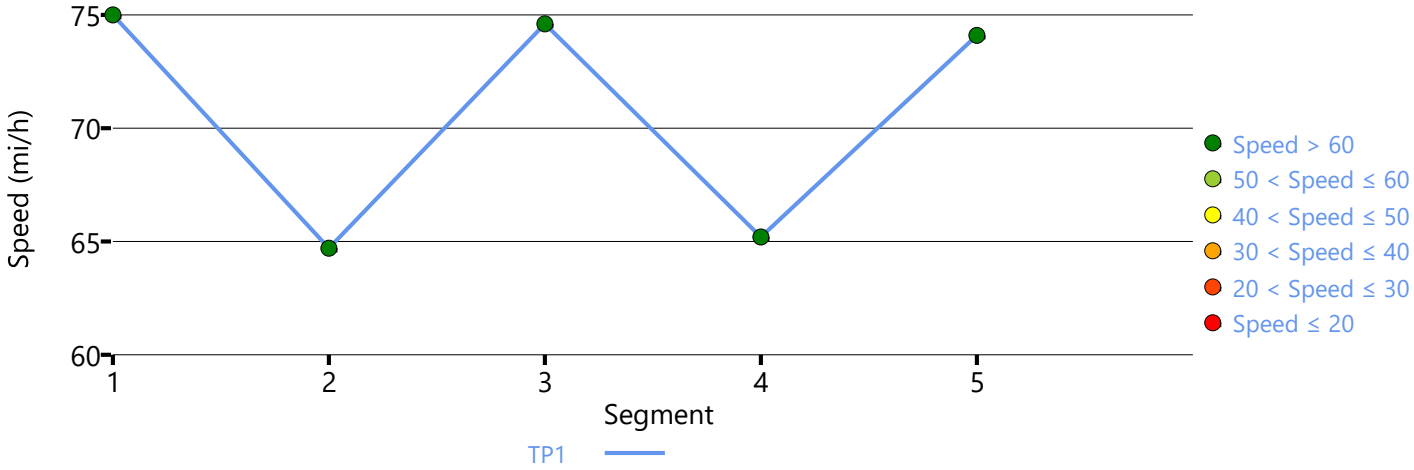
Messages

Comments

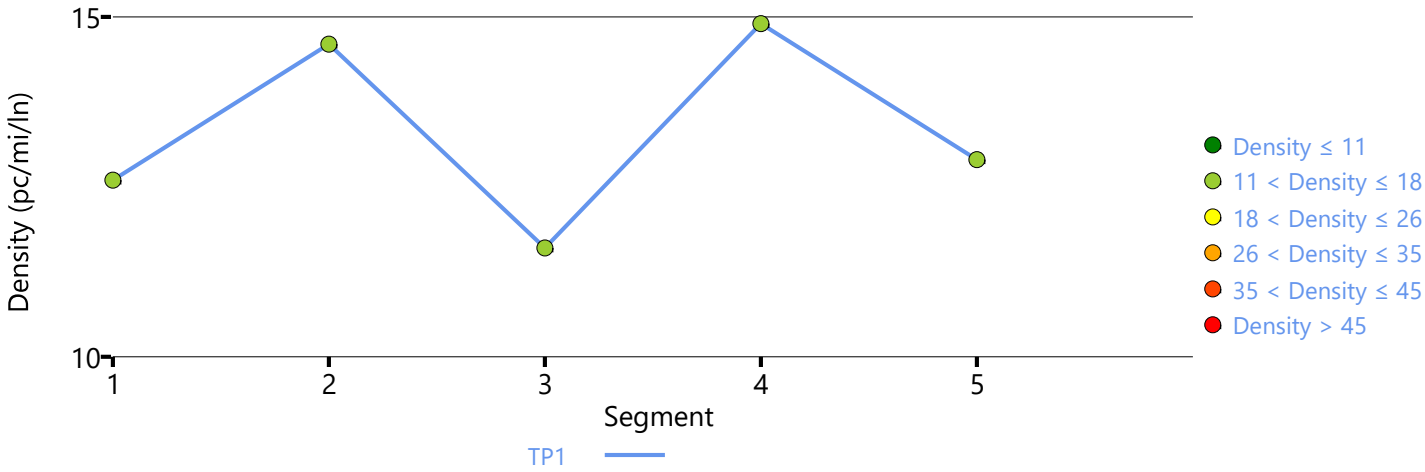
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1270	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	946
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	12.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	360
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1270	100
Peak Hour Factor (PHF)	0.94	0.75
Total Trucks, %	40.00	22.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.820
Flow Rate (vi),pc/h	1892	163
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.39	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.313
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1892	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	14.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.3

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2465	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1170	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	872
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.36
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	11.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	30.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1170	130
Peak Hour Factor (PHF)	0.94	0.78
Total Trucks, %	40.00	17.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.855
Flow Rate (vi),pc/h	1743	195
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.40	0.10

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.298
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1743	Ramp Junction Speed (S), mi/h	65.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	1938	Average Density (D), pc/mi/ln	14.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.3

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1300	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	968
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.40
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	12.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

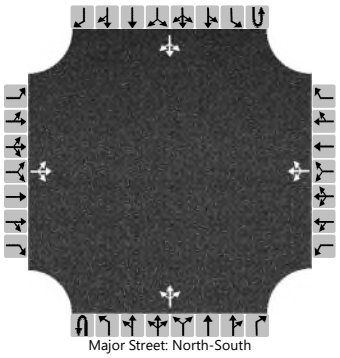
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	7/26/2022
Analysis Year	2047
Time Analyzed	No-Build PM
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Lincoln Hwy at US 224
Jurisdiction	
East/West Street	Lincoln Hwy
North/South Street	US 224
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	80	30		60	120	30		100	250	60		30	250	10
Percent Heavy Vehicles (%)		3	3	3		2	2	2		7				8		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.12	6.52	6.22		4.17				4.18		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.52	4.02	3.32		2.26				2.27		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			136				239			114				34		
Capacity, c (veh/h)			244				212			1238				1174		
v/c Ratio			0.56				1.13			0.09				0.03		
95% Queue Length, Q_{95} (veh)			3.1				11.3			0.3				0.1		
Control Delay (s/veh)			37.0				147.0			8.2				8.2		
Level of Service (LOS)			E				F			A				A		
Approach Delay (s/veh)	37.0				147.0				2.7				1.1			
Approach LOS	E				F											

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HCS7 Two-Way Stop-Control Report

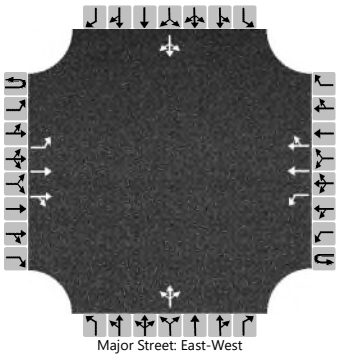
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at John Brown Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	John Brown Road
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	1010	20	0	220	1230	10		20	10	40		20	60	20
Percent Heavy Vehicles (%)	40	40			40	40				10	10	10		4	4	4
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Left + Thru							1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.70	6.70	7.10		7.58	6.58	6.98
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.60	4.10	3.40		3.54	4.04	3.34

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				229					73				104	
Capacity, c (veh/h)		367				462									36	
v/c Ratio		0.03				0.50									2.90	
95% Queue Length, Q_{95} (veh)		0.1				2.7									11.8	
Control Delay (s/veh)		15.1				20.2									1092.1	
Level of Service (LOS)		C				C									F	
Approach Delay (s/veh)		0.1				3.0								1092.1		
Approach LOS														F		

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HCS7 Two-Way Stop-Control Report

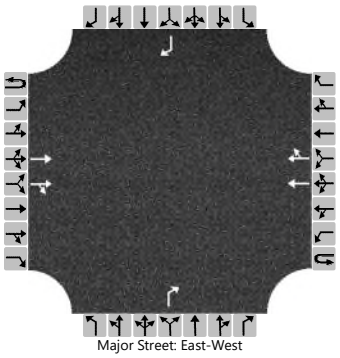
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Dutch John Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Dutch John Road
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	0	1		0	0	1
Configuration			T	TR			T	TR				R				R
Volume (veh/h)			980	90			1320	100				180				70
Percent Heavy Vehicles (%)												6				6
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized									No				No			
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)												6.9				6.9
Critical Headway (sec)												7.02				7.02
Base Follow-Up Headway (sec)												3.3				3.3
Follow-Up Headway (sec)												3.36				3.36

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)												186				72
Capacity, c (veh/h)												468				355
v/c Ratio												0.40				0.20
95% Queue Length, Q_{95} (veh)												1.9				0.7
Control Delay (s/veh)												17.7				17.7
Level of Service (LOS)												C				C
Approach Delay (s/veh)									17.7				17.7			
Approach LOS									C				C			

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.50		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		1940	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1550	4800	0.32	75.0	10.3	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.75	0.714	0.800	1550	433	4800	1900	0.32	0.23	55.3	55.3	14.0	12.3	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1162	4800	0.24	73.8	7.7	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.70	0.714	0.800	1662	500	4800	2100	0.35	0.24	65.2	65.2	12.7	15.1	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1579	4800	0.33	74.1	10.5	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.7	10.9	7.8	1.30	B

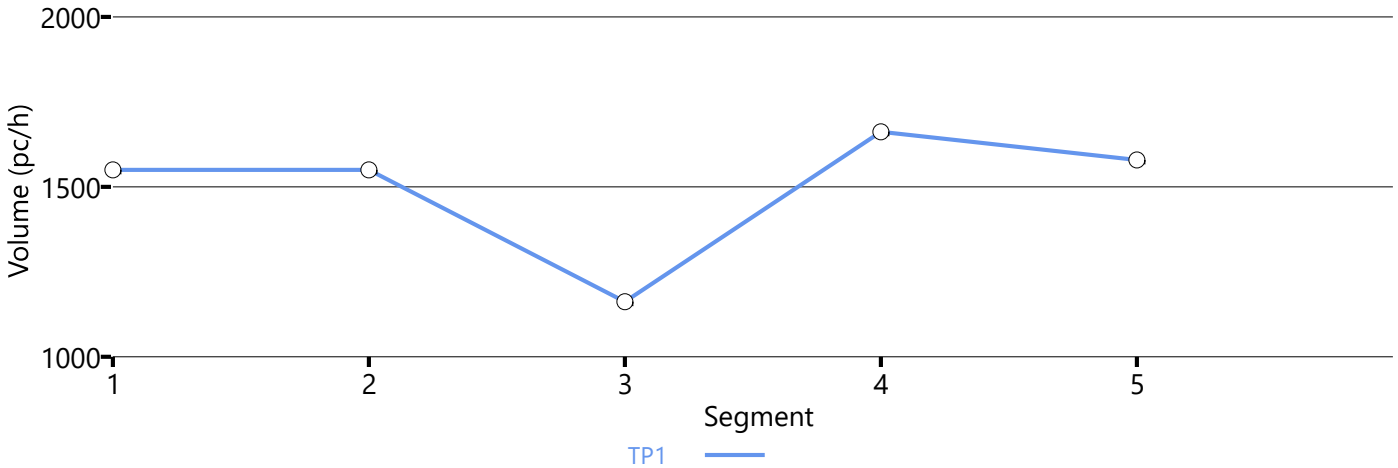
Facility Overall Results

Space Mean Speed, mi/h	67.7	Density, veh/mi/ln	7.8
Average Travel Time, min	1.30	Density, pc/mi/ln	10.9

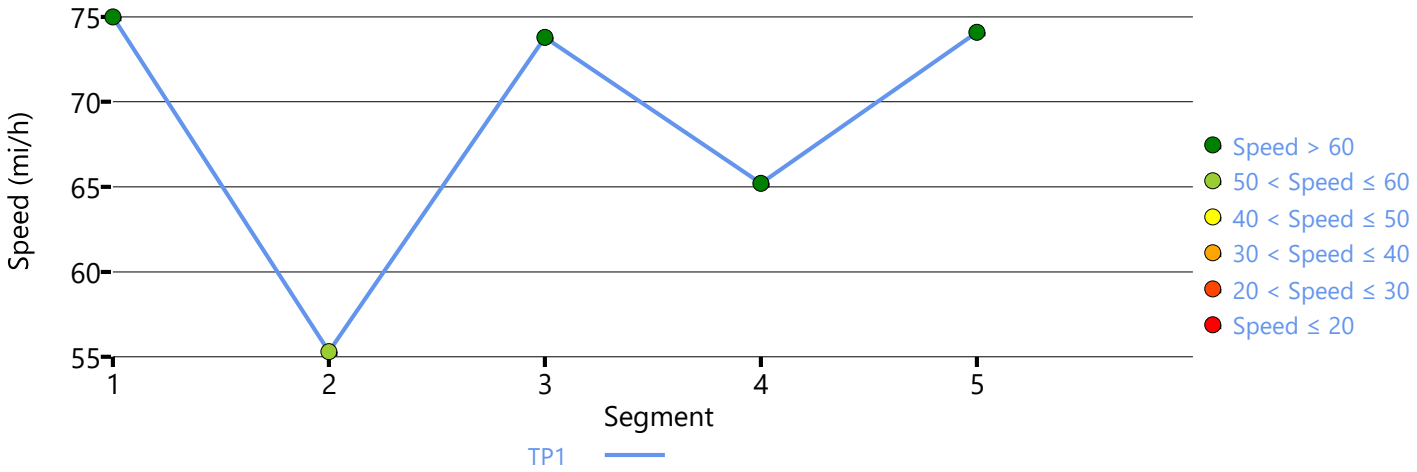
Messages

Comments

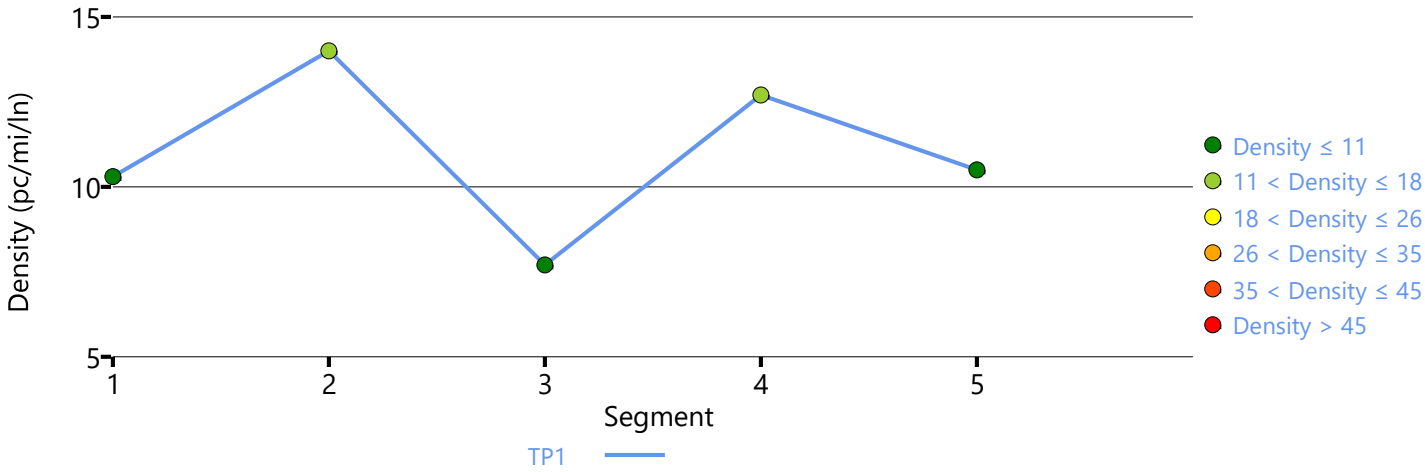
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1040	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	775
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.32
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Deceleration Length (LA),ft	1500	590
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1040	260
Peak Hour Factor (PHF)	0.94	0.75
Total Trucks, %	40.00	25.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.800
Flow Rate (vi),pc/h	1550	433
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.32	0.23

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.597
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1550	Ramp Junction Speed (S), mi/h	55.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	14.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.3

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1940	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	780	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	581
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.24
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	780	280
Peak Hour Factor (PHF)	0.94	0.70
Total Trucks, %	40.00	25.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.800
Flow Rate (vi),pc/h	1162	500
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.35	0.24

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.297
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1162	Ramp Junction Speed (S), mi/h	65.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	1662	Average Density (D), pc/mi/ln	12.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.1

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1060	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	790
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.33
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.53		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2075	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1818	4800	0.38	75.0	12.1	B

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.71	0.714	0.787	1818	430	4800	2100	0.38	0.20	63.9	63.9	14.2	15.4	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1460	4800	0.30	74.4	9.7	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.787	2055	595	4800	1900	0.43	0.31	64.3	64.3	16.0	17.7	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	2116	4800	0.44	74.1	14.1	B

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.0	13.0	9.2	1.30	B

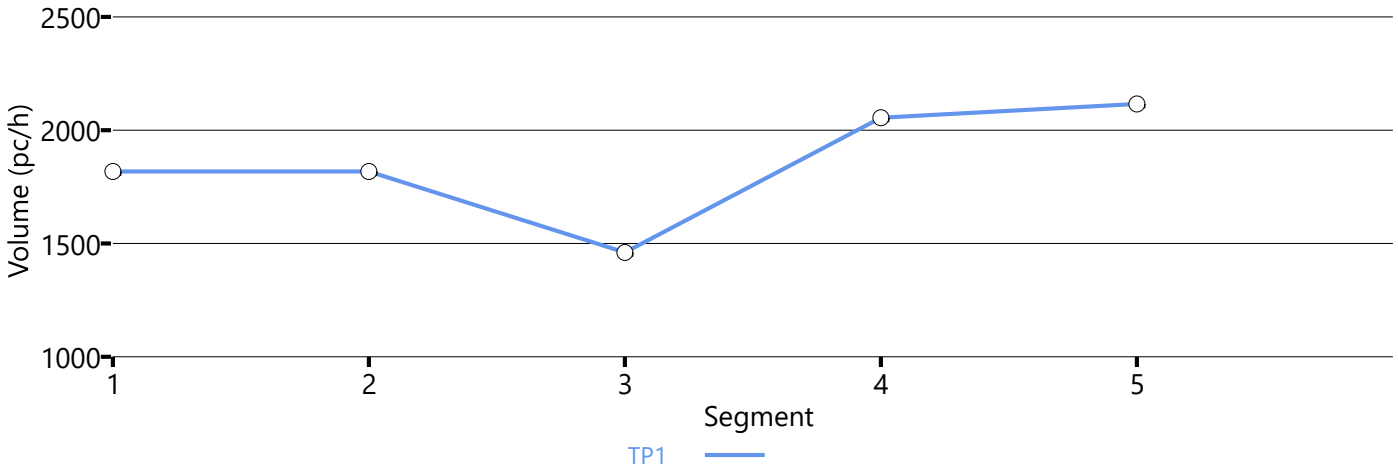
Facility Overall Results

Space Mean Speed, mi/h	70.0	Density, veh/mi/ln	9.2
Average Travel Time, min	1.30	Density, pc/mi/ln	13.0

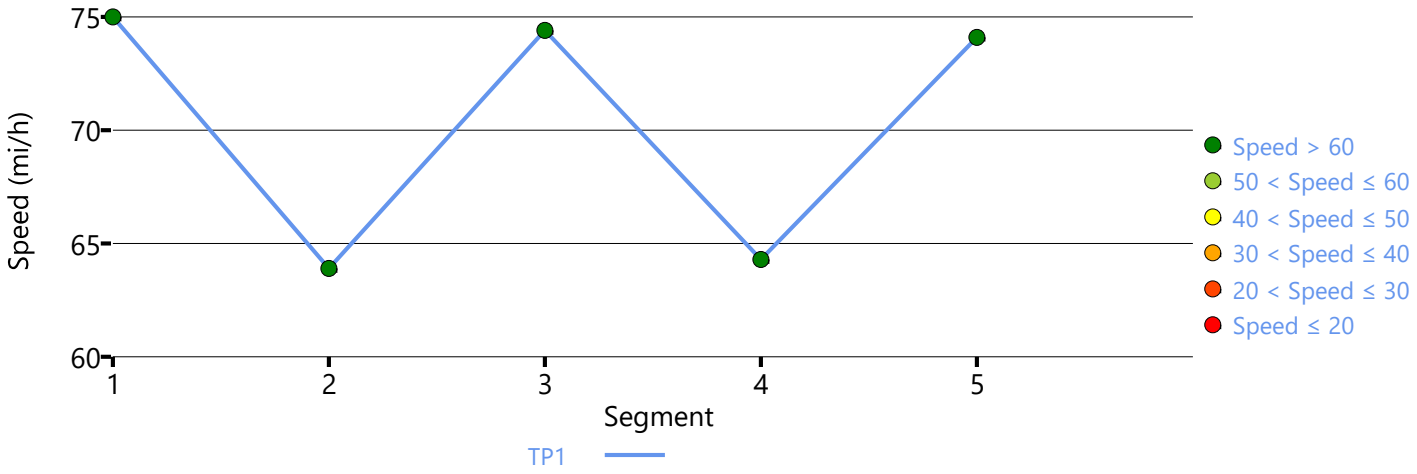
Messages

Comments

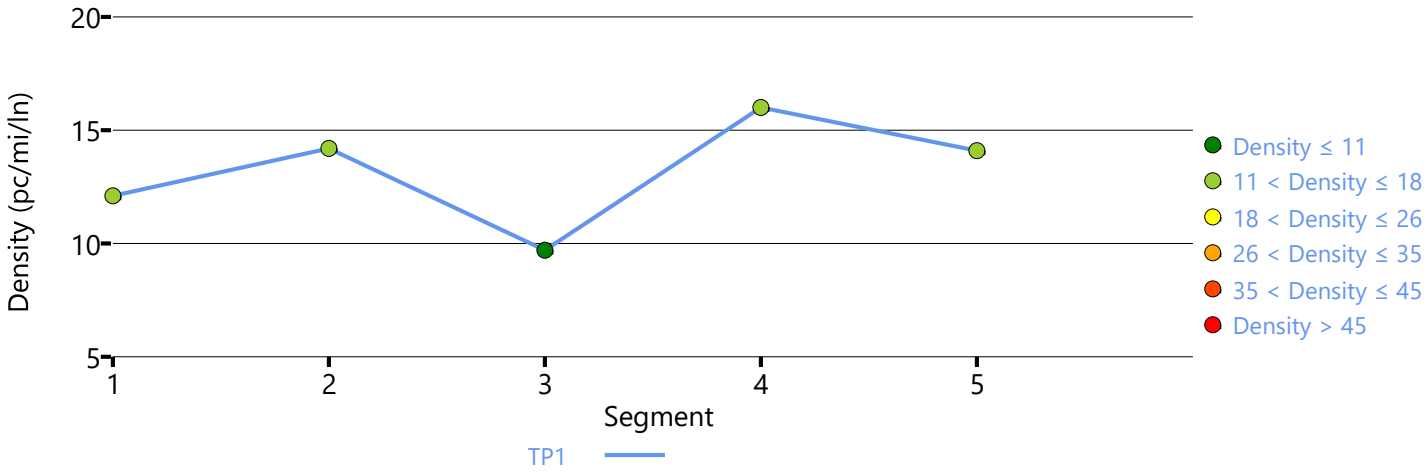
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1220	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	909
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.38
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	12.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1220	240
Peak Hour Factor (PHF)	0.94	0.71
Total Trucks, %	40.00	27.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.787
Flow Rate (vi),pc/h	1818	430
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.38	0.20

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.337
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	63.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1818	Ramp Junction Speed (S), mi/h	63.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	14.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.4

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2075	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	980	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	730
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.30
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Acceleration Length (LA),ft	1500	570
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	980	440
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	27.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.787
Flow Rate (vi),pc/h	1460	595
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.43	0.31

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.323
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	64.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1460	Ramp Junction Speed (S), mi/h	64.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	2055	Average Density (D), pc/mi/ln	16.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.7

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1420	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1058
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	14.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

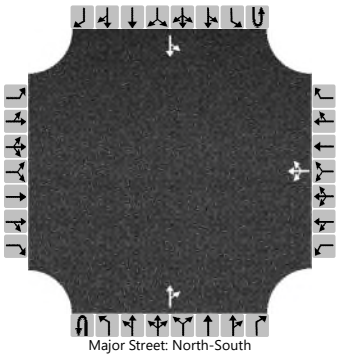
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	7/26/2022
Analysis Year	2047
Time Analyzed	No-Build PM
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	US 127 at Brooks Ave
Jurisdiction	
East/West Street	Brooks Ave
North/South Street	US 127
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR					TR		LT		
Volume (veh/h)						10	0	20			710	10		10	560	
Percent Heavy Vehicles (%)						13	13	13						21		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2						4.1		
Critical Headway (sec)						7.23	6.63	6.33						4.31		
Base Follow-Up Headway (sec)						3.5	4.0	3.3						2.2		
Follow-Up Headway (sec)						3.62	4.12	3.42						2.39		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							33							11		
Capacity, c (veh/h)							207							757		
v/c Ratio							0.16							0.01		
95% Queue Length, Q_{95} (veh)							0.5							0.0		
Control Delay (s/veh)							25.6							9.8		
Level of Service (LOS)							D							A		
Approach Delay (s/veh)					25.6								0.4			
Approach LOS					D											

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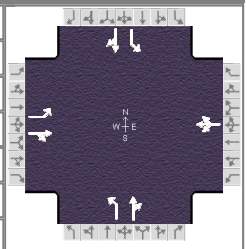
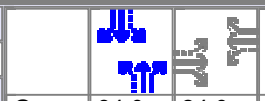
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	PM Peak	PHF	0.97
Urban Street	US 127	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Bonnewitz Ave	File Name	18b-1. US 127 Street - No-Build 2047 PM.xus		
Project Description	No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	260	10	150	10	20	20	90	640	10	20	480	250

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



							1	2	3	4
Green	84.0	24.0	0.0	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
Red	2.0	2.0	0.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		8.0		6.0		6.0
Phase Duration, s		30.0		30.0		90.0		90.0
Change Period, (*Y+R c*), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (*g s*), s		26.0		13.3				
Green Extension Time (*g e*), s		0.0		0.8		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		0.01				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	268	165			52		67	485		21	753	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1355	1588			1415		609	1599		853	1650	
Queue Service Time (*g s*), s	12.7	11.1			0.1		8.3	16.0		1.3	30.2	
Cycle Queue Clearance Time (*g c*), s	24.0	11.1			11.3		38.4	16.0		17.3	30.2	
Green Ratio (*g/C*)	0.20	0.20			0.20		0.70	0.70		0.70	0.70	
Capacity (*c*), veh/h	204	318			319		333	1119		543	1155	
Volume-to-Capacity Ratio (*X*)	1.314	0.519			0.162		0.202	0.434		0.038	0.652	
Back of Queue (*Q*), ft/ln (95 th percentile)	649.6	200.6			57.6		63.5	234.1		12.1	404	
Back of Queue (*Q*), veh/ln (95 th percentile)	25.4	7.8			2.3		2.2	8.1		0.4	15.0	
Queue Storage Ratio (*RQ*) (95 th percentile)	5.65	0.00			0.00		1.06	0.00		0.15	0.00	
Uniform Delay (*d 1*), s/veh	55.5	42.9			39.6		20.6	8.0		11.6	9.9	
Incremental Delay (*d 2*), s/veh	171.8	0.7			0.1		1.0	0.9		0.1	2.9	
Initial Queue Delay (*d 3*), s/veh	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	227.3	43.6			39.7		21.6	8.9		11.7	12.8	
Level of Service (LOS)	F	D			D		C	A		B	B	
Approach Delay, s/veh / LOS	157.3	F		39.7	D		10.5	B		12.8	B	
Intersection Delay, s/veh / LOS	47.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.64	B	1.87	B
Bicycle LOS Score / LOS	1.20	A	0.57	A	1.75	B	1.76	B

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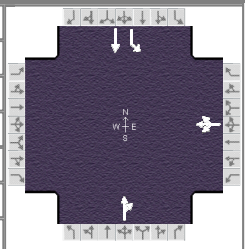
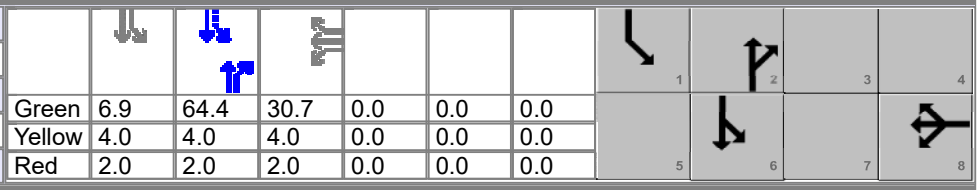
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	PM Peak	PHF	0.94
Urban Street	US 127	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	US 127 at US 30 EB Ra…	File Name	18b-1. US 127 Street - No-Build 2047 PM.xus		
Project Description	No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				140	0	120		860	110	170	630	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.9	64.4	30.7	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				12.0		8.3	1.0	4.0
Phase Duration, s				36.7		70.4	12.9	83.3
Change Period, ($Y+R_c$), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.1		0.0	3.0	0.0
Queue Clearance Time (g_s), s				30.3			6.1	
Green Extension Time (g_e), s				0.4		0.0	0.2	0.0
Phase Call Probability				1.00			0.99	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h					277			479		140	520	
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1151			1688		1711	1796	
Queue Service Time (g_s), s					28.3			26.8		4.1	21.5	
Cycle Queue Clearance Time (g_c), s					28.3			26.8		4.1	21.5	
Green Ratio (*g/C*)					0.26			0.54		0.61	0.64	
Capacity (*c*), veh/h					294			906		434	1158	
Volume-to-Capacity Ratio (*X*)					0.941			0.529		0.323	0.449	
Back of Queue (*Q*), ft/ln (95 th percentile)					492.9			469.1		72.2	351.7	
Back of Queue (*Q*), veh/ln (95 th percentile)					14.8			17.1		2.7	13.3	
Queue Storage Ratio (*RQ*) (95 th percentile)					0.00			0.00		0.00	0.00	
Uniform Delay (d_1), s/veh					43.8			26.2		14.7	15.1	
Incremental Delay (d_2), s/veh					23.5			2.1		0.1	1.0	
Initial Queue Delay (d_3), s/veh					0.0			0.0		0.0	0.0	
Control Delay (*d*), s/veh					67.2			28.3		14.8	16.1	
Level of Service (LOS)					E			C		B	B	
Approach Delay, s/veh / LOS	0.0			67.2		E	28.3		C	15.8		B
Intersection Delay, s/veh / LOS	30.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.74	B	1.97	B	1.67	B	1.36	A
Bicycle LOS Score / LOS			0.94	A	2.19	B	1.89	B

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HCS7 Two-Way Stop-Control Report

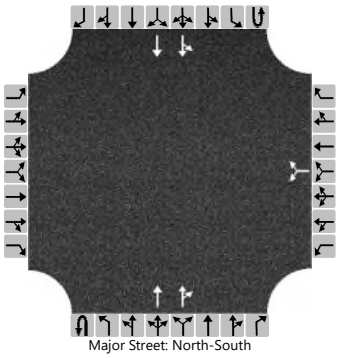
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 127 at US 30 Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	US 127
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	2	0	0	0	2	0
Configuration							LR				T	TR		LT	T	
Volume (veh/h)						40		200			710	270		170	760	
Percent Heavy Vehicles (%)						27		27						10		
Proportion Time Blocked						0.000		0.000						0.000		
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5		6.9						4.1		
Critical Headway (sec)						7.34		7.44						4.30		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.77		3.57						2.30		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							255							181		
Capacity, c (veh/h)							145							617		
v/c Ratio							1.77							0.29		
95% Queue Length, Q_{95} (veh)							18.9							1.2		
Control Delay (s/veh)							425.0							13.2		
Level of Service (LOS)							F							B		
Approach Delay (s/veh)						425.0								4.3		
Approach LOS						F										

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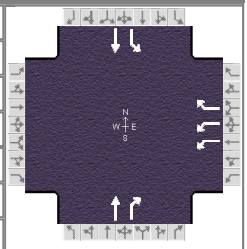
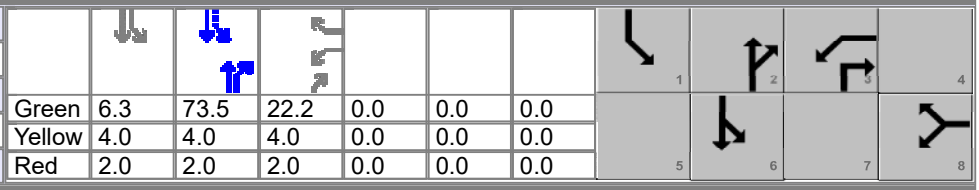
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	PM Peak	PHF	0.96
Urban Street	US 127	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Towne Center Blvd	File Name	18b-1. US 127 Street - No-Build 2047 PM.xus		
Project Description	No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				560		130		330	70	40	340	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.3	73.5	22.2	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		7.3	1.0	4.0
Phase Duration, s				28.2		79.5	12.3	91.8
Change Period, (*Y+R c*), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.0	0.0
Queue Clearance Time (*g s*), s				21.6			3.9	
Green Extension Time (*g e*), s				0.6		0.0	0.1	0.0
Phase Call Probability				1.00			0.90	
Max Out Probability				1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				583		135		344	73	70	598	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1743		1598		1752	1485	1485	1559	
Queue Service Time (*g s*), s				19.6		9.1		11.4	1.3	1.9	14.7	
Cycle Queue Clearance Time (*g c*), s				19.6		9.1		11.4	1.3	1.9	14.7	
Green Ratio (*g/C*)				0.19		0.19		0.61	0.80	0.68	0.71	
Capacity (*c*), veh/h				645		296		1072	1184	586	1115	
Volume-to-Capacity Ratio (*X*)				0.904		0.458		0.321	0.062	0.120	0.537	
Back of Queue (*Q*), ft/ln (95 th percentile)				371.9		162.9		205.5	13.4	28.8	181.5	
Back of Queue (*Q*), veh/ln (95 th percentile)				14.8		6.5		7.6	0.5	1.0	6.1	
Queue Storage Ratio (*RQ*) (95 th percentile)				2.01		0.88		0.00	0.05	0.21	0.00	
Uniform Delay (*d 1*), s/veh				47.8		43.5		11.2	2.6	7.4	4.4	
Incremental Delay (*d 2*), s/veh				13.9		0.4		0.8	0.1	0.0	1.5	
Initial Queue Delay (*d 3*), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				61.7		43.9		12.0	2.7	7.5	5.9	
Level of Service (LOS)				E		D		B	A	A	A	
Approach Delay, s/veh / LOS	0.0			58.4		E	10.4		B	6.1		A
Intersection Delay, s/veh / LOS	27.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.16	B	1.97	B	2.08	B	0.66	A
Bicycle LOS Score / LOS				F	1.18	A	1.14	A

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HCS7 Two-Way Stop-Control Report

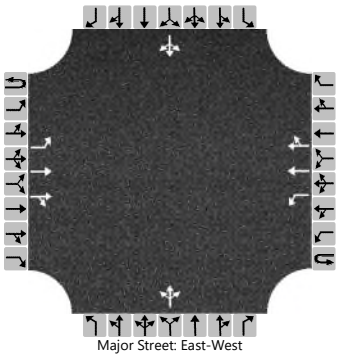
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Mendon Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Mendon Road
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	1000	50	0	10	1130	10		70	10	10		10	10	20
Percent Heavy Vehicles (%)	40	40			40	40				6	6	6		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.62	6.62	7.02		7.50	6.50	6.90
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.56	4.06	3.36		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					99				44	
Capacity, c (veh/h)		382				424					142				195	
v/c Ratio		0.03				0.03					0.69				0.23	
95% Queue Length, Q_{95} (veh)		0.1				0.1					4.0				0.8	
Control Delay (s/veh)		14.7				13.7					73.9				28.7	
Level of Service (LOS)		B				B					F				D	
Approach Delay (s/veh)	0.1				0.1				73.9				28.7			
Approach LOS									F				D			

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HCS7 Two-Way Stop-Control Report

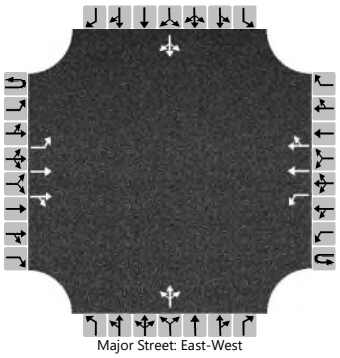
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Boroff Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	Boroff Road
Peak Hour Factor	0.93
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	TR		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	1000	10	0	10	1110	10		20	10	10		10	10	20
Percent Heavy Vehicles (%)	40	40			40	40				22	22	22		11	11	11
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.94	6.94	7.34		7.72	6.72	7.12
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.72	4.22	3.52		3.61	4.11	3.41

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				11					43				43	
Capacity, c (veh/h)		402				456					147				191	
v/c Ratio		0.03				0.02					0.29				0.22	
95% Queue Length, Q_{95} (veh)		0.1				0.1					1.1				0.8	
Control Delay (s/veh)		14.2				13.1					39.2				29.2	
Level of Service (LOS)		B				B					E				D	
Approach Delay (s/veh)	0.1				0.1				39.2				29.2			
Approach LOS									E				D			

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.72		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		3070	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1520	4800	0.32	75.0	10.1	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.79	0.714	0.909	1520	97	4800	2100	0.32	0.05	64.9	64.9	11.7	12.9	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1415	4800	0.29	74.8	9.4	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.952	1538	123	4800	2100	0.32	0.06	66.1	66.1	11.6	12.6	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1579	4800	0.33	74.2	10.5	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.3	10.4	7.5	1.40	B

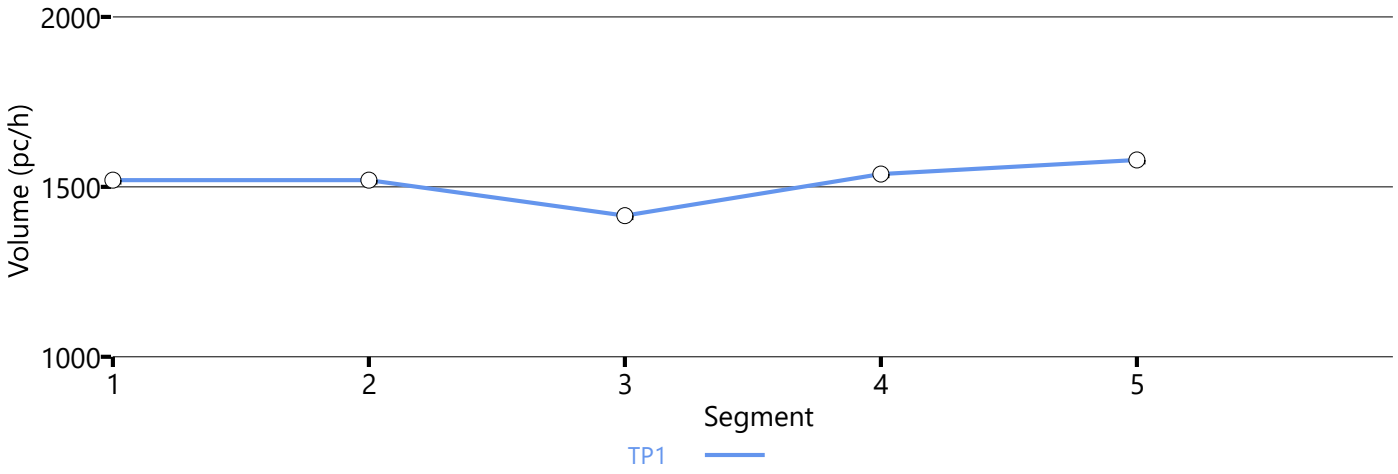
Facility Overall Results

Space Mean Speed, mi/h	71.3	Density, veh/mi/ln	7.5
Average Travel Time, min	1.40	Density, pc/mi/ln	10.4

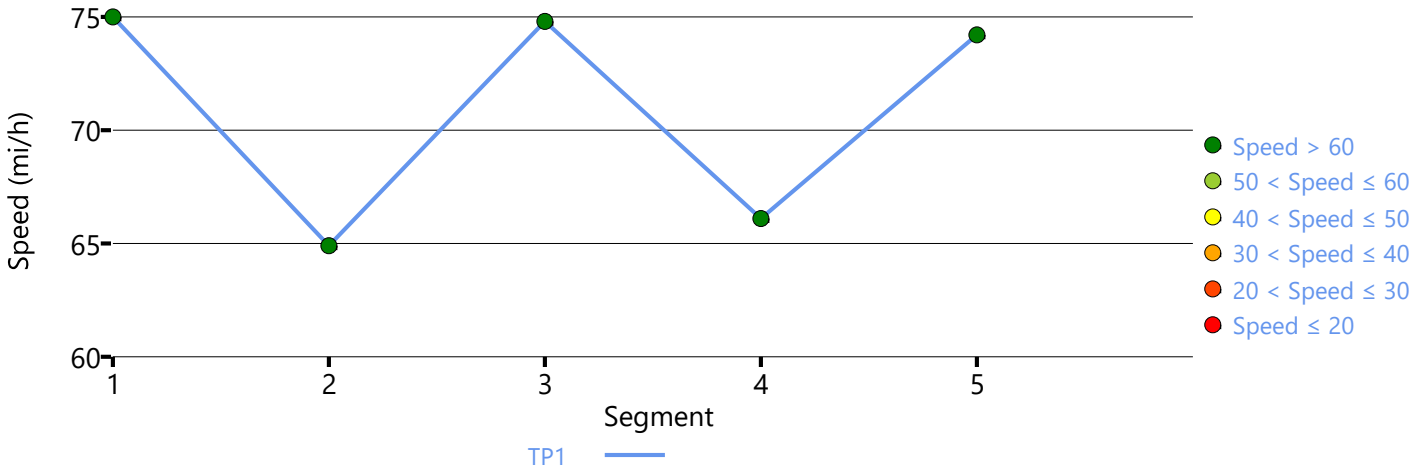
Messages

Comments

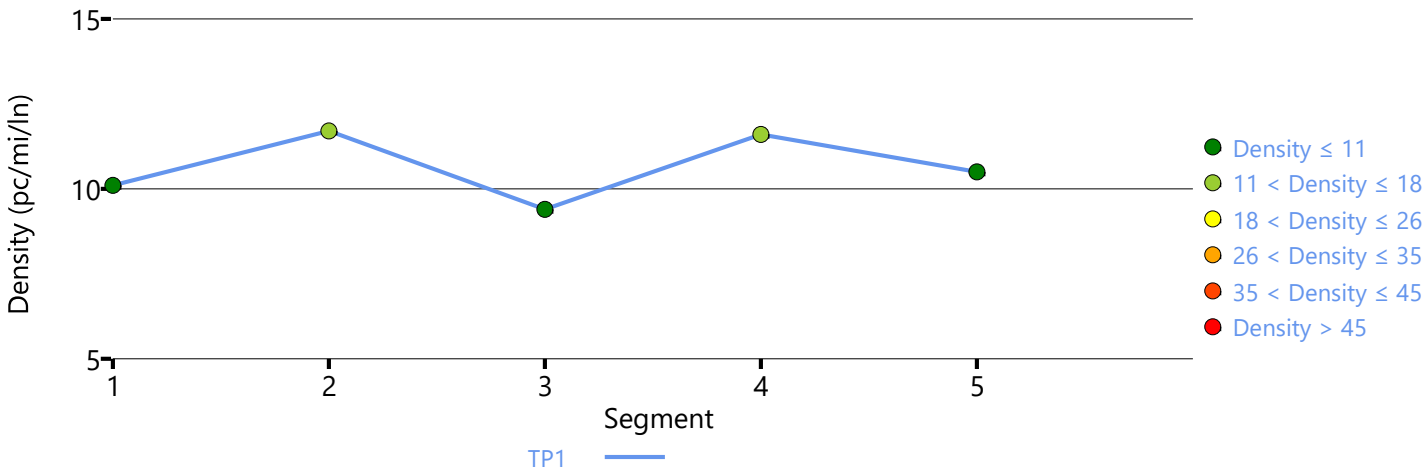
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1020	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	760
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.32
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	495
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1020	70
Peak Hour Factor (PHF)	0.94	0.79
Total Trucks, %	40.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.909
Flow Rate (vi),pc/h	1520	97
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.32	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.307
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1520	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	11.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.9

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	3070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	950	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	708
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.29
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	785
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	950	110
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.952
Flow Rate (vi),pc/h	1415	123
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.32	0.06

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.269
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1415	Ramp Junction Speed (S), mi/h	66.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	1538	Average Density (D), pc/mi/ln	11.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.6

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1060	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	790
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.33
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.66		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2790	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1758	4800	0.37	75.0	11.7	B

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.87	0.714	0.980	1758	152	4800	2100	0.37	0.07	64.7	64.7	13.6	15.3	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1564	4800	0.33	74.7	10.4	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.820	1668	104	4800	2100	0.35	0.05	65.1	65.1	12.8	15.6	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1684	4800	0.35	74.1	11.2	B

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.9	11.7	8.4	1.40	B

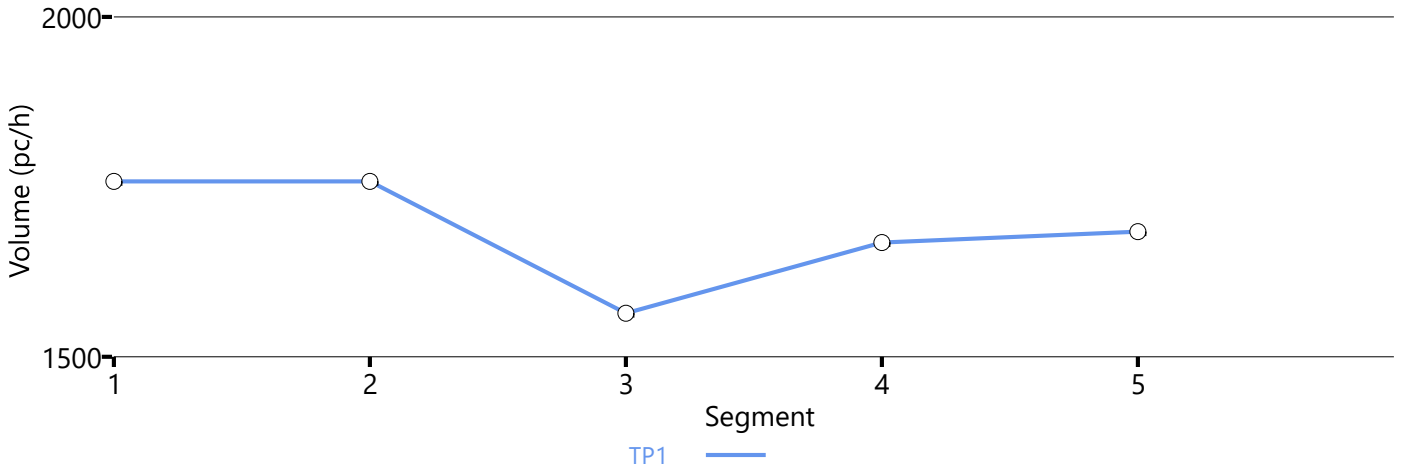
Facility Overall Results

Space Mean Speed, mi/h	70.9	Density, veh/mi/ln	8.4
Average Travel Time, min	1.40	Density, pc/mi/ln	11.7

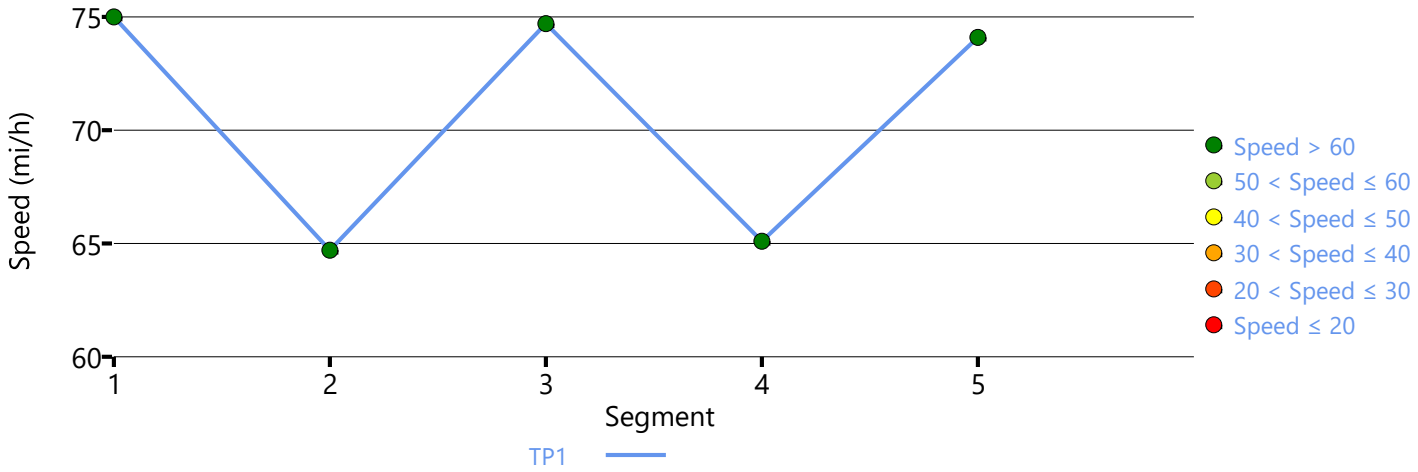
Messages

Comments

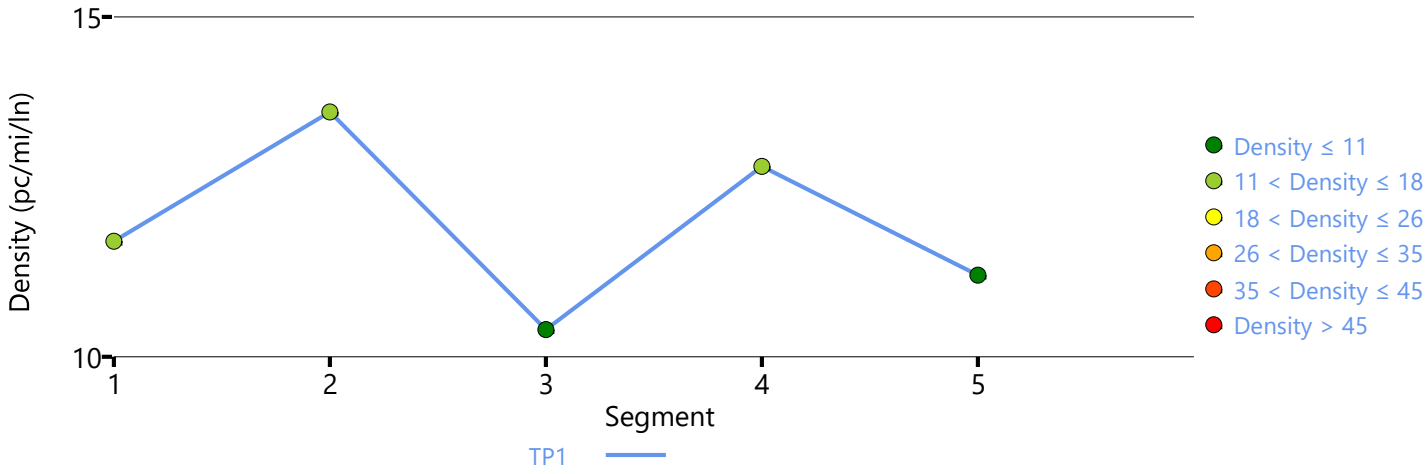
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	5/19/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	No-Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1180	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	879
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	11.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	455
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1180	130
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	40.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.980
Flow Rate (vi),pc/h	1758	152
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.37	0.07

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.312
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1758	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	13.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.3

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2790	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1050	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	782
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.33
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	460
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1050	80
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	22.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.820
Flow Rate (vi),pc/h	1564	104
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.35	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.300
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1564	Ramp Junction Speed (S), mi/h	65.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	1668	Average Density (D), pc/mi/ln	12.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.6

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1130	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	842
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.35
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	11.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

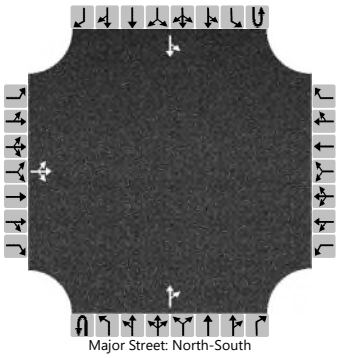
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LTR									TR		LT		
Volume (veh/h)		60	0	10							80	100		10	190	
Percent Heavy Vehicles (%)		10	10	10										4		
Proportion Time Blocked																
Percent Grade (%)			0													
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.20	6.60	6.30										4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.59	4.09	3.39										2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			76											11		
Capacity, c (veh/h)			594											1365		
v/c Ratio			0.13											0.01		
95% Queue Length, Q_{95} (veh)			0.4											0.0		
Control Delay (s/veh)			11.9											7.7		
Level of Service (LOS)			B											A		
Approach Delay (s/veh)		11.9												0.4		
Approach LOS		B														

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HCS7 Two-Way Stop-Control Report

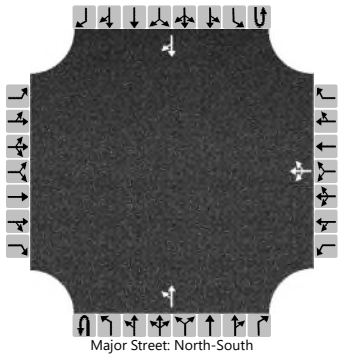
General Information

Analyst	GBS
Agency/Co.	Arcadis
Date Performed	5/19/2021
Analysis Year	2047
Time Analyzed	No-Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						120	0	10		20	120				80	60
Percent Heavy Vehicles (%)						2	2	2		6						
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						7.12	6.52	6.22		4.16						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.52	4.02	3.32		2.25						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							137			21						
Capacity, c (veh/h)							675			1410						
v/c Ratio							0.20			0.01						
95% Queue Length, Q_{95} (veh)							0.8			0.0						
Control Delay (s/veh)							11.7			7.6						
Level of Service (LOS)							B			A						
Approach Delay (s/veh)						11.7				1.2						
Approach LOS						B										

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Appendix D

HCS Analysis - Build Alternative

Appendix D

HCS Analysis - Build Alternative - 2027 A.M. Peak Hour

HCS7 Two-Way Stop-Control Report

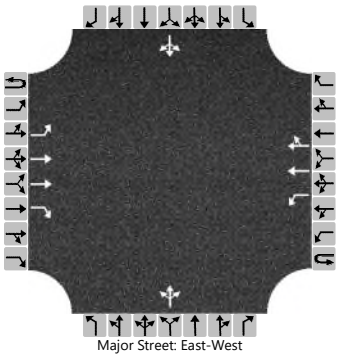
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at State Line Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	State Line Road
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	1	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	R		L	T	TR			LTR				LTR	
Volume (veh/h)	0	10	540	10	0	10	610	20		50	10	10		20	10	20
Percent Heavy Vehicles (%)	40	40			40	40				12	12	12		33	33	33
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No															
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.74	6.74	7.14		8.16	7.16	7.56
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.62	4.12	3.42		3.83	4.33	3.63

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				10					72				52	
Capacity, c (veh/h)		717				780					330				329	
v/c Ratio		0.01				0.01					0.22				0.16	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.8				0.5	
Control Delay (s/veh)		10.1				9.7					18.9				18.0	
Level of Service (LOS)		B				A					C				C	
Approach Delay (s/veh)	0.2				0.2				18.9				18.0			
Approach LOS									C				C			

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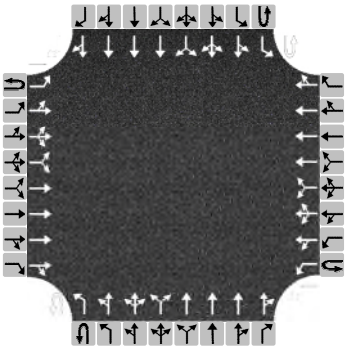
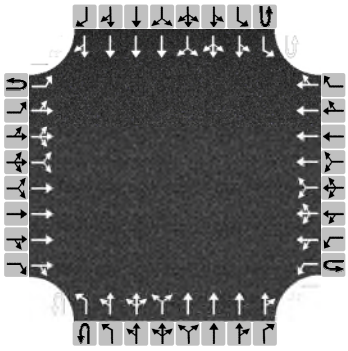
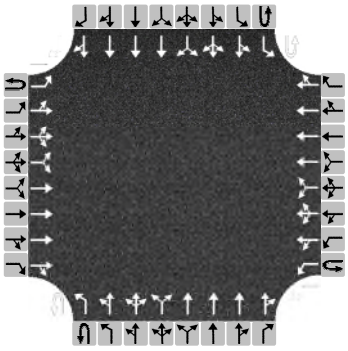
HCS7 Alternative Intersections Results Summary

General Information				Alternative Intersection Information	
Agency	Arcadis			Intersection Type	RCUT with TWSC
Analyst	QAi	Analysis Date	1/13/2023	Segment One Distance, ft	700
Jurisdiction	District 1	Duration, h	0.25	Segment Two Distance, ft	700
Intersection	US 30 at SR 49 Payne Road	PHF	0.91	Arterial Direction	East-West
Main Intersection File	8a. US 30 at SR 49 Payne Rd - 2027 AM - RCUTAlt.xtw				
West Crossover File	8c. US 30 at SR 49 Payne Rd - 2027 AM - West Crossover.xtw				
East Crossover File	8b. US 30 at SR 49 Payne Rd - 2027 AM - East Crossover.xtw				
Project Description	PAU-VAN US 30 RCUT Analysis				

Demand	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One Demand (*v*), veh/h			580		60		700									
Intersection Two Demand (*v*), veh/h	0	30	550	60	0	10	700	50				40				70
Intersection Three Demand (*v*), veh/h	20		560				740									

(1) West Crossover	(2) Main Intersection	(3) East Crossover
		

Queue-to-Storage Ratio	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One (R_Q)					0.03											
Intersection Two (R_Q)		0.03				0.02										
Intersection Three (R_Q)	0.01															

Alternative Intesection Results

O-D	O-D Movements	Flow Rate (veh/h)	Control Delay (s/veh)	EDTT (s/veh)	ETT (s/veh)	v/c>1?	R_Q>1?	LOS
EBL	EBL(2)	33	11.4	--	11.4	No	No	B
EBT	EBT(2)	593	0.0	--	0.0	--	--	A
EBR	EBR(2)	11	0.0	--	0.0	--	--	A
WBL	WBL(2)	11	10.2	--	10.2	No	No	B
WBT	WBT(2)	758	0.0	--	0.0	--	--	A
WBR	WBR(2)	44	0.0	--	0.0	--	--	A
NBL	NBR(2) + EBU(3) + WBT(2)	11	23.3	14.7	38.0	No	No	D
NBT	NBR(2) + EBU(3) + WBR(2)	11	23.3	14.7	38.0	No	No	D
NBR	NBR(2)	22	11.1	--	11.1	No	No	B
SBL	SBR(2) + WBU(1) + EBT(2)	11	23.6	14.7	38.3	No	No	D
SBT	SBR(2) + WBU(1) + EBR(2)	55	23.6	14.7	38.3	No	No	D
SBR	SBR(2)	11	12.2	--	12.2	No	No	B

Overall Results	EB		WB		NB		SB	
Approach ETT, s/veh | LOS	0.6	A	0.1	A	24.6	C	34.6	C
Intersection ETT, s/veh | LOS	2.7				A			

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	2.16		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		5420	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	849	4800	0.18	75.0	5.7	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.885	849	96	4800	2100	0.18	0.05	64.9	64.9	6.5	6.2	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	730	4800	0.15	75.0	4.9	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.862	792	62	4800	2100	0.16	0.03	65.9	65.9	6.0	7.9	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	805	4800	0.17	74.2	5.4	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	72.0	5.4	3.9	1.80	A

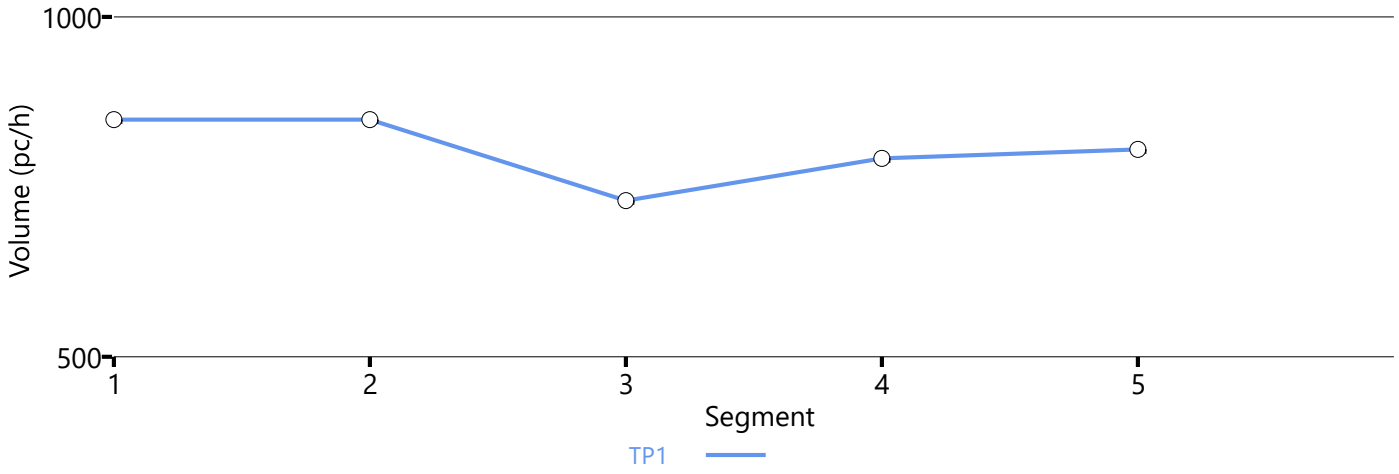
Facility Overall Results

Space Mean Speed, mi/h	72.0	Density, veh/mi/ln	3.9
Average Travel Time, min	1.80	Density, pc/mi/ln	5.4

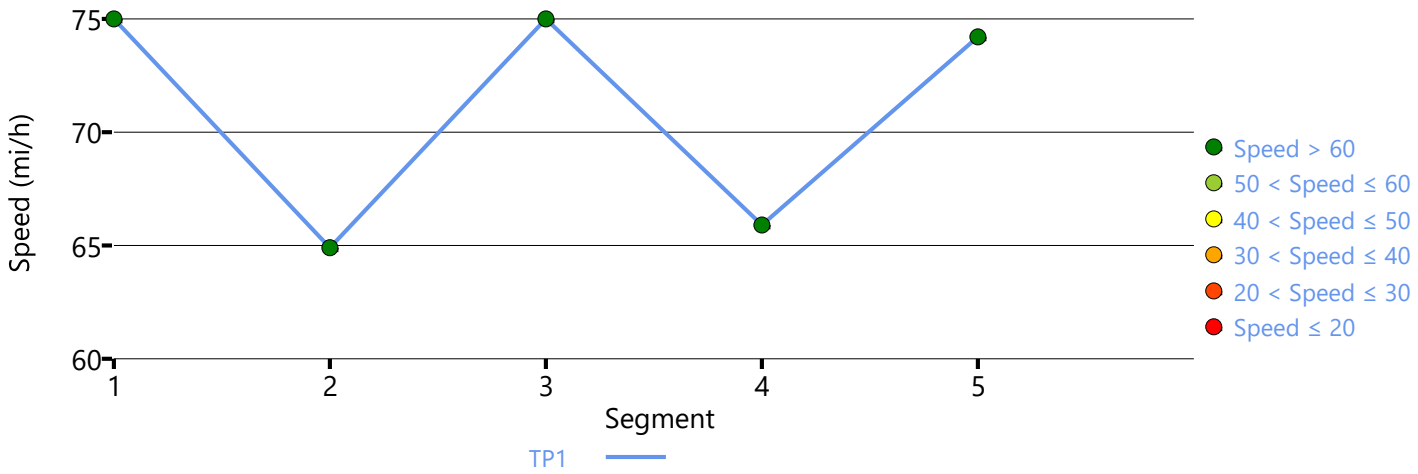
Messages

Comments

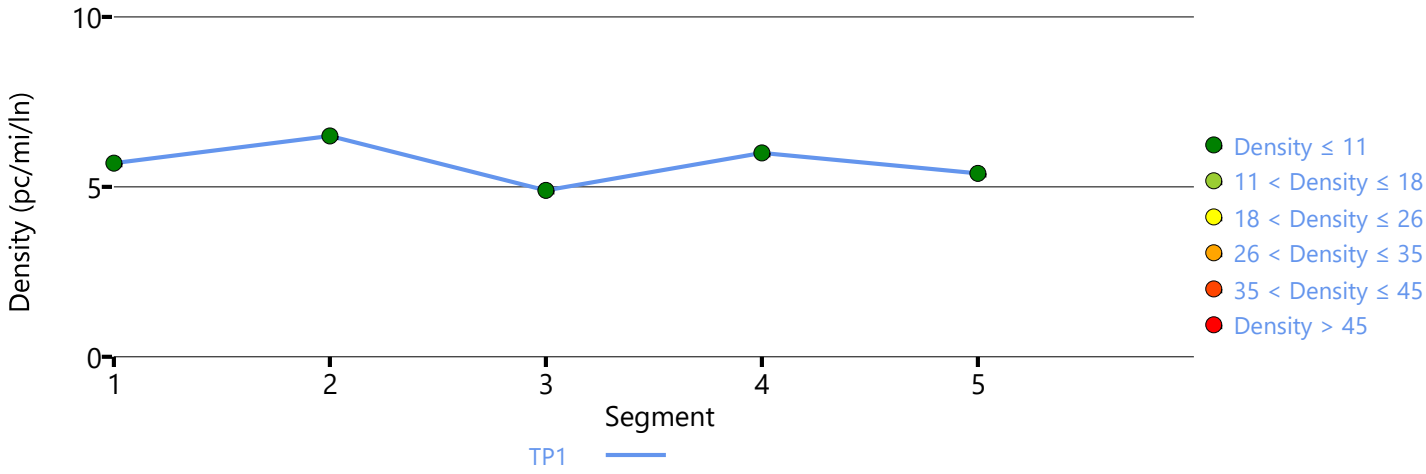
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	570	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	424
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.18
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	5.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	570	80
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	13.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.885
Flow Rate (vi),pc/h	849	96
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.18	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.307
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	849	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	6.5
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	6.2

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	5420	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	490	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	365
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.15
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	4.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	490	50
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	16.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.862
Flow Rate (vi),pc/h	730	62
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.16	0.03

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.276
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	730	Ramp Junction Speed (S), mi/h	65.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	792	Average Density (D), pc/mi/ln	6.0
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	7.9

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	540	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	402
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.17
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	5.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	2.16		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		5420	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1058	4800	0.22	75.0	7.1	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.813	1058	65	4800	2100	0.22	0.03	65.0	65.0	8.1	8.0	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	983	4800	0.20	75.0	6.6	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.847	1083	100	4800	1900	0.23	0.05	65.7	65.7	8.2	8.7	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1103	4800	0.23	74.2	7.4	A

Facility Time Period Results

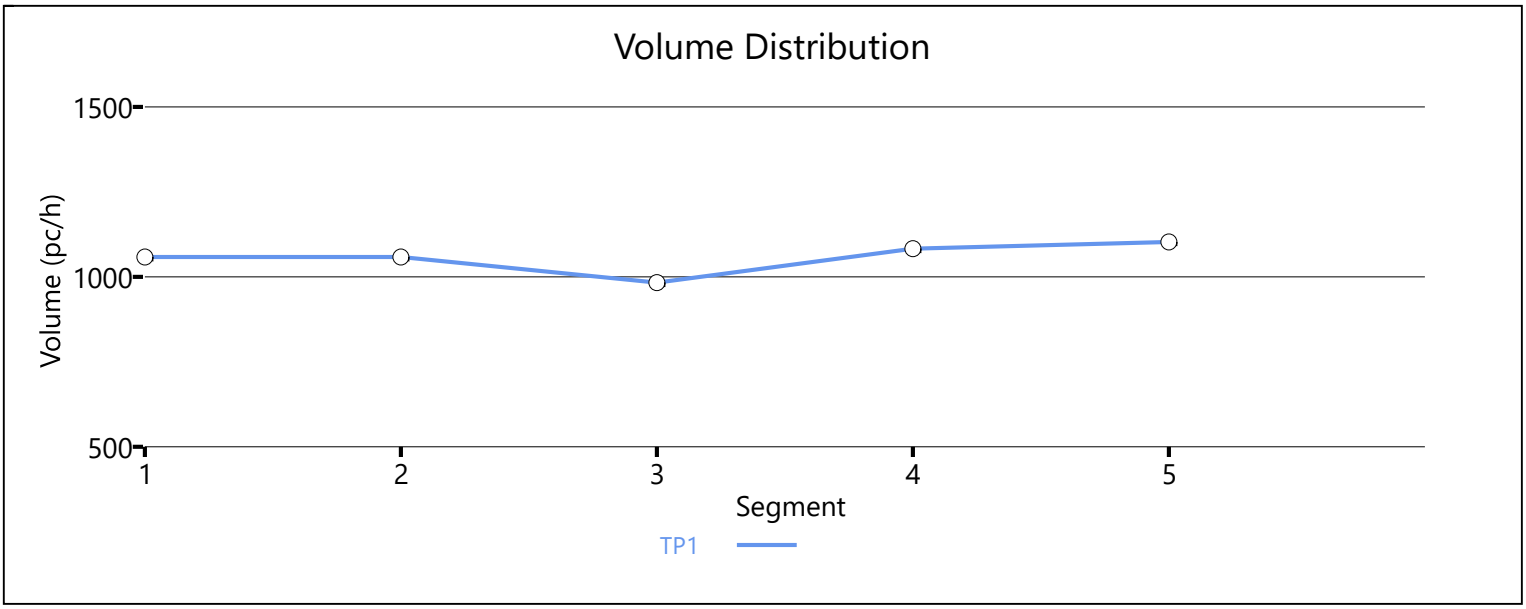
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	72.0	7.2	5.1	1.80	B

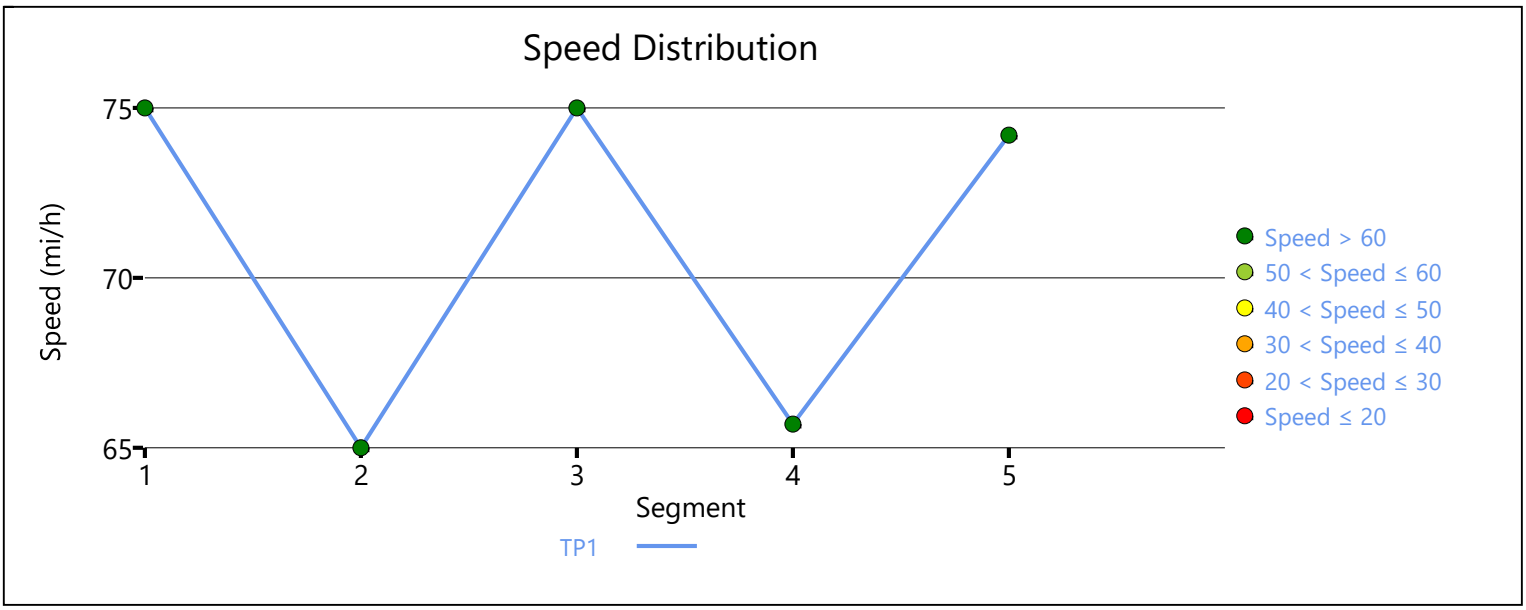
Facility Overall Results

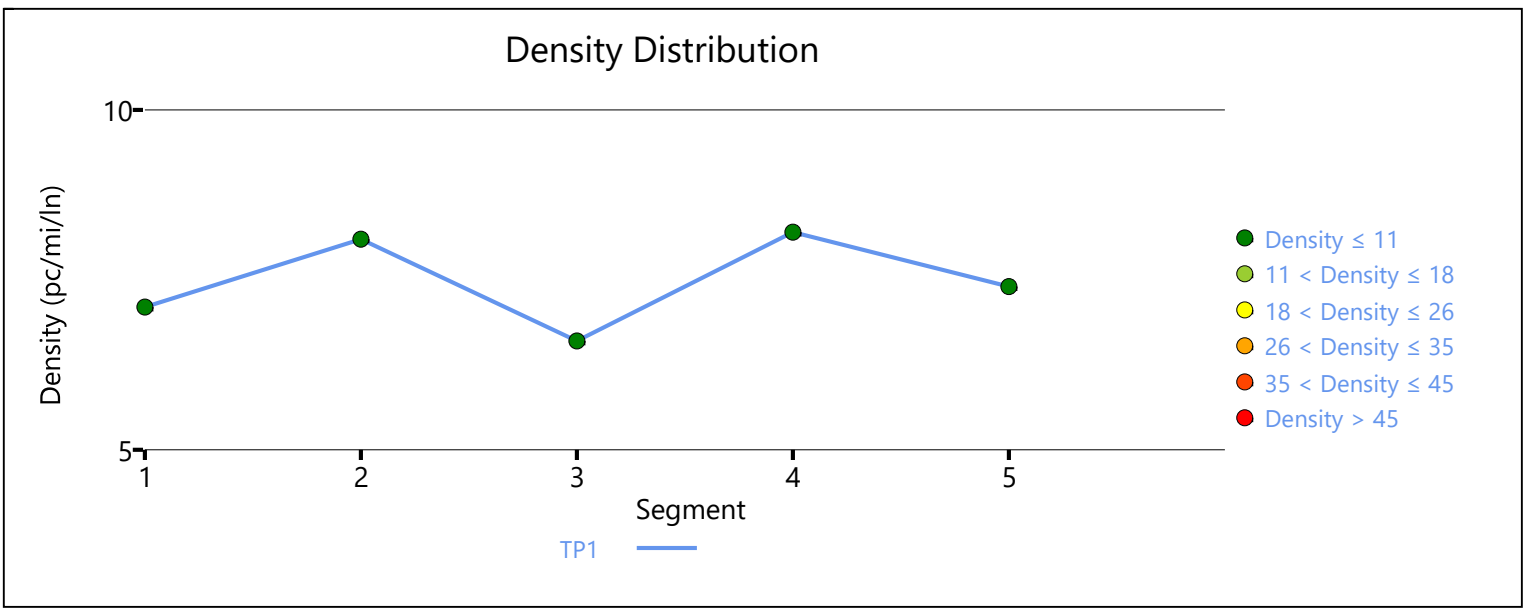
Space Mean Speed, mi/h	72.0	Density, veh/mi/ln	5.1
Average Travel Time, min	1.80	Density, pc/mi/ln	7.2

Messages

Comments







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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	710	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	529
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.22
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	710	50
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	23.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.813
Flow Rate (vi),pc/h	1058	65
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.22	0.03

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.304
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	65.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1058	Ramp Junction Speed (S), mi/h	65.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.1
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	8.0

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	5420	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	660	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	492
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.20
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	30.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	660	80
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.847
Flow Rate (vi),pc/h	983	100
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.23	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.282
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	983	Ramp Junction Speed (S), mi/h	65.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	1083	Average Density (D), pc/mi/ln	8.2
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	8.7

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	740	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	552
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

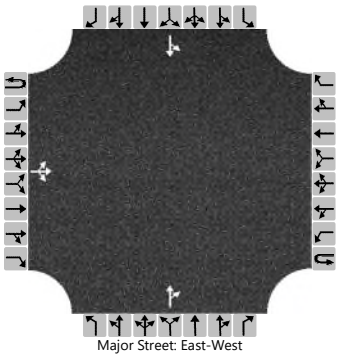
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy-Heller Rd
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	Convoy-Heller Road
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	0	0		0	1	0		0	1	0
Configuration			LTR									TR		LT		
Volume (veh/h)		40	0	40							30	30		20	90	
Percent Heavy Vehicles (%)		10									25	25		16	16	
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1									6.5	6.2		7.1	6.5	
Critical Headway (sec)		4.20									6.75	6.45		7.26	6.66	
Base Follow-Up Headway (sec)		2.2									4.0	3.3		3.5	4.0	
Follow-Up Headway (sec)		2.29									4.23	3.53		3.64	4.14	

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		43										64		117		
Capacity, c (veh/h)		1572														
v/c Ratio		0.03														
95% Queue Length, Q_{95} (veh)		0.1														
Control Delay (s/veh)		7.4														
Level of Service (LOS)		A														
Approach Delay (s/veh)	3.8															
Approach LOS																

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HCS7 Two-Way Stop-Control Report

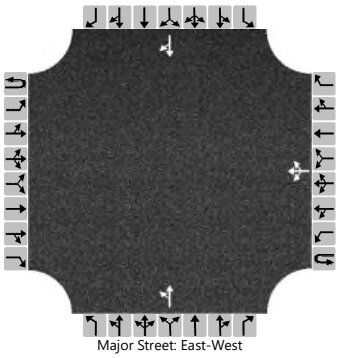
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy-Heller Rd
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	Convoy-Heller Road
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	0	0	0	0	1	0		0	1	0		0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						10	0	40		60	70				80	20
Percent Heavy Vehicles (%)						8				7	7				18	18
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1	6.5				6.5	6.2
Critical Headway (sec)						4.18				7.17	6.57				6.68	6.38
Base Follow-Up Headway (sec)						2.2				3.5	4.0				4.0	3.3
Follow-Up Headway (sec)						2.27				3.56	4.06				4.16	3.46

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						11				138						106
Capacity, c (veh/h)						1585										
v/c Ratio						0.01										
95% Queue Length, Q_{95} (veh)						0.0										
Control Delay (s/veh)						7.3										
Level of Service (LOS)						A										
Approach Delay (s/veh)					1.5											
Approach LOS																

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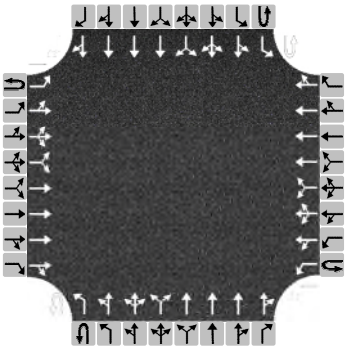
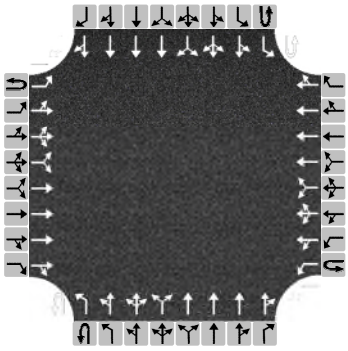
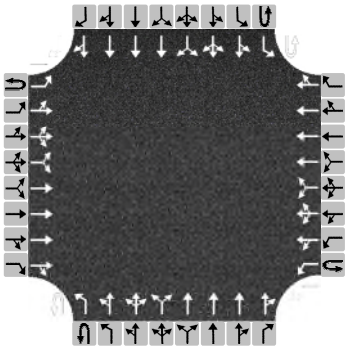
HCS7 Alternative Intersections Results Summary

General Information				Alternative Intersection Information	
Agency	Arcadis			Intersection Type	RCUT with TWSC
Analyst	QAi	Analysis Date	1/13/2023	Segment One Distance, ft	700
Jurisdiction	District 1	Duration, h	0.25	Segment Two Distance, ft	700
Intersection	US 30 at Convoy-Heller Rd	PHF	0.92	Arterial Direction	East-West
Main Intersection File	10a. US 30 at Convoy-Heller Rd - 2027 AM - RCUTAlt.xtw				
West Crossover File	10c. US 30 at Convoy-Heller Rd - 2027 AM - West Crossover.xtw				
East Crossover File	10b. US 30 at Convoy-Heller Rd - 2027 AM - East Crossover.xtw				
Project Description	PAU-VAN US 30 RCUT Analysis				

Demand	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One Demand (*v*), veh/h			580		20		680									
Intersection Two Demand (*v*), veh/h	0	10	540	50	0	10	730	20				90				30
Intersection Three Demand (*v*), veh/h	70		550				690									

(1) West Crossover	(2) Main Intersection	(3) East Crossover
		

Queue-to-Storage Ratio	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One (R_Q)					0.01											
Intersection Two (R_Q)		0.01				0.01										
Intersection Three (R_Q)	0.04															

Alternative Intesection Results

O-D	O-D Movements	Flow Rate (veh/h)	Control Delay (s/veh)	EDTT (s/veh)	ETT (s/veh)	v/c>1?	R_Q>1?	LOS
EBL	EBL(2)	11	11.1	--	11.1	No	No	B
EBT	EBT(2)	576	0.0	--	0.0	--	--	A
EBR	EBR(2)	43	0.0	--	0.0	--	--	A
WBL	WBL(2)	11	10.1	--	10.1	No	No	B
WBT	WBT(2)	728	0.0	--	0.0	--	--	A
WBR	WBR(2)	11	0.0	--	0.0	--	--	A
NBL	NBR(2) + EBU(3) + WBT(2)	65	23.9	14.7	38.6	No	No	D
NBT	NBR(2) + EBU(3) + WBR(2)	11	23.9	14.7	38.6	No	No	D
NBR	NBR(2)	22	11.4	--	11.4	No	No	B
SBL	SBR(2) + WBU(1) + EBT(2)	11	22.4	14.7	37.1	No	No	D
SBT	SBR(2) + WBU(1) + EBR(2)	11	22.4	14.7	37.1	No	No	D
SBR	SBR(2)	11	11.5	--	11.5	No	No	B

Overall Results	EB		WB		NB		SB	
Approach ETT, s/veh | LOS	0.2	A	0.1	A	32.5	C	28.6	C
Intersection ETT, s/veh | LOS	2.9				A			

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.43		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		560	2
3	Basic	Basic		2475	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	805	4800	0.17	75.0	5.4	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.78	0.714	0.885	805	290	4800	2100	0.17	0.14	64.3	64.3	6.3	6.1	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	507	4800	0.11	74.1	3.4	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.81	0.714	0.862	894	387	4800	2100	0.19	0.18	66.8	66.8	6.7	6.5	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	909	4800	0.19	74.3	6.1	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.6	5.2	3.7	1.20	A

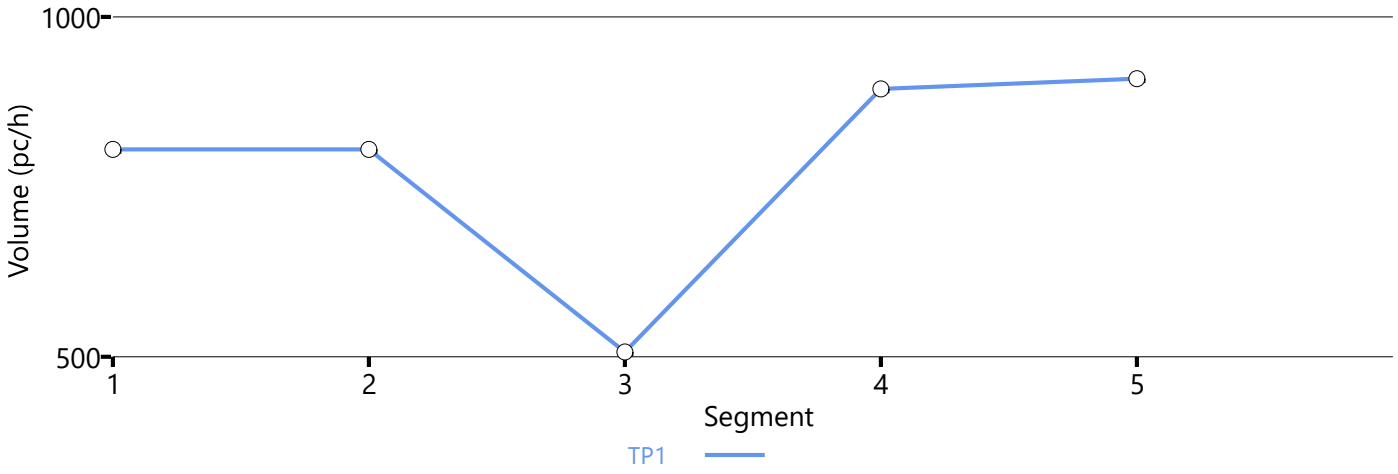
Facility Overall Results

Space Mean Speed, mi/h	71.6	Density, veh/mi/ln	3.7
Average Travel Time, min	1.20	Density, pc/mi/ln	5.2

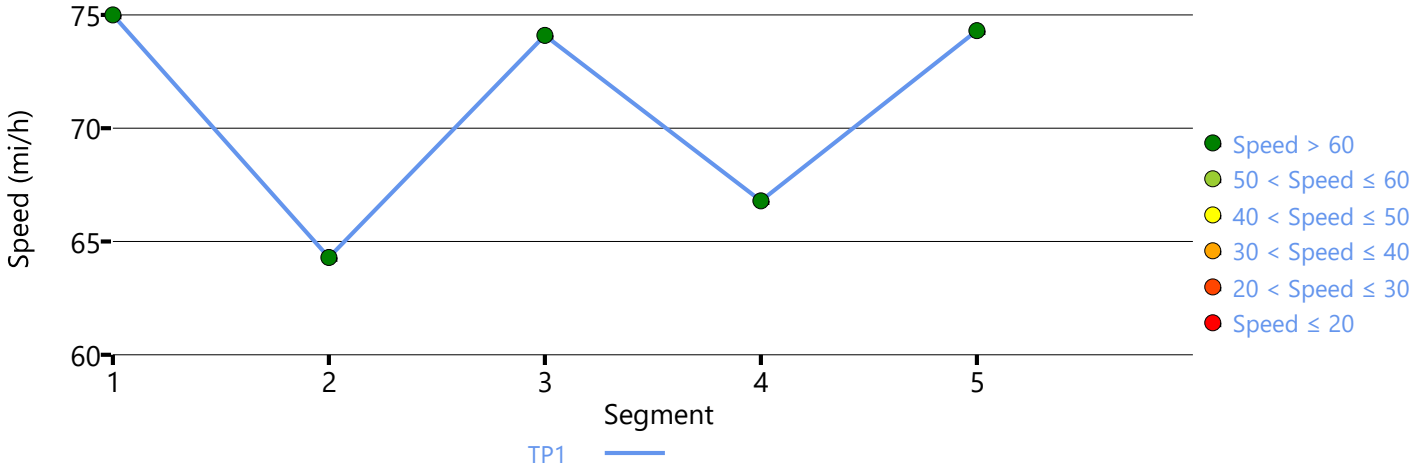
Messages

Comments

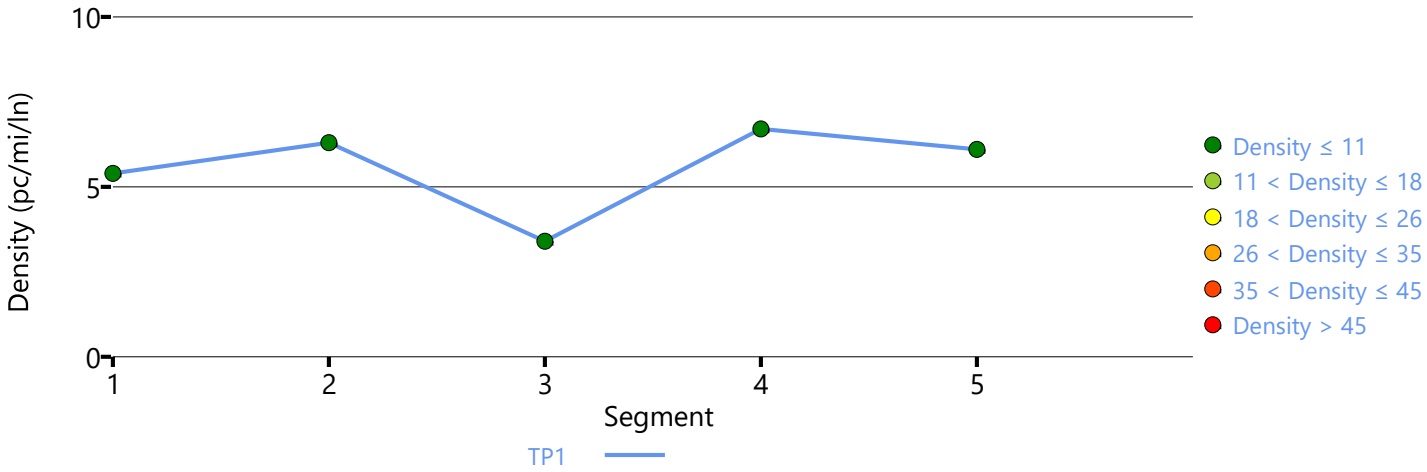
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	540	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	402
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.17
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	5.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	560	560
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	540	200
Peak Hour Factor (PHF)	0.94	0.78
Total Trucks, %	40.00	13.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.885
Flow Rate (vi),pc/h	805	290
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.17	0.14

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.324
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	805	Ramp Junction Speed (S), mi/h	64.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	6.3
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	6.1

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2475	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	340	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	254
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.11
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	3.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	925
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	340	270
Peak Hour Factor (PHF)	0.94	0.81
Total Trucks, %	40.00	16.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.862
Flow Rate (vi),pc/h	507	387
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.19	0.18

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.247
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	507	Ramp Junction Speed (S), mi/h	66.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	894	Average Density (D), pc/mi/ln	6.7
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	6.5

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	610	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	454
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.19
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.60		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2465	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1162	4800	0.24	75.0	7.7	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.80	0.714	0.813	1162	261	4800	2100	0.24	0.12	64.4	64.4	9.0	11.0	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	909	4800	0.19	74.6	6.1	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.75	0.714	0.847	1066	157	4800	1900	0.22	0.08	65.7	65.7	8.1	8.5	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1058	4800	0.22	74.2	7.1	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.7	7.4	5.3	1.40	B

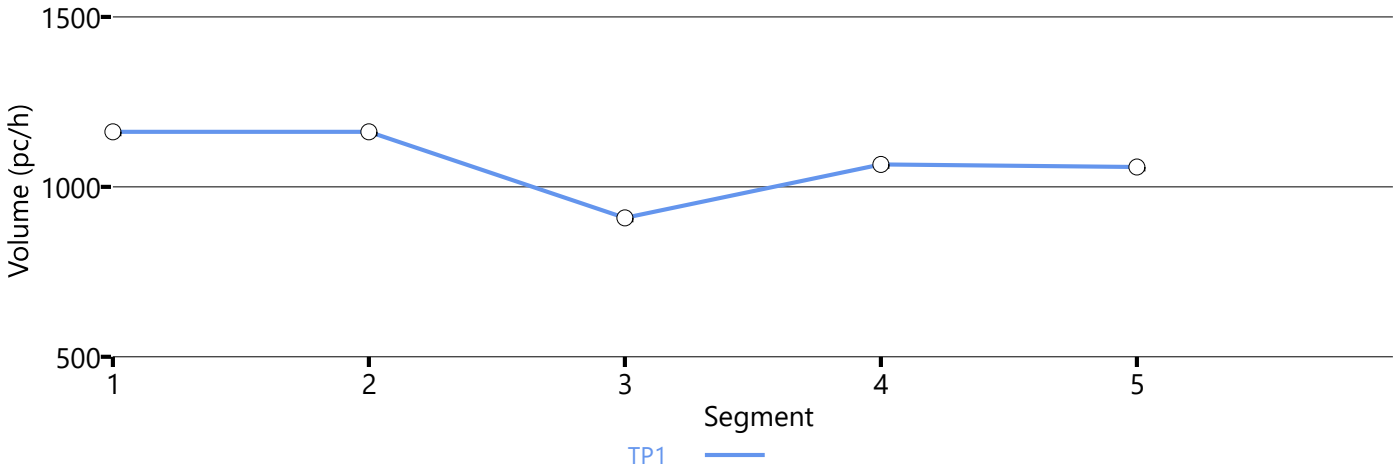
Facility Overall Results

Space Mean Speed, mi/h	70.7	Density, veh/mi/ln	5.3
Average Travel Time, min	1.40	Density, pc/mi/ln	7.4

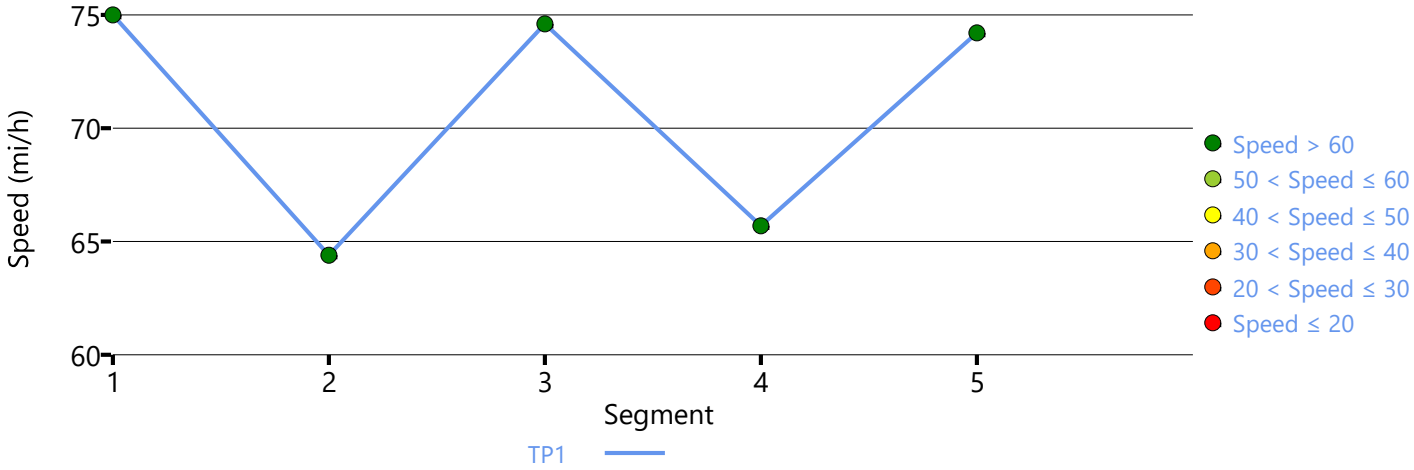
Messages

Comments

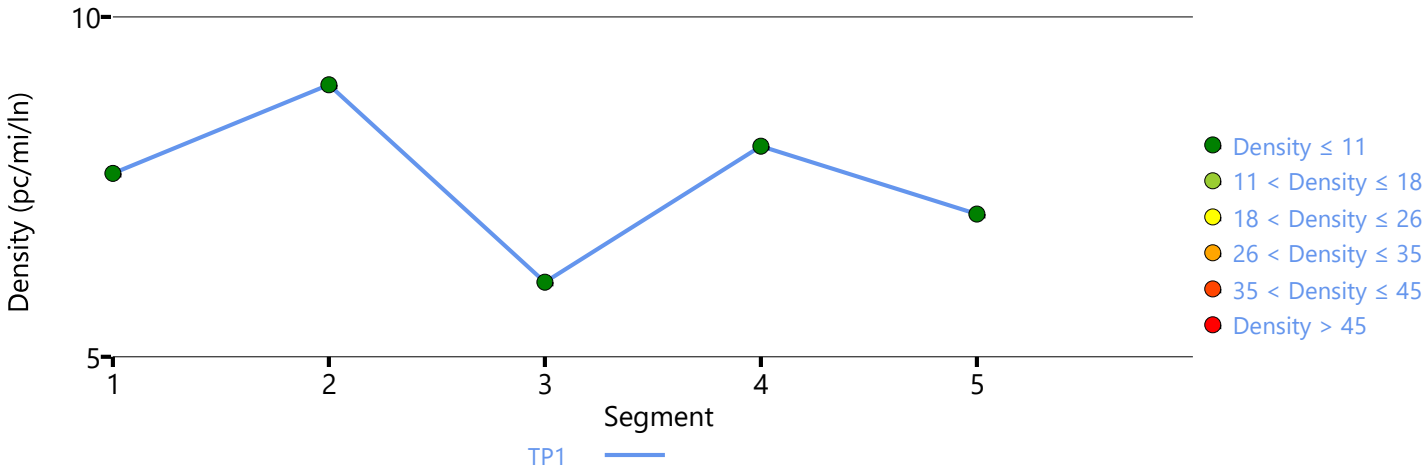
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	780	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	581
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.24
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	360
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	780	170
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	40.00	23.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.813
Flow Rate (vi),pc/h	1162	261
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.24	0.12

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.321
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1162	Ramp Junction Speed (S), mi/h	64.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.0

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2465	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	610	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	454
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.19
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	30.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	610	100
Peak Hour Factor (PHF)	0.94	0.75
Total Trucks, %	40.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.847
Flow Rate (vi),pc/h	909	157
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.22	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.282
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	909	Ramp Junction Speed (S), mi/h	65.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	1066	Average Density (D), pc/mi/ln	8.1
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	8.5

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	710	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	529
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.22
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

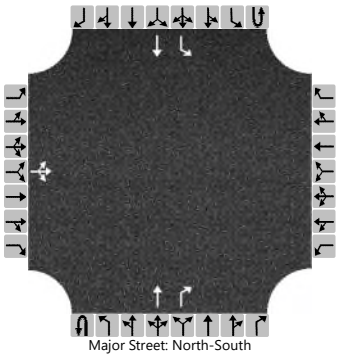
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 224 at US 30 EB Ramps
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	US 224
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	1	0	1	1	0
Configuration			LTR								T	R		L	T	
Volume (veh/h)		10	0	200							60	140		20	90	
Percent Heavy Vehicles (%)		13	13	13										23		
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized										No						
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.23	6.63	6.33										4.33		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.62	4.12	3.42										2.41		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			223											21		
Capacity, c (veh/h)			912											1242		
v/c Ratio			0.24											0.02		
95% Queue Length, Q_{95} (veh)			1.0											0.1		
Control Delay (s/veh)			10.2											7.9		
Level of Service (LOS)			B											A		
Approach Delay (s/veh)		10.2												1.4		
Approach LOS		B														

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HCS7 Two-Way Stop-Control Report

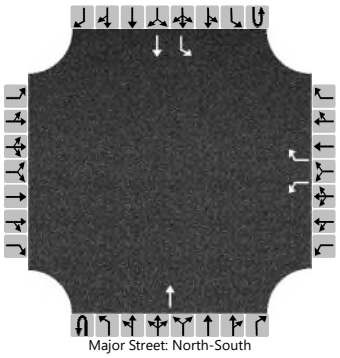
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 224 at US 30 WB Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	US 224
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R			T			L	T	
Volume (veh/h)						80		10			50			20	30	
Percent Heavy Vehicles (%)						23		23						11		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.63		6.43						4.21		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.71		3.51						2.30		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						85		11						21		
Capacity, c (veh/h)						808		958						1497		
v/c Ratio						0.11		0.01						0.01		
95% Queue Length, Q_{95} (veh)						0.4		0.0						0.0		
Control Delay (s/veh)						10.0		8.8						7.4		
Level of Service (LOS)						A		A						A		
Approach Delay (s/veh)						9.9								3.0		
Approach LOS						A										

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HCS7 Two-Way Stop-Control Report

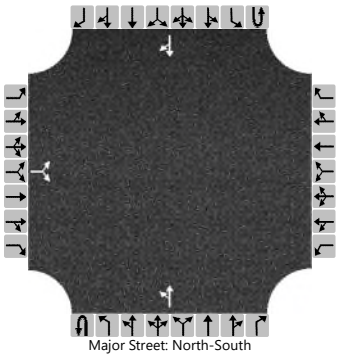
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 224 at Liberty Union
Jurisdiction	District 1
East/West Street	Liberty Union Road
North/South Street	US 224
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		10		10						10	50				40	10
Percent Heavy Vehicles (%)		11		11						23						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.51		6.31						4.33						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.60		3.40						2.41						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			21							11						
Capacity, c (veh/h)			914							1428						
v/c Ratio			0.02							0.01						
95% Queue Length, Q_{95} (veh)			0.1							0.0						
Control Delay (s/veh)			9.0							7.5						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)		9.0								1.3						
Approach LOS		A														

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HCS7 Roundabouts Report

General Information

Analyst	QAi
Agency or Co.	Arcadis
Date Performed	1/13/2023
Analysis Year	2027
Time Analyzed	Build AM
Project Description	

Site Information

Intersection	Lincoln Hwy at US 224
E/W Street Name	Lincoln Hwy
N/S Street Name	US 224
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.85
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	120	100	50	0	40	80	30	0	30	220	60	0	40	240	90
Percent Heavy Vehicles, %	3	3	3	3	8	8	8	8	14	14	14	14	13	13	13	13
Flow Rate (v_{PCE}), pc/h	0	145	121	61	0	51	102	38	0	40	295	80	0	53	319	120
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		327			191			415			492	
Entry Volume, veh/h		317			177			364			435	
Circulating Flow (v_c), pc/h	423			480			319			193		
Exiting Flow (v_{ex}), pc/h	254			262			478			431		
Capacity (c_{pce}), pc/h		896			846			997			1133	
Capacity (c), veh/h		870			783			874			1003	
v/c Ratio (x)		0.36			0.23			0.42			0.43	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.3			7.1			9.1			8.5	
Lane LOS		A			A			A			A	
95% Queue, veh		1.7			0.9			2.1			2.2	
Approach Delay, s/veh	8.3			7.1			9.1			8.5		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	8.4						A					

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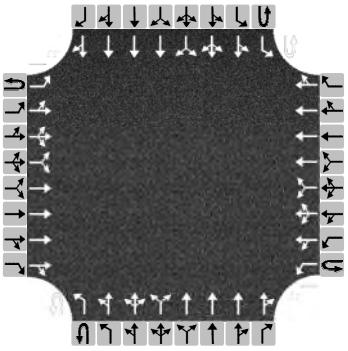
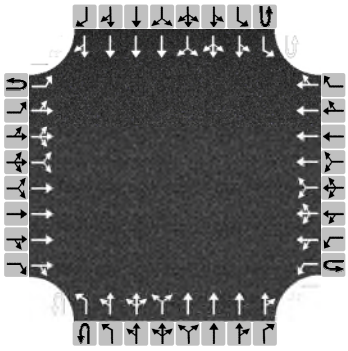
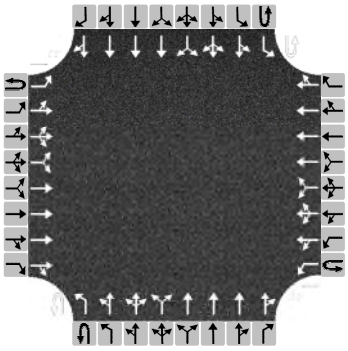
HCS7 Alternative Intersections Results Summary

General Information				Alternative Intersection Information	
Agency	Arcadis			Intersection Type	RCUT with TWSC
Analyst	QAi	Analysis Date	1/13/2023	Segment One Distance, ft	700
Jurisdiction	District 1	Duration, h	0.25	Segment Two Distance, ft	700
Intersection	US 30 at John Brown Road	PHF	0.8	Arterial Direction	East-West
Main Intersection File	16a. US 30 at John Brown Rd - 2027 AM - RCUTAlt.xtw				
West Crossover File	16c. US 30 at John Brown Rd - 2027 AM - West Crossover.xtw				
East Crossover File	16b. US 30 at John Brown Rd - 2027 AM - East Crossover.xtw				
Project Description	PAU-VAN US 30 RCUT Analysis				

Demand	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One Demand (*v*), veh/h			630		60		700									
Intersection Two Demand (*v*), veh/h	0	10	640	40	0	30	700	30				60				70
Intersection Three Demand (*v*), veh/h	30		640				730									

(1) West Crossover	(2) Main Intersection	(3) East Crossover
		

Queue-to-Storage Ratio	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One (R_Q)					0.04											
Intersection Two (R_Q)		0.02				0.05										
Intersection Three (R_Q)	0.02															

Alternative Intesection Results

O-D	O-D Movements	Flow Rate (veh/h)	Control Delay (s/veh)	EDTT (s/veh)	ETT (s/veh)	v/c>1?	R_Q>1?	LOS
EBL	EBL(2)	13	11.7	--	11.7	No	No	B
EBT	EBT(2)	763	0.0	--	0.0	--	--	A
EBR	EBR(2)	13	0.0	--	0.0	--	--	A
WBL	WBL(2)	38	11.6	--	11.6	No	No	B
WBT	WBT(2)	863	0.0	--	0.0	--	--	A
WBR	WBR(2)	13	0.0	--	0.0	--	--	A
NBL	NBR(2) + EBU(3) + WBT(2)	13	25.5	14.7	40.2	No	No	D
NBT	NBR(2) + EBU(3) + WBR(2)	25	25.5	14.7	40.2	No	No	D
NBR	NBR(2)	38	12.2	--	12.2	No	No	B
SBL	SBR(2) + WBU(1) + EBT(2)	38	25.6	14.7	40.3	No	No	D
SBT	SBR(2) + WBU(1) + EBR(2)	38	25.6	14.7	40.3	No	No	D
SBR	SBR(2)	13	12.8	--	12.8	No	No	B

Overall Results	EB		WB		NB		SB	
Approach ETT, s/veh | LOS	0.2	A	0.5	A	26.2	C	36.3	D
Intersection ETT, s/veh | LOS	3.1				A			

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	8/10/2022
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.50		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		1940	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	909	4800	0.19	75.0	6.1	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.88	0.714	0.758	909	465	4800	1900	0.19	0.24	55.2	55.2	8.2	6.8	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	447	4800	0.09	73.8	3.0	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.90	0.714	0.758	667	220	4800	2100	0.14	0.10	65.6	65.6	5.1	7.5	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	670	4800	0.14	74.2	4.5	A

Facility Time Period Results

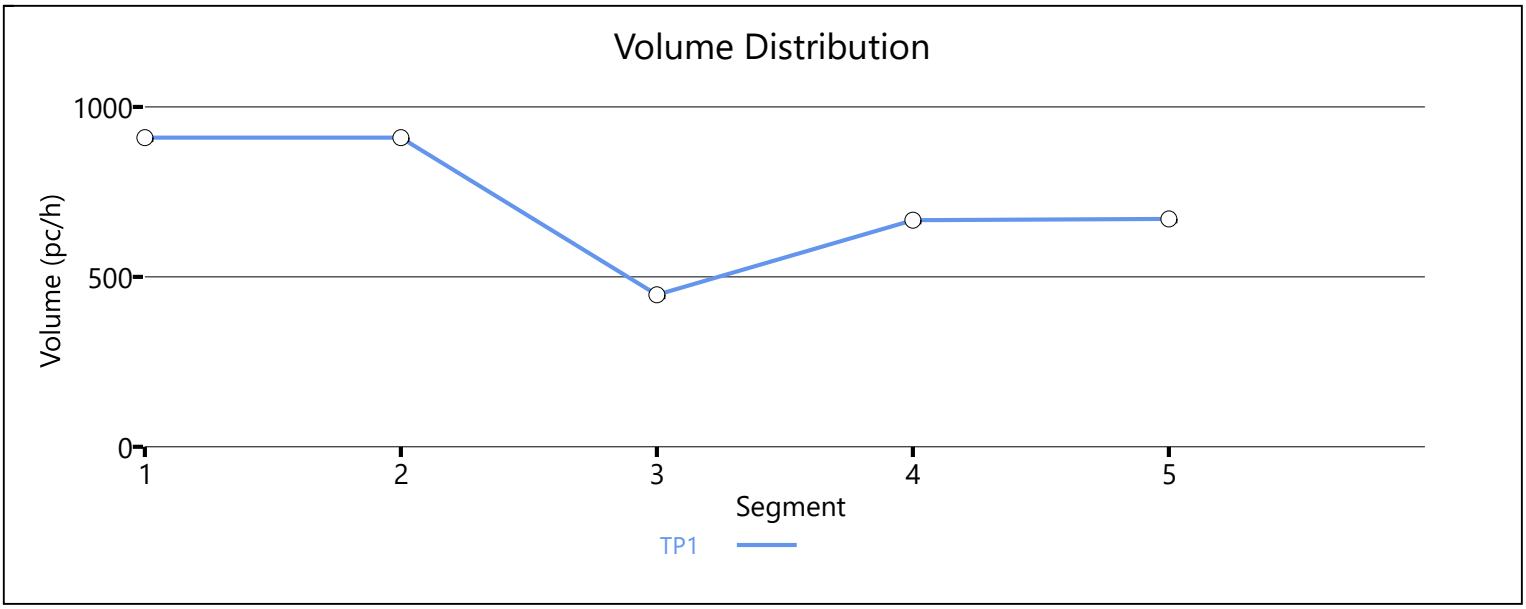
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.1	5.3	3.7	1.30	A

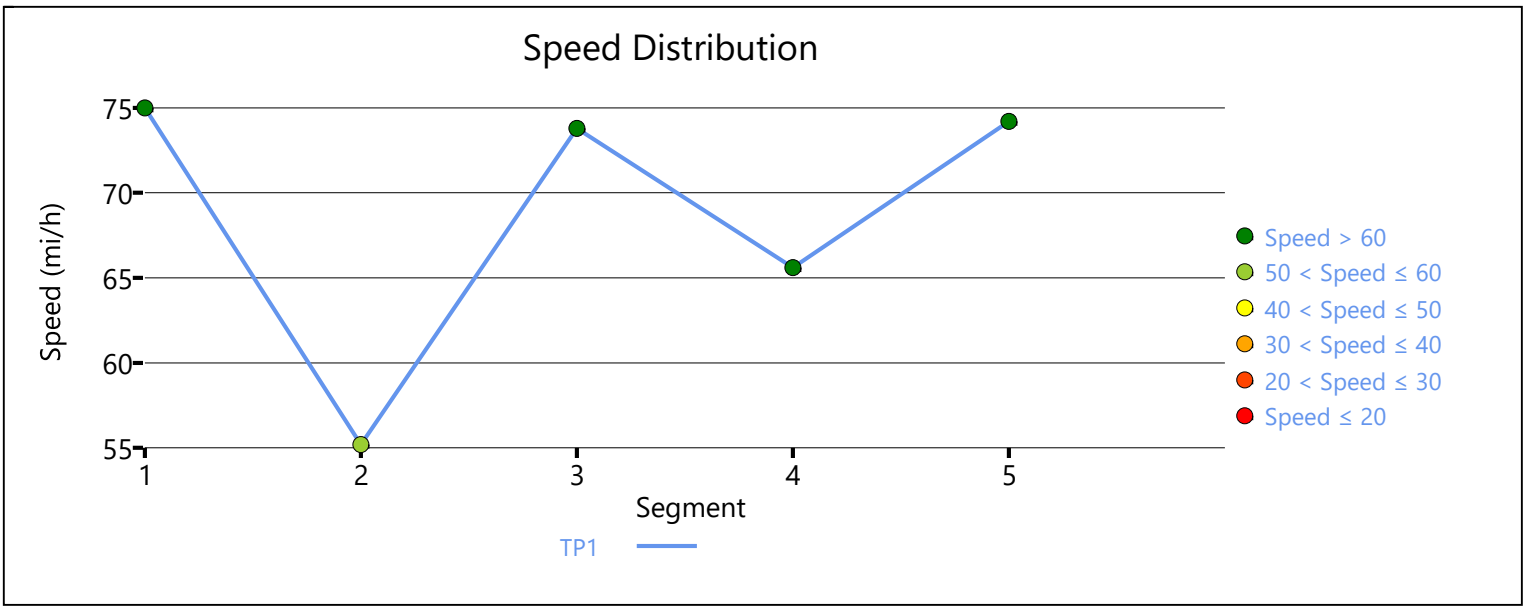
Facility Overall Results

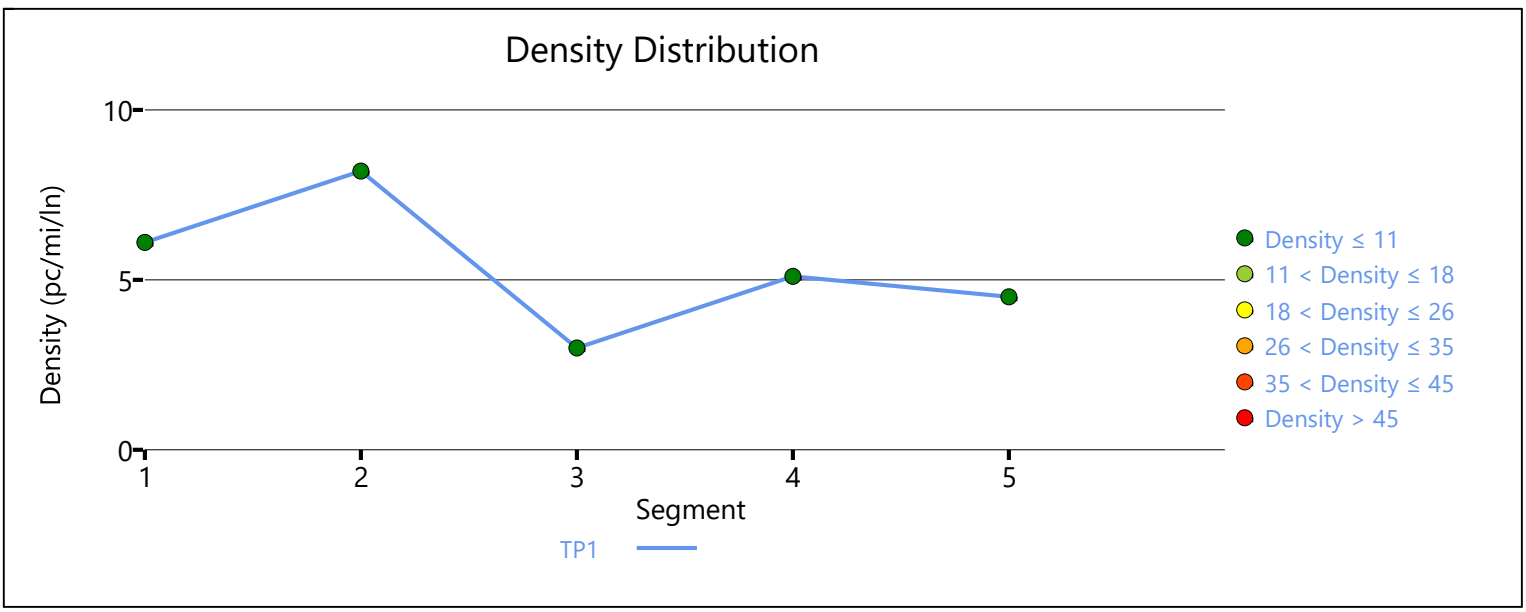
Space Mean Speed, mi/h	67.1	Density, veh/mi/ln	3.7
Average Travel Time, min	1.30	Density, pc/mi/ln	5.3

Messages

Comments







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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	8/10/2022
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	610	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	454
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.19
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Deceleration Length (LA),ft	1500	590
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	610	310
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	40.00	32.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.758
Flow Rate (vi),pc/h	909	465
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.19	0.24

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.600
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	909	Ramp Junction Speed (S), mi/h	55.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.2
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	6.8

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1940	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	300	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	224
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.09
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	3.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	300	150
Peak Hour Factor (PHF)	0.94	0.90
Total Trucks, %	40.00	32.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.758
Flow Rate (vi),pc/h	447	220
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.14	0.10

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.284
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	447	Ramp Junction Speed (S), mi/h	65.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	667	Average Density (D), pc/mi/ln	5.1
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	7.5

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	450	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	335
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.14
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	4.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.53		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2075	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1013	4800	0.21	75.0	6.7	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.70	0.714	0.763	1013	281	4800	2100	0.21	0.13	64.3	64.3	7.9	8.5	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	790	4800	0.16	74.4	5.3	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.763	1139	349	4800	1900	0.24	0.18	64.9	64.9	8.8	10.7	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1162	4800	0.24	74.1	7.7	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.2	7.1	5.1	1.30	B

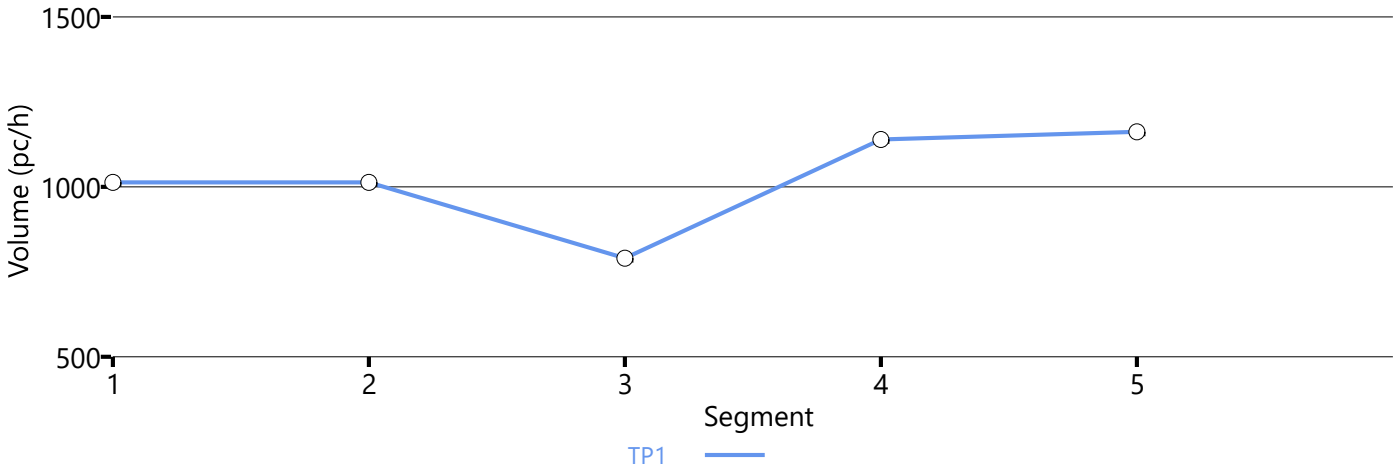
Facility Overall Results

Space Mean Speed, mi/h	70.2	Density, veh/mi/ln	5.1
Average Travel Time, min	1.30	Density, pc/mi/ln	7.1

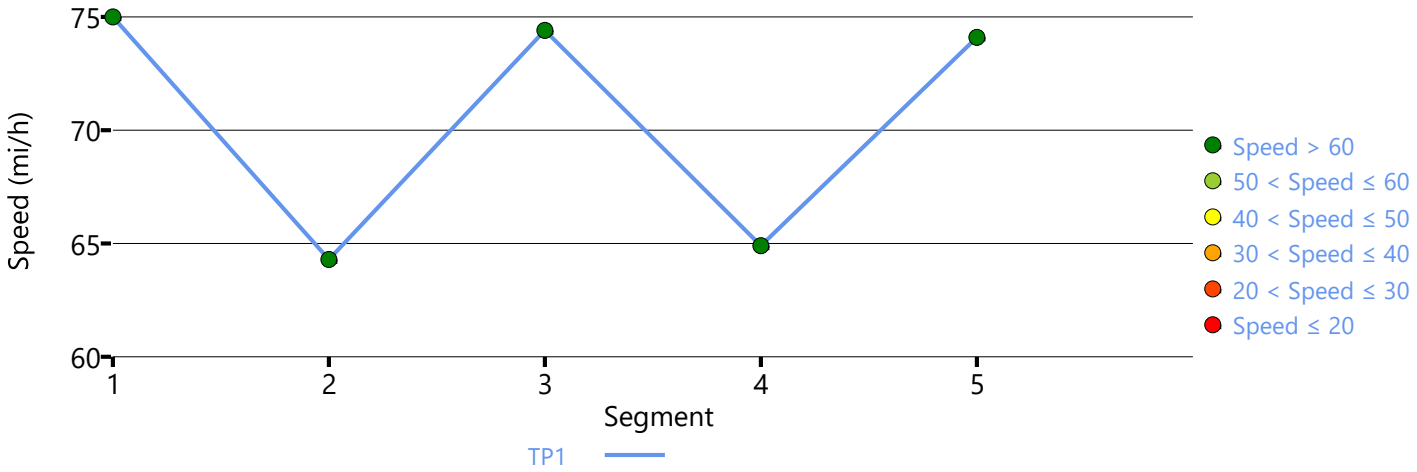
Messages

Comments

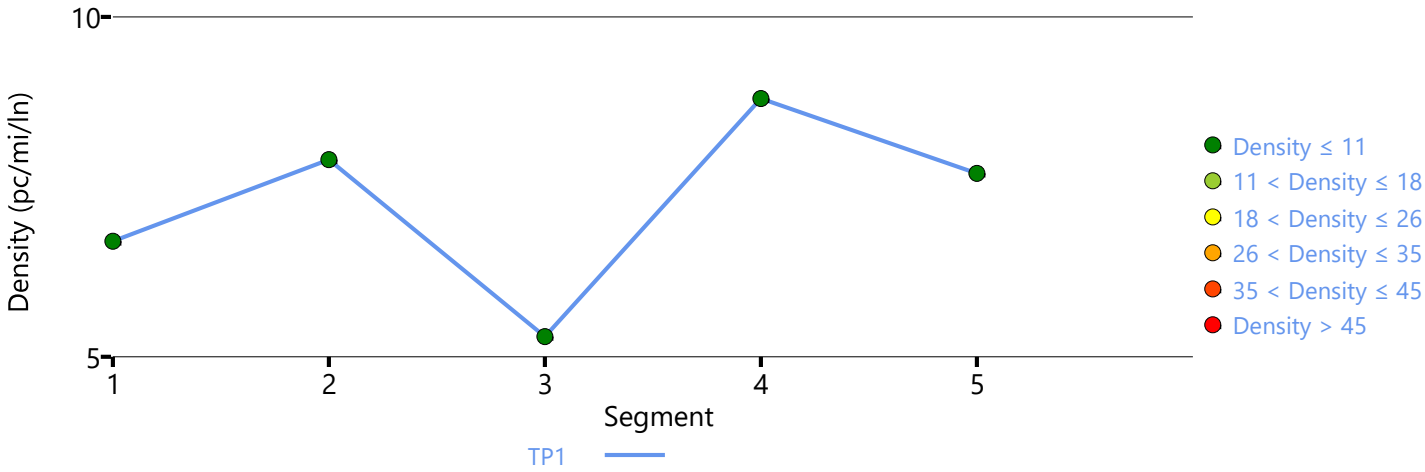
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	680	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	506
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	680	150
Peak Hour Factor (PHF)	0.94	0.70
Total Trucks, %	40.00	31.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.763
Flow Rate (vi),pc/h	1013	281
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.21	0.13

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.323
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1013	Ramp Junction Speed (S), mi/h	64.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	7.9
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	8.5

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2075	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	530	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	395
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.16
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	5.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Acceleration Length (LA),ft	1500	570
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	530	250
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	31.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.763
Flow Rate (vi),pc/h	790	349
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.24	0.18

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.305
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	64.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	790	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	1139	Average Density (D), pc/mi/ln	8.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.7

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	780	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	581
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.24
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

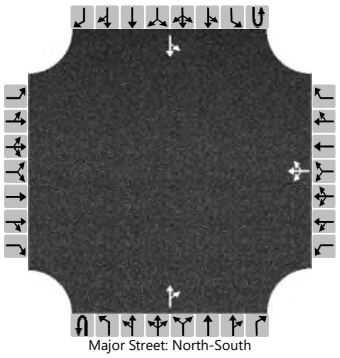
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	7/26/2022
Analysis Year	2027
Time Analyzed	Build AM
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	US 127 at Brooks Ave
Jurisdiction	
East/West Street	Brooks Ave
North/South Street	US 127
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR					TR		LT		
Volume (veh/h)						10	0	10			430	10		10	380	
Percent Heavy Vehicles (%)						19	19	19						25		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2						4.1		
Critical Headway (sec)						7.29	6.69	6.39						4.35		
Base Follow-Up Headway (sec)						3.5	4.0	3.3						2.2		
Follow-Up Headway (sec)						3.67	4.17	3.47						2.43		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							21							11		
Capacity, c (veh/h)							345							987		
v/c Ratio							0.06							0.01		
95% Queue Length, Q_{95} (veh)							0.2							0.0		
Control Delay (s/veh)							16.1							8.7		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)						16.1								0.3		
Approach LOS						C										

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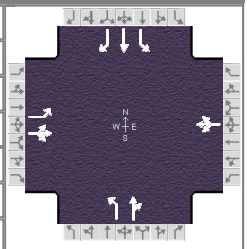
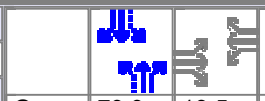
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	AM Peak	PHF	0.86
Urban Street	US 127	Analysis Year	2027	Analysis Period	1> 7:00
Intersection	Bonnewitz Ave	File Name	18b-1. US 127 Street - Build 2027 AM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	140	10	70	20	10	20	60	360	20	10	300	180

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



							1	2	3	4
Green	79.9	13.5	8.6	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		10.0		12.0		6.0		5.0
Phase Duration, s		19.5		14.6		85.9		85.9
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.2		3.3		0.0		0.0
Queue Clearance Time (g_s), s		13.0		6.4				
Green Extension Time (g_e), s		0.5		0.1		0.0		0.0
Phase Call Probability		1.00		0.86				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	163	93			58		75	476		12	349	209
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1739	1577			1523		779	1398		801	1633	1384
Queue Service Time (g_s), s	11.0	6.7			4.4		5.9	26.2		1.0	10.9	7.1
Cycle Queue Clearance Time (g_c), s	11.0	6.7			4.4		16.7	26.2		27.2	10.9	7.1
Green Ratio (*g/C*)	0.11	0.11			0.07		0.67	0.67		0.67	0.67	0.67
Capacity (*c*), veh/h	196	177			109		508	931		419	1088	922
Volume-to-Capacity Ratio (*X*)	0.833	0.524			0.535		0.148	0.512		0.028	0.321	0.227
Back of Queue (*Q*), ft/ln (95 th percentile)	223.5	124.6			89.1		59.6	431.1		9.7	184.7	103.3
Back of Queue (*Q*), veh/ln (95 th percentile)	8.6	4.8			3.2		1.9	13.6		0.3	6.5	3.6
Queue Storage Ratio (*RQ*) (95 th percentile)	1.94	0.00			0.00		0.99	0.00		0.12	0.00	0.86
Uniform Delay (d_1), s/veh	52.1	50.2			53.8		13.0	15.4		18.6	8.5	7.9
Incremental Delay (d_2), s/veh	3.5	0.9			1.5		0.6	2.0		0.1	0.8	0.6
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	55.7	51.1			55.3		13.6	17.4		18.7	9.3	8.4
Level of Service (LOS)	E	D			E		B	B		B	A	A
Approach Delay, s/veh / LOS	54.0	D		55.3	E		16.9	B		9.2	A	
Intersection Delay, s/veh / LOS	22.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.96	B	2.16	B	1.65	B	1.87	B
Bicycle LOS Score / LOS	0.91	A	0.58	A	1.33	A	1.43	A

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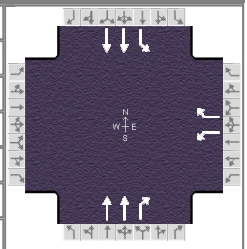
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	AM Peak	PHF	0.90
Urban Street	US 127	Analysis Year	2027	Analysis Period	1> 7:00
Intersection	US 127 at US 30 EB Ra…	File Name	18b-1. US 127 Street - Build 2027 AM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				200		110		430	90	60	290	

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	82.3	25.7	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0			
				Red	2.0	2.0	0.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				9.0		7.0		6.0
Phase Duration, s				31.7		88.3		88.3
Change Period, (*Y+R c*), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.1		0.0		0.0
Queue Clearance Time (*g s*), s				25.0				
Green Extension Time (*g e*), s				0.6		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				222		122		429	90	78	376	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1132		1007		1484	1321	882	1639	
Queue Service Time (*g s*), s				23.0		13.0		9.1	2.6	3.5	4.8	
Cycle Queue Clearance Time (*g c*), s				23.0		13.0		9.1	2.6	12.9	4.8	
Green Ratio (*g/C*)				0.21		0.21		0.69	0.69	0.69	0.69	
Capacity (*c*), veh/h				242		215		2037	907	598	2250	
Volume-to-Capacity Ratio (*X*)				0.918		0.568		0.211	0.099	0.130	0.167	
Back of Queue (*Q*), ft/ln (95 th percentile)				376.3		199.5		152.9	36.5	32.7	73	
Back of Queue (*Q*), veh/ln (95 th percentile)				10.9		5.8		5.2	1.2	1.2	2.7	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		1.33		0.00	0.37	0.22	0.00	
Uniform Delay (*d 1*), s/veh				46.1		42.2		10.9	6.0	7.6	6.6	
Incremental Delay (*d 2*), s/veh				5.8		0.9		0.2	0.2	0.4	0.2	
Initial Queue Delay (*d 3*), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				51.9		43.1		11.1	6.3	8.1	6.7	
Level of Service (LOS)				D		D		B	A	A	A	
Approach Delay, s/veh / LOS	0.0			48.8		D	10.3		B	6.9		A
Intersection Delay, s/veh / LOS	19.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.33	B	1.87	B	0.67	A
Bicycle LOS Score / LOS				F	0.96	A	0.81	A

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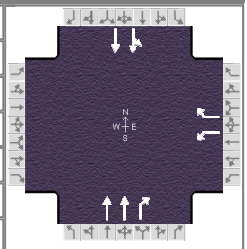
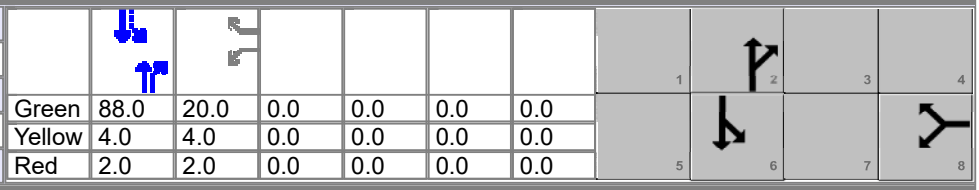
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	AM Peak	PHF	0.82
Urban Street	US 127	Analysis Year	2027	Analysis Period	1> 7:00
Intersection	US 30 WB Ramps	File Name	18b-1. US 127 Street - Build 2027 AM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				20		130		420	120	130	330	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	88.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	2.0	2.0	0.0	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				9.0		7.0		8.0
Phase Duration, s				26.0		94.0		94.0
Change Period, (*Y+R c*), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.3		0.0		0.0
Queue Clearance Time (*g s*), s				14.8				
Green Extension Time (*g e*), s				0.3		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				24		159		361	103	263	335	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1570		1397		1654	1472	1068	1527	
Queue Service Time (*g s*), s				1.6		12.8		3.7	2.0	6.6	9.6	
Cycle Queue Clearance Time (*g c*), s				1.6		12.8		3.7	2.0	10.4	9.6	
Green Ratio (*g/C*)				0.17		0.17		0.73	0.73	0.73	0.73	
Capacity (*c*), veh/h				261		232		2427	1080	833	1120	
Volume-to-Capacity Ratio (*X*)				0.093		0.683		0.149	0.095	0.316	0.299	
Back of Queue (*Q*), ft/ln (95 th percentile)				31.5		226.5		51.5	26.2	70	91	
Back of Queue (*Q*), veh/ln (95 th percentile)				1.1		8.0		1.9	1.0	2.8	3.2	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		1.51		0.00	0.00	0.00	0.00	
Uniform Delay (*d 1*), s/veh				42.4		47.0		4.5	3.8	4.3	3.9	
Incremental Delay (*d 2*), s/veh				0.1		1.3		0.1	0.2	0.9	0.6	
Initial Queue Delay (*d 3*), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				42.4		48.4		4.6	4.0	5.2	4.5	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			47.6		D	4.5		A	4.8		A
Intersection Delay, s/veh / LOS	11.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.16	B	1.86	B	0.66	A
Bicycle LOS Score / LOS				F	1.03	A	0.95	A

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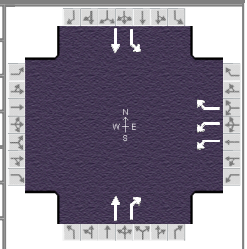
HCS7 Signalized Intersection Results Summary

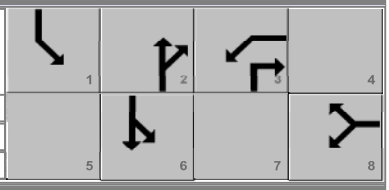
General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	AM Peak	PHF	0.97
Urban Street	US 127	Analysis Year	2027	Analysis Period	1> 7:00
Intersection	Towne Center Blvd	File Name	18b-1. US 127 Street - Build 2027 AM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				170		10		440	110	30	290	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.3	86.7	10.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		7.3	1.0	4.0
Phase Duration, s				16.0		92.7	11.3	104.0
Change Period, (*Y+R c*), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.1		0.0	3.0	0.0
Queue Clearance Time (*g s*), s				8.0			2.7	
Green Extension Time (*g e*), s				0.3		0.0	0.0	0.0
Phase Call Probability				1.00			0.76	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				175		10		454	113	43	411	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1689		1547		1663	1409	1612	1693	
Queue Service Time (*g s*), s				6.0		0.7		12.5	2.0	0.7	5.8	
Cycle Queue Clearance Time (*g c*), s				6.0		0.7		12.5	2.0	0.7	5.8	
Green Ratio (*g/C*)				0.08		0.08		0.72	0.81	0.78	0.82	
Capacity (*c*), veh/h				281		129		1202	1136	656	1383	
Volume-to-Capacity Ratio (*X*)				0.624		0.080		0.377	0.100	0.065	0.297	
Back of Queue (*Q*), ft/ln (95 th percentile)				120.4		13.5		194.4	21	8.3	62.3	
Back of Queue (*Q*), veh/ln (95 th percentile)				4.6		0.5		6.9	0.7	0.3	2.2	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.65		0.07		0.00	0.08	0.06	0.00	
Uniform Delay (*d 1*), s/veh				53.2		50.8		6.3	2.5	3.9	2.1	
Incremental Delay (*d 2*), s/veh				0.8		0.1		0.9	0.2	0.0	0.5	
Initial Queue Delay (*d 3*), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				54.0		50.9		7.3	2.6	4.0	2.6	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			53.9		D	6.3		A	2.7		A
Intersection Delay, s/veh / LOS	12.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.16	B	1.97	B	2.05	B	0.63	A
Bicycle LOS Score / LOS				F	1.42	A	1.03	A

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.72		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		3070	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	670	4800	0.14	75.0	4.5	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.72	0.714	0.877	670	48	4800	2100	0.14	0.02	65.0	65.0	5.2	5.6	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	626	4800	0.13	74.8	4.2	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.877	687	61	4800	2100	0.14	0.03	66.5	66.5	5.2	6.0	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	700	4800	0.15	74.3	4.7	A

Facility Time Period Results

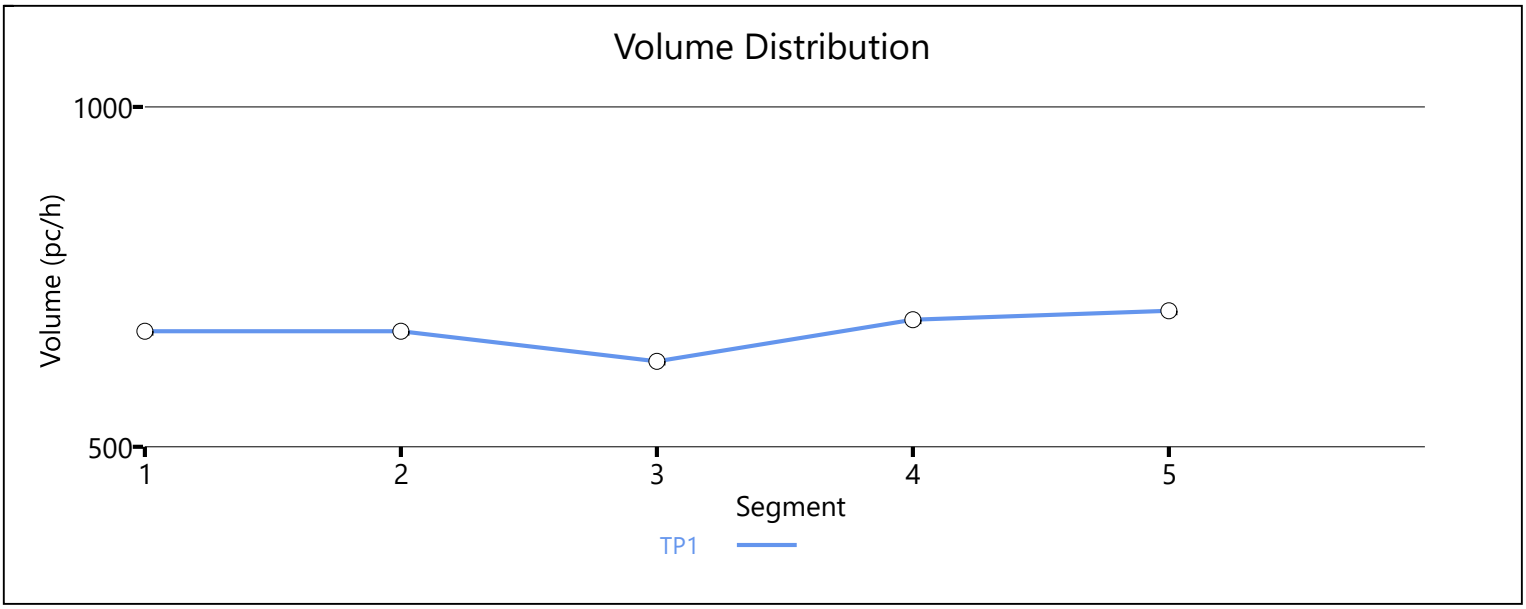
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.4	4.7	3.3	1.40	A

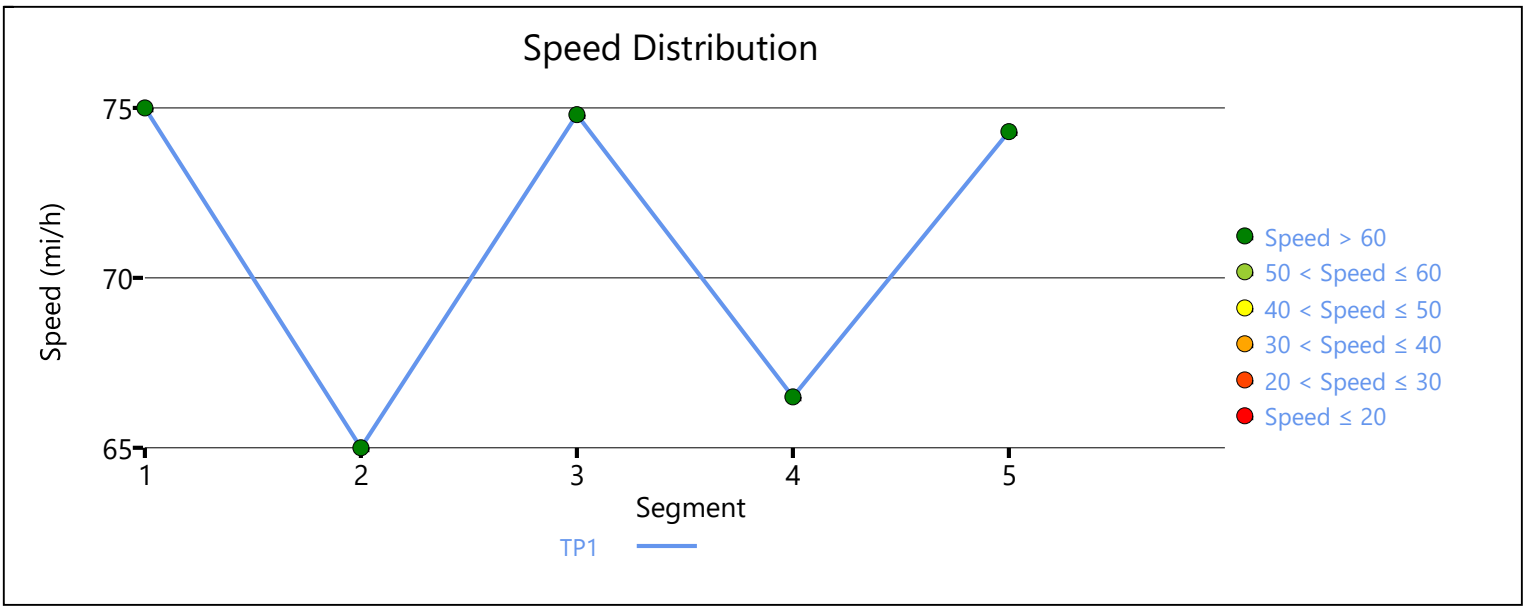
Facility Overall Results

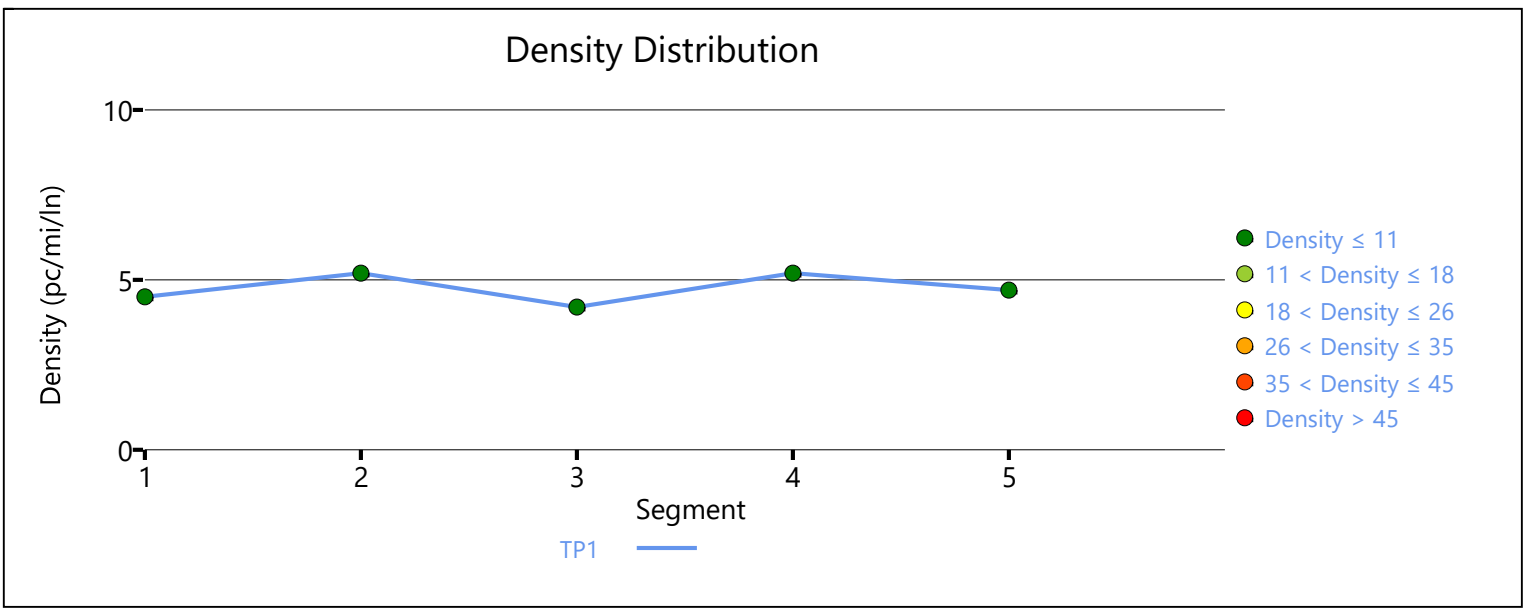
Space Mean Speed, mi/h	71.4	Density, veh/mi/ln	3.3
Average Travel Time, min	1.40	Density, pc/mi/ln	4.7

Messages

Comments







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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	450	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	335
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.14
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	4.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	495
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	450	30
Peak Hour Factor (PHF)	0.94	0.72
Total Trucks, %	40.00	14.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.877
Flow Rate (vi),pc/h	670	48
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.14	0.02

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.302
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	65.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	670	Ramp Junction Speed (S), mi/h	65.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	5.2
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	5.6

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	3070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	420	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	313
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.13
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	4.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	785
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	420	50
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	14.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.877
Flow Rate (vi),pc/h	626	61
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.14	0.03

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.258
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	626	Ramp Junction Speed (S), mi/h	66.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	687	Average Density (D), pc/mi/ln	5.2
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	6.0

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	470	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	350
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.15
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	4.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.66		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2790	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	998	4800	0.21	75.0	6.7	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.77	0.714	0.962	998	81	4800	2100	0.21	0.04	64.9	64.9	7.7	8.7	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	909	4800	0.19	74.7	6.1	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.62	0.714	0.893	1035	126	4800	2100	0.22	0.06	65.4	65.4	7.9	10.7	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1013	4800	0.21	74.2	6.7	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.0	6.9	4.9	1.40	B

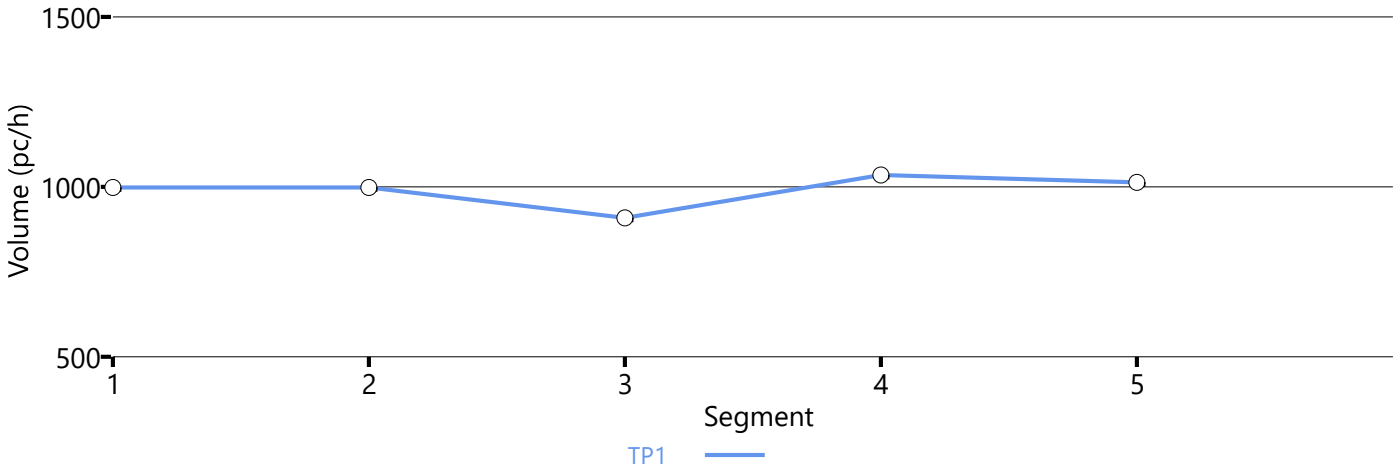
Facility Overall Results

Space Mean Speed, mi/h	71.0	Density, veh/mi/ln	4.9
Average Travel Time, min	1.40	Density, pc/mi/ln	6.9

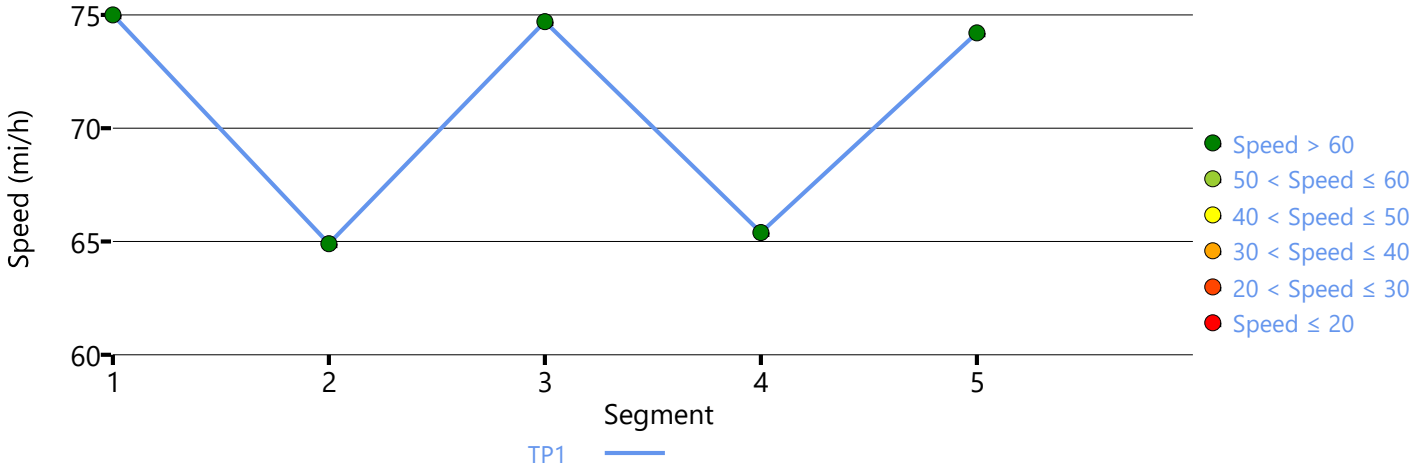
Messages

Comments

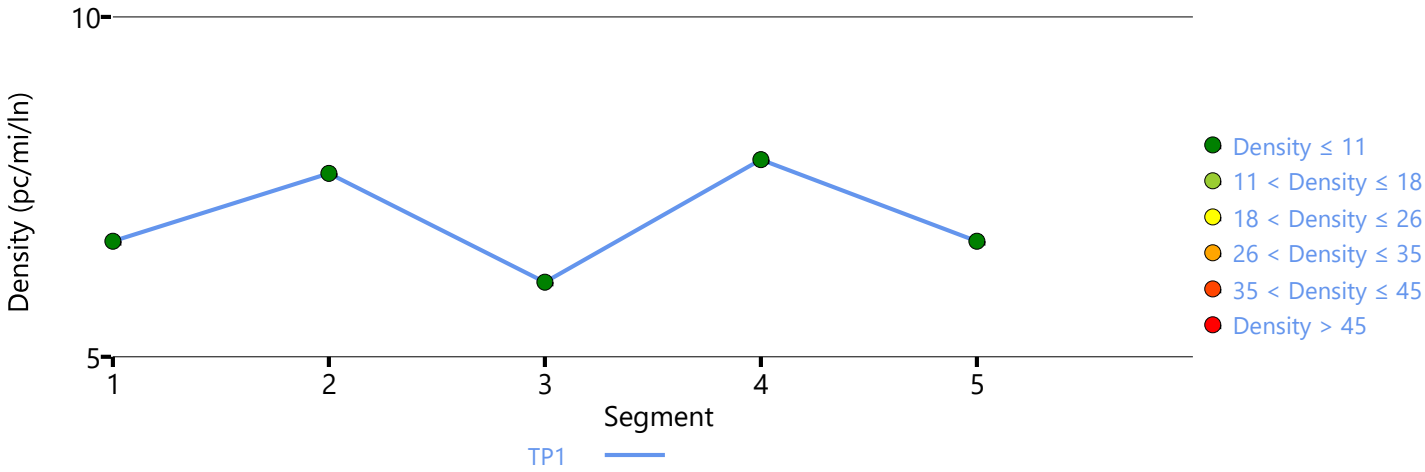
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	670	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	499
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	455
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	670	60
Peak Hour Factor (PHF)	0.94	0.77
Total Trucks, %	40.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.962
Flow Rate (vi),pc/h	998	81
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.21	0.04

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.305
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	998	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	7.7
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	8.7

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2790	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	610	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	454
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.19
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	460
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	610	70
Peak Hour Factor (PHF)	0.94	0.62
Total Trucks, %	40.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.893
Flow Rate (vi),pc/h	909	126
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.22	0.06

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.291
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	909	Ramp Junction Speed (S), mi/h	65.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	1035	Average Density (D), pc/mi/ln	7.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.7

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	680	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	506
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

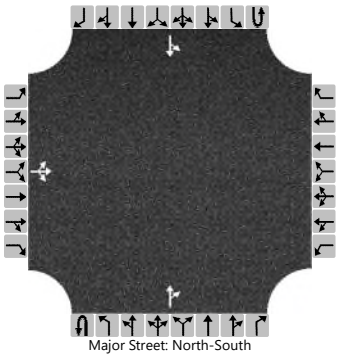
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.83
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LTR									TR		LT		
Volume (veh/h)		20	0	10							20	40		10	60	
Percent Heavy Vehicles (%)		14	14	14										5		
Proportion Time Blocked																
Percent Grade (%)			0													
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.24	6.64	6.34										4.15		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.63	4.13	3.43										2.25		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			36											12		
Capacity, c (veh/h)			841											1509		
v/c Ratio			0.04											0.01		
95% Queue Length, Q_{95} (veh)			0.1											0.0		
Control Delay (s/veh)			9.5											7.4		
Level of Service (LOS)			A											A		
Approach Delay (s/veh)		9.5												1.1		
Approach LOS		A														

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HCS7 Two-Way Stop-Control Report

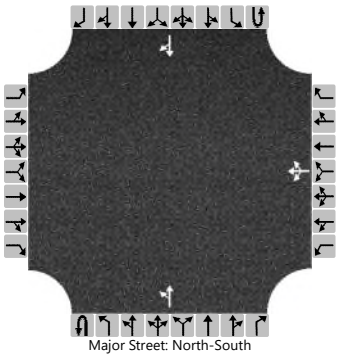
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.73
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						50	0	10		20	20				20	50
Percent Heavy Vehicles (%)						4	4	4		7						
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						7.14	6.54	6.24		4.17						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.54	4.04	3.34		2.26						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							82			27						
Capacity, c (veh/h)							840			1467						
v/c Ratio							0.10			0.02						
95% Queue Length, Q_{95} (veh)							0.3			0.1						
Control Delay (s/veh)							9.7			7.5						
Level of Service (LOS)							A			A						
Approach Delay (s/veh)						9.7				3.8						
Approach LOS						A										

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Appendix D

HCS Analysis - Build Alternative - 2027 P.M. Peak Hour

HCS7 Two-Way Stop-Control Report

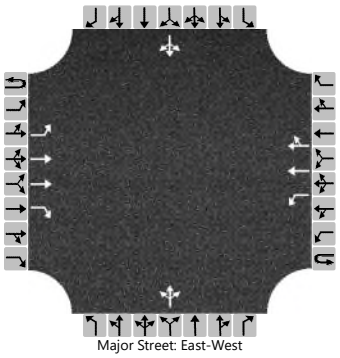
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at State Line Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	State Line Road
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	1	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	R		L	T	TR			LTR				LTR	
Volume (veh/h)	0	30	870	30	0	10	740	10		20	10	10		20	20	20
Percent Heavy Vehicles (%)	40	40			40	40				12	12	12		33	33	33
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No															
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.74	6.74	7.14		8.16	7.16	7.56
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.62	4.12	3.42		3.83	4.33	3.63

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		31				10					41				62	
Capacity, c (veh/h)		631				537					213				215	
v/c Ratio		0.05				0.02					0.19				0.29	
95% Queue Length, Q_{95} (veh)		0.2				0.1					0.7				1.1	
Control Delay (s/veh)		11.0				11.8					25.9				28.4	
Level of Service (LOS)		B				B					D				D	
Approach Delay (s/veh)	0.4				0.2				25.9				28.4			
Approach LOS									D				D			

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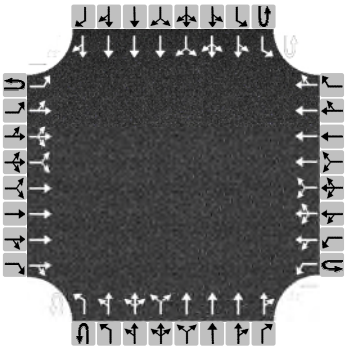
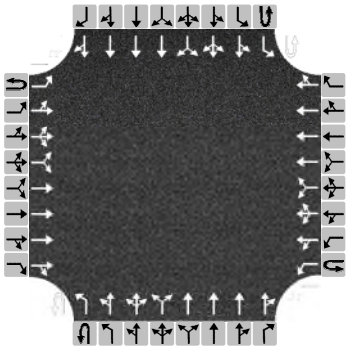
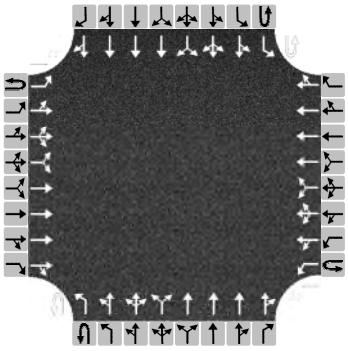
HCS7 Alternative Intersections Results Summary

General Information				Alternative Intersection Information	
Agency	Arcadis			Intersection Type	RCUT with TWSC
Analyst	QAi	Analysis Date	1/12/2023	Segment One Distance, ft	700
Jurisdiction	District 1	Duration, h	0.25	Segment Two Distance, ft	700
Intersection	US 30 at SR 49 Payne Road	PHF	0.87	Arterial Direction	East-West
Main Intersection File	8a. US 30 at SR 49 Payne Rd - 2027 PM - RCUTAlt.xtw				
West Crossover File	8c. US 30 at SR 49 Payne Rd - 2027 PM - West Crossover.xtw				
East Crossover File	8b. US 30 at SR 49 Payne Rd - 2027 PM - East Crossover.xtw				
Project Description	PAU-VAN US 30 RCUT Analysis				

Demand	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One Demand (*v*), veh/h			870		80		850									
Intersection Two Demand (*v*), veh/h	0	60	810	80	0	10	850	70				40				90
Intersection Three Demand (*v*), veh/h	20		810				910									

(1) West Crossover	(2) Main Intersection	(3) East Crossover
		

Queue-to-Storage Ratio	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One (R_Q)					0.07											
Intersection Two (R_Q)		0.10				0.03										
Intersection Three (R_Q)	0.01															

Alternative Intesection Results

O-D	O-D Movements	Flow Rate (veh/h)	Control Delay (s/veh)	EDTT (s/veh)	ETT (s/veh)	v/c>1?	R_Q>1?	LOS
EBL	EBL(2)	69	14.0	--	14.0	No	No	B
EBT	EBT(2)	908	0.0	--	0.0	--	--	A
EBR	EBR(2)	23	0.0	--	0.0	--	--	A
WBL	WBL(2)	11	12.6	--	12.6	No	No	B
WBT	WBT(2)	966	0.0	--	0.0	--	--	A
WBR	WBR(2)	69	0.0	--	0.0	--	--	A
NBL	NBR(2) + EBU(3) + WBT(2)	11	27.6	14.7	42.3	No	No	D
NBT	NBR(2) + EBU(3) + WBR(2)	11	27.6	14.7	42.3	No	No	D
NBR	NBR(2)	23	13.2	--	13.2	No	No	B
SBL	SBR(2) + WBU(1) + EBT(2)	23	30.4	14.7	45.1	No	No	D
SBT	SBR(2) + WBU(1) + EBR(2)	69	30.4	14.7	45.1	No	No	D
SBR	SBR(2)	11	14.7	--	14.7	No	No	B

Overall Results	EB		WB		NB		SB	
Approach ETT, s/veh | LOS	1.0	A	0.1	A	27.4	C	41.9	D
Intersection ETT, s/veh | LOS	3.0				A			

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	2.16		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		5420	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1341	4800	0.28	75.0	8.9	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.885	1341	120	4800	2100	0.28	0.06	64.8	64.8	10.3	10.4	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1192	4800	0.25	75.0	7.9	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.862	1229	37	4800	2100	0.26	0.02	65.8	65.8	9.3	11.4	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1237	4800	0.26	74.2	8.2	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	72.0	8.6	6.1	1.80	B

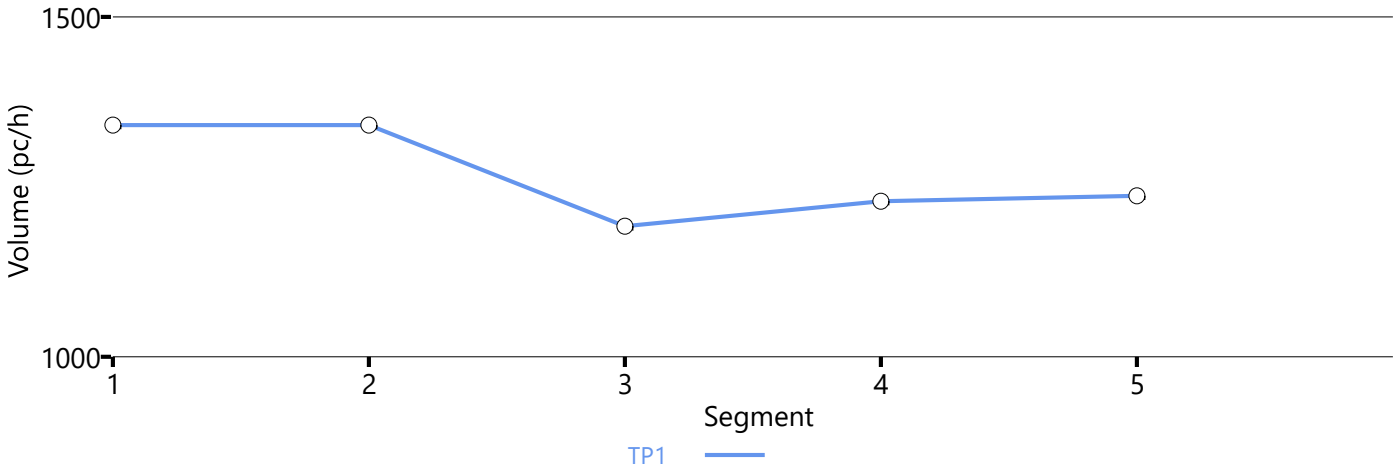
Facility Overall Results

Space Mean Speed, mi/h	72.0	Density, veh/mi/ln	6.1
Average Travel Time, min	1.80	Density, pc/mi/ln	8.6

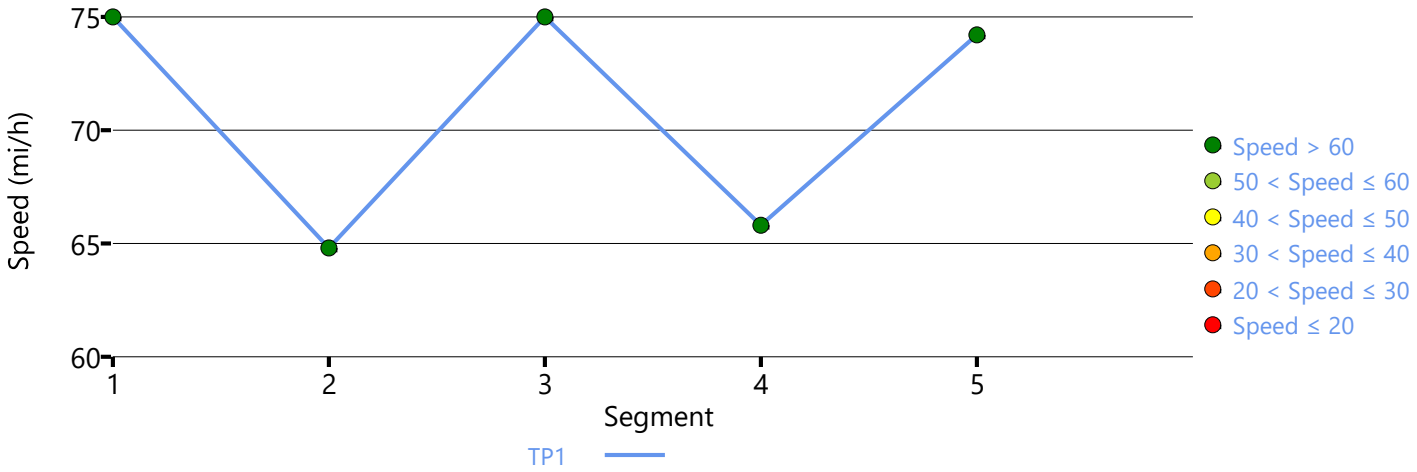
Messages

Comments

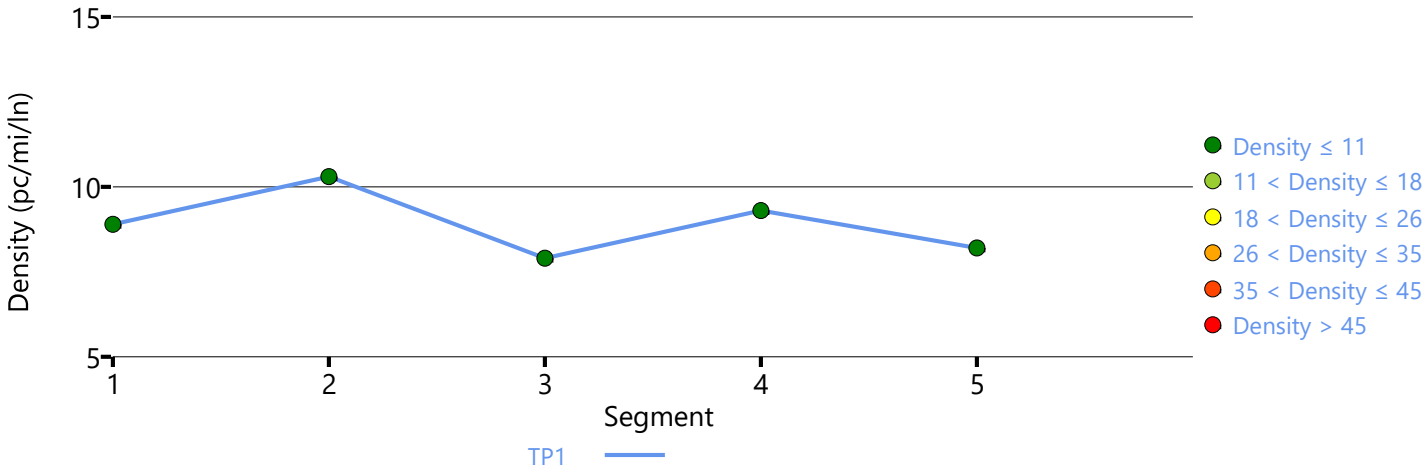
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	900	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	670
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.28
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	900	100
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	13.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.885
Flow Rate (vi),pc/h	1341	120
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.28	0.06

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.309
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1341	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	10.3
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.4

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	5420	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	800	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	596
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	800	30
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	16.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.862
Flow Rate (vi),pc/h	1192	37
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.26	0.02

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.280
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1192	Ramp Junction Speed (S), mi/h	65.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	1229	Average Density (D), pc/mi/ln	9.3
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.4

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	830	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	618
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	2.16		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		5420	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1207	4800	0.25	75.0	8.1	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.813	1207	131	4800	2100	0.25	0.06	64.8	64.8	9.3	9.2	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1058	4800	0.22	75.0	7.1	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.847	1121	63	4800	1900	0.23	0.03	65.7	65.7	8.5	9.0	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1132	4800	0.24	74.2	7.5	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.9	7.8	5.6	1.80	B

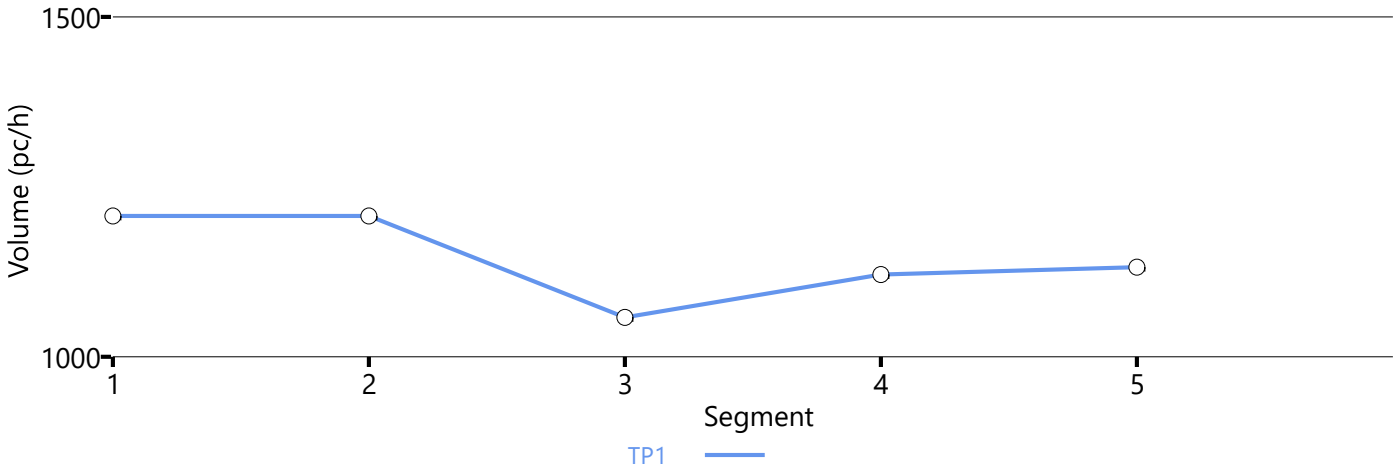
Facility Overall Results

Space Mean Speed, mi/h	71.9	Density, veh/mi/ln	5.6
Average Travel Time, min	1.80	Density, pc/mi/ln	7.8

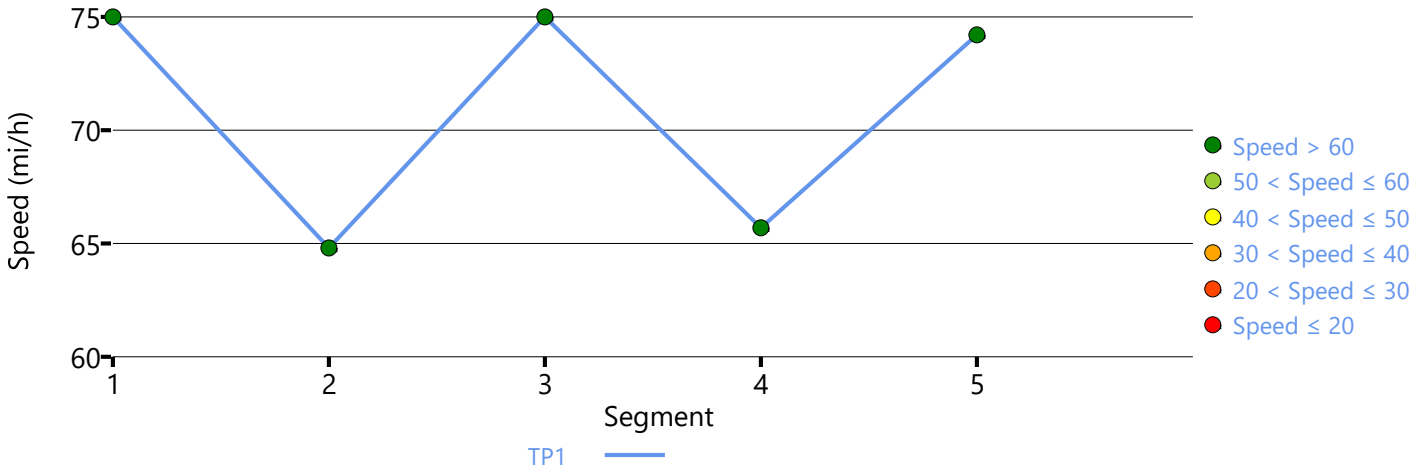
Messages

Comments

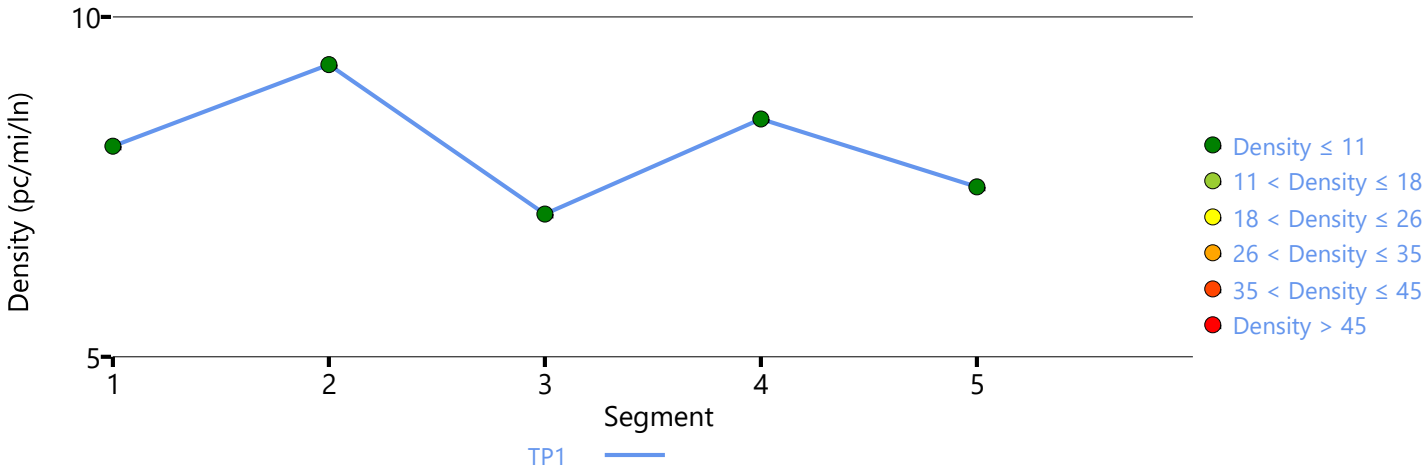
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	810	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	604
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	810	100
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	23.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.813
Flow Rate (vi),pc/h	1207	131
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.25	0.06

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.310
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1207	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.3
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.2

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	5420	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	710	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	529
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.22
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	30.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	710	50
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.847
Flow Rate (vi),pc/h	1058	63
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.23	0.03

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.283
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1058	Ramp Junction Speed (S), mi/h	65.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	1121	Average Density (D), pc/mi/ln	8.5
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.0

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	760	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	566
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.24
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

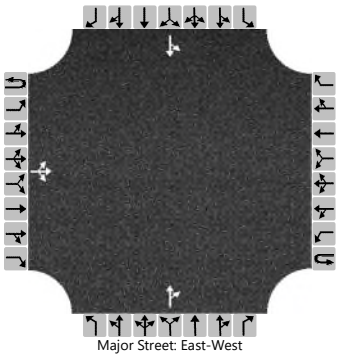
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy-Heller Rd
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	Convoy-Heller Road
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	0	0		0	1	0		0	1	0
Configuration			LTR									TR		LT		
Volume (veh/h)		50	0	50							30	20		10	130	
Percent Heavy Vehicles (%)		10									25	25		16	16	
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1									6.5	6.2		7.1	6.5	
Critical Headway (sec)		4.20									6.75	6.45		7.26	6.66	
Base Follow-Up Headway (sec)		2.2									4.0	3.3		3.5	4.0	
Follow-Up Headway (sec)		2.29									4.23	3.53		3.64	4.14	

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		53										53		149		
Capacity, c (veh/h)		1572														
v/c Ratio		0.03														
95% Queue Length, Q_{95} (veh)		0.1														
Control Delay (s/veh)		7.4														
Level of Service (LOS)		A														
Approach Delay (s/veh)	3.8															
Approach LOS																

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HCS7 Two-Way Stop-Control Report

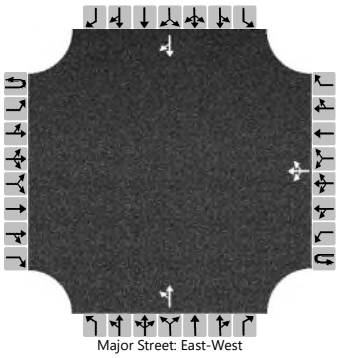
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy-Heller Rd
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	Convoy-Heller Road
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	0	0	0	0	1	0		0	1	0		0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						40	0	60		30	90				90	20
Percent Heavy Vehicles (%)						8				7	7				18	18
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1	6.5				6.5	6.2
Critical Headway (sec)						4.18				7.17	6.57				6.68	6.38
Base Follow-Up Headway (sec)						2.2				3.5	4.0				4.0	3.3
Follow-Up Headway (sec)						2.27				3.56	4.06				4.16	3.46

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						43				128						117
Capacity, c (veh/h)						1585										
v/c Ratio						0.03										
95% Queue Length, Q_{95} (veh)						0.1										
Control Delay (s/veh)						7.3										
Level of Service (LOS)						A										
Approach Delay (s/veh)					3.1											
Approach LOS																

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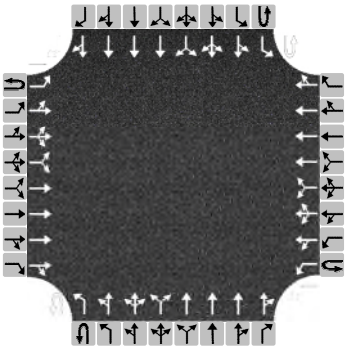
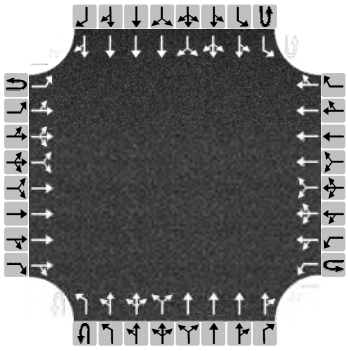
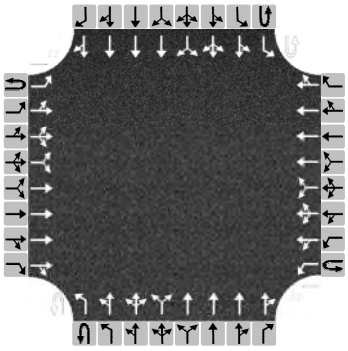
HCS7 Alternative Intersections Results Summary

General Information				Alternative Intersection Information	
Agency	Arcadis			Intersection Type	RCUT with TWSC
Analyst	QAi	Analysis Date	1/12/2023	Segment One Distance, ft	700
Jurisdiction	District 1	Duration, h	0.25	Segment Two Distance, ft	700
Intersection	US 30 at Convoy-Heller Rd	PHF	0.92	Arterial Direction	East-West
Main Intersection File	10a. US 30 at Convoy-Heller Rd - 2027 PM - RCUTAlt.xtw				
West Crossover File	10c. US 30 at Convoy-Heller Rd - 2027 PM - West Crossover.xtw				
East Crossover File	10b. US 30 at Convoy-Heller Rd - 2027 PM - East Crossover.xtw				
Project Description	PAU-VAN US 30 RCUT Analysis				

Demand	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One Demand (*v*), veh/h			830		20		890									
Intersection Two Demand (*v*), veh/h	0	10	780	60	0	10	900	20				40				30
Intersection Three Demand (*v*), veh/h	30		780				900									

(1) West Crossover	(2) Main Intersection	(3) East Crossover
		

Queue-to-Storage Ratio	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One (R_Q)					0.01											
Intersection Two (R_Q)		0.01				0.01										
Intersection Three (R_Q)	0.02															

Alternative Intesection Results

O-D	O-D Movements	Flow Rate (veh/h)	Control Delay (s/veh)	EDTT (s/veh)	ETT (s/veh)	v/c>1?	R_Q>1?	LOS
EBL	EBL(2)	11	12.4	--	12.4	No	No	B
EBT	EBT(2)	837	0.0	--	0.0	--	--	A
EBR	EBR(2)	54	0.0	--	0.0	--	--	A
WBL	WBL(2)	11	11.7	--	11.7	No	No	B
WBT	WBT(2)	957	0.0	--	0.0	--	--	A
WBR	WBR(2)	11	0.0	--	0.0	--	--	A
NBL	NBR(2) + EBU(3) + WBT(2)	22	26.1	14.7	40.8	No	No	D
NBT	NBR(2) + EBU(3) + WBR(2)	11	26.1	14.7	40.8	No	No	D
NBR	NBR(2)	11	12.2	--	12.2	No	No	B
SBL	SBR(2) + WBU(1) + EBT(2)	11	25.3	14.7	40.0	No	No	D
SBT	SBR(2) + WBU(1) + EBR(2)	11	25.3	14.7	40.0	No	No	D
SBR	SBR(2)	11	12.4	--	12.4	No	No	B

Overall Results	EB		WB		NB		SB	
Approach ETT, s/veh | LOS	0.2	A	0.1	A	33.7	C	30.8	C
Intersection ETT, s/veh | LOS	1.4				A			

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.43		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		560	2
3	Basic	Basic		2475	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1237	4800	0.26	75.0	8.2	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.89	0.714	0.885	1237	203	4800	2100	0.26	0.10	64.6	64.6	9.6	9.9	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	998	4800	0.21	74.1	6.7	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.862	1183	185	4800	2100	0.25	0.09	66.8	66.8	8.9	8.9	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1222	4800	0.25	74.3	8.1	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.9	7.9	5.7	1.20	B

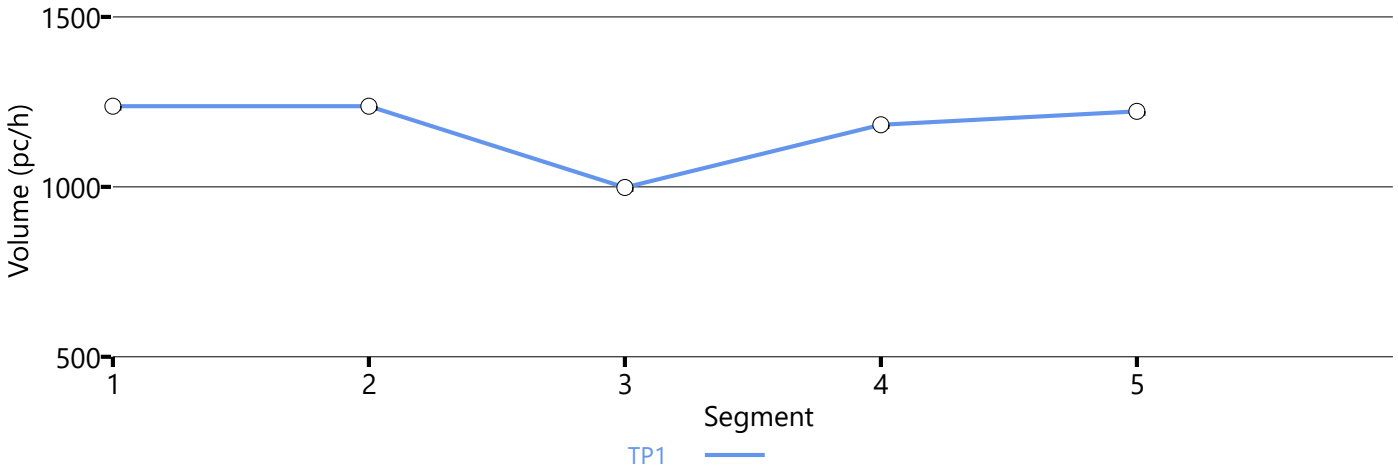
Facility Overall Results

Space Mean Speed, mi/h	71.9	Density, veh/mi/ln	5.7
Average Travel Time, min	1.20	Density, pc/mi/ln	7.9

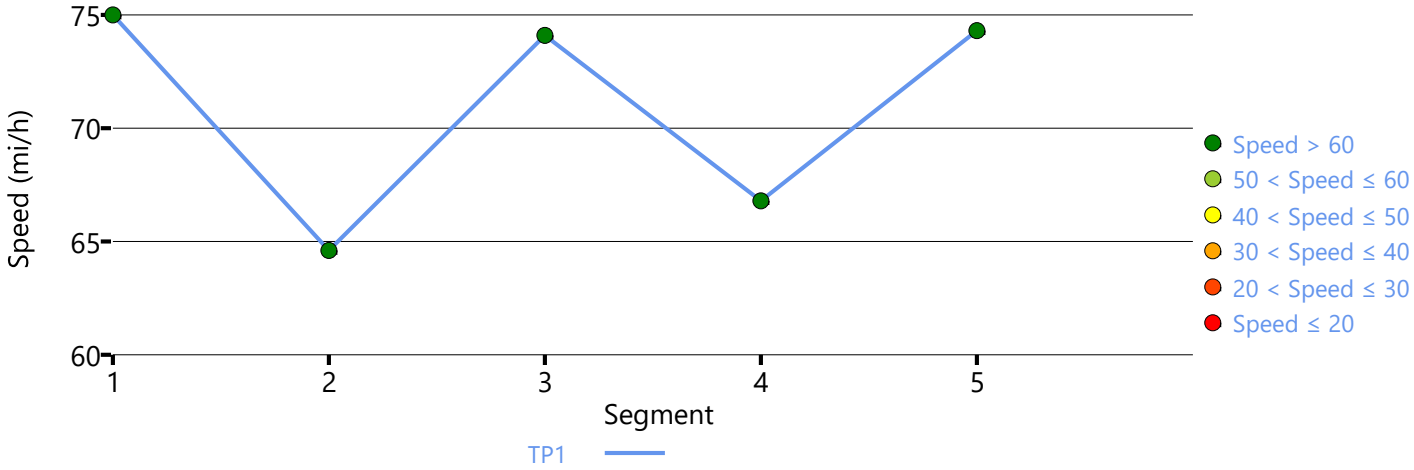
Messages

Comments

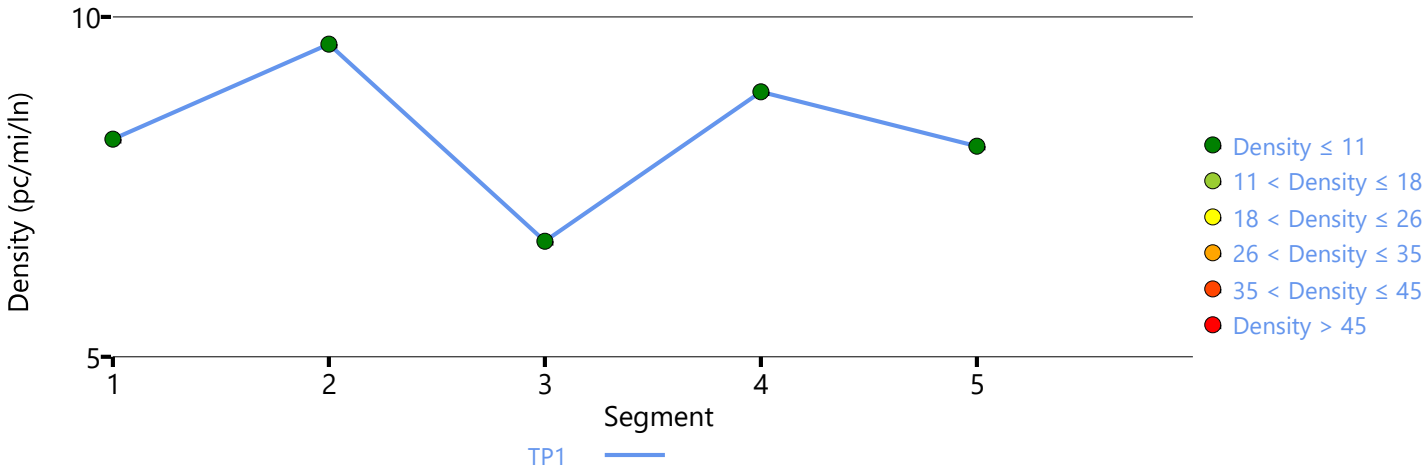
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	830	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	618
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	560	560
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	830	160
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	40.00	13.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.885
Flow Rate (vi),pc/h	1237	203
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.26	0.10

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.316
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1237	Ramp Junction Speed (S), mi/h	64.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.6
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.9

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2475	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	670	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	499
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	925
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	670	150
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	16.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.862
Flow Rate (vi),pc/h	998	185
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.25	0.09

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.250
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	998	Ramp Junction Speed (S), mi/h	66.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	1183	Average Density (D), pc/mi/ln	8.9
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	8.9

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	820	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	611
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.60		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2465	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1326	4800	0.28	75.0	8.8	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.75	0.714	0.813	1326	344	4800	2100	0.28	0.16	64.1	64.1	10.3	12.4	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1013	4800	0.21	74.6	6.7	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.78	0.714	0.847	1210	197	4800	1900	0.25	0.10	65.6	65.6	9.2	9.6	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1207	4800	0.25	74.2	8.1	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.6	8.4	6.0	1.40	B

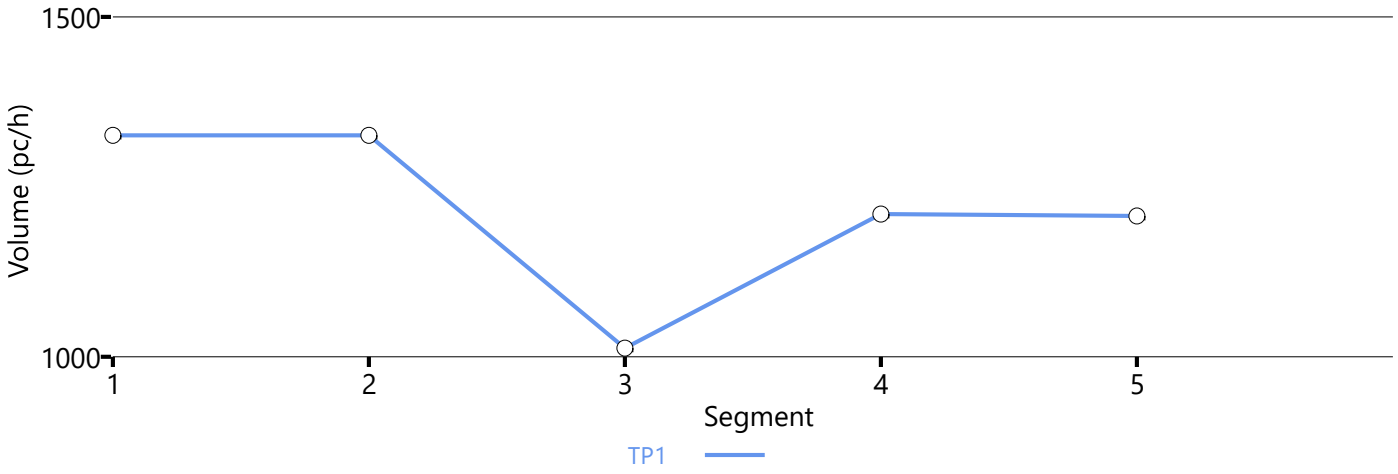
Facility Overall Results

Space Mean Speed, mi/h	70.6	Density, veh/mi/ln	6.0
Average Travel Time, min	1.40	Density, pc/mi/ln	8.4

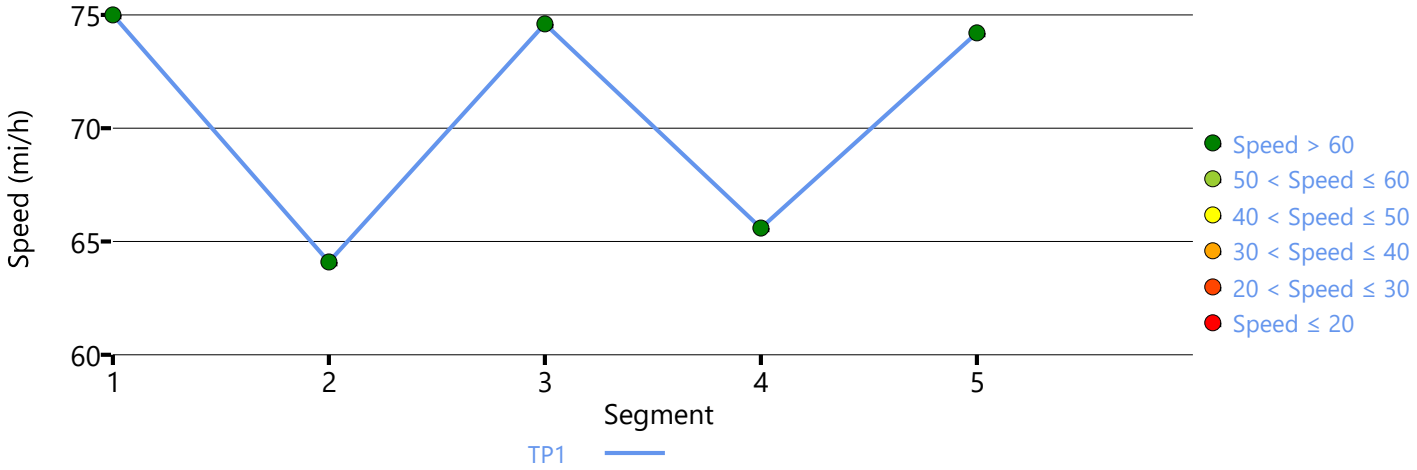
Messages

Comments

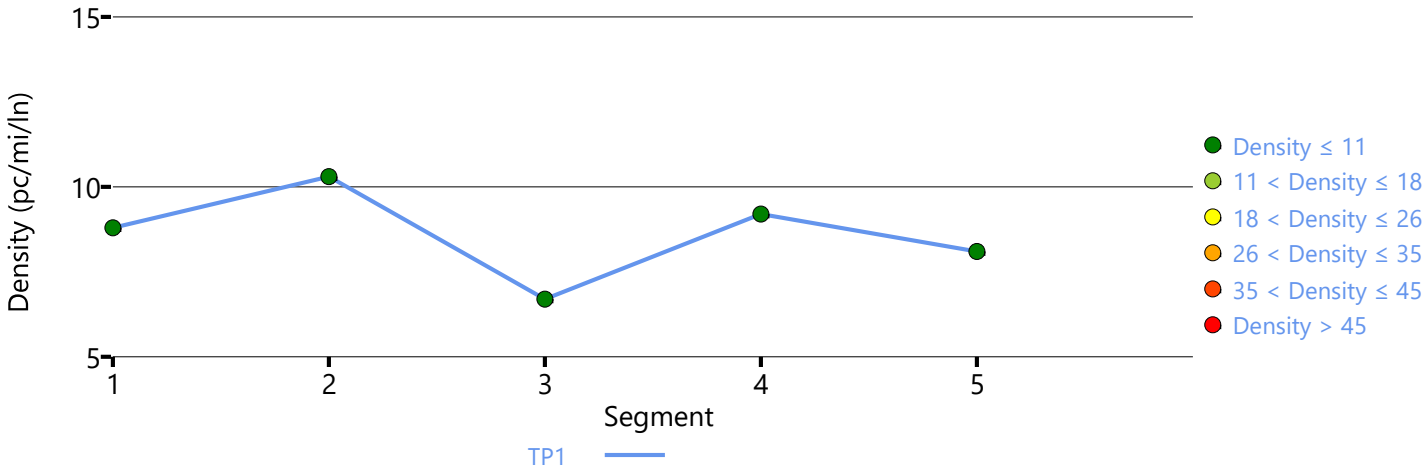
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	890	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	663
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.28
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	360
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	890	210
Peak Hour Factor (PHF)	0.94	0.75
Total Trucks, %	40.00	23.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.813
Flow Rate (vi),pc/h	1326	344
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.28	0.16

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.329
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1326	Ramp Junction Speed (S), mi/h	64.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	10.3
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.4

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2465	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	680	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	506
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	30.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	680	130
Peak Hour Factor (PHF)	0.94	0.78
Total Trucks, %	40.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.847
Flow Rate (vi),pc/h	1013	197
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.25	0.10

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.284
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1013	Ramp Junction Speed (S), mi/h	65.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	1210	Average Density (D), pc/mi/ln	9.2
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.6

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	810	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	604
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

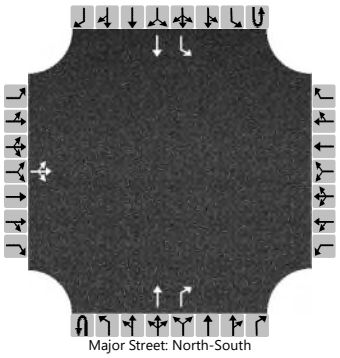
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 224 at US 30 EB Ramps
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	US 224
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	1	0	1	1	0
Configuration			LTR								T	R		L	T	
Volume (veh/h)		10	0	160							130	110		10	100	
Percent Heavy Vehicles (%)		13	13	13										22		
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized										No						
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.23	6.63	6.33										4.32		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.62	4.12	3.42										2.40		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			181											11		
Capacity, c (veh/h)			891											1202		
v/c Ratio			0.20											0.01		
95% Queue Length, Q_{95} (veh)			0.8											0.0		
Control Delay (s/veh)			10.1											8.0		
Level of Service (LOS)			B											A		
Approach Delay (s/veh)		10.1												0.7		
Approach LOS		B														

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HCS7 Two-Way Stop-Control Report

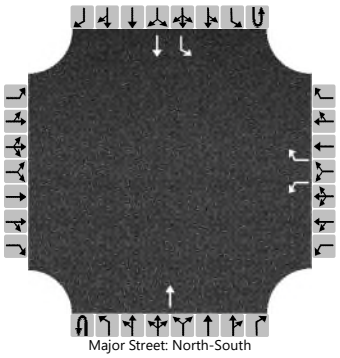
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 224 at US 30 WB Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	US 224
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R			T			L	T	
Volume (veh/h)						90		20			120			10	20	
Percent Heavy Vehicles (%)						22		22						4		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.62		6.42						4.14		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.70		3.50						2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						96		21						11		
Capacity, c (veh/h)						770		872						1446		
v/c Ratio						0.12		0.02						0.01		
95% Queue Length, Q_{95} (veh)						0.4		0.1						0.0		
Control Delay (s/veh)						10.3		9.2						7.5		
Level of Service (LOS)						B		A						A		
Approach Delay (s/veh)						10.1								2.5		
Approach LOS						B										

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HCS7 Two-Way Stop-Control Report

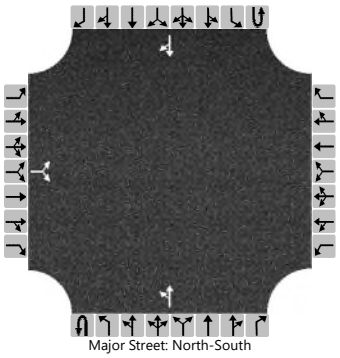
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 224 at Liberty Union
Jurisdiction	District 1
East/West Street	Liberty Union Road
North/South Street	US 224
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		10		10						10	130				20	10
Percent Heavy Vehicles (%)		4		4						22						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.44		6.24						4.32						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.54		3.34						2.40						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			21							11						
Capacity, c (veh/h)			901							1460						
v/c Ratio			0.02							0.01						
95% Queue Length, Q_{95} (veh)			0.1							0.0						
Control Delay (s/veh)			9.1							7.5						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)		9.1								0.6						
Approach LOS		A														

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HCS7 Roundabouts Report

General Information

Analyst	QAi
Agency or Co.	Arcadis
Date Performed	1/13/2023
Analysis Year	2027
Time Analyzed	Build PM
Project Description	

Site Information

Intersection	Lincoln Hwy at US 224
E/W Street Name	Lincoln Hwy
N/S Street Name	US 224
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.88
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	60	100	30	0	60	120	30	0	80	200	60	0	70	210	90
Percent Heavy Vehicles, %	3	3	3	3	2	2	2	2	7	7	7	7	8	8	8	8
Flow Rate (v_{PCE}), pc/h	0	70	117	35	0	70	139	35	0	97	243	73	0	86	258	110
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		222			244			413			454	
Entry Volume, veh/h		216			239			386			420	
Circulating Flow (v_c), pc/h	414			410			273			306		
Exiting Flow (v_{ex}), pc/h	276			346			348			363		
Capacity (c_{pce}), pc/h		905			908			1045			1010	
Capacity (c), veh/h		878			891			976			935	
v/c Ratio (x)		0.25			0.27			0.40			0.45	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		6.7			6.9			8.1			9.2	
Lane LOS		A			A			A			A	
95% Queue, veh		1.0			1.1			1.9			2.4	
Approach Delay, s/veh	6.7			6.9			8.1			9.2		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	8.0						A					

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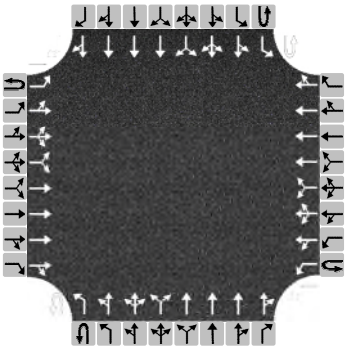
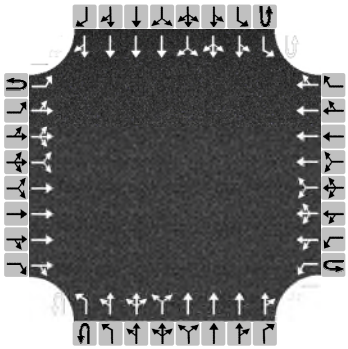
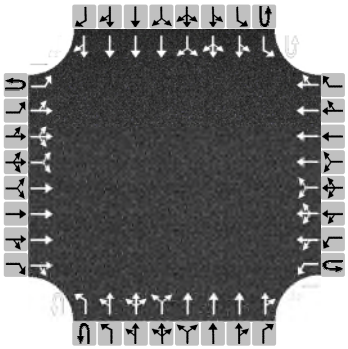
HCS7 Alternative Intersections Results Summary

General Information				Alternative Intersection Information	
Agency	Arcadis			Intersection Type	RCUT with TWSC
Analyst	QAi	Analysis Date	1/12/2023	Segment One Distance, ft	700
Jurisdiction	District 1	Duration, h	0.25	Segment Two Distance, ft	700
Intersection	US 30 at John Brown Road	PHF	0.96	Arterial Direction	East-West
Main Intersection File	16a. US 30 at John Brown Rd - 2027 PM - RCUTAlt.xtw				
West Crossover File	16c. US 30 at John Brown Rd - 2027 PM - West Crossover.xtw				
East Crossover File	16b. US 30 at John Brown Rd - 2027 PM - East Crossover.xtw				
Project Description	PAU-VAN US 30 RCUT Analysis				

Demand	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One Demand (*v*), veh/h			780		70		910									
Intersection Two Demand (*v*), veh/h	0	10	790	50	0	70	910	20				40				80
Intersection Three Demand (*v*), veh/h	20		780				980									

(1) West Crossover	(2) Main Intersection	(3) East Crossover
		

Queue-to-Storage Ratio	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One (R_Q)					0.04											
Intersection Two (R_Q)		0.01				0.10										
Intersection Three (R_Q)	0.01															

Alternative Intesection Results

O-D	O-D Movements	Flow Rate (veh/h)	Control Delay (s/veh)	EDTT (s/veh)	ETT (s/veh)	v/c>1?	R_Q>1?	LOS
EBL	EBL(2)	10	12.1	--	12.1	No	No	B
EBT	EBT(2)	792	0.0	--	0.0	--	--	A
EBR	EBR(2)	10	0.0	--	0.0	--	--	A
WBL	WBL(2)	73	12.3	--	12.3	No	No	B
WBT	WBT(2)	938	0.0	--	0.0	--	--	A
WBR	WBR(2)	10	0.0	--	0.0	--	--	A
NBL	NBR(2) + EBU(3) + WBT(2)	10	26.2	14.7	40.9	No	No	D
NBT	NBR(2) + EBU(3) + WBR(2)	10	26.2	14.7	40.9	No	No	D
NBR	NBR(2)	21	12.1	--	12.1	No	No	B
SBL	SBR(2) + WBU(1) + EBT(2)	31	26.2	14.7	40.9	No	No	D
SBT	SBR(2) + WBU(1) + EBR(2)	42	26.2	14.7	40.9	No	No	D
SBR	SBR(2)	10	13.2	--	13.2	No	No	B

Overall Results	EB		WB		NB		SB	
Approach ETT, s/veh | LOS	0.1	A	0.9	A	26.1	C	37.6	D
Intersection ETT, s/veh | LOS	2.7				A			

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	8/10/2022
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.50		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		1940	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1222	4800	0.25	75.0	8.1	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.75	0.714	0.758	1222	475	4800	1900	0.25	0.25	55.2	55.2	11.1	9.5	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	819	4800	0.17	73.8	5.5	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.70	0.714	0.758	1290	471	4800	2100	0.27	0.22	65.4	65.4	9.9	12.3	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1192	4800	0.25	74.2	7.9	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.6	8.3	5.9	1.30	B

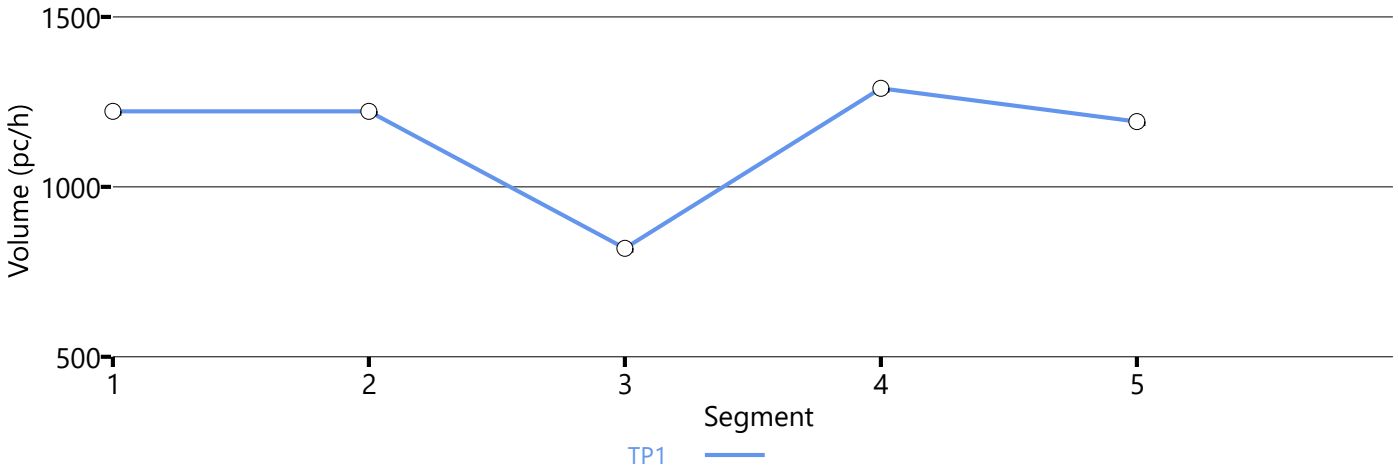
Facility Overall Results

Space Mean Speed, mi/h	67.6	Density, veh/mi/ln	5.9
Average Travel Time, min	1.30	Density, pc/mi/ln	8.3

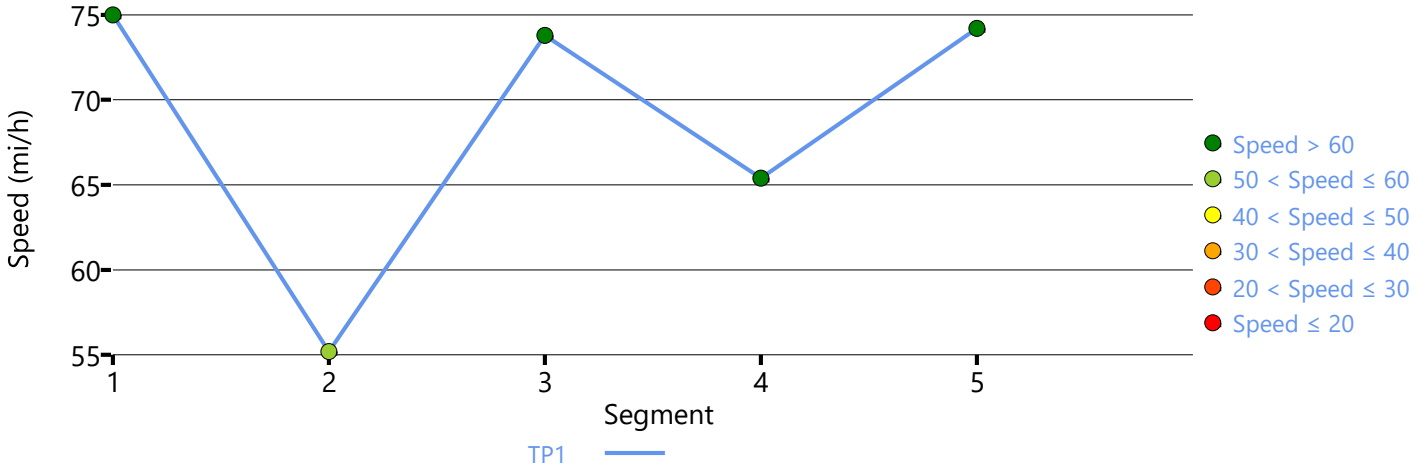
Messages

Comments

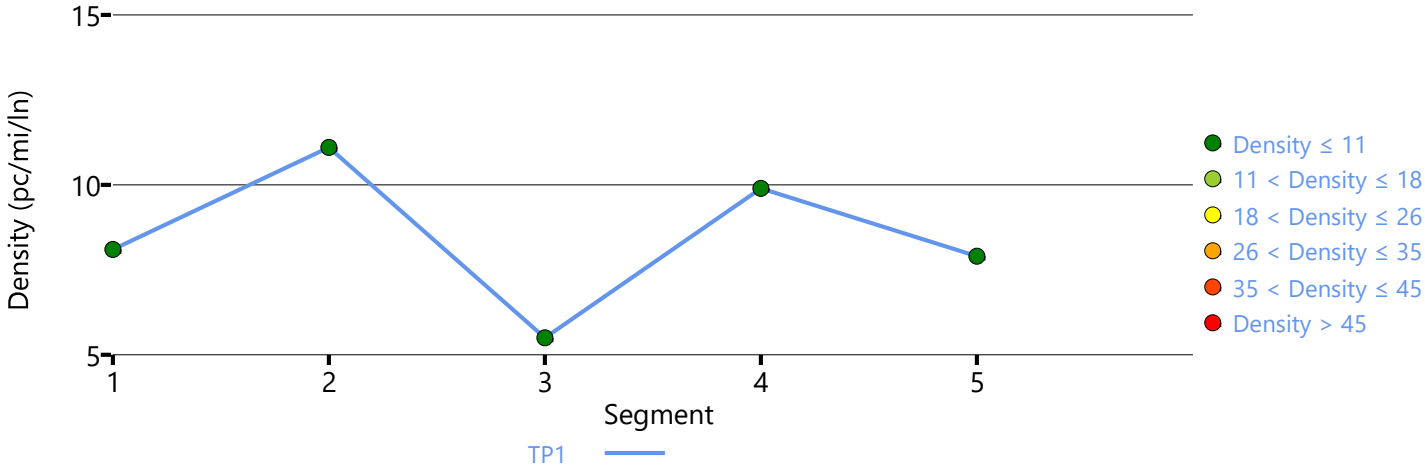
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	8/10/2022
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	820	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	611
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Deceleration Length (LA),ft	1500	590
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	820	270
Peak Hour Factor (PHF)	0.94	0.75
Total Trucks, %	40.00	32.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.758
Flow Rate (vi),pc/h	1222	475
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.25	0.25

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.601
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1222	Ramp Junction Speed (S), mi/h	55.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	11.1
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.5

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1940	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	550	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	410
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.17
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	5.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	550	250
Peak Hour Factor (PHF)	0.94	0.70
Total Trucks, %	40.00	32.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.758
Flow Rate (vi),pc/h	819	471
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.27	0.22

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.290
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	819	Ramp Junction Speed (S), mi/h	65.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	1290	Average Density (D), pc/mi/ln	9.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.3

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	800	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	596
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.53		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2075	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1088	4800	0.23	75.0	7.3	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.71	0.714	0.763	1088	295	4800	2100	0.23	0.14	64.3	64.3	8.5	9.1	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	849	4800	0.18	74.4	5.7	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.763	1295	446	4800	1900	0.27	0.23	64.9	64.9	10.0	11.9	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1326	4800	0.28	74.1	8.8	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.2	7.9	5.6	1.30	B

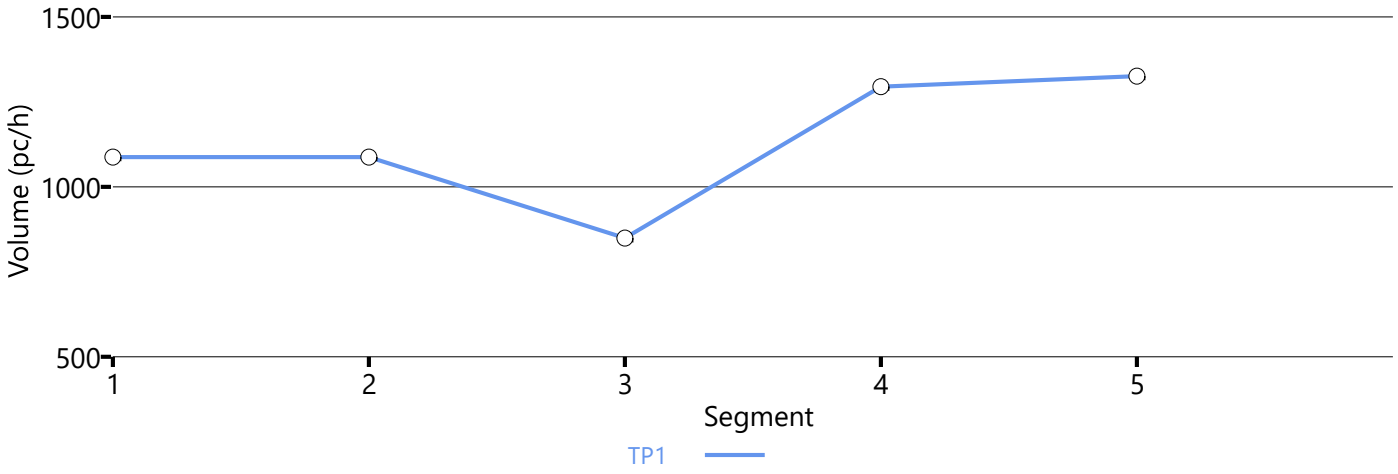
Facility Overall Results

Space Mean Speed, mi/h	70.2	Density, veh/mi/ln	5.6
Average Travel Time, min	1.30	Density, pc/mi/ln	7.9

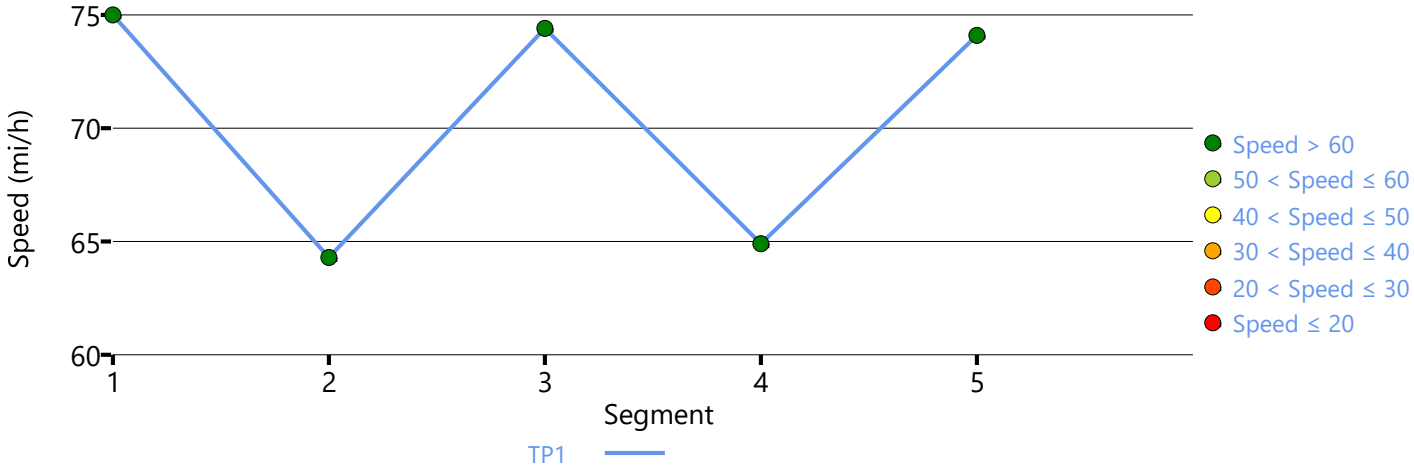
Messages

Comments

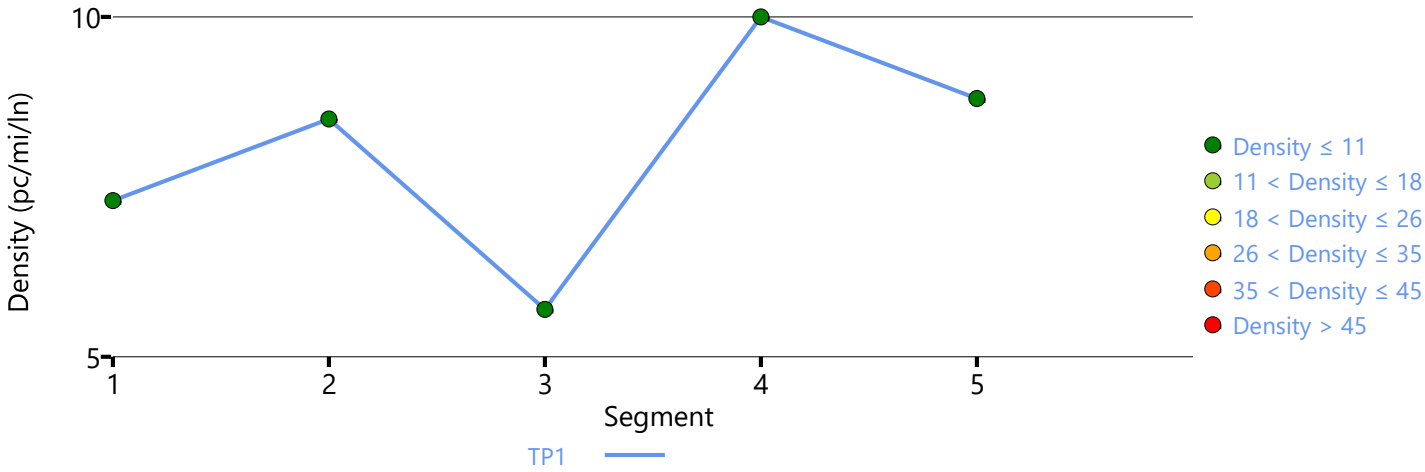
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	730	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	544
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	730	160
Peak Hour Factor (PHF)	0.94	0.71
Total Trucks, %	40.00	31.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.763
Flow Rate (vi),pc/h	1088	295
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.23	0.14

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.325
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1088	Ramp Junction Speed (S), mi/h	64.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.5
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.1

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2075	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	570	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	424
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.18
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	5.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Acceleration Length (LA),ft	1500	570
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	570	320
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	31.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.763
Flow Rate (vi),pc/h	849	446
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.27	0.23

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.307
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	64.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	849	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	1295	Average Density (D), pc/mi/ln	10.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.9

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	890	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	663
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.28
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

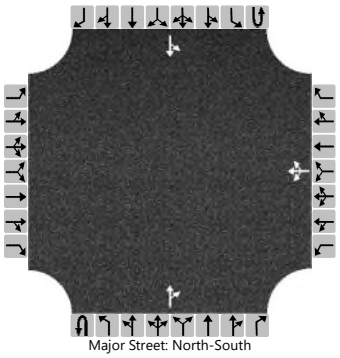
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	7/26/2022
Analysis Year	2027
Time Analyzed	Build PM
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	US 127 at Brooks Ave
Jurisdiction	
East/West Street	Brooks Ave
North/South Street	US 127
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR					TR		LT		
Volume (veh/h)						10	0	20			560	10		10	500	
Percent Heavy Vehicles (%)						13	13	13						21		
Proportion Time Blocked																
Percent Grade (%)							0									
Right Turn Channelized																
Median Type | Storage							Undivided									

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2						4.1		
Critical Headway (sec)						7.23	6.63	6.33						4.31		
Base Follow-Up Headway (sec)						3.5	4.0	3.3						2.2		
Follow-Up Headway (sec)						3.62	4.12	3.42						2.39		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							33							11		
Capacity, c (veh/h)							283							875		
v/c Ratio							0.12							0.01		
95% Queue Length, Q_{95} (veh)							0.4							0.0		
Control Delay (s/veh)							19.4							9.2		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)							19.4							0.3		
Approach LOS							C									

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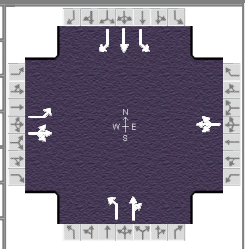
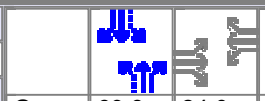
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	PM Peak	PHF	0.97
Urban Street	US 127	Analysis Year	2027	Analysis Period	1> 7:00
Intersection	Bonnewitz Ave	File Name	18b-1. US 127 Street - Build 2027 PM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	310	10	90	10	10	30	50	520	10	20	410	320

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



							1	2	3	4
Green	69.8	24.0	8.2	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		10.0		12.0		6.0		5.0
Phase Duration, s		30.0		14.2		75.8		75.8
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.2		3.4		0.0		0.0
Queue Clearance Time (g_s), s		23.2		5.5				
Green Extension Time (g_e), s		0.8		0.1		0.0		0.0
Phase Call Probability		1.00		0.82				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	320	103			52		64	677		21	423	330
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1597			1699		827	1598		714	1752	1485
Queue Service Time (g_s), s	21.2	6.6			3.5		4.2	35.9		2.6	16.0	14.3
Cycle Queue Clearance Time (g_c), s	21.2	6.6			3.5		20.8	35.9		38.5	16.0	14.3
Green Ratio (*g/C*)	0.20	0.20			0.07		0.58	0.58		0.58	0.58	0.58
Capacity (*c*), veh/h	354	320			116		431	929		262	1019	863
Volume-to-Capacity Ratio (*X*)	0.904	0.323			0.443		0.148	0.728		0.079	0.415	0.382
Back of Queue (*Q*), ft/ln (95 th percentile)	373.8	120.4			69.3		46.3	535.7		23.1	276	223.5
Back of Queue (*Q*), veh/ln (95 th percentile)	14.6	4.7			2.8		1.6	18.5		0.9	10.2	8.3
Queue Storage Ratio (*RQ*) (95 th percentile)	3.25	0.00			0.00		0.77	0.00		0.29	0.00	2.23
Uniform Delay (d_1), s/veh	46.9	41.0			53.7		15.2	17.0		31.8	13.8	13.5
Incremental Delay (d_2), s/veh	3.6	0.2			1.0		0.7	4.8		0.6	1.2	1.3
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	50.4	41.3			54.7		15.9	21.9		32.4	15.1	14.8
Level of Service (LOS)	D	D			D		B	C		C	B	B
Approach Delay, s/veh / LOS	48.2	D		54.7	D		21.4	C		15.4	B	
Intersection Delay, s/veh / LOS	25.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.96	B	2.16	B	1.67	B	1.89	B
Bicycle LOS Score / LOS	1.19	A	0.57	A	1.47	A	1.76	B

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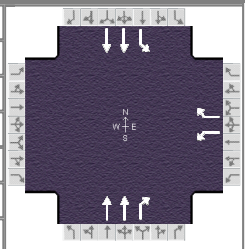
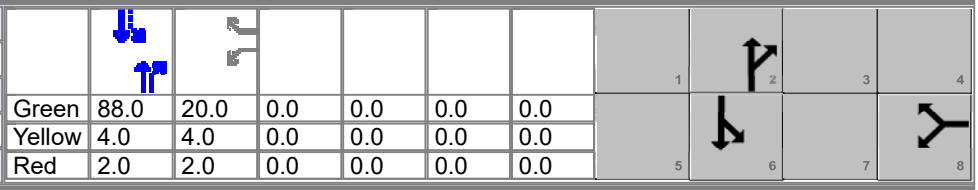
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	PM Peak	PHF	0.94
Urban Street	US 127	Analysis Year	2027	Analysis Period	1> 7:00
Intersection	US 127 at US 30 EB Ra…	File Name	18b-1. US 127 Street - Build 2027 PM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				160		110		750	110	140	590	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	88.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	2.0	2.0	0.0	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				9.0		7.0		6.0
Phase Duration, s				26.0		94.0		94.0
Change Period, (*Y+R c*), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.1		0.0		0.0
Queue Clearance Time (*g s*), s				18.3				
Green Extension Time (*g e*), s				0.5		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				170		117		623	91	101	425	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1217		1083		1639	1459	769	1710	
Queue Service Time (*g s*), s				16.3		12.1		8.1	2.0	4.9	4.6	
Cycle Queue Clearance Time (*g c*), s				16.3		12.1		8.1	2.0	13.4	4.6	
Green Ratio (*g/C*)				0.17		0.17		0.73	0.73	0.73	0.73	
Capacity (*c*), veh/h				203		180		2405	1070	572	2508	
Volume-to-Capacity Ratio (*X*)				0.839		0.649		0.259	0.085	0.176	0.169	
Back of Queue (*Q*), ft/ln (95 th percentile)				289		195.5		116	26.2	37.3	64.8	
Back of Queue (*Q*), veh/ln (95 th percentile)				8.7		5.9		4.2	1.0	1.4	2.5	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		1.30		0.00	0.26	0.25	0.00	
Uniform Delay (*d 1*), s/veh				48.4		46.7		5.8	4.3	6.2	5.0	
Incremental Delay (*d 2*), s/veh				3.5		1.5		0.3	0.2	0.6	0.1	
Initial Queue Delay (*d 3*), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				52.0		48.2		6.1	4.4	6.8	5.1	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			50.4		D	5.9		A	5.4		A
Intersection Delay, s/veh / LOS	14.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.33	B	1.86	B	0.66	A
Bicycle LOS Score / LOS				F	1.24	A	1.13	A

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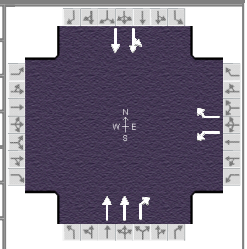
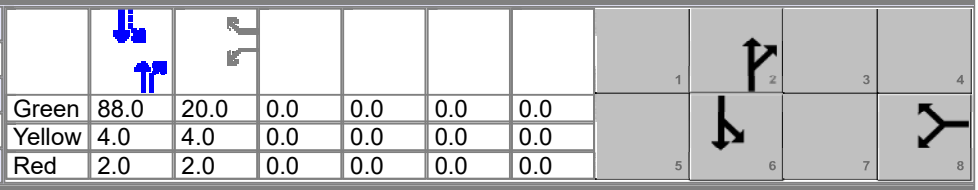
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	PM Peak	PHF	0.94
Urban Street	US 127	Analysis Year	2027	Analysis Period	1> 7:00
Intersection	US 30 WB Ramps	File Name	18b-1. US 127 Street - Build 2027 PM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				50		140		640	220	100	680	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



								1	2	3	4	
Green	88.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0		5	6	7	8	
Red	2.0	2.0	0.0	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				9.0		7.0		8.0
Phase Duration, s				26.0		94.0		94.0
Change Period, (*Y+R c*), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.3		0.0		0.0
Queue Clearance Time (*g s*), s				14.1				
Green Extension Time (*g e*), s				0.3		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				53		149		566	195	278	317	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1555		1384		1724	1535	1284	1567	
Queue Service Time (*g s*), s				3.5		12.1		7.6	4.5	0.7	15.4	
Cycle Queue Clearance Time (*g c*), s				3.5		12.1		7.6	4.5	8.3	15.4	
Green Ratio (*g/C*)				0.17		0.17		0.73	0.73	0.73	0.73	
Capacity (*c*), veh/h				259		230		2529	1126	980	1150	
Volume-to-Capacity Ratio (*X*)				0.205		0.646		0.224	0.173	0.284	0.276	
Back of Queue (*Q*), ft/ln (95 th percentile)				70.5		215.9		111.5	57.1	66.4	88.1	
Back of Queue (*Q*), veh/ln (95 th percentile)				2.5		7.5		4.3	2.2	2.7	3.2	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		1.44		0.00	0.00	0.00	0.00	
Uniform Delay (*d 1*), s/veh				43.2		46.7		6.4	4.7	3.8	4.1	
Incremental Delay (*d 2*), s/veh				0.1		1.1		0.2	0.3	0.7	0.6	
Initial Queue Delay (*d 3*), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				43.3		47.9		6.6	4.9	4.5	4.7	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			46.7		D	6.2		A	4.6		A
Intersection Delay, s/veh / LOS	10.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.16	B	1.86	B	0.66	A
Bicycle LOS Score / LOS				F	1.24	A	1.17	A

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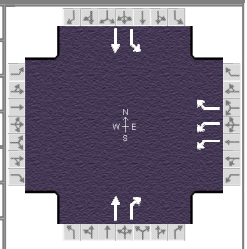
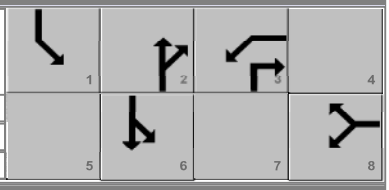
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	PM Peak	PHF	0.96
Urban Street	US 127	Analysis Year	2027	Analysis Period	1> 7:00
Intersection	Towne Center Blvd	File Name	18b-1. US 127 Street - Build 2027 PM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				440		60		670	110	20	340	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	4.6	79.2	18.2	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		7.3	1.0	4.0
Phase Duration, s				24.2		85.2	10.6	95.8
Change Period, (*Y+R c*), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.0	0.0
Queue Clearance Time (*g s*), s				17.4			2.8	
Green Extension Time (*g e*), s				0.8		0.0	0.0	0.0
Phase Call Probability				1.00			0.65	
Max Out Probability				0.11			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				458		63		698	115	32	540	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1743		1598		1752	1485	1485	1559	
Queue Service Time (*g s*), s				15.4		4.1		27.0	1.9	0.8	11.3	
Cycle Queue Clearance Time (*g c*), s				15.4		4.1		27.0	1.9	0.8	11.3	
Green Ratio (*g/C*)				0.15		0.15		0.66	0.81	0.71	0.75	
Capacity (*c*), veh/h				529		242		1156	1205	388	1167	
Volume-to-Capacity Ratio (*X*)				0.866		0.258		0.604	0.095	0.082	0.463	
Back of Queue (*Q*), ft/ln (95 th percentile)				291.4		74.7		401.4	18.8	10.8	142.4	
Back of Queue (*Q*), veh/ln (95 th percentile)				11.6		3.0		14.9	0.7	0.4	4.8	
Queue Storage Ratio (*RQ*) (95 th percentile)				1.58		0.40		0.00	0.07	0.08	0.00	
Uniform Delay (*d 1*), s/veh				49.7		44.9		11.5	2.3	9.0	3.5	
Incremental Delay (*d 2*), s/veh				7.3		0.2		2.3	0.2	0.0	1.3	
Initial Queue Delay (*d 3*), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				57.0		45.1		13.9	2.5	9.0	4.8	
Level of Service (LOS)				E		D		B	A	A	A	
Approach Delay, s/veh / LOS	0.0			55.5		E	12.3		B	5.0		A
Intersection Delay, s/veh / LOS	21.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.16	B	1.97	B	2.07	B	0.65	A
Bicycle LOS Score / LOS				F	1.83	B	1.11	A

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.72		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		3070	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1192	4800	0.25	75.0	7.9	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.79	0.714	0.877	1192	72	4800	2100	0.25	0.03	65.0	65.0	9.2	10.0	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1117	4800	0.23	74.8	7.4	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.877	1226	109	4800	2100	0.26	0.05	66.3	66.3	9.2	10.1	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1252	4800	0.26	74.2	8.3	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.4	8.2	5.9	1.40	B

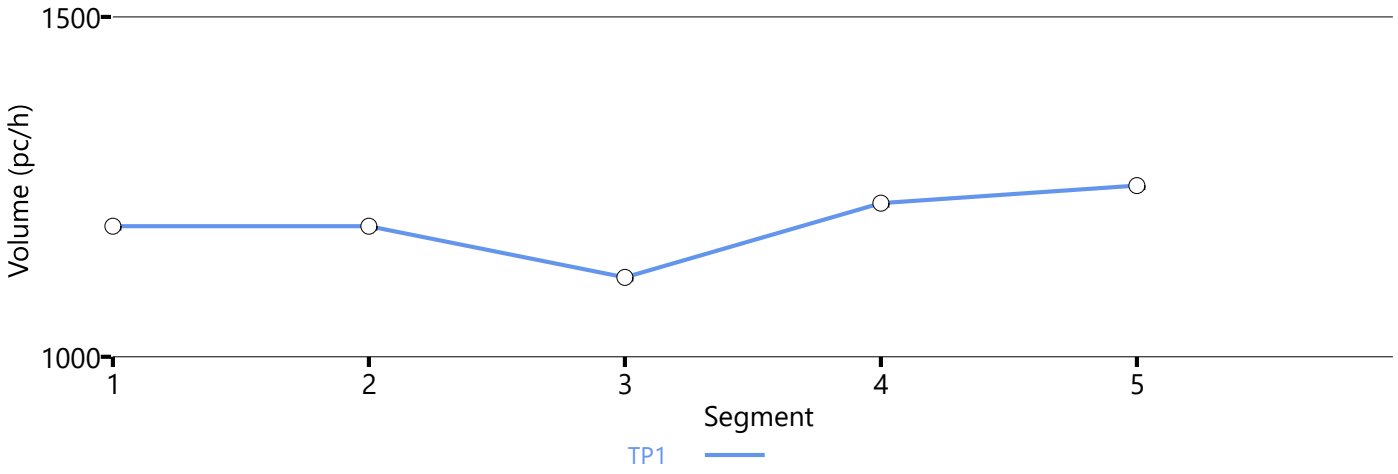
Facility Overall Results

Space Mean Speed, mi/h	71.4	Density, veh/mi/ln	5.9
Average Travel Time, min	1.40	Density, pc/mi/ln	8.2

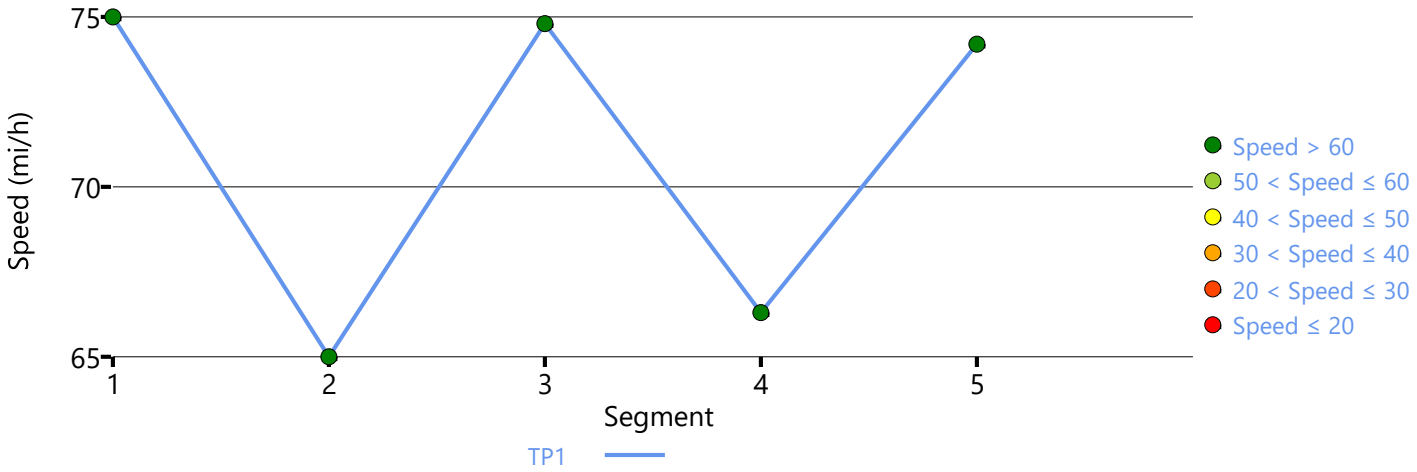
Messages

Comments

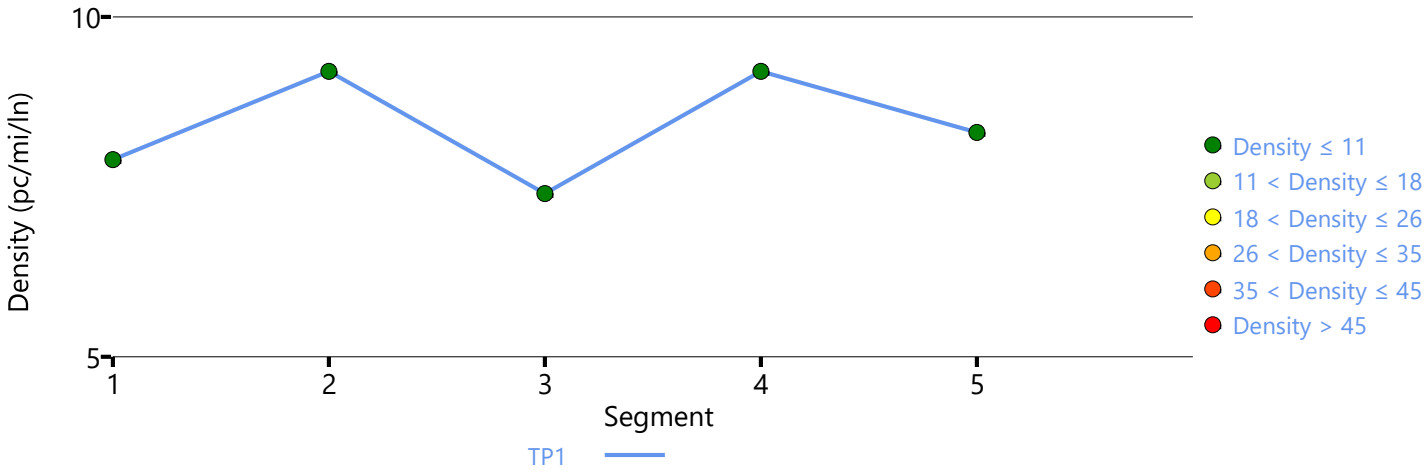
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	800	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	596
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	495
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	800	50
Peak Hour Factor (PHF)	0.94	0.79
Total Trucks, %	40.00	14.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.877
Flow Rate (vi),pc/h	1192	72
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.25	0.03

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.304
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	65.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1192	Ramp Junction Speed (S), mi/h	65.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.2
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	10.0

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	3070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	750	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	558
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	785
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	750	90
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	14.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.877
Flow Rate (vi),pc/h	1117	109
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.26	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.264
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1117	Ramp Junction Speed (S), mi/h	66.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	1226	Average Density (D), pc/mi/ln	9.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.1

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	840	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	626
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.66		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2790	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1147	4800	0.24	75.0	7.7	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.87	0.714	0.962	1147	119	4800	2100	0.24	0.06	64.8	64.8	8.9	10.0	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	998	4800	0.21	74.7	6.7	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.66	0.714	0.893	1100	102	4800	2100	0.23	0.05	65.4	65.4	8.4	11.2	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1088	4800	0.23	74.2	7.3	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.0	7.6	5.5	1.40	B

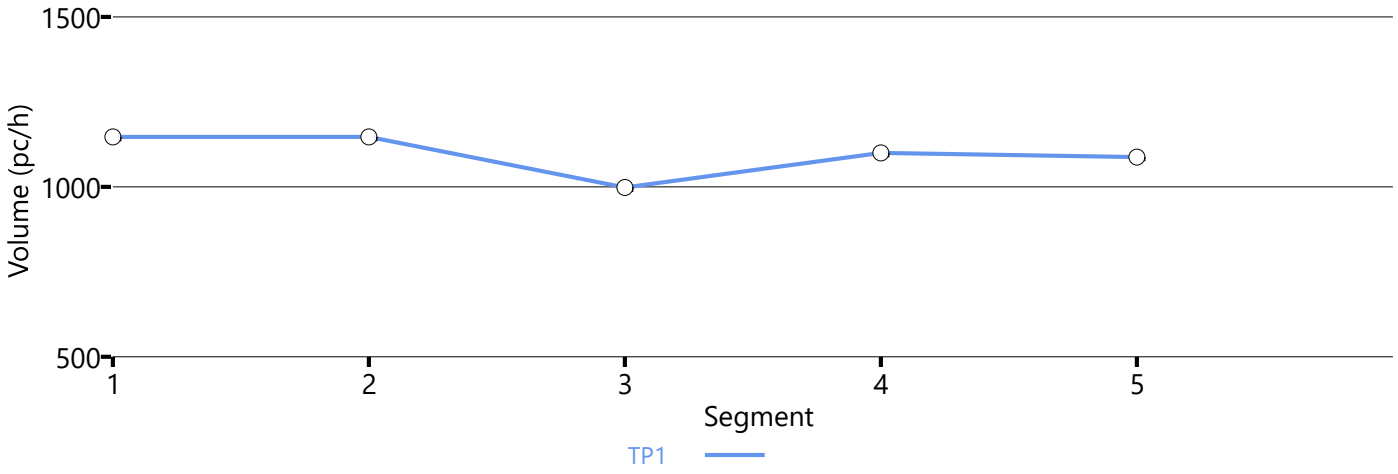
Facility Overall Results

Space Mean Speed, mi/h	71.0	Density, veh/mi/ln	5.5
Average Travel Time, min	1.40	Density, pc/mi/ln	7.6

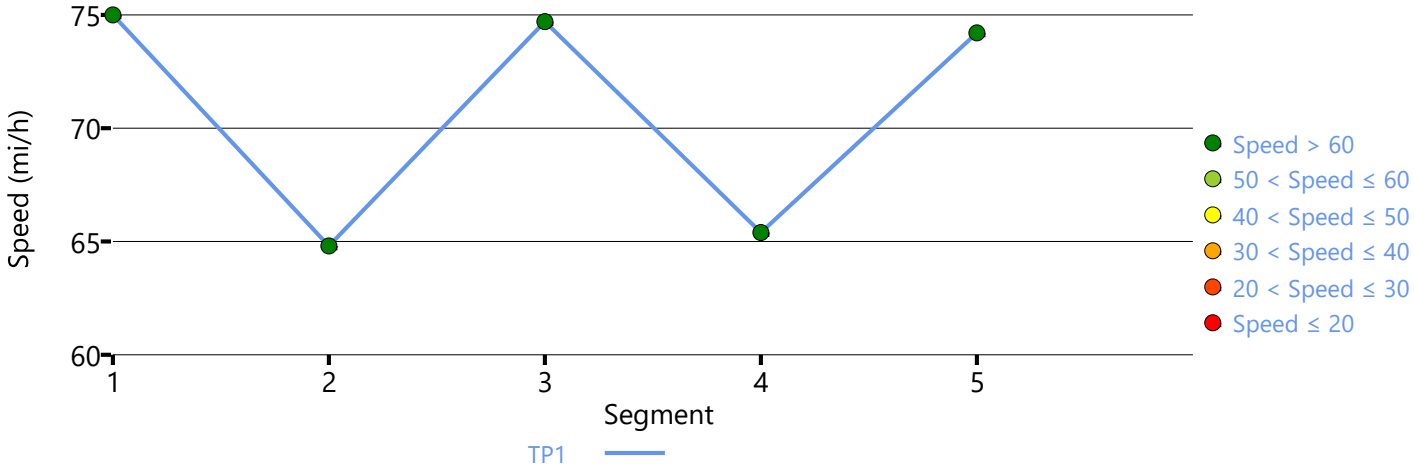
Messages

Comments

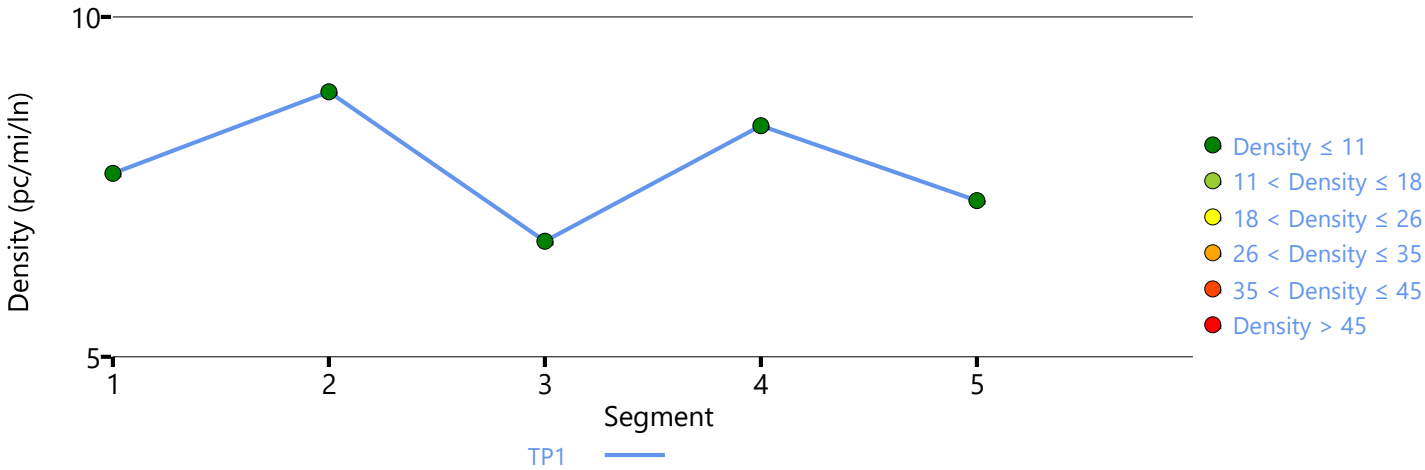
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2027
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	770	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	574
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.24
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	455
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	770	100
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	40.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.962
Flow Rate (vi),pc/h	1147	119
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.24	0.06

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.309
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1147	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.9
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	10.0

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2790	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	670	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	499
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	460
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	670	60
Peak Hour Factor (PHF)	0.94	0.66
Total Trucks, %	40.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.893
Flow Rate (vi),pc/h	998	102
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.23	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.291
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	998	Ramp Junction Speed (S), mi/h	65.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	1100	Average Density (D), pc/mi/ln	8.4
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.2

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	730	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	544
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

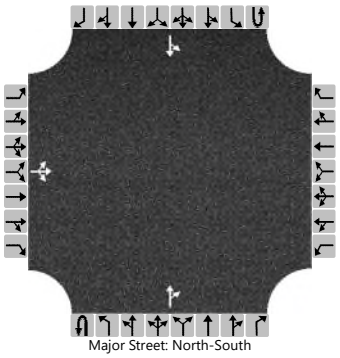
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LTR									TR		LT		
Volume (veh/h)		40	0	10							80	80		10	140	
Percent Heavy Vehicles (%)		14	14	14										5		
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.24	6.64	6.34										4.15		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.63	4.13	3.43										2.25		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			54											11		
Capacity, c (veh/h)			658											1385		
v/c Ratio			0.08											0.01		
95% Queue Length, Q_{95} (veh)			0.3											0.0		
Control Delay (s/veh)			11.0											7.6		
Level of Service (LOS)			B											A		
Approach Delay (s/veh)		11.0												0.6		
Approach LOS		B														

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HCS7 Two-Way Stop-Control Report

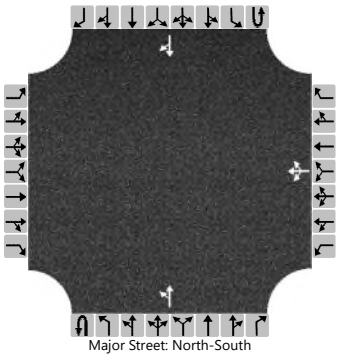
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2027
Time Analyzed	Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						90	0	10		20	100				70	40
Percent Heavy Vehicles (%)						4	4	4		7						
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						7.14	6.54	6.24		4.17						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.54	4.04	3.34		2.26						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							105			21						
Capacity, c (veh/h)							718			1442						
v/c Ratio							0.15			0.01						
95% Queue Length, Q_{95} (veh)							0.5			0.0						
Control Delay (s/veh)							10.9			7.5						
Level of Service (LOS)							B			A						
Approach Delay (s/veh)						10.9				1.4						
Approach LOS						B										

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Appendix D

HCS Analysis - Build Alternative - 2047 A.M. Peak Hour

HCS7 Two-Way Stop-Control Report

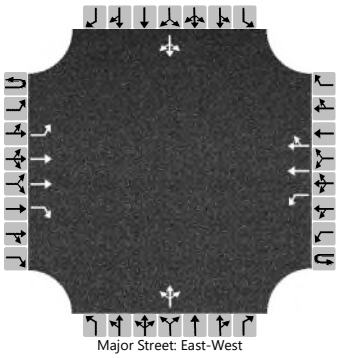
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at State Line Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	State Line Road
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	1	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	R		L	T	TR			LTR				LTR	
Volume (veh/h)	0	20	710	10	0	10	810	20		70	10	10		20	10	30
Percent Heavy Vehicles (%)	40	40			40	40				12	12	12		33	33	33
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No														
Median Type | Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.74	6.74	7.14		8.16	7.16	7.56
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.62	4.12	3.42		3.83	4.33	3.63

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		21				10					93				62	
Capacity, c (veh/h)		579				651					234				264	
v/c Ratio		0.04				0.02					0.40				0.23	
95% Queue Length, Q_{95} (veh)		0.1				0.0					1.8				0.9	
Control Delay (s/veh)		11.4				10.6					30.2				22.8	
Level of Service (LOS)		B				B					D				C	
Approach Delay (s/veh)		0.3				0.1				30.2				22.8		
Approach LOS										D				C		

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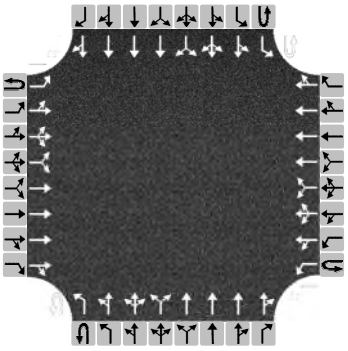
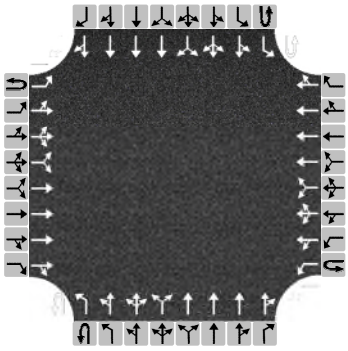
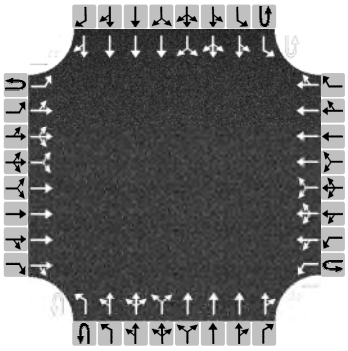
HCS7 Alternative Intersections Results Summary

General Information				Alternative Intersection Information	
Agency	Arcadis			Intersection Type	RCUT with TWSC
Analyst	QAi	Analysis Date	1/12/2023	Segment One Distance, ft	700
Jurisdiction	District 1	Duration, h	0.25	Segment Two Distance, ft	700
Intersection	US 30 at SR 49 Payne Road	PHF	0.91	Arterial Direction	East-West
Main Intersection File	8a. US 30 at SR 49 Payne Rd - 2047 AM - RCUTAlt.xtw				
West Crossover File	8c. US 30 at SR 49 Payne Rd - 2047 AM - West Crossover.xtw				
East Crossover File	8b. US 30 at SR 49 Payne Rd - 2047 AM - East Crossover.xtw				
Project Description	PAU-VAN US 30 RCUT Analysis				

Demand	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One Demand (*v*), veh/h			790		70		940									
Intersection Two Demand (*v*), veh/h	0	40	760	60	0	10	940	70				40				80
Intersection Three Demand (*v*), veh/h	20		760				1000									

(1) West Crossover	(2) Main Intersection	(3) East Crossover
		

Queue-to-Storage Ratio	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One (R_Q)					0.05											
Intersection Two (R_Q)		0.06				0.03						0.29				0.73
Intersection Three (R_Q)	0.01															

Alternative Intesection Results

O-D	O-D Movements	Flow Rate (veh/h)	Control Delay (s/veh)	EDTT (s/veh)	ETT (s/veh)	v/c>1?	R_Q>1?	LOS
EBL	EBL(2)	44	14.0	--	14.0	No	No	B
EBT	EBT(2)	813	0.0	--	0.0	--	--	A
EBR	EBR(2)	11	0.0	--	0.0	--	--	A
WBL	WBL(2)	11	11.6	--	11.6	No	No	B
WBT	WBT(2)	1022	0.0	--	0.0	--	--	A
WBR	WBR(2)	66	0.0	--	0.0	--	--	A
NBL	NBR(2) + EBU(3) + WBT(2)	11	27.3	14.7	42.0	No	No	D
NBT	NBR(2) + EBU(3) + WBR(2)	11	27.3	14.7	42.0	No	No	D
NBR	NBR(2)	22	12.3	--	12.3	No	No	B
SBL	SBR(2) + WBU(1) + EBT(2)	22	28.3	14.7	43.0	No	No	D
SBT	SBR(2) + WBU(1) + EBR(2)	55	28.3	14.7	43.0	No	No	D
SBR	SBR(2)	11	14.6	--	14.6	No	No	B

Overall Results	EB		WB		NB		SB	
Approach ETT, s/veh | LOS	0.7	A	0.1	A	27.2	C	39.5	D
Intersection ETT, s/veh | LOS	2.6				A			

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	2.16		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		5420	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1103	4800	0.23	75.0	7.4	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.885	1103	120	4800	2100	0.23	0.06	64.8	64.8	8.5	8.3	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	954	4800	0.20	75.0	6.4	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.862	1016	62	4800	2100	0.21	0.03	65.8	65.8	7.7	9.7	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1028	4800	0.21	74.2	6.9	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.9	7.0	5.1	1.80	B

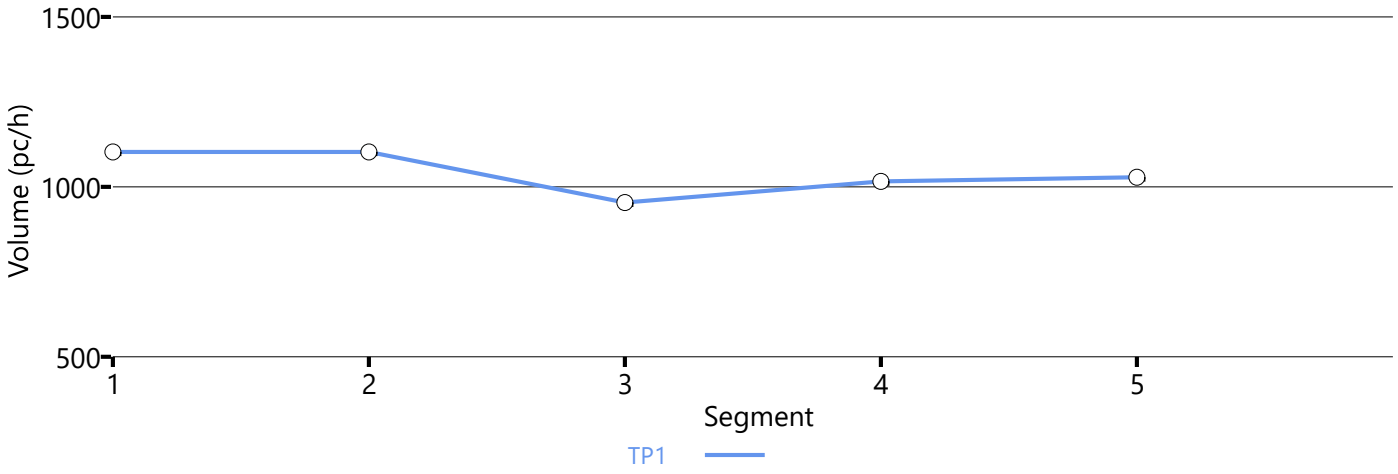
Facility Overall Results

Space Mean Speed, mi/h	71.9	Density, veh/mi/ln	5.1
Average Travel Time, min	1.80	Density, pc/mi/ln	7.0

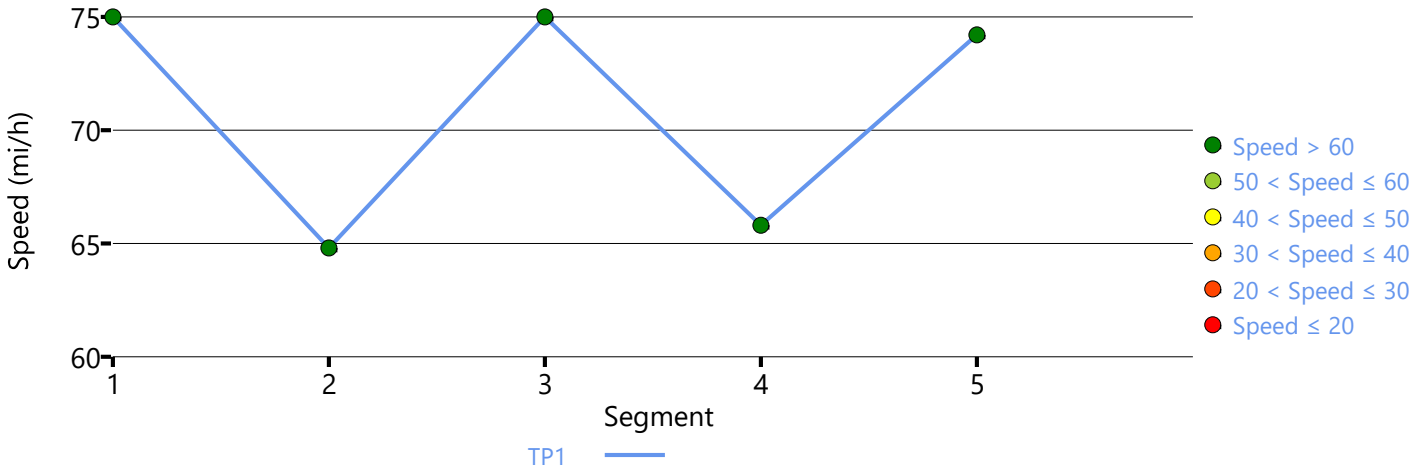
Messages

Comments

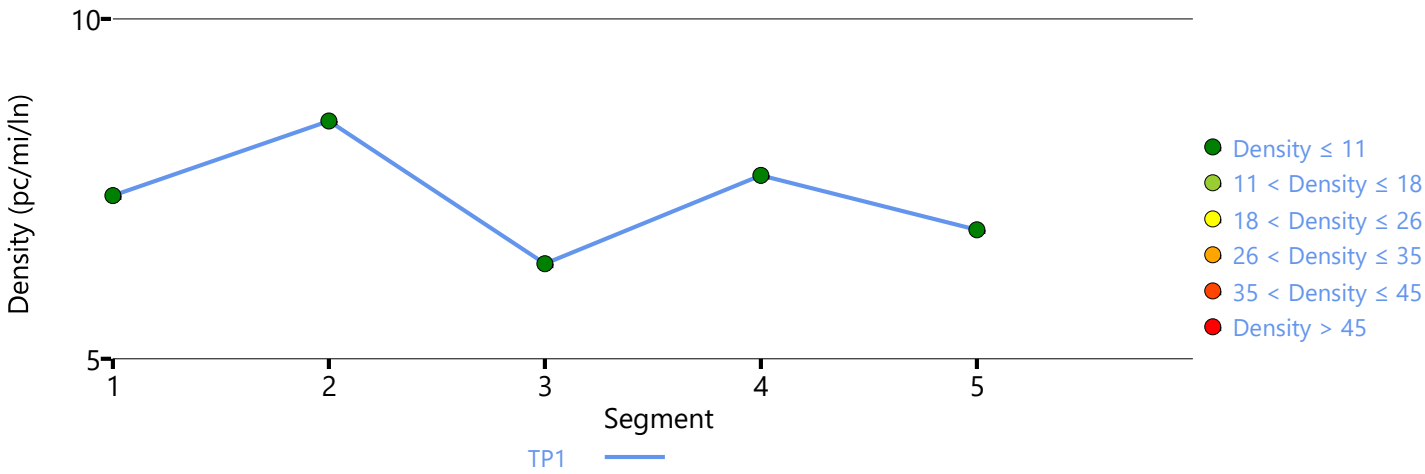
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	740	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	552
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	740	100
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	13.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.885
Flow Rate (vi),pc/h	1103	120
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.23	0.06

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.309
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1103	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.5
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	8.3

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	5420	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	640	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	477
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.20
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	640	50
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	16.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.862
Flow Rate (vi),pc/h	954	62
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.21	0.03

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.278
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	954	Ramp Junction Speed (S), mi/h	65.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	1016	Average Density (D), pc/mi/ln	7.7
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.7

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	690	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	514
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Convey-Heller Road WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	2.16		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		5420	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1207	4800	0.25	75.0	8.1	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.813	1207	79	4800	2100	0.25	0.04	64.9	64.9	9.3	9.2	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1117	4800	0.23	75.0	7.4	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.847	1230	113	4800	1900	0.26	0.06	65.6	65.6	9.4	9.8	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1252	4800	0.26	74.2	8.3	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.9	8.1	5.8	1.80	B

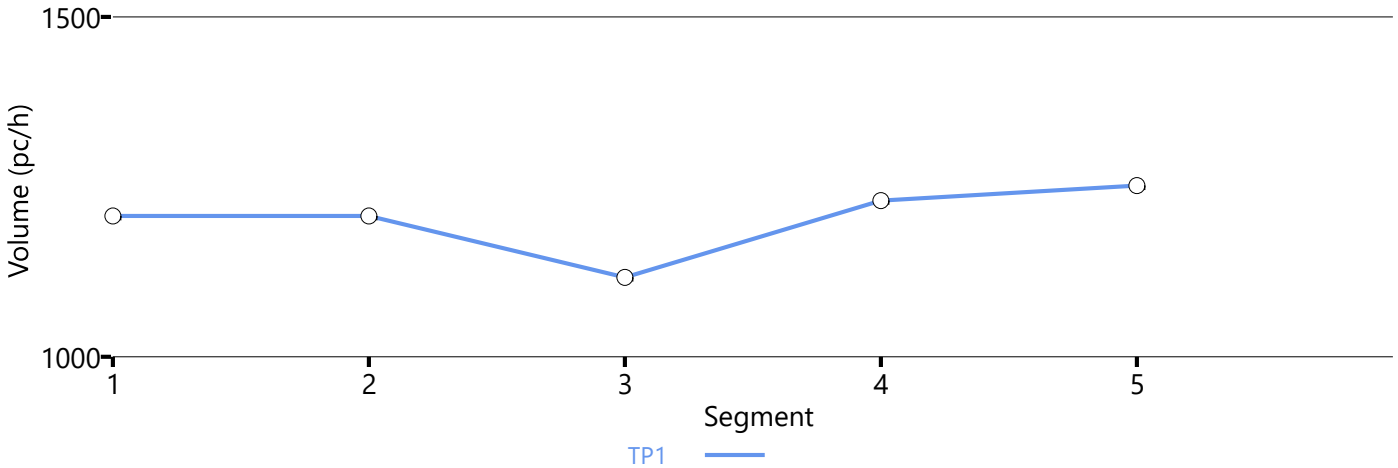
Facility Overall Results

Space Mean Speed, mi/h	71.9	Density, veh/mi/ln	5.8
Average Travel Time, min	1.80	Density, pc/mi/ln	8.1

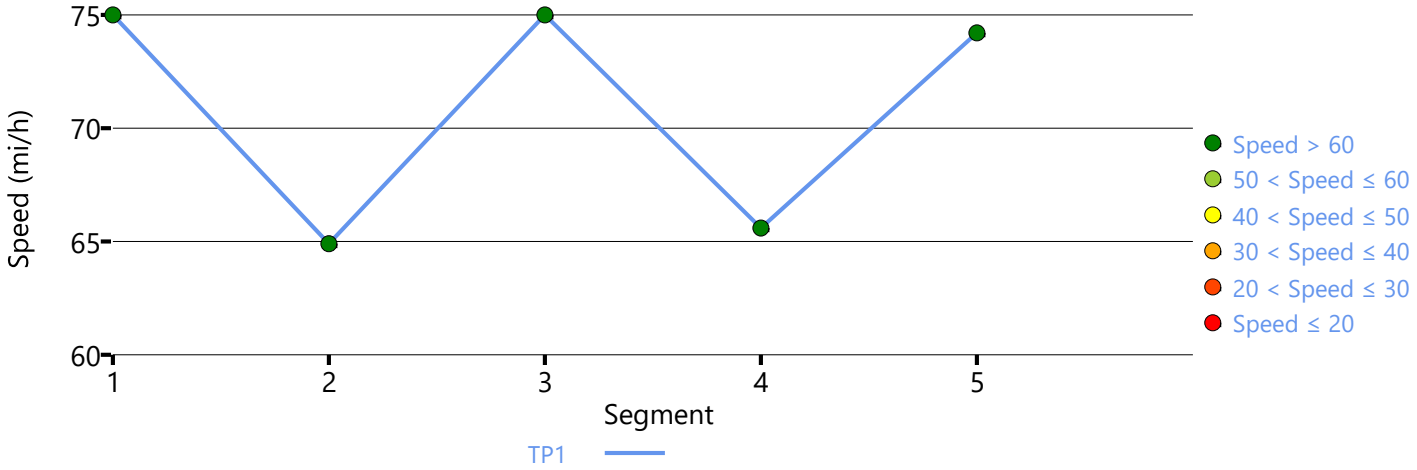
Messages

Comments

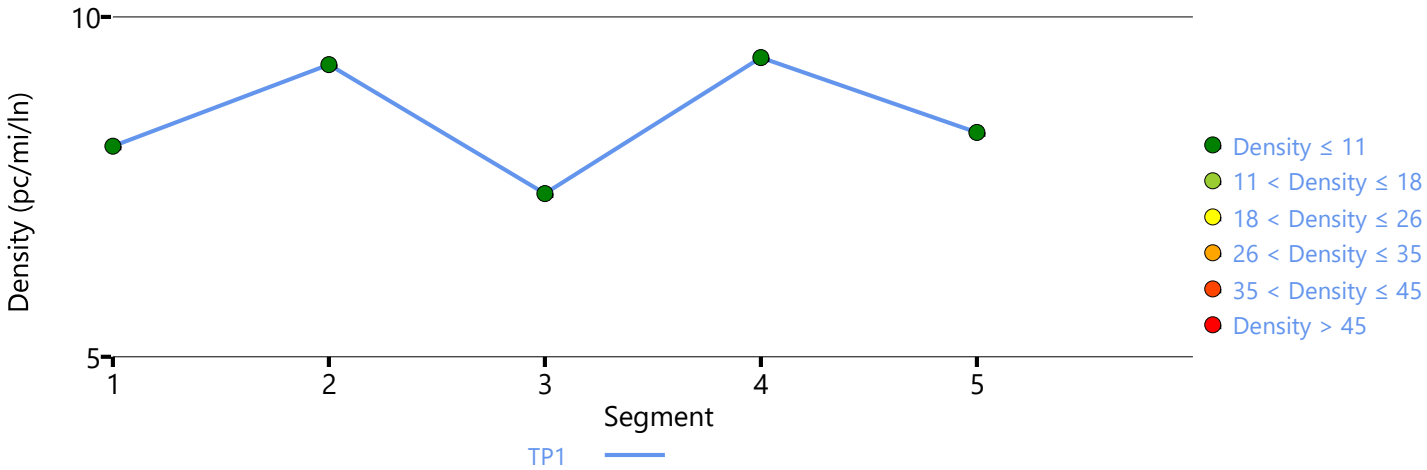
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Convey-Heller Road WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	810	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	604
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	810	60
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	23.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.813
Flow Rate (vi),pc/h	1207	79
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.25	0.04

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.305
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1207	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.3
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.2

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	5420	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	750	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	558
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	30.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	750	90
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.847
Flow Rate (vi),pc/h	1117	113
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.26	0.06

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.284
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1117	Ramp Junction Speed (S), mi/h	65.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	1230	Average Density (D), pc/mi/ln	9.4
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.8

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	840	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	626
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

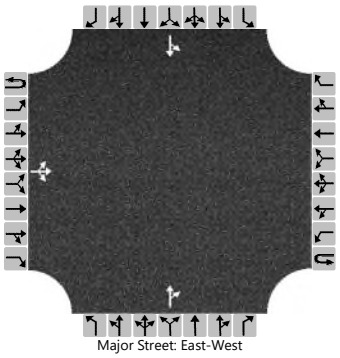
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy-Heller Rd
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	Convoy-Heller Road
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	0	0		0	1	0		0	1	0
Configuration			LTR									TR		LT		
Volume (veh/h)		40	0	60							50	40		10	120	
Percent Heavy Vehicles (%)		10									25	25		16	16	
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1									6.5	6.2		7.1	6.5	
Critical Headway (sec)		4.20									6.75	6.45		7.26	6.66	
Base Follow-Up Headway (sec)		2.2									4.0	3.3		3.5	4.0	
Follow-Up Headway (sec)		2.29									4.23	3.53		3.64	4.14	

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		43										96		138		
Capacity, c (veh/h)		1572														
v/c Ratio		0.03														
95% Queue Length, Q_{95} (veh)		0.1														
Control Delay (s/veh)		7.4														
Level of Service (LOS)		A														
Approach Delay (s/veh)	3.1															
Approach LOS																

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HCS7 Two-Way Stop-Control Report

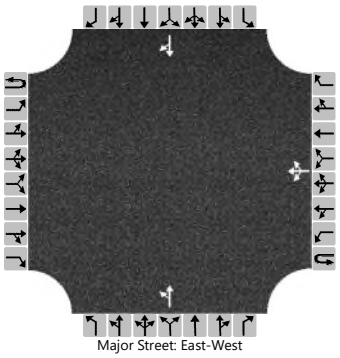
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build AM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy-Heller Rd
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	Convoy-Heller Road
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	0	0	0	0	1	0		0	1	0		0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						10	0	50		70	90				100	20
Percent Heavy Vehicles (%)						8				7	7				18	18
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1	6.5				6.5	6.2
Critical Headway (sec)						4.18				7.17	6.57				6.68	6.38
Base Follow-Up Headway (sec)						2.2				3.5	4.0				4.0	3.3
Follow-Up Headway (sec)						2.27				3.56	4.06				4.16	3.46

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						11				170						128
Capacity, c (veh/h)						1585										
v/c Ratio						0.01										
95% Queue Length, Q_{95} (veh)						0.0										
Control Delay (s/veh)						7.3										
Level of Service (LOS)						A										
Approach Delay (s/veh)						1.3										
Approach LOS																

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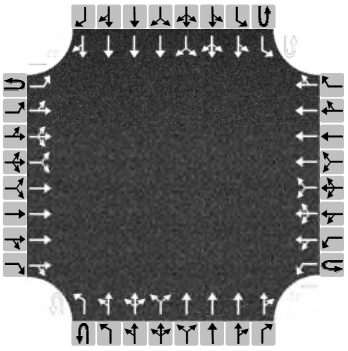
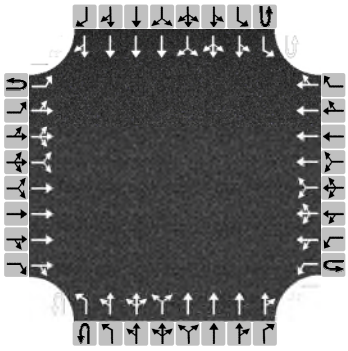
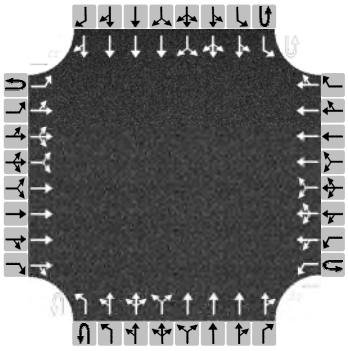
HCS7 Alternative Intersections Results Summary

General Information				Alternative Intersection Information	
Agency	Arcadis			Intersection Type	RCUT with TWSC
Analyst	QAi	Analysis Date	1/12/2023	Segment One Distance, ft	700
Jurisdiction	District 1	Duration, h	0.25	Segment Two Distance, ft	700
Intersection	US 30 at Convoy-Heller Rd	PHF	0.92	Arterial Direction	East-West
Main Intersection File	10a. US 30 at Convoy-Heller Rd - 2047 AM - RCUTAlt.xtw				
West Crossover File	10c. US 30 at Convoy-Heller Rd - 2047 AM - West Crossover.xtw				
East Crossover File	10b. US 30 at Convoy-Heller Rd - 2047 AM - East Crossover.xtw				
Project Description	PAU-VAN US 30 RCUT Analysis				

Demand	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One Demand (*v*), veh/h			810		30		910									
Intersection Two Demand (*v*), veh/h	0	10	770	60	0	10	980	20				110				40
Intersection Three Demand (*v*), veh/h	90		770				920									

(1) West Crossover	(2) Main Intersection	(3) East Crossover
		

Queue-to-Storage Ratio	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One (R_Q)					0.02											
Intersection Two (R_Q)		0.01				0.01										
Intersection Three (R_Q)	0.07															

Alternative Intesection Results

O-D	O-D Movements	Flow Rate (veh/h)	Control Delay (s/veh)	EDTT (s/veh)	ETT (s/veh)	v/c>1?	R_Q>1?	LOS
EBL	EBL(2)	11	13.1	--	13.1	No	No	B
EBT	EBT(2)	815	0.0	--	0.0	--	--	A
EBR	EBR(2)	54	0.0	--	0.0	--	--	A
WBL	WBL(2)	11	11.7	--	11.7	No	No	B
WBT	WBT(2)	978	0.0	--	0.0	--	--	A
WBR	WBR(2)	11	0.0	--	0.0	--	--	A
NBL	NBR(2) + EBU(3) + WBT(2)	87	29.5	14.7	44.2	No	No	D
NBT	NBR(2) + EBU(3) + WBR(2)	11	29.5	14.7	44.2	No	No	D
NBR	NBR(2)	22	13.6	--	13.6	No	No	B
SBL	SBR(2) + WBU(1) + EBT(2)	22	26.3	14.7	41.0	No	No	D
SBT	SBR(2) + WBU(1) + EBR(2)	11	26.3	14.7	41.0	No	No	D
SBR	SBR(2)	11	13.3	--	13.3	No	No	B

Overall Results	EB		WB		NB		SB	
Approach ETT, s/veh | LOS	0.2	A	0.1	A	38.6	D	34.1	C
Intersection ETT, s/veh | LOS	3.1				A			

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.43		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		560	2
3	Basic	Basic		2475	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1028	4800	0.21	75.0	6.9	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.78	0.714	0.885	1028	377	4800	2100	0.21	0.18	64.0	64.0	8.0	8.1	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	641	4800	0.13	74.1	4.3	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.862	1085	444	4800	2100	0.23	0.21	66.8	66.8	8.1	8.0	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1177	4800	0.25	74.3	7.8	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.6	6.6	4.7	1.20	B

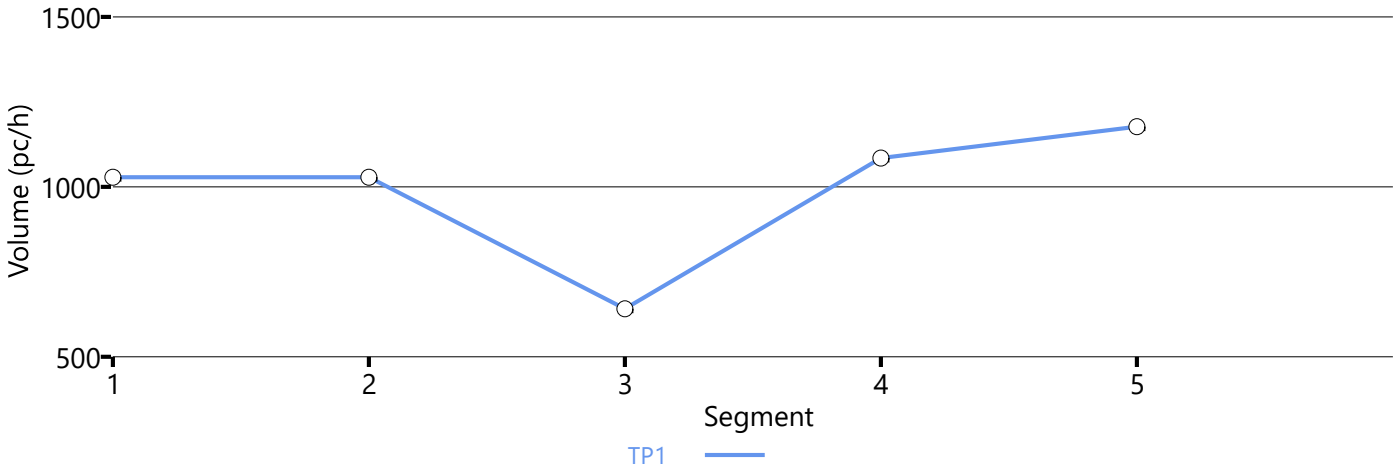
Facility Overall Results

Space Mean Speed, mi/h	71.6	Density, veh/mi/ln	4.7
Average Travel Time, min	1.20	Density, pc/mi/ln	6.6

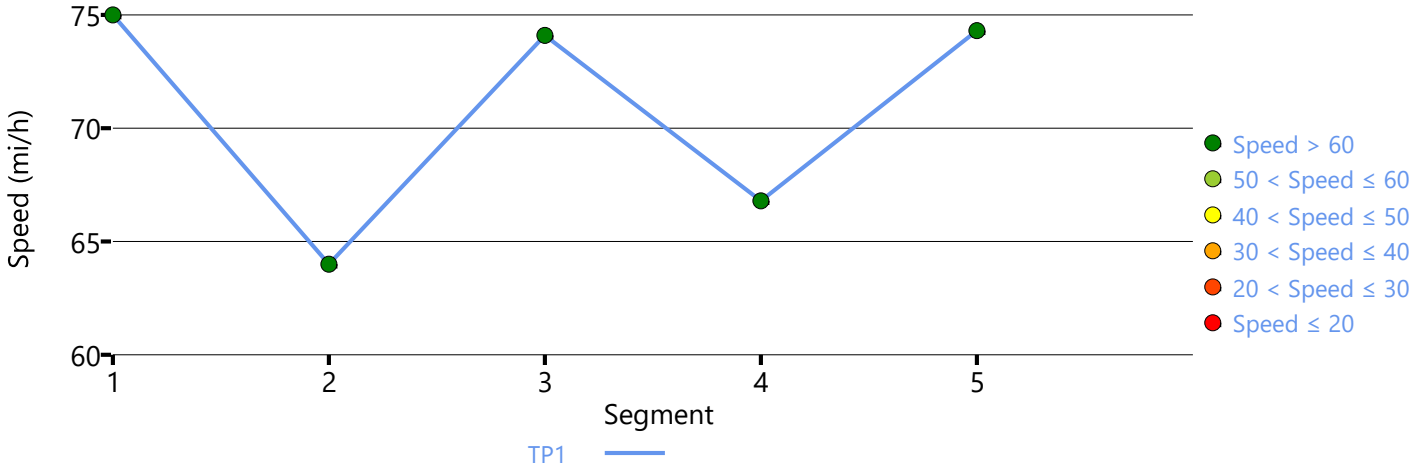
Messages

Comments

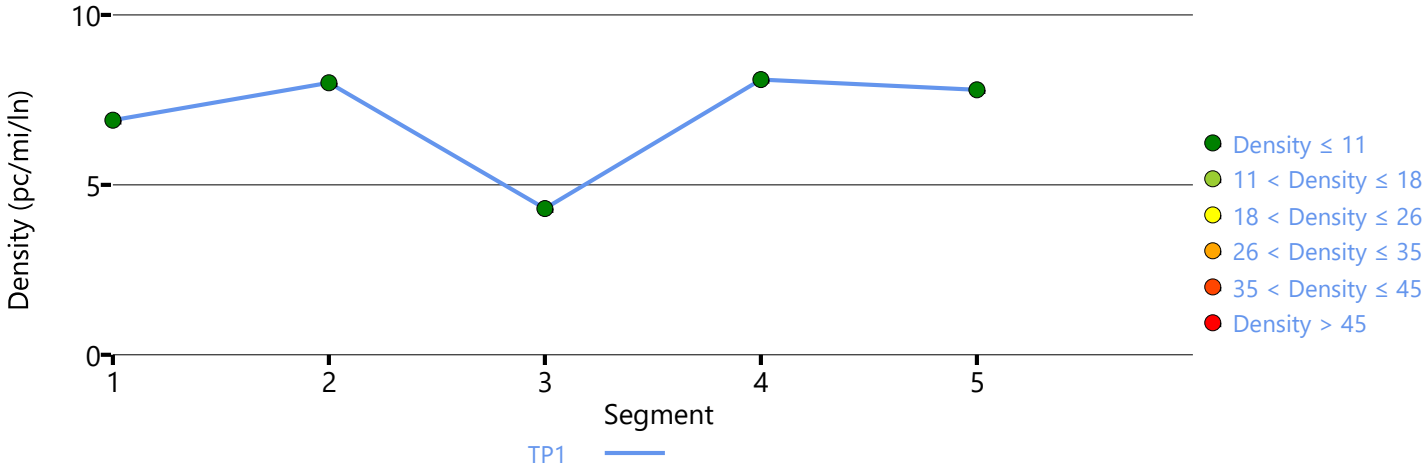
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	690	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	514
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	560	560
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	690	260
Peak Hour Factor (PHF)	0.94	0.78
Total Trucks, %	40.00	13.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.885
Flow Rate (vi),pc/h	1028	377
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.21	0.18

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.332
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1028	Ramp Junction Speed (S), mi/h	64.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.0
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	8.1

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2475	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	430	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	320
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.13
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	4.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	925
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	430	360
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	16.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.862
Flow Rate (vi),pc/h	641	444
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.23	0.21

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.249
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	641	Ramp Junction Speed (S), mi/h	66.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	1085	Average Density (D), pc/mi/ln	8.1
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	8.0

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	790	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	588
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.60		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2465	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1356	4800	0.28	75.0	9.0	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.80	0.714	0.813	1356	369	4800	2100	0.28	0.18	64.1	64.1	10.6	12.7	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	998	4800	0.21	74.6	6.7	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.847	1174	176	4800	1900	0.24	0.09	65.7	65.7	8.9	9.4	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1207	4800	0.25	74.2	8.1	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.6	8.4	6.0	1.40	B

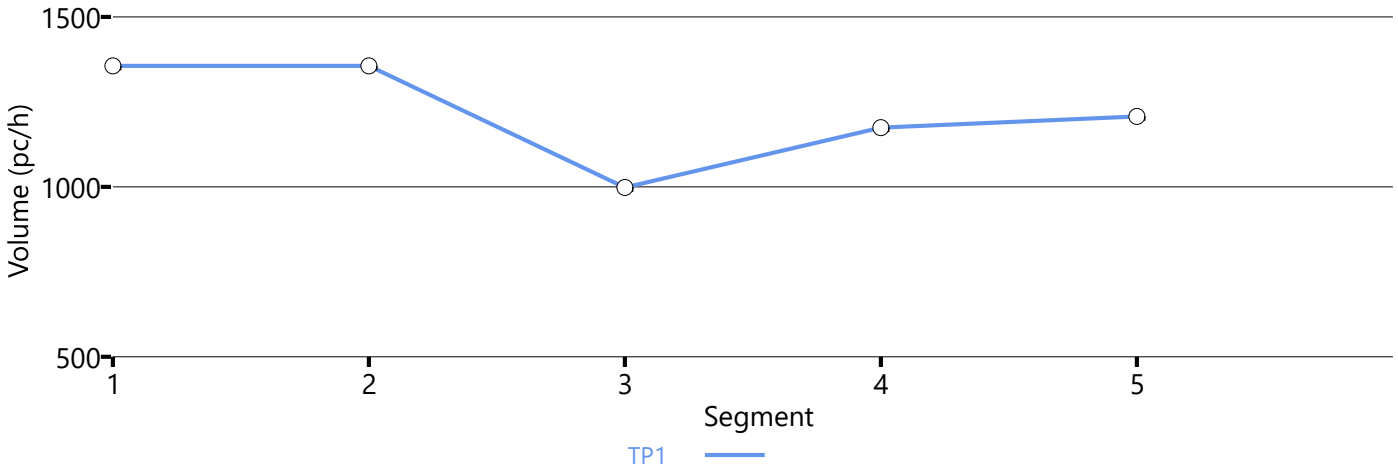
Facility Overall Results

Space Mean Speed, mi/h	70.6	Density, veh/mi/ln	6.0
Average Travel Time, min	1.40	Density, pc/mi/ln	8.4

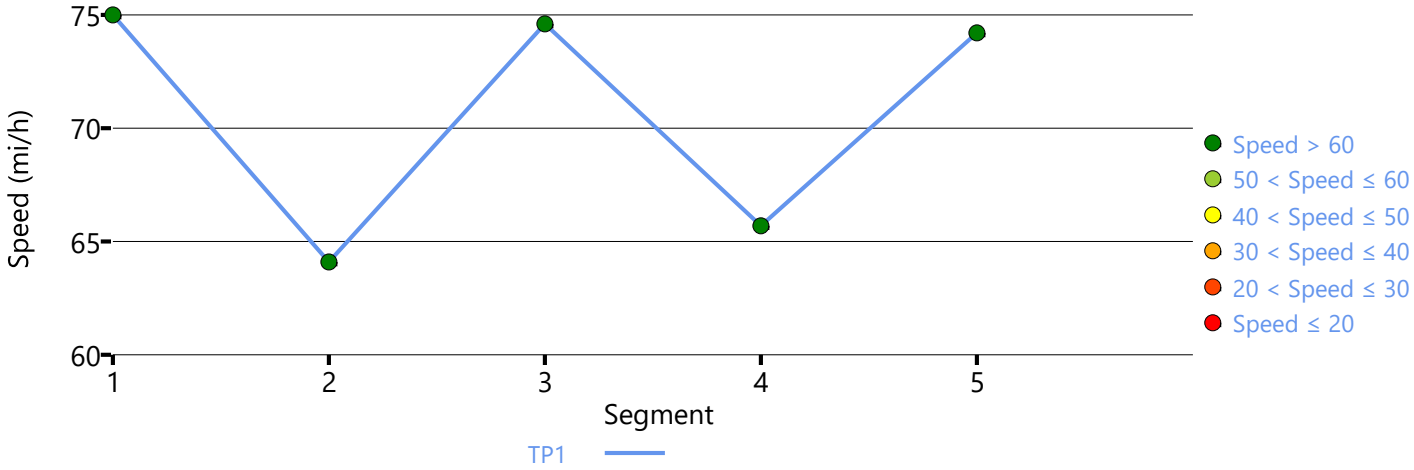
Messages

Comments

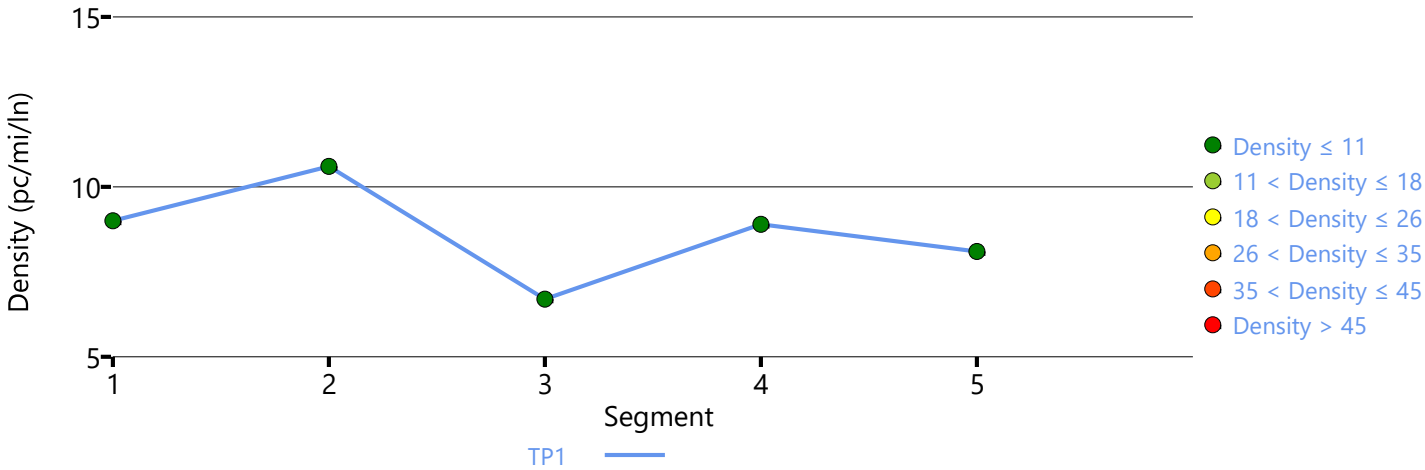
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	910	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	678
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.28
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	360
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	910	240
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	40.00	23.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.813
Flow Rate (vi),pc/h	1356	369
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.28	0.18

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.331
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1356	Ramp Junction Speed (S), mi/h	64.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	10.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.7

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2465	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	670	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	499
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	30.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	670	140
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.847
Flow Rate (vi),pc/h	998	176
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.24	0.09

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.283
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	998	Ramp Junction Speed (S), mi/h	65.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	1174	Average Density (D), pc/mi/ln	8.9
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.4

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	810	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	604
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

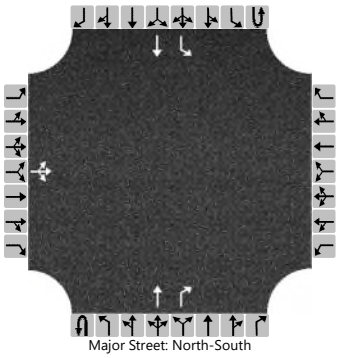
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 224 at US 30 EB Ramps
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	US 224
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	1	0	1	1	0
Configuration			LTR								T	R		L	T	
Volume (veh/h)		10	0	300							40	210		20	120	
Percent Heavy Vehicles (%)		13	13	13										23		
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized										No						
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.23	6.63	6.33										4.33		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.62	4.12	3.42										2.41		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			330											21		
Capacity, c (veh/h)			880											1186		
v/c Ratio			0.37											0.02		
95% Queue Length, Q_{95} (veh)			1.8											0.1		
Control Delay (s/veh)			11.5											8.1		
Level of Service (LOS)			B											A		
Approach Delay (s/veh)		11.5												1.2		
Approach LOS		B														

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HCS7 Two-Way Stop-Control Report

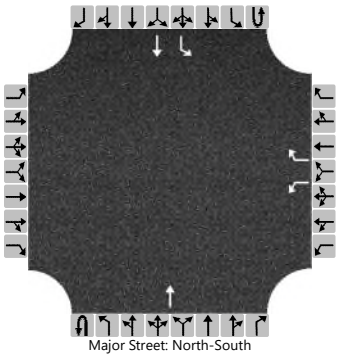
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 224 at US 30 WB Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	US 224
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R			T			L	T	
Volume (veh/h)						110		10			20			30	30	
Percent Heavy Vehicles (%)						23		23						11		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.63		6.43						4.21		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.71		3.51						2.30		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						117		11						32		
Capacity, c (veh/h)						814		999						1538		
v/c Ratio						0.14		0.01						0.02		
95% Queue Length, Q_{95} (veh)						0.5		0.0						0.1		
Control Delay (s/veh)						10.2		8.6						7.4		
Level of Service (LOS)						B		A						A		
Approach Delay (s/veh)						10.0								3.7		
Approach LOS						B										

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HCS7 Two-Way Stop-Control Report

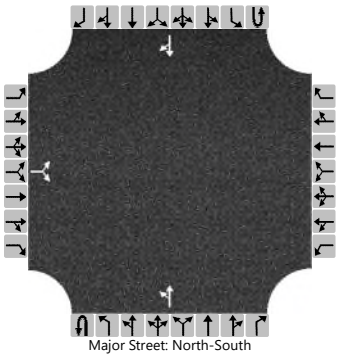
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 224 at Liberty Union
Jurisdiction	District 1
East/West Street	Liberty Union Road
North/South Street	US 224
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		10		10						10	20				50	10
Percent Heavy Vehicles (%)		11		11						23						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.51		6.31						4.33						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.60		3.40						2.41						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			21							11						
Capacity, c (veh/h)			922							1415						
v/c Ratio			0.02							0.01						
95% Queue Length, Q_{95} (veh)			0.1							0.0						
Control Delay (s/veh)			9.0							7.6						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)		9.0								2.6						
Approach LOS		A														

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HCS7 Roundabouts Report

General Information

Analyst	QAi
Agency or Co.	Arcadis
Date Performed	1/13/2023
Analysis Year	2047
Time Analyzed	Build AM
Project Description	

Site Information

Intersection	Lincoln Hwy at US 224
E/W Street Name	Lincoln Hwy
N/S Street Name	US 224
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.85
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	160	140	50	0	50	100	60	0	30	280	80	0	70	320	110
Percent Heavy Vehicles, %	3	3	3	3	8	8	8	8	14	14	14	14	13	13	13	13
Flow Rate (v_{PCE}), pc/h	0	194	170	61	0	64	127	76	0	40	376	107	0	93	425	146
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		425			267			523			664	
Entry Volume, veh/h		413			247			459			588	
Circulating Flow (v_c), pc/h		582			610			457			231	
Exiting Flow (v_{ex}), pc/h		370			313			646			550	
Capacity (c_{pce}), pc/h		762			741			866			1090	
Capacity (c), veh/h		740			686			760			965	
v/c Ratio (x)		0.56			0.36			0.60			0.61	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		13.6			10.0			14.7			12.4	
Lane LOS		B			A			B			B	
95% Queue, veh		3.5			1.6			4.1			4.3	
Approach Delay, s/veh	13.6			10.0			14.7			12.4		
Approach LOS	B			A			B			B		
Intersection Delay, s/veh | LOS	13.0						B					

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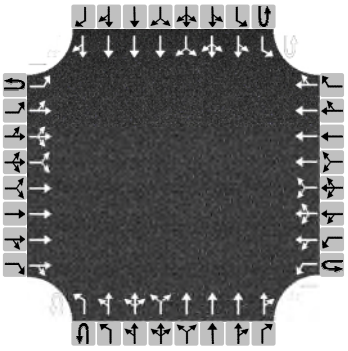
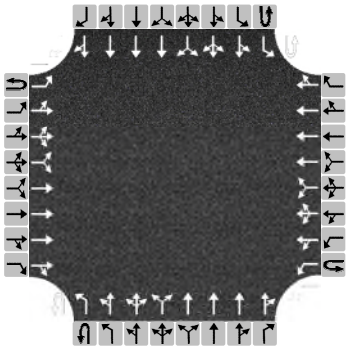
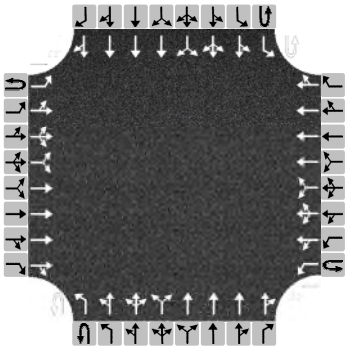
HCS7 Alternative Intersections Results Summary

General Information				Alternative Intersection Information	
Agency	Arcadis			Intersection Type	RCUT with TWSC
Analyst	QAi	Analysis Date	1/12/2023	Segment One Distance, ft	700
Jurisdiction	District 1	Duration, h	0.25	Segment Two Distance, ft	700
Intersection	US 30 at John Brown Road	PHF	0.8	Arterial Direction	East-West
Main Intersection File	16a. US 30 at John Brown Rd - 2047 AM - RCUTAlt.xtw				
West Crossover File	16c. US 30 at John Brown Rd - 2047 AM - West Crossover.xtw				
East Crossover File	16b. US 30 at John Brown Rd - 2047 AM - East Crossover.xtw				
Project Description	PAU-VAN US 30 RCUT Analysis				

Demand	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One Demand (*v*), veh/h			820		60		940									
Intersection Two Demand (*v*), veh/h	0	10	800	70	0	100	940	40				140				80
Intersection Three Demand (*v*), veh/h	50		880				1030									

(1) West Crossover	(2) Main Intersection	(3) East Crossover
		

Queue-to-Storage Ratio	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One (R_Q)					0.05											
Intersection Two (R_Q)		0.02				0.24										
Intersection Three (R_Q)	0.06															

Alternative Intesection Results

O-D	O-D Movements	Flow Rate (veh/h)	Control Delay (s/veh)	EDTT (s/veh)	ETT (s/veh)	v/c>1?	R_Q>1?	LOS
EBL	EBL(2)	13	14.4	--	14.4	No	No	B
EBT	EBT(2)	988	0.0	--	0.0	--	--	A
EBR	EBR(2)	25	0.0	--	0.0	--	--	A
WBL	WBL(2)	125	15.9	--	15.9	No	No	B
WBT	WBT(2)	1150	0.0	--	0.0	--	--	A
WBR	WBR(2)	13	0.0	--	0.0	--	--	A
NBL	NBR(2) + EBU(3) + WBT(2)	25	36.0	14.7	50.7	No	No	D
NBT	NBR(2) + EBU(3) + WBR(2)	38	36.0	14.7	50.7	No	No	D
NBR	NBR(2)	113	16.6	--	16.6	No	No	B
SBL	SBR(2) + WBU(1) + EBT(2)	13	31.3	14.7	46.0	No	No	D
SBT	SBR(2) + WBU(1) + EBR(2)	63	31.3	14.7	46.0	No	No	D
SBR	SBR(2)	25	15.7	--	15.7	No	No	B

Overall Results	EB		WB		NB		SB	
Approach ETT, s/veh | LOS	0.2	A	1.5	A	28.8	C	38.5	D
Intersection ETT, s/veh | LOS	4.3				A			

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	8/10/2022
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.50		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		1940	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1177	4800	0.25	75.0	7.8	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.88	0.714	0.758	1177	540	4800	1900	0.25	0.28	55.0	55.0	10.7	9.1	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	641	4800	0.13	73.8	4.3	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.758	1034	393	4800	2100	0.22	0.19	65.5	65.5	7.9	10.3	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1058	4800	0.22	74.2	7.1	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.3	7.4	5.3	1.30	B

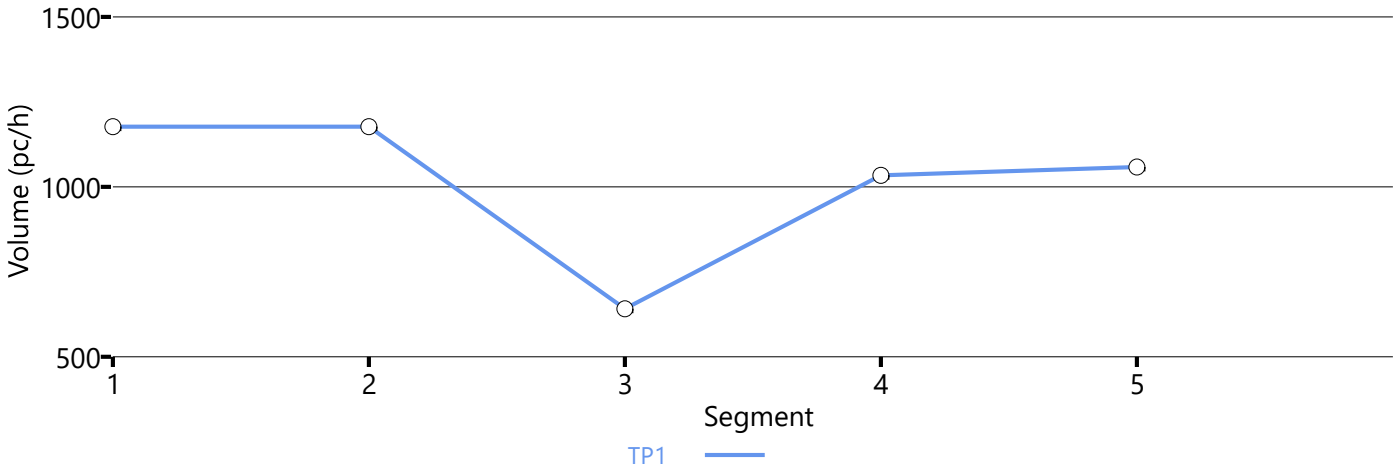
Facility Overall Results

Space Mean Speed, mi/h	67.3	Density, veh/mi/ln	5.3
Average Travel Time, min	1.30	Density, pc/mi/ln	7.4

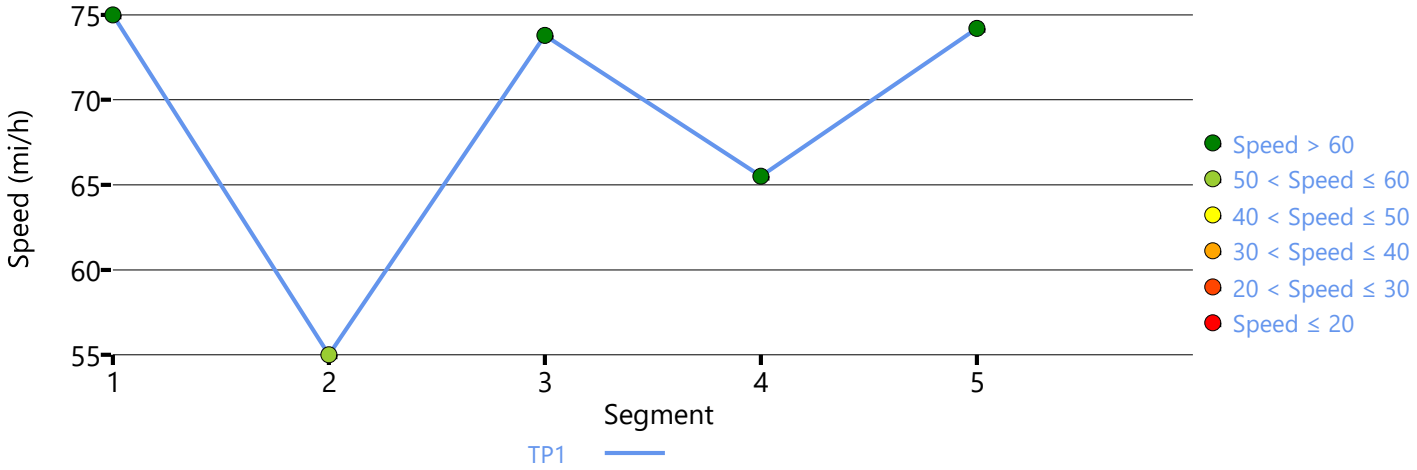
Messages

Comments

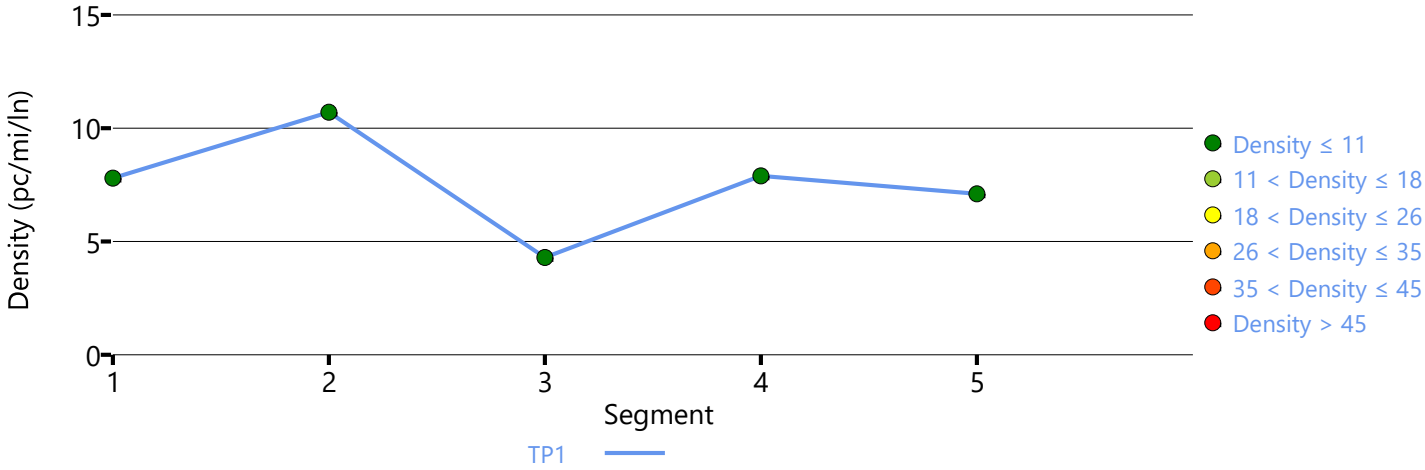
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	8/10/2022
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	790	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	588
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Deceleration Length (LA),ft	1500	590
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	790	360
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	40.00	32.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.758
Flow Rate (vi),pc/h	1177	540
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.25	0.28

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.607
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1177	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	10.7
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.1

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1940	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	430	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	320
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.13
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	4.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	430	280
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	32.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.758
Flow Rate (vi),pc/h	641	393
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.22	0.19

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.287
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	641	Ramp Junction Speed (S), mi/h	65.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	1034	Average Density (D), pc/mi/ln	7.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.3

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	710	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	529
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.22
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.53		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2075	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1207	4800	0.25	75.0	8.1	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.70	0.714	0.763	1207	356	4800	2100	0.25	0.17	64.1	64.1	9.4	10.1	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	924	4800	0.19	74.4	6.2	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.763	1328	404	4800	1900	0.28	0.21	64.9	64.9	10.2	12.1	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1356	4800	0.28	74.1	9.0	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.2	8.4	6.0	1.30	B

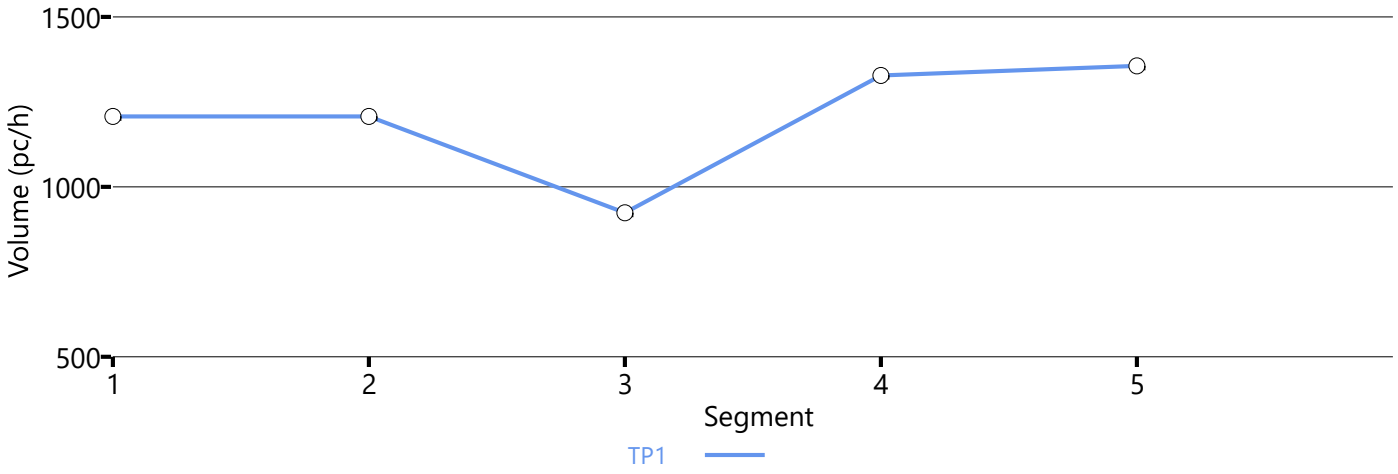
Facility Overall Results

Space Mean Speed, mi/h	70.2	Density, veh/mi/ln	6.0
Average Travel Time, min	1.30	Density, pc/mi/ln	8.4

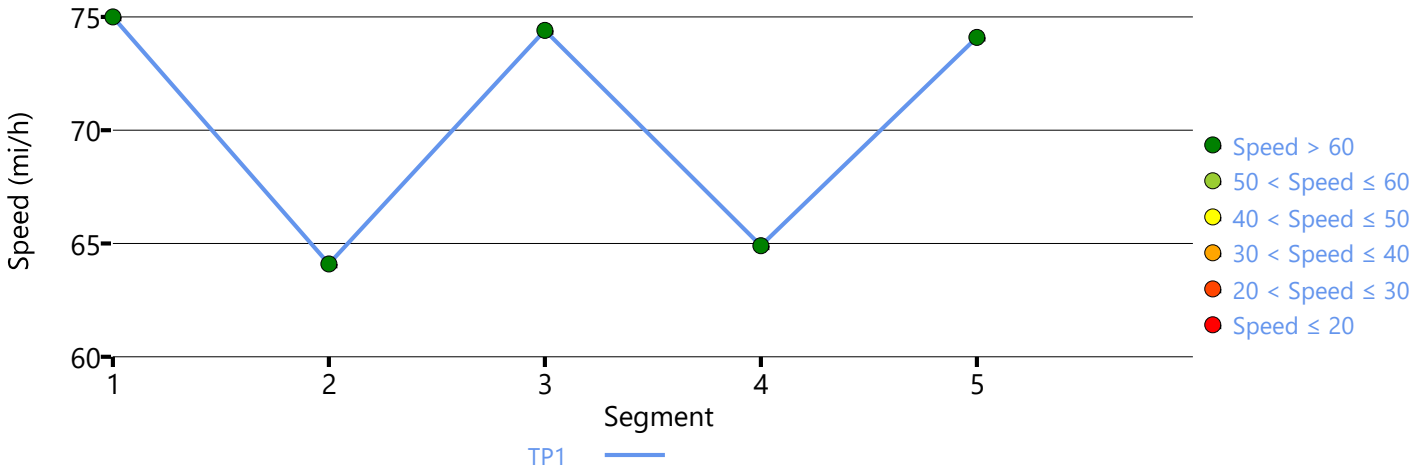
Messages

Comments

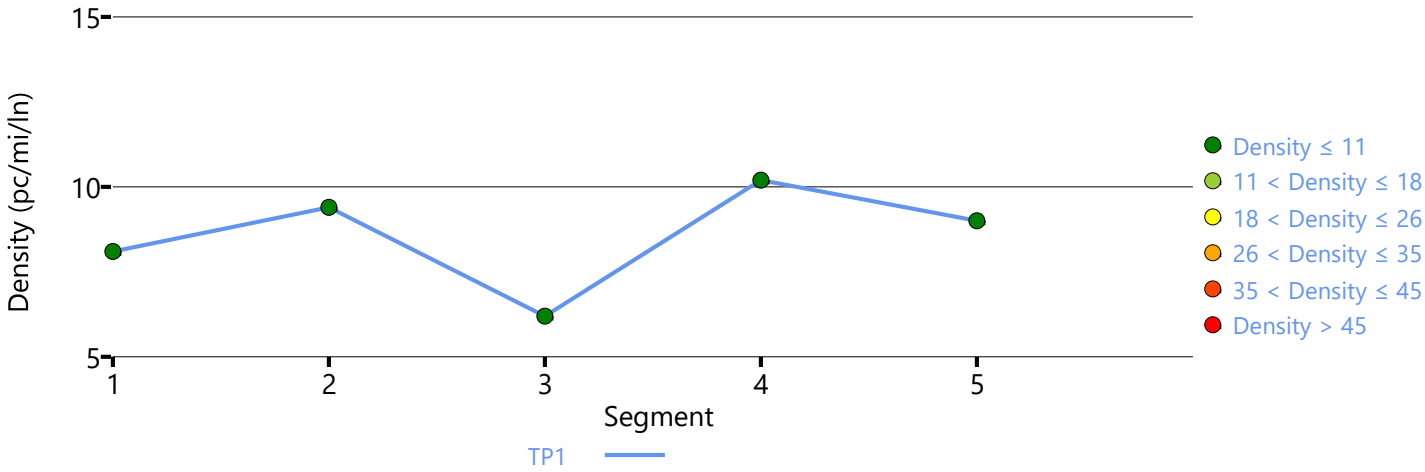
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	810	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	604
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	810	190
Peak Hour Factor (PHF)	0.94	0.70
Total Trucks, %	40.00	31.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.763
Flow Rate (vi),pc/h	1207	356
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.25	0.17

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.330
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1207	Ramp Junction Speed (S), mi/h	64.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.4
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.1

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2075	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	620	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	462
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.19
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Acceleration Length (LA),ft	1500	570
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	620	290
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	31.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.763
Flow Rate (vi),pc/h	924	404
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.28	0.21

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.307
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	64.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	924	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	1328	Average Density (D), pc/mi/ln	10.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.1

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	910	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	678
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.28
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

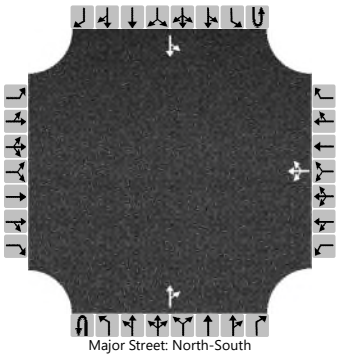
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	7/26/2022
Analysis Year	2047
Time Analyzed	Build AM
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	US 127 at Brooks Ave
Jurisdiction	
East/West Street	Brooks Ave
North/South Street	US 127
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR					TR		LT		
Volume (veh/h)						10	0	20			520	10		10	490	
Percent Heavy Vehicles (%)						19	19	19						25		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2						4.1		
Critical Headway (sec)						7.29	6.69	6.39						4.35		
Base Follow-Up Headway (sec)						3.5	4.0	3.3						2.2		
Follow-Up Headway (sec)						3.67	4.17	3.47						2.43		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							32							11		
Capacity, c (veh/h)							311							908		
v/c Ratio							0.10							0.01		
95% Queue Length, Q_{95} (veh)							0.3							0.0		
Control Delay (s/veh)							17.9							9.0		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)						17.9								0.3		
Approach LOS						C										

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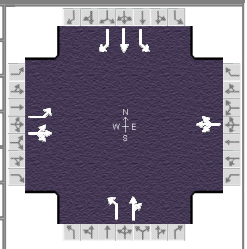
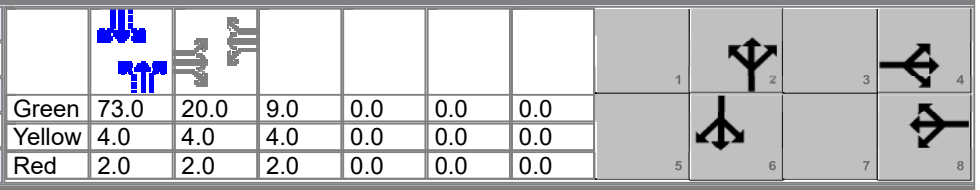
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	AM Peak	PHF	0.86
Urban Street	US 127	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Bonnewitz Ave	File Name	18b-1. US 127 Street - Build 2047 AM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	220	10	120	10	20	30	80	450	10	10	370	290

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



							1	2	3	4
Green	73.0	20.0	9.0	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		10.0		12.0		6.0		5.0
Phase Duration, s		26.0		15.0		79.0		79.0
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.2		3.3		0.0		0.0
Queue Clearance Time (g_s), s		19.2		7.4				
Green Extension Time (g_e), s		0.8		0.1		0.0		0.0
Phase Call Probability		1.00		0.90				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	256	151			70		96	552		12	430	337
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1739	1566			1514		722	1405		748	1633	1384
Queue Service Time (g_s), s	17.2	10.7			5.4		10.1	36.0		1.3	16.8	15.1
Cycle Queue Clearance Time (g_c), s	17.2	10.7			5.4		26.8	36.0		37.3	16.8	15.1
Green Ratio (*g/C*)	0.17	0.17			0.08		0.61	0.61		0.61	0.61	0.61
Capacity (*c*), veh/h	290	261			114		398	855		290	993	842
Volume-to-Capacity Ratio (*X*)	0.882	0.579			0.613		0.241	0.646		0.040	0.433	0.401
Back of Queue (*Q*), ft/ln (95 th percentile)	317.8	195.5			107.7		100.1	583.9		12.9	284.1	230.8
Back of Queue (*Q*), veh/ln (95 th percentile)	12.2	7.5			3.8		3.2	18.5		0.5	9.9	8.1
Queue Storage Ratio (*RQ*) (95 th percentile)	2.76	0.00			0.00		1.67	0.00		0.16	0.00	1.92
Uniform Delay (d_1), s/veh	48.8	46.1			53.8		20.2	22.1		29.2	12.5	12.2
Incremental Delay (d_2), s/veh	3.5	0.8			2.0		1.4	3.6		0.3	1.4	1.4
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	52.4	46.9			55.8		21.5	25.7		29.4	13.9	13.6
Level of Service (LOS)	D	D			E		C	C		C	B	B
Approach Delay, s/veh / LOS	50.3	D		55.8	E		25.1	C		14.0	B	
Intersection Delay, s/veh / LOS	27.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.96	B	2.16	B	1.66	B	1.89	B
Bicycle LOS Score / LOS	1.16	A	0.60	A	1.52	B	1.77	B

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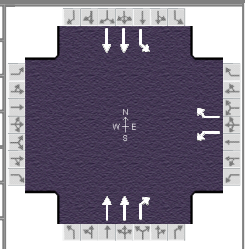
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	AM Peak	PHF	0.90
Urban Street	US 127	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	US 127 at US 30 EB Ra…	File Name	18b-1. US 127 Street - Build 2047 AM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				190		170		510	180	100	480	

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	83.3	24.7	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0			
				Red	2.0	2.0	0.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				9.0		7.0		6.0
Phase Duration, s				30.7		89.3		89.3
Change Period, (*Y+R c*), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.1		0.0		0.0
Queue Clearance Time (*g s*), s				24.0				
Green Extension Time (*g e*), s				0.7		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				211		189		459	162	100	481	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1132		1007		1484	1321	859	1639	
Queue Service Time (*g s*), s				21.9		22.0		8.6	4.8	5.0	7.0	
Cycle Queue Clearance Time (*g c*), s				21.9		22.0		8.6	4.8	13.9	7.0	
Green Ratio (*g/C*)				0.21		0.21		0.69	0.69	0.69	0.69	
Capacity (*c*), veh/h				233		207		2061	917	595	2277	
Volume-to-Capacity Ratio (*X*)				0.907		0.912		0.223	0.177	0.169	0.211	
Back of Queue (*Q*), ft/ln (95 th percentile)				381.5		354.2		138.2	65.5	45.3	108.8	
Back of Queue (*Q*), veh/ln (95 th percentile)				11.0		10.2		4.7	2.2	1.7	4.0	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		2.36		0.00	0.66	0.30	0.00	
Uniform Delay (*d 1*), s/veh				46.5		46.6		9.1	5.9	8.0	7.5	
Incremental Delay (*d 2*), s/veh				12.5		14.6		0.2	0.4	0.5	0.2	
Initial Queue Delay (*d 3*), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				59.1		61.2		9.4	6.3	8.6	7.7	
Level of Service (LOS)				E		E		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			60.1		E	8.6		A	7.8		A
Intersection Delay, s/veh / LOS	21.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.33	B	1.87	B	0.67	A
Bicycle LOS Score / LOS				F	1.12	A	1.02	A

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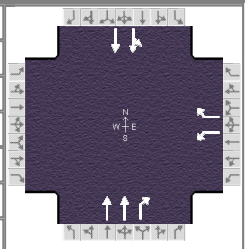
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	AM Peak	PHF	0.82
Urban Street	US 127	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	US 30 WB Ramps	File Name	18b-1. US 127 Street - Build 2047 AM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30		160		520	160	130	550	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	88.0	20.0	0.0	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
Red	2.0	2.0	0.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				9.0		7.0		8.0
Phase Duration, s				26.0		94.0		94.0
Change Period, ($Y+R_c$), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.3		0.0		0.0
Queue Clearance Time (g_s), s				18.2				
Green Extension Time (g_e), s				0.4		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				37		195		426	131	314	379	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1570		1397		1654	1472	1191	1527	
Queue Service Time (g_s), s				2.4		16.2		4.4	2.7	4.4	19.5	
Cycle Queue Clearance Time (g_c), s				2.4		16.2		4.4	2.7	8.9	19.5	
Green Ratio (*g/C*)				0.17		0.17		0.73	0.73	0.73	0.73	
Capacity (*c*), veh/h				261		233		2426	1080	916	1120	
Volume-to-Capacity Ratio (*X*)				0.140		0.839		0.176	0.121	0.342	0.338	
Back of Queue (*Q*), ft/ln (95 th percentile)				47.6		276.8		61.1	34	68.6	98	
Back of Queue (*Q*), veh/ln (95 th percentile)				1.7		9.7		2.2	1.3	2.7	3.5	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		1.85		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				42.7		48.4		4.5	3.9	3.6	3.7	
Incremental Delay (d_2), s/veh				0.1		3.1		0.1	0.2	0.9	0.7	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				42.8		51.5		4.7	4.1	4.6	4.5	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			50.1		D	4.6		A	4.5		A
Intersection Delay, s/veh / LOS	11.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.16	B	1.86	B	0.66	A
Bicycle LOS Score / LOS				F	1.17	A	1.17	A

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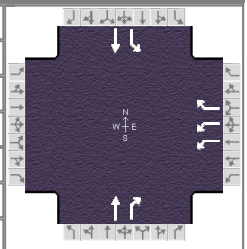
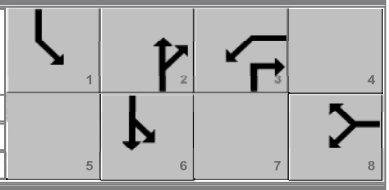
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	AM Peak	PHF	0.97
Urban Street	US 127	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Towne Center Blvd	File Name	18b-1. US 127 Street - Build 2047 AM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				240		10		530	150	30	440	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	5.0	85.9	11.1	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		7.3	1.0	4.0
Phase Duration, s				17.1		91.9	11.0	102.9
Change Period, ($Y+R_c$), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.1		0.0	3.0	0.0
Queue Clearance Time (g_s), s				10.6			2.7	
Green Extension Time (g_e), s				0.5		0.0	0.0	0.0
Phase Call Probability				1.00			0.72	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				247		10		546	155	38	558	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1689		1547		1663	1409	1612	1693	
Queue Service Time (g_s), s				8.6		0.7		16.7	2.8	0.7	7.8	
Cycle Queue Clearance Time (g_c), s				8.6		0.7		16.7	2.8	0.7	7.8	
Green Ratio (*g/C*)				0.09		0.09		0.72	0.81	0.77	0.81	
Capacity (*c*), veh/h				312		143		1190	1139	576	1367	
Volume-to-Capacity Ratio (*X*)				0.792		0.072		0.459	0.136	0.066	0.409	
Back of Queue (*Q*), ft/ln (95 th percentile)				173.2		13.3		254	28.8	8.1	82.5	
Back of Queue (*Q*), veh/ln (95 th percentile)				6.7		0.5		9.0	1.0	0.3	3.0	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.94		0.07		0.00	0.10	0.06	0.00	
Uniform Delay (d_1), s/veh				53.3		49.7		7.2	2.5	4.8	1.9	
Incremental Delay (d_2), s/veh				1.7		0.1		1.3	0.2	0.0	0.9	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				55.1		49.8		8.5	2.7	4.9	2.8	
Level of Service (LOS)				E		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			54.8		D	7.2		A	2.9		A
Intersection Delay, s/veh / LOS	13.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.16	B	1.97	B	2.05	B	0.63	A
Bicycle LOS Score / LOS				F	1.64	B	1.29	A

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.72		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		3070	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1058	4800	0.22	75.0	7.1	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.72	0.714	0.877	1058	48	4800	2100	0.22	0.02	65.0	65.0	8.1	8.9	A

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1013	4800	0.21	74.8	6.7	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.877	1098	85	4800	2100	0.23	0.04	66.4	66.4	8.3	9.2	A

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1117	4800	0.23	74.2	7.4	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.4	7.4	5.3	1.40	B

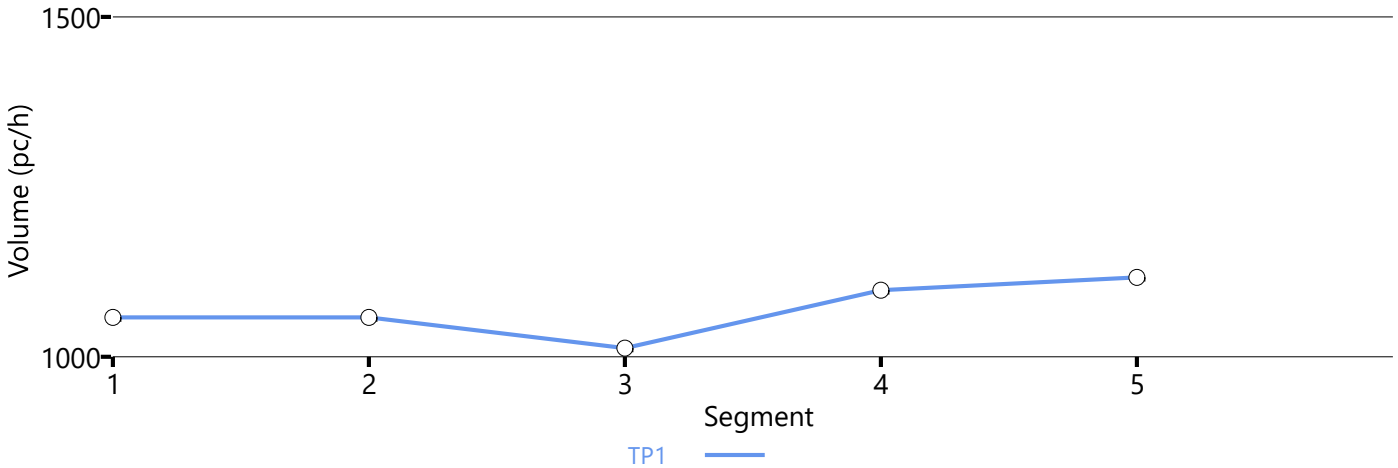
Facility Overall Results

Space Mean Speed, mi/h	71.4	Density, veh/mi/ln	5.3
Average Travel Time, min	1.40	Density, pc/mi/ln	7.4

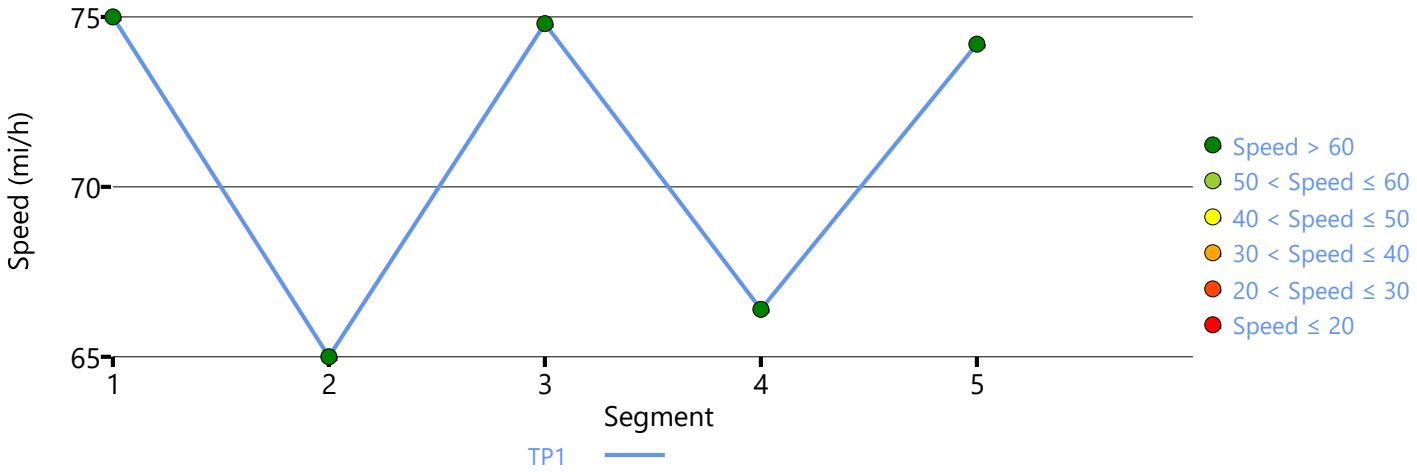
Messages

Comments

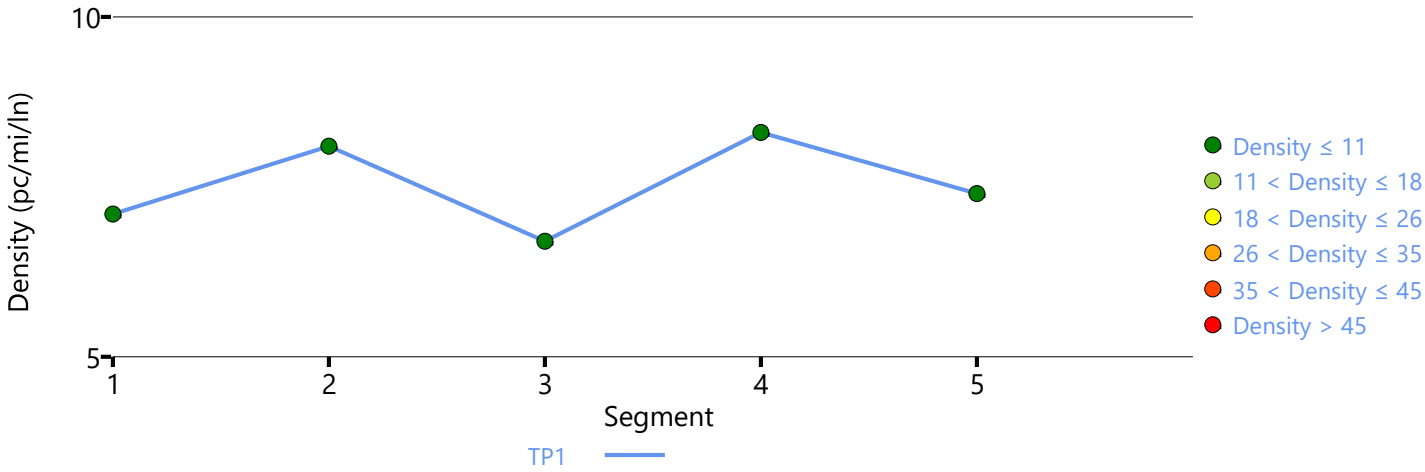
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	710	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	529
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.22
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	495
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	710	30
Peak Hour Factor (PHF)	0.94	0.72
Total Trucks, %	40.00	14.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.877
Flow Rate (vi),pc/h	1058	48
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.22	0.02

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.302
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	65.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1058	Ramp Junction Speed (S), mi/h	65.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.1
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	8.9

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	3070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	680	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	506
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	785
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	680	70
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	14.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.877
Flow Rate (vi),pc/h	1013	85
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.23	0.04

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.262
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1013	Ramp Junction Speed (S), mi/h	66.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	1098	Average Density (D), pc/mi/ln	8.3
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.2

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	750	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	558
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.66		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2790	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1162	4800	0.24	75.0	7.7	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.77	0.714	0.962	1162	108	4800	2100	0.24	0.05	64.8	64.8	9.0	10.2	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1043	4800	0.22	74.7	7.0	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.893	1162	119	4800	2100	0.24	0.06	65.4	65.4	8.9	11.7	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1192	4800	0.25	74.2	7.9	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.0	7.9	5.7	1.40	B

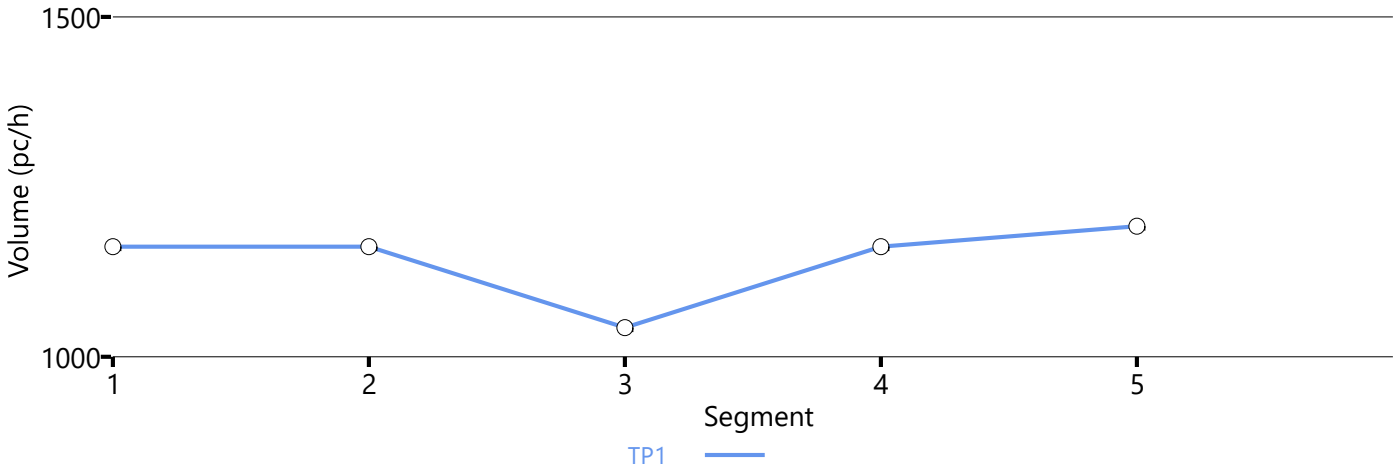
Facility Overall Results

Space Mean Speed, mi/h	71.0	Density, veh/mi/ln	5.7
Average Travel Time, min	1.40	Density, pc/mi/ln	7.9

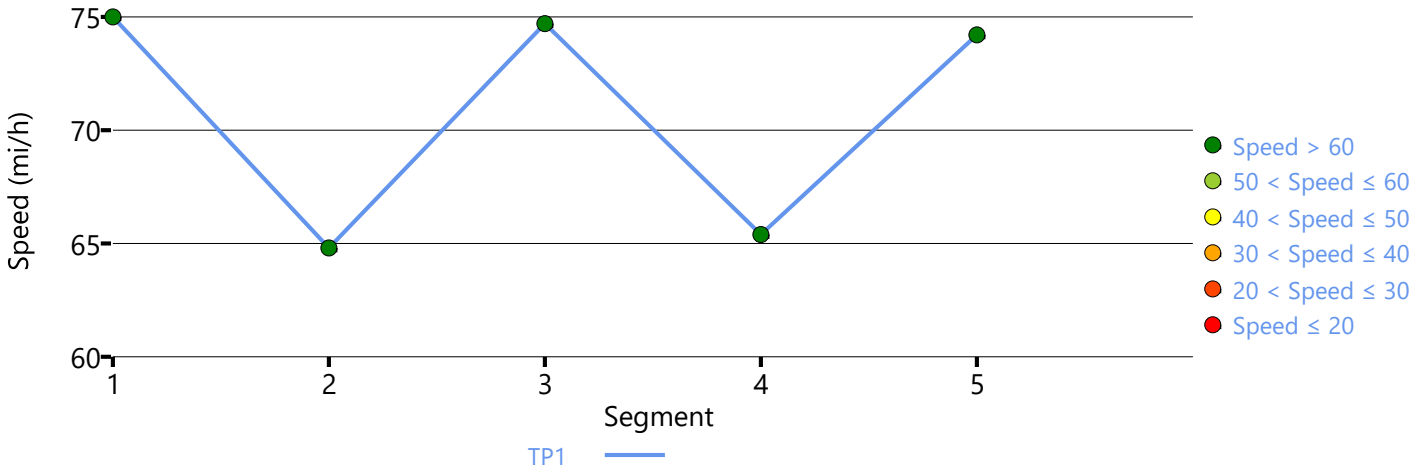
Messages

Comments

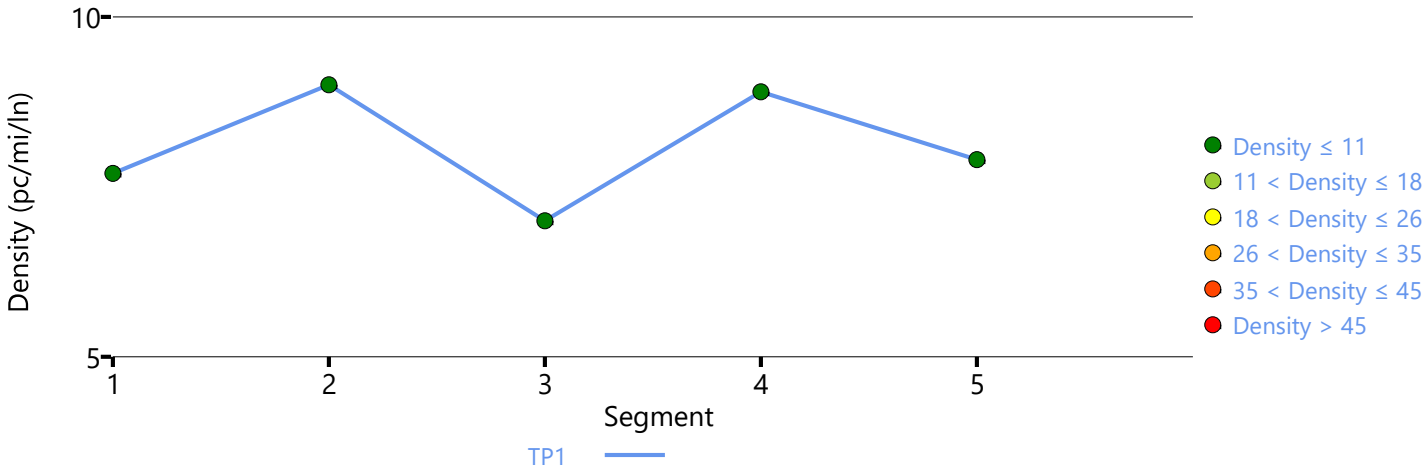
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build AM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	780	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	581
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.24
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	455
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	780	80
Peak Hour Factor (PHF)	0.94	0.77
Total Trucks, %	40.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.962
Flow Rate (vi),pc/h	1162	108
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.24	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.308
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1162	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	9.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.2

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2790	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	700	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	522
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.22
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	460
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	700	100
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.893
Flow Rate (vi),pc/h	1043	119
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.24	0.06

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.292
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1043	Ramp Junction Speed (S), mi/h	65.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	1162	Average Density (D), pc/mi/ln	8.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.7

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	800	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	596
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

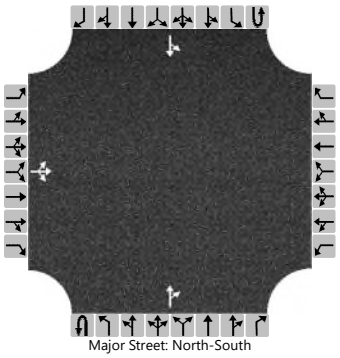
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.83
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LTR									TR		LT		
Volume (veh/h)		20	0	10							20	60		10	80	
Percent Heavy Vehicles (%)		14	14	14										5		
Proportion Time Blocked																
Percent Grade (%)			0													
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.24	6.64	6.34										4.15		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.63	4.13	3.43										2.25		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			36											12		
Capacity, c (veh/h)			801											1478		
v/c Ratio			0.05											0.01		
95% Queue Length, Q_{95} (veh)			0.1											0.0		
Control Delay (s/veh)			9.7											7.5		
Level of Service (LOS)			A											A		
Approach Delay (s/veh)		9.7												0.9		
Approach LOS		A														

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HCS7 Two-Way Stop-Control Report

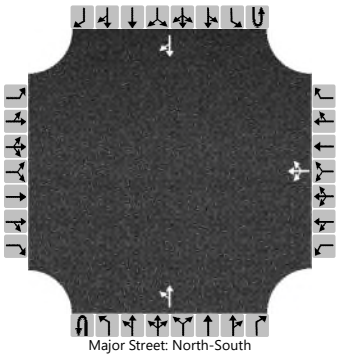
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build AM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.73
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						70	0	10		20	20				20	80
Percent Heavy Vehicles (%)						4	4	4		7						
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						7.14	6.54	6.24		4.17						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.54	4.04	3.34		2.26						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							110			27						
Capacity, c (veh/h)							809			1417						
v/c Ratio							0.14			0.02						
95% Queue Length, Q_{95} (veh)							0.5			0.1						
Control Delay (s/veh)							10.1			7.6						
Level of Service (LOS)							B			A						
Approach Delay (s/veh)						10.1				3.9						
Approach LOS						B										

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Appendix D

HCS Analysis - Build Alternative - 2047 P.M. Peak Hour

HCS7 Two-Way Stop-Control Report

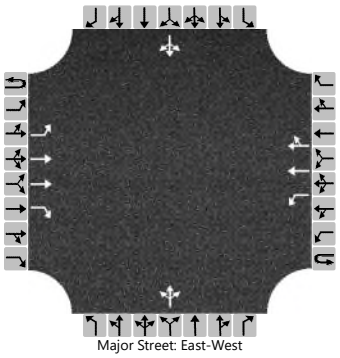
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at State Line Road
Jurisdiction	District 1
East/West Street	US 30
North/South Street	State Line Road
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	1	0	1	2	0		0	1	0		0	1	0
Configuration		L	T	R		L	T	TR			LTR				LTR	
Volume (veh/h)	0	40	1160	40	0	10	990	20		20	10	10		20	20	20
Percent Heavy Vehicles (%)	40	40			40	40				12	12	12		33	33	33
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No															
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.90				4.90				7.74	6.74	7.14		8.16	7.16	7.56
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.60				2.60				3.62	4.12	3.42		3.83	4.33	3.63

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		41				10					41				62	
Capacity, c (veh/h)		477				389					132				137	
v/c Ratio		0.09				0.03					0.31				0.45	
95% Queue Length, Q_{95} (veh)		0.3				0.1					1.2				2.0	
Control Delay (s/veh)		13.3				14.5					44.2				51.1	
Level of Service (LOS)		B				B					E				F	
Approach Delay (s/veh)	0.4				0.1				44.2				51.1			
Approach LOS									E				F			

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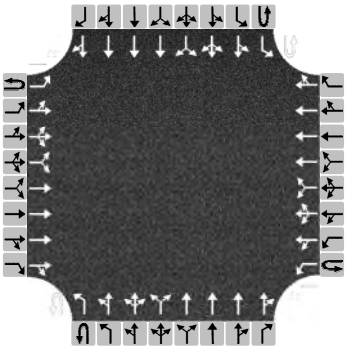
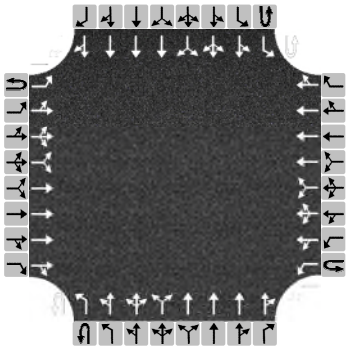
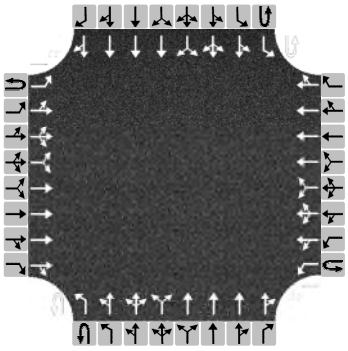
HCS7 Alternative Intersections Results Summary

General Information				Alternative Intersection Information	
Agency	Arcadis			Intersection Type	RCUT with TWSC
Analyst	QAi	Analysis Date	1/13/2023	Segment One Distance, ft	700
Jurisdiction	District 1	Duration, h	0.25	Segment Two Distance, ft	700
Intersection	US 30 at SR 49 Payne Road	PHF	0.87	Arterial Direction	East-West
Main Intersection File	8a. US 30 at SR 49 Payne Rd - 2047 PM - RCUTAlt.xtw				
West Crossover File	8c. US 30 at SR 49 Payne Rd - 2047 PM - West Crossover.xtw				
East Crossover File	8b. US 30 at SR 49 Payne Rd - 2047 PM - East Crossover.xtw				
Project Description	PAU-VAN US 30 RCUT Analysis				

Demand	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One Demand (*v*), veh/h			1100		80		1160									
Intersection Two Demand (*v*), veh/h	0	70	1030	80	0	10	1160	90				50				90
Intersection Three Demand (*v*), veh/h	20		1040				1240									

(1) West Crossover	(2) Main Intersection	(3) East Crossover
		

Queue-to-Storage Ratio	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One (R_Q)					0.10											
Intersection Two (R_Q)		0.19				0.04										
Intersection Three (R_Q)	0.02															

Alternative Intesection Results

O-D	O-D Movements	Flow Rate (veh/h)	Control Delay (s/veh)	EDTT (s/veh)	ETT (s/veh)	v/c>1?	R_Q>1?	LOS
EBL	EBL(2)	80	20.3	--	20.3	No	No	C
EBT	EBT(2)	1161	0.0	--	0.0	--	--	A
EBR	EBR(2)	23	0.0	--	0.0	--	--	A
WBL	WBL(2)	11	15.0	--	15.0	No	No	B
WBT	WBT(2)	1322	0.0	--	0.0	--	--	A
WBR	WBR(2)	92	0.0	--	0.0	--	--	A
NBL	NBR(2) + EBU(3) + WBT(2)	11	35.2	14.7	49.9	No	No	D
NBT	NBR(2) + EBU(3) + WBR(2)	11	35.2	14.7	49.9	No	No	D
NBR	NBR(2)	34	15.6	--	15.6	No	No	B
SBL	SBR(2) + WBU(1) + EBT(2)	23	40.0	14.7	54.7	No	No	D
SBT	SBR(2) + WBU(1) + EBR(2)	69	40.0	14.7	54.7	No	No	D
SBR	SBR(2)	11	19.3	--	19.3	No	No	B

Overall Results	EB		WB		NB		SB	
Approach ETT, s/veh | LOS	1.3	A	0.1	A	29.1	C	50.9	D
Intersection ETT, s/veh | LOS	3.0				A			

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	2.16		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		5420	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1773	4800	0.37	75.0	11.8	B

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.885	1773	168	4800	2100	0.37	0.08	64.7	64.7	13.7	14.1	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1564	4800	0.33	75.0	10.4	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.862	1601	37	4800	2100	0.33	0.02	65.6	65.6	12.2	14.3	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1609	4800	0.34	74.2	10.7	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.9	11.3	8.0	1.80	B

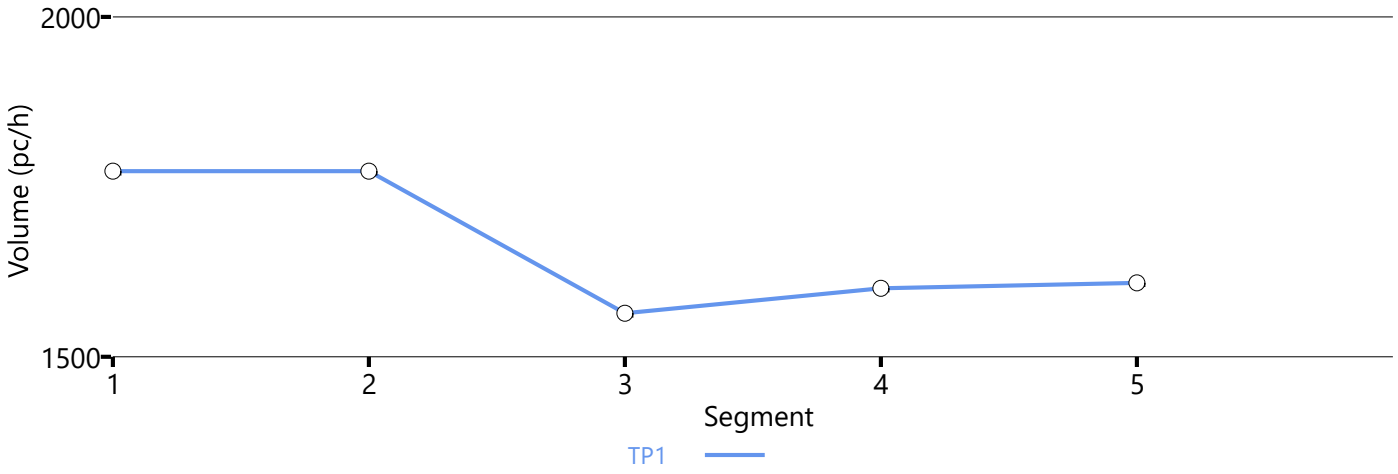
Facility Overall Results

Space Mean Speed, mi/h	71.9	Density, veh/mi/ln	8.0
Average Travel Time, min	1.80	Density, pc/mi/ln	11.3

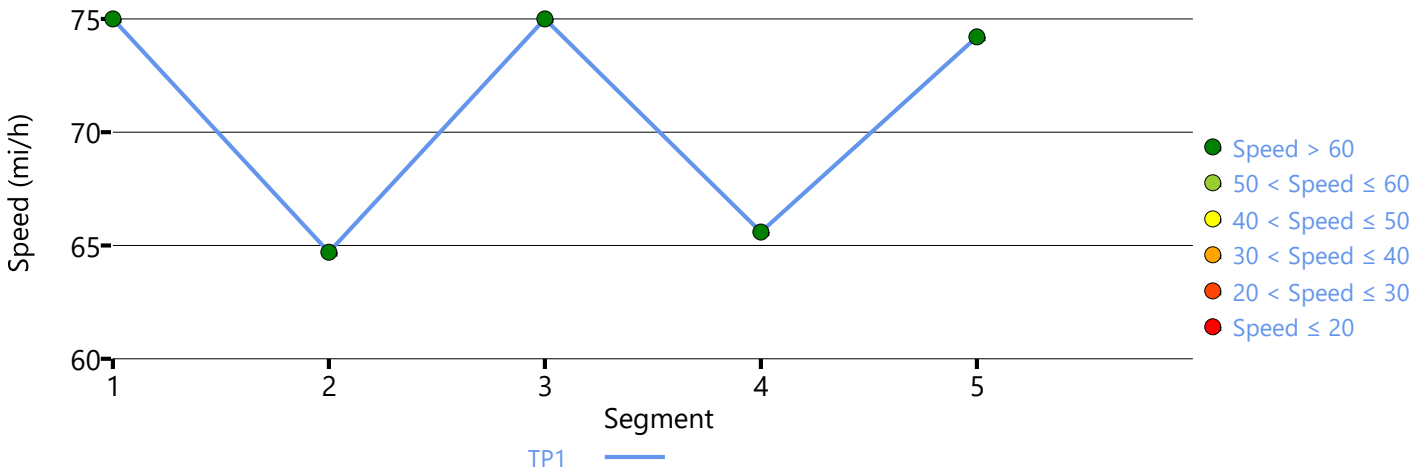
Messages

Comments

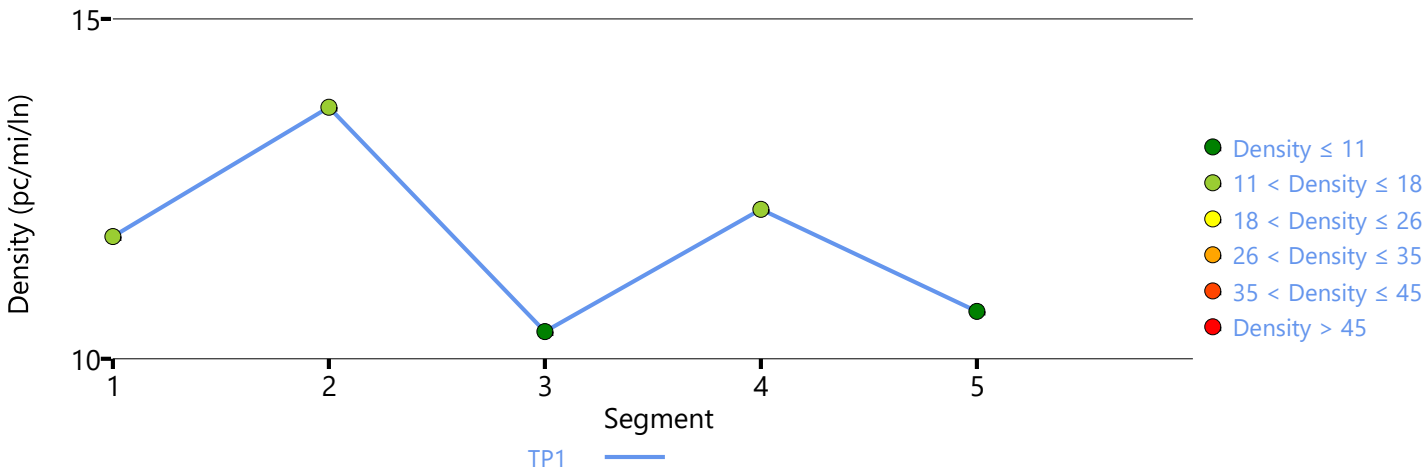
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1190	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	886
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	11.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1190	140
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	13.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.885
Flow Rate (vi),pc/h	1773	168
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.37	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.313
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1773	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	13.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.1

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	5420	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1050	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	782
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.33
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1050	30
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	16.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.862
Flow Rate (vi),pc/h	1564	37
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.33	0.02

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.286
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1564	Ramp Junction Speed (S), mi/h	65.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	1601	Average Density (D), pc/mi/ln	12.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.3

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1080	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	804
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	2.16		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		5420	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1639	4800	0.34	75.0	10.9	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.813	1639	170	4800	2100	0.34	0.08	64.7	64.7	12.7	12.9	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1445	4800	0.30	75.0	9.6	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.847	1508	63	4800	1900	0.31	0.03	65.5	65.5	11.5	12.0	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1520	4800	0.32	74.2	10.1	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.9	10.5	7.5	1.80	B

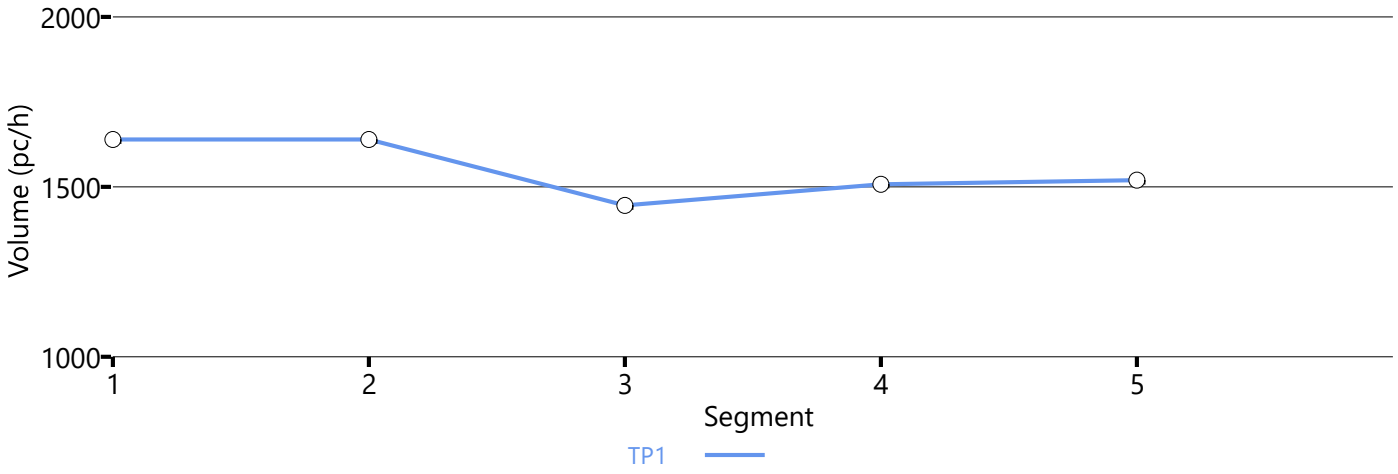
Facility Overall Results

Space Mean Speed, mi/h	71.9	Density, veh/mi/ln	7.5
Average Travel Time, min	1.80	Density, pc/mi/ln	10.5

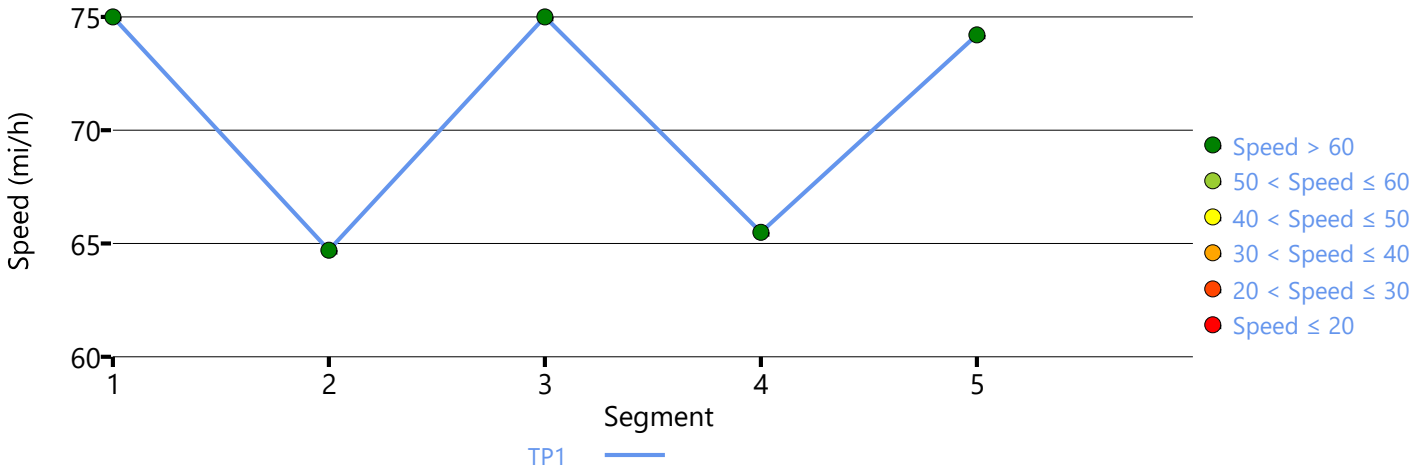
Messages

Comments

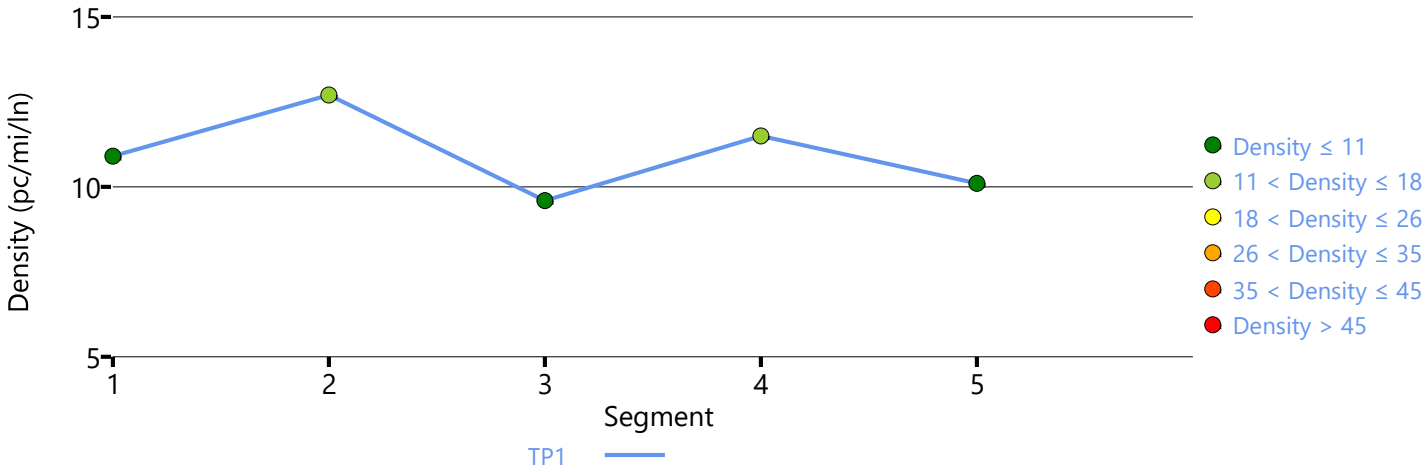
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1100	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	820
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1100	130
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	23.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.813
Flow Rate (vi),pc/h	1639	170
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.34	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.313
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1639	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	12.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.9

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	5420	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	970	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	722
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.30
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	30.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	970	50
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.847
Flow Rate (vi),pc/h	1445	63
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.31	0.03

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.288
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1445	Ramp Junction Speed (S), mi/h	65.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	1508	Average Density (D), pc/mi/ln	11.5
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.0

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1020	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	760
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.32
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

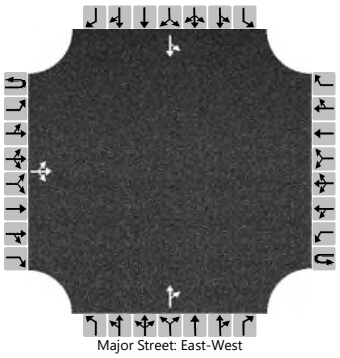
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy-Heller Rd
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	Convoy-Heller Road
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	0	0		0	1	0		0	1	0
Configuration			LTR									TR		LT		
Volume (veh/h)		60	0	80							50	20		10	190	
Percent Heavy Vehicles (%)		10									25	25		16	16	
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1									6.5	6.2		7.1	6.5	
Critical Headway (sec)		4.20									6.75	6.45		7.26	6.66	
Base Follow-Up Headway (sec)		2.2									4.0	3.3		3.5	4.0	
Follow-Up Headway (sec)		2.29									4.23	3.53		3.64	4.14	

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		64										74		213		
Capacity, c (veh/h)		1572														
v/c Ratio		0.04														
95% Queue Length, Q_{95} (veh)		0.1														
Control Delay (s/veh)		7.4														
Level of Service (LOS)		A														
Approach Delay (s/veh)	3.3															
Approach LOS																

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HCS7 Two-Way Stop-Control Report

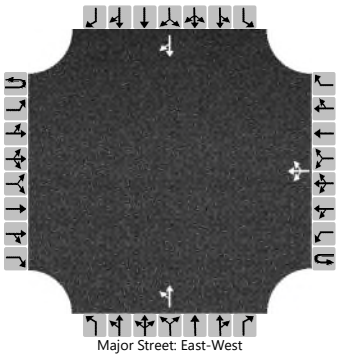
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build PM Peak Hour
Intersection Orientation	East-West
Project Description	PAU-VAN US 30

Site Information

Intersection	US 30 at Convoy-Heller Rd
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	Convoy-Heller Road
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	0	0	0	0	1	0		0	1	0		0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						80	0	50		30	120				120	20
Percent Heavy Vehicles (%)						8				7	7				18	18
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1	6.5				6.5	6.2
Critical Headway (sec)						4.18				7.17	6.57				6.68	6.38
Base Follow-Up Headway (sec)						2.2				3.5	4.0				4.0	3.3
Follow-Up Headway (sec)						2.27				3.56	4.06				4.16	3.46

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						85				160						149
Capacity, c (veh/h)						1585										
v/c Ratio						0.05										
95% Queue Length, Q_{95} (veh)						0.2										
Control Delay (s/veh)						7.4										
Level of Service (LOS)						A										
Approach Delay (s/veh)					4.7											
Approach LOS																

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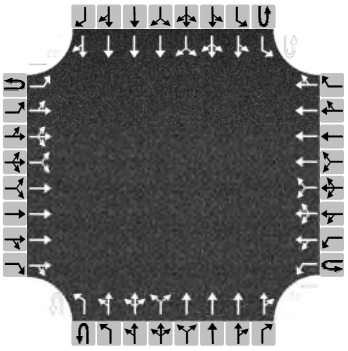
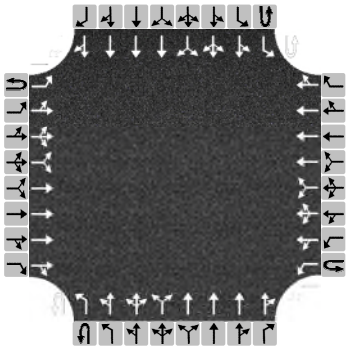
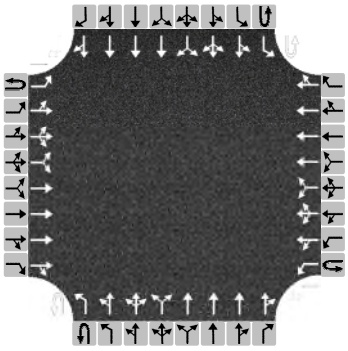
HCS7 Alternative Intersections Results Summary

General Information				Alternative Intersection Information	
Agency	Arcadis			Intersection Type	RCUT with TWSC
Analyst	QAi	Analysis Date	1/12/2023	Segment One Distance, ft	700
Jurisdiction	District 1	Duration, h	0.25	Segment Two Distance, ft	700
Intersection	US 30 at Convoy-Heller Rd	PHF	0.92	Arterial Direction	East-West
Main Intersection File	10a. US 30 at Convoy-Heller Rd - 2047 PM - RCUTAlt.xtw				
West Crossover File	10c. US 30 at Convoy-Heller Rd - 2047 PM - West Crossover.xtw				
East Crossover File	10b. US 30 at Convoy-Heller Rd - 2047 PM - East Crossover.xtw				
Project Description	PAU-VAN US 30 RCUT Analysis				

Demand	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One Demand (*v*), veh/h			1080		20		1200									
Intersection Two Demand (*v*), veh/h	0	10	1020	70	0	10	1220	20				60				30
Intersection Three Demand (*v*), veh/h	40		1030				1210									

(1) West Crossover	(2) Main Intersection	(3) East Crossover
		

Queue-to-Storage Ratio	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One (R_Q)					0.02											
Intersection Two (R_Q)		0.01				0.01										
Intersection Three (R_Q)	0.04															

Alternative Intesection Results

O-D	O-D Movements	Flow Rate (veh/h)	Control Delay (s/veh)	EDTT (s/veh)	ETT (s/veh)	v/c>1?	R_Q>1?	LOS
EBL	EBL(2)	11	15.7	--	15.7	No	No	B
EBT	EBT(2)	1098	0.0	--	0.0	--	--	A
EBR	EBR(2)	65	0.0	--	0.0	--	--	A
WBL	WBL(2)	11	14.0	--	14.0	No	No	B
WBT	WBT(2)	1293	0.0	--	0.0	--	--	A
WBR	WBR(2)	11	0.0	--	0.0	--	--	A
NBL	NBR(2) + EBU(3) + WBT(2)	33	33.3	14.7	48.0	No	No	D
NBT	NBR(2) + EBU(3) + WBR(2)	11	33.3	14.7	48.0	No	No	D
NBR	NBR(2)	22	14.5	--	14.5	No	No	B
SBL	SBR(2) + WBU(1) + EBT(2)	11	30.6	14.7	45.3	No	No	D
SBT	SBR(2) + WBU(1) + EBR(2)	11	30.6	14.7	45.3	No	No	D
SBR	SBR(2)	11	14.7	--	14.7	No	No	B

Overall Results	EB		WB		NB		SB	
Approach ETT, s/veh | LOS	0.1	A	0.1	A	36.8	D	35.1	D
Intersection ETT, s/veh | LOS	1.5				A			

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.43		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		560	2
3	Basic	Basic		2475	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1609	4800	0.34	75.0	10.7	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.89	0.714	0.885	1609	254	4800	2100	0.34	0.12	64.4	64.4	12.5	13.0	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1311	4800	0.27	74.1	8.7	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.862	1558	247	4800	2100	0.32	0.12	66.6	66.6	11.7	11.8	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1609	4800	0.34	74.3	10.7	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.8	10.4	7.4	1.20	B

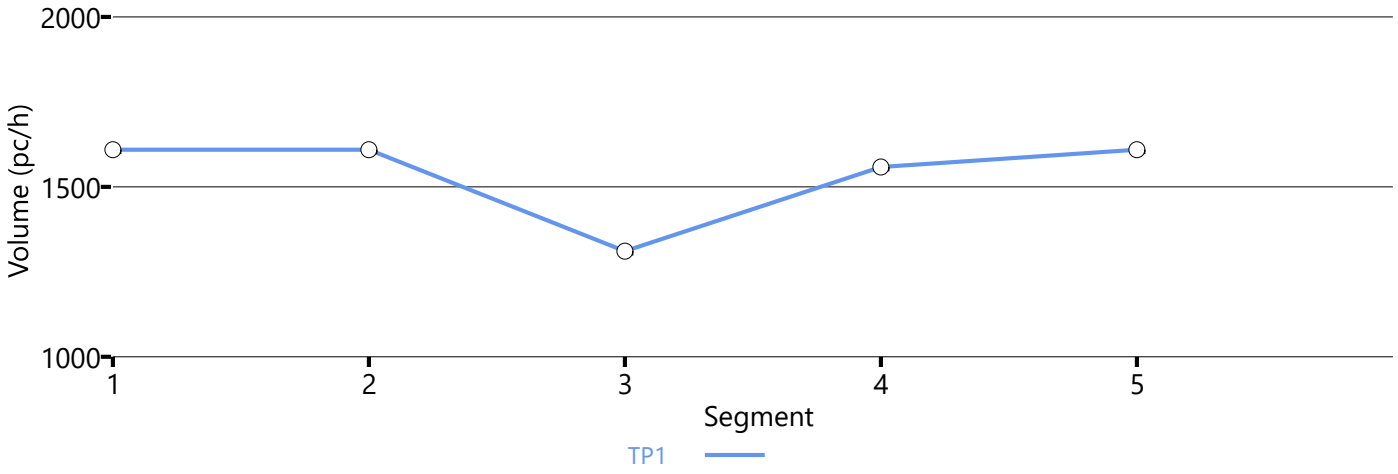
Facility Overall Results

Space Mean Speed, mi/h	71.8	Density, veh/mi/ln	7.4
Average Travel Time, min	1.20	Density, pc/mi/ln	10.4

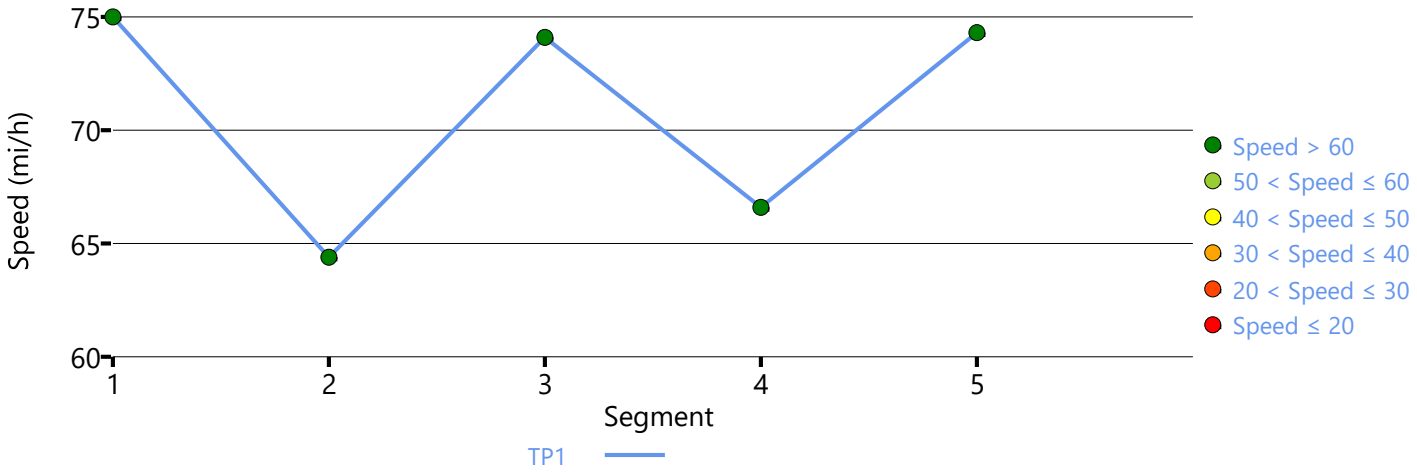
Messages

Comments

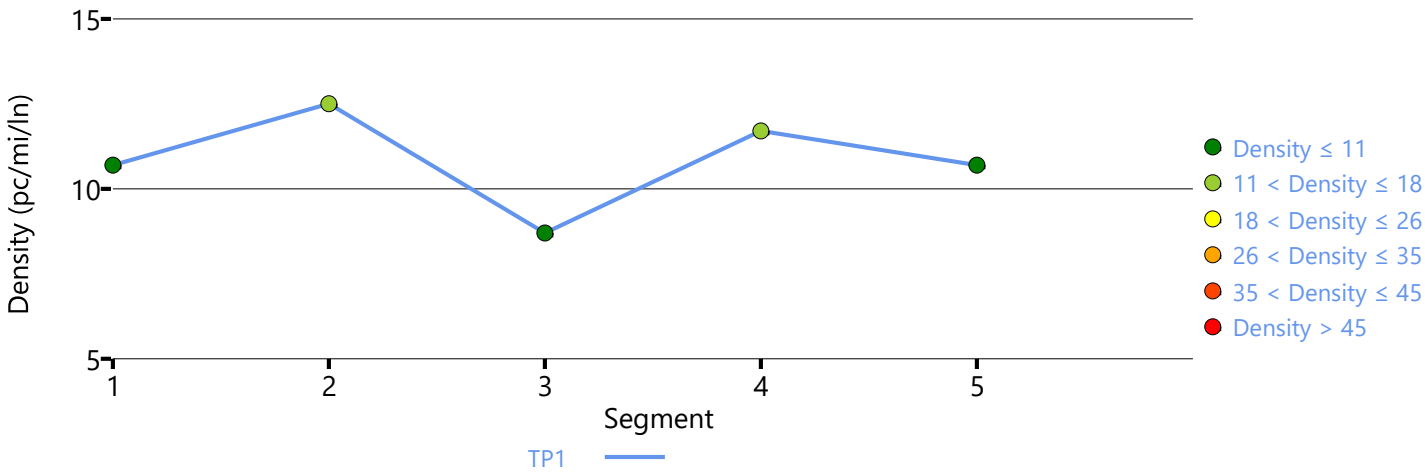
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1080	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	804
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	560	560
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1080	200
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	40.00	13.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.885
Flow Rate (vi),pc/h	1609	254
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.34	0.12

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.321
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1609	Ramp Junction Speed (S), mi/h	64.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	12.5
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	13.0

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2475	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	880	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	656
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.27
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	925
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	880	200
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	16.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.862
Flow Rate (vi),pc/h	1311	247
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.32	0.12

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.256
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1311	Ramp Junction Speed (S), mi/h	66.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	1558	Average Density (D), pc/mi/ln	11.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.8

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1080	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	804
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.60		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2465	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1788	4800	0.37	75.0	11.9	B

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.75	0.714	0.813	1788	476	4800	2100	0.37	0.23	63.7	63.7	14.0	16.4	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1356	4800	0.28	74.5	9.0	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.78	0.714	0.847	1644	288	4800	1900	0.34	0.15	65.4	65.4	12.6	13.0	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1639	4800	0.34	74.2	10.9	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.4	11.4	8.1	1.40	B

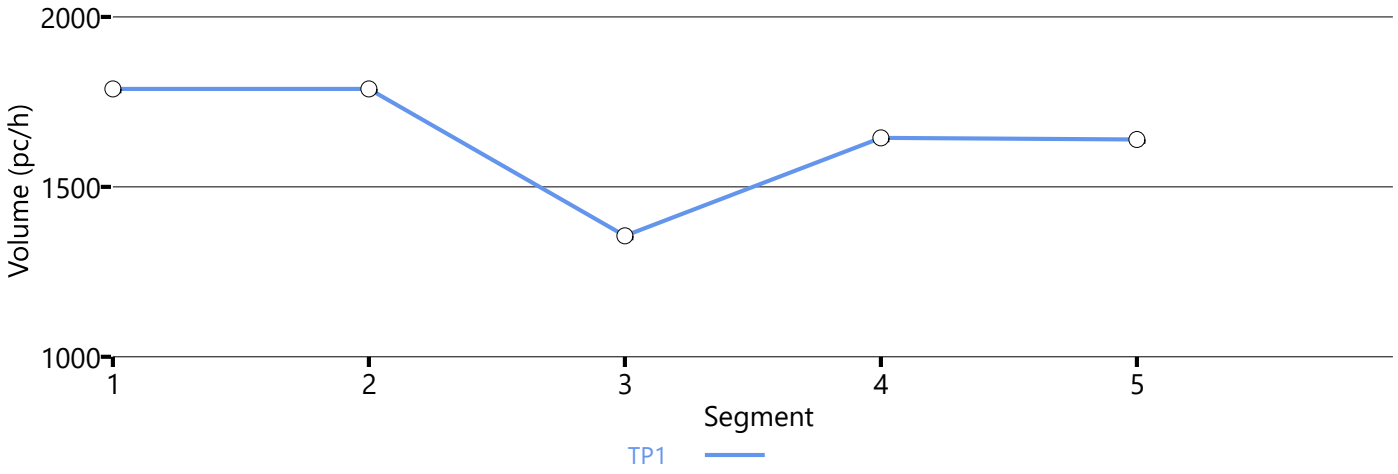
Facility Overall Results

Space Mean Speed, mi/h	70.4	Density, veh/mi/ln	8.1
Average Travel Time, min	1.40	Density, pc/mi/ln	11.4

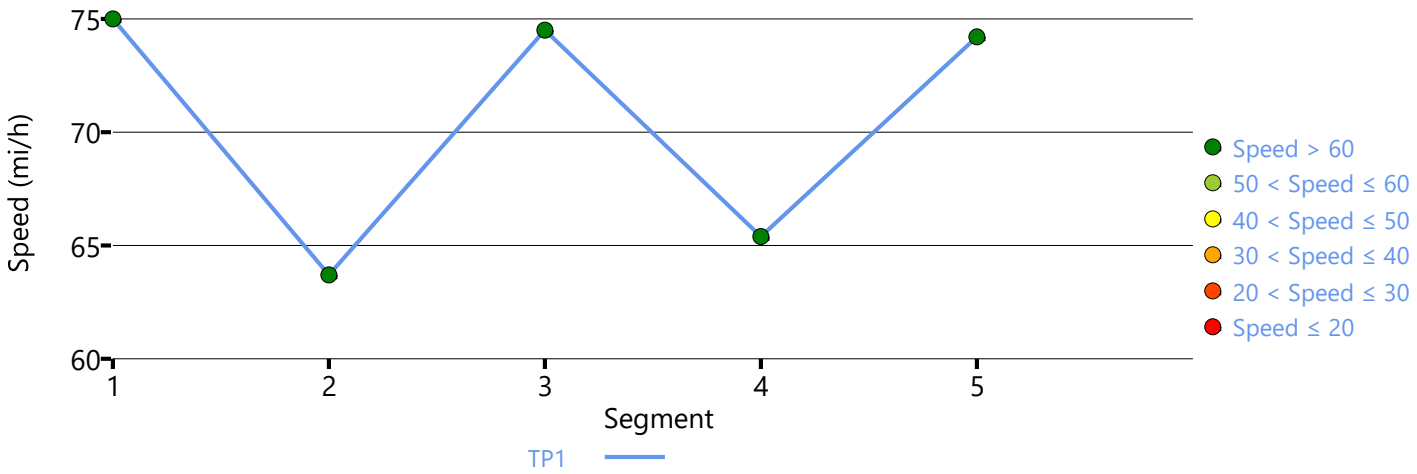
Messages

Comments

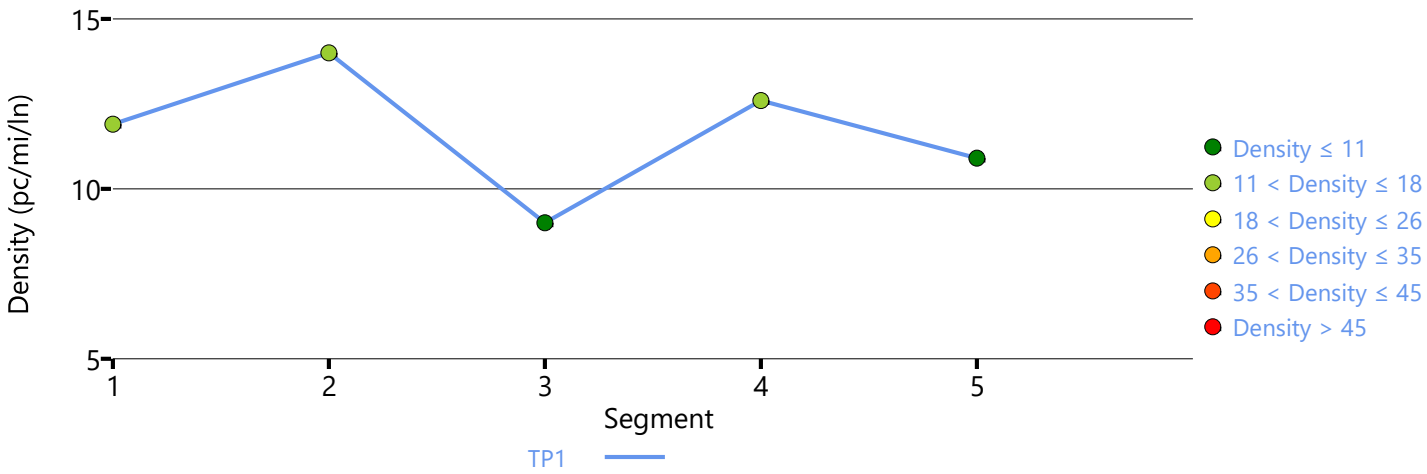
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 224 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1200	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	894
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	11.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	360
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1200	290
Peak Hour Factor (PHF)	0.94	0.75
Total Trucks, %	40.00	23.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.813
Flow Rate (vi),pc/h	1788	476
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.37	0.23

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.341
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	63.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1788	Ramp Junction Speed (S), mi/h	63.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	14.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.4

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2465	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	910	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	678
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.28
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	30.0
Segment Length (L) / Acceleration Length (LA),ft	1500	840
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	910	190
Peak Hour Factor (PHF)	0.94	0.78
Total Trucks, %	40.00	18.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.847
Flow Rate (vi),pc/h	1356	288
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.34	0.15

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.291
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1356	Ramp Junction Speed (S), mi/h	65.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	1644	Average Density (D), pc/mi/ln	12.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	13.0

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1100	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	820
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

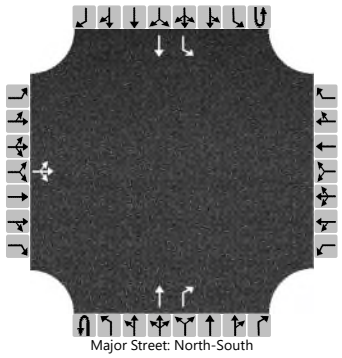
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 224 at US 30 EB Ramps
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	US 224
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	1	0	1	1	0
Configuration			LTR								T	R		L	T	
Volume (veh/h)		10	0	240							180	150		10	120	
Percent Heavy Vehicles (%)		13	13	13										22		
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized										No						
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.23	6.63	6.33										4.32		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.62	4.12	3.42										2.40		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			266											11		
Capacity, c (veh/h)			869											1105		
v/c Ratio			0.31											0.01		
95% Queue Length, Q_{95} (veh)			1.3											0.0		
Control Delay (s/veh)			11.0											8.3		
Level of Service (LOS)			B											A		
Approach Delay (s/veh)		11.0												0.6		
Approach LOS		B														

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HCS7 Two-Way Stop-Control Report

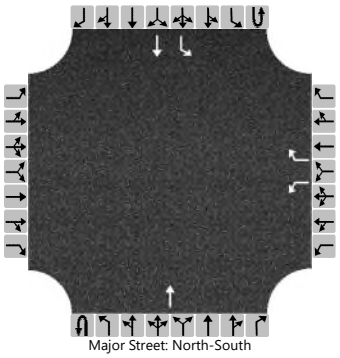
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 224 at US 30 WB Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	US 224
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R			T			L	T	
Volume (veh/h)						110		30			140			10	20	
Percent Heavy Vehicles (%)						22		22						4		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.62		6.42						4.14		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.70		3.50						2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						117		32						11		
Capacity, c (veh/h)						748		848						1420		
v/c Ratio						0.16		0.04						0.01		
95% Queue Length, Q_{95} (veh)						0.6		0.1						0.0		
Control Delay (s/veh)						10.7		9.4						7.6		
Level of Service (LOS)						B		A						A		
Approach Delay (s/veh)						10.4								2.5		
Approach LOS						B										

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HCS7 Two-Way Stop-Control Report

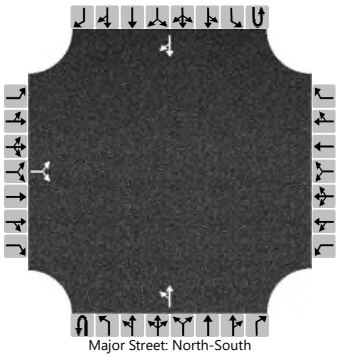
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	US 224 at Liberty Union
Jurisdiction	District 1
East/West Street	Liberty Union Road
North/South Street	US 224
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		10		10						10	160				20	10
Percent Heavy Vehicles (%)		4		4						22						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.44		6.24						4.32						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.54		3.34						2.40						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			21							11						
Capacity, c (veh/h)			879							1460						
v/c Ratio			0.02							0.01						
95% Queue Length, Q_{95} (veh)			0.1							0.0						
Control Delay (s/veh)			9.2							7.5						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)		9.2								0.5						
Approach LOS		A														

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HCS7 Roundabouts Report

General Information

Analyst	QAi
Agency or Co.	Arcadis
Date Performed	1/13/2023
Analysis Year	2047
Time Analyzed	Build PM
Project Description	

Site Information

Intersection	Lincoln Hwy at US 224
E/W Street Name	Lincoln Hwy
N/S Street Name	US 224
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.88
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	70	130	30	0	80	160	50	0	90	270	80	0	100	280	110
Percent Heavy Vehicles, %	3	3	3	3	2	2	2	2	7	7	7	7	8	8	8	8
Flow Rate (v_{PCE}), pc/h	0	82	152	35	0	93	185	58	0	109	328	97	0	123	344	135
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		269			336			534			602	
Entry Volume, veh/h		261			329			499			557	
Circulating Flow (v_c), pc/h	560			519			357			387		
Exiting Flow (v_{ex}), pc/h	372			429			468			472		
Capacity (c_{pce}), pc/h		779			813			959			930	
Capacity (c), veh/h		757			797			896			861	
v/c Ratio (x)		0.35			0.41			0.56			0.65	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		9.0			9.7			11.7			14.8	
Lane LOS		A			A			B			B	
95% Queue, veh		1.5			2.0			3.5			4.9	
Approach Delay, s/veh	9.0			9.7			11.7			14.8		
Approach LOS	A			A			B			B		
Intersection Delay, s/veh | LOS	11.9						B					

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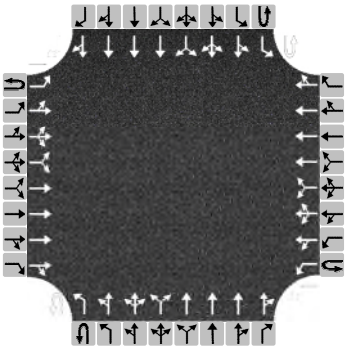
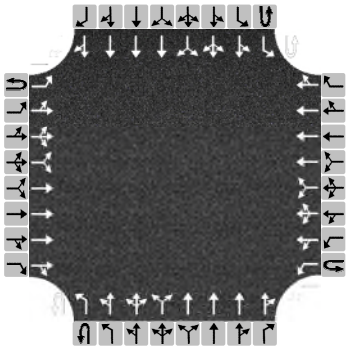
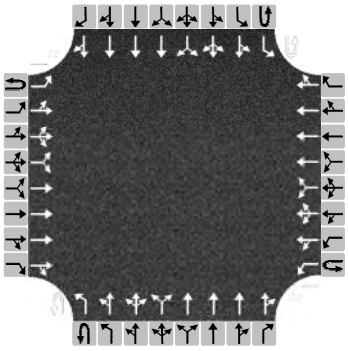
HCS7 Alternative Intersections Results Summary

General Information				Alternative Intersection Information	
Agency	Arcadis			Intersection Type	RCUT with TWSC
Analyst	QAi	Analysis Date	1/12/2023	Segment One Distance, ft	700
Jurisdiction	District 1	Duration, h	0.25	Segment Two Distance, ft	700
Intersection	US 30 at John Brown Road	PHF	0.96	Arterial Direction	East-West
Main Intersection File	16a. US 30 at John Brown Rd - 2047 PM - RCUTAlt.xtw				
West Crossover File	16c. US 30 at John Brown Rd - 2047 PM - West Crossover.xtw				
East Crossover File	16b. US 30 at John Brown Rd - 2047 PM - East Crossover.xtw				
Project Description	PAU-VAN US 30 RCUT Analysis				

Demand	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One Demand (*v*), veh/h			1040		80		1250									
Intersection Two Demand (*v*), veh/h	0	10	1030	80	0	220	1250	20				70				100
Intersection Three Demand (*v*), veh/h	30		1050				1460									

(1) West Crossover	(2) Main Intersection	(3) East Crossover
		

Queue-to-Storage Ratio	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Intersection One (R_Q)					0.07											
Intersection Two (R_Q)		0.02				0.69										
Intersection Three (R_Q)	0.04															

Alternative Intesection Results

O-D	O-D Movements	Flow Rate (veh/h)	Control Delay (s/veh)	EDTT (s/veh)	ETT (s/veh)	v/c>1?	R_Q>1?	LOS
EBL	EBL(2)	10	15.4	--	15.4	No	No	B
EBT	EBT(2)	1052	0.0	--	0.0	--	--	A
EBR	EBR(2)	21	0.0	--	0.0	--	--	A
WBL	WBL(2)	229	23.1	--	23.1	No	No	C
WBT	WBT(2)	1281	0.0	--	0.0	--	--	A
WBR	WBR(2)	10	0.0	--	0.0	--	--	A
NBL	NBR(2) + EBU(3) + WBT(2)	21	36.8	14.7	51.5	No	No	D
NBT	NBR(2) + EBU(3) + WBR(2)	10	36.8	14.7	51.5	No	No	D
NBR	NBR(2)	42	14.8	--	14.8	No	No	B
SBL	SBR(2) + WBU(1) + EBT(2)	21	33.8	14.7	48.5	No	No	D
SBT	SBR(2) + WBU(1) + EBR(2)	63	33.8	14.7	48.5	No	No	D
SBR	SBR(2)	21	17.1	--	17.1	No	No	B

Overall Results	EB		WB		NB		SB	
Approach ETT, s/veh | LOS	0.1	A	3.5	A	30.4	C	42.2	D
Intersection ETT, s/veh | LOS	4.3				A			

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HCS7 Freeway Facilities Report

Project Information

Analyst	GBS	Date	8/10/2022
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.50		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		1940	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1609	4800	0.34	75.0	10.7	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.75	0.714	0.758	1609	668	4800	1900	0.34	0.35	54.6	54.6	14.7	12.8	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1043	4800	0.22	73.7	7.0	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.70	0.714	0.758	1703	660	4800	2100	0.35	0.31	65.2	65.2	13.1	15.4	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1564	4800	0.33	74.1	10.4	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.3	11.0	7.8	1.30	B

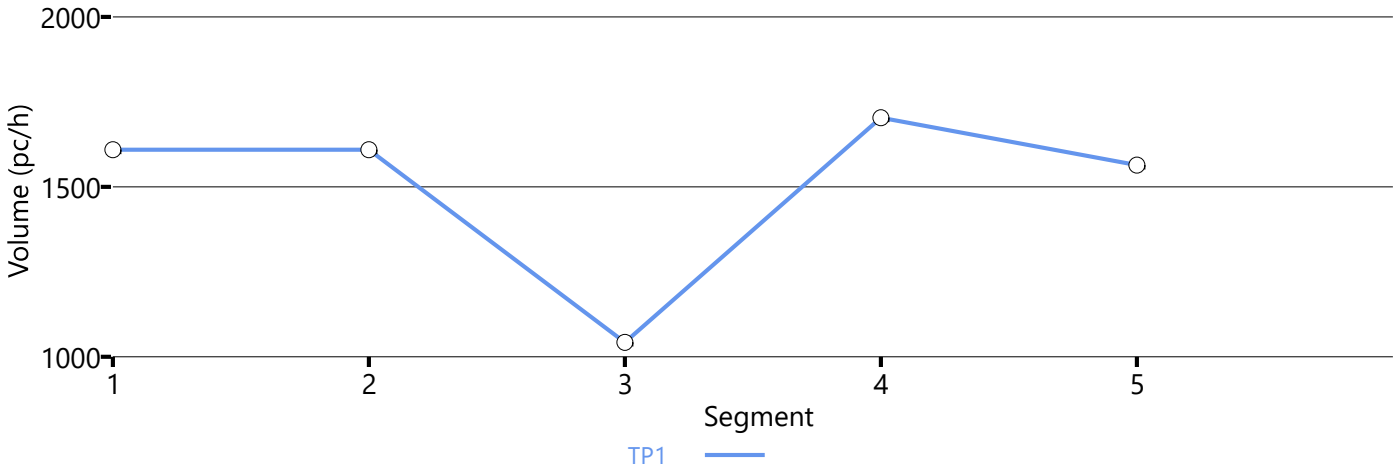
Facility Overall Results

Space Mean Speed, mi/h	67.3	Density, veh/mi/ln	7.8
Average Travel Time, min	1.30	Density, pc/mi/ln	11.0

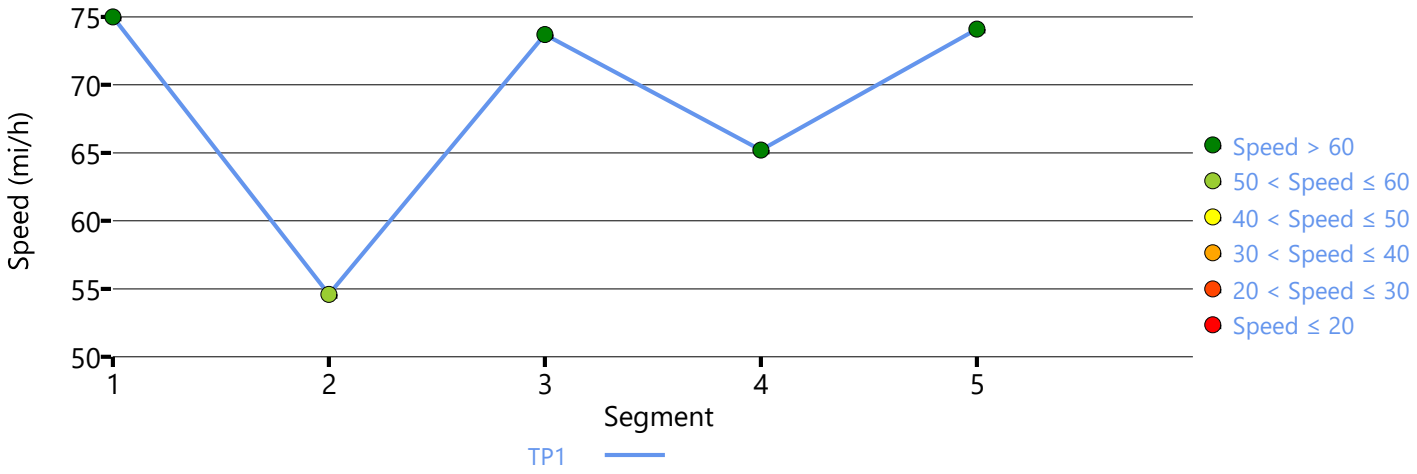
Messages

Comments

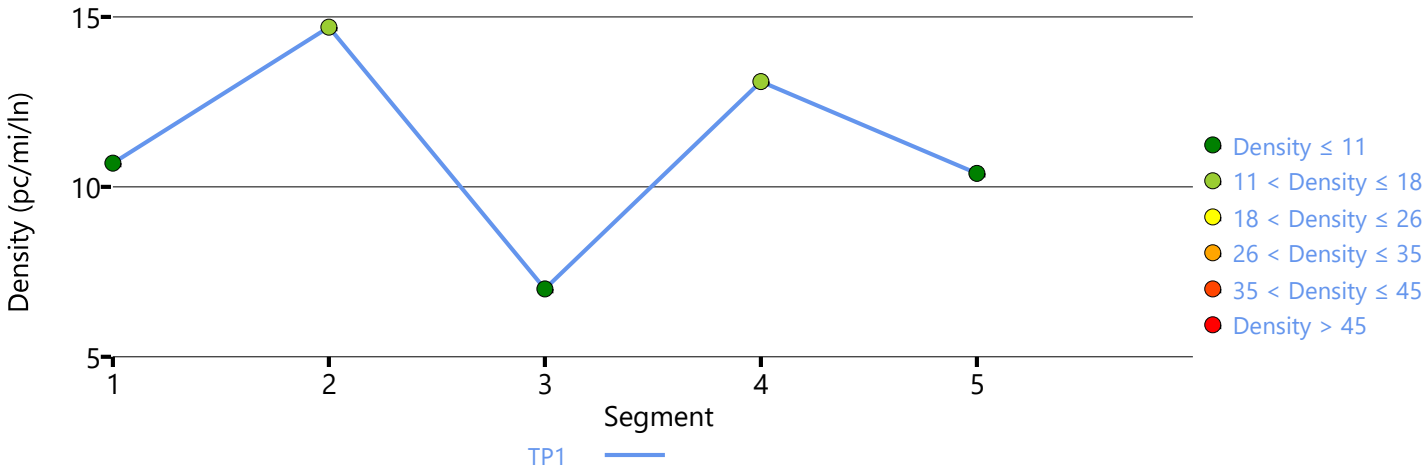
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	GBS	Date	8/10/2022
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1080	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	804
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Deceleration Length (LA),ft	1500	590
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1080	380
Peak Hour Factor (PHF)	0.94	0.75
Total Trucks, %	40.00	32.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.758
Flow Rate (vi),pc/h	1609	668
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.34	0.35

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.618
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1609	Ramp Junction Speed (S), mi/h	54.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	14.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.8

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1940	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	700	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	522
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.22
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	700	350
Peak Hour Factor (PHF)	0.94	0.70
Total Trucks, %	40.00	32.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.758
Flow Rate (vi),pc/h	1043	660
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.35	0.31

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.297
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1043	Ramp Junction Speed (S), mi/h	65.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	1703	Average Density (D), pc/mi/ln	13.1
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.4

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1050	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	782
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.33
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.53		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2075	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1550	4800	0.32	75.0	10.3	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.71	0.714	0.763	1550	517	4800	2100	0.32	0.25	63.6	63.6	12.2	13.1	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1132	4800	0.24	74.4	7.5	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.94	0.714	0.763	1745	613	4800	1900	0.36	0.32	64.6	64.6	13.5	15.3	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1788	4800	0.37	74.1	11.9	B

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	69.9	10.8	7.7	1.30	B

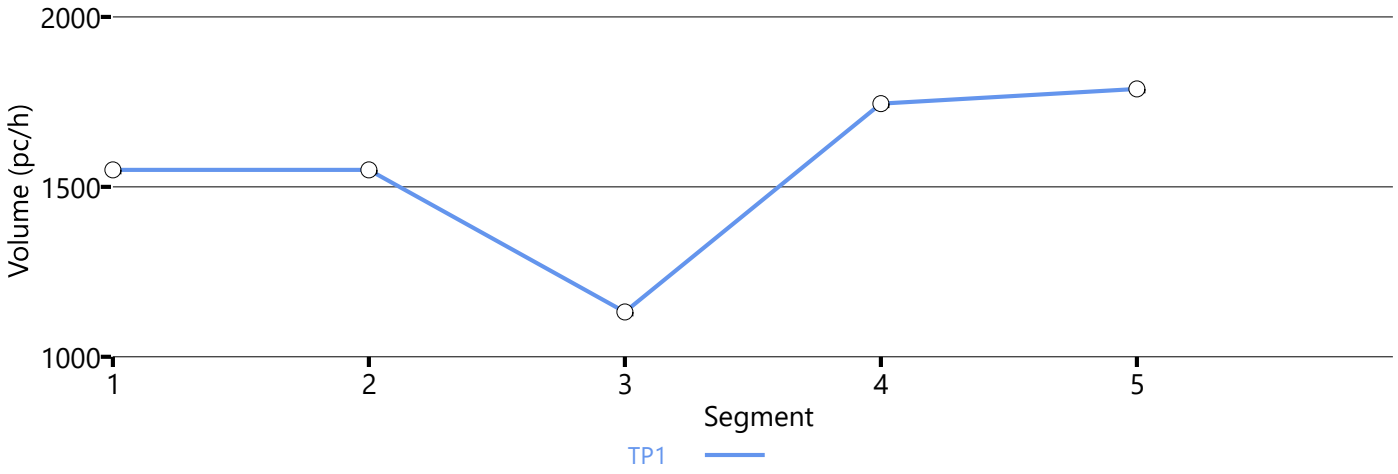
Facility Overall Results

Space Mean Speed, mi/h	69.9	Density, veh/mi/ln	7.7
Average Travel Time, min	1.30	Density, pc/mi/ln	10.8

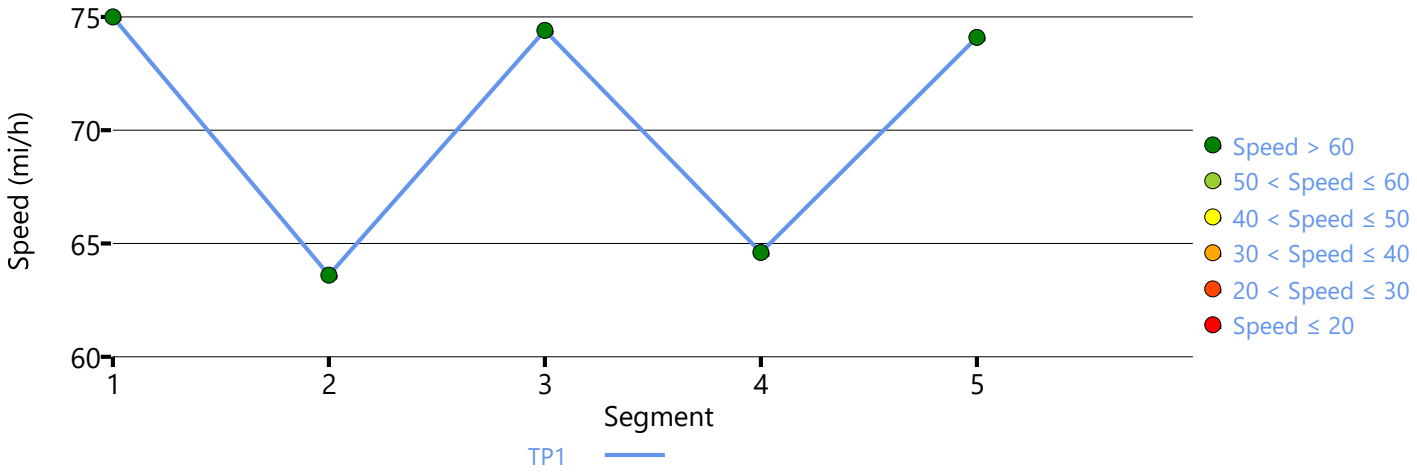
Messages

Comments

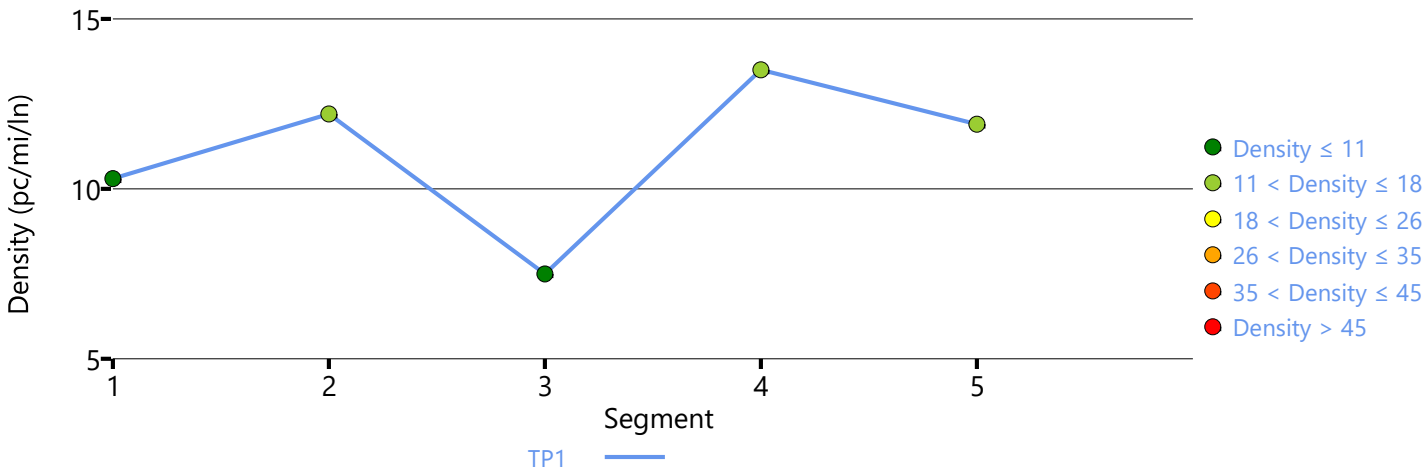
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at US 127 WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1040	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	775
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.32
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1040	280
Peak Hour Factor (PHF)	0.94	0.71
Total Trucks, %	40.00	31.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.763
Flow Rate (vi),pc/h	1550	517
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.32	0.25

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.345
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	63.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1550	Ramp Junction Speed (S), mi/h	63.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	12.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	13.1

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2075	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	760	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	566
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.24
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	25.0
Segment Length (L) / Acceleration Length (LA),ft	1500	570
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	760	440
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	40.00	31.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.763
Flow Rate (vi),pc/h	1132	613
Capacity (c), pc/h	4800	1900
Volume-to-Capacity Ratio (v/c)	0.36	0.32

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.315
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	64.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1132	Ramp Junction Speed (S), mi/h	64.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	1745	Average Density (D), pc/mi/ln	13.5
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.3

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1200	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	894
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	11.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

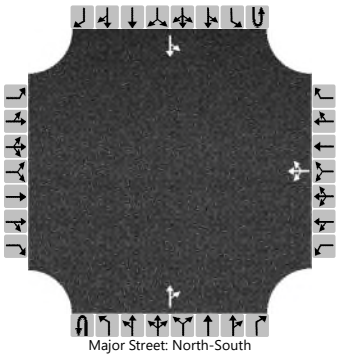
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	7/26/2022
Analysis Year	2047
Time Analyzed	Build PM
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	US 127 at Brooks Ave
Jurisdiction	
East/West Street	Brooks Ave
North/South Street	US 127
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR					TR		LT		
Volume (veh/h)						10	0	20			720	10		20	610	
Percent Heavy Vehicles (%)						13	13	13						21		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2						4.1		
Critical Headway (sec)						7.23	6.63	6.33						4.31		
Base Follow-Up Headway (sec)						3.5	4.0	3.3						2.2		
Follow-Up Headway (sec)						3.62	4.12	3.42						2.39		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							33							22		
Capacity, c (veh/h)							185							750		
v/c Ratio							0.18							0.03		
95% Queue Length, Q_{95} (veh)							0.6							0.1		
Control Delay (s/veh)							28.5							9.9		
Level of Service (LOS)							D							A		
Approach Delay (s/veh)						28.5								0.7		
Approach LOS						D										

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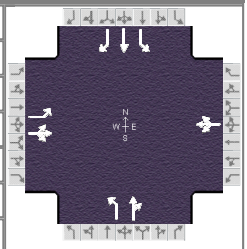
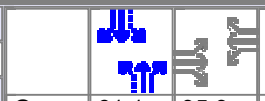
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	PM Peak	PHF	0.97
Urban Street	US 127	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Bonnewitz Ave	File Name	18b-1. US 127 Street - Build 2047 PM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	470	10	160	10	20	30	100	630	10	20	460	470

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



							1	2	3	4
Green	61.1	35.3	5.5	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		10.0		12.0		6.0		5.0
Phase Duration, s		41.3		11.5		67.1		67.1
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.2		3.3		0.0		0.0
Queue Clearance Time (g_s), s		34.0		6.2				
Green Extension Time (g_e), s		1.4		0.1		0.0		0.0
Phase Call Probability		1.00		0.87				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	485	175			62		121	774		21	474	485
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1587			1730		789	1599		652	1752	1485
Queue Service Time (g_s), s	32.0	10.5			4.2		11.3	54.8		3.7	21.9	28.5
Cycle Queue Clearance Time (g_c), s	32.0	10.5			4.2		35.3	54.8		58.6	21.9	28.5
Green Ratio (*g/C*)	0.29	0.29			0.05		0.51	0.51		0.51	0.51	0.51
Capacity (*c*), veh/h	520	467			80		318	815		94	892	756
Volume-to-Capacity Ratio (*X*)	0.931	0.375			0.776		0.380	0.950		0.219	0.531	0.641
Back of Queue (*Q*), ft/ln (95 th percentile)	543.2	186.4			90		133.4	887.3		35.7	371.5	412.6
Back of Queue (*Q*), veh/ln (95 th percentile)	21.2	7.3			3.6		4.6	30.6		1.3	13.8	15.3
Queue Storage Ratio (*RQ*) (95 th percentile)	4.72	0.00			0.00		2.22	0.00		0.45	0.00	4.13
Uniform Delay (d_1), s/veh	41.1	33.6			56.6		24.9	25.8		55.6	19.8	21.4
Incremental Delay (d_2), s/veh	8.8	0.2			5.9		3.3	20.8		5.3	2.3	4.1
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	49.9	33.8			62.6		28.2	46.7		60.9	22.1	25.6
Level of Service (LOS)	D	C			E		C	D		E	C	C
Approach Delay, s/veh / LOS	45.6	D		62.6	E		44.2	D		24.6	C	
Intersection Delay, s/veh / LOS	37.6						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.96	B	2.16	B	1.68	B	1.90	B
Bicycle LOS Score / LOS	1.58	B	0.59	A	1.75	B	2.10	B

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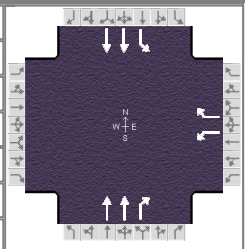
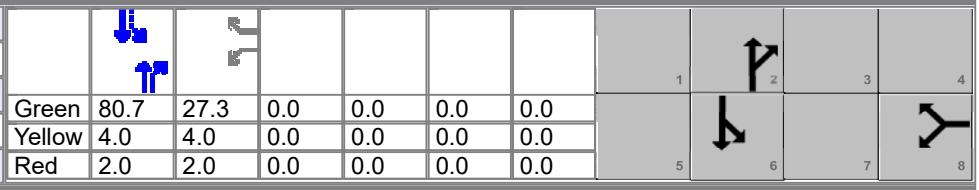
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	PM Peak	PHF	0.94
Urban Street	US 127	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	US 127 at US 30 EB Ra…	File Name	18b-1. US 127 Street - Build 2047 PM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				240		140		950	180	170	710	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	80.7	27.3	0.0	0.0	0.0	0.0		
Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
Red	2.0	2.0	0.0	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				9.0		7.0		6.0
Phase Duration, s				33.3		86.7		86.7
Change Period, (*Y+R c*), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.1		0.0		0.0
Queue Clearance Time (*g s*), s				26.6				
Green Extension Time (*g e*), s				0.7		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				255		149		746	141	125	524	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1217		1083		1639	1459	686	1710	
Queue Service Time (*g s*), s				24.6		14.8		13.2	3.6	9.3	7.3	
Cycle Queue Clearance Time (*g c*), s				24.6		14.8		13.2	3.6	23.5	7.3	
Green Ratio (*g/C*)				0.23		0.23		0.67	0.67	0.67	0.67	
Capacity (*c*), veh/h				277		247		2204	981	446	2299	
Volume-to-Capacity Ratio (*X*)				0.922		0.604		0.339	0.144	0.281	0.228	
Back of Queue (*Q*), ft/ln (95 th percentile)				419.1		233.7		216.5	51.8	71.6	115	
Back of Queue (*Q*), veh/ln (95 th percentile)				12.5		7.0		7.9	1.9	2.7	4.4	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		1.56		0.00	0.52	0.48	0.00	
Uniform Delay (*d 1*), s/veh				45.3		41.5		10.0	6.0	11.0	7.9	
Incremental Delay (*d 2*), s/veh				10.0		0.9		0.4	0.3	1.4	0.2	
Initial Queue Delay (*d 3*), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				55.3		42.4		10.4	6.3	12.4	8.1	
Level of Service (LOS)				E		D		B	A	B	A	
Approach Delay, s/veh / LOS	0.0			50.5		D	9.8		A	8.9		A
Intersection Delay, s/veh / LOS	18.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.33	B	1.87	B	0.67	A
Bicycle LOS Score / LOS				F	1.48	A	1.26	A

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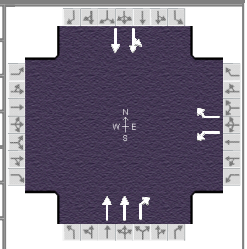
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	PM Peak	PHF	0.94
Urban Street	US 127	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	US 30 WB Ramps	File Name	18b-1. US 127 Street - Build 2047 PM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				70		210		790	300	140	810	

Signal Information					EB		WB				NB			
Cycle, s	120.0	Reference Phase	2								1	2	3	4
Offset, s	0	Reference Point	End	Green	86.4	21.6	0.0	0.0	0.0	0.0	5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	0.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				9.0		7.0		8.0
Phase Duration, s				27.6		92.4		92.4
Change Period, ($Y+R_c$), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.3		0.0		0.0
Queue Clearance Time (g_s), s				20.9				
Green Extension Time (g_e), s				0.6		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				74		223		664	252	341	438	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1555		1384		1724	1535	1120	1567	
Queue Service Time (g_s), s				4.9		18.9		9.1	6.5	6.0	30.4	
Cycle Queue Clearance Time (g_c), s				4.9		18.9		9.1	6.5	15.1	30.4	
Green Ratio (*g/C*)				0.18		0.18		0.72	0.72	0.72	0.72	
Capacity (*c*), veh/h				279		249		2484	1106	847	1129	
Volume-to-Capacity Ratio (*X*)				0.266		0.898		0.267	0.228	0.403	0.388	
Back of Queue (*Q*), ft/ln (95 th percentile)				98.3		316.1		131.3	83.5	85	128.6	
Back of Queue (*Q*), veh/ln (95 th percentile)				3.4		11.1		5.0	3.2	3.4	4.7	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00		2.11		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				42.4		48.1		6.8	5.5	4.6	4.5	
Incremental Delay (d_2), s/veh				0.2		4.7		0.2	0.3	1.3	0.9	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				42.6		52.8		7.0	5.8	5.9	5.4	
Level of Service (LOS)				D		D		A	A	A	A	
Approach Delay, s/veh / LOS	0.0			50.3		D	6.7		A	5.6		A
Intersection Delay, s/veh / LOS	12.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.16	B	1.86	B	0.66	A
Bicycle LOS Score / LOS				F	1.44	A	1.32	A

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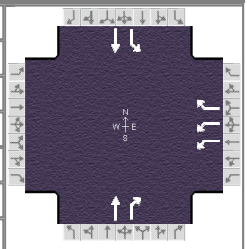
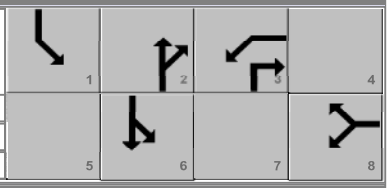
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Arcadis			Duration, h	0.25
Analyst	QAi	Analysis Date	5/17/2021	Area Type	Other
Jurisdiction	District 1	Time Period	PM Peak	PHF	0.96
Urban Street	US 127	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Towne Center Blvd	File Name	18b-1. US 127 Street - Build 2047 PM.xus		
Project Description	Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				540		50		830	170	20	410	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	4.8	75.7	21.5	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		7.3	1.0	4.0
Phase Duration, s				27.5		81.7	10.8	92.5
Change Period, (*Y+R c*), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.1		0.0	3.0	0.0
Queue Clearance Time (*g s*), s				20.9			2.9	
Green Extension Time (*g e*), s				0.6		0.0	0.0	0.0
Phase Call Probability				1.00			0.68	
Max Out Probability				1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				563		52		865	177	34	705	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1743		1598		1752	1485	1485	1559	
Queue Service Time (*g s*), s				18.9		3.3		43.2	3.1	0.9	19.8	
Cycle Queue Clearance Time (*g c*), s				18.9		3.3		43.2	3.1	0.9	19.8	
Green Ratio (*g/C*)				0.18		0.18		0.63	0.81	0.69	0.72	
Capacity (*c*), veh/h				626		287		1105	1203	264	1124	
Volume-to-Capacity Ratio (*X*)				0.899		0.182		0.782	0.147	0.130	0.627	
Back of Queue (*Q*), ft/ln (95 th percentile)				358.6		59.5		629.9	31	18.7	225.9	
Back of Queue (*Q*), veh/ln (95 th percentile)				14.2		2.4		23.3	1.1	0.6	7.6	
Queue Storage Ratio (*RQ*) (95 th percentile)				1.94		0.32		0.00	0.11	0.14	0.00	
Uniform Delay (*d 1*), s/veh				48.2		41.8		16.1	2.5	15.7	4.7	
Incremental Delay (*d 2*), s/veh				12.9		0.1		5.5	0.3	0.1	2.5	
Initial Queue Delay (*d 3*), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				61.1		41.9		21.7	2.7	15.8	7.2	
Level of Service (LOS)				E		D		C	A	B	A	
Approach Delay, s/veh / LOS	0.0			59.4		E	18.5		B	7.6		A
Intersection Delay, s/veh / LOS	25.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.16	B	1.97	B	2.07	B	0.66	A
Bicycle LOS Score / LOS				F	2.21	B	1.23	A

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.72		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		3070	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1564	4800	0.33	75.0	10.4	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.79	0.714	0.877	1564	115	4800	2100	0.33	0.05	64.8	64.8	12.1	13.2	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1445	4800	0.30	74.7	9.6	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.79	0.714	0.877	1633	188	4800	2100	0.34	0.09	66.1	66.1	12.4	13.3	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1639	4800	0.34	74.2	10.9	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	71.2	10.8	7.7	1.40	B

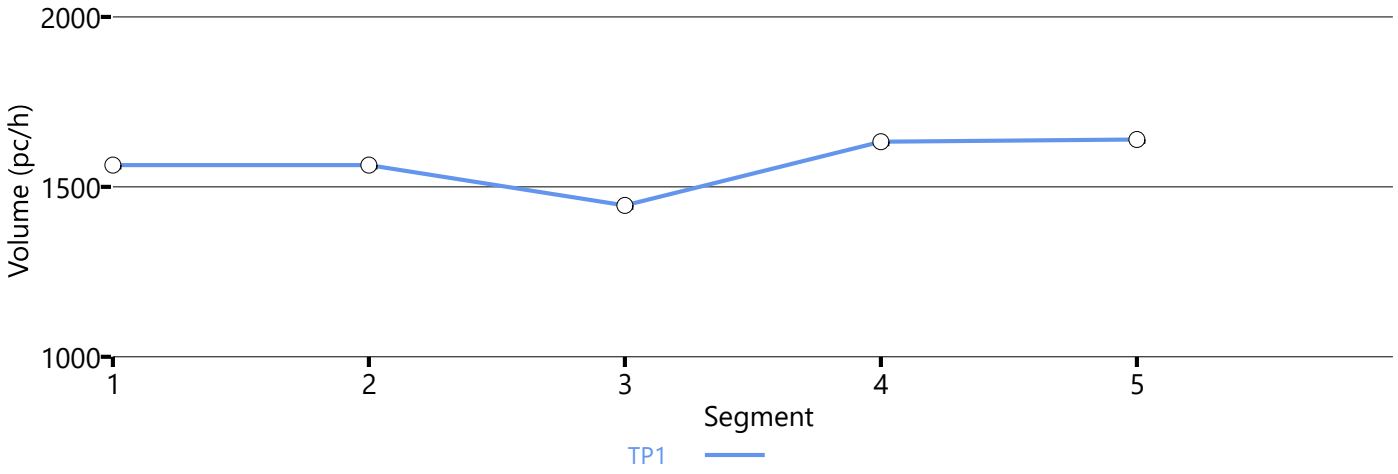
Facility Overall Results

Space Mean Speed, mi/h	71.2	Density, veh/mi/ln	7.7
Average Travel Time, min	1.40	Density, pc/mi/ln	10.8

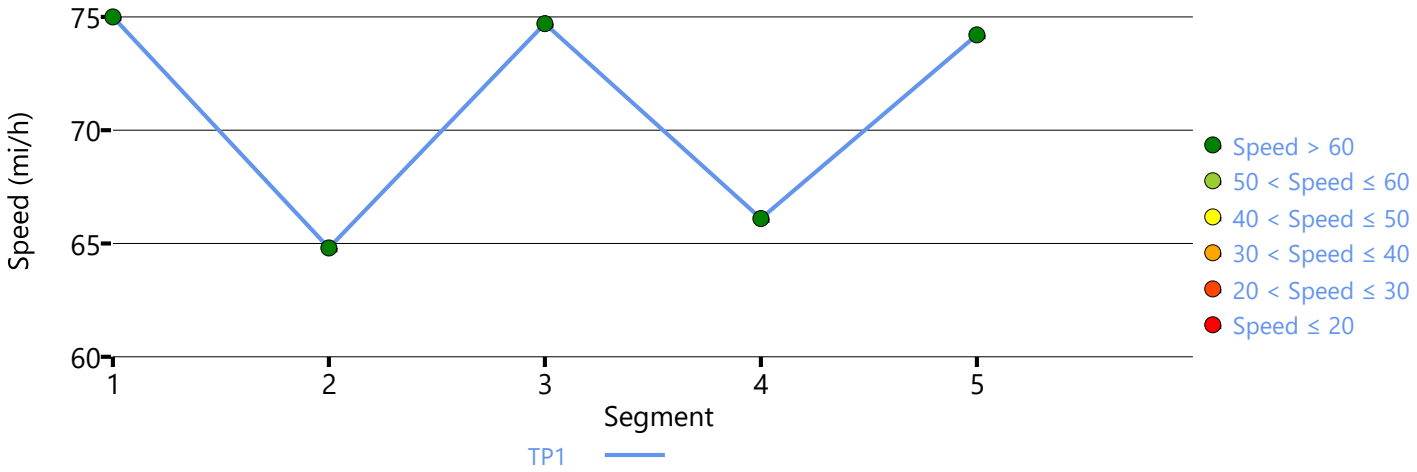
Messages

Comments

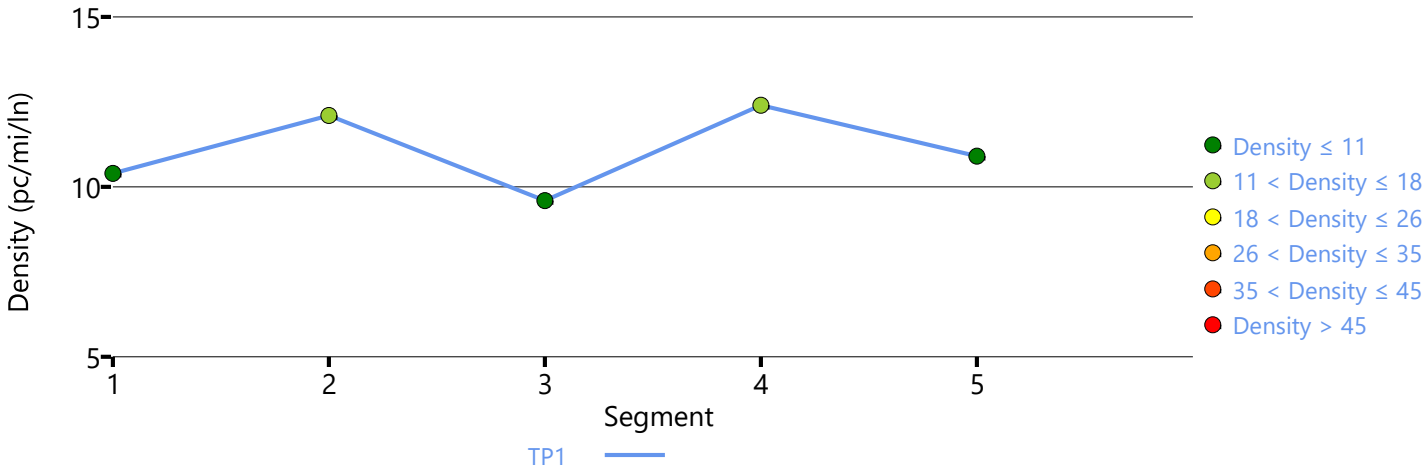
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	8/10/2022
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway EB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1050	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	782
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.33
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	495
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1050	80
Peak Hour Factor (PHF)	0.94	0.79
Total Trucks, %	40.00	14.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.877
Flow Rate (vi),pc/h	1564	115
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.33	0.05

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.308
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1564	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	12.1
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	13.2

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	3070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	970	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	722
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.30
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	785
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	970	130
Peak Hour Factor (PHF)	0.94	0.79
Total Trucks, %	40.00	14.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.877
Flow Rate (vi),pc/h	1445	188
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.34	0.09

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.270
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	66.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1445	Ramp Junction Speed (S), mi/h	66.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	1633	Average Density (D), pc/mi/ln	12.4
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	13.3

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1100	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	820
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Freeway Facilities Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15
Facility Length, mi	1.66		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1500	2
2	Diverge	Diverge		1500	2
3	Basic	Basic		2790	2
4	Merge	Merge		1500	2
5	Basic	Basic		1500	2

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1609	4800	0.34	75.0	10.7	A

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.87	0.714	0.962	1609	167	4800	2100	0.34	0.08	64.7	64.7	12.4	14.0	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.714	1401	4800	0.29	74.7	9.3	A

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.94	0.66	0.714	0.893	1571	170	4800	2100	0.33	0.08	65.2	65.2	12.0	14.8	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94	0.714	1550	4800	0.32	74.1	10.3	A

Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	70.9	10.7	7.6	1.40	B

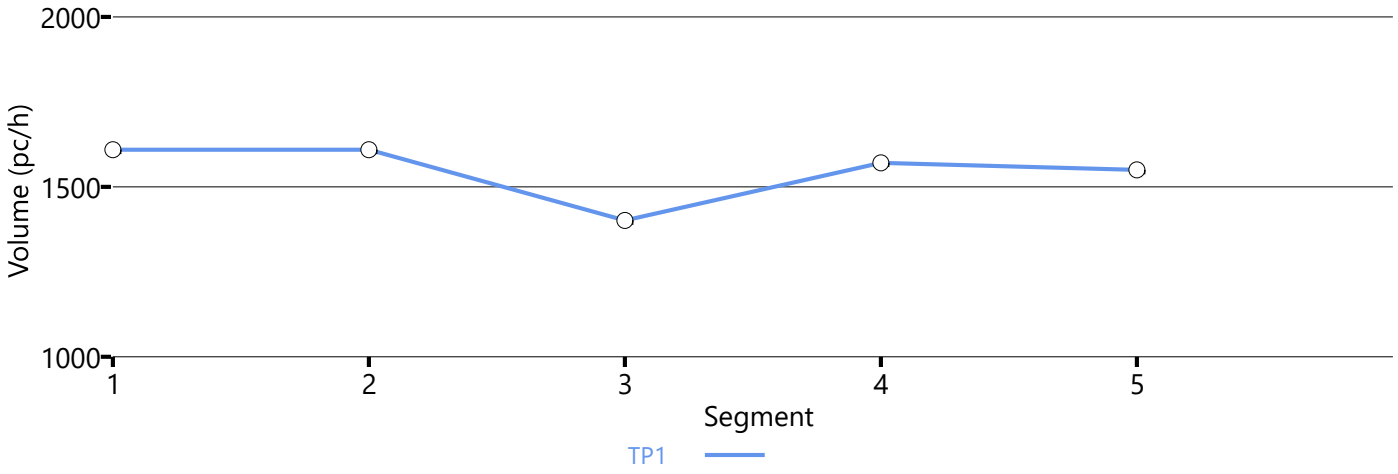
Facility Overall Results

Space Mean Speed, mi/h	70.9	Density, veh/mi/ln	7.6
Average Travel Time, min	1.40	Density, pc/mi/ln	10.7

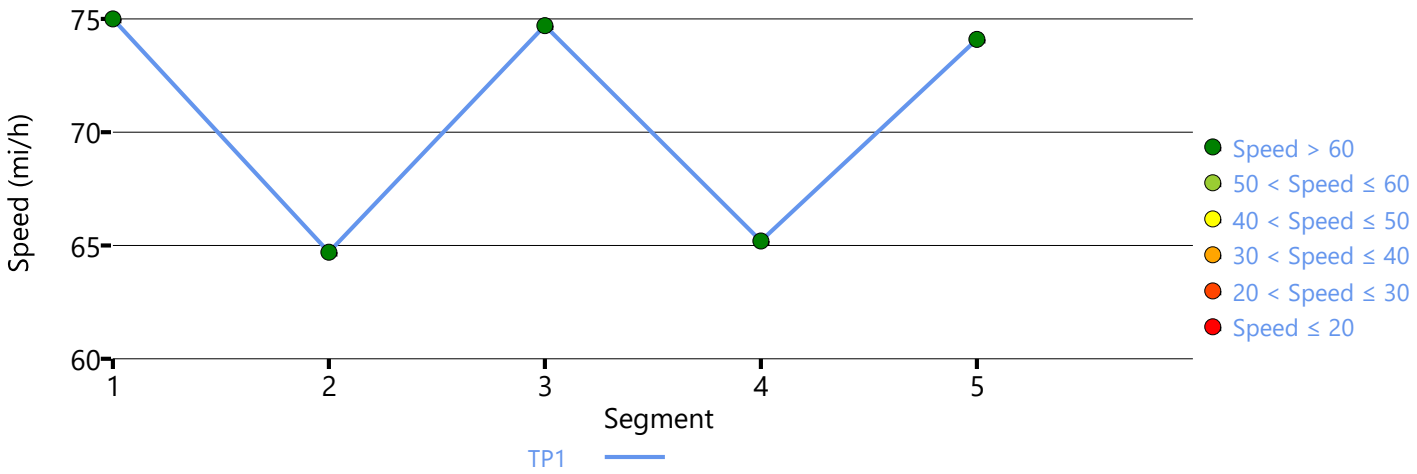
Messages

Comments

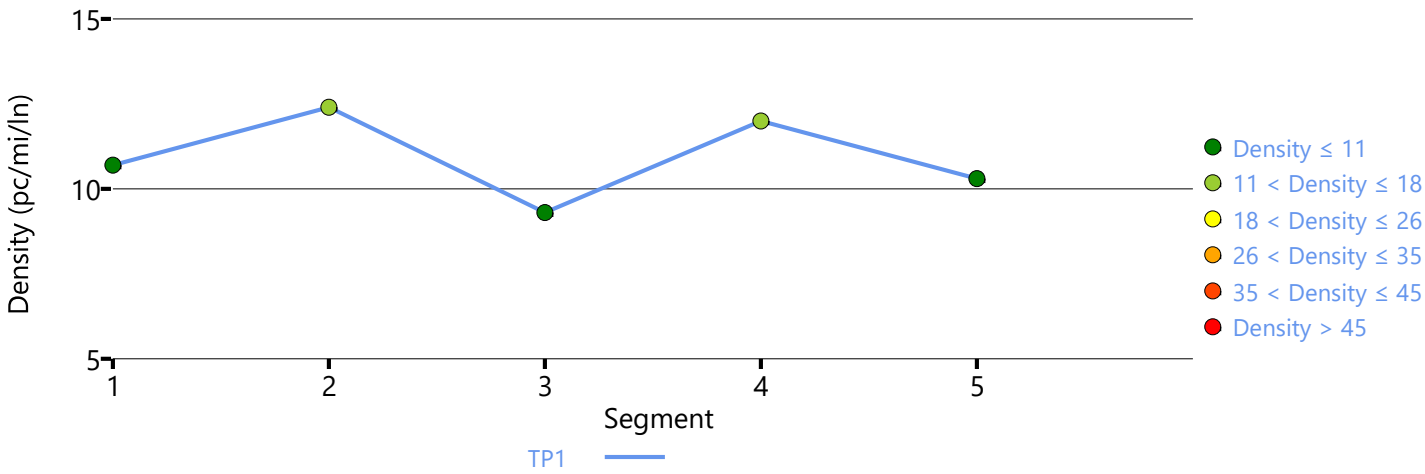
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Basic Freeway Report

Project Information

Analyst	QAi	Date	5/11/2021
Agency	Arcadis	Analysis Year	2047
Jurisdiction	District 1	Time Period Analyzed	Build PM Peak Hour
Project Description	PAU-VAN US 30 - US 30 at Lincoln Highway WB	Unit	United States Customary
Segment Number	1	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1080	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	804
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Diverge Report

Project Information

Segment Number	2	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1500	455
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	1080	140
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	40.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.962
Flow Rate (vi),pc/h	1609	167
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.34	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.313
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	64.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	82.3
Flow in Lanes 1 and 2 (v12), pc/h	1609	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	12.4
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.0

HCS7 Basic Freeway Report

Project Information

Segment Number	3	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	2790	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	940	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	700
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.29
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS7 Freeway Merge Report

Project Information

Segment Number	4	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	460
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	940	100
Peak Hour Factor (PHF)	0.94	0.66
Total Trucks, %	40.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.714	0.893
Flow Rate (vi),pc/h	1401	170
Capacity (c), pc/h	4800	2100
Volume-to-Capacity Ratio (v/c)	0.33	0.08

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.298
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	65.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	75.0
Flow in Lanes 1 and 2 (v12), pc/h	1401	Ramp Junction Speed (S), mi/h	65.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	1571	Average Density (D), pc/mi/ln	12.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.8

HCS7 Basic Freeway Report

Project Information

Segment Number	5	Segment Name	
Time Period Number	1	Segment Analysis Time Period	07:00-07:15

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	1500	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.35
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1040	Heavy Vehicle Adjustment Factor (f_{HV})	0.714
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	775
Total Trucks, %	40.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.32
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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HCS7 Two-Way Stop-Control Report

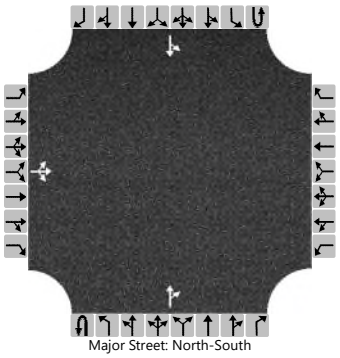
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 EB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LTR									TR		LT		
Volume (veh/h)		70	0	10							90	110		20	190	
Percent Heavy Vehicles (%)		14	14	14										5		
Proportion Time Blocked																
Percent Grade (%)			0													
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.24	6.64	6.34										4.15		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.63	4.13	3.43										2.25		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			87											22		
Capacity, c (veh/h)			550											1335		
v/c Ratio			0.16											0.02		
95% Queue Length, Q_{95} (veh)			0.6											0.0		
Control Delay (s/veh)			12.8											7.7		
Level of Service (LOS)			B											A		
Approach Delay (s/veh)		12.8												0.9		
Approach LOS		B														

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HCS7 Two-Way Stop-Control Report

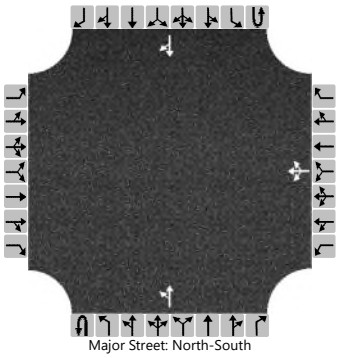
General Information

Analyst	QAi
Agency/Co.	Arcadis
Date Performed	8/10/2022
Analysis Year	2047
Time Analyzed	Build PM Peak Hour
Intersection Orientation	North-South
Project Description	PAU-VAN US 30

Site Information

Intersection	Lincoln Hwy at US30 Ramps
Jurisdiction	District 1
East/West Street	US 30 WB Ramps
North/South Street	Lincoln Highway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						130	0	10		30	130				80	70
Percent Heavy Vehicles (%)						4	4	4		7						
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						7.14	6.54	6.24		4.17						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.54	4.04	3.34		2.26						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							147			32						
Capacity, c (veh/h)							631			1392						
v/c Ratio							0.23			0.02						
95% Queue Length, Q_{95} (veh)							0.9			0.1						
Control Delay (s/veh)							12.4			7.6						
Level of Service (LOS)							B			A						
Approach Delay (s/veh)						12.4				1.6						
Approach LOS						B										

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Appendix E

Roadway

Appendix E

Roadway - Evaluation Matrix

SR 49 Interchange Comparison Matrix

	Alternate 1 - SR 49 North /Payne		Alternate 2 - Dixon Cavett		Alternate 3 - SR 49 South/Convoy Heller		Comments
Interchange Construction Cost		$9,045,000		$9,450,000		$8,370,000	Construction Cost - Construction cost, not including R/W, of major items only.
R/W		13.11 acre		3.31 acre		1.65 acre	R/W-Amount of new permanent R/W required to construct alternate
Building Impacts		8 Buildings		2 Buildings		0 Buildings	Building Impacts - Number of potential impacts to residential homes or substanial out buildings
Environmental Impacts		1000 lf		285 lf		1600 lf	Environmental Impacts - Amount of impact to named streams
Traffic Demand Impact		2000 vpd		3390 vpd		2590 vpd	Traffic Demand Impact - Number of vehicles that would have to re-route to use this alternate
Farmland Impact		10.10 acre		3.00 acre		1.65 acre	Farmland Impact - Amount of impact to farmland
Connectivity Cost/Reroute Length		$5,585,380 1.84 miles		$7,260,691 1.19 miles		$3,700,000 2.74 miles	Connectivity Cost/Reroute Length - Length of travel to use new route with associated cost to improve that route. See Travel Route matrix for details.

Legend

Least Impact/Best								Most Impact/Worst

Alternate 1 - SR 49/Payne Rd.

	Prop. Width(3-16-6)/(4-11-11-4)	Length	New Pvt. Area (SF)	Large Culverts	R/W (SF)	Named Stream Impact (FT)	Res. Takes	Farmland Impact (SF)
EB Ent	25	650	16250	0	54854		0	54854
EB Ent Gore			23650	0		0	0	
EB Exit	25	1100	27500	0	128156		0	127483
EB Exit Gore			12872	0		0	0	
WB Ent	25	750	18750	0	84618		3	64689
WB Ent Gore			27113	0		0	0	
WB Exit	25	1150	28750	0	235974		5	128156
WB Exit Gore			20537	0		0	0	
SR 49	30	1350	40500	0	41447	1000	0	41397
Payne	30	1380	41400	0	25823	0	0	23193
Totals			**257322**	**0**	**570872**	**1000**	**8**	**439772**
					13.1 acre			**10.1 acre**

	Value	Unit Cost	Total
Full Depth Pavement Area	257322	15 $/sf	$3,859,830
Large Culverts	0	51500 each	$0
Bridges	1	2857500 each	$2,857,500
Subtotal			$6,700,000
35% contingency			$2,345,000
Total Construction			**$9,045,000**

Alternate 2 - Dixon Cavett Road

	Prop. Width(3-16-6)/(4-11-11-4)	Length	New Pvt. Area (SF)	Large Culverts	R/W (SF)	Named Stream Impact (FT)	Res. Takes	Farmland Impact (SF)
EB Ent	25	800	20000	0	37177		0	37177
EB Ent Gore			36434	0			0	
EB Exit	25	700	17500	0	19526		0	19526
EB Exit Gore			21836	0			0	
WB Ent	25	800	20000	0	73949		0	73949
WB Ent Gore			35525	0			0	
WB Exit	25	650	16250	0	645		0	0
WB Exit Gore			23168	0			0	
Dixon Cavett N	30	1150	34500	1	12962	285	2	0
Dixon Cavett S	30	1250	37500	0	0		0	0
Extension	30	400	12000	0	0		0	0
Totals			**274713**	**1**	**144259**	**285**	**2**	**130652**
					3.31 acre			**3.00 acre**

	Value	Unit Cost	Total
Full Depth Pavement Area	274713	15 $/sf	$4,120,695
Large Culverts	1	51500 each	$51,500
Bridges	1	2857500 each	$2,857,500
Subtotal			$7,000,000
35% contingency			$2,450,000
Total Construction			**$9,450,000**

Alternate 3 - SR 49/Convoy Heller Rd.

	Prop. Width(3-16-6)/(4-11-11-4)	Length	New Pvt. Area (SF)	Large Culverts	R/W (SF)	Named Stream Impact (FT)	Res. Takes	Farmland Impact (SF)
EB Ent	25	650	16250	0	0		0	0
EB Ent Gore				1		250	0	
EB Exit	25	1150	28750	0	0		0	0
EB Exit Gore				0			0	
WB Ent	25	650	16250	1	0		0	0
WB Ent Gore				1		800	0	
WB Exit	25	1050	26250	1	0		0	0
WB Exit Gore				0		550	0	
Lincoln	30	1350	40500	0			0	0
SR 49	30	1200	36000	0	5211		0	5211
Waller	30	1450	43500	0	66461		0	66461
Totals			**207500**	**4**	**71672**	**1600**	**0**	**71672**
					1.65 acre			**1.65 acre**

	Value	Unit Cost	Total
Full Depth Pavement Area	207500	15 $/sf	$3,112,500
Large Culverts	4	51500 each	$206,000
Bridges	1	2857500 each	$2,857,500
Subtotal			$6,200,000
35% contingency			$2,170,000
Total Construction			**$8,370,000**

SR 49 Interchange Unit Cost Assumptions

Full Depth Pavement			
Item	Thickness	Unit Cost	$/Sf surface
448 AC Surface Course	1.25''	375 $/cy	1.5
448 AC Int Course	1.75''	325 $/cy	1.75
301 AC Base	9.00''	250 $/cy	7
304 Agg Base	6.00''	75 $/cy	1.5
204 Subgrade comp		2 $/sy	0.25
subtotal			12
25% other items/steps			3
Total			**15**

Resurfacing			
Item	Thickness	Unit Cost	$/Sf surface
448 AC Surface Course	1.25''	375 $/cy	1.5
448 AC Int Course	1.75''	325 $/cy	1.75
254 Pavement Planing		3 $/sy	0.25
subtotal			3.5
25% other items/steps			0.875
Total			**5**

Major Culvert Extension			
	length/#	Unit Cost	$/location
611 48" Type A	16	250	4000
202 HW Removed	2	1000	2000
602 Conc. Masonry	17.6	2000	35200
subtotal			41200
25% other items			10300
Total			**51500**

Bridge			
	area	Unit Cost	$/location
Bridge Widening	300	175	52500
New Bridge	12700	225	2857500

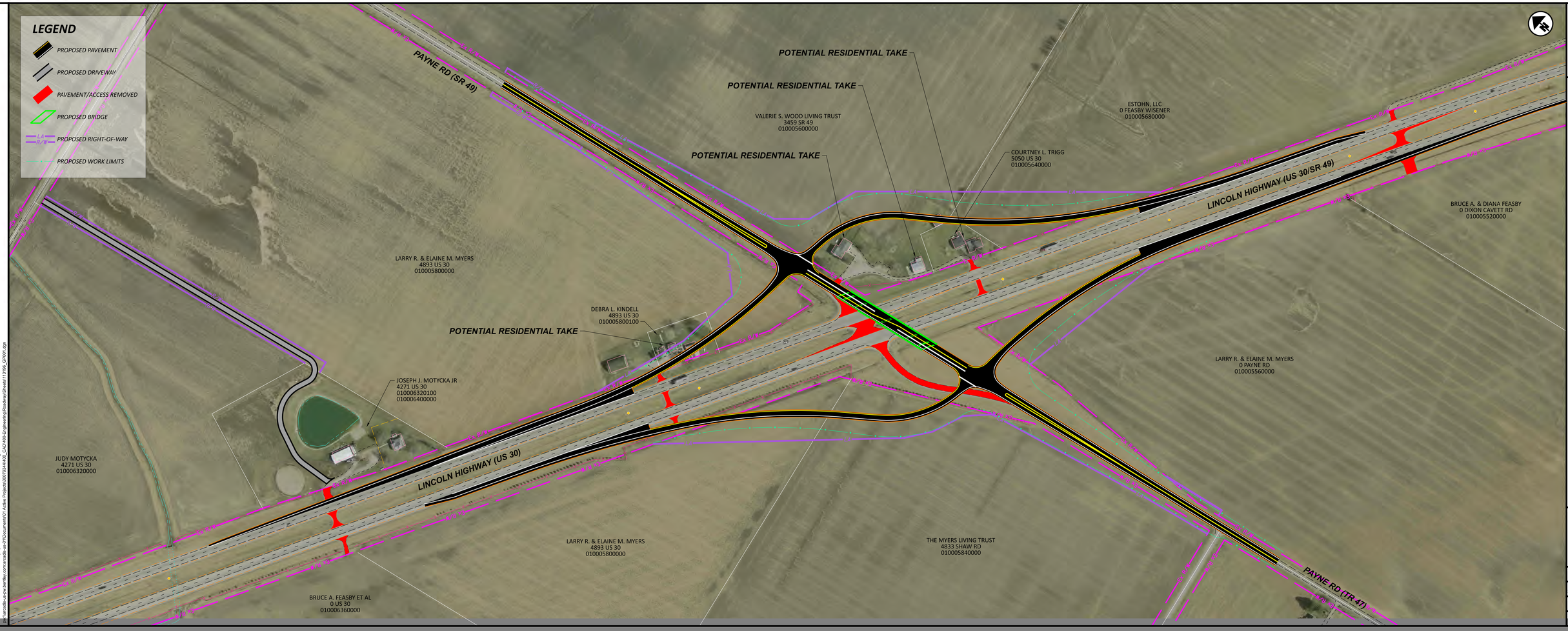
RW	market value	area	$/acre
01-001076	$220,000	74.5 acre	$0.07
01-001036	$199,900	67.2 acre	$0.07
01-000568	$415,490	137.3 acre	$0.07
Average			$0.07
Average+50%			**$0.10**

Appendix E

Roadway - Conceptual Schematics

Appendix E

Roadway - Conceptual Schematics - New Interchange on U.S. 30



LINCOLN HIGHWAY (US 30 & SR 49) AT PAYNE RD (SR 49 & CR 47)

DESIGN AGENCY
ARCADIS
ARCADIS OHIO, INC.
2200 Victory Parkway Suite 220
Cincinnati, Ohio 45206
513.651.1434
www.arcadis.com

DESIGNER
MAL

REVIEWER
SMG 10-18-21

PROJECT ID
113196

SHEET 4 TOTAL 3

PAU/VAN-30-0.00

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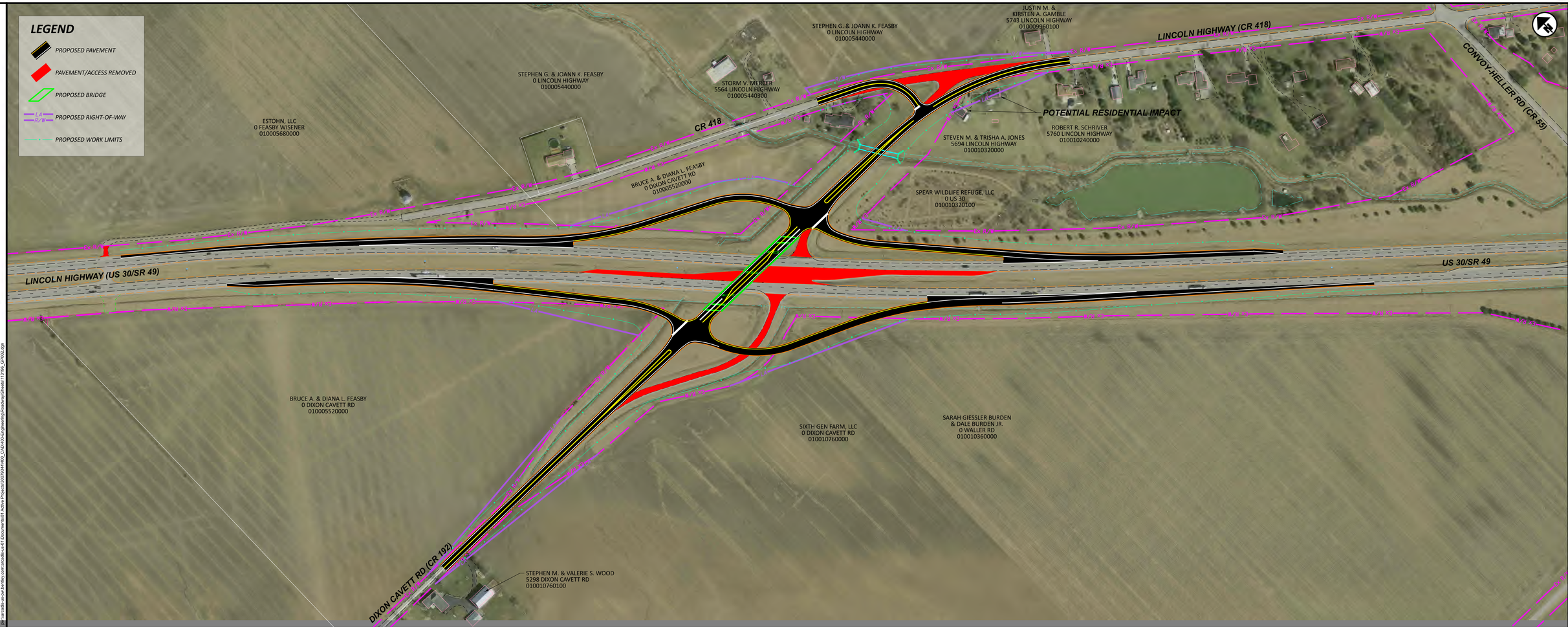

PAU/VAN-30-0.00

LINCOLN HIGHWAY (US 30/SR 49) AT DIXON CAVETT RD (CR 192)

DESIGN AGENCY
ARCADIS
ARCADIS OHIO, INC.
222 SOUTH MAIN STREET, SUITE 300
AKRON, OHIO 44308
330.434.4080
www.arcadis.com

DESIGNER
BLW
REVIEWER
SMG 10-18-21
PROJECT ID
113196
SHEET 2 TOTAL 3

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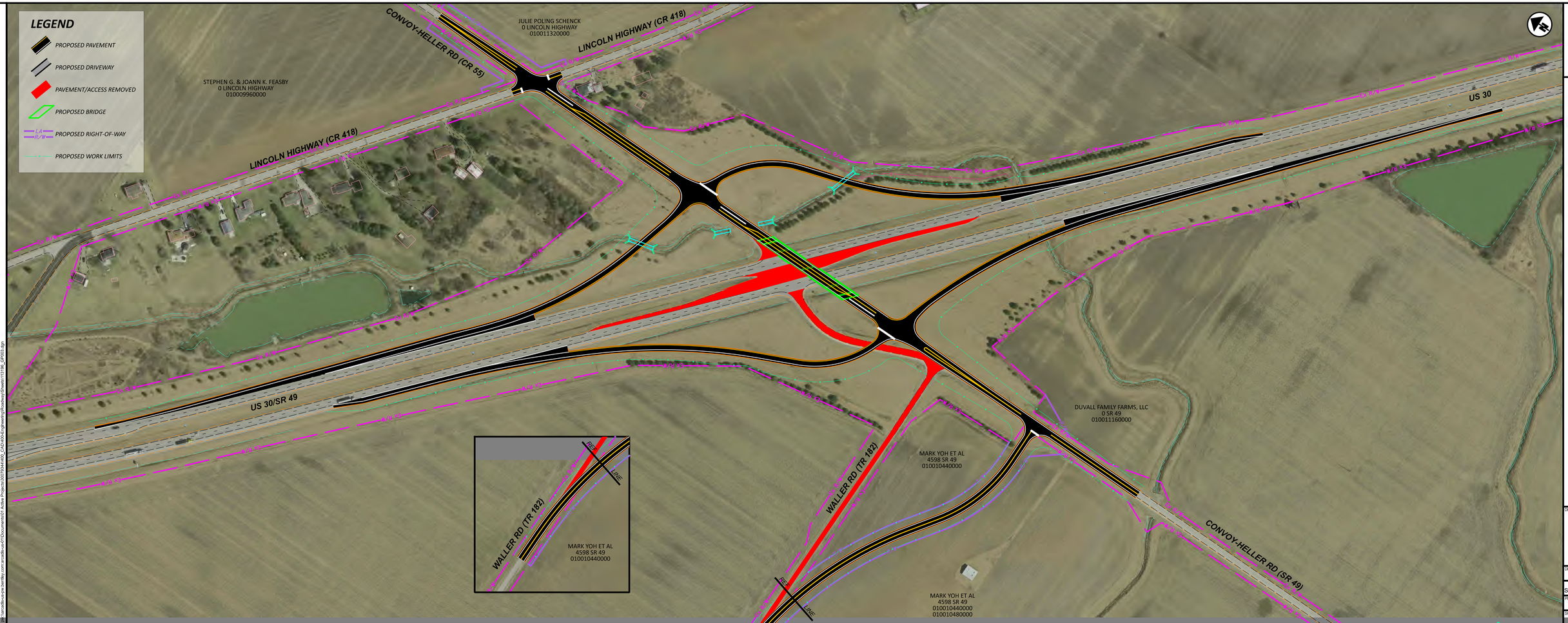

US 30/SR 49 AT CONVOY-HELLER RD (SR 49 & CR 55)

PAU/VAN-30-0.00

DESIGN AGENCY
ARCADIS
2200 VICTORIA STREET, STE 200
LANSING, MI 48912
(517) 394-3000
www.arcadis.com

DESIGNER: MAL
REVIEWER: SMG 10-18-21
PROJECT ID: 113196
SHEET: 3 TOTAL: 3

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Appendix E

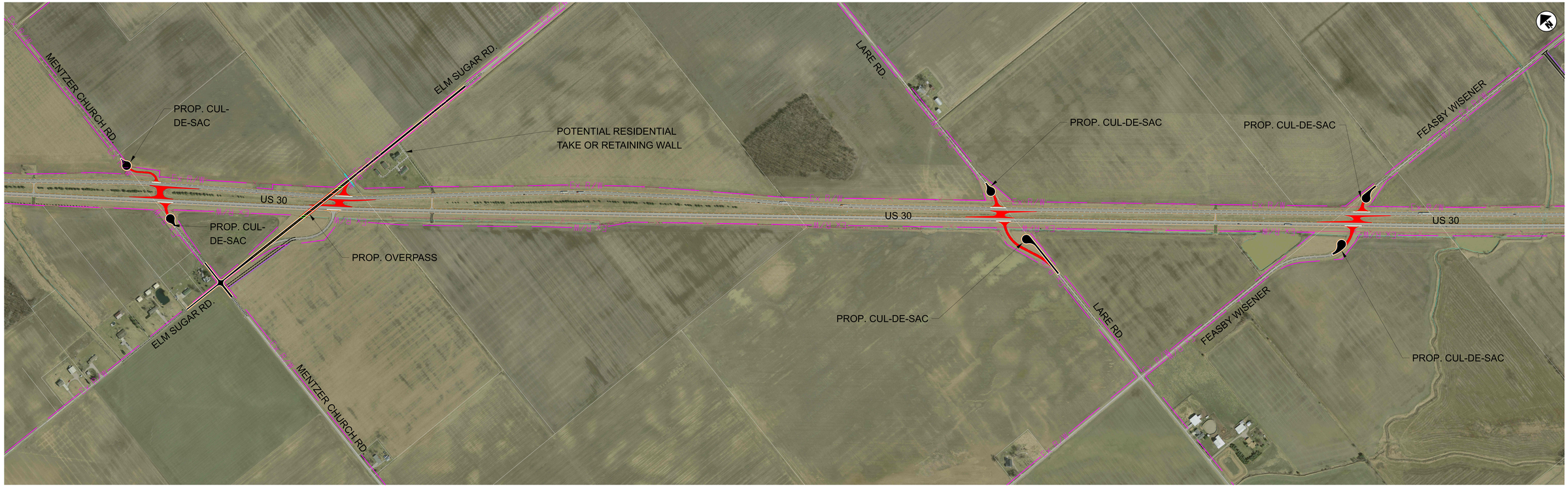
Roadway - Conceptual Schematics - U.S. 30

PAU/VAN-030-0.00

HORIZONTAL SCALE: 1" = 200'
0 100 200 400

OHIO/INDIANA STATE LINE TO KRICK RD (CR 17)
LINCOLN HIGWAY (US 30)

DESIGN AGENCY
ARCADIS
ARCADIS OHIO, INC.
DESIGNER
BLW
REVIEWER
SMG 10-29-21
PROJECT ID
113196
SHEET 1
TOTAL 10

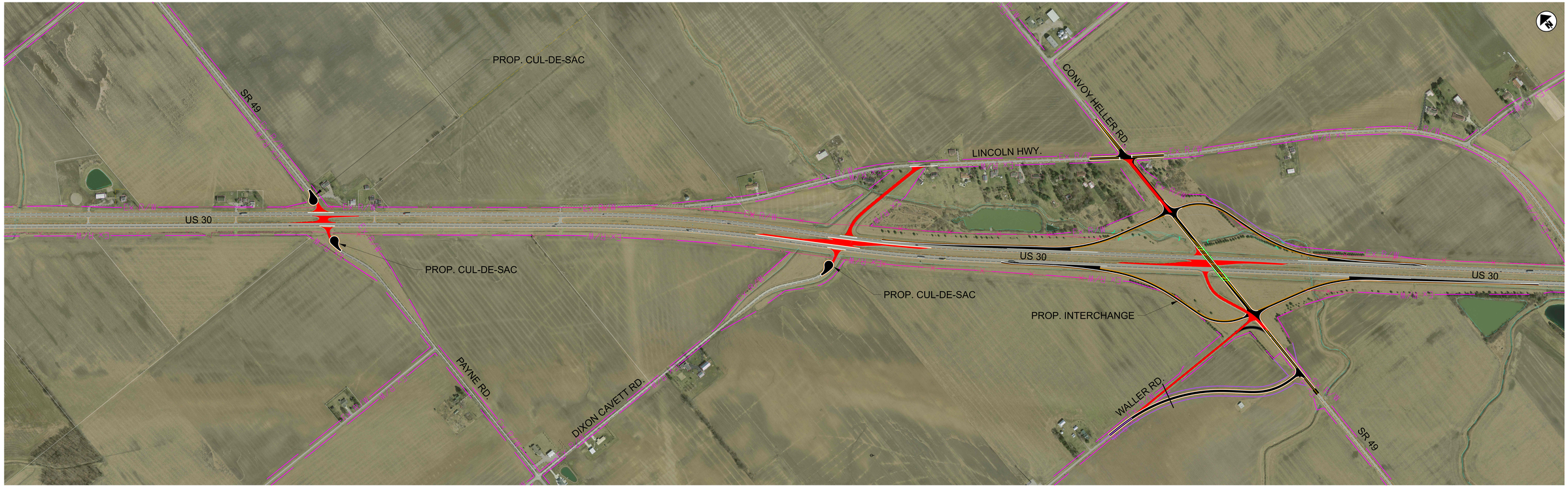


PAU/VAN-030-0.00

HORIZONTAL SCALE: 1" = 200'
0 100 200 400

MENTZER CHURCH RD (CR 27) TO FEASBY WISENER RD (CR 208)
LINCOLN HIGHWAY (US 30)

DESIGN AGENCY
ARCADIS
DESIGNER: BLW
REVIEWER: SMG 10-29-21
PROJECT ID: 113196
SHEET: 2 TOTAL: 10



PAU/VAN-030-0.00

HORIZONTAL SCALE: FEET
0 100 200 400

PAYNE RD/SR 49 TO CONVOY-HELLER RD (CR 55)/SR 49
LINCOLN HIGHWAY (US 30/SR 49)

DESIGN AGENCY
ARCADIS
ARCADIS U.S., INC.
22 SOUTHPARK COURT, SUITE 200
FORT WAYNE
INDIANA 46825
PHONE: 260 489 1888
FAX: 260 489 1889

DESIGNER
BLW

REVIEWER
SMG 10-29-21

PROJECT ID
113196

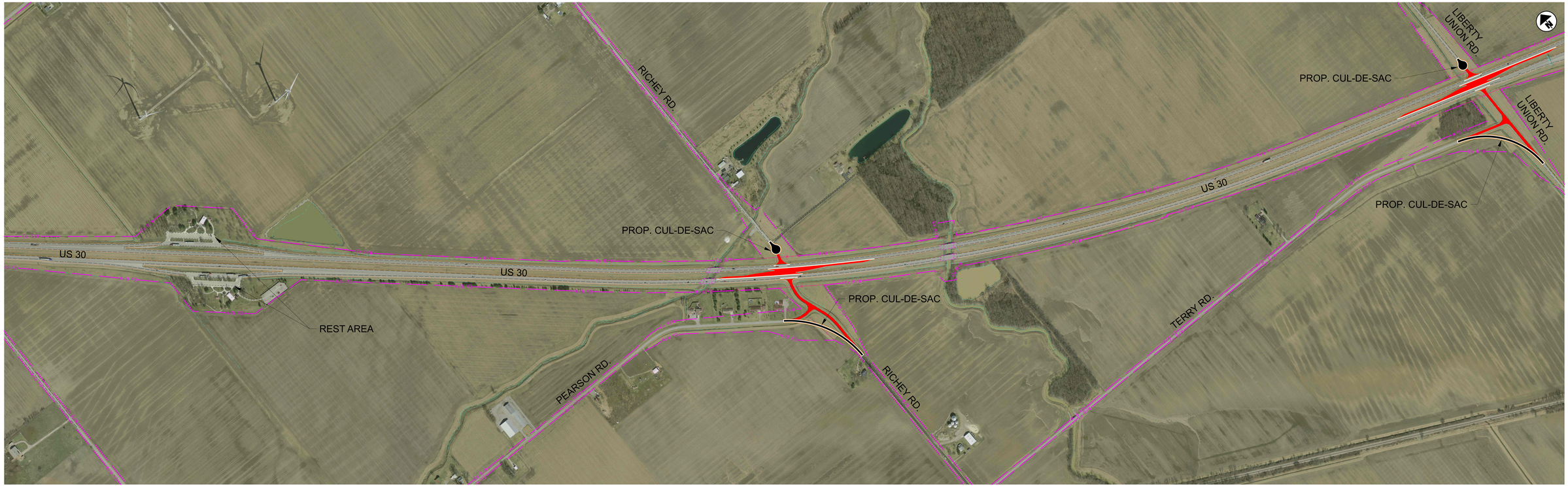
SHEET 5 TOTAL 10

PAULVAN-030-0.00

HORIZONTAL SCALE SHEET
0 100 200 400

LINCOLN HIGHWAY (CR 418) TO CONVOY RD (CR 168)
US 30

DESIGN AGENCY
ARCADIS
DESIGNER
BLW
REVIEWER
SMG 10-29-21
PROJECT ID
113196
SHEET 6 TOTAL 10



HORIZONTAL SCALE: FEET
0 100 200 400

RICHEY RD (CR 75) TO LIBERTY-UNION RD (CR 77)
US 30

DESIGN AGENCY
ARCADIS
DESIGNER: BLW
REVIEWER: SMG 10-29-21
PROJECT ID: 113196
SHEET: 7 TOTAL: 10

PAU/VAN-030-0.00

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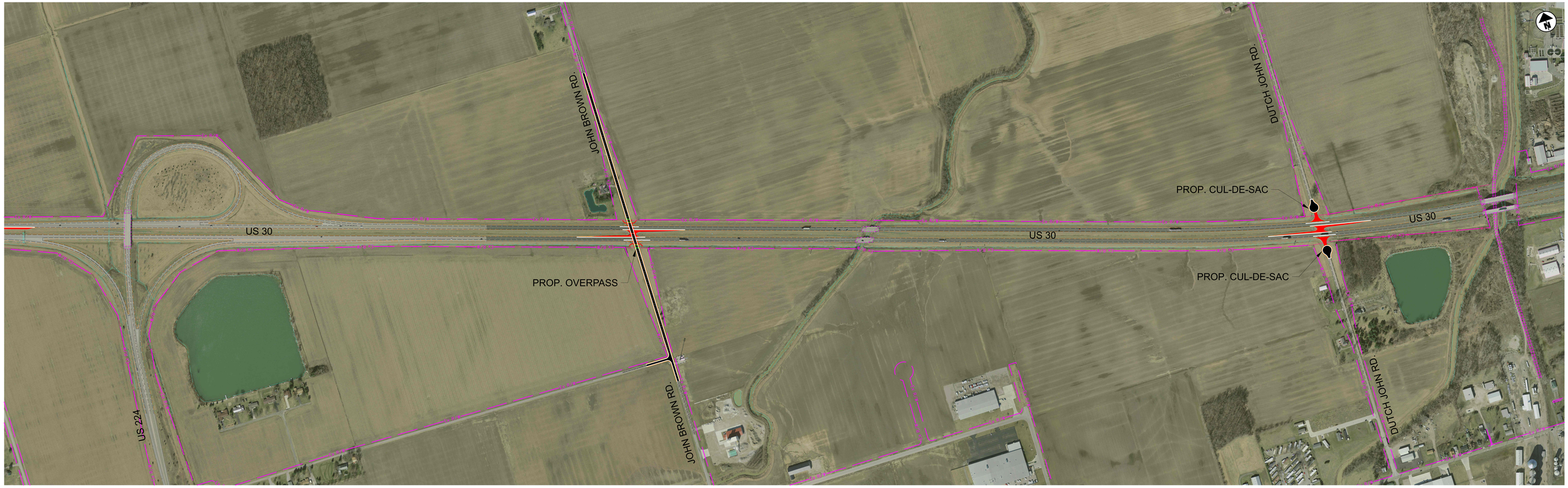

PAU/VAN-030-0.00

HORIZONTAL SCALE IN FEET
0 100 200 400

US 224 TO DUTCH-JOHN RD (CR 93)
US 30

DESIGN AGENCY
ARCADIS
DESIGNER
BLW
REVIEWER
SMG 10-29-21
PROJECT ID
113196
SHEET 8 TOTAL 10

PAU/VAN-030-0.00

MODEL: Sheet9 PAPERSIZE: 68x22 (in) DATE: 10/13/2022 TIME: 4:02:07 PM USER: TBunkak
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DESIGNER:	CHECKED:	DRAWN:	SHEET:	TOTAL SHEETS:	
		AW	9	10	

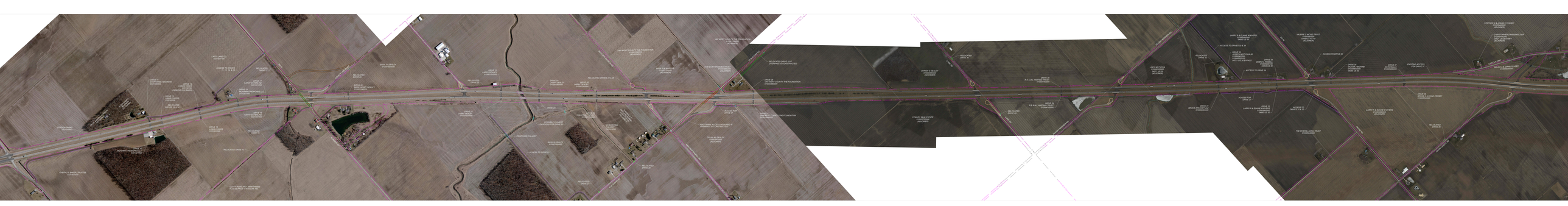
ARCADIS
220 SOUTH MAIN STREET SUITE 200
AKRON, OHIO 44308
(330) 434-5800
www.arcadis.com

US 127 TO BOROFF RD (CR 113)
US 30

HORIZONTAL SCALE IN FEET
0 200
100 400

Appendix E

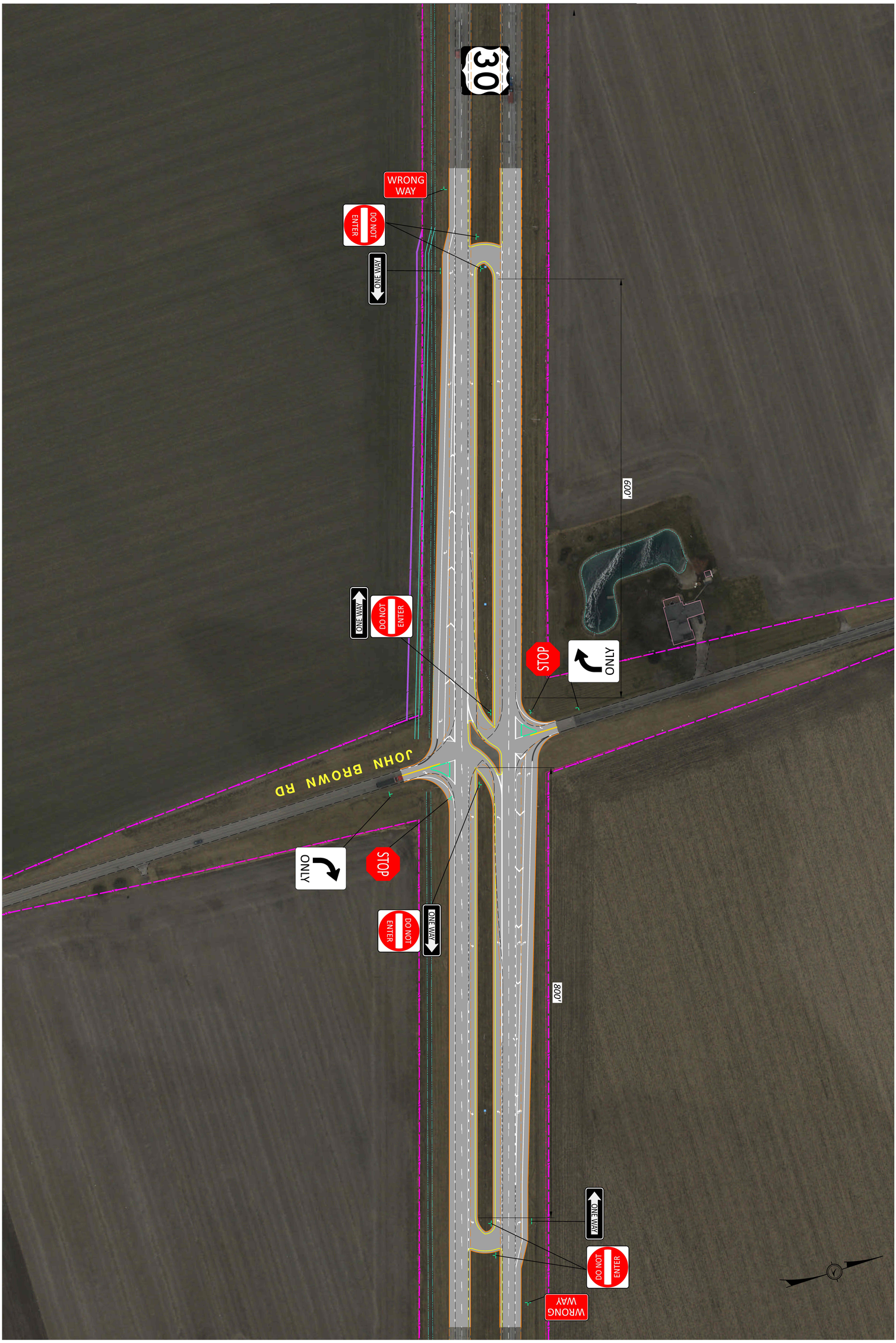
Roadway - Conceptual Schematics - Driveways



Appendix E

Roadway - Conceptual Schematics - RCUTs

CTY-RTE-SECTION



SHEET	TOTAL
P.0	0

PROJECT ID: 0

REVIEWER: XXX MM-DD-YY

DESIGNER: XXX

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DESIGN AGENCY

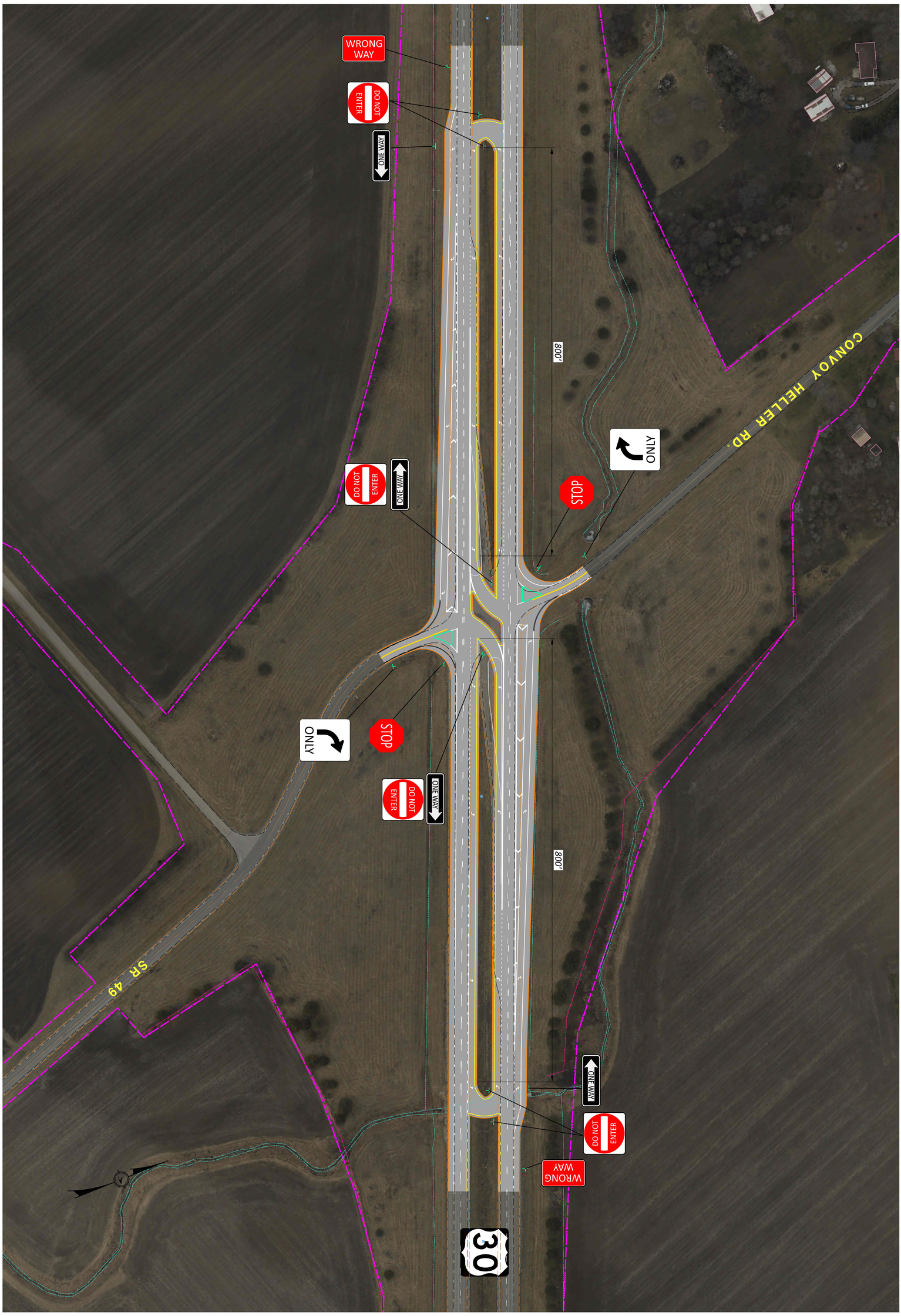
US-30 & JOHN BROWN ROAD

HORIZONTAL SCALE IN FEET

0 80

40 160

CTY-RTE-SECTION



SHEET	TOTAL
P.0	0

PROJECT ID: 0

REVIEWER: XXX MM-DD-YY

DESIGNER: XX

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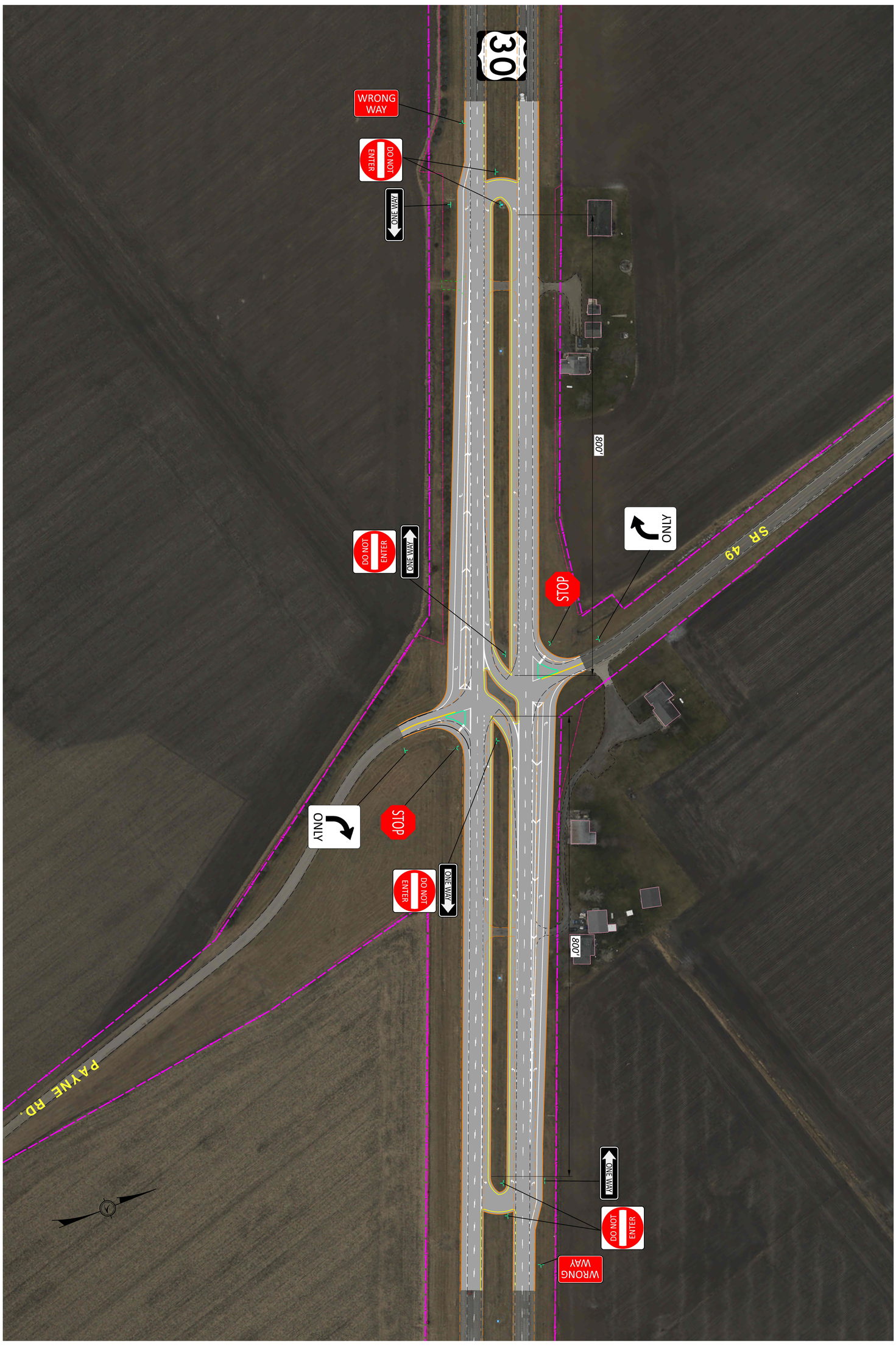
DESIGN AGENCY

US-30 & SR 49 (SOUTH)/CONVOY HELLER

HORIZONTAL SCALE IN FEET

0 80
40 160

CTY-RTE-SECTION



SHEET P.0 | TOTAL 0	PROJECT ID 0	REVIEWER XXX MM-D-YY	DESIGNER XX	ARCADIS 222 SOUTH MAIN STREET SUITE 200 AKRON, OHIO 44308 (330) 434-1995 www.arcadis.com	DESIGN AGENCY

US-30 & SR 49 (NORTH)/PAYNE RD.

HORIZONTAL SCALE IN FEET

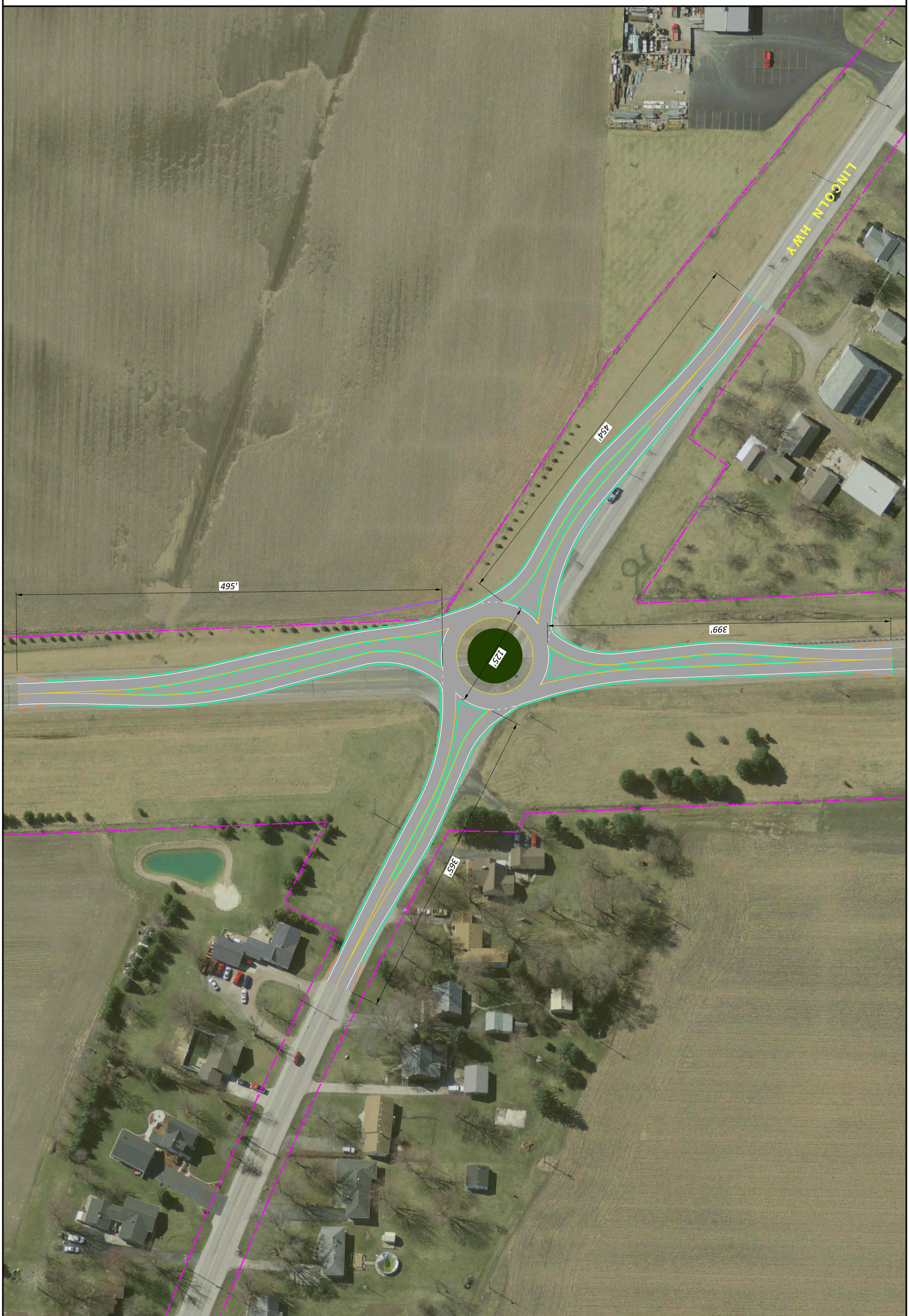
0 80

40 160

Appendix E

Roadway - Conceptual Schematics - Roundabout

CTY-RTE-SECTION



SHEET P.0 | TOTAL 0	PROJECT ID 0	REVIEWER XXX MM-DD-YY	DESIGNER XXX	ARCADIS 222 SOUTH MAIN STREET SUITE 200 AKRON, OHIO 44308 (330) 434-1995 www.arcadis.com	DESIGN AGENCY

ROUNDABOUT

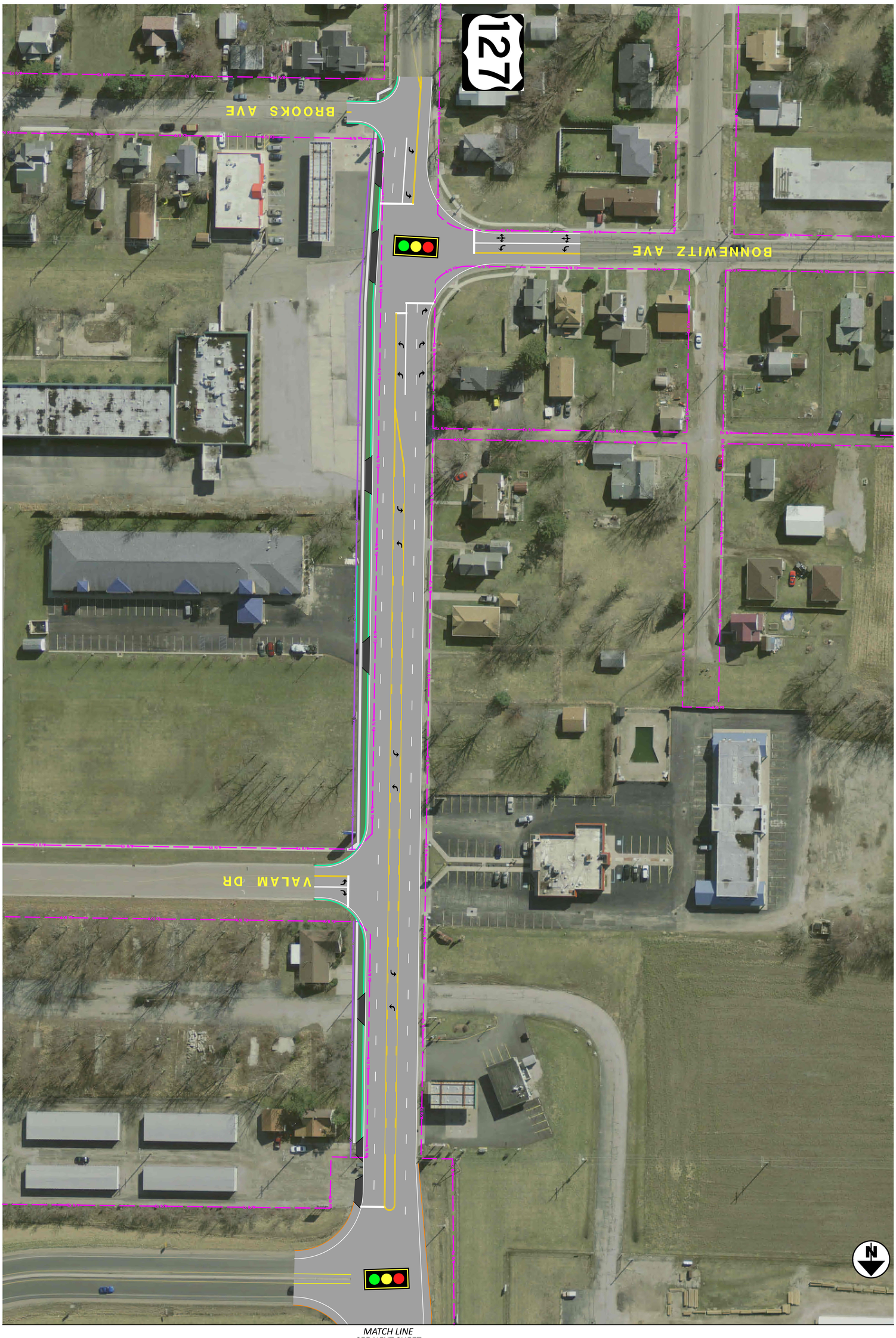
HORIZONTAL SCALE IN FEET

0 0 0 0

Appendix E

Roadway - Conceptual Schematics - U.S. 127

CTY-RTE-SECTION



MATCH LINE
SEE NEXT SHEET

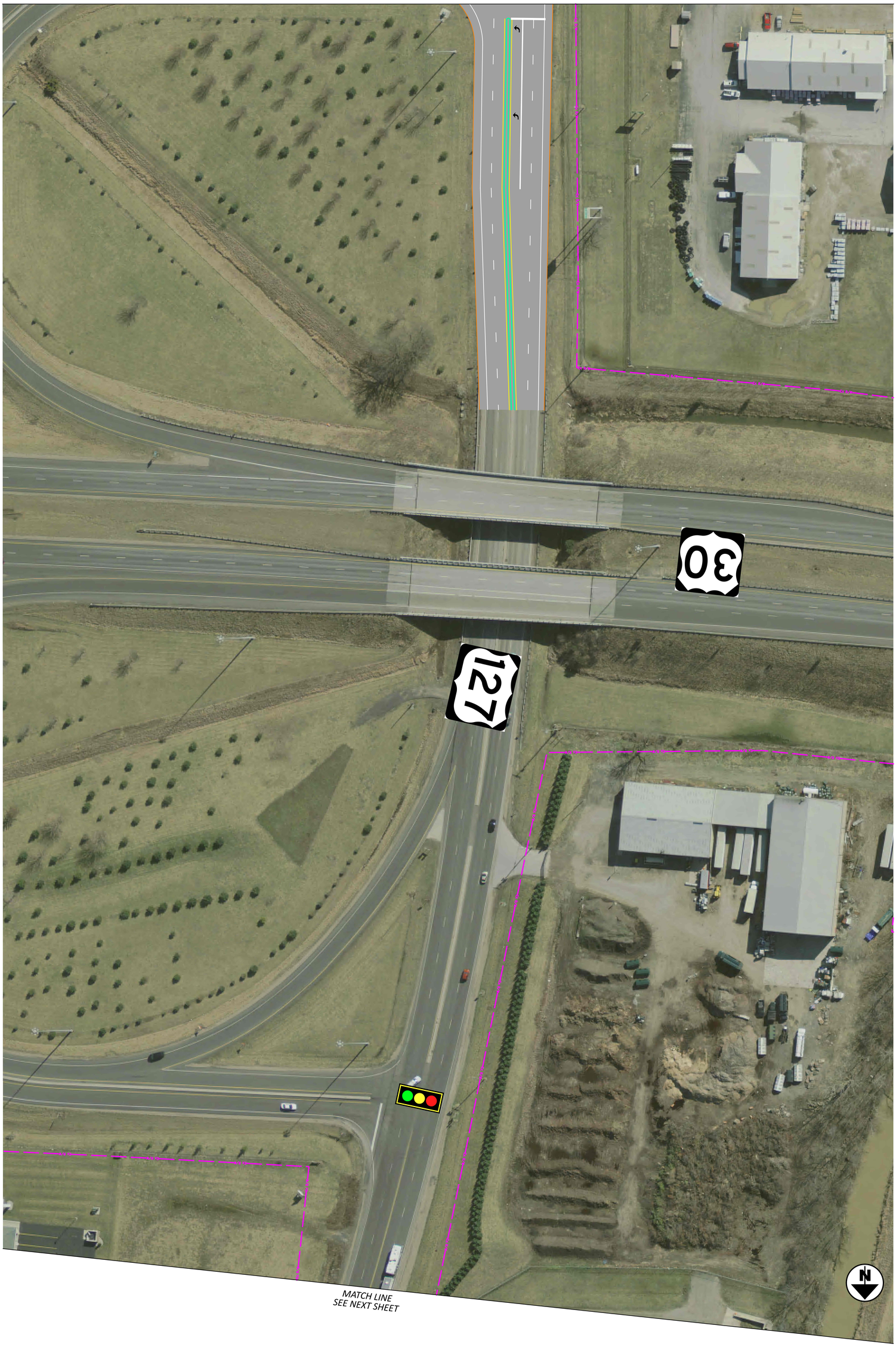
SHEET	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
P.0 / TOTAL 0	0	XXX MM-DD-YY	XXX	ARCADIS 222 SOUTH MAIN STREET SUITE 200 AKRON, OHIO 44308 (330) 434-1995 www.arcadis.com

US 127

HORIZONTAL SCALE IN FEET
0 50
25 100

CTY-RTE-SECTION

MATCH LINE
SEE PREVIOUS SHEET



MATCH LINE
SEE NEXT SHEET

SHEET	TOTAL
P.0	0

PROJECT ID: 0

REVIEWER: XXX MM-DD-YY

DESIGNER: XX

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DESIGN AGENCY

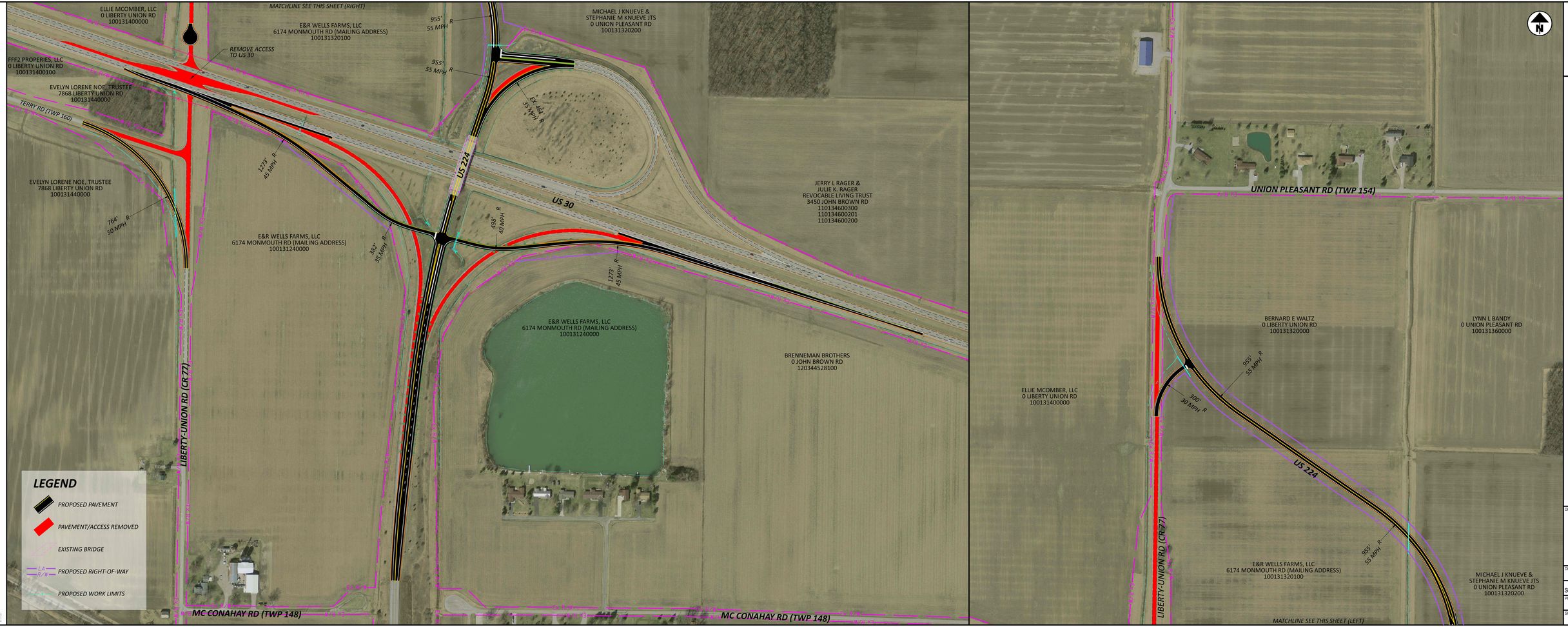
US 127

HORIZONTAL SCALE IN FEET

0 50
25 100

Appendix E

Roadway - Conceptual Schematics - US 224 Interchange



US 30 AT US 224

PAU/VAN-30-0.00

DESIGN AGENCY
ARCADIS
2220 SOUTH MAIN STREET, STE 230
ANN ARBOR, MICHIGAN 48103
www.arcadis.com

DESIGNER
BLW

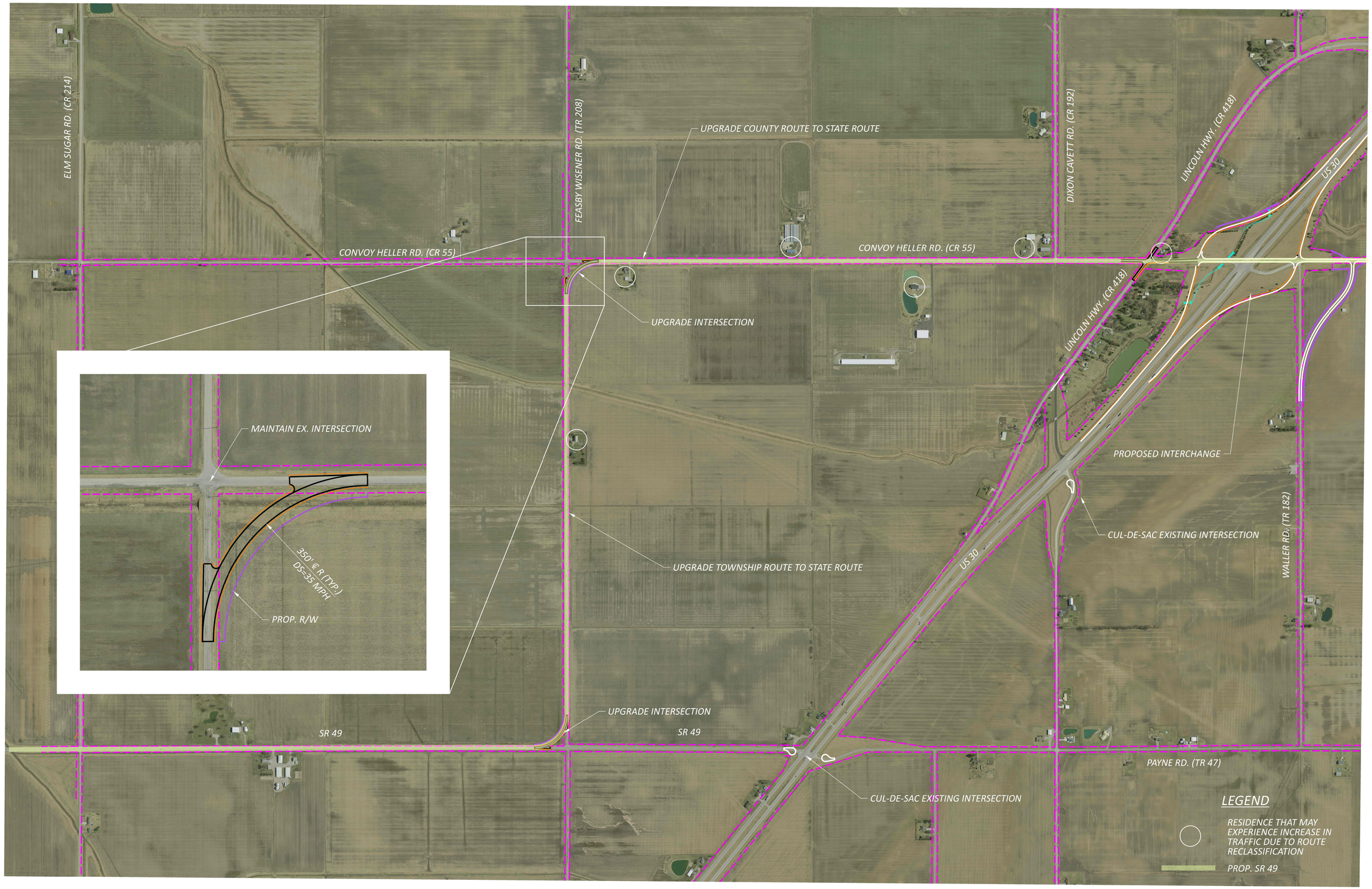
REVIEWER
SMG 01-23-23

PROJECT ID
113196

SHEET 4 | TOTAL 4

Appendix E

Roadway - S.R. 49 Traffic Reroute



HORIZONTAL SCALE IN FEET

0 0 0 0

REROUTE ALTERNATE B-1

CTY-RTE-SECTION

DESIGN AGENCY

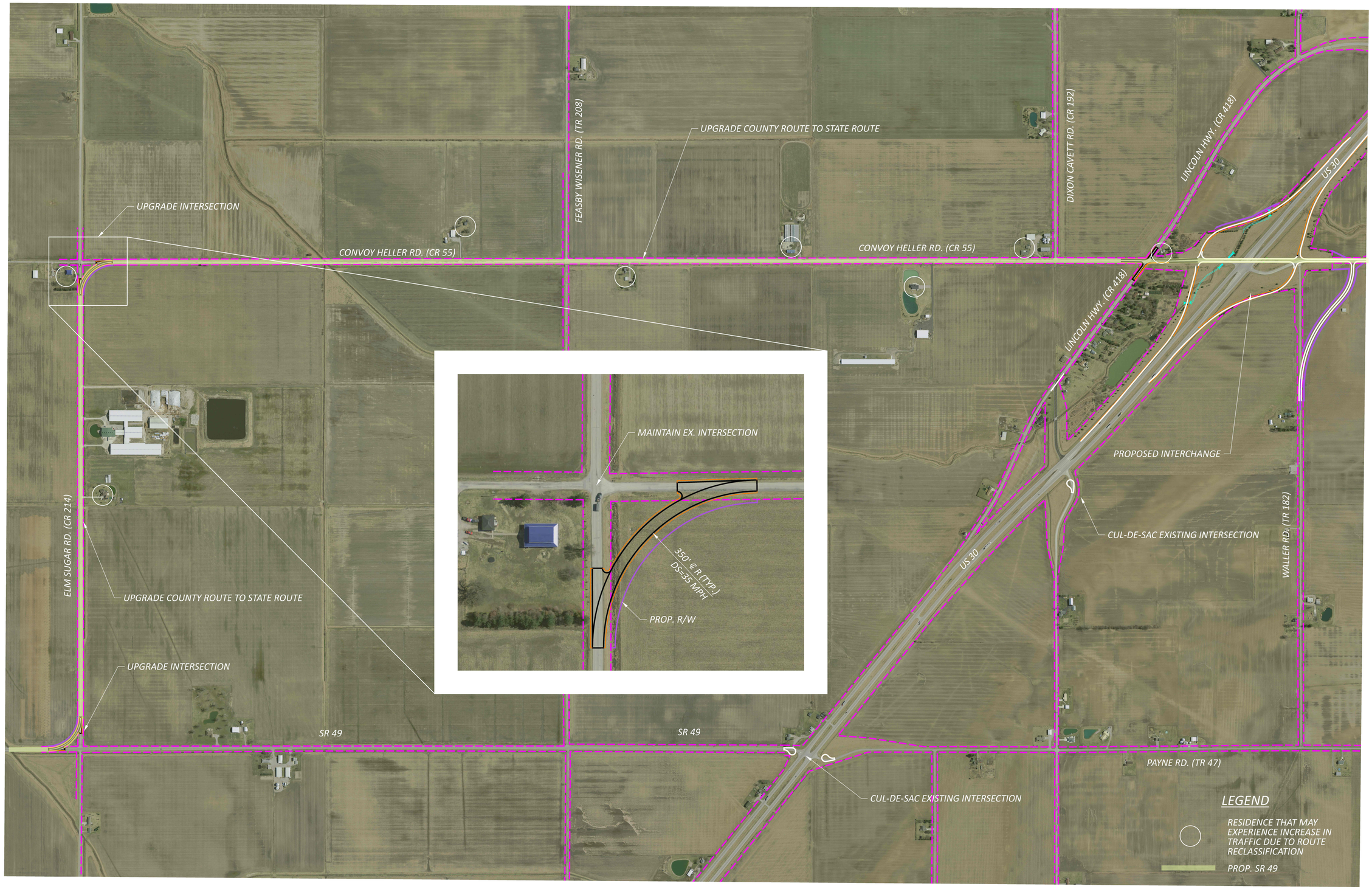
DESIGNER XXX

REVIEWER XXX MM-DD-YY

PROJECT ID 0

SHEET P.0 | TOTAL 0

CTY-RTE-SECTION



HORIZONTAL SCALE IN FEET

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REROUTE ALTERNATE B-2

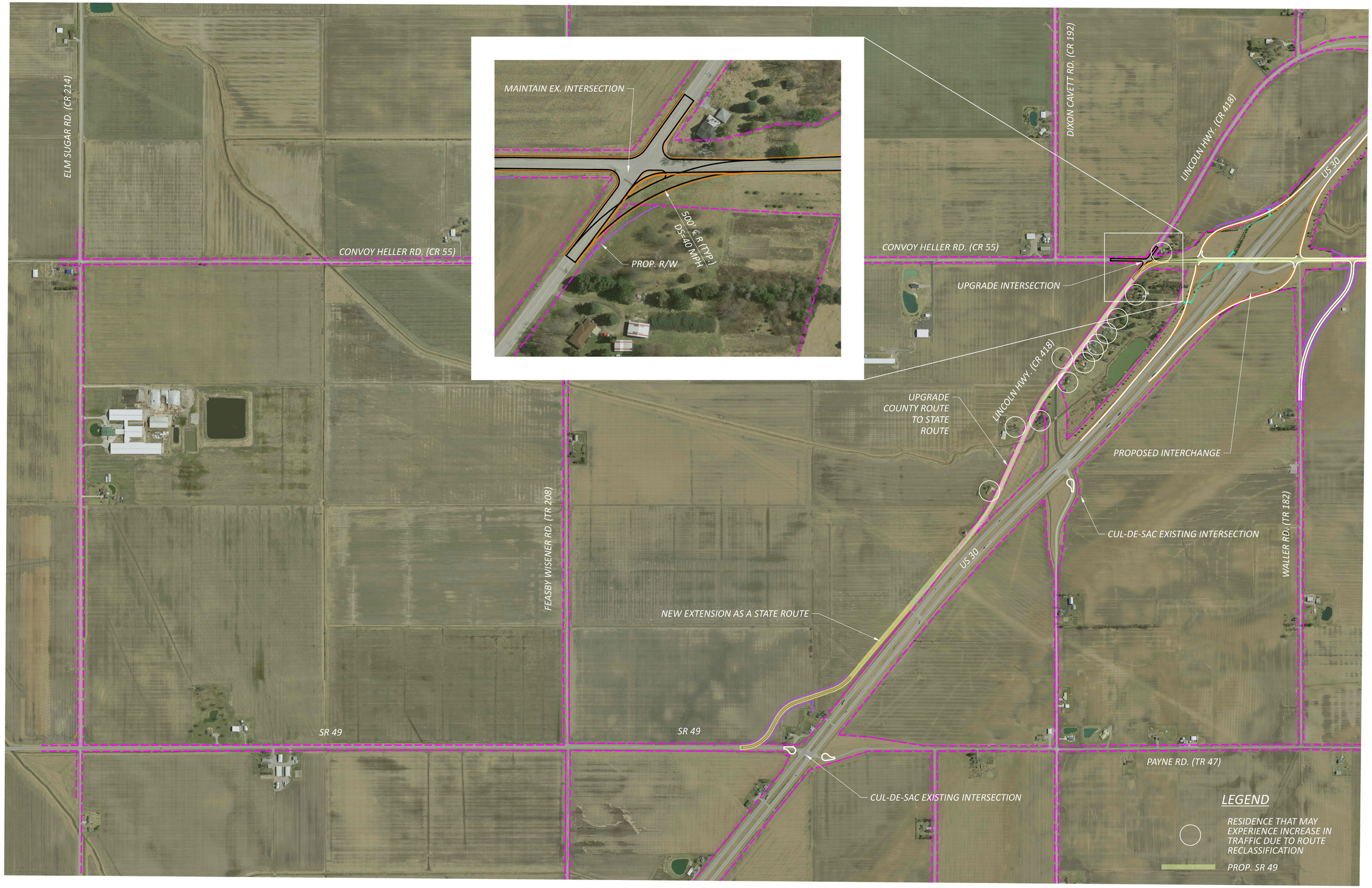
DESIGN AGENCY

DESIGNER XXX

REVIEWER XXX MM-DD-YY

PROJECT ID 0

SHEET P.0 | TOTAL 0



HORIZONTAL SCALE IN FEET

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REROUTE ALTERNATE B-3

CTY-RTE-SECTION

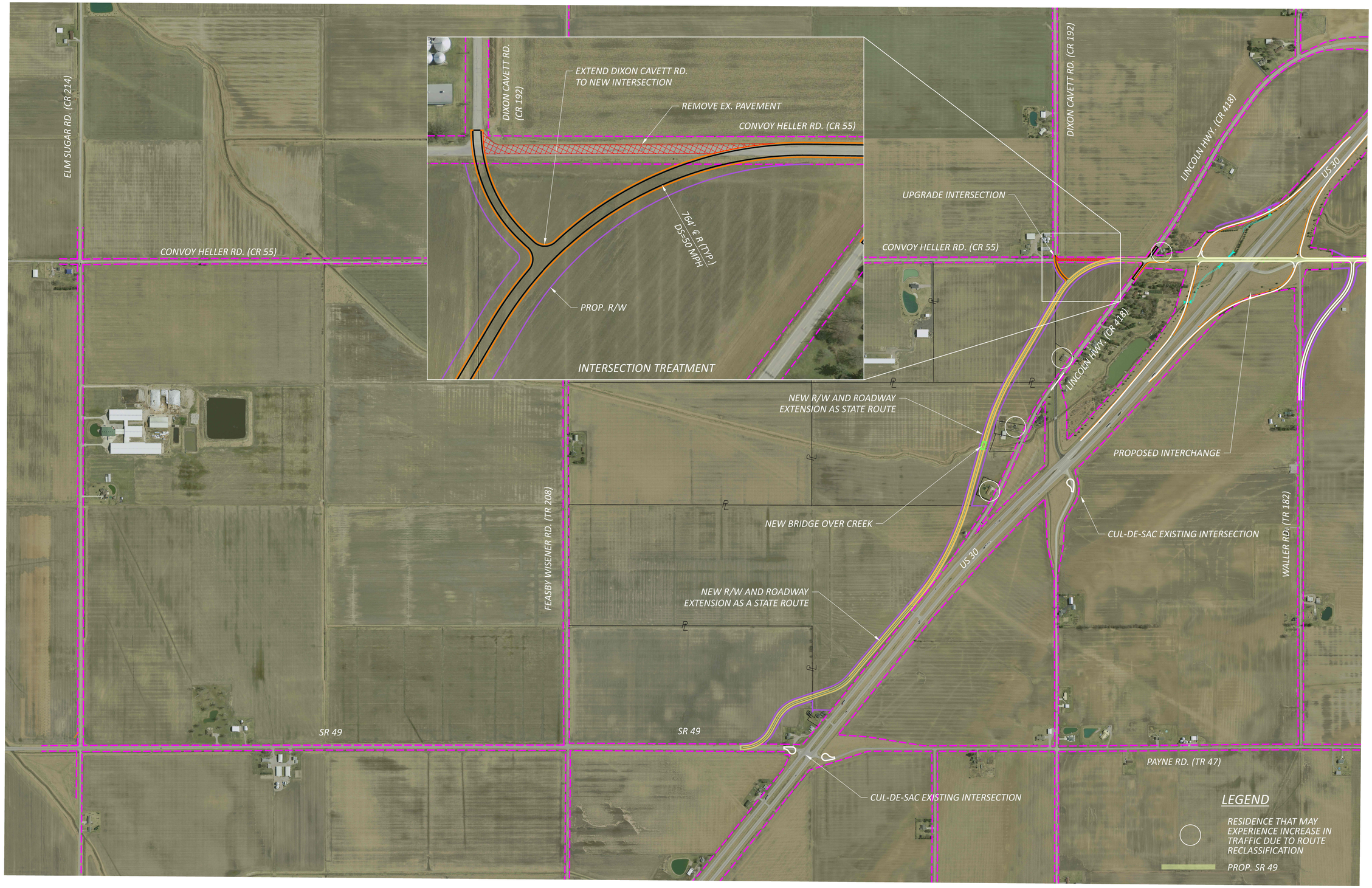
DESIGN AGENCY

DESIGNER XXX

REVIEWER XXX MM-DD-YY

PROJECT ID 0

SHEET P.0 | TOTAL 0



HORIZONTAL SCALE IN FEET
0 0 0 0

REROUTE ALTERNATE B-4

CTY-RTE-SECTION

DESIGN AGENCY

DESIGNER XXX

REVIEWER XXX MM-DD-YY

PROJECT ID 0

SHEET P.0 | TOTAL 0

Interchange Alt 3 Traffic Rerout Details				
	B-1:CR55-Feasby Weisner-SR 49 N	B-2:CR55-Elm Sugar-SR 49 N	B-3:New Service Rd. Lincoln to SR 49 N	B-4: Dixon Cavett Extension-Sevice Rd.-SR 49 N
Cost	$5,560,221	$7,128,236	$3,700,000	$7,800,000
Length of Reroute	3.35 mile	3.36 mile	2.74 mile	1.39 mile
Env. Impact Length	4700 ft	14080 ft	100 ft	100 ft
ADT delta	Convoy Heller=800/Feasby Wisener=1050	Convoy Heller=800/Elm Sugar=1000	Lincoln=946	Lincoln=946
Residential Impact	6	8	12	4

SR 49 Reroute Impact Matrix

Indicates least impactful option

	N SR 49		
	A-1:TR 47-Waller-SR49S	A-2:TR 47-Mentzer-SR49S	A-3:New Service Rd. TR 47 to SR 49 S
Cost	$3,800,000	$4,487,740	$4,224,325
Length of Reroute	2.50 mile	2.50 mile	1.84 mile
Env. Impact Length	0 ft	1100 ft	0 ft

	S SR 49		
	B-1:CR55-Feasby Weisner-SR 49 N	B-2:CR55-Elm Sugar-SR 49 N	B-3:New Service Rd. Lincoln to SR 49 N
Cost	$4,060,206	$5,144,648	$2,800,000
Length of Reroute	3.35 mile	3.36 mile	2.74 mile
Env. Impact Length	4700 ft	14080 ft	100 ft

	Dixon-Cavett South		
	C-1:Dixon Cavitt-TR 47-Waller-SR49S	C-2:Dixon Cavitt TR 47-Mentzer-SR49S	C3: New Service Rd. Dixon Cavitt to SR 49 S
Cost	$3,594,328	$4,198,238	$1,800,816
Length of Reroute	12690 ft	12680 ft	6340 ft
Env. Impact Length	0 ft	1100 ft	0 ft

	Dixon Cavitt North		
	D-1:Lincoln Hwy-CR55-Feasby Weisner-SR 49 N	D-2:Lincoln Hwy-CR55-Elm Sugar-SR 49 N	D3: New Service Rd. Lincoln Hwy. to SR 49 N
Cost	$4,225,630	$5,283,763	$1,905,948
Length of Reroute	18533 ft	18570 ft	12395 ft
Env. Impact Length	4700 ft	14080 ft	100 ft

	Dixon Cavitt Overpass	
	E-1: SR 49 overpass-TR 47-Dixon Cavett-Lincoln Hwy-CR 55-overpass	E-2: New Service Rd.Lincoln Hwy.-CR 55-overpass
Cost	$7,859,287	$5,210,663
Length of Reroute	7700 ft	6300 ft
Env. Impact Length	100 ft	100 ft

	Dixon Cavitt Total	Dixon Cavitt Total (Alt)
	C-1/D-3	E-2
Cost	$5,500,000	$5,210,663
Length of Reroute	4.75 mile	1.19 mile
Env. Impact Length	100 ft	100 ft

SR 49 Reroute Unit Cost Assumptions

Full Depth Pavement			
Item	Thickness	Unit Cost	$/Sf surface
448 AC Surface Course	1.25''	375 $/cy	1.5
448 AC Int Course	1.75''	325 $/cy	1.75
301 AC Base	9.00''	250 $/cy	7
304 Agg Base	6.00''	75 $/cy	1.5
204 Subgrade comp		2 $/sy	0.25
subtotal			12
25% other items/steps			3
Total			**15**

Resurfacing			
Item	Thickness	Unit Cost	$/Sf surface
448 AC Surface Course	1.25''	375 $/cy	1.5
448 AC Int Course	1.75''	325 $/cy	1.75
254 Pavement Planing		3 $/sy	0.25
subtotal			3.5
25% other items/steps			0.875
Total			**5**

Major Culvert Extension			
	length/#	Unit Cost	$/location
611 48" Type A	16	250	4000
202 HW Removed	2	1000	2000
602 Conc. Masonry	17.6	2000	35200
subtotal			41200
25% other items			10300
Total			**51500**

Bridge			
	area	Unit Cost	$/location
Bridge Widening	300	150	45000
New Bridge	12700	200	2540000

RW	market value	area	$/sf
01-001076	$220,000	74.5 acre	$0.07
01-001036	$199,900	67.2 acre	$0.07
01-000568	$415,490	137.3 acre	$0.07
Average			$0.07
Average+50%			**$0.10**

Access Route A - 1

Description of Study Area

If the interchange is selected for Intersection #8, then access to the existing SR 49 route would be required. Access Route option A – 1 would go south on TR 47, then turn east onto Waller Road before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.

Reroute A-1

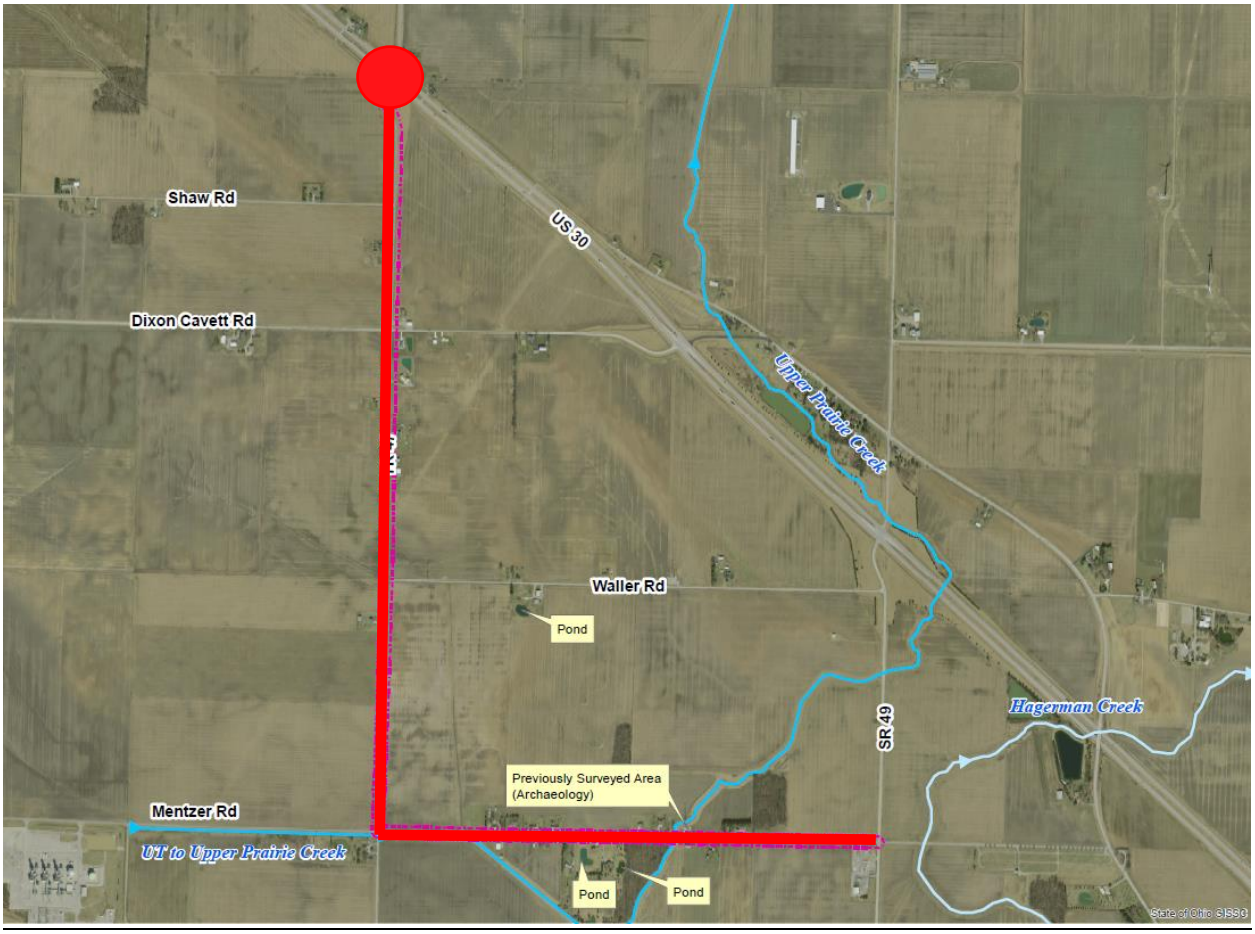
Location	Avg Width Ex.	Prop. Width(4-11-11-4)	Widening	Length of Reroute to Mentzer/SR49 S int	New Pvt. Area	Improved Length	New Length	Large Culverts	Bridges	R/W	Named Stream Impact
TR 47	16	30	14	5250	73500	5250	0	0	0	0	0
Waller	16	30	14	5300	74200	5300	0	1	0	0	0
SR 49 S	32	32	0	2640	0	2640	0				
Waller/TR 47 Int					26495					148272	
Waller/SR 49S Int					26495					148272	
Total				13190	200690	13190	0	1	0	296544	0

	Value	Unit Cost	Total
Full Depth Pavement Area	200690	15 $/sf	$3,010,350
Resurf Pavement Area	168800	5 $/sf	$844,000
Large Culverts	1	51500 each	$51,500
Bridges	0	45000 each	$0
Design Contingency		30%	$1,171,755
Total Construction			$5,077,605
R/W Area	296544	$0.10	$30,478
R/W Acquisition	10000	10000	10000
Total R/W			$40,478
Total Cost=			**$5,118,083**

Access Route A - 2

Description of Study Area

If the interchange is selected for Intersection #8, then access to the existing SR 49 route would be required. Access Route option A – 2 would go south on TR 47, then turn east onto Mentzer Road before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.

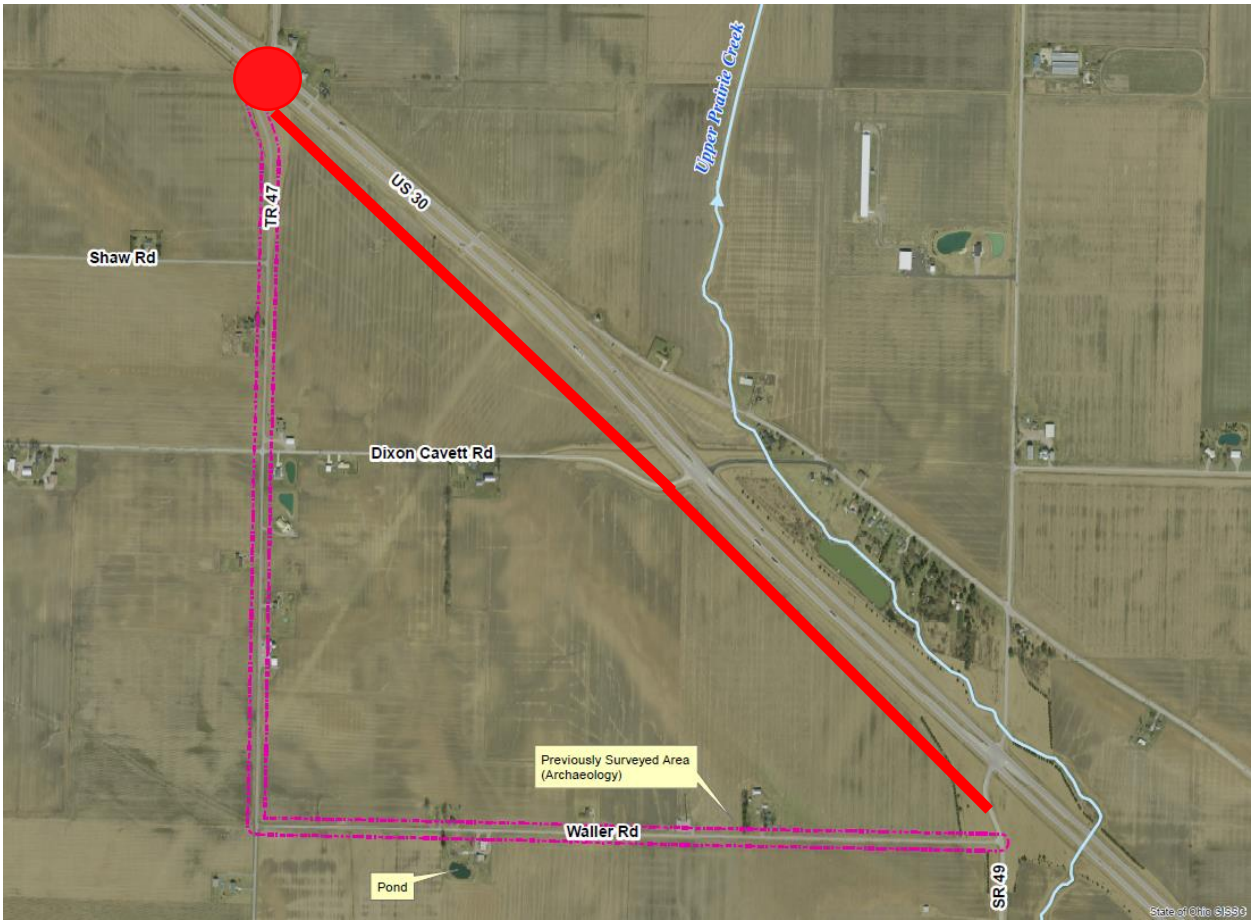


Reroute A-2

Location	Avg Width Ex.	Prop. Width(4-11-11-4)	Widening	Length of Reroute to Mentzer/SR49 S int	New Pvt. Area	Improved Length	New Length	Large Culverts	Bridges	R/W	Named Stream Impact (100'/crossing)
TR 47	16	30	14	7898	110572	7898	0	0	0	0	0
Mentzer	18	30	12	5305	63660	5305	0	1	0	0	1100
SR 49 S	32	32	0	0	0	0	0				
Mentzer/TR 47 Int					26495					148272	
Mentzer/SR 49S Int					26495					148272	
Total				**13203**	**227222**	**13203**	**0**	**1**	**0**	**296544**	**1100**

	Value	Unit Cost	Total
Full Depth Pavement Area	227222	15 $/sf	$3,408,330
Resurf Pavement Area	221858	5 $/sf	$1,109,290
Large Culverts	1	51500 each	$51,500
Bridges	0	45000 each	$0
relocate Tanks/well	1	100000	$100,000
Design Contingency		30%	$1,400,736
Total Construction			$6,069,856
R/W Area	296544	$0.10	$30,478
R/W Acquisition	10000	10000	10000
Total R/W			$40,478
Total Cost=			**$6,110,334**

Access Route A - 3



Reroute A-3

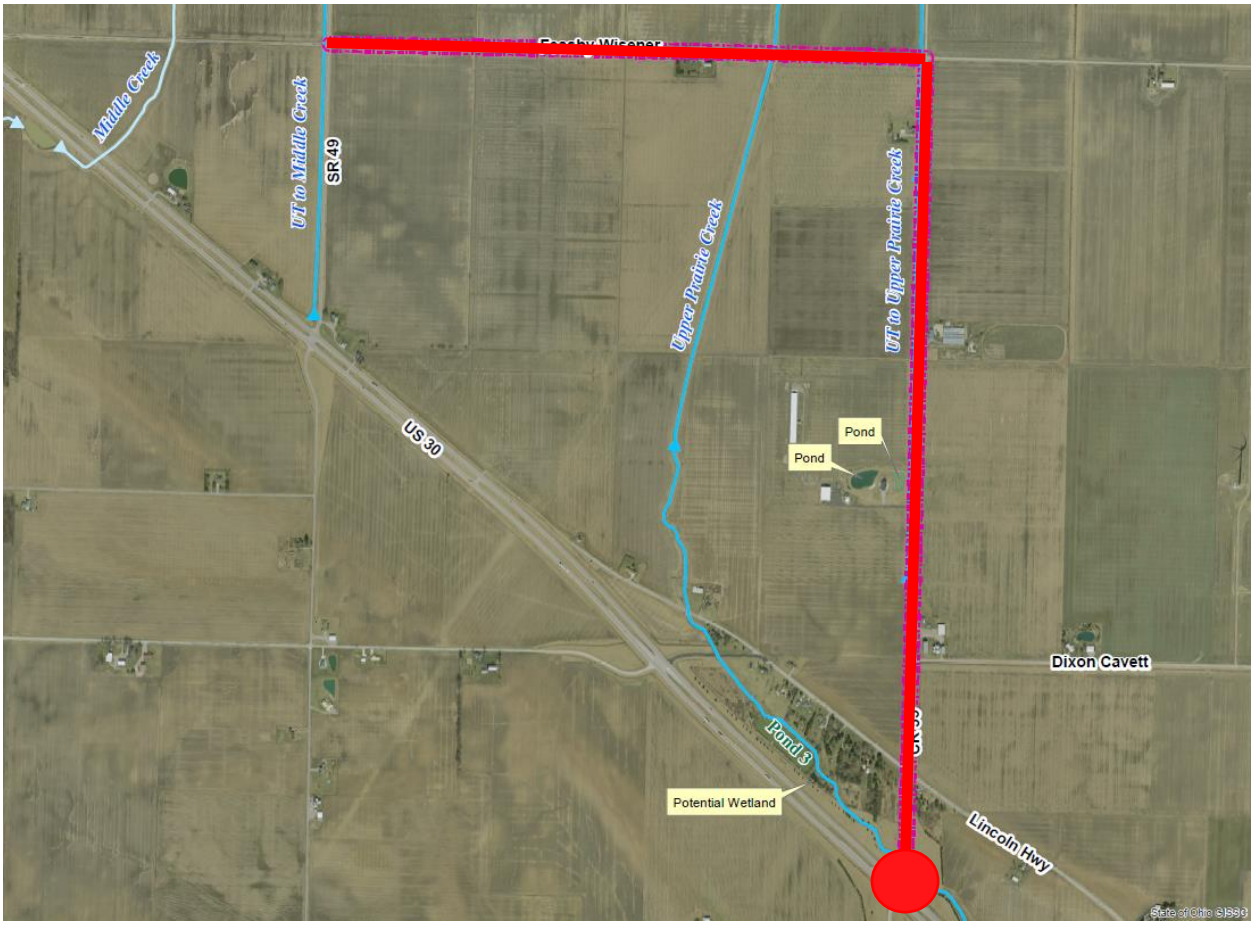
Location	Avg Width Ex.	Prop. Width(4-11-11-4)	Widening	Length of Reroute to Mentzer/SR49 S int	New Pvt. Area	Improved Length	New Length	Large Culverts	Bridges	R/W	Named Stream Impact
Service Rd.	0	30	30	7063	211890	0	7063	3	0	423780	0
SR 49 S	32	32	0	2640	0	2640	0				
Total				**9703**	**211890**	**2640**	**7063**				

	Value	Unit Cost	Total
Full Depth Pavement Area	211890	15 $/sf	$3,178,350
Resurf Pavement Area	84480	5 $/sf	$422,400
EW & Drainagage for new const.			$500,000
Large Culverts	3	51500 each	$154,500
Bridges	0	45000 each	$0
Design Contingency		30%	$1,276,575
Total Construction			$5,531,825
R/W Area	423780	$0.10	$43,555
R/W Acquisition	10000	10000	$10,000
Total R/W			$53,555
Total Cost=			**$5,585,380**

Access Route B - 1

Description of Study Area

If the interchange is selected for Intersection #10, then access to the existing SR 49 route would be required. Access Route option B – 1 would go north on CR 55, then turn west onto Feasby-Wisener Road before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.



Reroute B-1

Location	Avg Width Ex.	Prop. Width(4-11-11-4)	Widening	Length of Reroute to Elm Sugar/SR49 N int	New Pvt. Area	Improved Length	New Length	Large Culverts	Bridges	R/W	Named Stream Impact	Comments
CR 55	19	30	11	7142	78562	7142	0	3	0	0	4700	
Feasby Wisener	16	30	14	5223	73122	5223	0	1	1	0	0	Bridge=20', assume keep substandard
SR 49N	30	30	0	5310	0	5310	0					
FW/CR 55 int					21320					2983		
FW/SR 49N					21785							
Total				**17675**	**194789**	**17675**	**0**	**4**	**1**	**2983**	**4700**	

	Value	Unit Cost	Total
Full Depth Pavement Area	194789	15 $/sf	$2,921,835
Resurf Pavement Area	219266	5 $/sf	$1,096,330
Large Culverts	4	51500 each	$206,000
Bridges	1	45000 each	$45,000
Design Contingency		30%	$1,280,750
Total Construction			$5,549,915
R/W Area	2983	$0.10	$307
R/W Acquisition	10000	10000	10000
Total R/W			$10,307
Total Cost=			**$5,560,221**

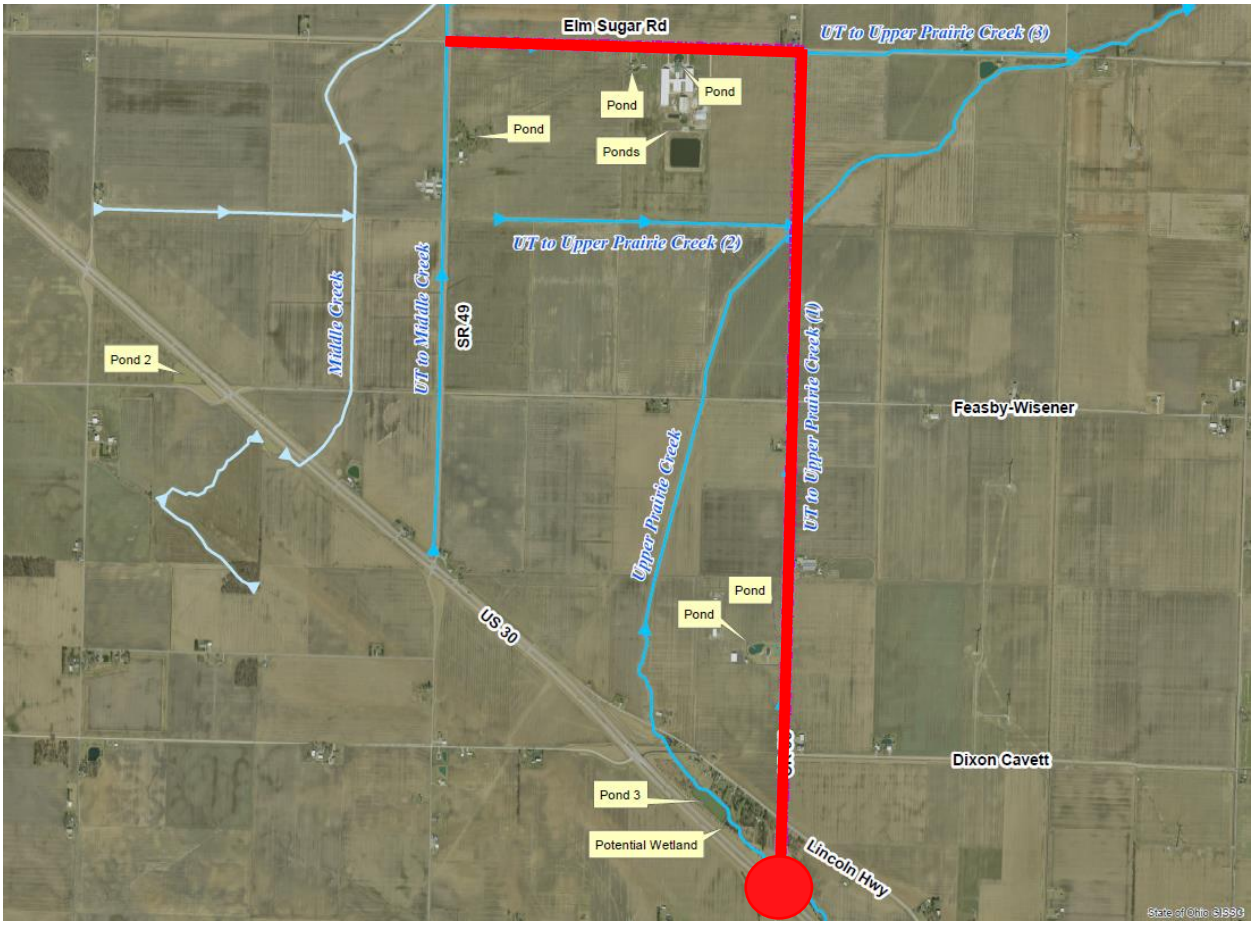
Residential Impacts 6 1 township rd./1 county rd. upgr. To SR

	Ex.	Delta	Label
Convoy Heller	400	800	Convoy Heller=800/Feasby Wisener=1050
Feasby Wisener	150	1050	
SR 49N	1200		

Access Route B - 2

Description of Study Area

If the interchange is selected for Intersection #10, then access to the existing SR 49 route would be required. Access Route option B – 2 would go north on CR 55, then turn west onto Elm Sugar Road before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.

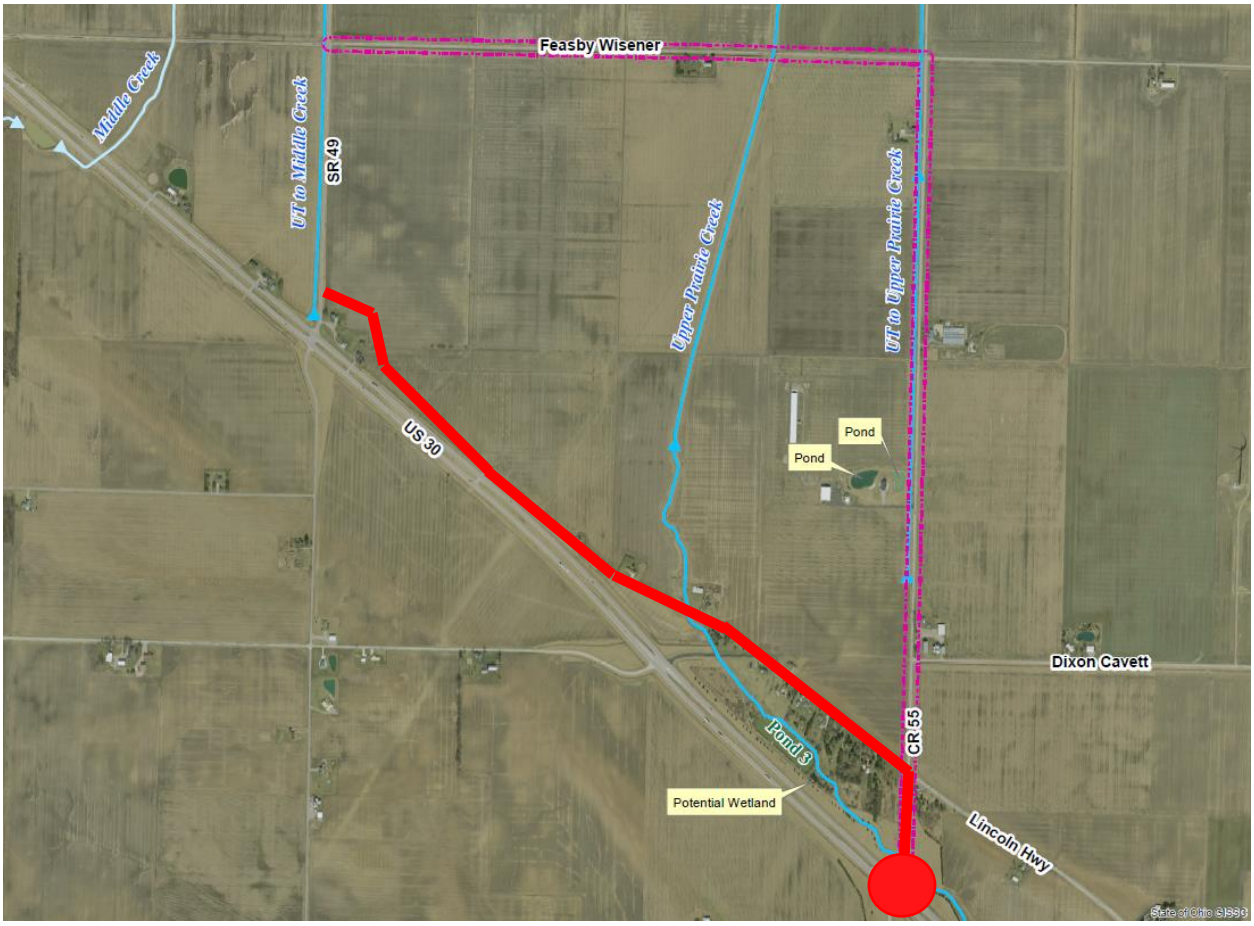


Reroute B-2

Location	Avg Width Ex.	Prop. Width(4-11-11-4)	Widening	Length of Reroute to Elm Sugar/SR49 N int	New Pvt. Area	Improved Length	New Length	Large Culverts	Bridges	R/W	Named Stream Impact	Comments
CR 55	19	30	11	12443	136873	12443	0	4	1	0	9960	Bridge=20', assume keep substandard
Elm Sugar	20	30	10	5285	52850	5285	0	0	0	0	4120	
SR 49N	30	30	0	0	0	0	0					
Elm Sugar/CR 55 Int.					21918					25115		
ElmSugar/ SR 49N Int.					22358					25436		
Total				**17728**	**233999**	**17728**	**0**	**4**	**1**	**50551**	**14080**	

	Value	Unit Cost	Total
Full Depth Pavement Area	233999	15 $/sf	$3,509,985
Resurf Pavement Area	342117	5 $/sf	$1,710,585
Large Culverts	4	51500 each	$206,000
Bridges	1	45000 each	$45,000
Design Contingency		30%	$1,641,471
Total Construction			$7,113,041
R/W Area	50551	$0.10	$5,195
R/W Acquisition	10000	10000	10000
Total R/W			$15,195
Total Cost=			**$7,128,236**

Access Route B - 4

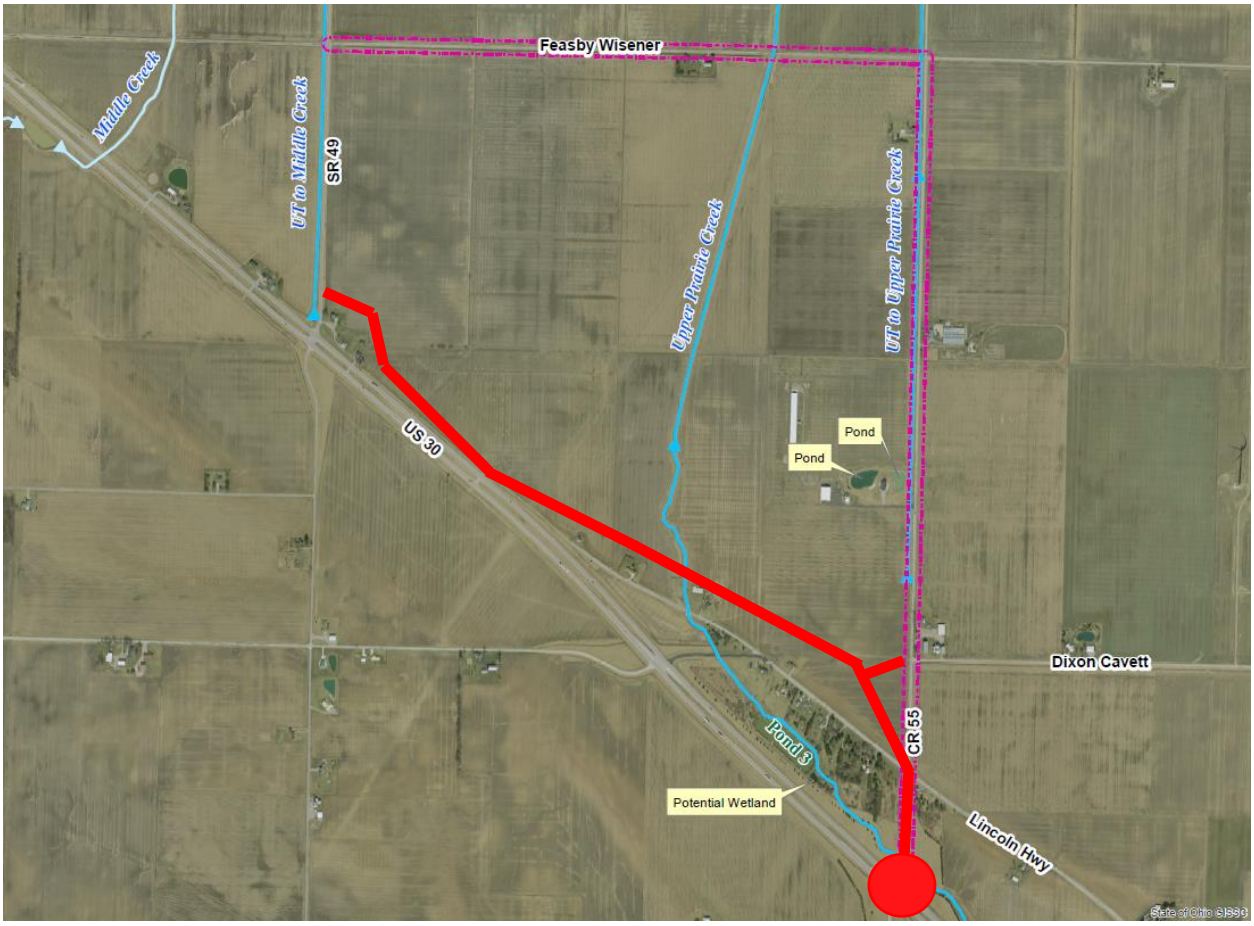


Reroute B-3

Location	Avg Width Ex.	Prop. Width(4-11-11-4)	Widening	Length of Reroute to Elm Sugar/SR49 N int	New Pvt. Area	Improved Length	New Length	Large Culverts	Bridges	R/W	Named Stream Impact	Comments
Service Rd	0	30	30	3560	106800	0	106800	1	0	302090	0	
Lincoln Hwy.	26	30	4	3600	14400	3600	0	0	1	0	100	Bridge=25', assume keep substandard
SR 49N	30	30	0	7325	0	7325	0					
Lincoln/CR 55 Int					12978							
Total				**14485**	**134178**	**10925**	**106800**	**1**	**1**	**302090**	**100**	

	Value	Unit Cost	Total
Full Depth Pavement Area	134178	15 $/sf	$2,012,670
Resurf Pavement Area	93600	5 $/sf	$468,000
EW & Drainage for new const.			$250,000
Large Culverts	1	51500 each	$51,500
Bridges	1	45000 each	$45,000
Design Contingency		30%	$848,151
Total Construction			$3,675,321
R/W Area	302090	$0.10	$31,048
R/W Acquisition	10000	$10,000	$10,000
Total R/W			$41,048
Total Cost=			**$3,716,369**

Access Route B - 4

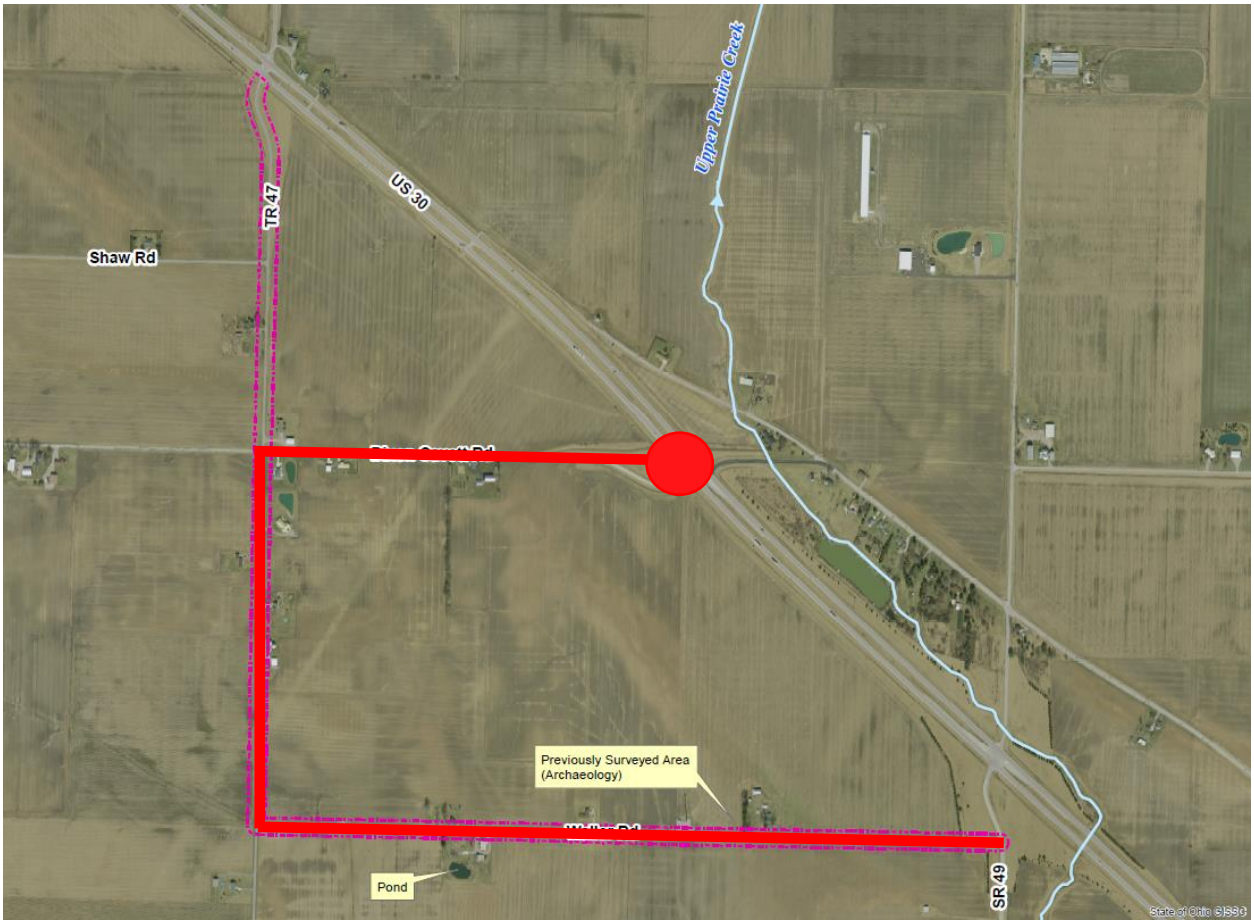


Reroute B-4

Location	Avg Width Ex.	Prop. Width(4-11-11-4)	Widening	Length of Reroute to Elm Sugar/SR49 N int	New Pvt. Area	Improved Length	New Length	Large Culverts	Bridges	R/W	Named Stream Impact	Comments
Service Rd	0	30	30	7050	211500	0	211500	0	1	751334	100	
Dixon Cavett Extension	20	26	6	315	1890	315	0	0	0	0		
Total				**7365**	**213390**	**315**	**211500**	**0**	**1**	**751334**	**100**	

	Value	Unit Cost	Total
Full Depth Pavement Area	213390	15 $/sf	$3,200,850
Resurf Pavement Area	6300	5 $/sf	$31,500
EW & Drainage for new const.			$250,000
Large Culverts	0	51500 each	$0
Bridges	1	2540000 each	$2,540,000
Design Contingency		30%	$1,806,705
Total Construction			$7,829,055
R/W Area	751334	$0.10	$77,219
R/W Acquisition	10000	$10,000	$10,000
Total R/W			$87,219
Total Cost=			**$7,916,274**

Access Route C - 1

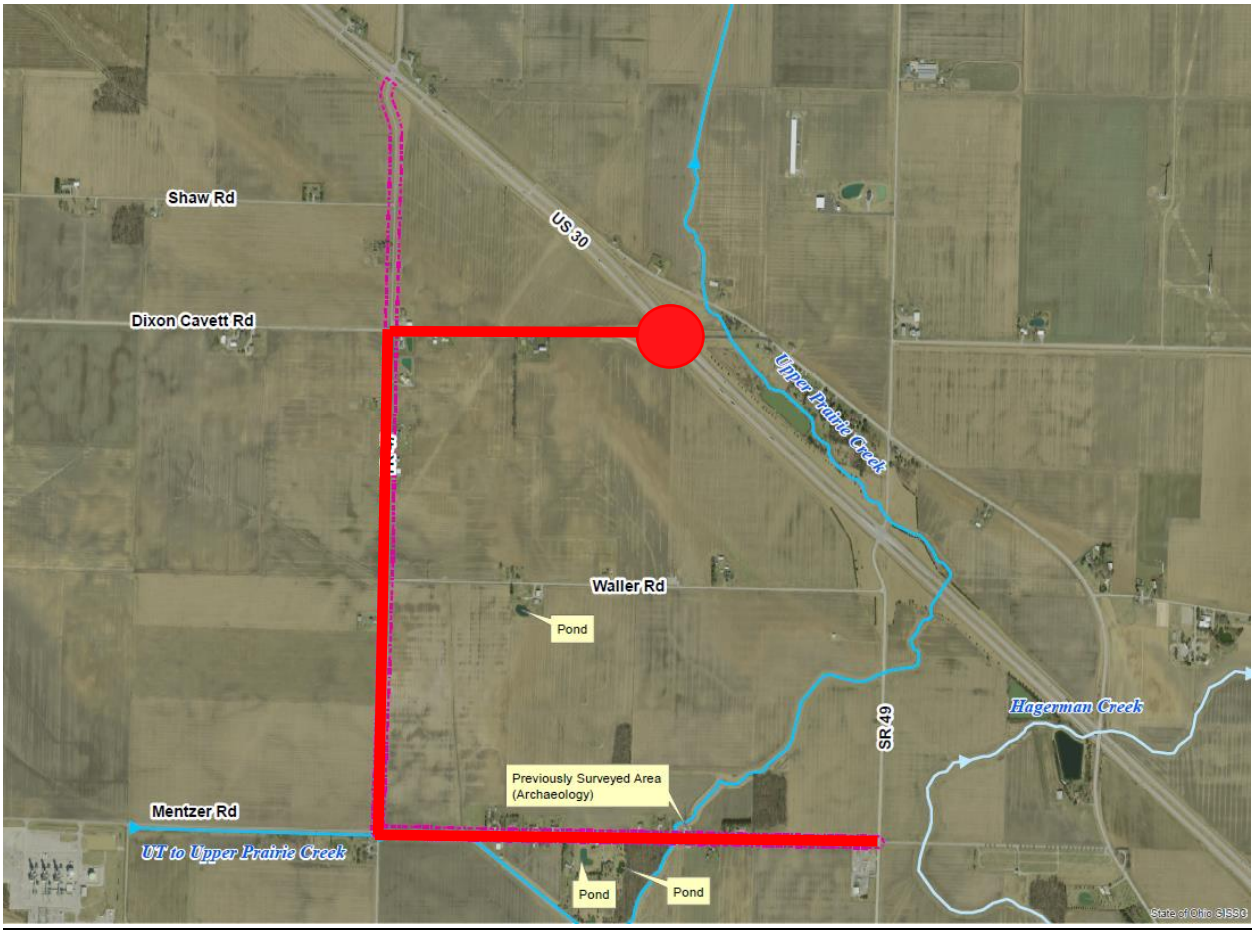


Reroute C-1

Location	Avg Width Ex.	Prop. Width(4-11-11-4)	Widening	Length of Reroute to Mentzer/SR49 S int	New Pvt. Area	Improved Length	New Length	Large Culverts	Bridges	R/W	Named Stream Impact	Comments
DIXON CAVETT	18	30	12	2100	25200	2100	0	0	0	0	0	
TR 47	16	30	14	2650	37100	2650	0	0	0	0	0	
WALLER	16	30	14	5300	74200	5300	0	1	0	0	0	
SR 49S	32	32	0	2640	0	2640	0					
Waller/TR 47 Int					26495					148272		
Waller/SR 49S Int					26495					148272		
Total				**12690**	**189490**	**12690**	**0**	**1**	**0**	**296544**	**0**	

	Value	Unit Cost	Total
Full Depth Pavement Area	189490	15 $/sf	$2,842,350
Resurf Pavement Area	165000	5 $/sf	$825,000
Large Culverts	1	51500 each	$51,500
Bridges	0	45000 each	$0
Design Contingency		30%	$1,115,655
Total Construction			$4,834,505
R/W Area	296544	$0.10	$30,478
R/W Acquisition	10000	10000	10000
Total R/W			$40,478
Total Cost=			**$4,874,983**

Access Route C- 2

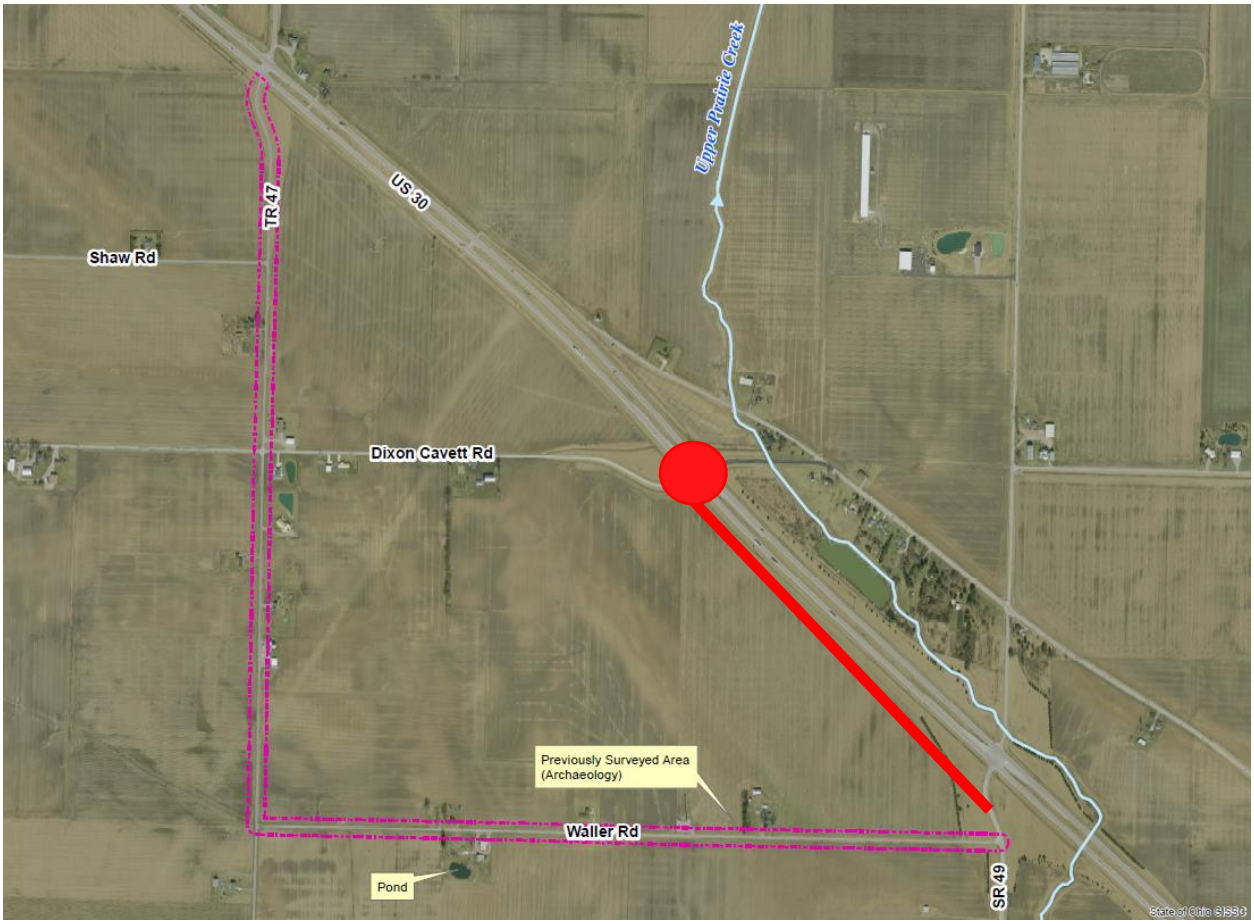


Reroute C-2

Location	Avg Width Ex.	Prop. Width(4-11-11-4)	Widening	Length of Reroute to Mentzer/SR 49 S int	New Pvt. Area	Improved Length	New Length	Large Culverts	Bridges	R/W	Named Stream Impact	Comments
Dixon Cavett	18	30	12	2100	25200	2100	0	0	0	0	0	
TR 47	16	30	14	5275	73850	5275	0	0	0	0	0	
Mentzer	18	30	12	5305	63660	5305	0	1	0	0	1100	
SR 49 S	32	32	0	0	0	0	0					
Mentzer/TR 47 Int					26495					148272		
Mentzer/SR 49S Int					26495					148272		
Total				**12680**	**215700**	**12680**	**0**	**1**	**0**	**296544**	**1100**	

	Value	Unit Cost	Total
Full Depth Pavement Area	215700	15 $/sf	$3,235,500
Resurf Pavement Area	217690	5 $/sf	$1,088,450
Large Culverts	1	51500 each	$51,500
Bridges	0	45000 each	$0
Design Contingency		30%	$1,312,635
Total Construction			$5,688,085
R/W Area	296544	$0.10	$30,478
R/W Acquisition	10000	10000	10000
Total R/W			$40,478
Total Cost=			**$5,728,563**

Access Route E - 1

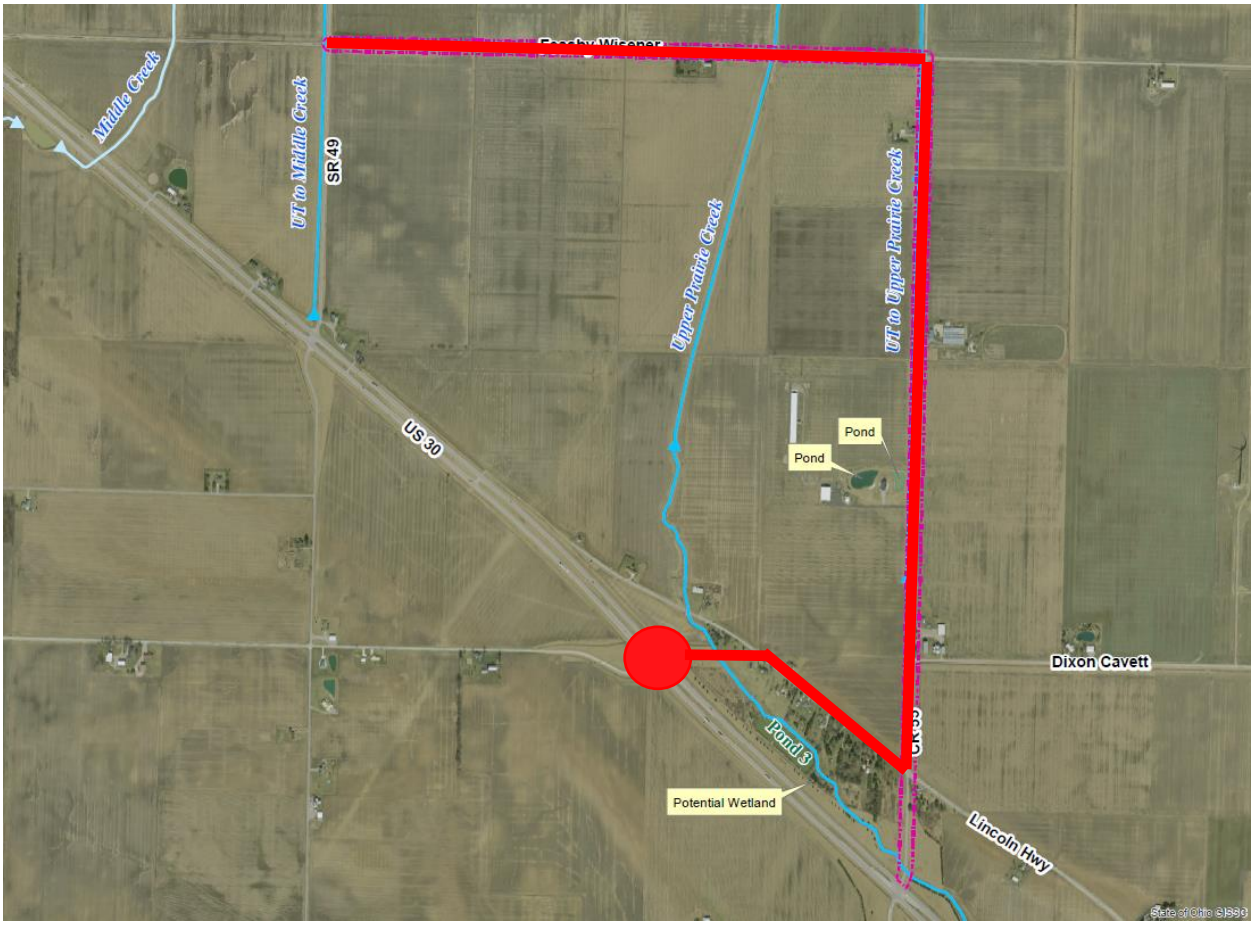


Reroute C-3

Location	Avg Width Ex.	Prop. Width(4-11-11-4)	Widening	Length of Reroute to Mentzer/SR 49 S int	New Pvt. Area	Improved Length	New Length	Large Culverts	Bridges	R/W	Named Stream Impact	Comments
Service Rd.	0	30	30	3700	111000	0	3700	1	0	222000	0	
SR 49 S	32	32	0	2640	0	2640	0					
Total				**6340**	**111000**	**2640**	**3700**	**1**	**0**	**222000**	**0**	

	Value	Unit Cost	Total
Full Depth Pavement Area	111000	15 $/sf	$1,665,000
Resurf Pavement Area	0	5 $/sf	$0
Large Culverts	2	51500 each	$103,000
Bridges	0	45000 each	$0
Design Contingency		30%	$530,400
Total Construction			$2,298,400
R/W Area	222000	$0.10	$22,816
R/W Acquisition	10000	$10,000	$10,000
Total R/W			$32,816
Total Cost=			**$2,331,216**

Access Route D - 1

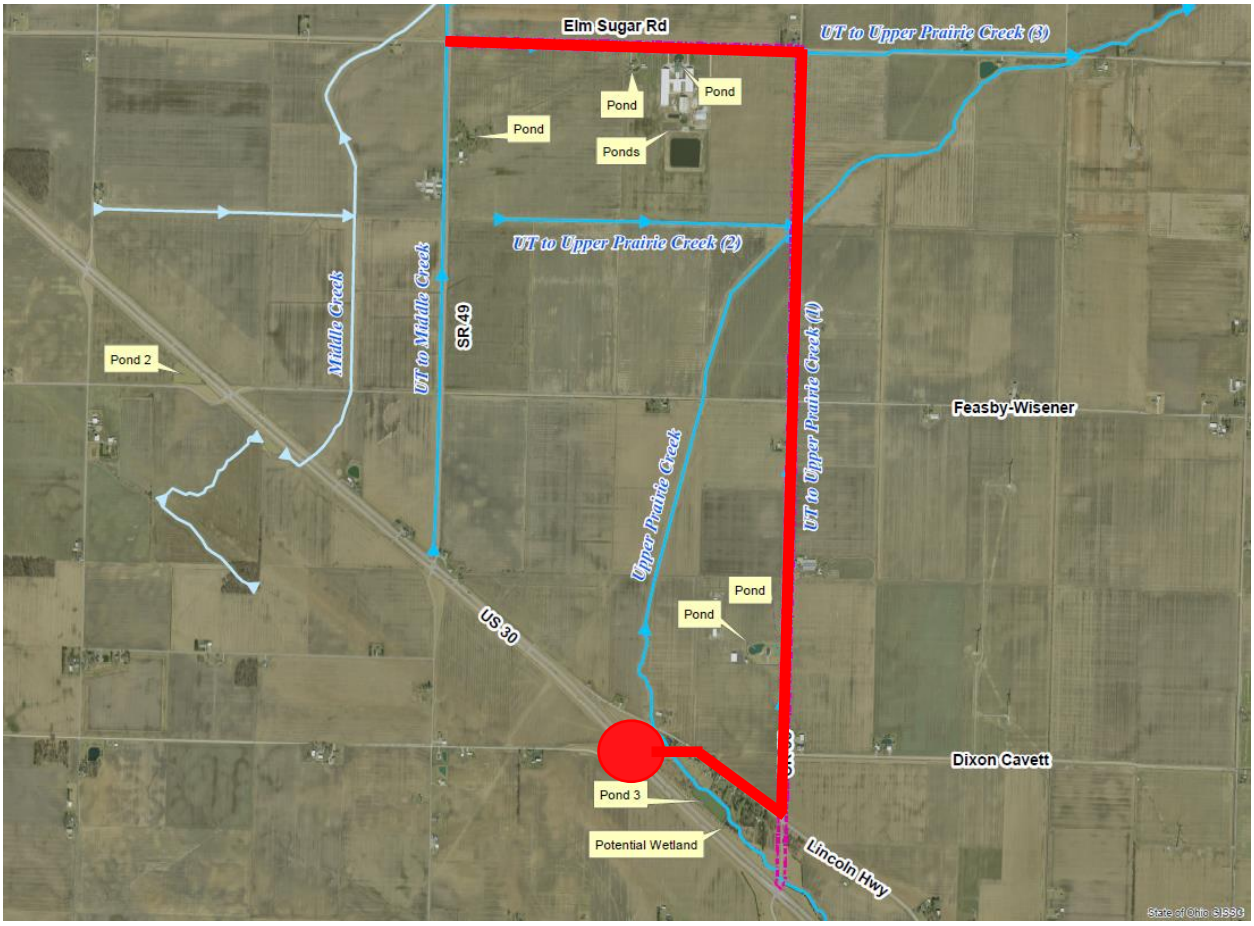


Reroute D-1

Location	Avg Width Ex.	Prop. Width(4-11-11-4)	Widening	Length of Reroute to Elm Sugar/SR49 N int	New Pvt. Area	Improved Length	New Length	Large Culverts	Bridges	R/W	Named Stream Impact	Comments
Lincoln Hwy	28	30	2	1700	3400	1700	0	0	0	0	0	
CR 55	19	30	11	6300	69300	6300	0	2	0	0	4700	
Feasby Wisener	16	30	14	5223	73122	5223	0	1	1	0	0	Bridge=20', assume keep substandard
SR 49N	30	30	0	5310	0	5310	0					
FW/CR 55 int					26495					148272		
FW/SR 49N					26495					148272		
Total				**18533**	**198812**	**18533**	**0**	**3**	**1**	**296544**	**4700**	

	Value	Unit Cost	Total
Full Depth Pavement Area	198812	15 $/sf	$2,982,180
Resurf Pavement Area	250868	5 $/sf	$1,254,340
Large Culverts	3	51500 each	$154,500
Bridges	1	45000 each	$45,000
Design Contingency		30%	$1,330,806
Total Construction			$5,766,826
R/W Area	296544	$0.10	$30,478
R/W Acquisition	10000	10000	10000
Total R/W			$40,478
Total Cost=			**$5,807,304**

Access Route D - 2

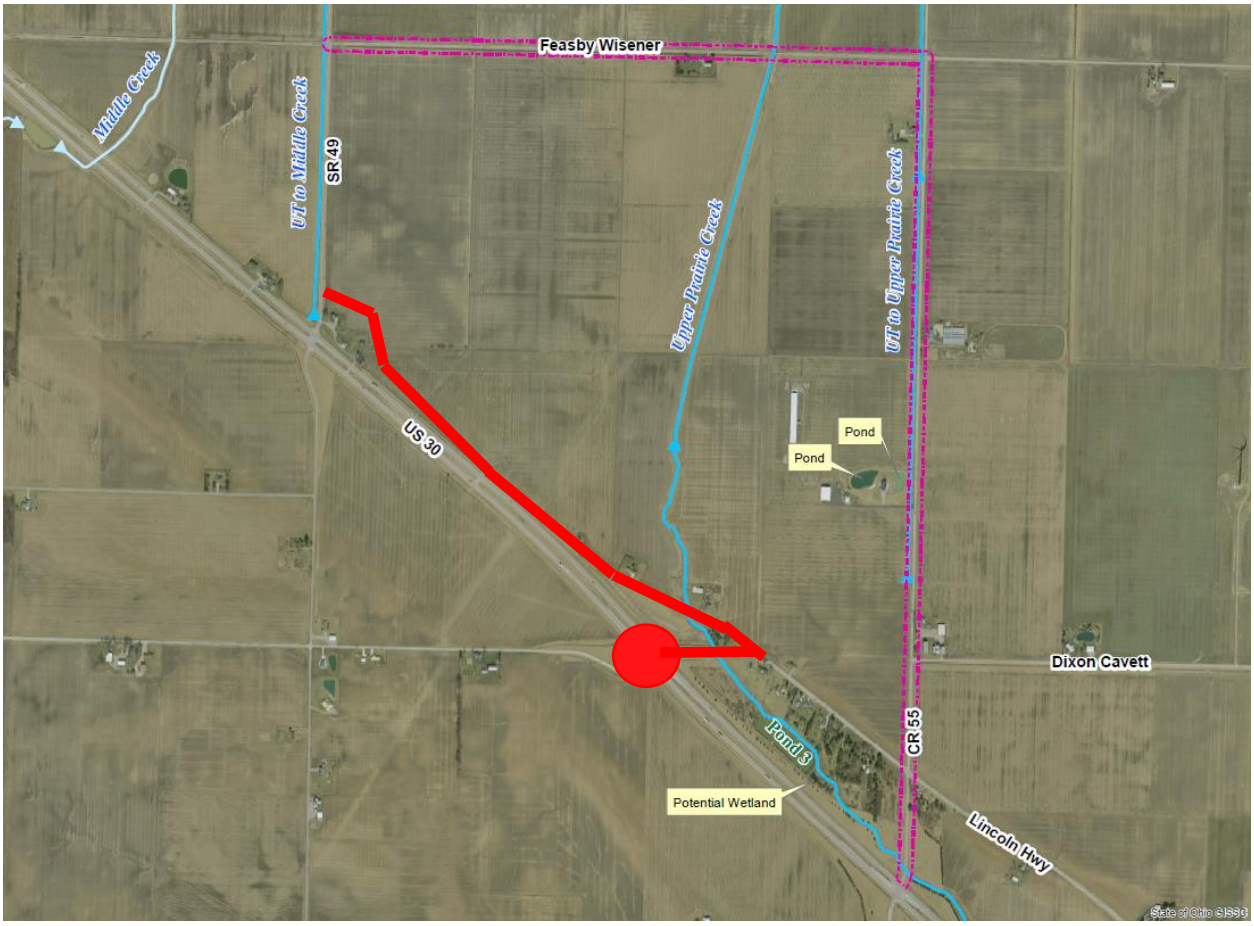


Reroute D-2

Location	Avg Width Ex.	Prop. Width(4-11-11-4)	Widening	Length of Reroute to Elm Sugar/SR49 N int	New Pvt. Area	Improved Length	New Length	Large Culverts	Bridges	R/W	Named Stream Impact	Comments
Lincoln Hwy	28	30	2	1700	3400	1700	0	0	0	0	0	
CR 55	19	30	11	11585	127435	11585	0	3	1	0	9960	Bridge=20', assume keep substandard
Elm Sugar	20	30	10	5285	52850	5285	0	0	0	0	4120	
SR 49N	30	30	0	0	0	0	0					
Elm Sugar/CR 55 Int.					26495					148272		
ElmSugar/ SR 49N Int.					26495					148272		
Total				**18570**	**236675**	**18570**	**0**	**3**	**1**	**296544**	**14080**	

	Value	Unit Cost	Total
Full Depth Pavement Area	236675	15 $/sf	$3,550,125
Resurf Pavement Area	373415	5 $/sf	$1,867,075
Large Culverts	3	51500 each	$154,500
Bridges	1	45000 each	$45,000
Design Contingency		30%	$1,685,010
Total Construction			$7,301,710
R/W Area	296544	$0.10	$30,478
R/W Acquisition	10000	10000	10000
Total R/W			$40,478
Total Cost=			**$7,342,188**

Access Route D - 3

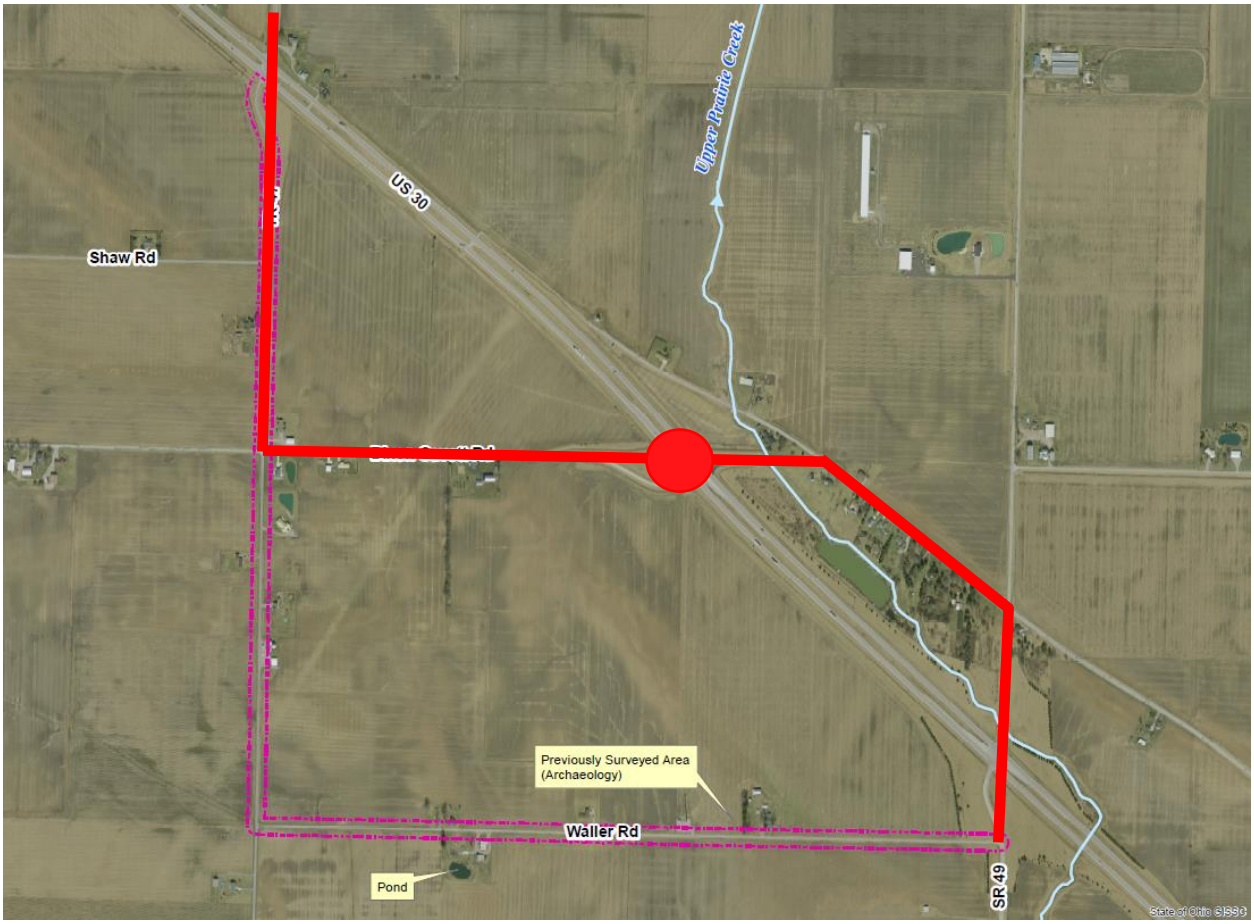


Reroute D-3

Location	Avg Width Ex.	Prop. Width(4-11-11-4)	Widening	Length of Reroute to Elm Sugar/SR49 N int	New Pvt. Area	Improved Length	New Length	Large Culverts	Bridges	R/W	Named Stream Impact	Comments
Service Rd	0	30	30	3170	95100	0	3170	1	0	190200	0	
Lincoln Hwy.	24	30	6	1900	11400	1900	0	0	1	0	100	Bridge=25', assume keep substandard
SR 49N	30	30	0	7325	0	7325	0					
Total				**12395**	**106500**	**9225**	**3170**	**1**	**1**	**190200**	**100**	

	Value	Unit Cost	Total
Full Depth Pavement Area	106500	15 $/sf	$1,597,500
Resurf Pavement Area	45600	5 $/sf	$228,000
Large Culverts	1	51500 each	$51,500
Bridges	1	45000 each	$45,000
Design Contingency		30%	$576,600
Total Construction			$2,498,600
R/W Area	190200	$0.10	$19,548
R/W Acquisition	10000	$10,000	$10,000
Total R/W			$29,548
Total Cost=			**$2,528,148**

Access Route E - 1

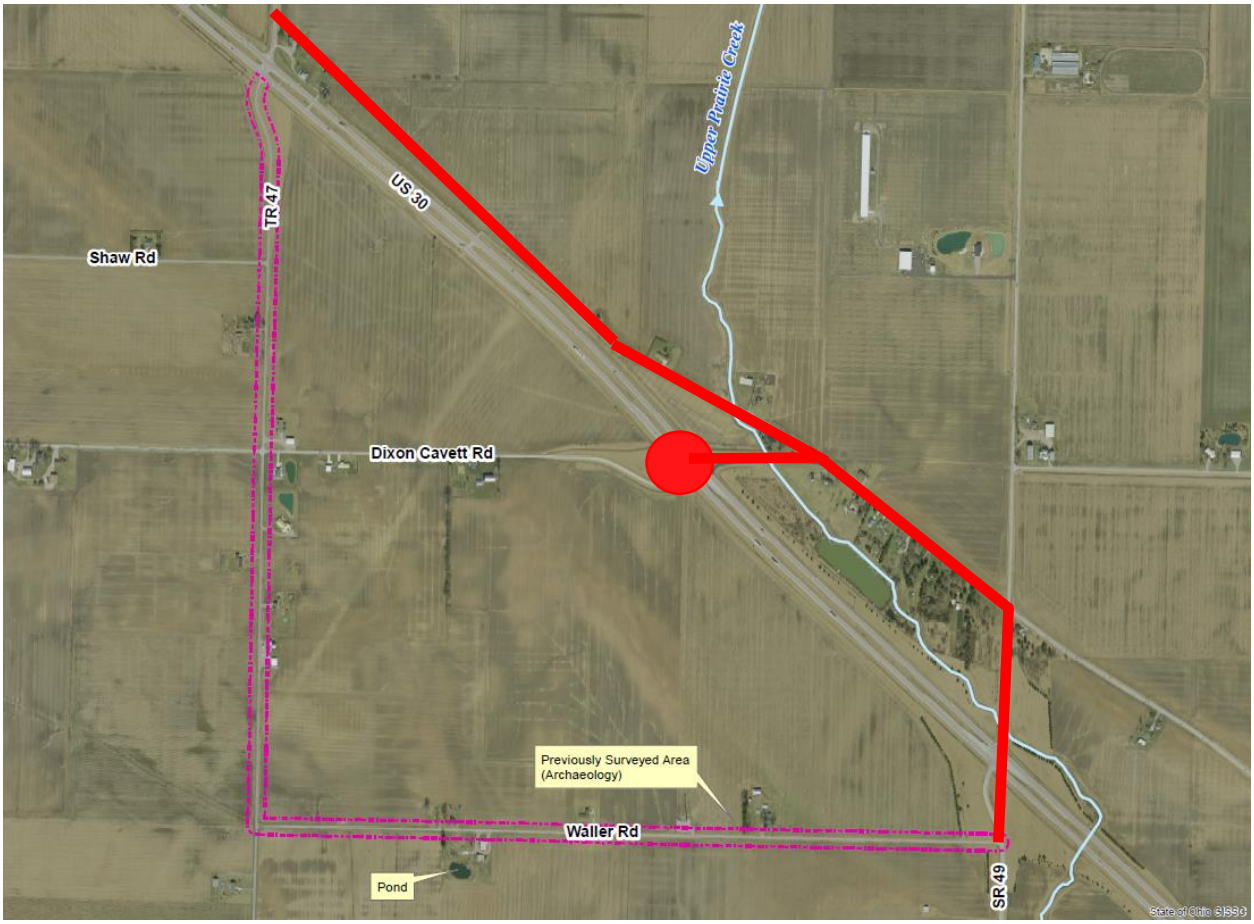


Reroute E-1

Location	Avg Width Ex.	Prop. Width(4-11-11-4)	Widening	Length	New Pvt. Area	Improved Length	New Length	Large Culverts	Bridges	R/W	Named Stream Impact	Overpasses	Comments
TR 47	16	30	14	2200	30800	2200	0	0	0	0	0	1	
Dixon Cavett	18	30	12	2900	34800	2900	0			0			
Lincoln Highway	28	30	2	1700	3400	1700	0	0	0	0			
CR 55	19	31	12	900	10800			1	0	0	100	1	
Lincoln/CR 55 Int					26495					6050			
Lincoln/Dixon-Cavett Int.					3500					2700			
Dixon-Cavett/TR 47 Int.					30000					112500			
Total				**7700**	**139795**			**1**	**0**	**121250**	**100**	**2**	

	Value	Unit Cost	Total
Full Depth Pavement Area	139795	15 $/sf	$2,096,925
Resurf Pavement Area	152100	5 $/sf	$760,500
Large Culverts	1	51500 each	$51,500
Bridges	0	45000 each	$0
Overpasses	2	2540000 each	$5,080,000
Design Contingency		30%	$2,396,678
Total Construction			$10,385,603
R/W Area	121250	$0.10	$12,462
R/W Acquisition	10000	$10,000	$10,000
Total R/W			$22,462
Total Cost=			**$10,408,064**

Access Route E - 2



Reroute E-2

Location	Avg Width Ex.	Prop. Width(4-11-11-4)	Widening	Length	New Pvt. Area	Improved Length	New Length	Large Culverts	Bridges	R/W	Named Stream Impact	Overpasses	Comments
Service Rd.	0	30	30	3700	111000	0	111000	1	0	222000			
Lincoln Highway	28	30	2	1700	3400	1700	0	0	0	0			
CR 55	19	31	12	900	10800	900	0	1	0	0	100	1	
CR 55/Lincoln Int.					26495					6050			
Total				**6300**	**151695**			**2**	**0**	**228050**	**100**	**1**	

	Value	Unit Cost	Total
Full Depth Pavement Area	151695	15 $/sf	$2,275,425
Resurf Pavement Area	64700	5 $/sf	$323,500
Large Culverts	2	51500 each	$103,000
Bridges	0	45000 each	$0
Overpasses	1	2540000 each	$2,540,000
Design Contingency		30%	$1,572,578
Total Construction			$6,814,503
R/W Area	228050	$0	$23,438
R/W Acquisition	10000	$10,000	$10,000
Total R/W			$33,438
Total Cost=			**$6,847,941**

Appendix E

Roadway - Overpass Plan and Profiles

PAU/VAN 30 FEASIBILITY STUDY

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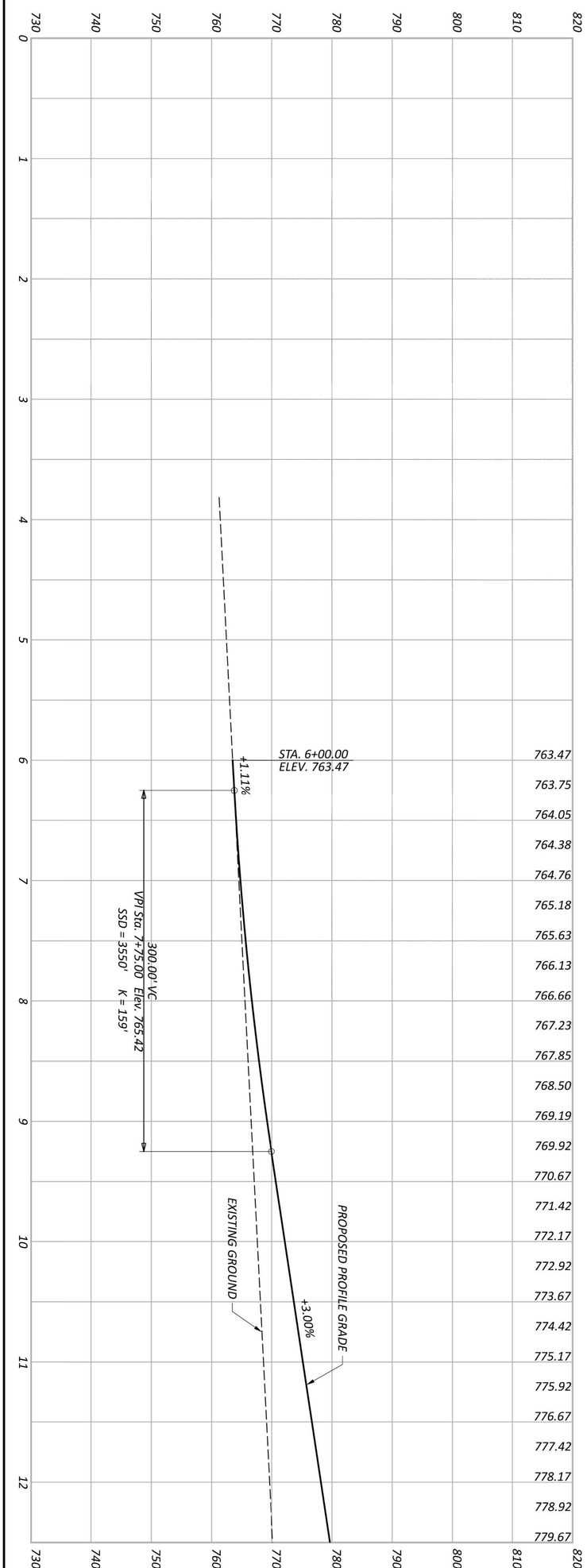

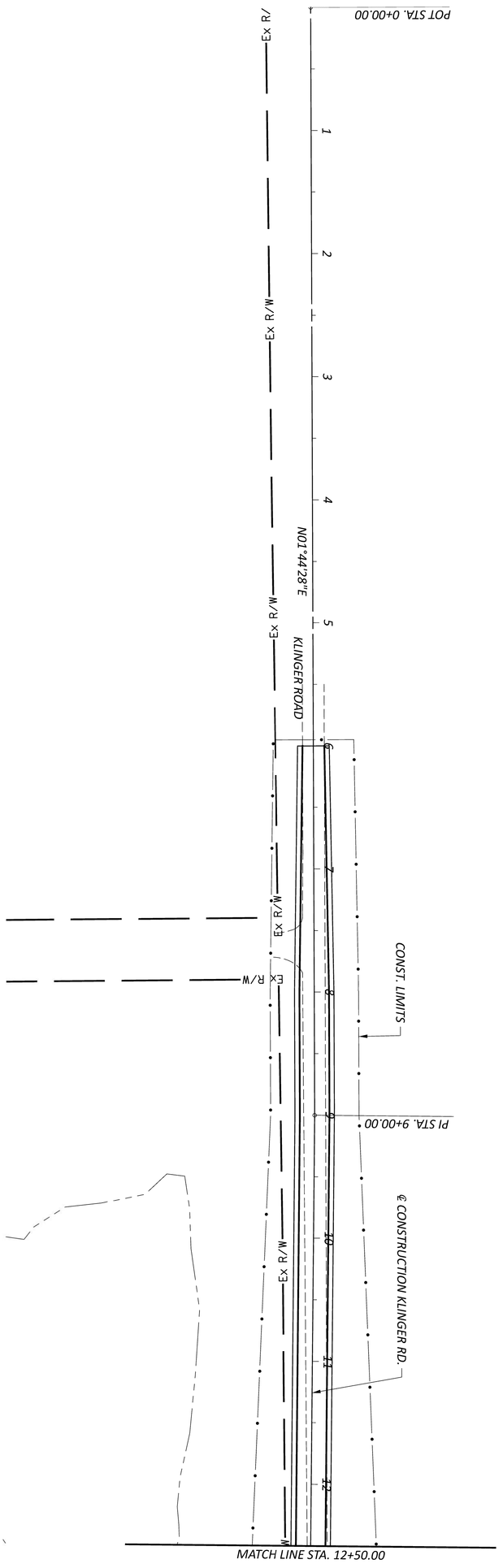

PLAN AND PROFILE - KLINGER ROAD
STA. 0+00 TO STA. 12+50

SHEET	TOTAL	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
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HORIZONTAL SCALE IN FEET
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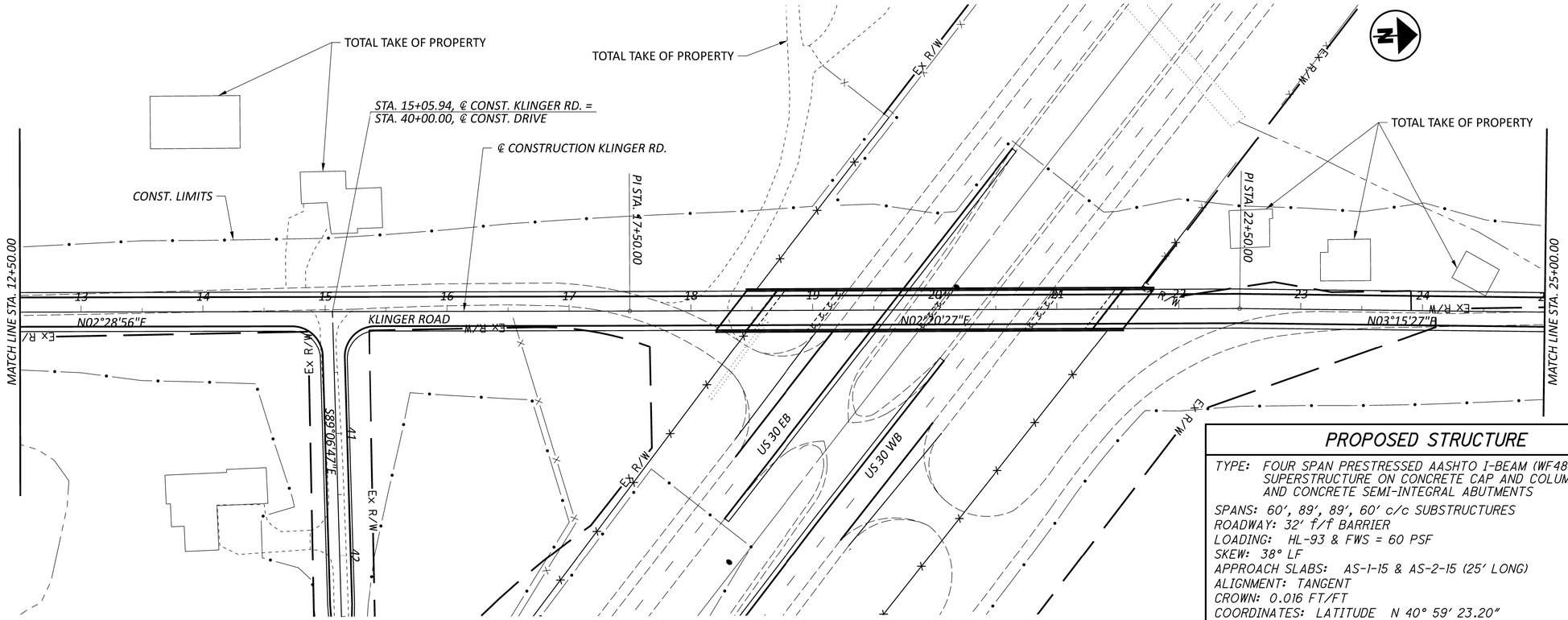
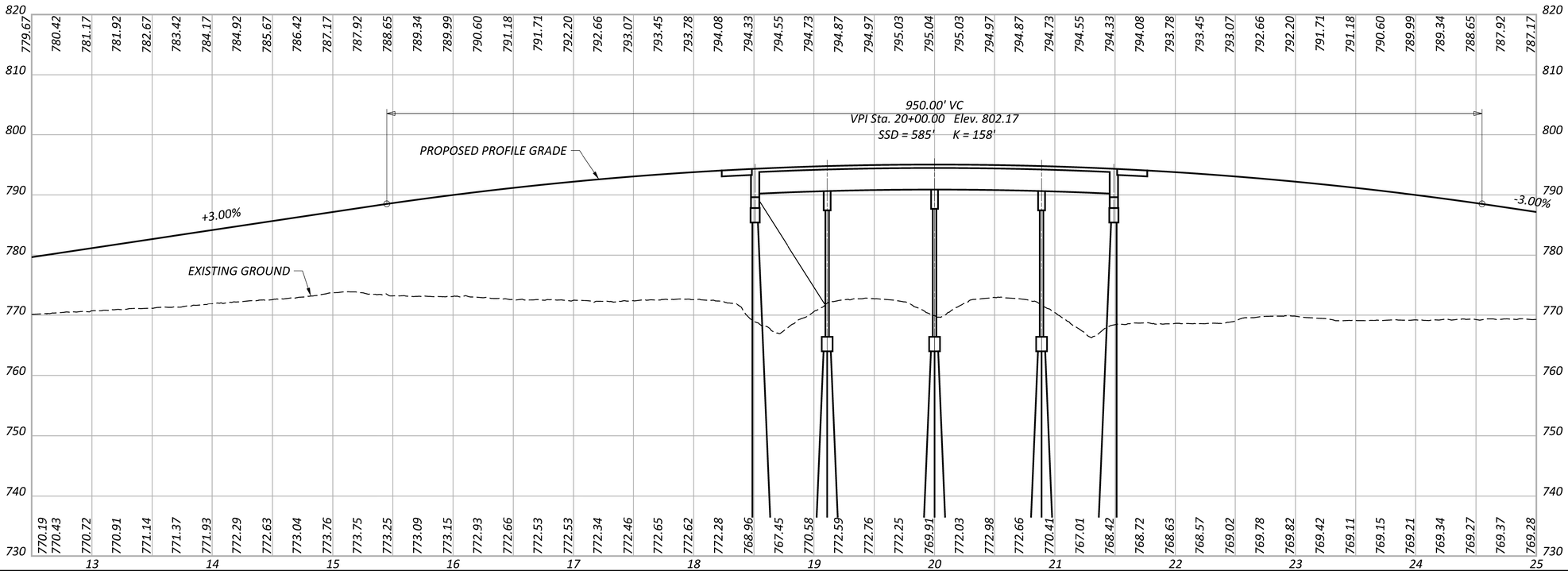


PROPOSED STRUCTURE

TYPE: FOUR SPAN PRESTRESSED AASHTO I-BEAM (WF48-49) SUPERSTRUCTURE ON CONCRETE CAP AND COLUMN PIERS AND CONCRETE SEMI-INTEGRAL ABUTMENTS
SPANS: 60', 89', 89', 60' c/c SUBSTRUCTURES
ROADWAY: 32' f/f BARRIER
LOADING: HL-93 & FWS = 60 PSF
SKEW: 38° LF
APPROACH SLABS: AS-1-15 & AS-2-15 (25' LONG)
ALIGNMENT: TANGENT
CROWN: 0.016 FT/FT
COORDINATES: LATITUDE N 40° 59' 23.20"
LONGITUDE W 84° 47' 02.60"
DECK AREA: 9550 SQ. FT.



HORIZONTAL SCALE IN FEET
0 25 50 100

PLAN AND PROFILE - KLINGER ROAD STA. 12+50 TO STA. 25+00

DESIGN AGENCY
DGL CONSULTING ENGINEERS

DESIGNER AMD
REVIEWER RJM 01-20-23
PROJECT ID 113196
SHEET P:2 TOTAL 17

PAU/VAN 30 FEASIBILITY STUDY

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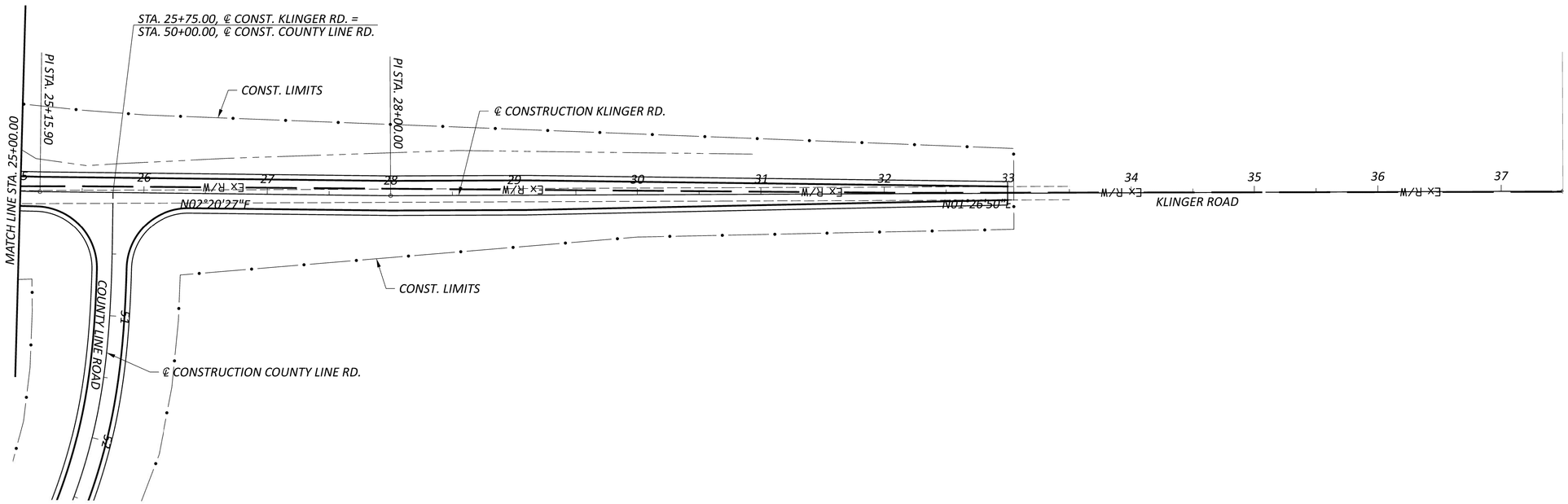

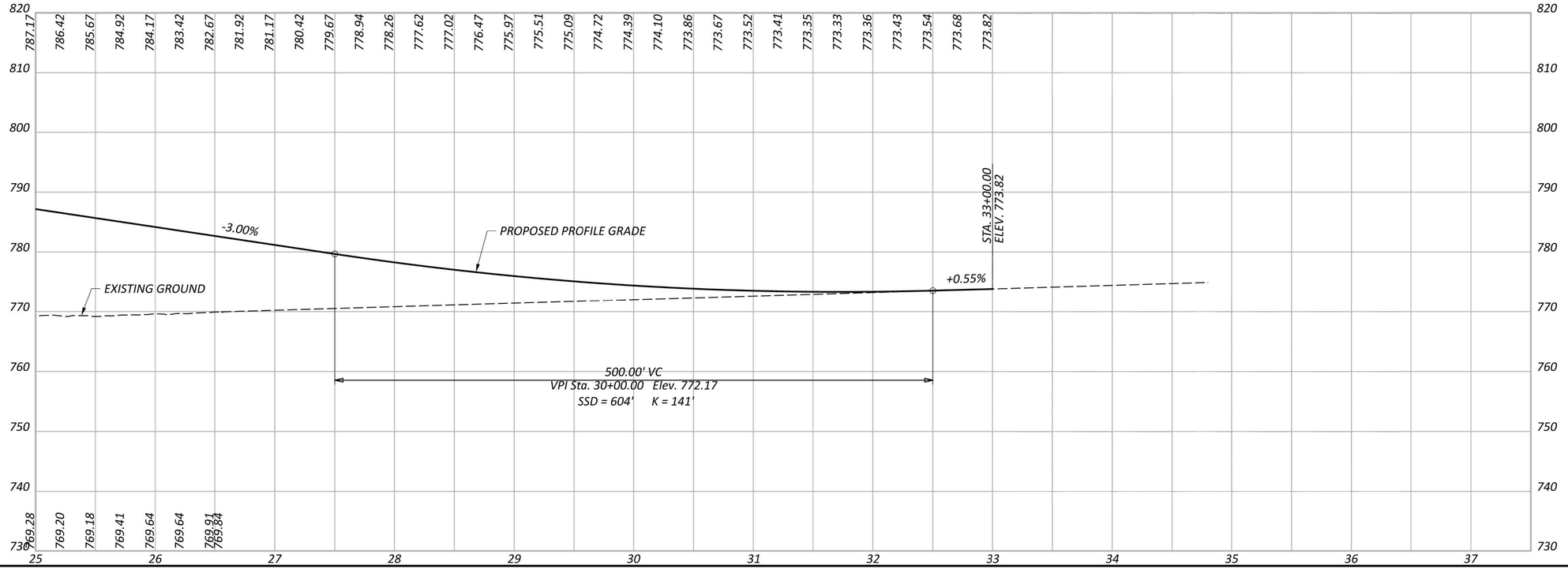

HORIZONTAL SCALE IN FEET
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PLAN AND PROFILE - KLINGER ROAD
STA. 25+00 TO STA. 37+50

PAU/VAN 30 FEASIBILITY STUDY

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DESIGN AGENCY
DGL CONSULTING ENGINEERS

DESIGNER	AMD
REVIEWER	RJM 01-20-23
PROJECT ID	113196
SHEET	P.3
TOTAL	14

PAU/VAN 30 FEASIBILITY STUDY

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HORIZONTAL
SCALE IN FEET
0 50 100 200

PLAN - COUNTY LINE ROAD

DESIGN AGENCY
DGL CONSULTING ENGINEERS

DESIGNER	AMD
REVIEWER	RJM 01-20-23
PROJECT ID	113196
SHEET	P.4
TOTAL	14

PAU/VAN 30 FEASIBILITY STUDY

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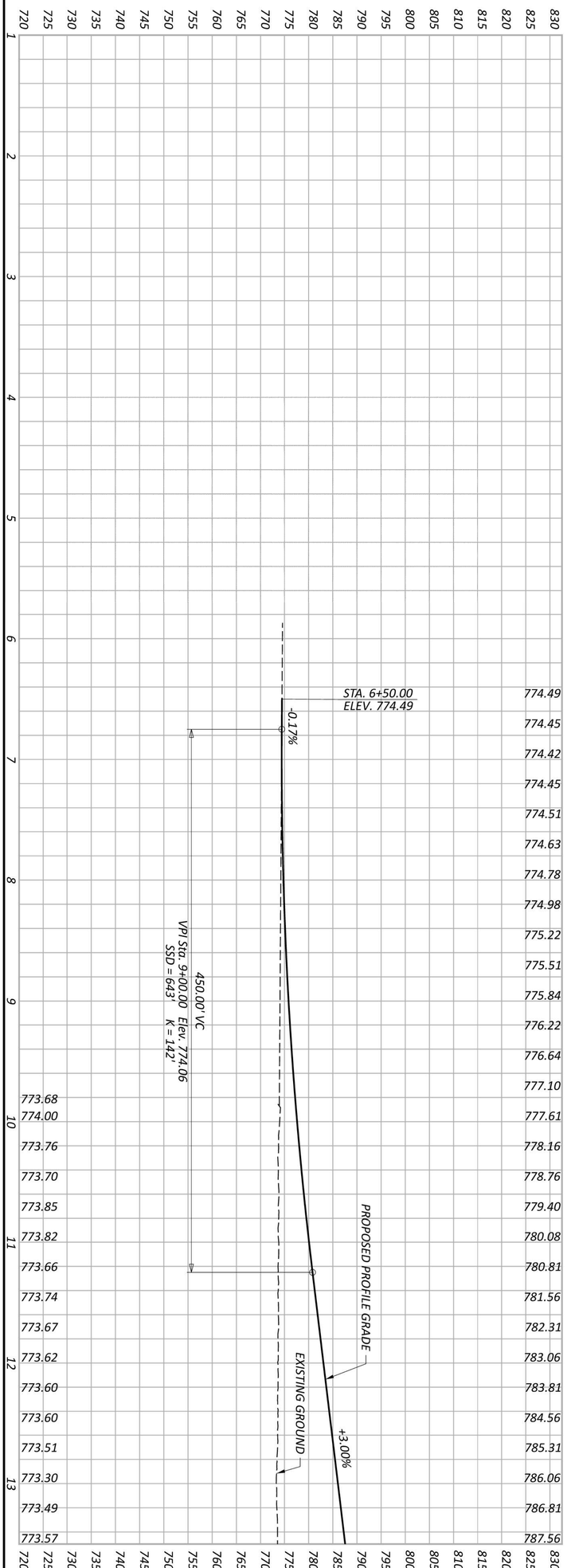

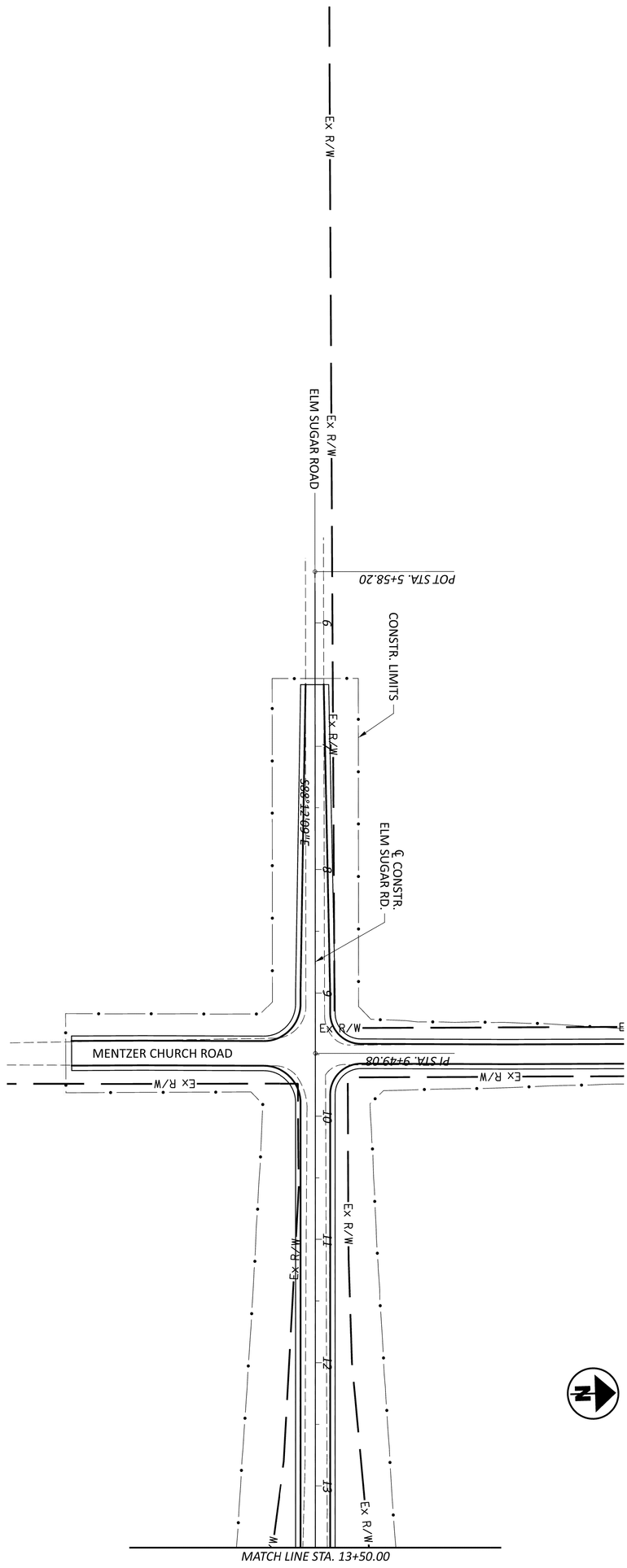

PLAN AND PROFILE - ELM SUGAR ROAD
STA. 6+50 TO STA. 13+50

HORIZONTAL SCALE IN FEET
0 50
25 100

SHEET	TOTAL	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
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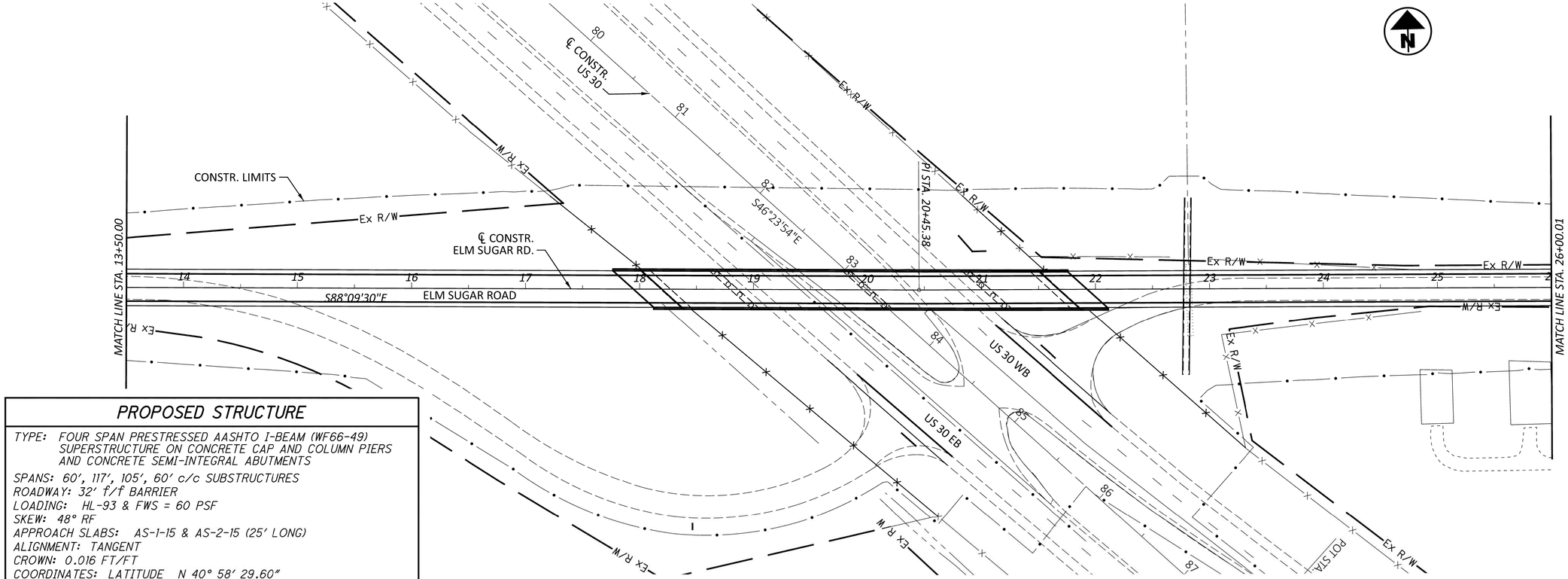
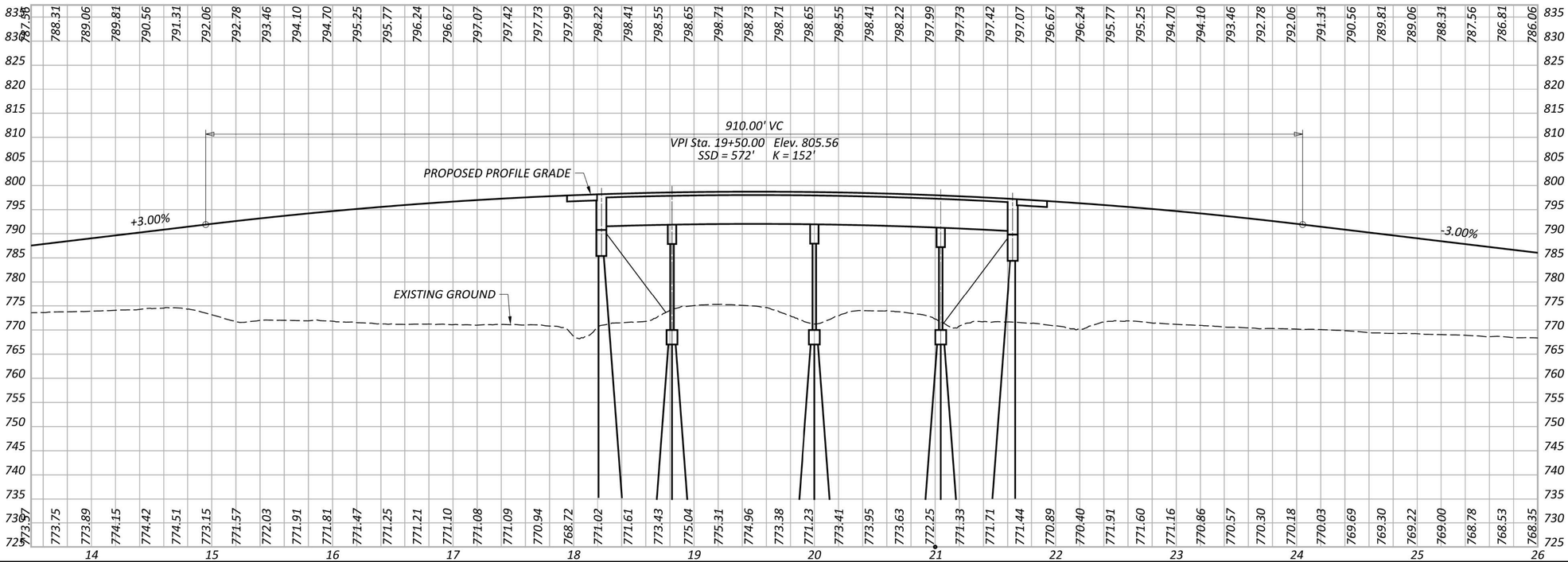


PROPOSED STRUCTURE

TYPE: FOUR SPAN PRESTRESSED AASHTO I-BEAM (WF66-49) SUPERSTRUCTURE ON CONCRETE CAP AND COLUMN PIERS AND CONCRETE SEMI-INTEGRAL ABUTMENTS
SPANS: 60', 117', 105', 60' c/c SUBSTRUCTURES
ROADWAY: 32' f/f BARRIER
LOADING: HL-93 & FWS = 60 PSF
SKEW: 48° RF
APPROACH SLABS: AS-1-15 & AS-2-15 (25' LONG)
ALIGNMENT: TANGENT
CROWN: 0.016 FT/FT
COORDINATES: LATITUDE N 40° 58' 29.60"
LONGITUDE W 84° 45' 40.00"
DECK AREA: 10,950 SQ. FT.



HORIZONTAL SCALE IN FEET
0 25 50 100

PLAN AND PROFILE - ELM SUGAR ROAD STA. 13+50 TO STA. 26+00

PAU/VAN 30 FEASIBILITY STUDY

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DESIGN AGENCY
DGL CONSULTING ENGINEERS

DESIGNER	AMD
REVIEWER	RJM 01-20-23
PROJECT ID	113196
SHEET	P.6
TOTAL	14

PAU/VAN 30 FEASIBILITY STUDY

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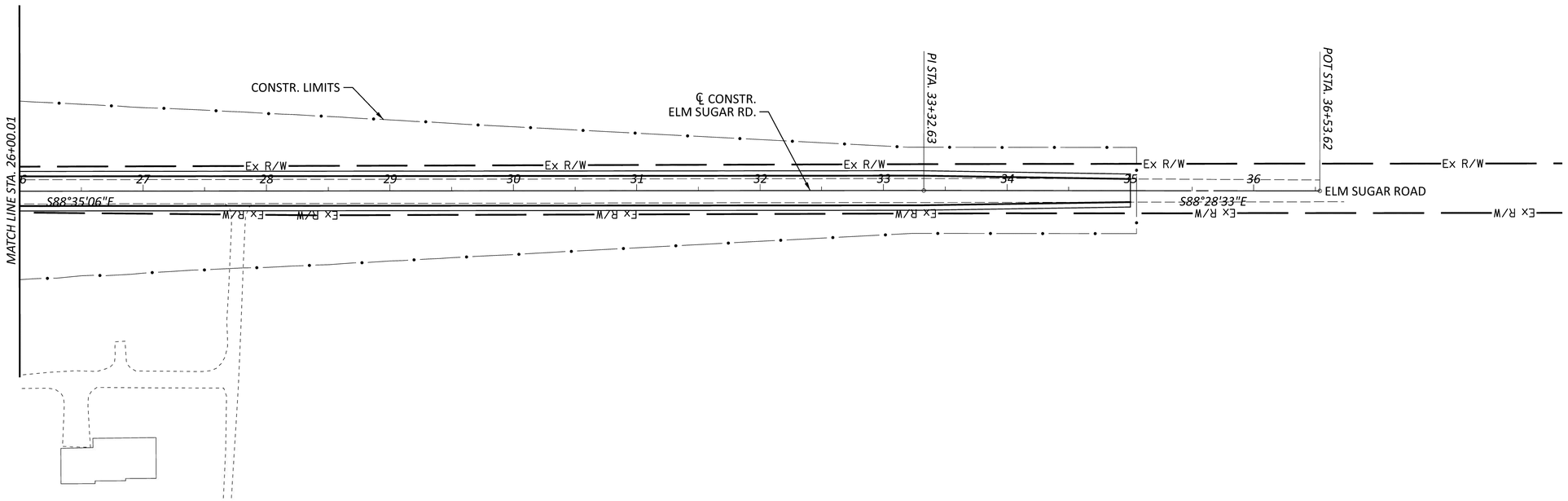

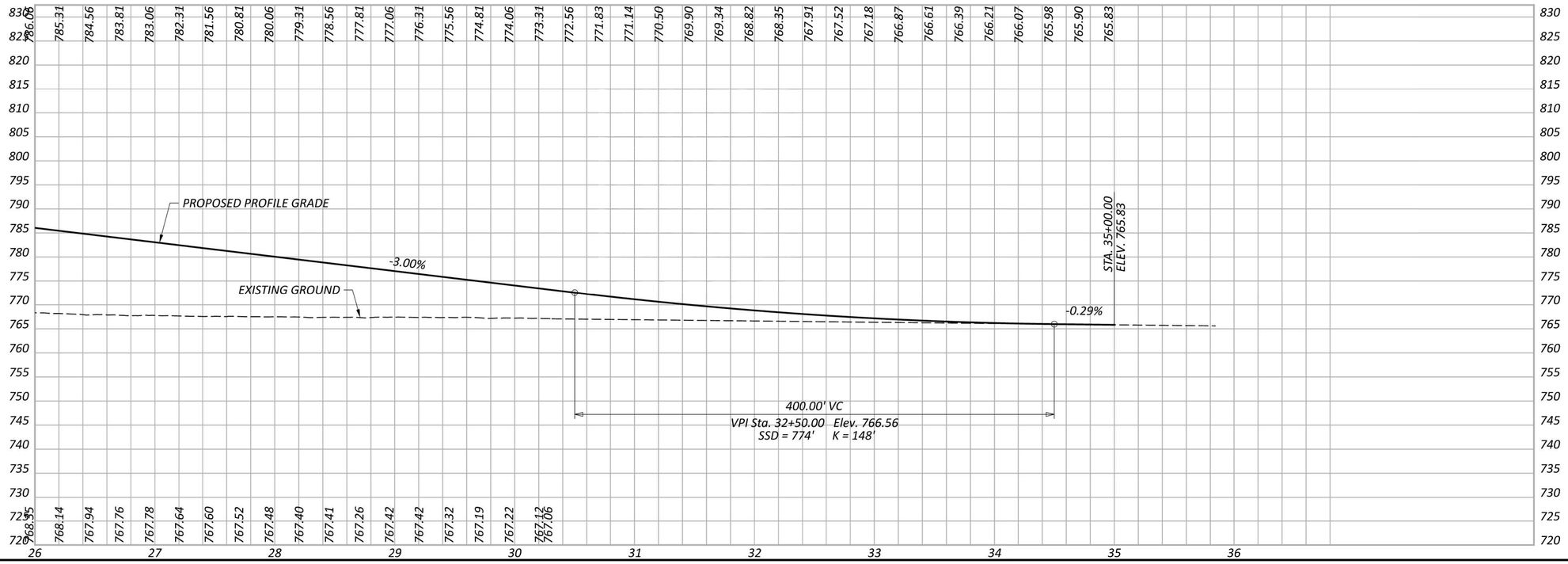

HORIZONTAL SCALE IN FEET
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PLAN AND PROFILE - ELM SUGAR ROAD
STA. 26+00 TO STA. 36+50

DESIGN AGENCY
DGL CONSULTING ENGINEERS

DESIGNER	AMD
REVIEWER	RJM 01-20-23
PROJECT ID	113196
SHEET	P.7
TOTAL	14

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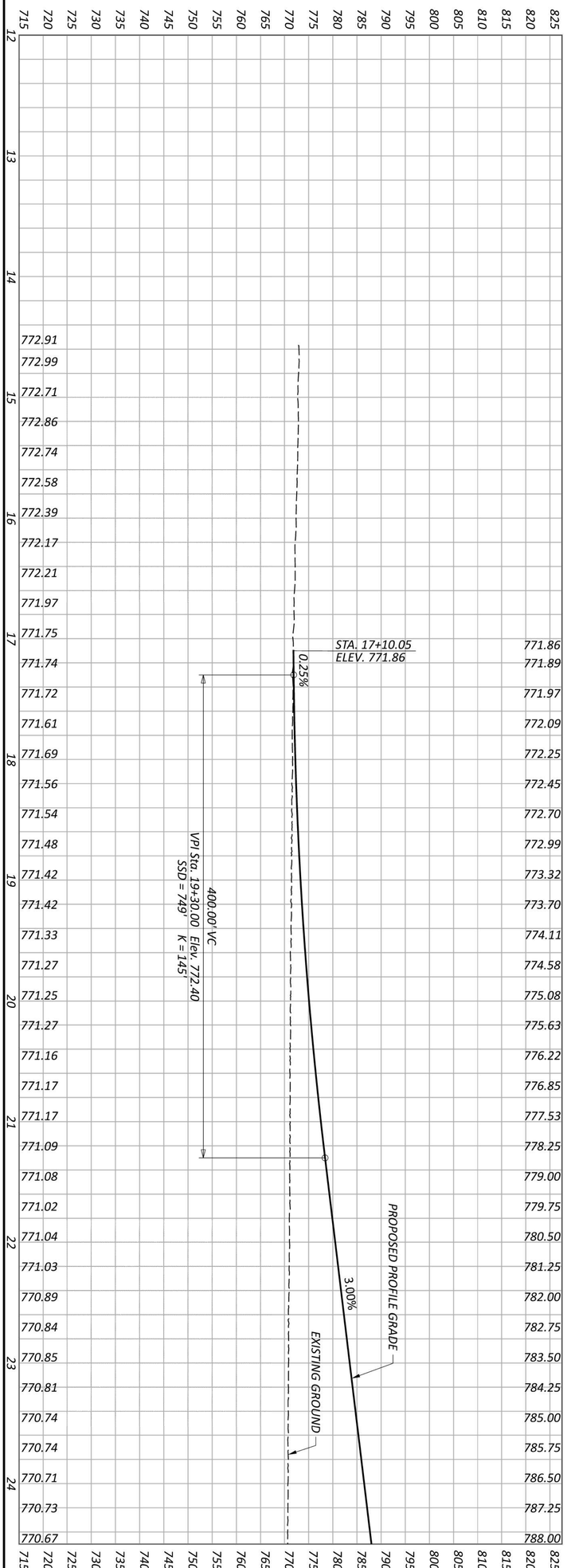

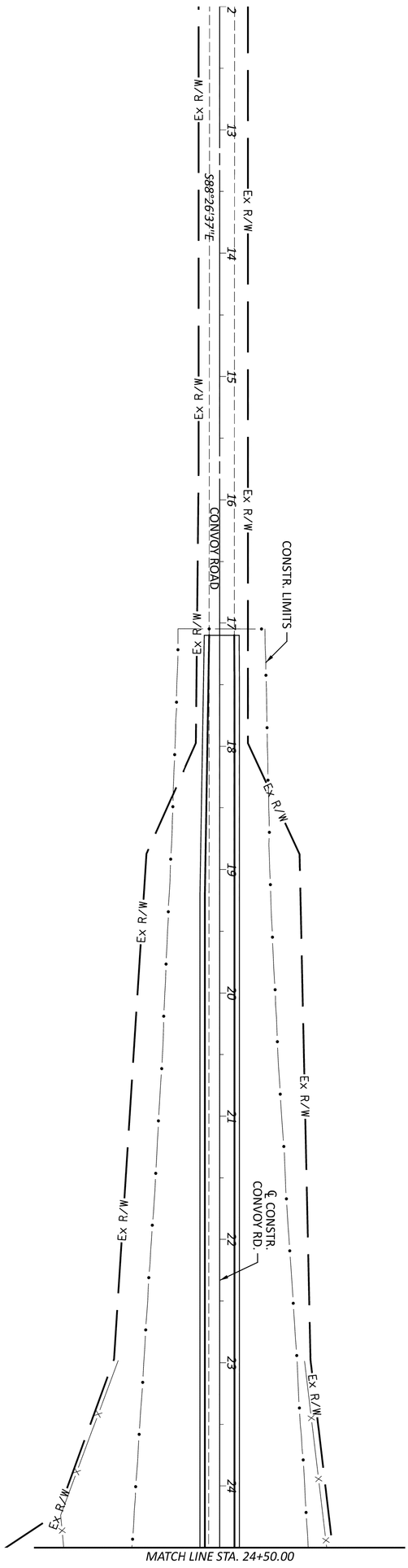

PLAN AND PROFILE - CONVOY ROAD
STA. 12+00 TO STA. 24+50

HORIZONTAL SCALE IN FEET
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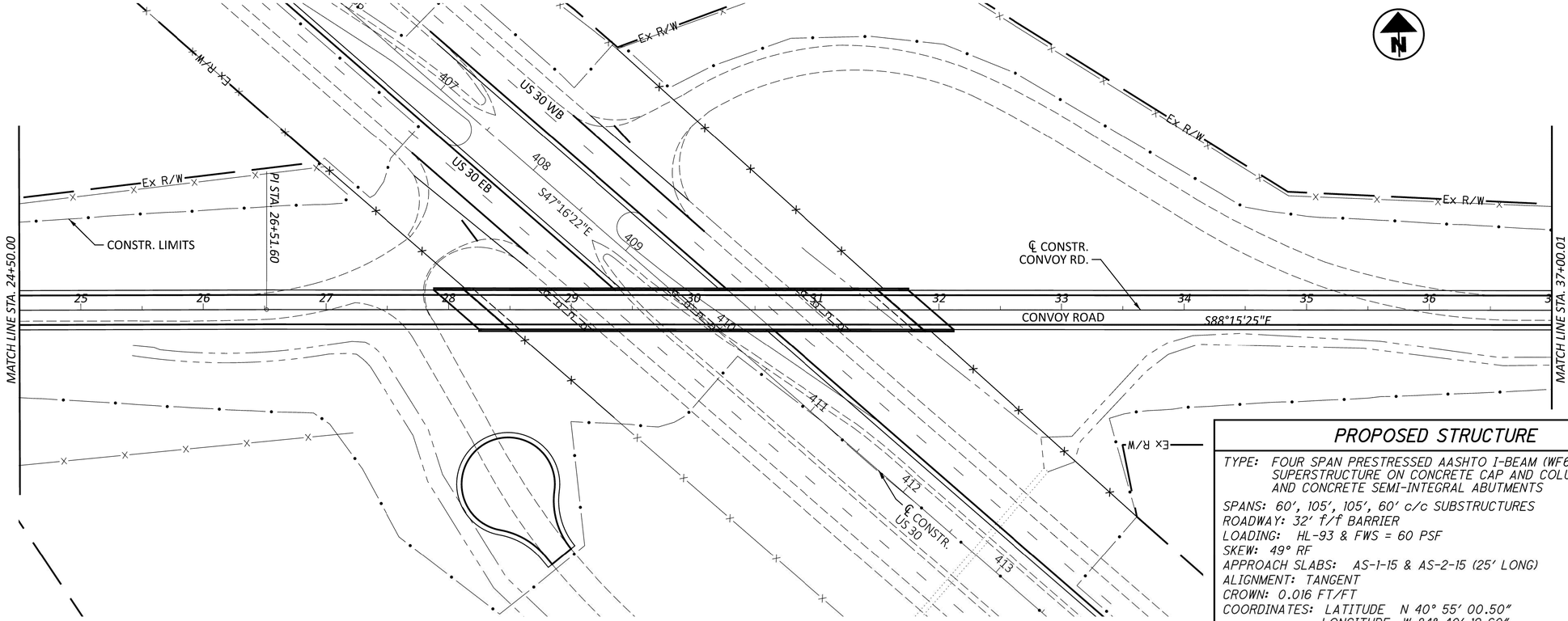
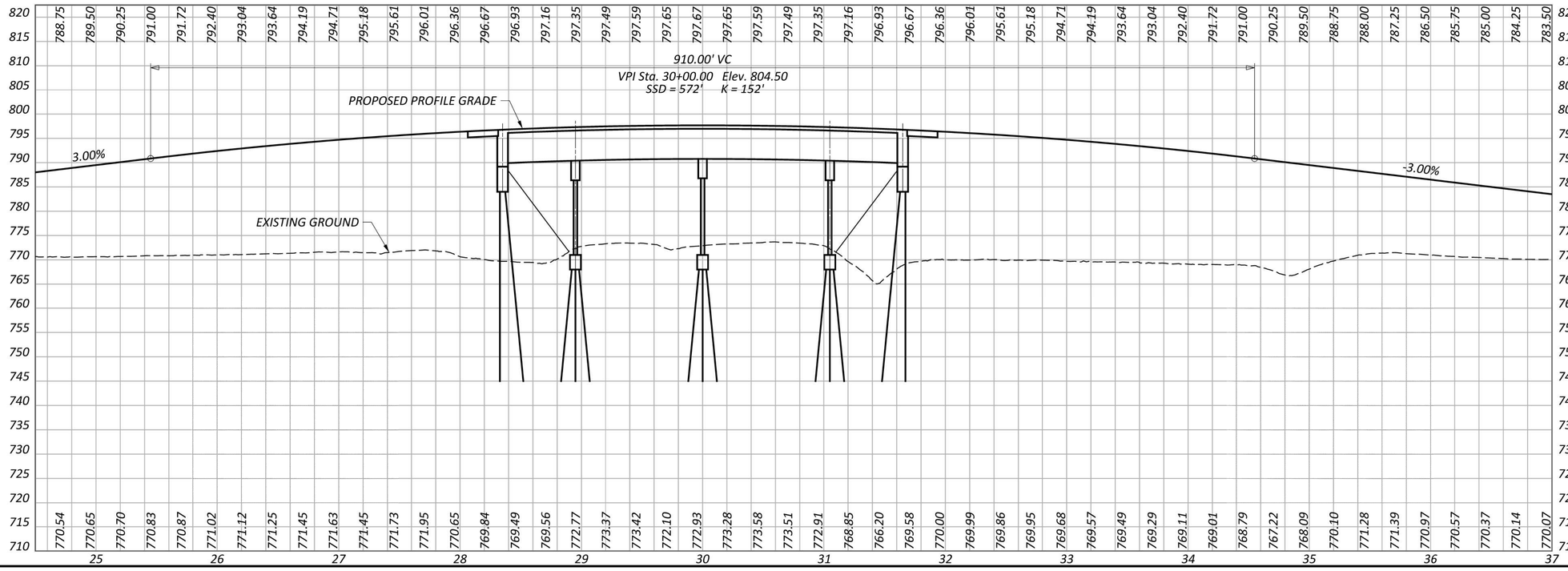
25 100



PROPOSED STRUCTURE

TYPE: FOUR SPAN PRESTRESSED AASHTO I-BEAM (WF66-49) SUPERSTRUCTURE ON CONCRETE CAP AND COLUMN PIERS AND CONCRETE SEMI-INTEGRAL ABUTMENTS
SPANS: 60', 105', 105', 60' c/c SUBSTRUCTURES
ROADWAY: 32' f/f BARRIER
LOADING: HL-93 & FWS = 60 PSF
SKEW: 49° RF
APPROACH SLABS: AS-1-15 & AS-2-15 (25' LONG)
ALIGNMENT: TANGENT
CROWN: 0.016 FT/FT
COORDINATES: LATITUDE N 40° 55' 00.50"
LONGITUDE W 84° 40' 19.60"
DECK AREA: 10,600 SQ. FT.



HORIZONTAL SCALE IN FEET
0 25 50 100

PLAN AND PROFILE - CONVOY ROAD STA. 24+50 TO STA. 37+00

PAU/VAN 30 FEASIBILITY STUDY

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DESIGN AGENCY
DGL CONSULTING ENGINEERS

DESIGNER	AMD
REVIEWER	RJM 01-20-23
PROJECT ID	113196
SHEET	P.9
TOTAL	14

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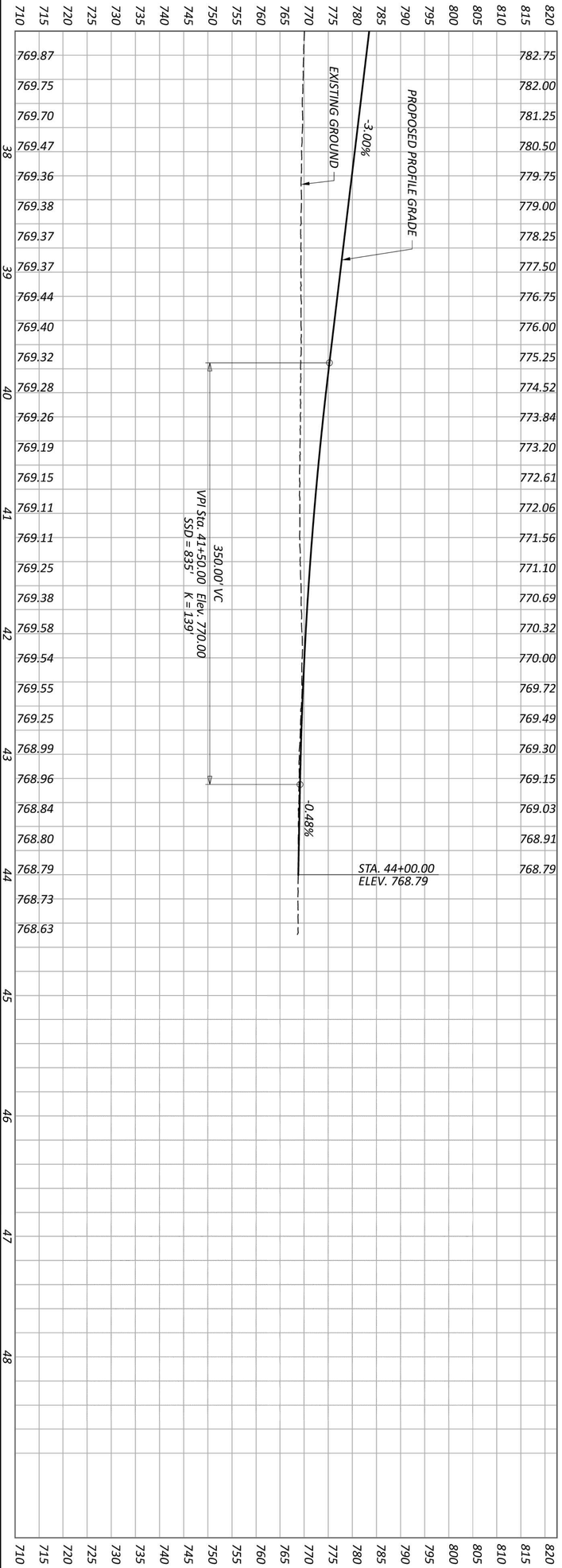

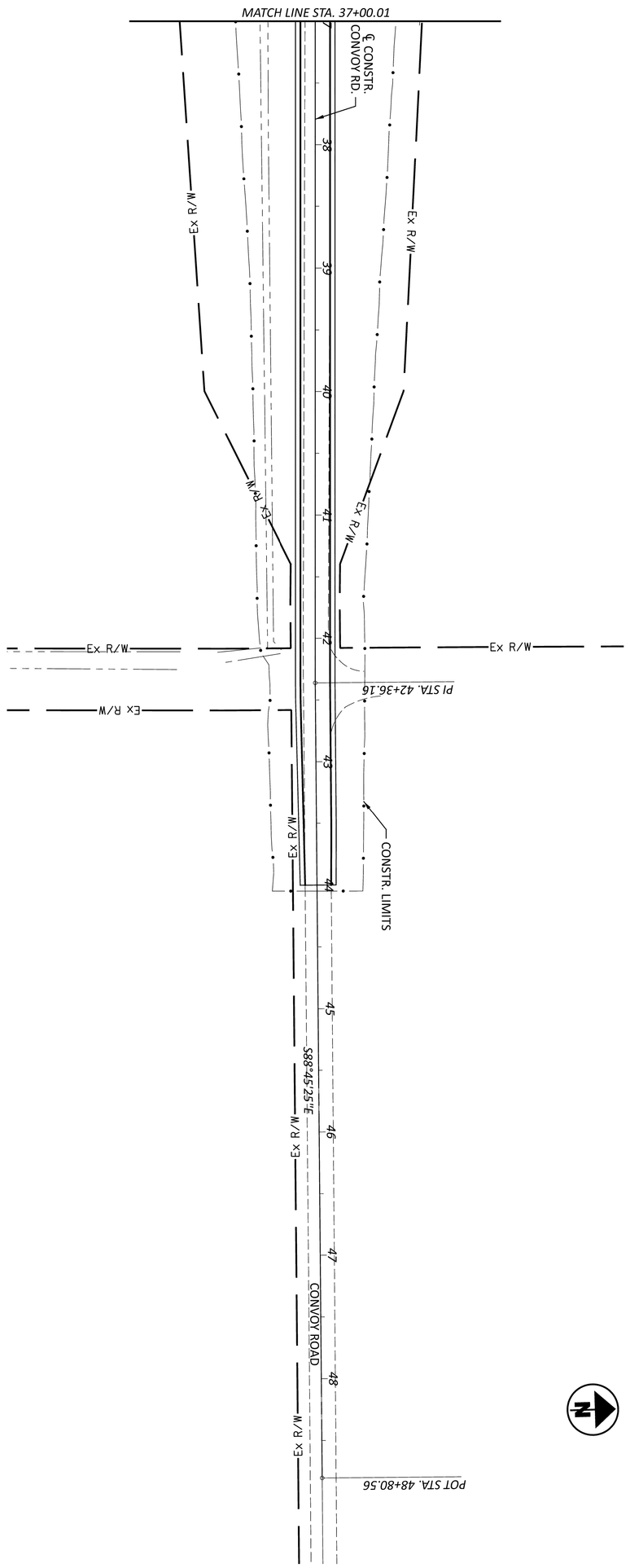

PLAN AND PROFILE - CONVOY ROAD
STA. 37+00 TO STA. 48+80

HORIZONTAL SCALE IN FEET
0 50
25 100

SHEET	TOTAL	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
P.10	14	113196	RJM 01-20-23	AMD	DGL CONSULTING ENGINEERS

PAU/VAN 30 FEASIBILITY STUDY

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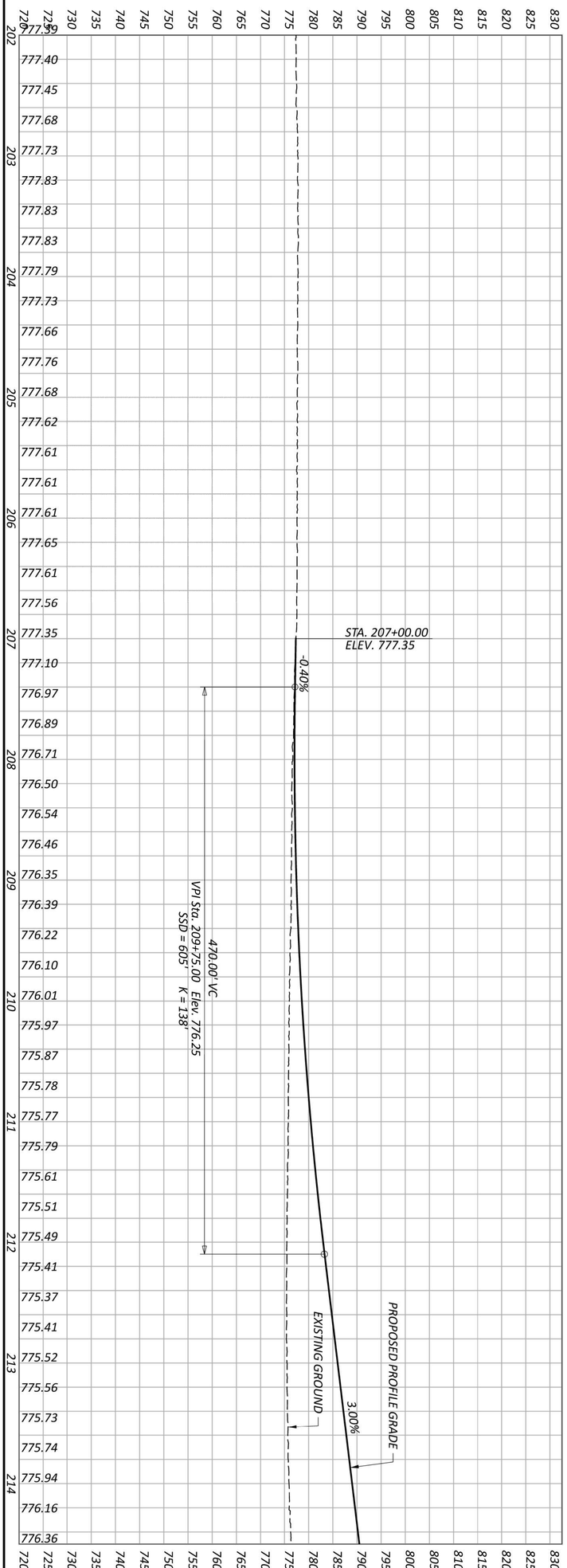
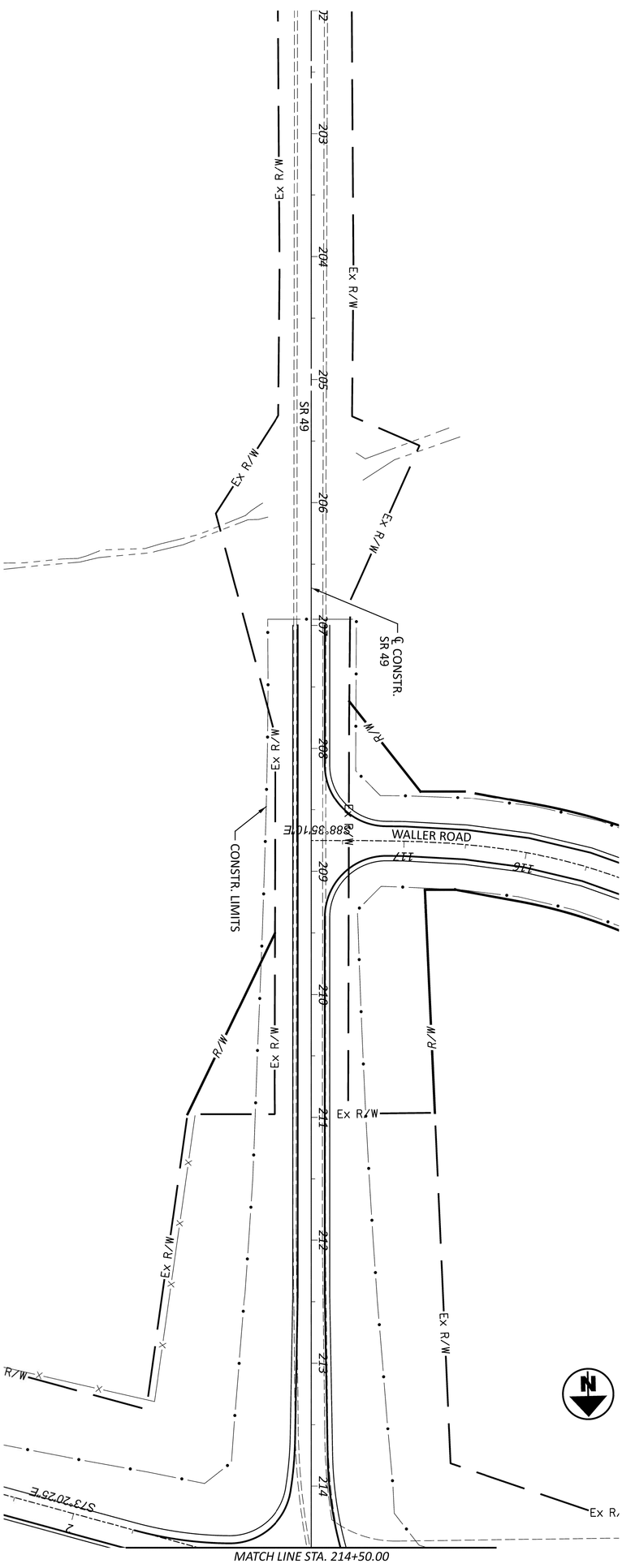




SHEET	TOTAL
P.11	14

PROJECT ID: 113196

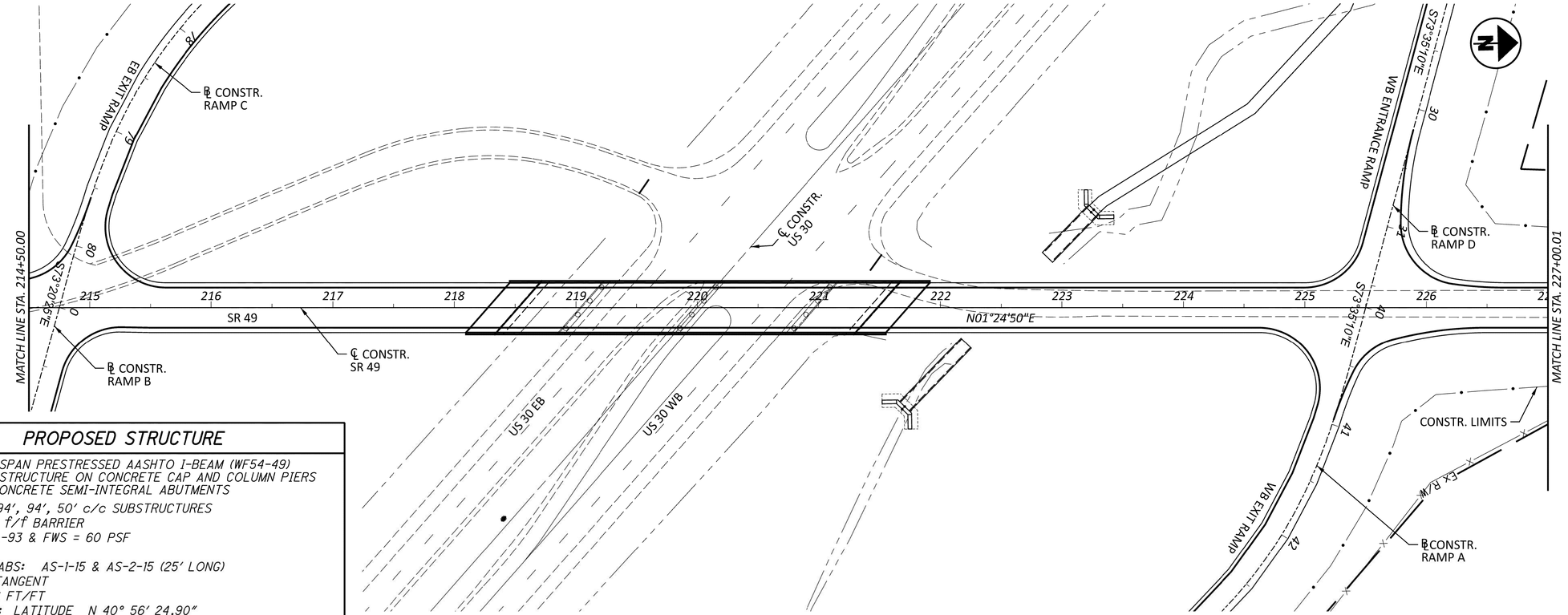
REVIEWER: RJM 01-27-23

DESIGNER: AMD

DESIGN AGENCY: DGL CONSULTING ENGINEERS

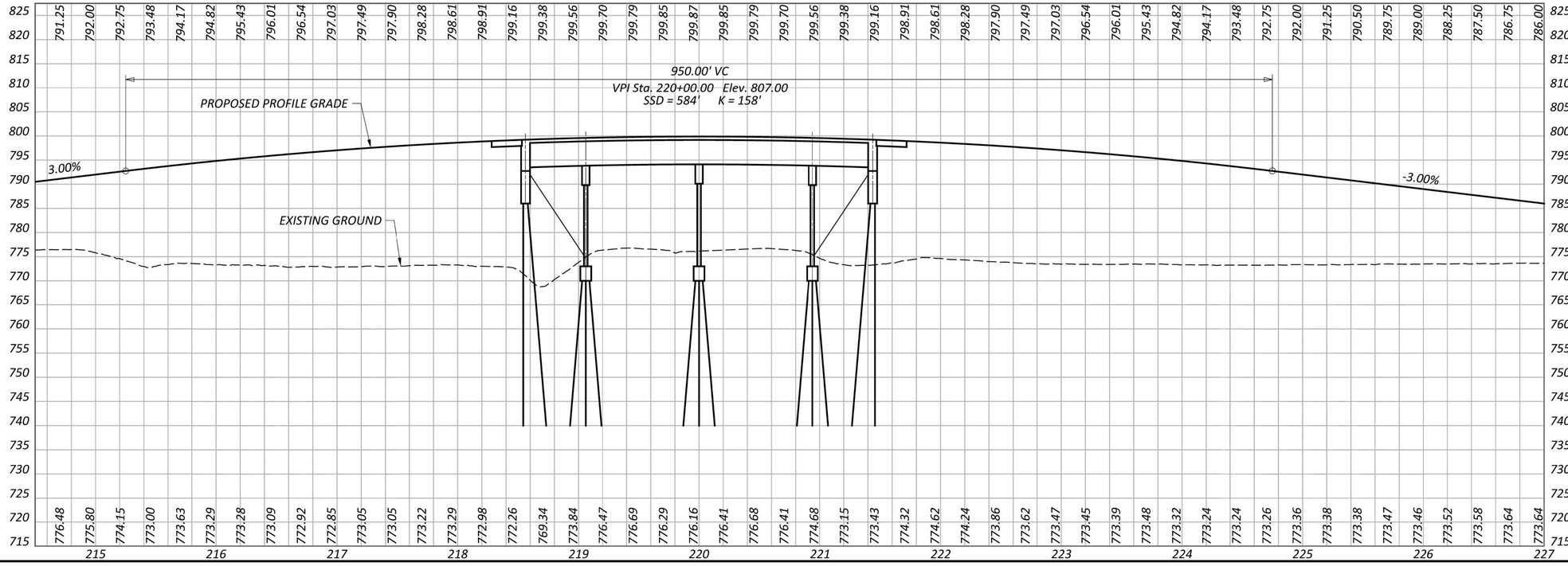
PLAN AND PROFILE - S.R. 49
STA. 202+00 TO STA. 214+50

HORIZONTAL SCALE IN FEET
0 50
25 100



PROPOSED STRUCTURE

TYPE: FOUR SPAN PRESTRESSED AASHTO I-BEAM (WF54-49) SUPERSTRUCTURE ON CONCRETE CAP AND COLUMN PIERS AND CONCRETE SEMI-INTEGRAL ABUTMENTS
SPANS: 50', 94', 94', 50' c/c SUBSTRUCTURES
ROADWAY: 41' f/f BARRIER
LOADING: HL-93 & FWS = 60 PSF
SKEW: 41° LF
APPROACH SLABS: AS-1-15 & AS-2-15 (25' LONG)
ALIGNMENT: TANGENT
CROWN: 0.016 FT/FT
COORDINATES: LATITUDE N 40° 56' 24.90"
LONGITUDE W 84° 42' 26.40"
DECK AREA: 11,850 SQ. FT.



HORIZONTAL SCALE IN FEET
0 25 50 100

PLAN AND PROFILE - S.R. 49
STA. 214+50 TO STA. 227+00

PAU/VAN 30 FEASIBILITY STUDY

DESIGN AGENCY
DGL CONSULTING ENGINEERS

DESIGNER AMD
REVIEWER RJM 01-27-23
PROJECT ID 113196
SHEET P.12 TOTAL 14

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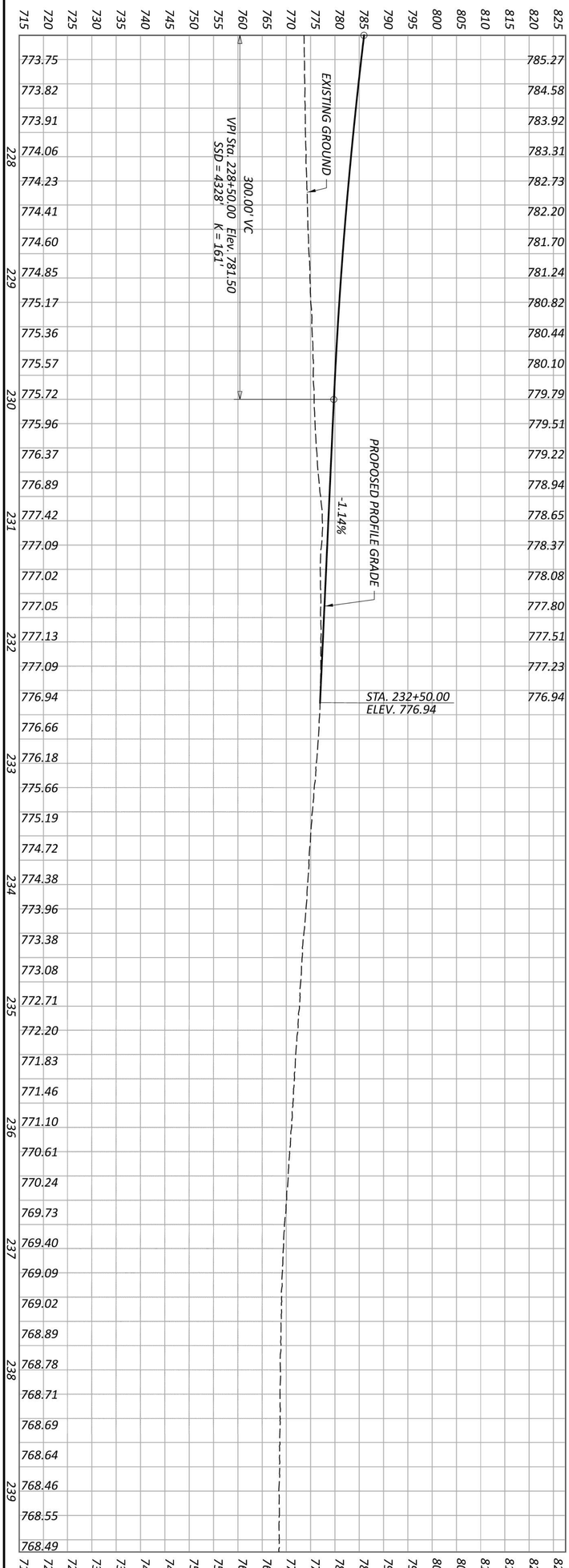

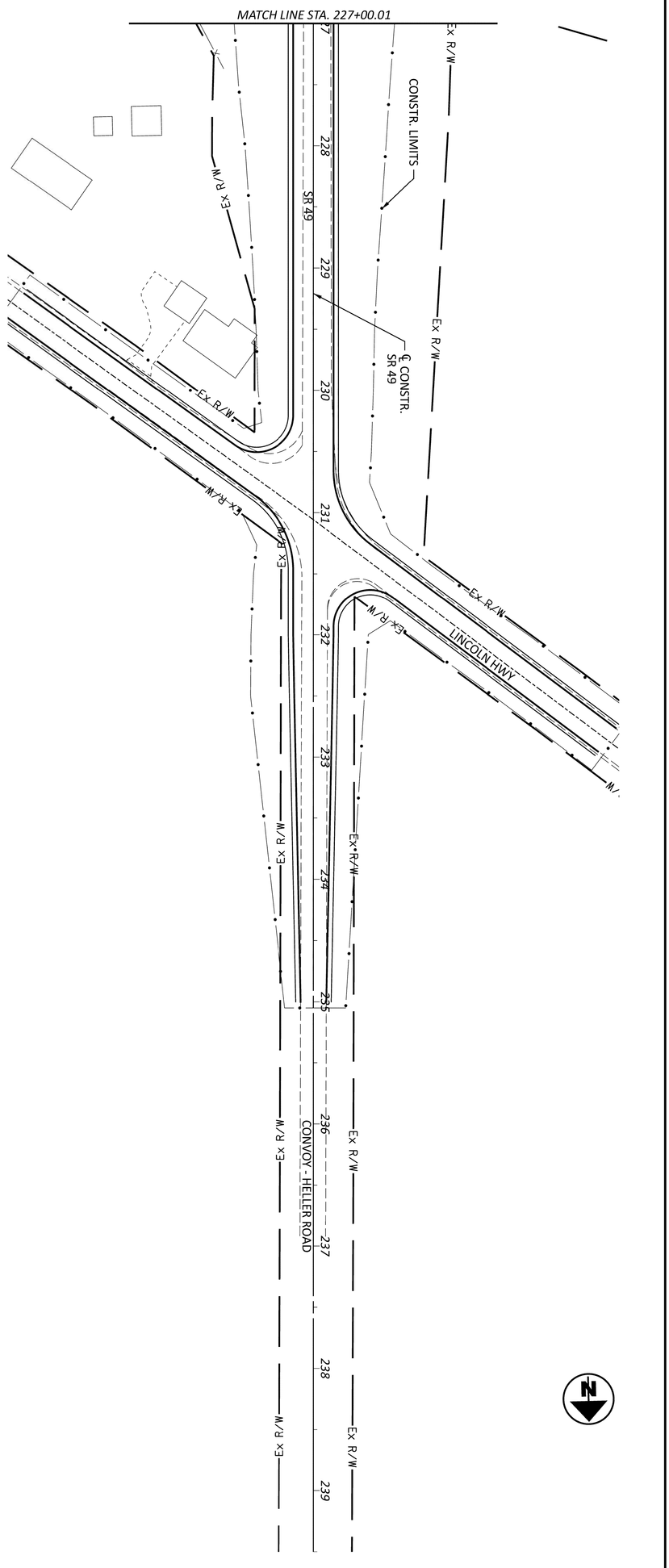

PLAN AND PROFILE - S.R. 49
STA. 227+00 TO STA. 239+50

HORIZONTAL SCALE IN FEET
0 50
25 100

SHEET	TOTAL	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
P.13	14	113196	RJM 01-27-23	AMD	DGL CONSULTING ENGINEERS

PAU/VAN 30 FEASIBILITY STUDY

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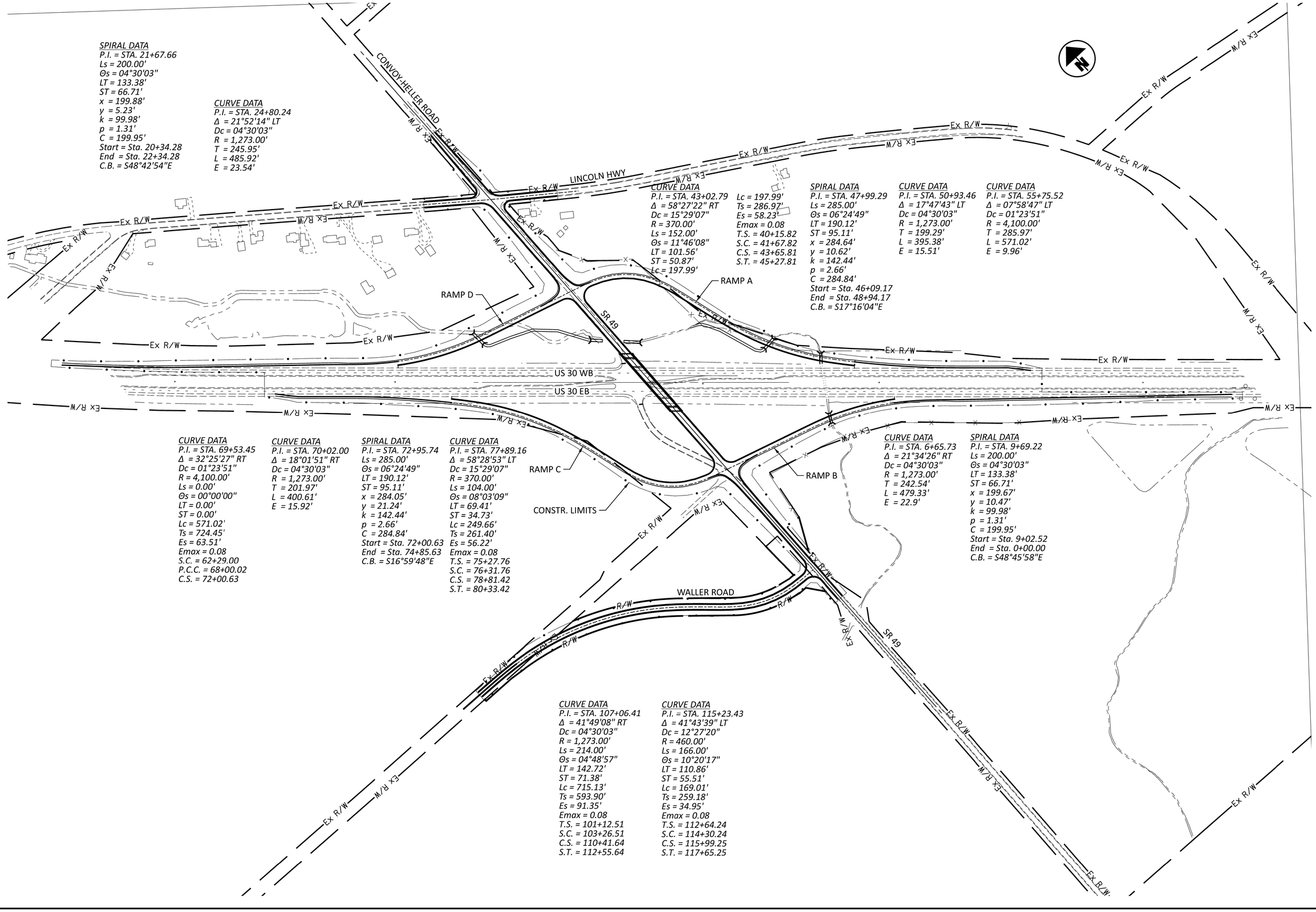

HORIZONTAL SCALE IN FEET
0 100 200 400

SCHEMATIC PLAN - S.R. 49 & U.S. 30 INTERCHANGE LAYOUT

DESIGN AGENCY
DGL CONSULTING ENGINEERS

DESIGNER
AMD

REVIEWER
RJM 01-27-23

PROJECT ID
113196

SHEET P.14 TOTAL 14

PAU/VAN 30 FEASIBILITY STUDY

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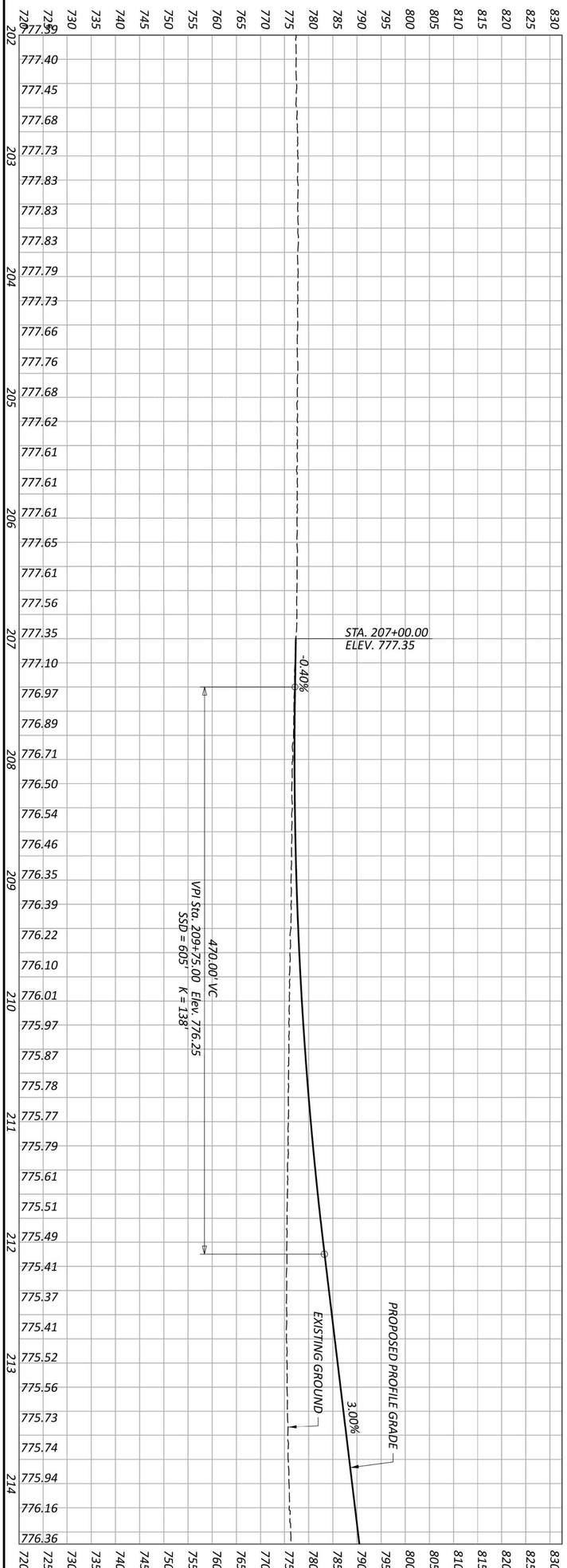
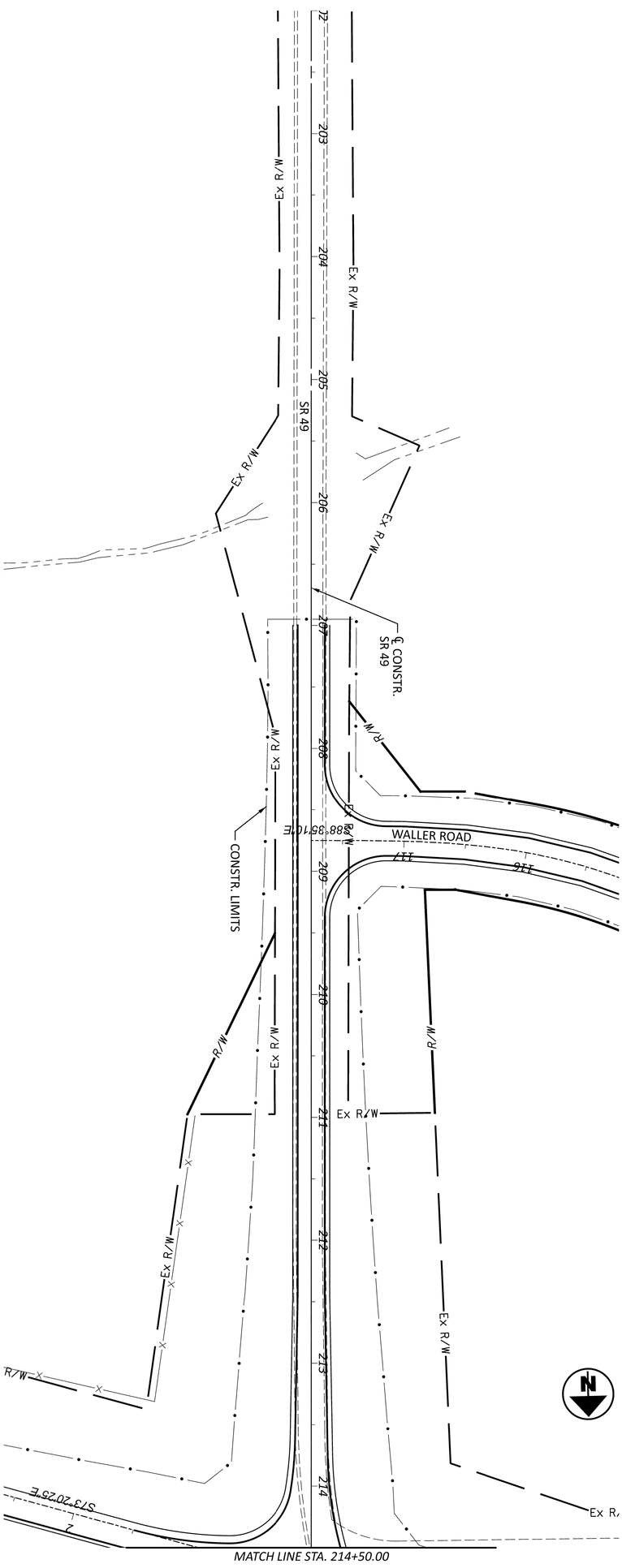




SHEET	TOTAL
P.11	14

PROJECT ID: 113196

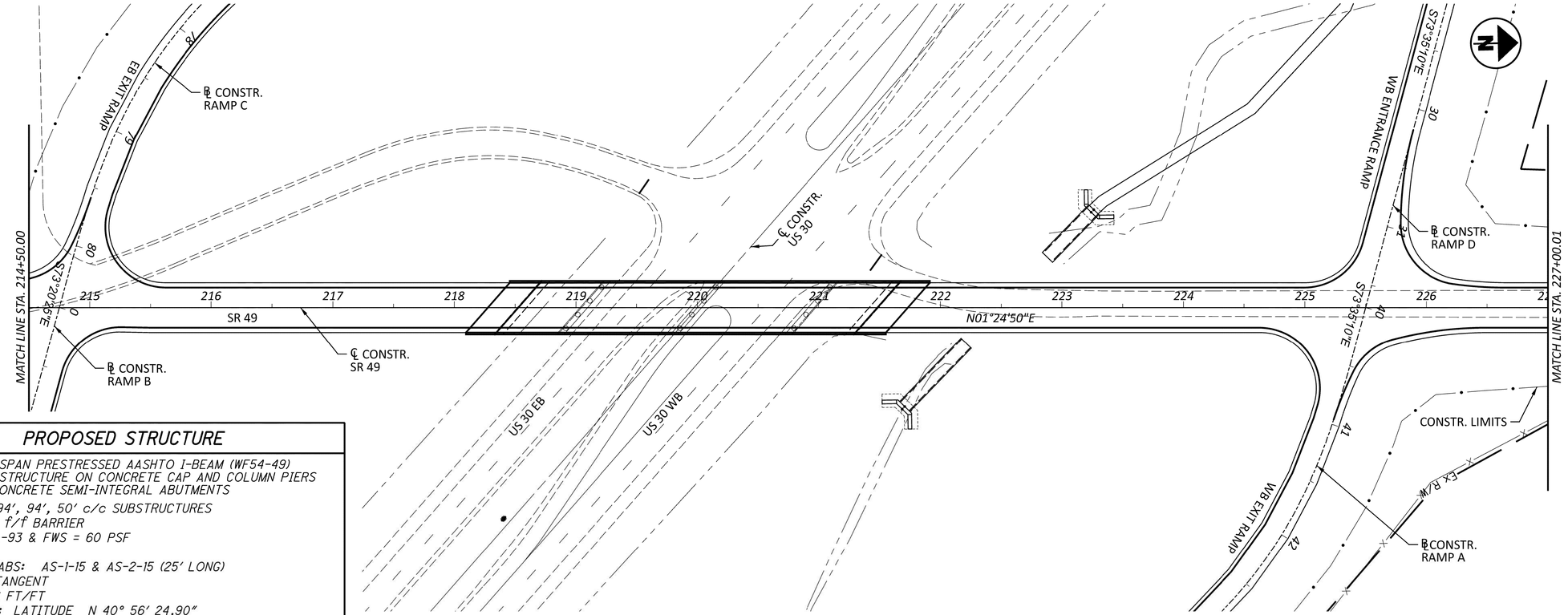
REVIEWER: RJM 01-27-23

DESIGNER: AMD

DESIGN AGENCY: DGL CONSULTING ENGINEERS

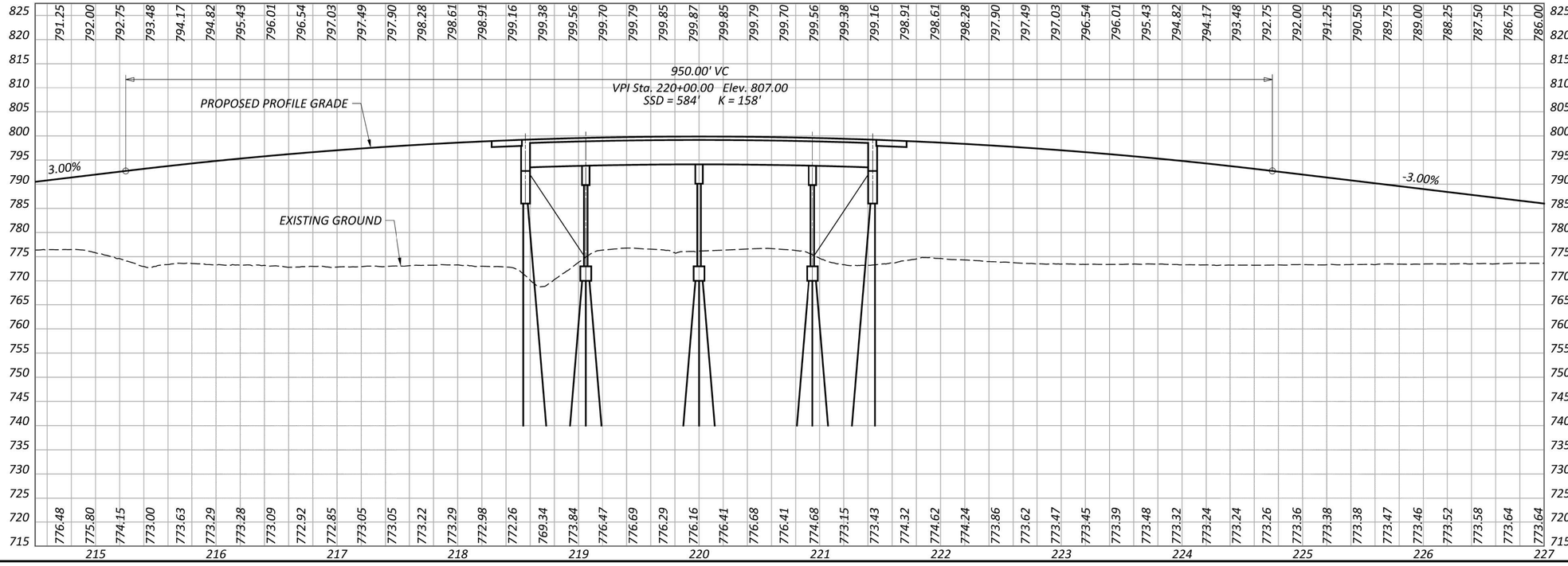
PLAN AND PROFILE - S.R. 49
STA. 202+00 TO STA. 214+50

HORIZONTAL SCALE IN FEET
0 50
25 100



PROPOSED STRUCTURE

TYPE: FOUR SPAN PRESTRESSED AASHTO I-BEAM (WF54-49) SUPERSTRUCTURE ON CONCRETE CAP AND COLUMN PIERS AND CONCRETE SEMI-INTEGRAL ABUTMENTS
SPANS: 50', 94', 94', 50' c/c SUBSTRUCTURES
ROADWAY: 41' f/f BARRIER
LOADING: HL-93 & FWS = 60 PSF
SKEW: 41° LF
APPROACH SLABS: AS-1-15 & AS-2-15 (25' LONG)
ALIGNMENT: TANGENT
CROWN: 0.016 FT/FT
COORDINATES: LATITUDE N 40° 56' 24.90"
LONGITUDE W 84° 42' 26.40"
DECK AREA: 11,850 SQ. FT.



HORIZONTAL SCALE IN FEET
0 25 50 100

PLAN AND PROFILE - S.R. 49
STA. 214+50 TO STA. 227+00

PAU/VAN 30 FEASIBILITY STUDY

DESIGN AGENCY
DGL CONSULTING ENGINEERS

DESIGNER AMD
REVIEWER RJM 01-27-23
PROJECT ID 113196
SHEET P.12 TOTAL 14

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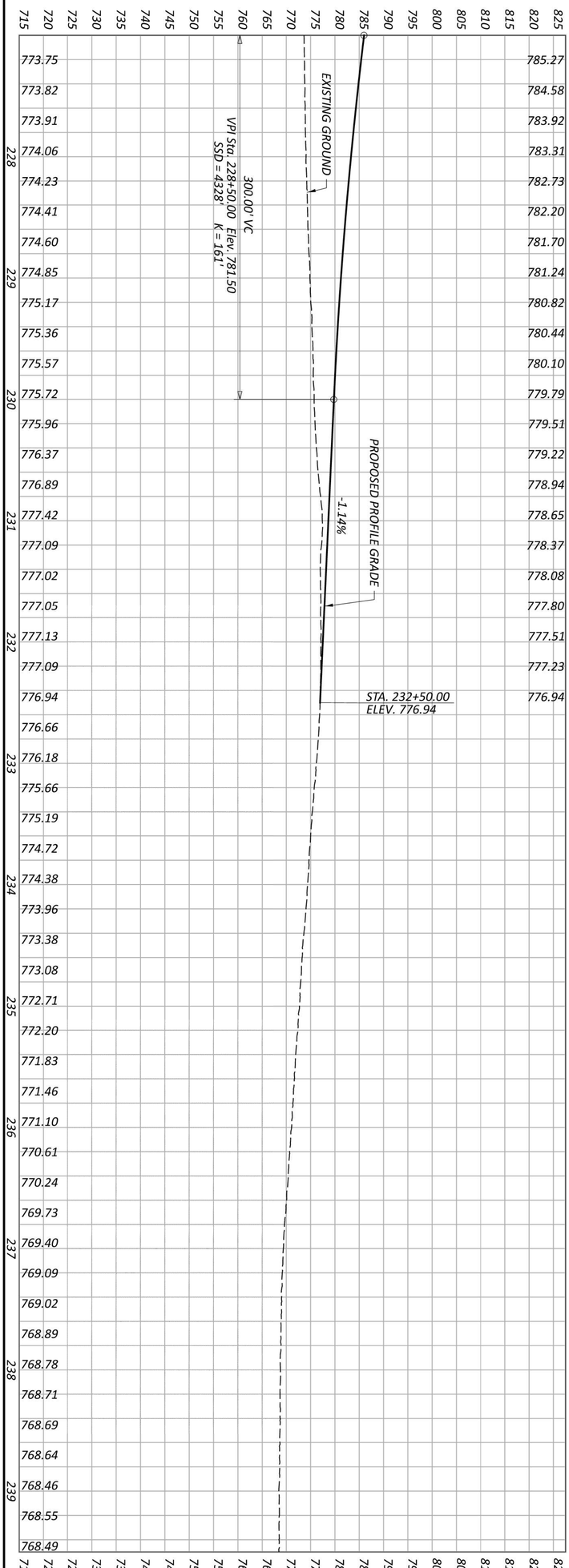

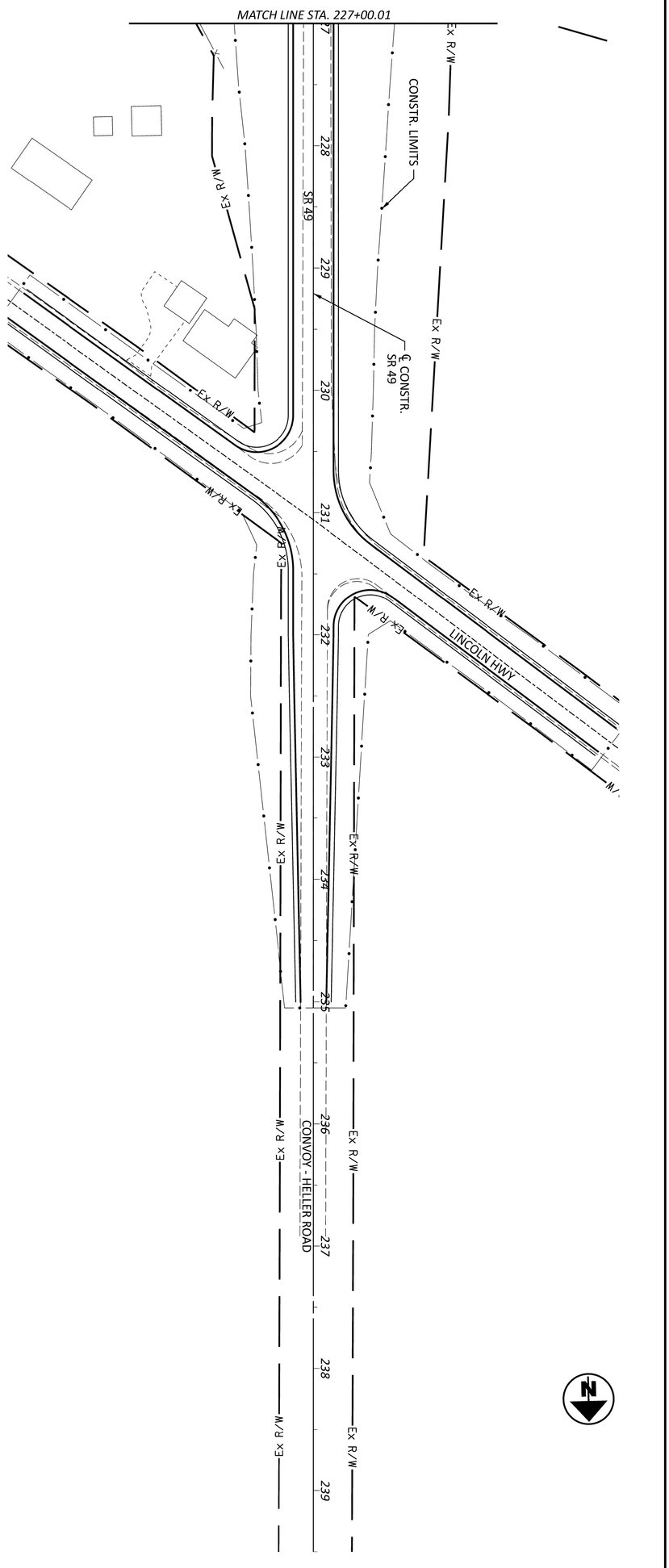

PLAN AND PROFILE - S.R. 49
STA. 227+00 TO STA. 239+50

HORIZONTAL SCALE IN FEET
0 50
25 100

SHEET	TOTAL	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
P.13	14	113196	RJM 01-27-23	AMD	DGL CONSULTING ENGINEERS

PAU/VAN 30 FEASIBILITY STUDY

MODEL: CLP_ConHell - Interchange [Sheet] PAPERSIZE: 34x22 (in.) DATE: 1/27/2023 TIME: 3:09:00 PM USER: amd
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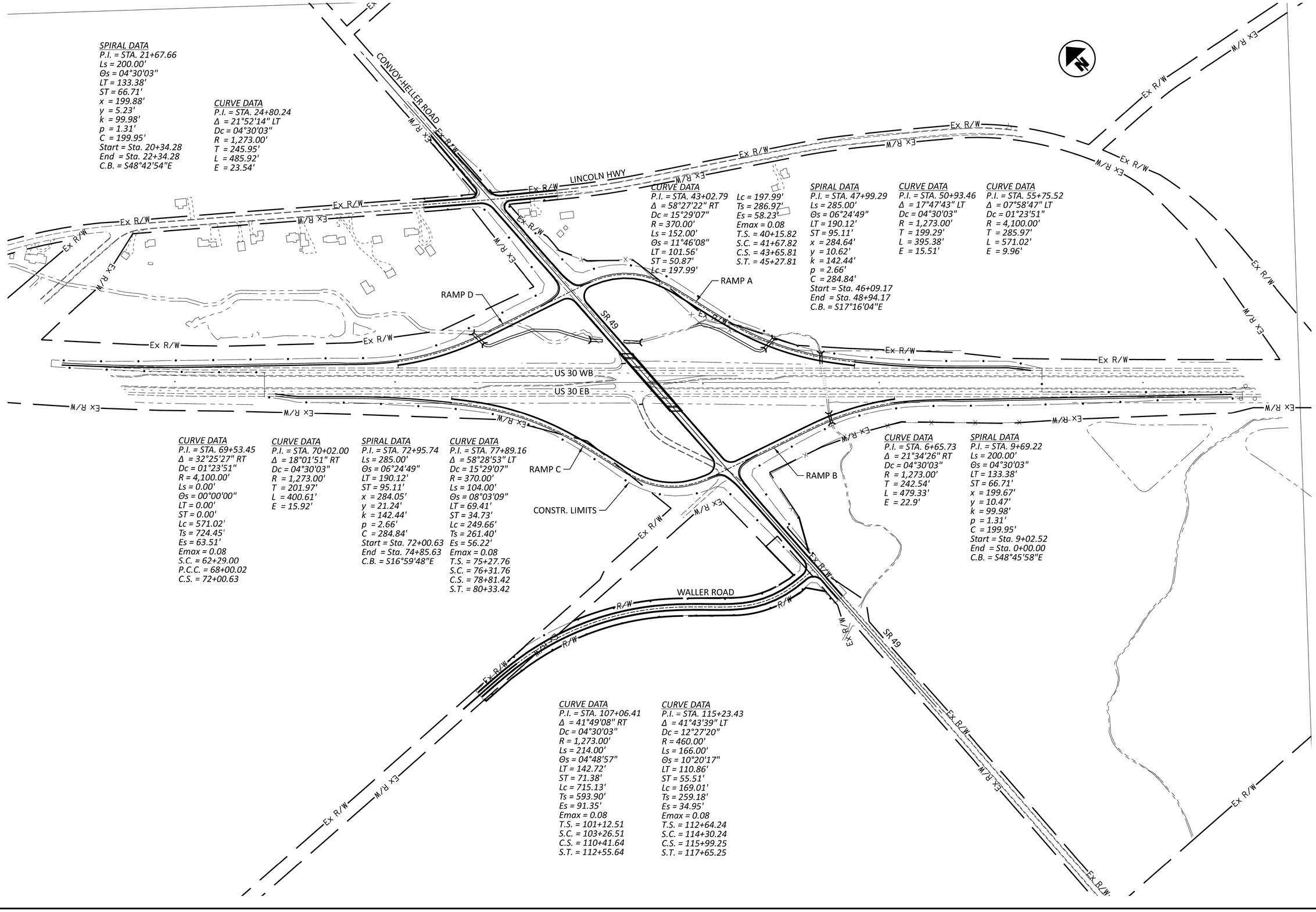

HORIZONTAL SCALE IN FEET
0 100 200 400

SCHEMATIC PLAN - S.R. 49 & U.S. 30 INTERCHANGE LAYOUT

DESIGN AGENCY
DGL CONSULTING ENGINEERS

DESIGNER
AMD

REVIEWER
RJM 01-27-23

PROJECT ID
113196

SHEET P.14 TOTAL 14

Appendix F

Cost Estimate

Appendix F

Cost Estimate - Build Alternative

Unit Cost Assumptions

Full Depth Pavement			
Item	Thickness	Unit Cost	$/Sf surface
448 AC Surface Course	1.25''	375 $/cy	1.5
448 AC Int Course	1.75''	325 $/cy	1.75
301 AC Base	9.00''	250 $/cy	7
304 Agg Base	6.00''	75 $/cy	1.5
204 Subgrade comp		2 $/sy	0.25
subtotal			12
25% other items/steps			3
Total			**15**

Resurfacing			
Item	Thickness	Unit Cost	$/Sf surface
448 AC Surface Course	1.25''	375 $/cy	1.5
448 AC Int Course	1.75''	325 $/cy	1.75
254 Pavement Planing		3 $/sy	0.25
subtotal			3.5
25% other items/steps			0.875
Total			**5**

Item	Thickness	Unit Cost	$/Sf surface
Pavement Removal		**5 $/sy**	**0.5**

Item	Thickness	Unit Cost	$/Sf surface
Earthwork		**20 $/cy**	

Item	Thickness	Unit Cost	$/Sf surface
Concrete Island		**90 $/sy**	**10**
Sidewalk			**15**

Item	Thickness	Unit Cost	
Curb Type 4C		**50 $/ft**	
Curb Type 6		**45 $/ft**	

Item	Thickness	Unit Cost	$/Sf surface
8" Conc. Drive		**125 $/sy**	**14**

Major Culvert Extension			
	length/#	Unit Cost	$/location
611 48" Type A	16	250	4000
202 HW Removed	2	1000	2000
602 Conc. Masonry	17.6	2000	35200
subtotal			41200
25% other items			10300
Total			**51500**

Bridge			
	area	Unit Cost	$/location
Bridge Widening	300	175	52500
New Bridge	12700	225	2857500

RW	market value	area	$/acre
01-001076	$220,000	74.5 acre	$0.07
01-001036	$199,900	67.2 acre	$0.07
01-000568	$415,490	137.3 acre	$0.07
Average			$0.07
Average+50%			**$0.10**

US 30 & SR 49/Convoy Heller Rd. Interchange

	Value	Unit Cost	Total
Full Depth Pavement Area	207500	15 $/sf	$3,112,500
Large Culverts	4	51500 $/each	$206,000
Bridges	1	2857500 $/each	$2,857,500
Earthwork	52222	20 $/each	$1,044,444
Subtotal			$7,200,000
35% contingency			$2,520,000
Total Construction			$9,720,000

For additional detail see Impact Matrix Calculations

Cul-de-Sac Costs

Location	New Pvt. Area (SF)	pvt rem (SF)	R/W (SF)
1			
Klinger S	10000	5700	2500
US 30	2800	7300	0
T 11	4000	9000	0
2			
CR 17 N	10000	6400	0
US 30	1200	10000	0
3			
TR 27 N	10000	5200	7500
US 30	1800	12500	0
TR 27 S	10000	5700	0
4			0
Lare N	10000	6500	
US 30	2500	10000	0
Lare S	17500	15000	0
5			
Feasby Wisener W	10000	9500	0
US 30	2800	11000	0
Feasby Wisener E	10000	7500	0
6			
SR 49 N	10000	8500	3000
US 30	3000	10500	0
Payne S	10000	7200	0
7			
Dixon Cavett W	10000	6500	0
US 30	8000	39000	0
Dixon Cavett E	4500	32000	0
8			
Colwell N	10000	6700	0
US 30	12000	40000	0
Colwell S	10000	7700	0
9			
Richey N	10000	7000	0
US 30	16000	35000	0
Richey S	20000	26000	0

10			
Liberty Union N	10000	7000	0
US 30	13000	38000	0
Liberty Union S	22000	30000	0
11			
Dutch John N	10000	7800	0
US 30	9000	14000	0
Dutch John S	10000	8300	0
12			
Mendon N	10000	7000	0
US 30	9000	14000	0
Mendon S	10000	7000	0
13			
Boroff N	10000	6500	0
US 30	9000	14000	0
Boroff S	10000	6500	0

	Value (SF)	Unit Cost ($/SF)	Total
New Pvt. Area	358100	15	$5,371,500
Pavement Removed	507500	0.5	$253,750
Subtotal			$5,600,000
35% contingency			$1,960,000
Total Construction			**$7,560,000**
	Value (SF)		
Total R/W	**13000**		**0.3 acre**

US 224/Lincoln Highway Roundabout

Location	New Pvt. Area (SF)	pvt rem (SF)	Conc. Island (SF)	Curb (LF)	R/W (SF)
SR 49/Payne	64000	15000	12000	3500	3500
Total	**64000**	**15000**	**12000**	**3500**	**3500**

	Value (SF)	Unit Cost ($/SF)	Total
New Pvt. Area	64000	15	$960,000
Pavement Removed	15000	0.5	$7,500
Conc. Island	12000	10	$120,000
Curb	3500	50	$175,000
Drainage			$250,000
Subtotal			$1,500,000
35% contingency			$525,000
Total Construction			**$2,025,000**
	Value (SF)		
Total R/W	**3500**		**0.08 acre**

US 224 Interchange

Location	New Pvt. Area (SF)	Resurf Pvt. Area (SF)	pvt rem (SF)	Conc. Island (SF)	Culvert (LF)	Embankment (CY)	R/W (SF)
ex. nb-eb ramp			68000				
ex. eb-sb ramp			73000				
ex. loop ramp		60000	30000				
eb exit	56000				80	18000	62000
eb ent	66000				100	22000	12500
north leg	114000		8000		220	35000	363100
loop ext to north leg	22000			1100			
Liberty Union ext	12000		24000		120		
south leg		101000					
Total	**270000**	**161000**	**203000**	**1100**	**520**	**75000**	**437600**

	Value (SF)	Unit Cost ($/SF)	Total
New Pvt. Area	270000	15	$4,050,000
Resurf Pvt.	161000	5	$805,000
Pavement Removed	203000	0.5	$101,500
Conc. Island	1100	10	$11,000
Culvert	520	250	$200,400
Embankment	75000	20	$1,582,400
Subtotal			$6,800,000
35% contingency			$2,380,000
Total Construction			**$9,180,000**
	Value (SF)		
Total R/W	**437600**		**10.05 acre**

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Engineer's Cost Estimate

Project: PAU/VAN 30 Feasibility Study
Convoy Road Overpass - Preliminary Estimate

Calculated By: AMD
Checked By: RJM

Date: December 29, 2022

Item No.	Item EXT	Description	Quantity	Unit	@	Unit Cost	=	Total Cost
Section 001	**Roadway**							
201	201E11000	Clearing and Grubbing	1.00	LS	@	$ 10,000.00	=	$ 10,000.00
202	202E23000	Pavement Removed	11445.44	SY	@	$ 7.61	=	$ 87,099.83
203	203E10000	Excavation	2298.00	CY	@	$ 15.67	=	$ 36,009.66
203	203E20000	Embankment	74734.00	CY	@	$ 5.17	=	$ 386,374.78
606	606E15050	Guardrail, Type MGS	4262.50	FT	@	$ 13.64	=	$ 58,140.50
606	606E26050	Anchor Assembly, MGS Type B	2.00	EACH	@	$ 2,289.58	=	$ 4,579.16
606	606E26150	Anchor Assembly, MGS Type E	6.00	EACH	@	$ 2,941.73	=	$ 17,650.38
606	606E26550	Anchor Assembly, MGS Type T	2.00	EACH	@	$ 1,213.44	=	$ 2,426.88
606	606E35002	MGS Bridge Terminal Assembly, Type 1	4.00	EACH	@	$ 3,013.78	=	$ 12,055.12
606	606E35102	MGS Bridge Terminal Assembly, Type 2	2.00	EACH	@	$ 1,191.20	=	$ 2,382.40
		Roadway Total						$ 616,718.71
Section 002	**Erosion Control**							
659	659E00300	Topsoil	4565.00	CY	@	$ 15.50	=	$ 70,757.50
659	659E01000	Seeding and Mulching	41085.00	SY	@	$ 0.57	=	$ 23,418.45
659	659E14000	Repair Seeding and Mulching	2055.00	SY	@	$ 0.66	=	$ 1,356.30
659	659E20000	Commercial Fertilizer	9.26	TON	@	$ 565.67	=	$ 5,238.10
659	659E31000	Lime	8.49	ACRE	@	$ 16.54	=	$ 140.42
659	659E35000	Water	333.00	MGAL	@	$ 1.63	=	$ 542.79
832	832E30000	Erosion Control	75000.00	EACH	@	$ 1.00	=	$ 75,000.00
832	832E15000	Storm Water Pollution Prevention Plan	1.00	LS	@	$ 5,000.00	=	$ 5,000.00
832	832E15002	Storm Water Pollution Prevention Inspections	1.00	LS	@	$ 5,000.00	=	$ 5,000.00
832	832E15010	Storm Water Pollution Prevention Inspection Software	1.00	LS	@	$ 3,000.00	=	$ 3,000.00
		Erosion Control Total						$ 189,453.57

Item No.	Item EXT	Description	Quantity	Unit	@	Unit Cost	=	Total Cost
Section 003	**Drainage**							
605	605E14000	6" Base Pipe Underdrains	4606.00	FT	@	$ 11.42	=	$ 52,600.52
		Drainage Total						$ 52,600.52
Section 004	**Pavement**							
204	204E10000	Subgrade Compaction	8419.00	SY	@	$ 1.03	=	$ 8,671.57
302	302E56000	Asphalt Concrete Base, PG64-22 (449)	1339.00	CY	@	$ 184.90	=	$ 247,581.10
304	304E20000	Aggregate Base	1885.00	CY	@	$ 52.79	=	$ 99,509.15
407	407E10000	Tack Coat	856.00	GAL	@	$ 2.73	=	$ 2,336.88
441	441E70000	Asphalt Concrete Surface Course, Type 1, (449), PG64-22	270.00	CY	@	$ 255.63	=	$ 69,020.10
441	441E70300	Asphalt Concrete Intermediate Course, Type 2, (449)	378.00	CY	@	$ 212.11	=	$ 80,177.58
		Pavement Total						$ 507,296.38
Section 005	**Structures**							
505	505E11100	Pile Driving Equipment Mobilization	1.00	LS	@	$ 10,000.00	=	$ 10,000.00
507	507E00200	Steel Piles HP12x53, Furnished	3580.00	FT	@	$ 45.00	=	$ 161,100.00
507	507E00250	Steel Piles HP12x53, Driven	3020.00	FT	@	$ 20.00	=	$ 60,400.00
507	507E93300	Steel Points, or Shoes	112.00	EACH	@	$ 150.00	=	$ 16,800.00
509	509E10000	Epoxy Coated Reinforcing Steel	188400.00	POUND	@	$ 1.75	=	$ 329,700.00
511	511E34444	Class QC2 Concrete, Bridge Deck	441.00	CY	@	$ 1,500.00	=	$ 661,500.00
511	511E34448	Class QC2 Concrete, Bridge Deck (Parapets)	102.00	CY	@	$ 1,000.00	=	$ 102,000.00
511	511E41010	Class QC1 Concrete, Pier Above Footings	149.00	CY	@	$ 1,000.00	=	$ 149,000.00
511	511E43510	Class QC1 Concrete, Abutment Including Footing	190.00	CY	@	$ 750.00	=	$ 142,500.00
511	511E46510	Class QC1 Concrete, Footing	108.00	CY	@	$ 650.00	=	$ 70,200.00
515	515E14120	Straight Strand Prestressed Concrete Bridge I-Beam Members, Level 2, WF66-49	8.00	EACH	@	$ 50,000.00	=	$ 400,000.00
515	515E15120	Draped Strand Prestressed Concrete Bridge I-Beam Members, Level 2, WF66-49	8.00	EACH	@	$ 75,000.00	=	$ 600,000.00
515	515E20000	Intermediate Diaphragms	24.00	EACH	@	$ 3,500.00	=	$ 84,000.00
516	516E43200	Elastomeric Bearing with Internal Laminates Only (Neoprene)	24.00	EACH	@	$ 1,000.00	=	$ 24,000.00
516	516E44100	Elastomeric Bearing with Internal Laminates and Load Plate (Neoprene)	8.00	EACH	@	$ 2,500.00	=	$ 20,000.00
526	526E30000	Reinforced Concrete Approach Slabs	65.00	SY	@	$ 400.00	=	$ 26,000.00
		Structures Total						$ 2,857,200.00

Item No.	Item EXT	Description	Quantity	Unit	@	Unit Cost	=	Total Cost
Section 006	**Traffic Control**							
642	642E00100	Edge Line, 4", Type 1, White	0.90	MILE	@	$ 1,538.46	=	$ 1,384.61
642	642E00104	Edge Line, 6", Type 1, White	0.10	MILE	@	$ 4,206.77	=	$ 420.68
642	642E00104	Edge Line, 6", Type 1, Yellow	0.30	MILE	@	$ 4,206.77	=	$ 1,262.03
642	642E00300	Center Line, Type 1	0.90	MILE	@	$ 2,728.89	=	$ 2,456.00
		Traffic Control Total						$ 5,523.32
Section 007	**Incidentals**							
614	614E11000	Maintaining Traffic	1.00	LS	@	$ 50,000.00	=	$ 50,000.00
619	619E16010	Field Office, Type B	9.00	MNTH	@	$ 1,700.00	=	$ 15,300.00
623	623E10000	Construction Layout Stakes and Surveying	1.00	LS	@	$ 30,000.00	=	$ 30,000.00
624	624E10000	Mobilization	1.00	LS	@	$ 200,000.00	=	$ 200,000.00
		Incidentals Total						$ 295,300.00
		Subtotal (Sections 001 - 006)						$ 4,228,792.50
	20%	***Contingency***						$ 845,758.50
		Subtotal (Section 007)						$ 295,300.00
		TOTAL						$ 5,369,852.00

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Maumee, OH 43537
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Engineer's Cost Estimate

Project: PAU/VAN 30 Feasibility Study
Elm Sugar Road Overpass - Preliminary Estimate

Calculated By: AMD
Checked By: RJM

Date: December 29, 2022

Item No.	Item EXT	Description	Quantity	Unit	@		Unit Cost	=		Total Cost
Section 001	**Roadway**									
201	201E11000	Clearing and Grubbing	1.00	LS	@	$	10,000.00	=	$	10,000.00
202	202E23000	Pavement Removed	8664.71	SY	@	$	7.61	=	$	65,938.45
203	203E10000	Excavation	2721.00	CY	@	$	15.67	=	$	42,638.07
203	203E20000	Embankment	75372.00	CY	@	$	5.17	=	$	389,673.24
606	606E15050	Guardrail, Type MGS	4275.00	FT	@	$	13.64	=	$	58,311.00
606	606E26050	Anchor Assembly, MGS Type B	2.00	EACH	@	$	2,289.58	=	$	4,579.16
606	606E26150	Anchor Assembly, MGS Type E	6.00	EACH	@	$	2,941.73	=	$	17,650.38
606	606E26550	Anchor Assembly, MGS Type T	4.00	EACH	@	$	1,213.44	=	$	4,853.76
606	606E35002	MGS Bridge Terminal Assembly, Type 1	4.00	EACH	@	$	3,013.78	=	$	12,055.12
606	606E35102	MGS Bridge Terminal Assembly, Type 2	2.00	EACH	@	$	1,191.20	=	$	2,382.40
		Roadway Total							$	608,081.58
Section 002	**Erosion Control**									
659	659E00300	Topsoil	4287.00	CY	@	$	15.50	=	$	66,448.50
659	659E01000	Seeding and Mulching	38579.00	SY	@	$	0.57	=	$	21,990.03
659	659E14000	Repair Seeding and Mulching	1929.00	SY	@	$	0.66	=	$	1,273.14
659	659E20000	Commercial Fertilizer	8.70	TON	@	$	565.67	=	$	4,921.33
659	659E31000	Lime	7.98	ACRE	@	$	16.54	=	$	131.99
659	659E35000	Water	313.00	MGAL	@	$	1.63	=	$	510.19
832	832E30000	Erosion Control	75000.00	EACH	@	$	1.00	=	$	75,000.00
832	832E15000	Storm Water Pollution Prevention Plan	1.00	LS	@	$	5,000.00	=	$	5,000.00
832	832E15002	Storm Water Pollution Prevention Inspections	1.00	LS	@	$	5,000.00	=	$	5,000.00
832	832E15010	Storm Water Pollution Prevention Inspection Software	1.00	LS	@	$	3,000.00	=	$	3,000.00
		Erosion Control Total							$	183,275.18

Item No.	Item EXT	Description	Quantity	Unit	@	Unit Cost	=	Total Cost
Section 003	**Drainage**							
605	605E14000	6" Base Pipe Underdrains	5806.00	FT	@	$ 11.42	=	$ 66,304.52
611	611E22200	54" Conduit, Type A	154.00	FT	@	$ 390.00	=	$ 60,060.00
		Drainage Total						$ 126,364.52
Section 004	**Pavement**							
204	204E10000	Subgrade Compaction	8589.00	SY	@	$ 1.03	=	$ 8,846.67
302	302E56000	Asphalt Concrete Base, PG64-22 (449)	1367.00	CY	@	$ 184.90	=	$ 252,758.30
304	304E20000	Aggregate Base	1995.00	CY	@	$ 52.79	=	$ 105,316.05
407	407E10000	Tack Coat	874.00	GAL	@	$ 2.73	=	$ 2,386.02
441	441E70000	Asphalt Concrete Surface Course, Type 1, (449), PG64-22	276.00	CY	@	$ 255.63	=	$ 70,553.88
441	441E70300	Asphalt Concrete Intermediate Course, Type 2, (449)	387.00	CY	@	$ 212.11	=	$ 82,086.57
		Pavement Total						$ 521,947.49
Section 005	**Structures**							
505	505E11100	Pile Driving Equipment Mobilization	1.00	LS	@	$ 10,000.00	=	$ 10,000.00
507	507E00200	Steel Piles HP12x53, Furnished	4660.00	FT	@	$ 45.00	=	$ 209,700.00
507	507E00250	Steel Piles HP12x53, Driven	4100.00	FT	@	$ 20.00	=	$ 82,000.00
507	507E93300	Steel Points, or Shoes	112.00	EACH	@	$ 150.00	=	$ 16,800.00
509	509E10000	Epoxy Coated Reinforcing Steel	192000.00	POUND	@	$ 1.75	=	$ 336,000.00
511	511E34444	Class QC2 Concrete, Bridge Deck	449.00	CY	@	$ 1,500.00	=	$ 673,500.00
511	511E34448	Class QC2 Concrete, Bridge Deck (Parapets)	118.00	CY	@	$ 1,000.00	=	$ 118,000.00
511	511E41010	Class QC1 Concrete, Pier Above Footings	153.00	CY	@	$ 1,000.00	=	$ 153,000.00
511	511E43510	Class QC1 Concrete, Abutment Including Footing	188.00	CY	@	$ 750.00	=	$ 141,000.00
511	511E46510	Class QC1 Concrete, Footing	108.00	CY	@	$ 650.00	=	$ 70,200.00
515	515E14120	Straight Strand Prestressed Concrete Bridge I-Beam Members, Level 2, WF66-49	8.00	EACH	@	$ 50,000.00	=	$ 400,000.00
515	515E15120	Draped Strand Prestressed Concrete Bridge I-Beam Members, Level 2, WF66-49	4.00	EACH	@	$ 75,000.00	=	$ 300,000.00
515	515E15120	Draped Strand Prestressed Concrete Bridge I-Beam Members, Level 2, WF66-49	4.00	EACH	@	$ 75,000.00	=	$ 300,000.00
515	515E20000	Intermediate Diaphragms	24.00	EACH	@	$ 3,500.00	=	$ 84,000.00
516	516E43200	Elastomeric Bearing with Internal Laminates Only (Neoprene)	24.00	EACH	@	$ 1,000.00	=	$ 24,000.00
516	516E44100	Elastomeric Bearing with Internal Laminates and Load Plate (Neoprene)	8.00	EACH	@	$ 2,500.00	=	$ 20,000.00
526	526E30000	Reinforced Concrete Approach Slabs	65.00	SY	@	$ 400.00	=	$ 26,000.00
		Structures Total						$ 2,964,200.00

Item No.	Item EXT	Description	Quantity	Unit	@	Unit Cost	=	Total Cost
Section 006	**Traffic Control**							
642	642E00100	Edge Line, 4", Type 1, White	1.10	MILE	@	$ 1,538.46	=	$ 1,692.31
642	642E00104	Edge Line, 6", Type 1, White	0.10	MILE	@	$ 4,206.77	=	$ 420.68
642	642E00104	Edge Line, 6", Type 1, Yellow	0.30	MILE	@	$ 4,206.77	=	$ 1,262.03
642	642E00300	Center Line, Type 1	1.10	MILE	@	$ 2,728.89	=	$ 3,001.78
		Traffic Control Total						$ 6,376.79
Section 007	**Incidentals**							
614	614E11000	Maintaining Traffic	1.00	LS	@	$ 50,000.00	=	$ 50,000.00
619	619E16010	Field Office, Type B	9.00	MNTH	@	$ 1,700.00	=	$ 15,300.00
623	623E10000	Construction Layout Stakes and Surveying	1.00	LS	@	$ 30,000.00	=	$ 30,000.00
624	624E10000	Mobilization	1.00	LS	@	$ 200,000.00	=	$ 200,000.00
		Incidentals Total						$ 295,300.00
		Subtotal (Sections 001 - 006)						$ 4,410,245.56
	20%	***Contingency***						$ 882,049.11
		Subtotal (Section 007)						$ 295,300.00
		TOTAL						$ 5,587,595.00

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Engineer's Cost Estimate

Project: PAU/VAN 30 Feasibility Study
Klinger Road Overpass - Preliminary Estimate

Calculated By: AMD
Checked By: RJM

Date: January 26, 2022

Item No.	Item EXT	Description	Quantity	Unit	@		Unit Cost	=		Total Cost
Section 001	**Roadway**									
201	201E11000	Clearing and Grubbing	1.00	LS	@	$	10,000.00	=	$	10,000.00
202	202E23000	Pavement Removed	9732.44	SY	@	$	7.61	=	$	74,063.90
203	203E10000	Excavation	3523.00	CY	@	$	15.67	=	$	55,205.41
203	203E20000	Embankment	77329.00	CY	@	$	5.17	=	$	399,790.93
606	606E15050	Guardrail, Type MGS	4662.50	FT	@	$	13.64	=	$	63,596.50
606	606E26050	Anchor Assembly, MGS Type B	2.00	EACH	@	$	2,289.58	=	$	4,579.16
606	606E26150	Anchor Assembly, MGS Type E	9.00	EACH	@	$	2,941.73	=	$	26,475.57
606	606E26550	Anchor Assembly, MGS Type T	2.00	EACH	@	$	1,213.44	=	$	2,426.88
606	606E35002	MGS Bridge Terminal Assembly, Type 1	4.00	EACH	@	$	3,013.78	=	$	12,055.12
606	606E35102	MGS Bridge Terminal Assembly, Type 2	2.00	EACH	@	$	1,191.20	=	$	2,382.40
		Roadway Total							$	650,575.87
Section 002	**Erosion Control**									
659	659E00300	Topsoil	5533.00	CY	@	$	15.50	=	$	85,761.50
659	659E01000	Seeding and Mulching	49792.00	SY	@	$	0.57	=	$	28,381.44
659	659E14000	Repair Seeding and Mulching	2490.00	SY	@	$	0.66	=	$	1,643.40
659	659E20000	Commercial Fertilizer	11.23	TON	@	$	565.67	=	$	6,352.47
659	659E31000	Lime	10.29	ACRE	@	$	16.54	=	$	170.20
659	659E35000	Water	404.00	MGAL	@	$	1.63	=	$	658.52
832	832E30000	Erosion Control	75000.00	EACH	@	$	1.00	=	$	75,000.00
832	832E15000	Storm Water Pollution Prevention Plan	1.00	LS	@	$	5,000.00	=	$	5,000.00
832	832E15002	Storm Water Pollution Prevention Inspections	1.00	LS	@	$	5,000.00	=	$	5,000.00
832	832E15010	Storm Water Pollution Prevention Inspection Software	1.00	LS	@	$	3,000.00	=	$	3,000.00
		Erosion Control Total							$	210,967.53

Item No.	Item EXT	Description	Quantity	Unit	@	Unit Cost	=	Total Cost
Section 003	**Drainage**							
605	605E14000	6" Base Pipe Underdrains	9018.00	FT	@	$ 11.42	=	$ 102,985.56
		Drainage Total						$ 102,985.56
Section 004	**Pavement**							
204	204E10000	Subgrade Compaction	12957.00	SY	@	$ 1.03	=	$ 13,345.71
302	302E56000	Asphalt Concrete Base, PG64-22 (449)	2065.00	CY	@	$ 184.90	=	$ 381,818.50
304	304E20000	Aggregate Base	3140.00	CY	@	$ 52.79	=	$ 165,760.60
407	407E10000	Tack Coat	1322.00	GAL	@	$ 2.73	=	$ 3,609.06
441	441E70000	Asphalt Concrete Surface Course, Type 1, (449), PG64-22	417.00	CY	@	$ 255.63	=	$ 106,597.71
441	441E70300	Asphalt Concrete Intermediate Course, Type 2, (449)	584.00	CY	@	$ 212.11	=	$ 123,872.24
		Pavement Total						$ 795,003.82
Section 005	**Structures**							
505	505E11100	Pile Driving Equipmant Mobilization	1.00	LS	@	$ 10,000.00	=	$ 10,000.00
507	507E00200	Steel Piles HP12x53, Furnished	4650.00	FT	@	$ 45.00	=	$ 209,250.00
507	507E00250	Steel Piles HP12x53, Driven	4120.00	FT	@	$ 20.00	=	$ 82,400.00
507	507E93300	Steel Points, or Shoes	112.00	EACH	@	$ 150.00	=	$ 16,800.00
509	509E10000	Epoxy Coated Reinforcing Steel	169800.00	POUND	@	$ 1.75	=	$ 297,150.00
511	511E34444	Class QC2 Concrete, Bridge Deck	388.00	CY	@	$ 1,500.00	=	$ 582,000.00
511	511E34448	Class QC2 Concrete, Bridge Deck (Parapets)	105.00	CY	@	$ 1,000.00	=	$ 105,000.00
511	511E41010	Class QC1 Concrete, Pier Above Footings	144.00	CY	@	$ 1,000.00	=	$ 144,000.00
511	511E43510	Class QC1 Concrete, Abutment Including Footing	145.00	CY	@	$ 750.00	=	$ 108,750.00
511	511E46510	Class QC1 Concrete, Footing	108.00	CY	@	$ 650.00	=	$ 70,200.00
515	515E14090	Straight Strand Prestressed Concrete Bridge I-Beam Members, Level 2, WF48-49	8.00	EACH	@	$ 45,000.00	=	$ 360,000.00
515	515E15090	Draped Strand Prestressed Concrete Bridge I-Beam Members, Level 2, WF48-49	8.00	EACH	@	$ 65,000.00	=	$ 520,000.00
515	515E20000	Intermediate Diaphragms	24.00	EACH	@	$ 3,500.00	=	$ 84,000.00
516	516E43200	Elastomeric Bearing with Internal Laminates Only (Neoprene)	24.00	EACH	@	$ 1,000.00	=	$ 24,000.00
516	516E44100	Elastomeric Bearing with Internal Laminates and Load Plate (Neoprene)	8.00	EACH	@	$ 2,500.00	=	$ 20,000.00
526	526E30000	Reinforced Concrete Approach Slabs	65.00	SY	@	$ 400.00	=	$ 26,000.00
		Structures Total						$ 2,659,550.00

Item No.	Item EXT	Description	Quantity	Unit	@	Unit Cost	=	Total Cost
Section 006	**Traffic Control**							
642	642E00100	Edge Line, 4", Type 1, White	1.60	MILE	@	$ 1,538.46	=	$ 2,461.54
642	642E00104	Edge Line, 6", Type 1, White	0.10	MILE	@	$ 4,206.77	=	$ 420.68
642	642E00104	Edge Line, 6", Type 1, Yellow	0.30	MILE	@	$ 4,206.77	=	$ 1,262.03
642	642E00300	Center Line, Type 1	1.60	MILE	@	$ 2,728.89	=	$ 4,366.22
		Traffic Control Total						$ 8,510.47
Section 007	**Incidentals**							
614	614E11000	Maintaining Traffic	1.00	LS	@	$ 50,000.00	=	$ 50,000.00
619	619E16010	Field Office, Type B	9.00	MNTH	@	$ 1,700.00	=	$ 15,300.00
623	623E10000	Construction Layout Stakes and Surveying	1.00	LS	@	$ 30,000.00	=	$ 30,000.00
624	624E10000	Mobilization	1.00	LS	@	$ 200,000.00	=	$ 200,000.00
		Incidentals Total						$ 295,300.00
		Subtotal (Sections 001 - 006)						$ 4,427,593.25
	20%	***Contingency***						$ 885,518.65
		Subtotal (Section 007)						$ 295,300.00
		TOTAL						$ 5,608,412.00

US 127 Corridor

Location	New Pvt. Area (SF)	Resurf Pvt. Area (SF)	Sidewalk (SF)	Curb (LF)	Conc. Pvt. (SF)	R/W (SF)
US 127	31642	62000	4300	1100		21373
Drives					1680	
Total	**31642**	**106394**	**4300**	**1100**	**1680**	**21373**

	Value (SF)	Unit Cost ($/SF)	Total
New Pvt. Area	31642	15	$474,630
Resurf Pvt.	106394	5	$531,970
Sidewalk	4300	15	$64,500
Curb	1100	45	$119,900
Conc. Pavt.	1680	14	$105,920
Storm Sewer	1000	225	$225,000
Upgraded Signal			$50,000
New Signal			$150,000
Subtotal			$1,700,000
35% contingency			$595,000
Total Construction			**$2,295,000**
	Value (SF)		
Total R/W	**21373**		**0.49 acre**

Appendix F

Cost Estimate - Short-Term Alternative

Unit Cost Assumptions

Full Depth Pavement			
Item	Thickness	Unit Cost	$/Sf surface
448 AC Surface Course	1.25''	375 $/cy	1.5
448 AC Int Course	1.75''	325 $/cy	1.75
301 AC Base	9.00''	250 $/cy	7
304 Agg Base	6.00''	75 $/cy	1.5
204 Subgrade comp		2 $/sy	0.25
subtotal			12
25% other items/steps			3
Total			**15**

Resurfacing			
Item	Thickness	Unit Cost	$/Sf surface
448 AC Surface Course	1.25''	375 $/cy	1.5
448 AC Int Course	1.75''	325 $/cy	1.75
254 Pavement Planing		3 $/sy	0.25
subtotal			3.5
25% other items/steps			0.875
Total			**5**

Item	Thickness	Unit Cost	$/Sf surface
Pavement Removal		**5 $/sy**	**0.5**

Item	Thickness	Unit Cost	$/Sf surface
Earthwork		**20 $/cy**	

Item	Thickness	Unit Cost	$/Sf surface
Concrete Island		**90 $/sy**	**10**
Sidewalk			**15**

Item	Thickness	Unit Cost	
Curb Type 4C		**50 $/ft**	
Curb Type 6		**45 $/ft**	

Item	Thickness	Unit Cost	$/Sf surface
8" Conc. Drive		**125 $/sy**	**14**

Major Culvert Extension			
	length/#	Unit Cost	$/location
611 48" Type A	16	250	4000
202 HW Removed	2	1000	2000
602 Conc. Masonry	17.6	2000	35200
subtotal			41200
25% other items			10300
Total			**51500**

Bridge			
	area	Unit Cost	$/location
Bridge Widening	300	175	52500
New Bridge	12700	225	2857500

RW	market value	area	$/acre
01-001076	$220,000	74.5 acre	$0.07
01-001036	$199,900	67.2 acre	$0.07
01-000568	$415,490	137.3 acre	$0.07
Average			$0.07
Average+50%			**$0.10**

RCUT - SR 49/Payne

Location	New Pvt. Area (SF)	Resurf Pvt. Area (SF)	pvt rem (SF)	Conc. Island (SF)	R/W (SF)
SR 49/Payne	93000	168000	3200	200	4500
Total	**93000**	**168000**	**3200**	**200**	**4500**

	Value (SF)	Unit Cost ($/SF)	Total
New Pvt. Area	93000	15	$1,395,000
Resurf Pvt.	168000	5	$840,000
Pavement Removed	3200	0.5	$1,600
Conc. Island	200	10	$2,000
Subtotal			$2,200,000
35% contingency			$770,000
Total Construction			**$2,970,000**
	Value (SF)		
Total R/W	**4500**		**0.10 acre**

RCUT - SR 49/Convoy Heller

Location	New Pvt. Area (SF)	Resurf Pvt. Area (SF)	pvt rem (SF)	Conc. Island (SF)	R/W (SF)
SR 49/Convoy Heller	67000	185000	10700	200	0
Total	**67000**	**185000**	**10700**	**200**	**0**

	Value (SF)	Unit Cost ($/SF)	Total
New Pvt. Area	67000	15	$1,005,000
Resurf Pvt.	185000	5	$925,000
Pavement Removed	10700	0.5	$5,350
Conc. Island	200	10	$2,000
Subtotal			$1,900,000
35% contingency			$665,000
Total Construction			**$2,565,000**
	Value (SF)		
Total R/W	**0**		**0.00 acre**

RCUT-John Brown

Location	New Pvt. Area (SF)	Resurf Pvt. Area (SF)	pvt rem (SF)	Conc. Island (SF)	R/W (SF)
John Brown	60000	188500	2300	200	14700
Total	**60000**	**188500**	**2300**	**200**	**14700**

	Value (SF)	Unit Cost ($/SF)	Total
New Pvt. Area	60000	15	$900,000
Resurf Pvt.	188500	5	$942,500
Pavement Removed	2300	0.5	$1,150
Conc. Island	200	10	$2,000
Subtotal			$1,800,000
35% contingency			$630,000
Total Construction			**$2,430,000**
	Value (SF)		
Total R/W	**14700**		**0.34 acre**

US 224/Lincoln Highway Roundabout

Location	New Pvt. Area (SF)	pvt rem (SF)	Conc. Island (SF)	Curb (LF)	R/W (SF)
SR 49/Payne	64000	15000	12000	3500	3500
Total	**64000**	**15000**	**12000**	**3500**	**3500**

	Value (SF)	Unit Cost ($/SF)	Total
New Pvt. Area	64000	15	$960,000
Pavement Removed	15000	0.5	$7,500
Conc. Island	12000	10	$120,000
Curb	3500	50	$175,000
Drainage			$250,000
Subtotal			$1,500,000
35% contingency			$525,000
Total Construction			**$2,025,000**
	Value (SF)		
Total R/W	**3500**		**0.08 acre**

US 224 Interchange

Location	New Pvt. Area (SF)	Resurf Pvt. Area (SF)	pvt rem (SF)	Conc. Island (SF)	Culvert (LF)	Embankment (CY)	R/W (SF)
ex. nb-eb ramp			68000				
ex. eb-sb ramp			73000				
ex. loop ramp		60000	30000				
eb exit	56000				80	18000	62000
eb ent	66000				100	22000	12500
north leg	114000		8000		220	35000	363100
loop ext to north leg	22000			1100			
Liberty Union ext	12000		24000		120		
south leg		101000					
Total	**270000**	**161000**	**203000**	**1100**	**520**	**75000**	**437600**

	Value (SF)	Unit Cost ($/SF)	Total
New Pvt. Area	270000	15	$4,050,000
Resurf Pvt.	161000	5	$805,000
Pavement Removed	203000	0.5	$101,500
Conc. Island	1100	10	$11,000
Culvert	520	250	$200,400
Embankment	75000	20	$1,582,400
Subtotal			$6,800,000
35% contingency			$2,380,000
Total Construction			**$9,180,000**
	Value (SF)		
Total R/W	**437600**		**10.05 acre**

Appendix G

Red Flag Summary

OHIO DEPARTMENT OF TRANSPORTATION

Red Flag Summary for PID 113196
PAU/VAN-US 30-0.00/0.00

Project Description

The Ohio Department of Transportation is preparing a Feasibility Study on US 30 to modify access to the existing at-grade intersections from the Indiana state line in Paulding County to the Lincoln Highway (CR 418) interchange in Van Wert County. The study will also analyze feasible locations to construct an interchange at the State Route (SR) 49 junction with US 30 and how SR 49 would be routed to this interchange.

The purpose of this report is to review environmental resources at the intersections located in this corridor and potential routes for the SR 49 interchange. Resources that will be reviewed include:

- Section 106 - Ohio History Connection
- Section 4(f) and 6(f) – Google Maps & The Wilderness Society (LWCF)
- Noise sensitive areas – Google Maps
- Ecological (streams, wetlands, ponds) – USGS National Map, StreamStats, & National Wetlands Inventory
- Farmland – Google Maps
- Regulated Materials Review (RMR) – Ohio Regulated Properties Search

Summary of Intersections

Intersection	Route Number	Route Name	Work Description
1	CR 1	State Line Road	At-grade closure
2	TR 11	Klinger Road	At-grade closure
3	CR 17	Krick Road	At-grade closure
4	TR 27	Mentzer Church Road	At-grade closure
5	CR 214	Elm Sugar Road	At-grade closure
6	TR 37	Lare Road	At-grade closure
7	TR 208	Feasby-Wisener Road	At-grade closure
8	TR 47 (S), SR 49 (N)	Payne Road	Interchange option A
9	CR 192, Lincoln Hwy	Dixon Cavett Road	Interchange option B
10	SR 49 (S), CR 55 (N)	Convoy Heller Road	Interchange option C
11	TR 65	Colwell Road	At-grade closure
12	CR 168	Convoy Road	At-grade closure
13	CR 75	Richey Road	At-grade closure
14	CR 77	Liberty-Union Road	At-grade closure
15	CR 83	John Brown Road	At-grade closure
16	CR 93	Dutch John Road	At-grade closure
17	CR 103	Mendon Road	At-grade closure
18	CR 113	Boroff Road	At-grade closure

SR: State Route, CR: County Route, TR: Township Route, Hwy: Highway, Int: Intersection

Prepared by Brett Allerding Curfman
ODOT District 1

Summary of Access Routes

Route Name	Route Description
A -1	From Int. 8, south on TR 47 to Waller Road, merge onto SR 49
A - 2	From Int. 8, south on TR 47 to Mentzer Road, merge onto SR 49
A - 3	From Int. 8, new roadway just south of US 30, merge onto SR 49
B - 1	From Int. 10, north on CR 55 to Feasby-Wisener, merge onto SR 49
B - 2	From Int. 10, north on CR 55 to Elm Sugar Road, merge onto SR 49
B - 3	From Int. 10, north on CR 55 to Lincoln Hwy, follow Lincoln Hwy west then new roadway along US 30, merge onto SR 49
C - 1	From Int. 9, west on Dixon Cavett Road, south on TR 47 to Waller Road, merge onto SR 49
C - 2	From Int. 9, west on Dixon Cavett Road, south on TR 47 to Mentzer Road, merge onto SR 49
C - 3	From Int. 9, new roadway just south of US 30, merge onto SR 49
D - 1	From Int. 9, east on Dixon Cavett to Lincoln Hwy, then north on CR 55 to Feasby-Wisener, merge onto SR 49
D - 2	From Int. 9, east on Dixon Cavett to Lincoln Hwy, then north on CR 55 to Elm Sugar Road, merge onto SR 49
D - 3	From Int. 9, east on Dixon Cavett to Lincoln Hwy, follow Lincoln Hwy west then new roadway along US 30, merge onto SR 49
E - 1	South on SR 49 through Int. 8 to TR 47, east on Dixon Cavett Rd through Int. 9 to Lincoln Hwy, then south on CR 55 through Int. 10, merge onto SR 49
E - 2	East from SR 49 on new roadway along US 30 to Lincoln Hwy OR east on Dixon Cavett Rd from Int. 9 to Lincoln Hwy; then south on CR 55 through Int. 10, merge onto SR 49

SR: State Route, CR: County Route, TR: Township Route, Hwy: Highway, Int: Intersection

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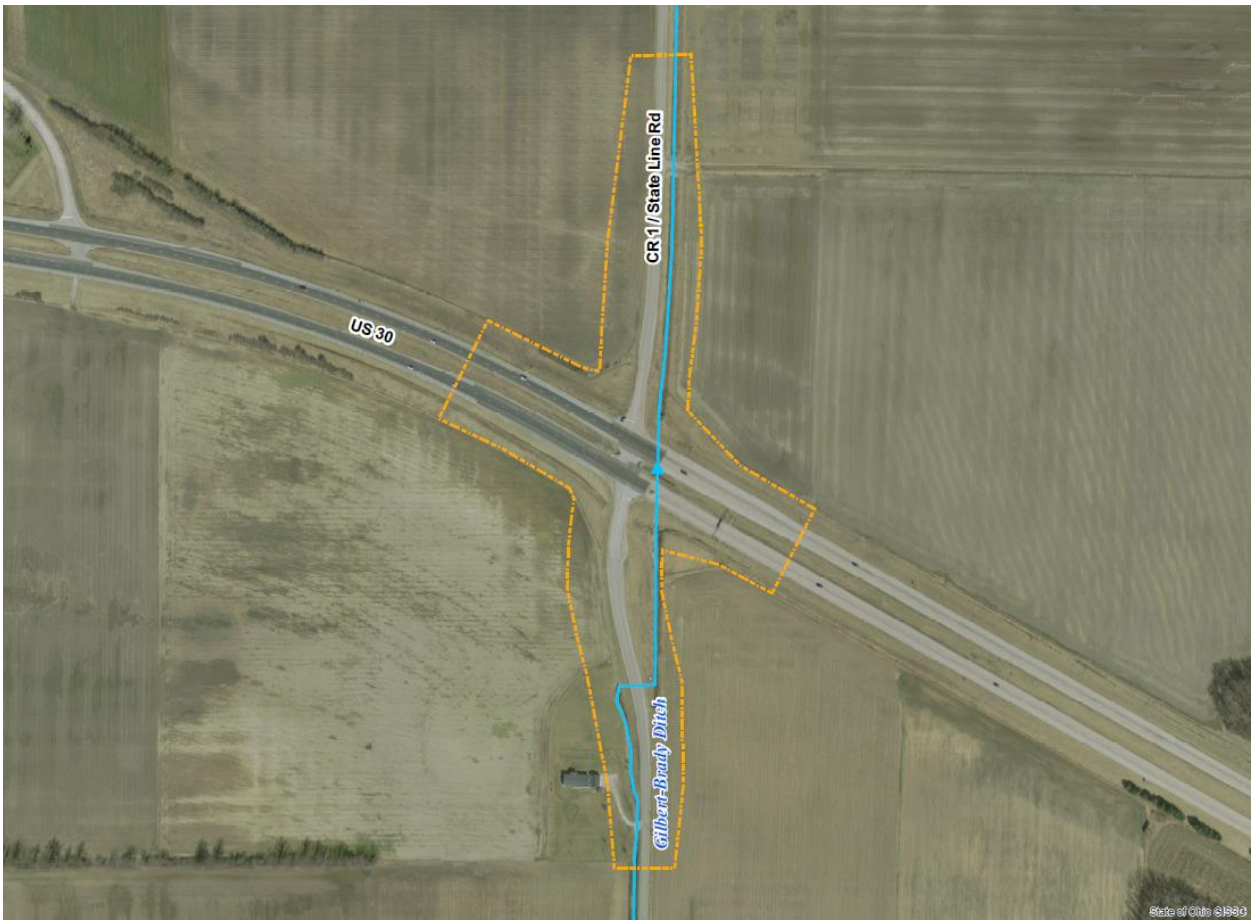
Access Route A - 1 41
Access Route A - 2 43
Access Route A - 3 45
Access Route B - 1 47
Access Route B - 2 49
Access Route B - 3 51
Access Route C - 1 53
Access Route C - 2 55
Access Route C - 3 57
Access Route D - 1 59

Access Route D - 2 61
Access Route D - 3 63
Access Route E - 1 65
Access Route E - 2 67

Intersection 1: CR 1 / State Line Road

Description of Study Area [1]

At the intersection of US 30 and CR 1 (State Line Road), at-grade access may be closed. The study area on US 30 includes 500 ft in either direction from right-of-way line to right-of-way line (ROW to ROW). The study area on CR 1 includes 1000 ft in either direction, starting at 125 ft off the centerline for the first 500 ft from US 30 and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway. Note that since this at-grade intersection is located at the Indiana state line, inter-agency coordination will likely be required to provide clearance at this location.



[1] The study areas are approximate, and measurements are based on the available mapping.

Intersection 1: CR 1 / State Line Road

Resources [2]

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas [3] :
  - Residences (1)
- Ecological [4]:
  - Gilbert-Brady Ditch: 0.56 mi^2 drainage area (recently studied under PID 110841)
- Farmland: Present
- RMR: No ORPS listings in RMR database

Land Use [5]

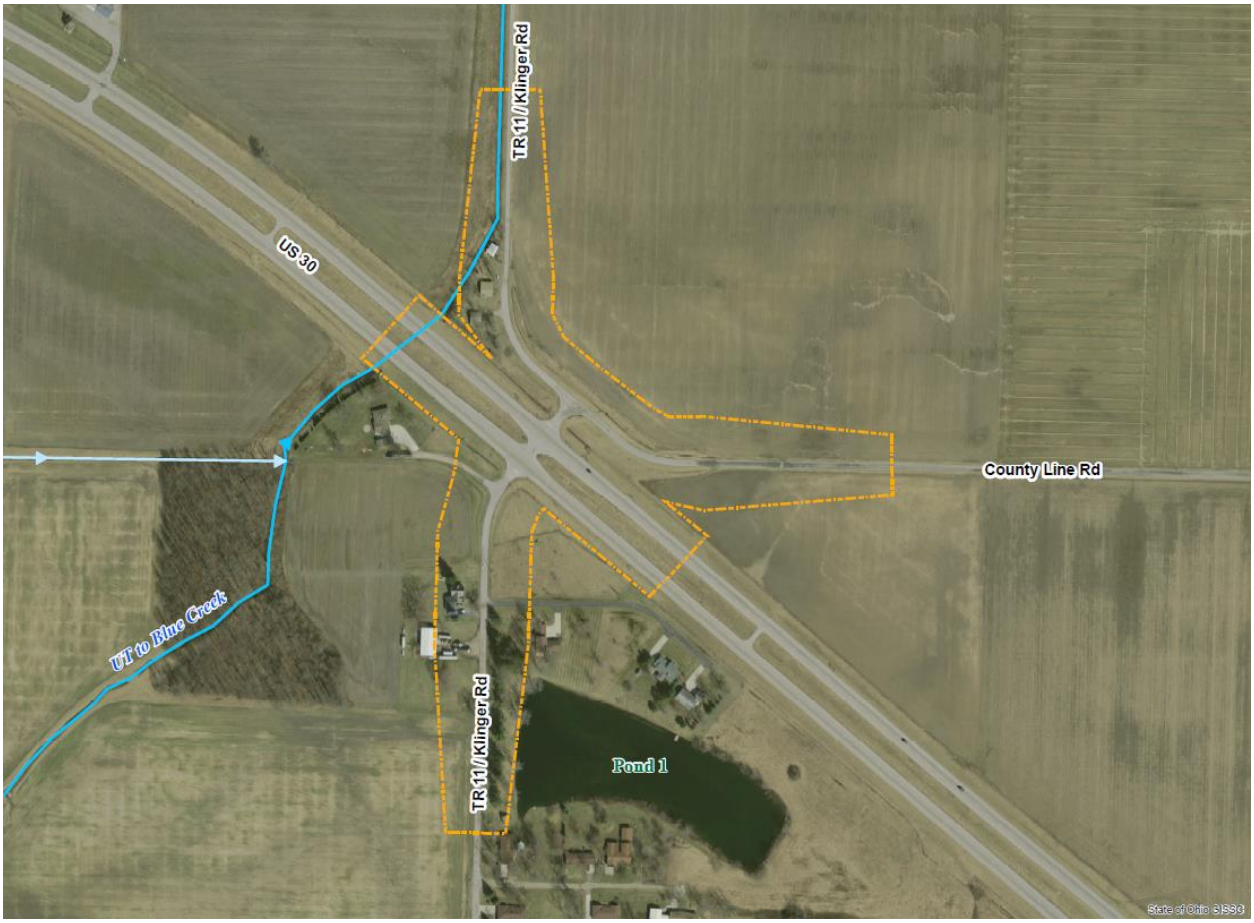
Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	11.58 ac	
Residences	0.82 ac	
Farmland	3.47 ac	
Gilbert-Brady Ditch	0.25 ac	2255 ft
Total:	16.12 ac	2255 ft

[2] The resources listed are located within or directly adjacent to the study area; *nearby* resources may not be listed.
[3] Only sensitive areas with property lines within or directly adjacent to the study area are included.
[4] Only streams present on the USGS National Map are included; additional jurisdictional streams may be present once field-verified.
[5] Only areas with property lines within or directly adjacent to the study area are included; measurements are approximate and based on available mapping.

Intersection 2: TR 11 / Klinger Road

Description of Study Area

At the intersection of US 30 and TR 11 (Klinger Road), at-grade access may be closed. The study area on US 30 includes 500 ft in either direction from ROW to ROW. The study area on TR 11 includes 1000 ft in either direction, starting at 125 ft off the centerline for the first 500 ft from US 30 and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway. Additionally, the study area includes a portion of County Line Road for Van Wert / Paulding Counties: 900 ft from TR 11, starting at 125 ft off the centerline for the first 400 ft and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway.



Intersection 2: TR 11 / Klinger Road

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (5)
- Ecological:
  - Pond 1 [6]
  - UT to Blue Creek: 1.16 mi^2 drainage area
- Farmland: Present
- RMR: No ORPS listings in RMR database

Land Use

Land Use Type	Acreage in Study Area	Total Size (ponds only)	Length in Study Area (streams only)
Roadway & mowed ROW	10.47 ac		
Residences	2.44 ac		
Farmland	5.32 ac		
Pond 1	0.06 ac	4.34 ac	
UT to Blue Creek	0.09 ac		785 ft
Total:	18.20 ac	4.34 ac	785 ft

[6] Only ponds within the study areas are numbered, all others are labelled generically as 'pond.'

Intersection 3: CR 17 / Krick Road

Description of Study Area

At the intersection of US 30 and CR 17 (Krick Road), at-grade access may be closed. The study area on US 30 includes 500 ft in either direction from ROW to ROW. The study area on CR 17 includes 1000 ft in north, starting at 125 ft off the centerline for the first 500 ft from US 30 and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway.

Intersection 3: CR 17 / Krick Road

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residence / business (1)
- Ecological:
  - UT to Blue Creek: 0.06 mi^2 (potentially non-jurisdictional, needs field-verified)
- Farmland: Present
- RMR: No ORPS listings in RMR database

Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	7.10 ac	
Residences	0.39 ac	
Businesses (Dealey Farms)	0.44 ac	
Farmland	2.95 ac	
UT to Blue Creek	0.07 ac	620 ft
Total:	10.95 ac	620 ft

Intersection 4: TR 27 / Mentzer Church Road

Description of Study Area

At the intersection of US 30 and TR 27 (Mentzer Church Road), at-grade access may be closed. The study area on US 30 includes 500 ft in either direction from ROW to ROW. The study area on TR 27 includes 1000 ft in either direction, starting at 125 ft off the centerline for the first 500 ft from US 30 and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway.

Intersection 4: TR 27 / Mentzer Church Road

Resources

- Section 106: McNeal Cemetery (north side of US 30 in ROW), located between intersections #4 & 5
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (2)
- Ecological:
  - UT to Blue Creek: <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
- Farmland: Present
- RMR: No ORPS listings in RMR database

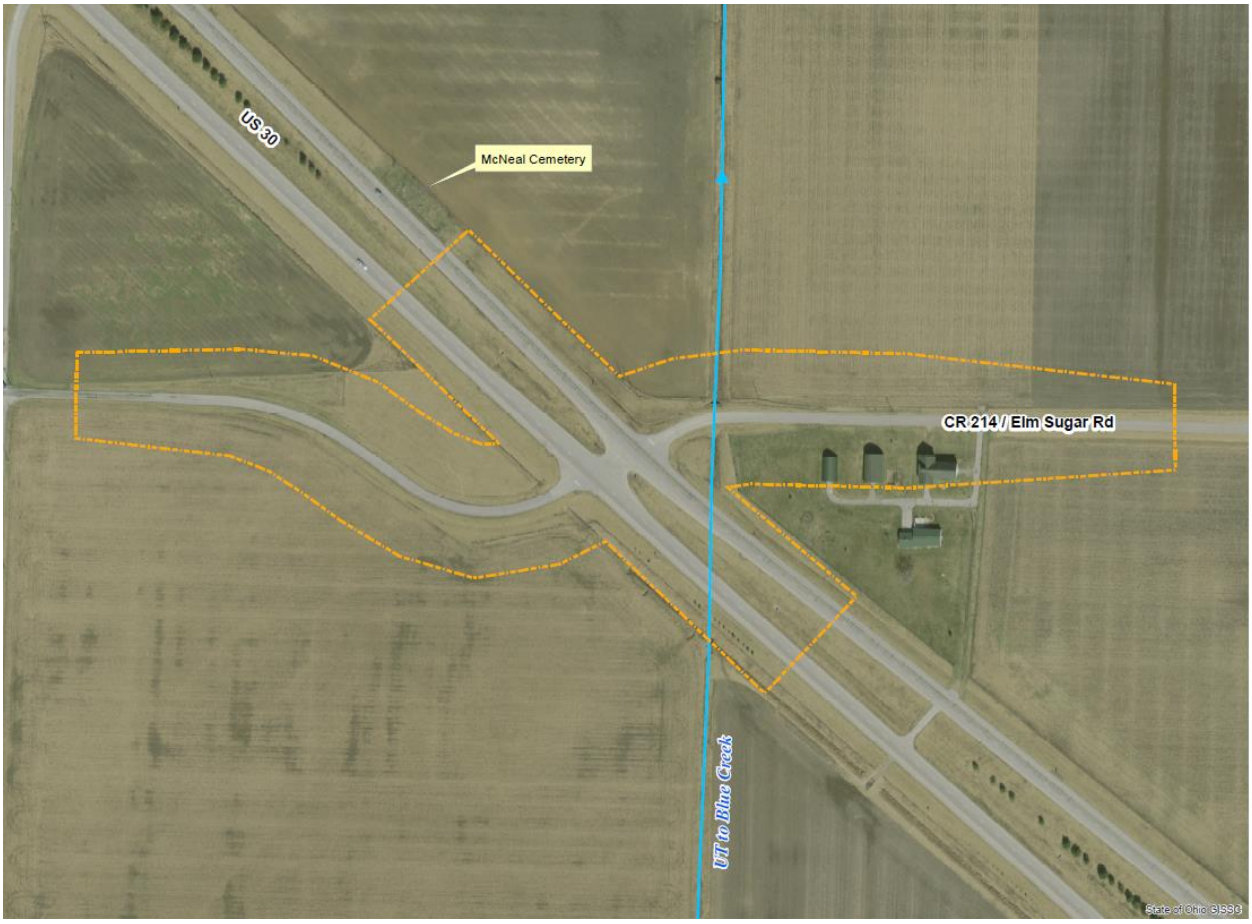
Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	8.35 ac	
Residences	0.51 ac	
Farmland	6.76 ac	
UT to Blue Creek	0.07 ac	614 ft
Total:	15.69 ac	614 ft

Intersection 5: CR 214 / Elm Sugar Road

Description of Study Area

At the intersection of US 30 and CR 214 (Elm Sugar Road), at-grade access may be closed. The study area on US 30 includes 500 ft in either direction from ROW to ROW. The study area on CR 214 includes 1000 ft in either direction, starting at 125 ft off the centerline for the first 500 ft from US 30 and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway.



Intersection 5: CR 214 / Elm Sugar Road

Resources

- Section 106: McNeal Cemetery (north side of US 30 in ROW), located between intersections #4 & 5
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (1)
- Ecological:
  - UT to Blue Creek: 0.92 mi^2 drainage area
- Farmland: Present
- RMR: No ORPS listings in RMR database

Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	9.30 ac	
Residences	1.11 ac	
Farmland	4.76 ac	
UT to Blue Creek	0.06 ac	540 ft
Total:	15.23 ac	540 ft

Intersection 6: TR 37 / Lare Road

Description of Study Area

At the intersection of US 30 and TR 37 (Lare Road), at-grade access may be closed. The study area on US 30 includes 500 ft in either direction from ROW to ROW. The study area on TR 37 includes 1000 ft in either direction, starting at 125 ft off the centerline for the first 500 ft from US 30 and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway.

Intersection 6: TR 37 / Lare Road

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (1)
- Ecological:
  - UT to Middle Creek: <0.001 mi^2 drainage area
- Farmland: Present
- RMR: No ORPS listings in RMR database

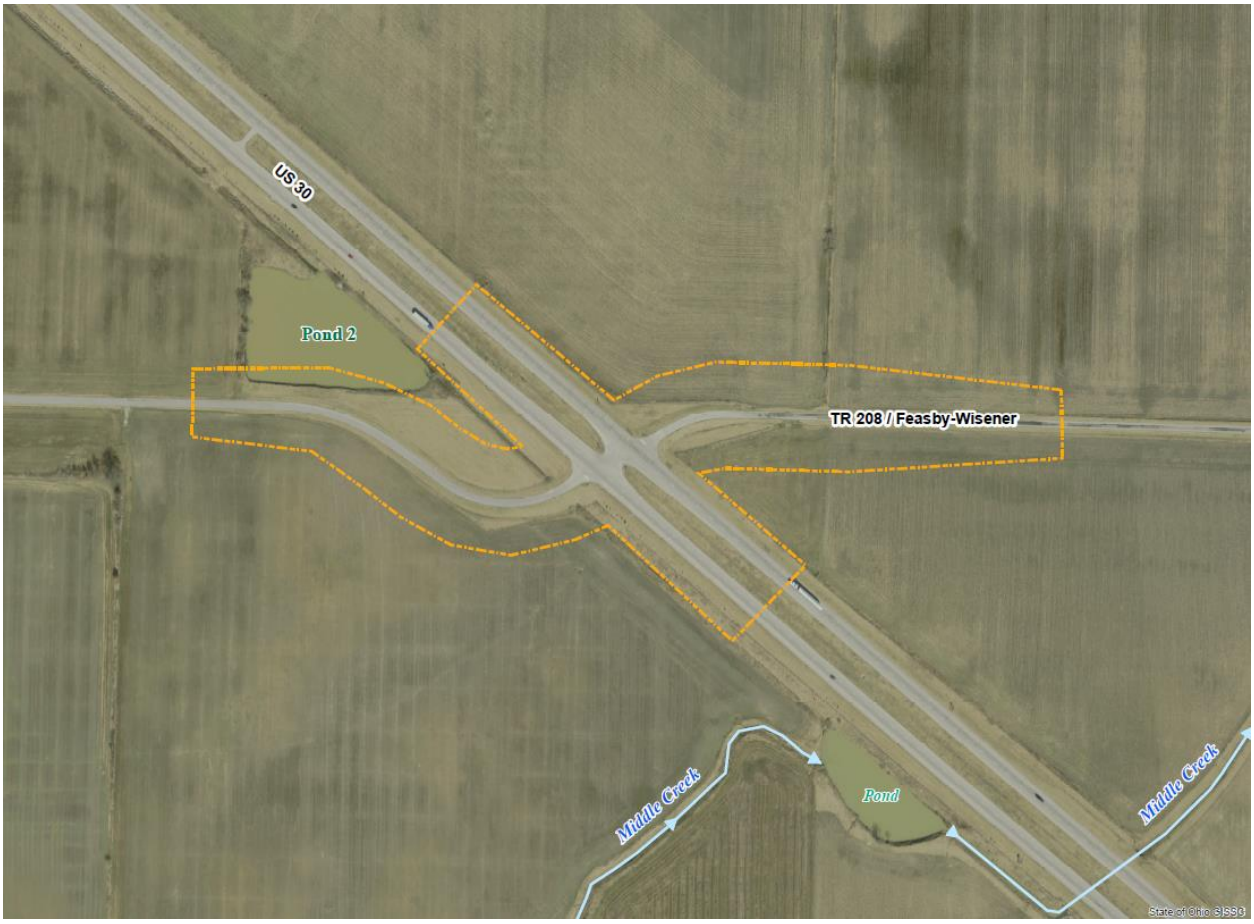
Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	8.84 ac	
Residences	0.22 ac	
Farmland	6.08 ac	
UT to Middle Creek	<0.01 ac	60 ft
Total:	15.15 ac	60 ft

Intersection 7: TR 208 / Feasby–Wisener Road

Description of Study Area

At the intersection of US 30 and TR 208 (Feasby-Wisener Road), at-grade access may be closed. The study area on US 30 includes 500 ft in either direction from ROW to ROW. The study area on TR 208 includes 1000 ft in either direction, starting at 125 ft off the centerline for the first 500 ft from US 30 and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway.



Intersection 7: TR 208 / Feasby-Wisener Road

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas: None
- Ecological:
  - Pond 2
- Farmland: Present
- RMR: No ORPS listings in RMR database

Land Use

Land Use Type	Acreage in Study Area	Total Size (ponds only)
Roadway & mowed ROW	9.16 ac	
Farmland	5.56 ac	
Pond 2	0.27 ac	1.99 ac
Total:	14.99 ac	1.99 ac

Intersection 8: TR 47 (S) & SR 49 (N) / Payne Road, Interchange Option A

Description of Study Area

At the intersection of US 30 and TR 47 / SR 49 (Payne Road), at-grade access may be closed or an interchange may be constructed (Option A). The study area on US 30 includes 2000 ft in either direction, starting at 500 ft off the center of the median for the first 1000 ft from intersection and then tapering down to the existing ROW for the remaining 1000 ft of roadway. The study area on TR 47 / SR 49 includes 1500 ft in either direction, starting at 500 ft off the centerline for the first 500 ft from US 30, then tapering down to 300 ft off the centerline for the next 500 ft of the roadway, then tapering down to 80 ft for the last 500 ft of roadway.

Intersection 8: Interchange Option A

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (4)
- Ecological:
  - UT to Middle Creek: <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
- Farmland: Present
- RMR: Diesel fuel spill (directly at intersection)

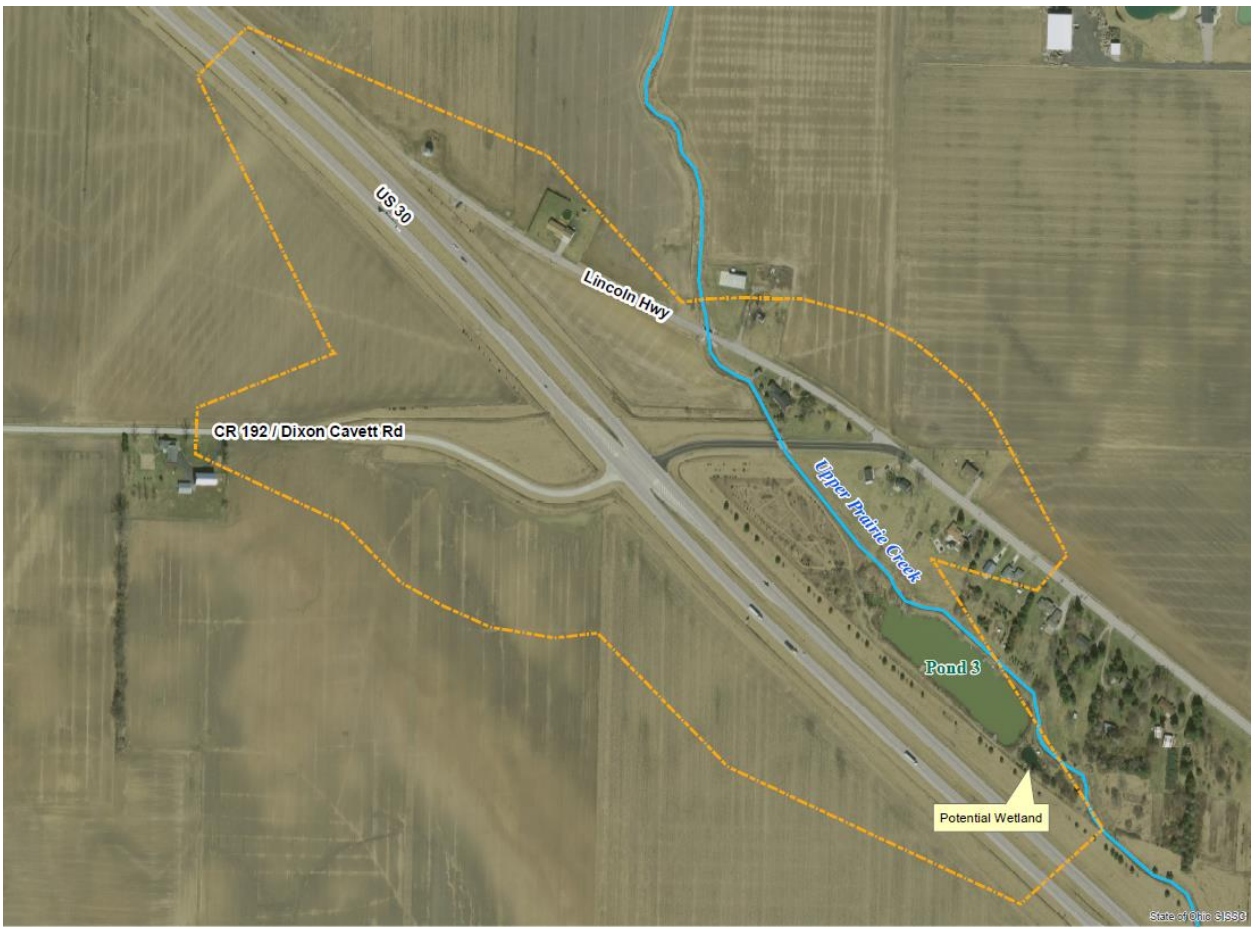
Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	29.53 ac	
Residences	4.24 ac	
Farmland	65.37 ac	
UT to Middle Creek	0.16 ac	1393 ft
Total:	99.30 ac	1393 ft

Intersection 9: CR 192 / Dixon Cavett Road & Lincoln Highway, Interchange Option B

Description of Study Area

At the intersection of US 30 and CR 192 (Dixon Cavett Road), at-grade access may be closed or an interchange may be constructed (Option B). The study area on US 30 includes 2000 ft in either direction, starting at 500 ft off the center of the median for the first 1000 ft from intersection and then tapering down to the existing ROW for the remaining 1000 ft of roadway. The study area on CR 192 includes 1500 ft in either direction (merging onto Lincoln Highway on the east side), starting at 500 ft off the centerline for the first 500 ft from US 30, then tapering down to 300 ft off the centerline for the next 500 ft of the roadway, then tapering down to 80 ft for the last 500 ft of roadway.



Intersection 9: Interchange Option B

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (10)
- Ecological:
  - Pond 3
  - Potential emergent wetland
  - Upper Prairie Creek: 3.44 mi^2 drainage area
- Farmland: Present
- RMR: No ORPS listings in RMR database

Land Use

Land Use Type	Acreage in Study Area	Total Size (ponds only)	Length in Study Area (streams only)
Roadway & mowed ROW	40.71 ac		
Residences	12.71 ac		
Farmland	45.07 ac		
Pond 3	2.23 ac	2.43 ac	
Upper Prairie Creek	0.38 ac		1653 ft
Potential Wetland	0.10 ac		
Total:	101.20 ac	2.43 ac	1653 ft

Intersection 10: SR 49 (S) & CR 55 (N) / Convoy Heller Road, Interchange Option C

Description of Study Area

At the intersection of US 30 and SR 49 / CR 55 (Convoy Heller Road), at-grade access may be closed or an interchange may be constructed (Option C). The study area on US 30 includes 2000 ft in either direction, starting at 500 ft off the center of the median for the first 1000 ft from intersection and then tapering down to the existing ROW for the remaining 1000 ft of roadway. The study area on SR 49 / CR 55 includes 1500 ft in either direction, starting at 500 ft off the centerline for the first 500 ft from US 30, then tapering down to 300 ft off the centerline for the next 500 ft of the roadway, then tapering down to 80 ft for the last 500 ft of roadway.

Intersection 10: Interchange Option C

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (5)
- Ecological:
  - Pond 3
  - Potential emergent wetland
  - Upper Prairie Creek: 2.99 mi^2 drainage area (calculated at end of 2nd crossing)
- Farmland: Present
- RMR: No ORPS listings in RMR database

Land Use

Land Use Type	Acreage in Study Area	Total Size (ponds only)	Length in Study Area (streams only)
Roadway & mowed ROW	54.30 ac		
Residences	6.91 ac		
Farmland	36.01 ac		
Pond 3	1.19 ac	2.43 ac	
Upper Prairie Creek	0.76 ac		3314 ft
Potential Wetland	0.10 ac		
Total:	99.27 ac	2.43 ac	3314 ft

Intersection 11: TR 65 / Colwell Road

Description of Study Area

At the intersection of US 30 and TR 65 (Colwell Road), at-grade access may be closed. The study area on US 30 includes 1000 ft in either direction from ROW to ROW in order to encompass the turn lanes. The study area on TR 65 includes 1000 ft in either direction, starting at 125 ft off the centerline for the first 500 ft from US 30 and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway.

Intersection 11: TR 65 / Colwell Road

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (5)
- Ecological:
  - Pond 4
  - Pond 5
  - Hagerman Creek: 2.83 mi^2 drainage area
- Farmland: Present
- RMR: No ORPS listings in RMR database

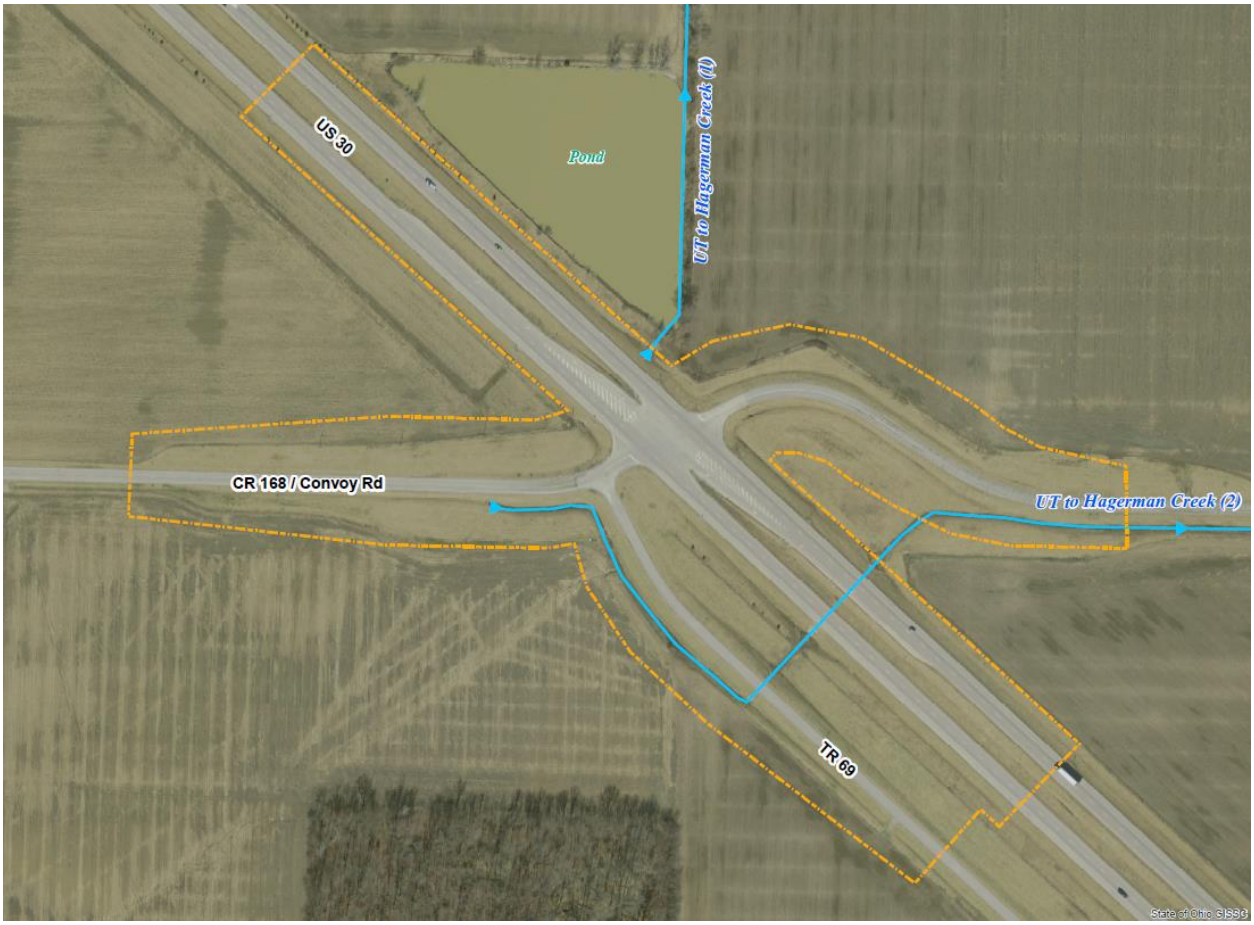
Land Use

Land Use Type	Acreage in Study Area	Total Size (ponds only)	Length in Study Area (streams only)
Roadway & mowed ROW	16.52 ac		
Residences	1.98 ac		
Farmland	0.46 ac		
Pond 4	0.04 ac	6.34 ac	
Pond 5	<0.01 ac	0.33 ac	
Hagerman Creek	<0.01 ac		356 ft
Forested area / orchard	0.98 ac		
Total:	20.00 ac	6.67 ac	356 ft

Intersection 12: CR 168 / Convoy Road

Description of Study Area

At the intersection of US 30 and CR 168 (Convoy Road), at-grade access may be closed. The study area on US 30 includes 1000 ft in either direction from ROW to ROW in order to encompass the turn lanes. The study area on CR 168 includes 1000 ft in either direction, starting at 125 ft off the centerline for the first 500 ft from US 30 and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway. Additionally, the study area includes a portion of TR 69: 900 ft from CR 168, starting at 125 ft off the centerline for the first 400 ft and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway.



Intersection 12: CR 168 / Convoy Road

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas: None present
- Ecological:
  - UT to Hagerman Creek (1): <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
  - UT to Hagerman Creek (2): 0.51 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
- Farmland: Present
- RMR: No ORPS listings in RMR database

Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	20.74 ac	
Farmland	2.83 ac	
UT to Hagerman Creek (1)	<0.01 ac	25 ft
UT to Hagerman Creek (2)	0.17 ac	1471 ft
Total:	23.59 ac	1496 ft

Intersection 13: CR 75 / Richey Road

Description of Study Area

At the intersection of US 30 and CR 75 (Richey Road), at-grade access may be closed. The study area on US 30 includes 1000 ft in either direction from ROW to ROW in order to encompass the turn lanes. The study area on CR 75 includes 1000 ft in either direction, starting at 125 ft off the centerline for the first 500 ft from US 30 and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway. Additionally, the study area includes a portion of Pearson Rd: 700 ft from CR 75, starting at 125 ft off the centerline for the first 200 ft and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway.

Intersection 13: CR 75 / Richey Road

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residence / business (1)
  - Other residences (6)
- Ecological:
  - Monkey Run: 7.63 mi^2 drainage area (calculated at end of 2nd crossing)
    - Mussel recon required based on size of stream
- Farmland: Present
- RMR: No ORPS listings in RMR database

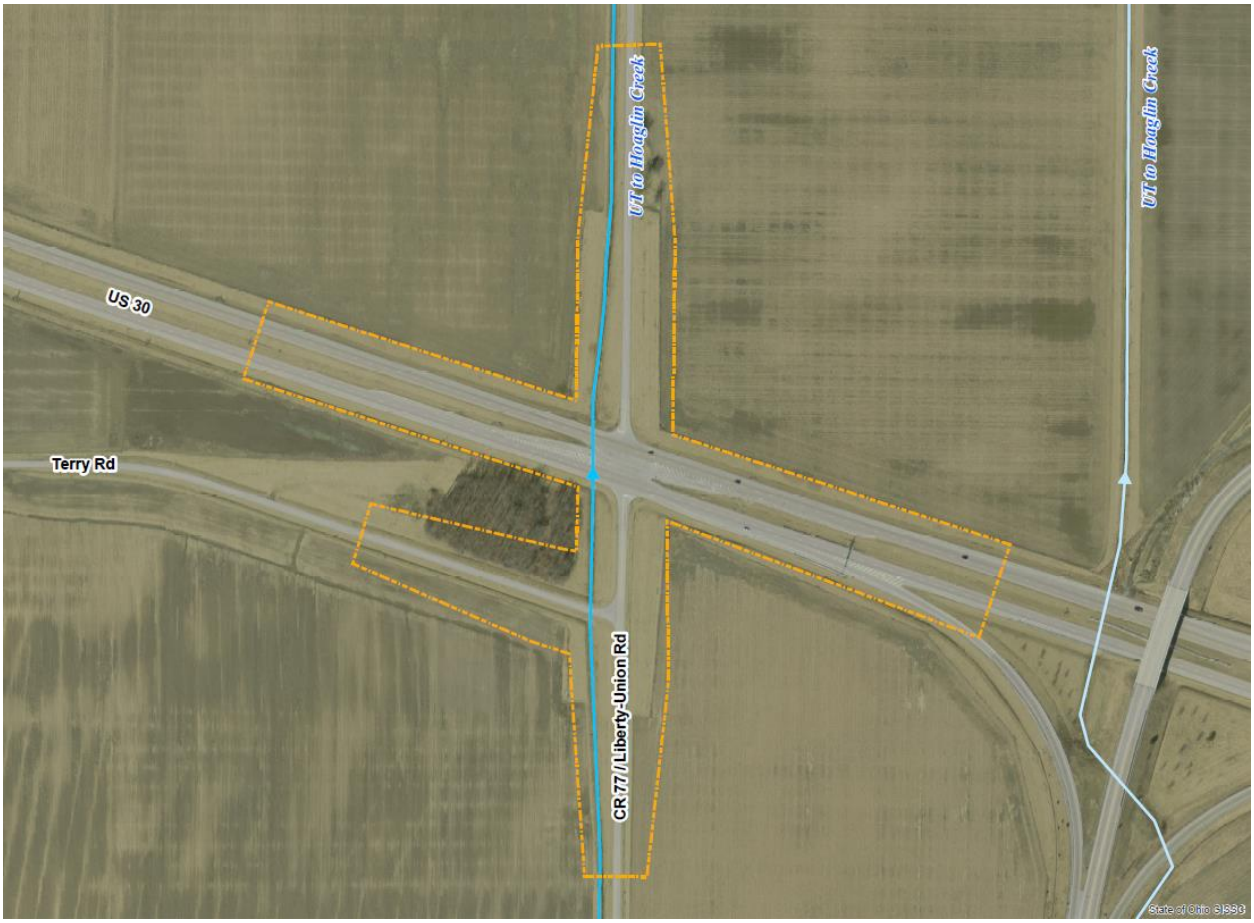
Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	18.10 ac	
Residences	2.32 ac	
Businesses (GP Cycle Specialties, LLC)	0.24 ac	
Farmland	2.23 ac	
Monkey Run	0.12 ac	537 ft
Total:	23.01 ac	537 ft

Intersection 14: CR 77 / Liberty-Union Road

Description of Study Area

At the intersection of US 30 and CR 77 (Liberty-Union Road), at-grade access may be closed. The study area on US 30 includes 1000 ft in either direction from ROW to ROW in order to encompass the turn lanes. The study area on CR 77 includes 1000 ft in either direction, starting at 125 ft off the centerline for the first 500 ft from US 30 and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway. Additionally, the study area includes a portion of Terry Rd: 700 ft from CR 77, starting at 125 ft off the centerline for the first 200 ft and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway.



Intersection 14: CR 77 / Liberty-Union Road

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas: None present
- Ecological:
  - UT to Hoaglin Creek: 0.05 mi^2 (potentially non-jurisdictional, needs field-verified)
- Farmland: Present
- RMR: No ORPS listings in RMR database

Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	18.45 ac	
Farmland	3.37 ac	
UT to Hoaglin Creek	0.24 ac	2141 ft
Forested area	0.63 ac	
Total:	22.69 ac	2141 ft

Intersection 15: CR 83 / John Brown Road

Description of Study Area

At the intersection of US 30 and CR 83 (John Brown Road), at-grade access may be closed. The study area on US 30 includes 500 ft in either direction from ROW to ROW. The study area on CR 83 includes 1000 ft in either direction, starting at 125 ft off the centerline for the first 500 ft from US 30 and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway.

Intersection 15: CR 83 / John Brown Road

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (1)
- Ecological: None present
- Farmland: Present
- RMR: No ORPS listings in RMR database

Land Use

Land Use Type	Acreage in Study Area
Roadway & mowed ROW	10.64 ac
Residences	0.70 ac
Farmland	4.55 ac
Total:	14.49 ac

Intersection 16: CR 93 / Dutch John Road

Description of Study Area

At the intersection of US 30 and CR 93 (Dutch John Road), at-grade access may be closed. The study area on US 30 includes 500 ft in either direction from ROW to ROW. The study area on CR 93 includes 1000 ft in either direction, starting at 125 ft off the centerline for the first 500 ft from US 30 and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway.

Intersection 16: CR 93 / Dutch John Road

Resources

- Section 106: Archaeological site and previously surveyed areas
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (2)
- Ecological: None present
- Farmland: Present
- RMR: No ORPS listings in RMR database

Land Use

Land Use Type	Acreage in Study Area
Roadway & mowed ROW	9.07 ac
Residences	1.39 ac
Farmland	2.84 ac
Forested area / undeveloped	1.52 ac
Total:	14.82 ac

Intersection 17: CR 103 / Mendon Road

Description of Study Area

At the intersection of US 30 and CR 103 (Mendon Road), at-grade access may be closed. The study area on US 30 includes 500 ft in either direction from ROW to ROW. The study area on CR 103 includes 1000 ft in either direction, starting at 125 ft off the centerline for the first 500 ft from US 30 and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway.

Intersection 17: CR 103 / Mendon Road

Resources

- Section 106: Archaeological site and previously surveyed areas
- Section 4(f) & 6(f): None present
- Noise sensitive areas: None present
- Ecological:
  - UT to Town Creek: 1.49 mi^2 drainage area
- Farmland: Present
- RMR: No ORPS listings in RMR database

Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	9.51 ac	
Farmland	5.09 ac	
UT to Town Creek	0.24 ac	2168 ft
Total:	14.84 ac	2168 ft

Intersection 18: CR 113 / Boroff Road

Description of Study Area

At the intersection of US 30 and CR 113 (Boroff Road), at-grade access may be closed. The study area on US 30 includes 500 ft in either direction from ROW to ROW. The study area on CR 113 includes 1000 ft in either direction, starting at 125 ft off the centerline for the first 500 ft from US 30 and then tapering down to 80 ft off the centerline for the remaining 500 ft of roadway.

Intersection 18: CR 113 / Boroff Road

Resources

- Section 106: Archaeological sites and previously surveyed areas, and a historic structure (not on national register)
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (1)
- Ecological: None present
- Farmland: Present
- RMR: No ORPS listings in RMR database

Land Use

Land Use Type	Acreage in Study Area
Roadway & mowed ROW	9.66 ac
Residences	0.99 ac
Farmland	4.09 ac
Total:	14.74 ac

Access Route A - 1

Description of Study Area

If the interchange is selected for Intersection #8, then access to the existing SR 49 route would be required. Access Route option A – 1 would go south on TR 47, then turn east onto Waller Road before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.

Access Route A - 1

Resources

- Section 106: Previously surveyed archaeological areas
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (10)
- Ecological: None present
- Farmland: Present
- RMR: No ORPS listings in RMR database

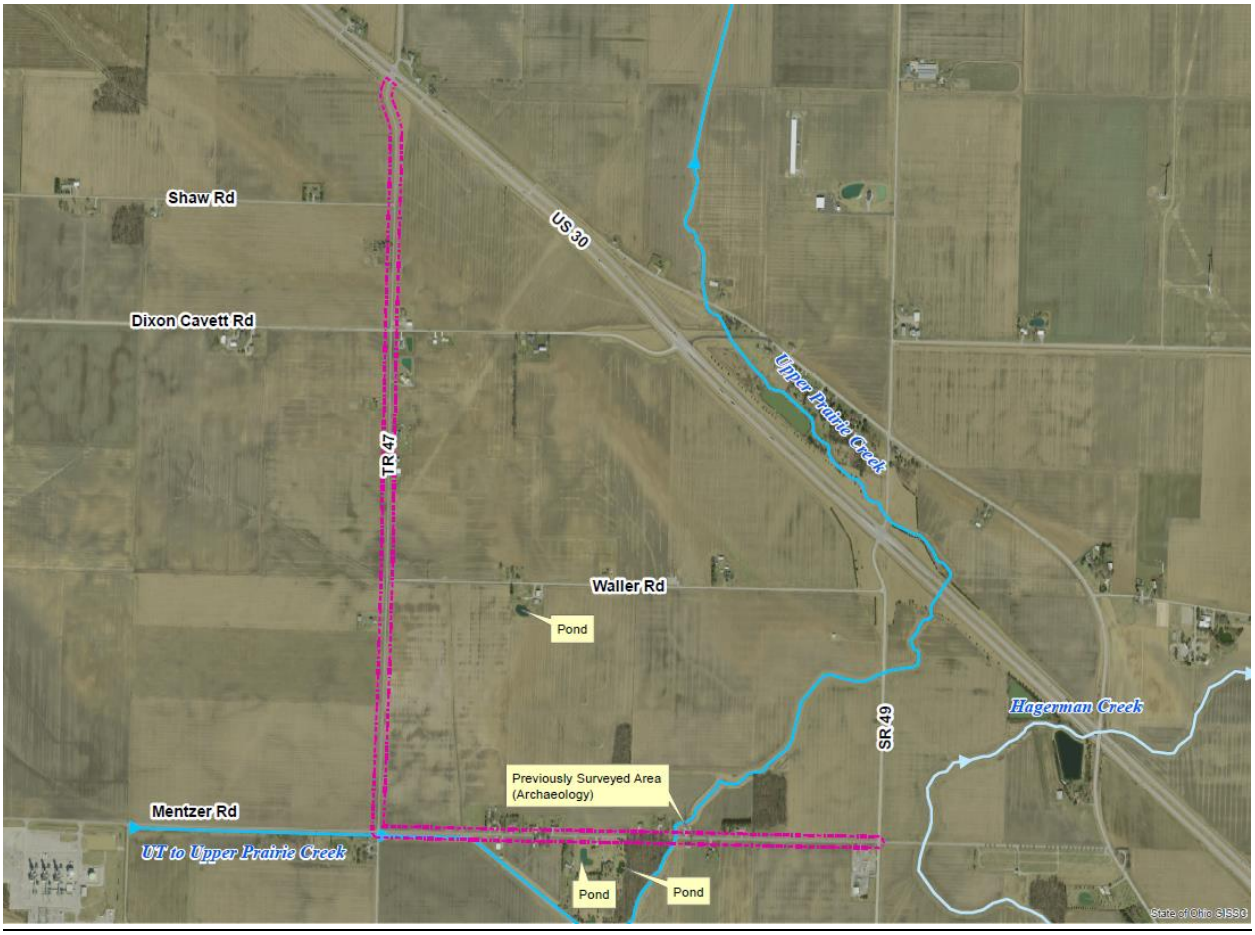
Land Use

Land Use Type	Acreage in Study Area
Roadway & mowed ROW	11.22 ac
Residences	2.89 ac
Farmland	14.99 ac
Total:	29.10 ac

Access Route A - 2

Description of Study Area

If the interchange is selected for Intersection #8, then access to the existing SR 49 route would be required. Access Route option A – 2 would go south on TR 47, then turn east onto Mentzer Road before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.



Access Route A - 2

Resources

- Section 106: Previously surveyed archaeological areas
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (20)
- Ecological:
  - Upper Prairie Creek: 2.18 mi^2 drainage area
  - UT to Upper Prairie Creek: 1.55 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
- Farmland: Present
- RMR: No ORPS listings in RMR database

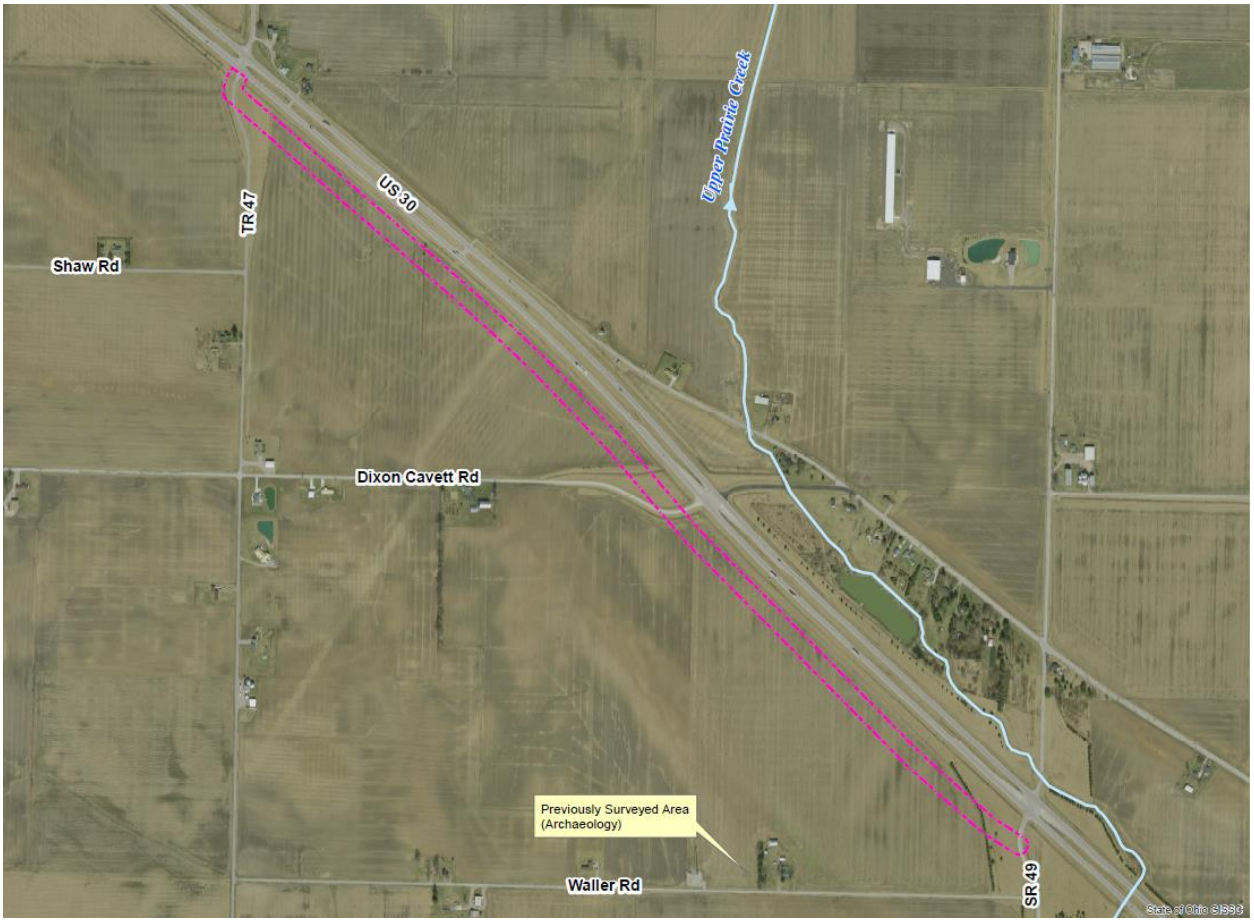
Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	14.82 ac	
Residences	4.47 ac	
Businesses (Skelgas, Inc.)	0.24 ac	
Farmland	17.30 ac	
Upper Prairie Creek	0.03 ac	136 ft
UT to Upper Prairie Creek	0.12 ac	1066 ft
Forested Areas	0.63 ac	
Total:	37.61 ac	1202 ft

Access Route A - 3

Description of Study Area

If the interchange is selected for Intersection #8, then access to the existing SR 49 route would be required. Access Route option A – 3 would create a new roadway from TR 47 along the south side of US 30 before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.



Access Route A - 3

Resources

- Section 106: None Present
- Section 4(f) & 6(f): None present
- Noise sensitive areas: None Present
- Ecological: None Present
- Farmland: Present
- RMR: No ORPS listings in RMR database

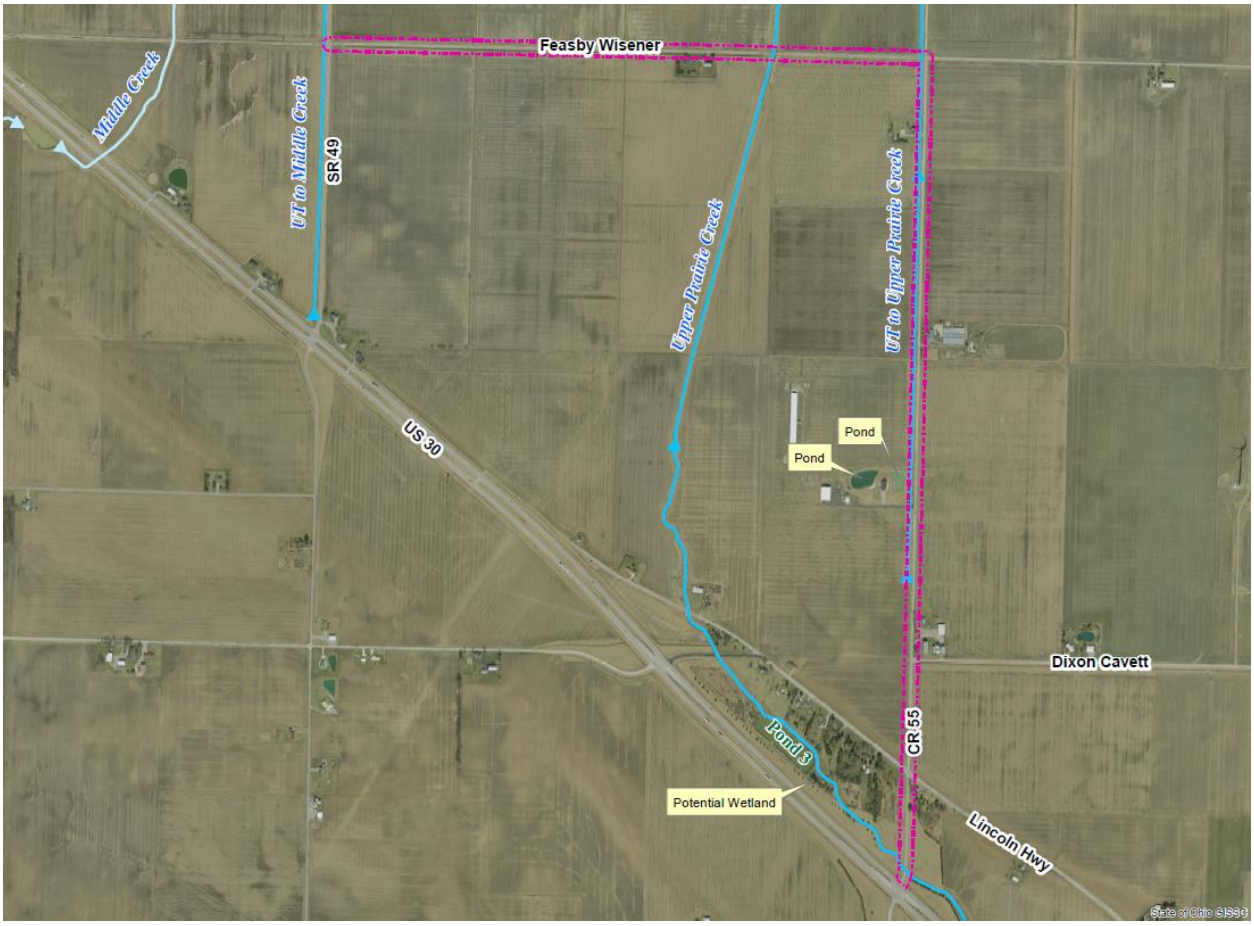
Land Use

Land Use Type	Acreage in Study Area
Roadway & mowed ROW	3.63 ac
Farmland	16.75 ac
Total:	20.38 ac

Access Route B - 1

Description of Study Area

If the interchange is selected for Intersection #10, then access to the existing SR 49 route would be required. Access Route option B – 1 would go north on CR 55, then turn west onto Feasby-Wisener Road before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.



Access Route B - 1

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (6)
- Ecological:
  - Upper Prairie Creek (2 crossings):
    - 2.95 mi^2 drainage area (1st crossing)
    - 4.54 mi^2 drainage area (2nd crossing)
  - UT to Upper Prairie Creek: <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
  - UT to Middle Creek: <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
- Farmland: Present
- RMR: No ORPS listings in RMR database

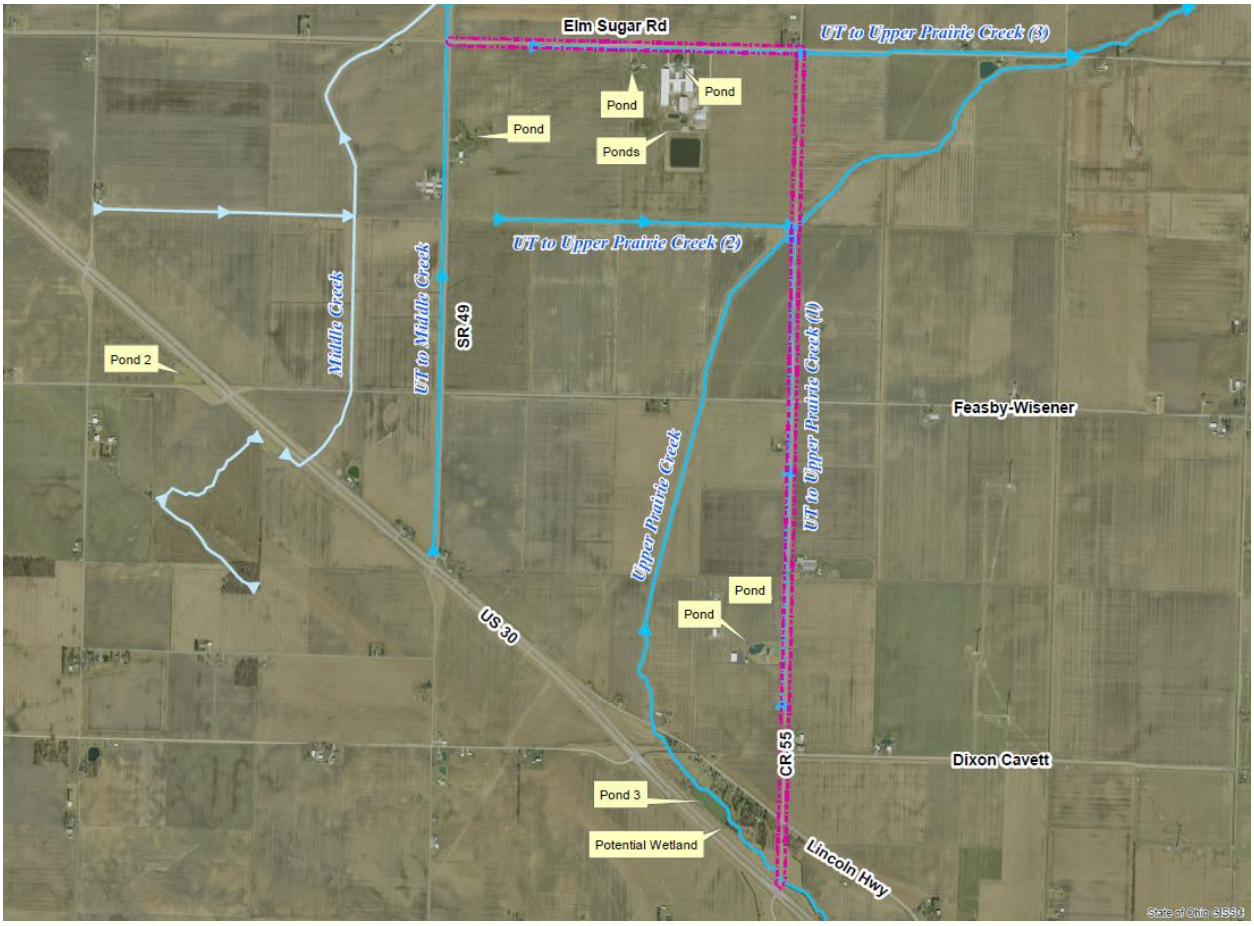
Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	18.32 ac	
Residences	1.12 ac	
Businesses (Poling Farm)	0.21 ac	
Farmland	14.04 ac	
Upper Prairie Creek	0.06 ac	281 ft
UT to Upper Prairie Creek	0.54 ac	4683 ft
UT to Middle Creek	<0.01 ac	81 ft
Total:	34.30 ac	5045 ft

Access Route B - 2

Description of Study Area

If the interchange is selected for Intersection #10, then access to the existing SR 49 route would be required. Access Route option B – 2 would go north on CR 55, then turn west onto Elm Sugar Road before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.



Access Route B - 2

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (7)
- Ecological:
  - Upper Prairie Creek (2 crossings):
    - 2.95 mi^2 drainage area (1st crossing)
    - 5.06 mi^2 drainage area (2nd crossing)
    - Mussel recon required based on size of stream
  - UT to Upper Prairie Creek (1): <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
  - UT to Upper Prairie Creek (2): <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
  - UT to Upper Prairie Creek (3): <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
  - UT to Middle Creek: <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
- Farmland: Present
- RMR: No ORPS listings in RMR database

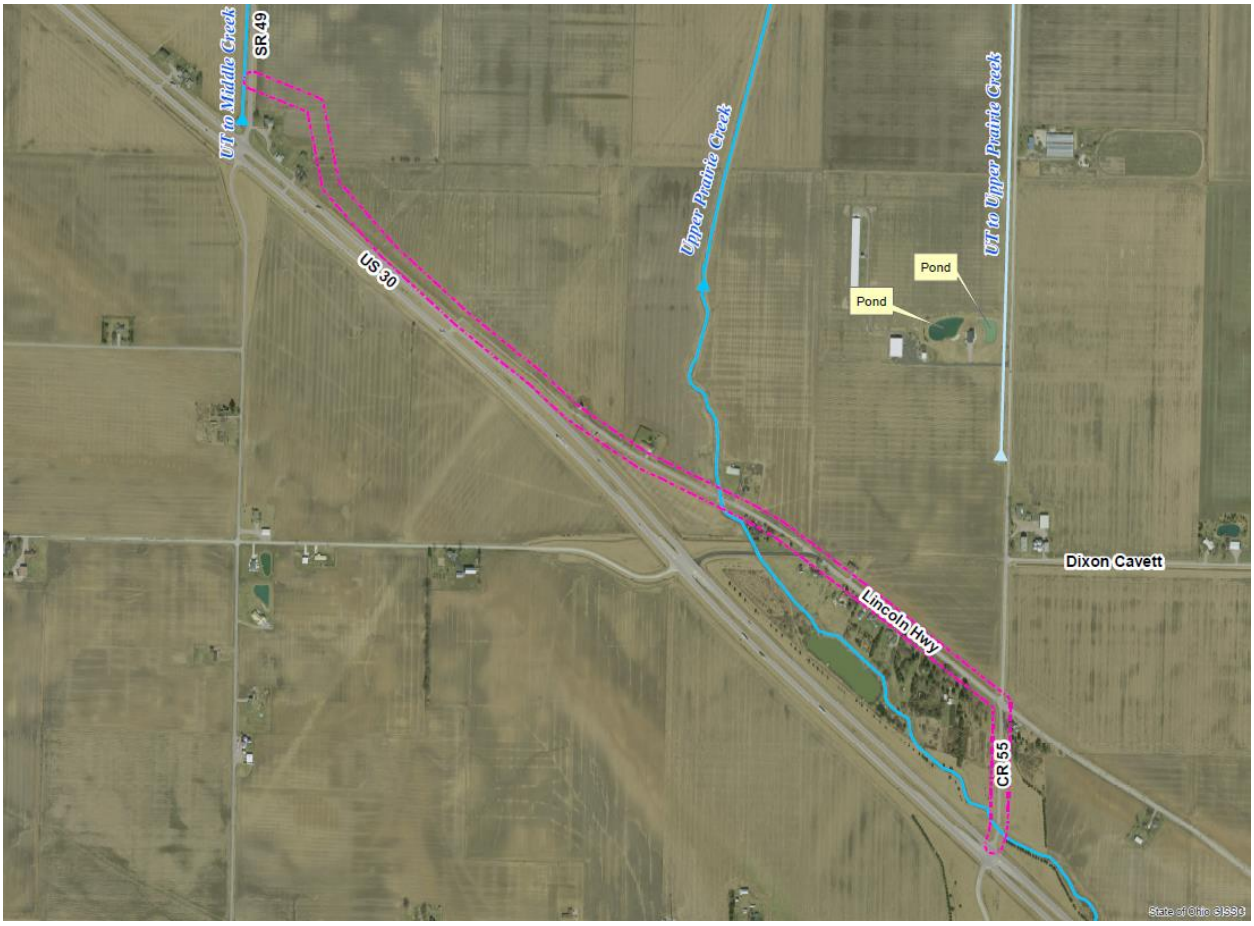
Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	27.51 ac	
Residences	1.65 ac	
Businesses (Poling Farm & Sugar Lane Dairy)	0.64 ac	
Farmland	17.85 ac	
Upper Prairie Creek	0.07 ac	312 ft
UT to Upper Prairie Creek (1)	0.82 ac	7186 ft
UT to Upper Prairie Creek (2)	<0.01 ac	83 ft
UT to Upper Prairie Creek (3)	0.47 ft	4134 ft
UT to Middle Creek	<0.01 ac	41 ft
Total:	49.03 ac	11756 ft

Access Route B - 3

Description of Study Area

If the interchange is selected for Intersection #10, then access to the existing SR 49 route would be required. Access Route option B - 3 would go north on CR 55 to Lincoln Highway, then follow Lincoln Highway west and create a new roadway on the north side of US 30 before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.



Access Route B - 3

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (14)
- Ecological:
  - Upper Prairie Creek (2 crossings):
    - 2.95 mi^2 drainage area (1st crossing)
    - 3.44 mi^2 drainage area (2nd crossing)
  - UT to Middle Creek: <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
- Farmland: Present
- RMR: No ORPS listings in RMR database

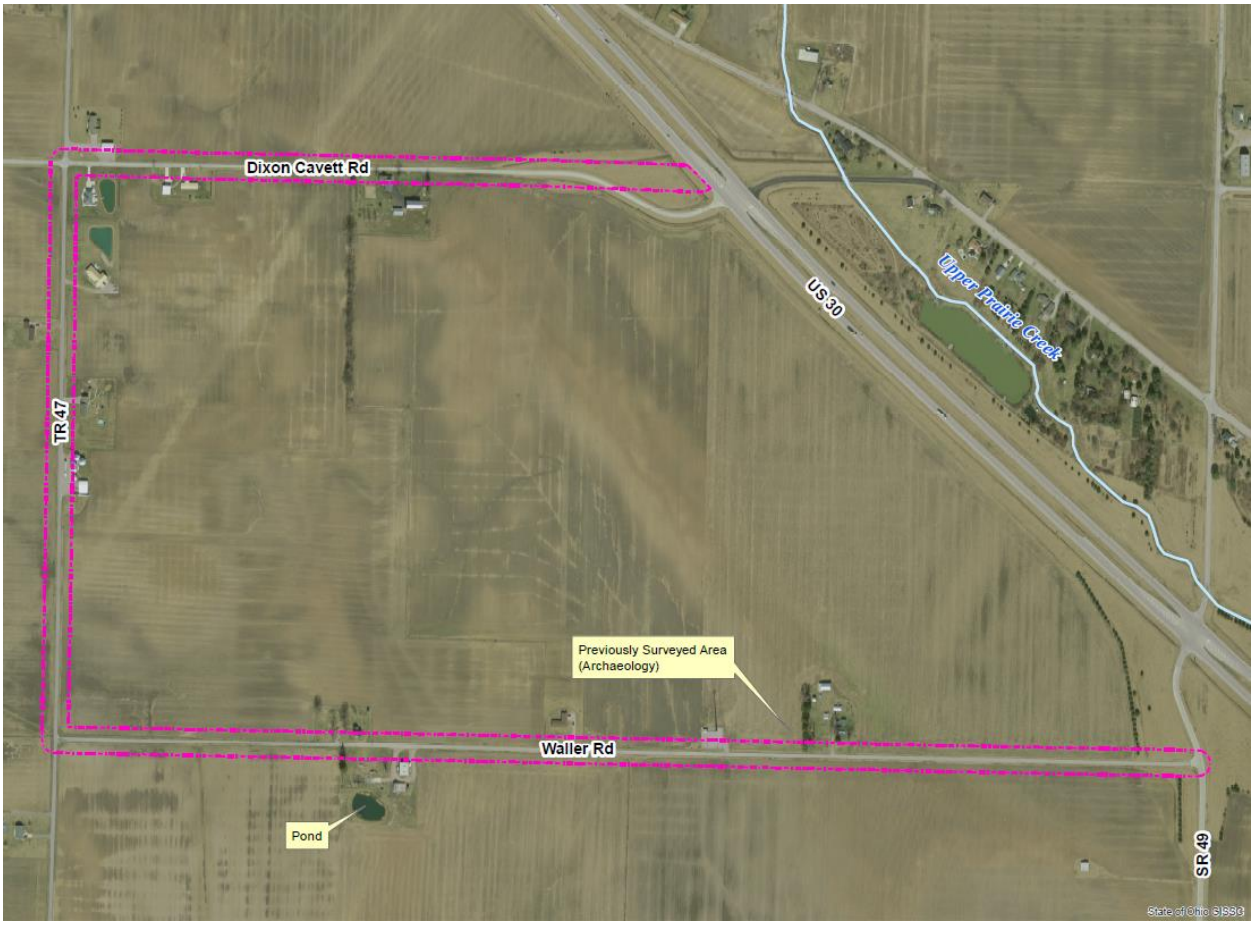
Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	10.68 ac	
Residences	2.74 ac	
Farmland	8.44 ac	
Upper Prairie Creek	0.06 ac	285 ft
UT to Middle Creek	<0.01 ac	41 ft
Total:	21.93 ac	326 ft

Access Route C - 1

Description of Study Area

If the interchange is selected for Intersection #9, then access to the existing SR 49 route would be required. Access Route option C – 1 would go west on Dixon Cavett Road to TR 47, south on TR 47 to Waller Road before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.



Access Route C - 1

Resources

- Section 106: Previously surveyed archaeological areas
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (11)
- Ecological: None present
- Farmland: Present
- RMR: No ORPS listings in RMR database

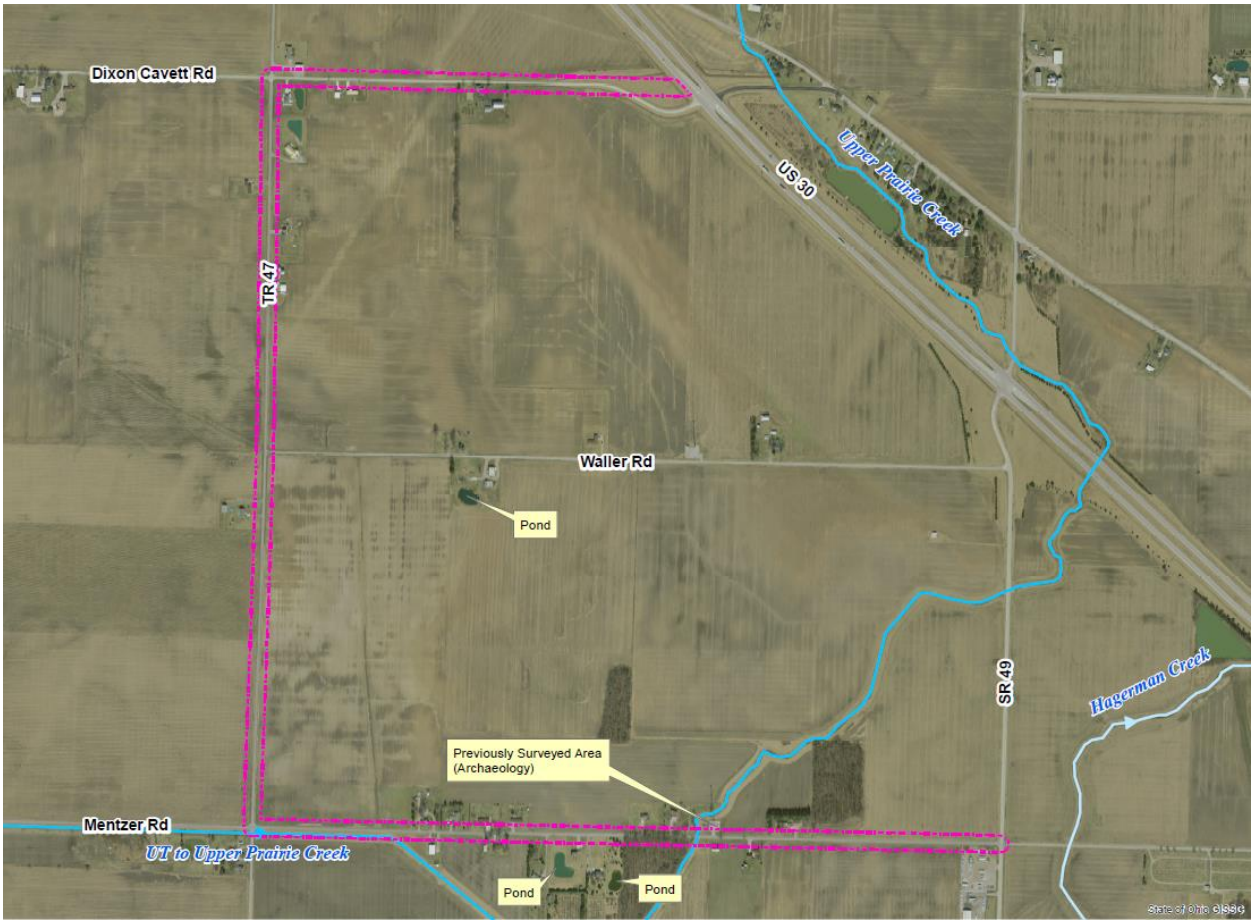
Land Use

Land Use Type	Acreage in Study Area
Roadway & mowed ROW	12.40 ac
Residences	3.03 ac
Farmland	14.56 ac
Total:	29.99 ac

Access Route C - 2

Description of Study Area

If the interchange is selected for Intersection #9, then access to the existing SR 49 route would be required. Access Route option C – 2 would go west on Dixon Cavett Road to TR 47, south on TR 47 to Mentzer Road before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.



Access Route C - 2

Resources

- Section 106: Previously surveyed archaeological areas
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (21)
- Ecological:
  - Upper Prairie Creek: 2.18 mi^2 drainage area
  - UT to Upper Prairie Creek: 1.55 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
- Farmland: Present
- RMR: No ORPS listings in RMR database

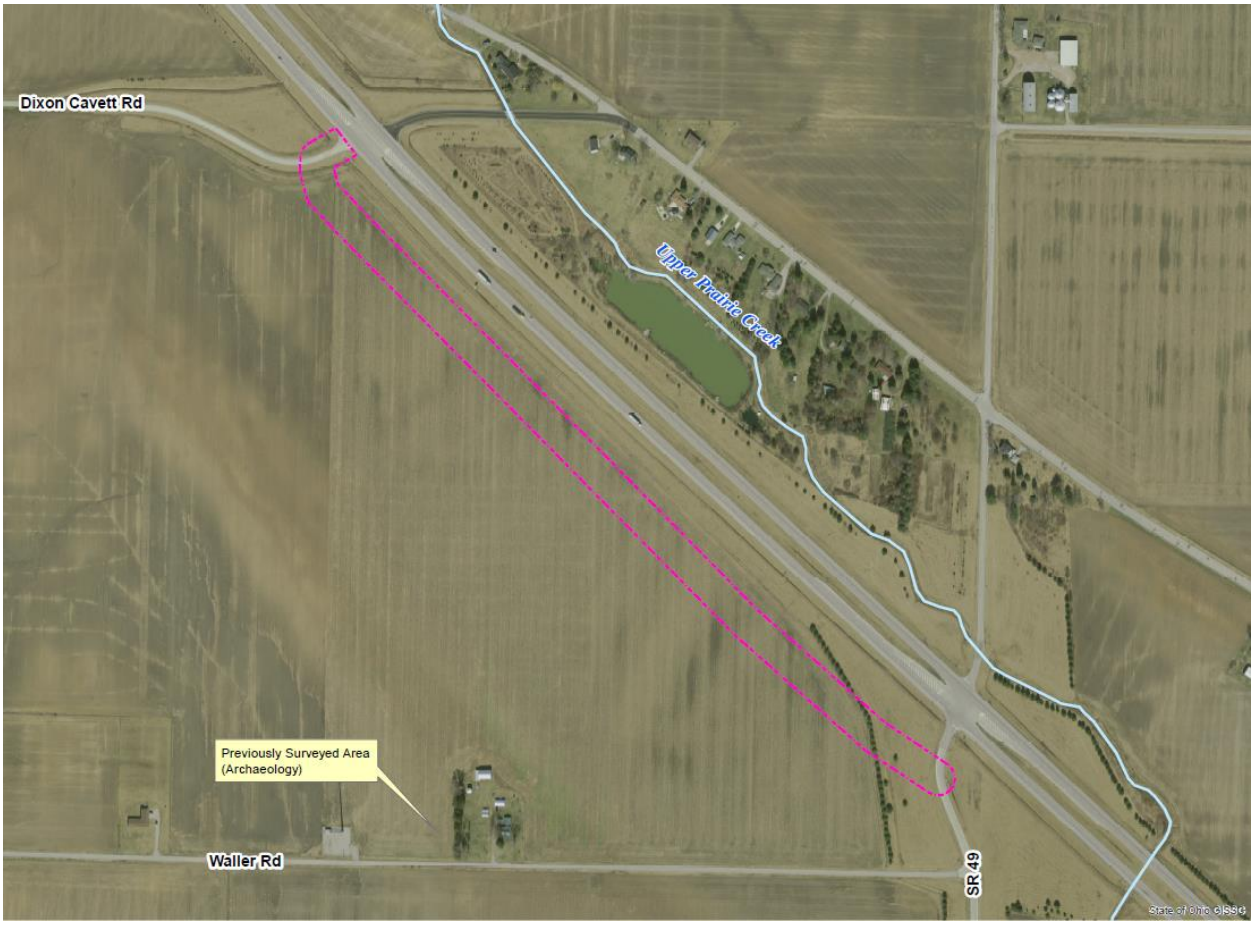
Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	13.79 ac	
Residences	5.23 ac	
Businesses (Skelgas, Inc.)	0.24 ac	
Farmland	17.06 ac	
Upper Prairie Creek	0.03 ac	136 ft
UT to Upper Prairie Creek	0.12 ac	1066 ft
Forested Areas	0.63 ac	
Total:	37.10 ac	1202 ft

Access Route C - 3

Description of Study Area

If the interchange is selected for Intersection #9, then access to the existing SR 49 route would be required. Access Route option C – 3 would create a new roadway from Dixon Cavett Road along the south side of US 30 before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.



Access Route C - 3

Resources

- Section 106: None Present
- Section 4(f) & 6(f): None present
- Noise sensitive areas: None Present
- Ecological: None Present
- Farmland: Present
- RMR: No ORPS listings in RMR database

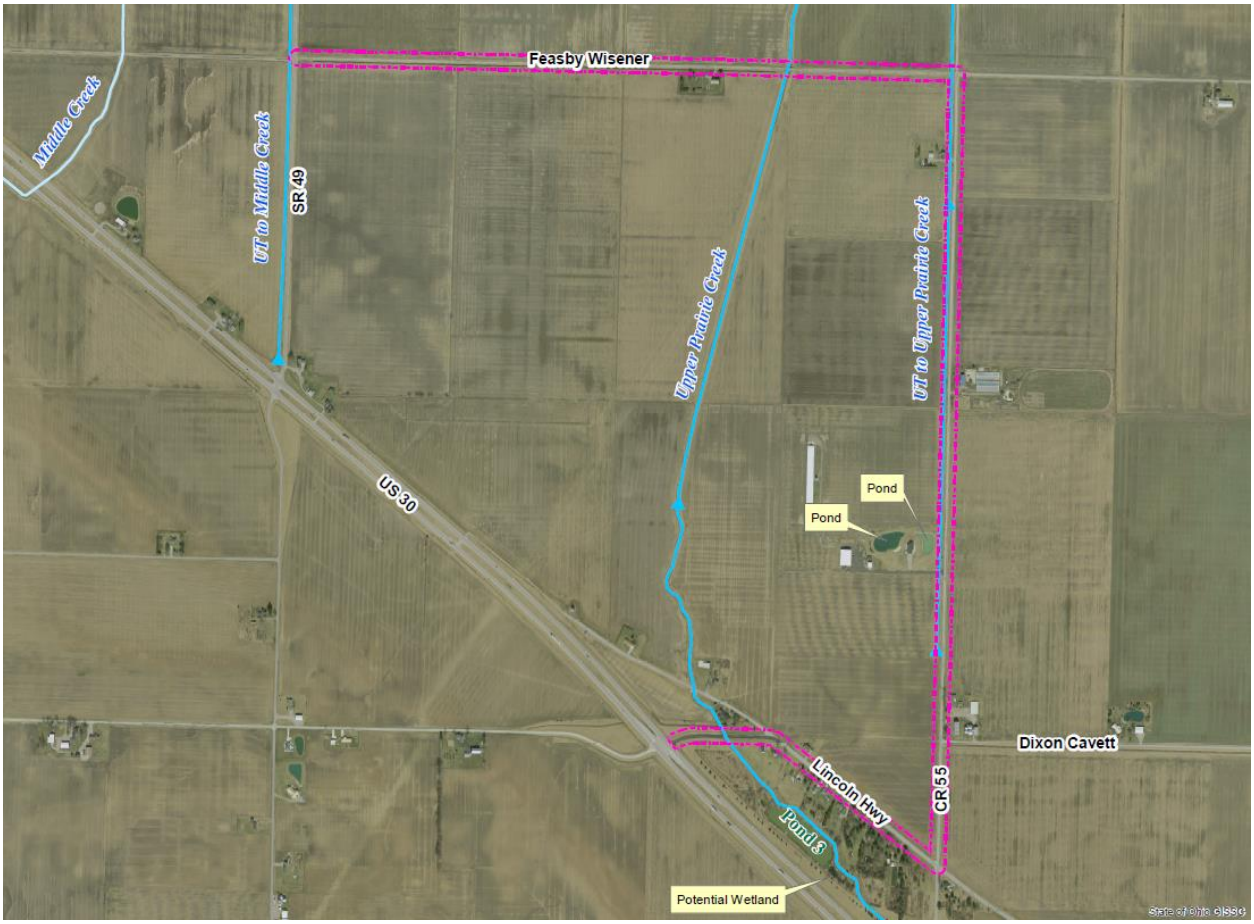
Land Use

Land Use Type	Acreage in Study Area
Roadway & mowed ROW	1.71 ac
Farmland	7.45 ac
Total:	9.16 ac

Access Route D - 1

Description of Study Area

If the interchange is selected for Intersection #9, then access to the existing SR 49 route would be required. Access Route option D – 1 would go east on Dixon Cavett Road to Lincoln Highway, east on Lincoln Highway to CR 55, north on CR 55 to Feasby-Wisener Road before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.



Access Route D - 1

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (12)
- Ecological:
  - Upper Prairie Creek (2 crossings):
    - 3.42 mi^2 drainage area (1st crossing)
    - 4.54 mi^2 drainage area (2nd crossing)
  - UT to Upper Prairie Creek: <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
  - UT to Middle Creek: <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
- Farmland: Present
- RMR: No ORPS listings in RMR database

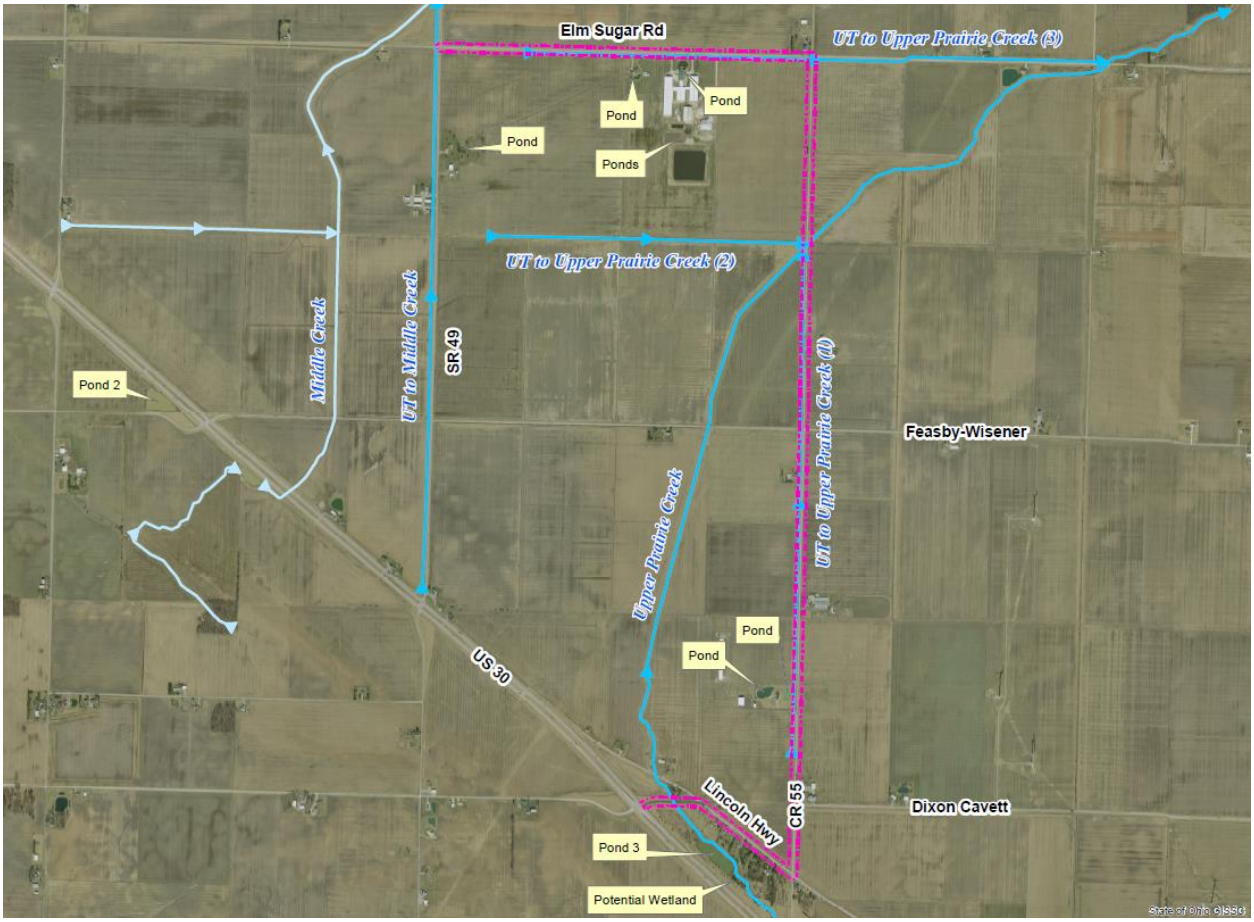
Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	24.52 ac	
Residences	3.03 ac	
Businesses (Poling Farm)	0.21 ac	
Farmland	10.44 ac	
Upper Prairie Creek	0.06 ac	262 ft
UT to Upper Prairie Creek	0.54 ac	4683 ft
UT to Middle Creek	<0.01 ac	81 ft
Total:	38.81 ac	5026 ft

Access Route D - 2

Description of Study Area

If the interchange is selected for Intersection #9, then access to the existing SR 49 route would be required. Access Route option D – 2 would go east on Dixon Cavett Road to Lincoln Highway, east on Lincoln Highway to CR 55, north on CR 55 to Elm Sugar Road before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.



Access Route D - 2

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (15)
- Ecological:
  - Upper Prairie Creek (2 crossings):
    - 3.42 mi^2 drainage area (1st crossing)
    - 5.06 mi^2 drainage area (2nd crossing)
    - Mussel recon required based on size of stream
  - UT to Upper Prairie Creek (1): <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
  - UT to Upper Prairie Creek (2): <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
  - UT to Upper Prairie Creek (3): <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
  - UT to Middle Creek: <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
- Farmland: Present
- RMR: No ORPS listings in RMR database

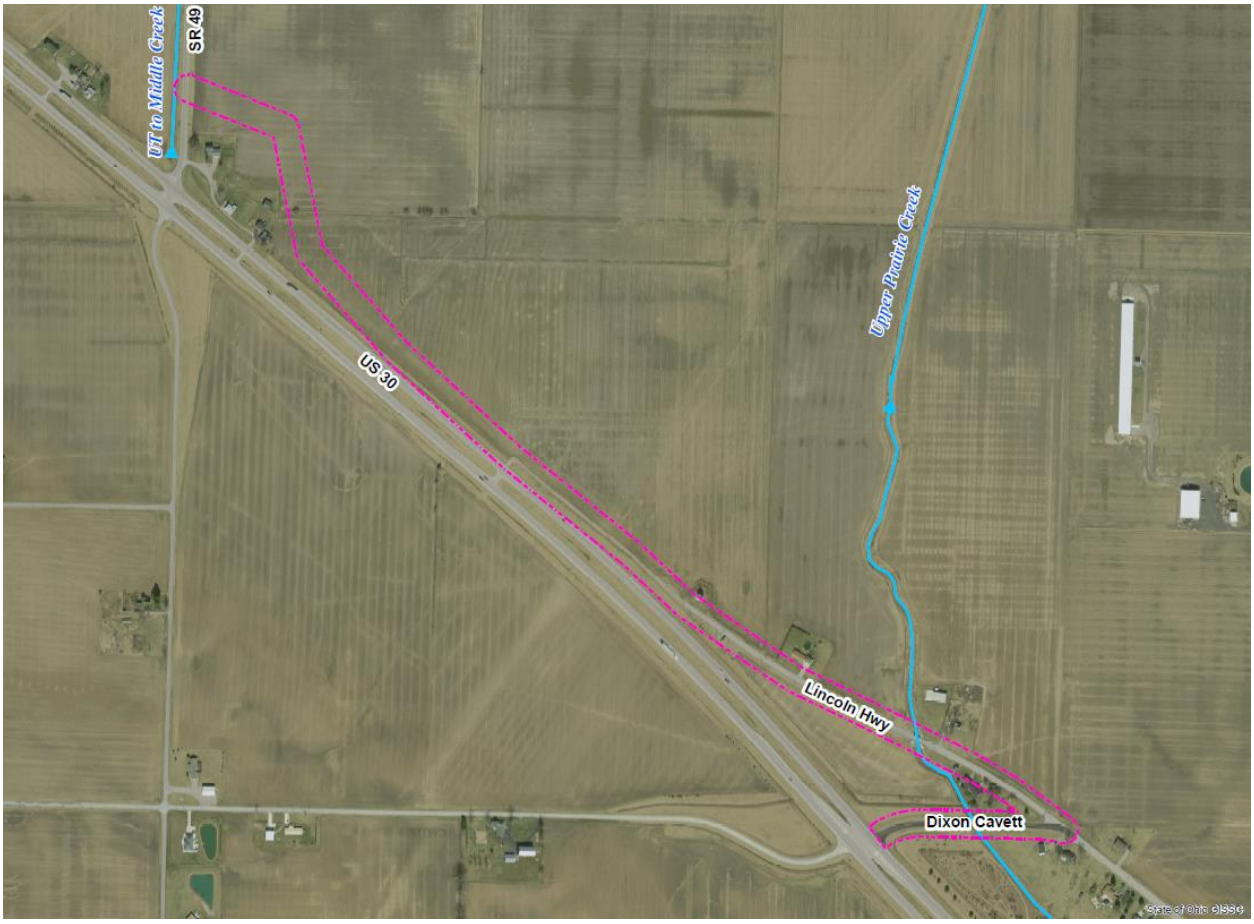
Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	32.11 ac	
Residences	2.45 ac	
Businesses (Poling Farm & Sugar Lane Dairy)	0.64 ac	
Farmland	17.28 ac	
Upper Prairie Creek	0.07 ac	308 ft
UT to Upper Prairie Creek (1)	0.82 ac	7186 ft
UT to Upper Prairie Creek (2)	<0.01 ac	83 ft
UT to Upper Prairie Creek (3)	0.47 ft	4134 ft
UT to Middle Creek	<0.01 ac	41 ft
Total:	53.86 ac	11752 ft

Access Route D - 3

Description of Study Area

If the interchange is selected for Intersection #9, then access to the existing SR 49 route would be required. Access Route option D - 3 would go east on Dixon Cavett Road to Lincoln Highway, then follow Lincoln Highway west and create a new roadway on the north side of US 30 before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.



Access Route D - 3

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (8)
- Ecological:
  - Upper Prairie Creek (2 crossings):
    - 3.42 mi^2 drainage area (1st crossing)
    - 3.44 mi^2 drainage area (2nd crossing)
  - UT to Middle Creek: <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
- Farmland: Present
- RMR: No ORPS listings in RMR database

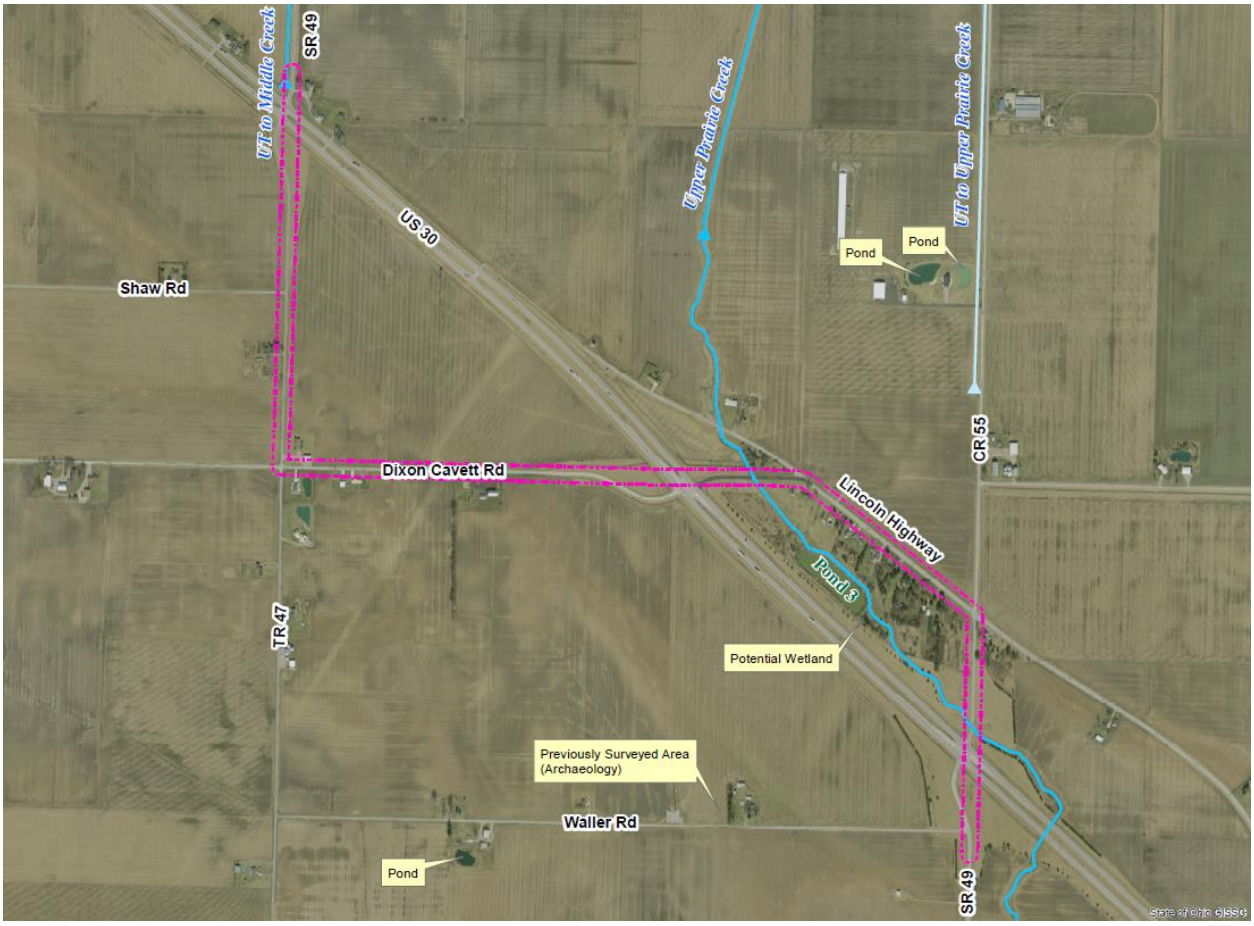
Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	7.76 ac	
Residences	0.70 ac	
Farmland	8.20 ac	
Upper Prairie Creek	0.06 ac	282 ft
UT to Middle Creek	<0.01 ac	41 ft
Total:	16.73 ac	323 ft

Access Route E - 1

Description of Study Area

If the interchange is selected for Intersection #9, then access to the existing SR 49 route would be required. Access Route option E -1 would go south on SR 49 through Intersection #8 to TR 47, east on Dixon Cavett Road through Intersection #9 to Lincoln Highway, then south on CR 55 through Intersection #10 before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.



Access Route E - 1

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (16)
- Ecological:
  - Upper Prairie Creek (2 crossings):
    - 2.95 mi^2 drainage area (1st crossing)
    - 3.42 mi^2 drainage area (2nd crossing)
  - UT to Middle Creek: <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
- Farmland: Present
- RMR: No ORPS listings in RMR database

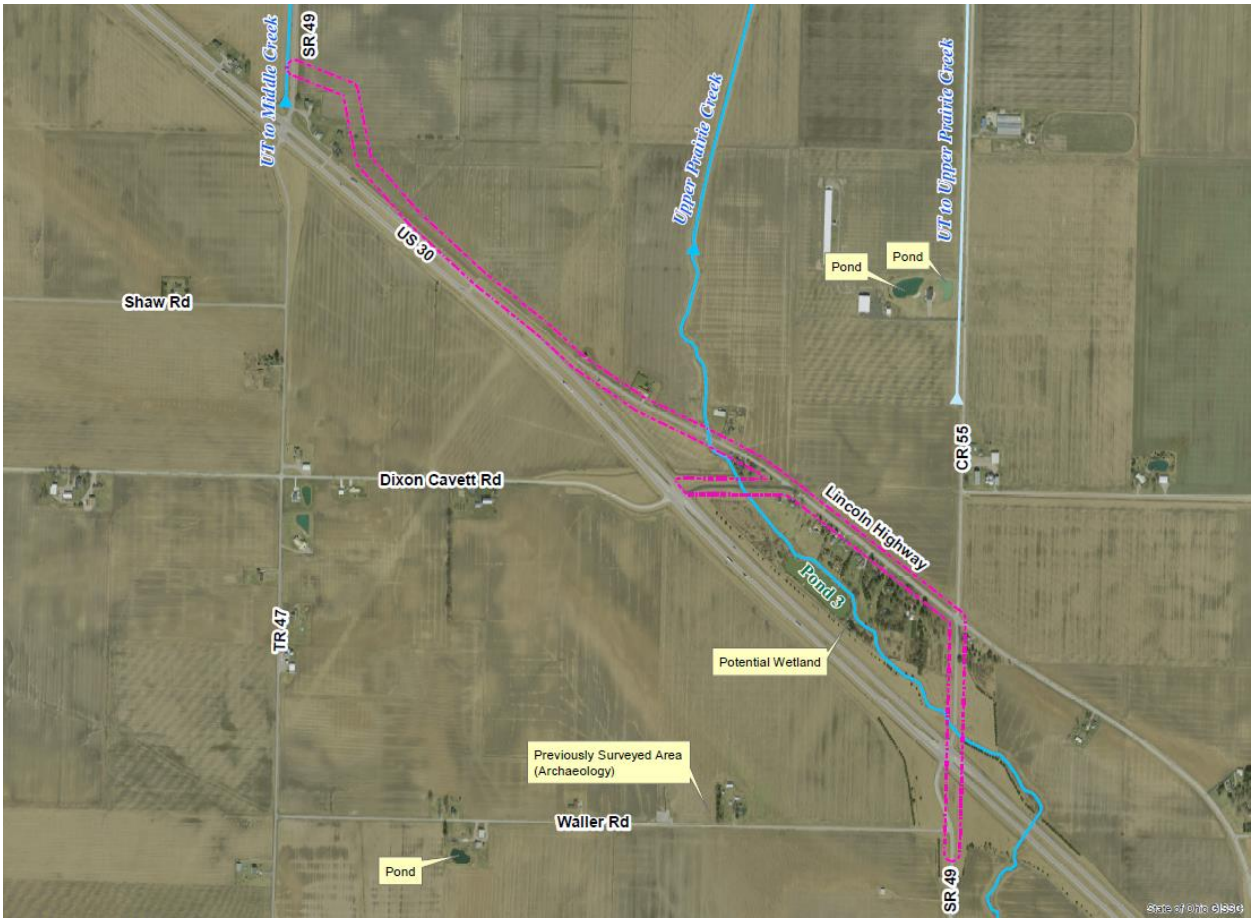
Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	18.39 ac	
Residences	4.16 ac	
Farmland	6.34 ac	
Upper Prairie Creek	0.06 ac	294 ft
UT to Middle Creek	0.03 ac	163 ft
Total:	28.98 ac	457 ft

Access Route E - 2

Description of Study Area

If the interchange is selected for Intersection #9, then access to the existing SR 49 route would be required. Access Route option E – 2 would go east from SR 49 along a new roadway north of US 30 to Lincoln Highway OR east on Dixon Cavett Road from Intersection #9 to Lincoln Highway; then south on CR 55 through Intersection #10 before merging back onto SR 49. The study area along this route is 60 ft off the centerline of the proposed roadways.



Access Route E - 2

Resources

- Section 106: None present
- Section 4(f) & 6(f): None present
- Noise sensitive areas:
  - Residences (14)
- Ecological:
  - Upper Prairie Creek (2 crossings):
    - 2.95 mi^2 drainage area (1st crossing)
    - 3.42 mi^2 drainage area (2nd crossing)
    - 3.44 mi^2 drainage area (3rd crossing)
  - UT to Middle Creek: <0.001 mi^2 drainage area (potentially non-jurisdictional, needs field-verified)
- Farmland: Present
- RMR: No ORPS listings in RMR database

Land Use

Land Use Type	Acreage in Study Area	Length in Study Area (streams only)
Roadway & mowed ROW	13.45 ac	
Residences	3.62 ac	
Farmland	9.16 ac	
Upper Prairie Creek	0.11 ac	479 ft
UT to Middle Creek	<0.01 ac	41 ft
Total:	26.35 ac	520 ft

Appendix H

Public Involvement Documentation

Stakeholder Meeting #1

OHIO DEPARTMENT OF TRANSPORTATION
Mike DeWine, *Governor*
Jack Marchbanks, Ph.D., *Director*

District 1
1885 North McCullough St., Lima, OH 45801
419-222-9055
transportation.ohio.gov

July 2, 2021

RE: Stakeholder Meeting for U.S. 30 (from the Indiana state line to Lincoln Highway interchange) Feasibility Study (PID 113196)

Dear Stakeholder,

The Ohio Department of Transportation (ODOT) is preparing a Feasibility Study on U.S. 30 to develop feasible alternatives for access management along the corridor. Eighteen at-grade intersections and four county road areas have been identified as part of the study (see attached study area map). We are in the early stages of the study in which we have been reviewing/collecting data and initiating our public outreach. The feasibility study is expected to be complete in Summer 2022.

We would like your input to help guide our efforts. Stakeholder input provides a solid foundation for the study, future public involvement, and project development process. We hope you can join us for a meeting at either of the following times and locations:

Tuesday, August 3, 2021, 1:00 – 2:00 p.m.
Vantage Career Center Community Room, 818 N Franklin St., Van Wert, OH 45891

Tuesday, August 3, 2021, 5:00 – 6:00 p.m.
Convoy Community Building, 643 North Main St., Convoy, OH 45832

The purpose of these stakeholder meetings is to present information about known safety concerns, access, and future development. During the meeting we will review the project development process and schedule. The whole corridor will be discussed at both meetings, with a special focus on the "eastern" corridor at the first meeting (Van Wert, 1-2 p.m.) and a special focus on the "western" corridor at the second meeting (Convoy, 5-6 p.m.). Your comments will be used to help further develop improvement alternatives for the corridor.

The goal of the meetings is to learn more about stakeholder concerns prior to developing feasible alternatives. Your comments will be used to help further develop improvement alternatives for the corridor.

If you cannot attend the meeting in person, the information can also be reviewed by visiting https://www.transportation.ohio.gov/wps/portal/gov/odot/projects/projects/113196.
On the website you will be able to view a pre-recorded voiceover PowerPoint presentation of the information (available on August 3, 2021), meeting materials, and provide comments via the comment form found on the website (also included in this mailing).

Excellence in Government
ODOT is an Equal Opportunity Employer and Provider of Services

Requests for interpretation services or reasonable accommodation to participate in the meeting, and comments can be submitted through the project website, mail, email, and by phone to the following contact:

Questions or comments? Please contact me: Kylie Schnipke

Phone: 419-999-6885

Email: Kylie.Schnipke@dot.ohio.gov

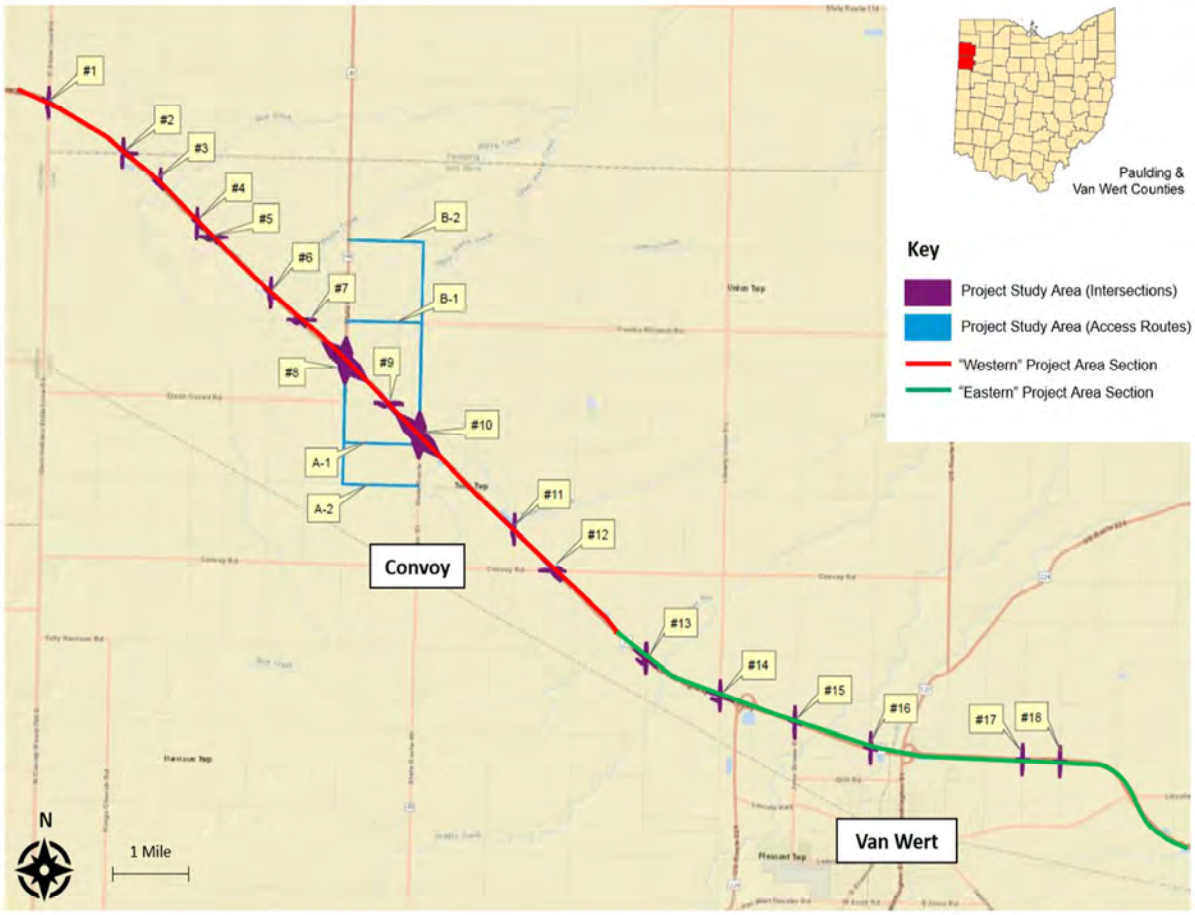
Comments should be submitted by September 3, 2021 to be documented in the public input summary report, which will include responses to all comments submitted during the 30-day period; however, ODOT will respond to all comments received at any time. Public participation in this project is solicited without regard to race, color, sex, age, national origin, or disability.

Thank you for your involvement.

Respectfully,

Kylie Schnipke

Kylie Schnipke
Project Manager, ODOT District 1



From:	Chantil Milam
To:	mollenkopf.kathy@crestviewknights.com; jsynder@lincolnview.k12.oh.us; cduvall@lincolnview.k12.oh.us; m_bagley@vwcs.net; tlichtensteiger@vanwertcounty.org; sowens@vanwertcounty.org; twolfrum@vanwertcounty.org; triggenbach@vanwertcountysheriff.com; kbrandt@vanwertcountyohio.gov; pleasanttwpvwo@gmail.com; villageofconvoy@bright.net; vwpres@gmail.com; kmarkward@vanwert.org; vanwert@ofbf.org; stacyadam@vanwerted.com; ksomerton@vanwerted.com; heathb@mercerlandmark.com; jfleming@vanwert.org; Jeffrey.Loehrke@dot.state.oh.us; k_amstutz@pauldingschools.org; pccommissioners@pauldingcountyoh.com; ema@pauldingcounty-oh.com; director@pced.net
Cc:	kylie.schnipke@dot.ohio.gov; Nate.Tessler@dot.ohio.gov; Chris.hughes@dot.ohio.gov; robert.white@dot.ohio.gov; adam.francis@dot.ohio.gov; eric.scheckelhoff@dot.ohio.gov; Mark.mueller@dot.ohio.gov; cheri.newton@dot.ohio.gov; Hebebrand, Craig
Subject:	Stakeholder Meeting for U.S. 30 (from the Indiana state line to Lincoln Highway interchange) Feasibility Study (PID 113196)
Date:	Friday, July 2, 2021 3:05:00 PM
Attachments:	image001.png PAU-VAN 30 Stakeholder Meeting Notification Letter_7.2.21.pdf PAU-VAN 30 Stakeholder Meeting FAQ Sheet_7.2.21.pdf PAU-VAN 30 Comment and Demographics Form PID113196_7.2.21.pdf

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ODOT Project Manager: Kylie Schnipke
Phone: 419-999-6885
Email: Kylie.Schnipke@dot.ohio.gov

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Thank you for your involvement.

Chantil M. Milam
Practice Leader, NEPA
Lawhon & Associates, Inc.
P: 614.481.8600 ext.173 | C: 614.425.6270
www.lawhon-assoc.com

Message sent on behalf of the Ohio Department of Transportation, District 1

OHIO DEPARTMENT OF TRANSPORTATION
Mike DeWine, *Governor*
Jack Marchbanks, Ph.D., *Director*

District 1
1885 North McCullough St., Lima, OH 45801
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July 2, 2021

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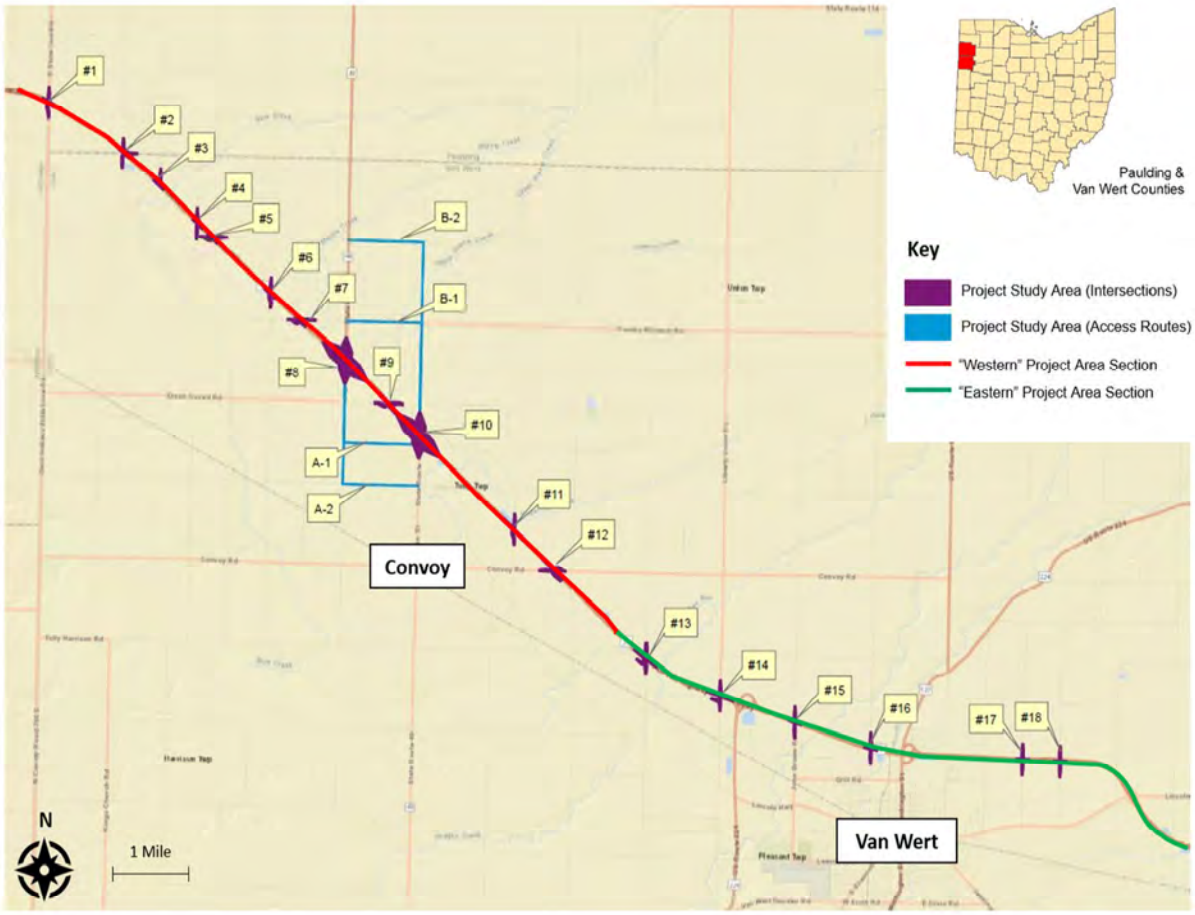
Kylie Schnipke

Kylie Schnipke
Project Manager, ODOT District 1



OHIO DEPARTMENT OF TRANSPORTATION
Mike DeWine, *Governor*
Jack Marchbanks, Ph.D., *Director*

District 1
1885 North McCullough St., Lima, OH 45801
419-222-9055
transportation.ohio.gov

US 30 Feasibility Study (PID 113196)
Frequently Asked Questions

1. **What is the project?**
   The project is conducting a feasibility study to evaluate access to the existing at-grade intersections from the Indiana state line in Paulding County to the Lincoln Highway (CR 418) interchange in Van Wert County. The study will develop feasible alternatives for access management along the corridor. No actual projects or alternatives are being proposed yet.

2. **What is a Feasibility Study?**
   A Feasibility Study (FS) is performed for certain types of projects to begin to narrow down potential options (also called alternatives) to satisfy the project's goal. For this project, the Feasibility Study will identify areas along the corridor where safety improvements may be warranted. The study will develop feasible alternatives to address the identified needs of the project; these alternatives may be selected as preferred alternatives and could eventually receive funding and separate project(s) to be designed and constructed.

3. **What is the purpose of the project?**
   To improve overall corridor safety and to provide a transportation facility that support the JobsOhio and county economic development, and the existing agricultural land uses.

4. **Why is the project needed?**
   Improve Safety:
   - Address wrong way incidents which are occurring at a higher rate on this section of the U.S. 30 than is expected or typical.
   - Reduce crashes occurring at identified high crash locations along the whole project area corridor.

   Support Economic Development:
   - Support existing and future business development needs by providing a safe and efficient transportation facility.
   - New industrial development is expected to add more traffic to the corridor, including more heavy vehicles.

5. **Have decisions been made about what exactly the project will entail?**
   No decisions have been made concerning the project yet. Currently, we are initiating our public outreach to better understand the concerns of the public and to help us develop feasible alternatives. Once feasible alternatives have been identified we will be present them at future stakeholder and public involvement meetings to solicit feedback for the next steps in the project development process.

6. **Will my property be affected?**
   Right now, it is not known which properties will be impacted because no decisions have been made about the project, project footprint, or project details. As the project moves further in the

development process, more information will be known about specific project impacts. If your property is impacted by the project, you will be contacted on an individual basis to talk to a real estate representative about the process and your rights under that process.

7. **How is this different than the previous U.S. 30 study?**
   This study will go more into detail than the previous study and will produce actionable items to implement. This study focuses more on future traffic growth and how this might impact the intersections and rerouted traffic. Crash data and public involvement will be used to determine the best alternatives for these intersections and potential strategies to group certain intersections into a project.

8. **What is the anticipated schedule for the study?**
   After the first round of stakeholder meetings, ODOT will develop preliminary alternatives for the project. The developed alternatives will be presented to the stakeholders in a second round of stakeholder meetings to help guide the selection of preferred alternatives. Once preferred alternatives are selected, a public meeting will be held to present the study results and preferred alternatives. The study is anticipated to be completed in Summer 2022, following the input received during the public meeting.

OHIO DEPARTMENT OF TRANSPORTATION

PAU/VAN-US-30-0.00/0.00, PID 113196

Public Comment Form

Contact information is not required but will ensure you receive a response.

Name: _____

Mailing address (or nearest cross streets): _____

Email address: _____ **Phone:** _____

Address of impacted property (or nearest cross streets): _____

_____

Business/Organization Name: _____

Business/Organization Address: _____

How did you hear about this meeting? *(Select all that apply.)*

☐ Newspaper ☐ Mailed letter ☐ TV or radio ☐ Church ☐ Word-of-mouth

☐ ODOT website ☐ Social media ☐ Email ☐ Other:

What is your interest in the proposed project? *(Select all that apply.)*

☐ Area Resident ☐ Area business owner or employee ☐ Commuter

☐ Other: _____

How often do you travel in the project area?

☐ Daily ☐ A few times a week ☐ Weekly ☐ A few times a month ☐ Monthly

☐ Other: _____

General comments or thoughts on the feasibility study:

_____

_____

_____

_____

_____

_____

_____

_____

COMMENTS DUE BY
September 3, 2021

Comments may be submitted:

- Verbally or in writing after the public meeting
- By email at **Kylie.Schnipke@dot.ohio.gov**
- By telephone at 419-999-6885
- Online at **transportation.ohio.gov**
- By mail

OHIO DEPARTMENT OF TRANSPORTATION

PAU/VAN-US-30-0.00/0.00, PID 113196

Public Comment Form

Thank you for taking a few minutes to complete this survey. **Answering the following questions is optional. Y**our response will be extremely helpful in ensuring the fairness and equity of ODOT's public involvement process. These questions are not listed in any particular order.

What is your interest in the proposed project? *(Select all that apply.)*
□ Area Resident □ Area business owner or employee □ Commuter
□ Other_____

What is your race?
□ Black or African American □ American Indian or Alaskan Native □ Asian □ Hispanic or Latino
□ White □ Native Hawaiian or Other Pacific Islander
□ I prefer to self-describe:_____

What is the primary language spoken in your home?
□ English □ Spanish □ Other (Please specify): _____

Was the project information translated into other languages appropriately?
□ Yes □ No □ Not Applicable

How many people live in your household?
□ 1 - 2 □ 3 - 5 □ 6 +

What are the age ranges of those living in your household? *(Check all that apply.)*
□ Under 18 □ 19 - 44 □ 45 - 64 □ 65 +

What is your annual household income?
□ Less than $10,000 □ $10,000 - $24,999 □ $25,000 - $49,999 □ $50,000 - $74,999
□ $75,000 - $99,999 □ $100,000 - $149,999 □ $150,000 +

What is the highest level of education completed by members of your household?
□ No □ Elementary school □ Middle school □ High school □ College/university
□ Other: _____

Do any individuals living in your home have a physical or mental impairment which substantially limits one or more major life activities?
□ Yes □ No

Please suggest additional ways you think ODOT can improve the inclusiveness of our public outreach efforts.

Thank you for helping ODOT improve its public involvement practices!

Please submit this page only to
Kylie.Schnipke@dot.ohio.gov
Kylie Schnipke, Transportation Engineer
Ohio Department of Transportation, District 1
1885 N. McCullough St.
Lima, OH 45801
419-999-6885

Parcel #	Contact Name	Property/Mailing Address 1	Property/Mailing Address 2	
03-31S-004-00	Brady Family Partnership	411 W Townline	Payne, OH 45880	
03-31S-006-00	P&M Gordon Frams LLC	1217 SR 49	Payne, OH 45880	
	P&M Gordon Frams LLC	9821 Charlotte Ln	Minocqua, WI 54548	
03-31S-015-00	Cheryl Baker	7633 SR 613	Payne, OH 45880	
03-31S-012-00, 01	Kathy Enterline	13910 SR 101	Monroeville, IN 46773	
03-31S-013-00	Keith Reidenbach	1057 Rd 11	Convoy, OH 45832	
03-32S-013-00	JA & LJ Farms LLC	Po Box 259	Convoy, OH 45832	
03-31S-014-00	Marc and Cynthia Grubaugh	1925 Rd 12	Convoy, OH 45832	
10002280100	Sidney and Wanda Blush	1082 Klinger Road	Convoy, OH 45832	
01-000208.0000	James and Carol Cavanaugh	1077A Klinger Road	Convoy, OH 45832	
01-000224.0000	Mark Dealey	5653 Mentzer Church Rd	Convoy, OH 45832	
01-000192.0100, (	Basil Dealey	2543 Elm Sugar Road	Convoy, OH 45832	
01-0001520200, 0	Doug and Sarah Dealey	1227 Krick Rd	Convoy, OH 45832	
01-0001520100, 0	Larry Dealey	1439 Rd 17	Convoy, OH 45832	
01-000304.0000	John Shutt	3572 Feasby Wisener Rd	Convoy, OH 45832	
10001680000	Roger and Sheryl Pollnow	1982 Mentzer Church Road	Convoy, OH 45832	
10001280000, 100	Van Wert County Foundation	138 E Main St	Van Wert, OH 45891	
10003640000, 100	Byron Dealey	4148 N Meadow Spring Drive	New Castle, IN 47362	
10004160000, 100	Harting Residence	2535 Klinger Road	Convoy, OH 45832	
10003720000	Convoy Real Estate LLC	6880 Albion Road	Oakfield, New York 14125	
10004200400	Edward and Faith Fabian	2455 Lare Road	Convoy, OH 45832	
10004080000	Paul Reidenbach	1491 S 13th St	Decatur In 46733	
10006280000	Gerald and Marsha Harting	8194 Richey Rd	Van Wert, OH 45891	
	Gerald Harting	P O Box 463	Convoy, OH 45832	
10006320000	Judy Motycka	P O Box 222	Convoy, OH 45832	
10006320100, 100	Joseph Motycka	4271 U S Route 30	Convoy, OH 45832	
10005800000, 100	Larry and Elaine Myers	2186 Mentzer Rd	Convoy, OH 45832	
10005800100	Debbra Kindell	4893 US Rt 30	Convoy, OH 45832	
10005600000, 100	Valerie Wood	5298 Dixon Cavett Rd	Convoy, OH 45832	
10005680000	ESTOHN LLC	19 Longlea Drive	Little Rock, AR 72212	
10005640000	Victor Bigham	5055 US-30	Convoy, OH 45832	
10005520000, 100	Bruce and Diana Feasby	4726 Dixon Cavett Road	Convoy, OH 45832	
10005840000	Lester and Bonita Myers	4353 Shaw Road	Convoy, OH 45832	
	Lester and Bonita Myers	4833 Shaw Rd	Convoy, OH 45832	
10006360000, 100	Craig and Bruce Feasby	3997 Payne Road	Convoy, OH 45832	
10005480000	Matthew Mercer	5596 Lincoln Highway	Convoy, OH 45832	
10005440000, 100	Stephen and Joann Feasby	6261 Dixon Cavett Rd	Convoy, OH 45832	
10009960100	Justin Gamble	5743 Lincoln Highway	Convoy, OH 45832	
10010320000	Steven and Trisha Jones	5694 Lincoln Highway	Convoy, OH 45832	
10010320100, 100	Jeffrey and Linda Spear	5792 Lincoln Highway	Convoy, OH 45832	
10010360000, 100	Sarah and Dale Burden	5677 Waller Road	Convoy, OH 45832	
10010760000	Jones Residence	17399 Jonestown Road	Venedocia, OH 45894	
	Sixth Gen Farm LLC	6630 Payne Road	Convoy, OH 45832	

10010120000	Theresa and Gary Priddy	5868 Lincoln Highway	Convoy, OH 45832	
10010080000	Taylor Mccoy	5874 Lincoln Hwy	Convoy, OH 45832	
10010040000, 100	Ryan Reinhart and Emily Noggle	5936 Lincoln Highway	Convoy, OH 45832	
10011320000	Julie Poling Schenk	9107 Champions Circle	Franklin, TN 37064	
	Julie Poling Schenk	606 Tree Lawn Place	Franklin, TN 37064	
10011280000	Kent Berheide	P O Box 863	Van Wert, OH 45891	
10011200000	Janice E Kohn	206 N Shane St	Ohio City, OH 45874	
10011160000	Duvall Family Farms	247 Prairie Lane	Van Wert, OH 45891	
10010480000, 100	Lois Richard	9510 Kasota Court	Ft Wayne, IN 46804	
80122080000	Patricia and Everett Thatcher	5354 Colwell Road	Convoy, OH 45832	
80122080100	Shane and Karl Crider	5284 Colwell Road	Convoy, OH 45832	
80122200000, 801	Spender and Joy Short	5293 Colwell Road	Convoy, OH 45832	
80122240000	Wayne and Kathryn Karges	5361 Colwell Road	Convoy, OH 45832	
	Mcbride Farms LLC	6072 Mentzer Church Road	Convoy, OH 45832	
80122280000, 801	Jon and Judith Hall	P O Box 58	Convoy, OH 45832	
80122040200, 801	Mary and Robert Hall	5700 Colwell Road	Convoy, OH 45832	
80122000000	Robert Kampf	1134 Woodland Ave	Van Wert, OH 45891	
	John Eversman	130 Boyd Avenue	Van Wert, OH 45891	
80121880000	James Miller	5305 Davenport Place	Roswell, GA 30075	
	James Miller C/O Tom Bosserd	1408 Penniman Avenue	Plymouth, MI 48170	
80122320000	James Miller, Halderman Farm	5490 Crane Rd	Ypsilanti, MI 48197-8848	
80122440000	Ray Boys One LLC	1149 Walnut Valley Lane	Centerville, OH 45458	
80121920000	Kenneth and Robin Foehl	7372 Stamm Road	Convoy, OH 45832	
10-013168.0101	Nancy and Joseph Elston	8867 Pearson Road	Convoy, OH 45832	
100131680102	Loralee and Steven Lichtensteiger	8907 Pearson Road	Convoy, OH 45832	
100131680103	Scott Clay	8953 Pearson Road	Convoy, OH 45832	
80123760000	Bauer Family	8633 Convoy Road	Convoy, OH 45832	
80124320000	Perl Oribel	6989 Richey Road	Convoy, OH 45832	
80124280000, 801	Michael and Shirley Lippi	6999 Richey Road	Convoy, OH 45832	
100131520300, 10	FFF2 Properties LLC	10294 Sidle Rd	Van Wert, OH 45891	
100131640100	Ridgeway Farms LLC	9611 Terry Road	Van Wert, OH 45891	
100131720000	Darlene and Barry Missler	7226 Richey Rd	Van Wert, OH 45891	
100131440000	Evelyn Lorene Noe	6606 11th Ave W	Bradenton, Fl 34209	
100131400000, 10	Ellie Mcomber	5966 Liberty Union Road	Van Wert, OH 45891	
100131320100, 10	E & R Wells Farms LLC	6174 Monmouth Road	Van Wert, OH 45891	
110134600202, 11	Gary Steven and Jane Ellen Houg	7732 John Brown Rd	Van Wert, OH 45891	
110134600200, 11	Jerry and Julie Rager	246 Alexander Drive	Maggie Valley, NC 28751	
	Jerry and Julie Rager	12700 Edgewood Dr	Van Wert, OH 45891	
110134400100	Alliance Properties Group LLC	560 Bonnewitz Ave	Van Wert, OH 45891	
120344528100	Brenneman Brothers	5230 North Grubb Road	Elida, OH 45807	
110142560300, 11	Lion Farms USA Inc	2620 Hoaglin Rd	Van Wert, OH 45891	
110140920300	Eddy and Pamela Kent	16204 Road 18	Grover Hill, OH 45849	
110134360000	Robert and Sharon Custer	1049 Catalina Dr East	New Palestine, IN 46163	
110142560000	City of Van Wert	515 E Main St	Van Wert, OH 45891	

110140960100	Larry and Rhonda Black	8290 Dutch John Rd	Van Wert, OH 45891	
110140920000	Business Development Corporation of Van Wert Inc	Po Box 311	Van Wert, OH 45891	
110140920100	John and Beverly Eichenlaub	8218 Dutch John Rd	Van Wert, OH 45891	RETURNED TO SENDER
	John and Beverly Eichenlaub	9608 Elm Sugar Rd	Convoy, OH 45832	
190414440100	Sylvia Alexander	1158 Professional Dr	Van Wert, OH 45891	
190414440000	DJ Vanwynsberghe	9706 Gilliland Road	Van Wert, OH 45891	
	DJ Vanwynsberghe	16246 State Route 116	Van Wert, OH 45891	
190412720000	Marsh Foundation	P O Box 150	Van Wert, OH 45891	
190414600000	Alexander Family	1158 Professional Drive	Van Wert, OH 45891	
190412920000	Virginia Doner	8049 Boroff Road	Van Wert Ohio 45891	
190414480000, 19	Deborah Morris	15848 Jonestown Road	Venedocia, OH 45894	
	Warren and Alice Morris	16749 St Rt 709	Venedocia, OH 45894	
190414480100	Dale and Lavonna Boley	8390 Boroff Road	Van Wert, OH 45891	
10005920100	Michael Bouillon	3848 Payne Rd	Convoy, OH 45832	
10009400000, 100	Anne and Bradley Guest	4700 Dixon Cavett Rd	Convoy, OH 45832	
10009400100	Kelly Dickens	4142 Payne Rd	Convoy, OH 45832	
10009520000, 100	Feasby Residence	4508 Payne Rd	Convoy, OH 45832	
10010600000, 100	James and Kay Gibson	3165 Lare Road	Convoy, OH 45832	
10010560100	Hampton Residence	5296 Waller Rd	Convoy, OH 45832	
10010560000	Christian Residence	Po Box 7	Convoy, OH 45832-0007	RETURNED TO SENDER
	Alan Christian	8754 Swisher Creek Crossing	New Albany, OH 43054	
10010640100	Tiffany and Andrew Sidle	5451 Waller Rd	Convoy, OH 45832	
10010720200	Tina and Robert Pawlick	4207 Payne Rd	Convoy, OH 45832	
10010720000	Larry Edwards	5102 Dixon Cavette Rd	Convoy, OH 45832	
10010720300	Greg and Lisa Wortman	4103 Payne Rd	Convoy, OH 45832	
10010720100	J M Schmelzer	Po Box 126	Van Wert, OH 45891	
10013880000	Robert and Diana Wallis	5044 Payne Road	Convoy, OH 45832	
10013600200	Tully Township Trustees	Po Box 254	Convoy, OH 45832	
10013600300, 100	Darrel and Kimberly Clayton	5267 Mentzer Road	Convoy, OH 45832	
10013640100, 100	Richard and Barbara Allen	5324 Mentzer Rd	Convoy, OH 45832	
10013720100, 100	Betty Bickel	5398 Mentzer Rd	Convoy, OH 45832	
10013640101	Ryan Spieth	5438 Mentzer Road	Convoy, OH 45832	
10013720200, 100	Steven and Susan Brown	5454 Mentzer Rd	Convoy, OH 45832	
10013800000, 100	Frances Neiswander	5668 Mentzer Road	Convoy, OH 45832	
10012880000	Flatrock Farms	10820 Pancake Road	Ohio City, OH 45874	
10012880400	Mercer Landmark Inc	Po Box 328	Celina, OH 45822	
10010280600	Sherry LaFontaine	2308 Sheets Road	Ohio City, OH 45874	
	Sherry LaFontaine	6586 Monmouth Rd	Van Wert, OH 45891	
10010280200	Paul Ross	5561 Mentzer Road	Convoy, OH 45832	
10010280500	Eric and Julie Burk	5525 Mentzer Road	Convoy, OH 45832	
10010280400	Roy and Patricia Hauter	5351 Mentzer Rd	Convoy, OH 45832	
10010280300	Thomas Fronefield	5313 Mentzer Road	Convoy, OH 45832	
10010600100	Thomas and Christina Gibson	5241 Mentzer Road	Convoy, OH 45832	
10005080000, 100	Poling Farm Family	4144 Dull Robinson Rd	Convoy, OH 45832	

10005080400	Tracy Wolford	3953 Convoy Heller Road	Convoy, OH 45832	
10005400100	Douglas Poling	3728 Convoy Heller Rd	Convoy, OH 45832	
10005160000	David and Nancy Speelman	3477 Convoy Heller Road	Convoy, OH 45832	
10005360000	Richard and Margaret Miller	9756 Tumbleson Road	Van Wert, OH 45891	
10005280000	Terill Cox Farms LLC	2396 St Rt 49	Convoy, OH 45832	
10005320000	Grent Brown	3128 Convoy Heller Rd	Convoy, OH 45832	
10005240000, 100	Bacon Bros Farms LLC	12029 Paulding Road	New Haven, IN 46774	
10005720000	Kathy Fair	12617 Dutton Rd	Rockford, OH 45882	
10005720100	James Pollnow	5634 Feasby Wisener Rd	Convoy, OH 45832	
10004760000	Larry Laukhuf	10553 Rd 72	Haviland, OH 45851	
10004280000, 100	Alma Thornell	21715 Timbercrest Drive	Defiance, OH 43512	
10004800000	Marhl Flickinger	1040 Maxine Ln	Van Wert, OH 45891	RETURNED TO SENDER
	Beth Newland	Po Box 296	Captiva, FL 33924	
10004840000	Greentop Acres LLC	8789 State Route 114	Haviland, OH 45851	
10000280000	Maurice and Marguerite Mcclure	4854 U S Rt 127 N	Van Wert, OH 45891	RETURNED TO SENDER
	Elisha King and James McClure	9405 Feasby Wisener Road	Convoy, OH 45832	
10000560200	Chris Galloway	1944 Convoy Heller Road	Convoy, OH 45832	
10004480000, 100	Sugar Lane Dairy LLC	588 3 Mile Rd Nw, Suite 203	Grand Rapids, MI 49544	
	Sugar Lane Dairy LLC	5624 Elm Sugar Road	Convoy, OH 45832	
10004440200	Jason Cox	2283 St Rt 49	Convoy, OH 45832	
01-001100.0000	Manager, Lincoln Ridge Farms	6588 Pollock Rd	Convoy, OH 45832	
08-012376.0201	Property Owner	7789 Boroff Road	Van Wert, OH 45891	
	Manager, Pearson Road Storage LLC	8495 Pearson Rd	Convoy, OH 45832	
08-012432.0000	Manager, GP Cycle Specialties, LLC.	6989 Richey Rd	Convoy, OH 45832	
12-034452.4202	Kahle Company	PO BOX 325	Ottawa, OH 45875	
	Manager, K & L Ready Mix	900 John Brown Rd	Van Wert, OH 45891	
12-034452.6900	Manager, Braun Ambulances	1170 Production Dr	Van Wert, OH 45891	
12-030476.3400	Owner, Dasher Rental LLC	10622 Lincoln Highway	VAN WERT OH 45891	
	Manager, Fastenal	529 Bonnewitz Ave	Van Wert, OH 45891	
12-034336.0000	Kimberly and Francis Fling	215 Bonnewitz Ave	VAN WERT OH 45891	
	Manager, Alliance Automation	560 Bonnewitz Ave	Van Wert, OH 45891	
12-034453.0100	Manager, Van Wert County Humane Society	309 Bonnewitz Ave	Van Wert, OH 45891	
12-031856.0000	Scott Equity Exchange Company	PO BOX 147	SCOTT OHIO 45886-0147	
	Manager, Scott Equity Exchange, Grain Elevator	305 Bonnewitz Ave	Van Wert, OH 45891	
12-024996.0000	Jay Petroleum Inc	533 S 200 W, PO Box 1285	PORTLAND IN 47371	
	Manager, Marathon Gas	800 N Washington St	Van Wert, OH 45891	
12-030478.2400	Manager, Valam Hospitality/Comfort Inn	840 N Washington St	Van Wert, OH 45891	
	Manager, Holiday Inn Express & Suites Van Wert, an IHG Hotel	140 Valam Dr	Van Wert, OH 45891	
12-034236.0000	Manager, GuestKeeper Inn	875 N Washington St	Van Wert, OH 45891	
	Manager, Mi Ranchito	865 N Washington St	Van Wert, OH 45891	
12-030478.1900	Property Owner, Rhodes Investments LLC	2371 Western Ohio Ave	LIMA OH 45805	
	Manager, Arby's	872 N Washington St	Van Wert, OH 45891	
12-034232.0000	Lassus Bros Oil Inc	1800 Magnavox Way	FORT WAYNE INDIANA 46804	
	Manager, Lassus Handy Dandy	885 N Washington St	Van Wert, OH 45891	

	Manager, Van Wert Carts and More	883 N Washington St	Van Wert, OH 45891	
12-034452.7900	Kriegel Second Irrev Trust	805 S Walnut Street	VAN WERT OH 45891	
	Manager, Metals Recycling Technologies	7600 US-127	Van Wert, OH 45891	
12-034452.7803	Manager, Klausing Lawn Care	7737 US-127	Van Wert, OH 45891	
12-030476.9701	Jada Properties	20269 County Road 424	DEFIANCE OHIO 43512	
	Manager, Subway	109 Towne Center Blvd	Van Wert, OH 45891	
12-030476.9501	Mcodnalds Real Estate Company, C/O Jonathan Lewis	P O BOX 29	BLUFFTON OH 45817	
	Manager, McDonald's	101 Christopher Crossing,	Van Wert, OH 45891	
12-030476.9801	First Bank of Berne	102 W ain Street	BERNE IN 46711	
	Manager, First Bank of Berne	102 Christopher Crossing	Van Wert, OH 45891	
	Magic Tunnel Midwest LLC	1316 Meadow Crest Place	COLUMBUS OH 43228	
	Manager, Magic Tunnel Express Car Wash - Van Wert	7965 US-127	Van Wert, OH 45891	
12-030477.0301	Murphy Oil USA Inc	P O BOX 7300	EL DORADO ARKANSAS 71731	
	Manager, Murphy USA	201 Towne Center Blvd	Van Wert, OH 45891	
12-034452.7821	Wal-Mart Real Estate Business	PO BOX 8050 Mail Stop 0555	BENTONVILLE AR 72716-0555	
	Manager, Walmart Supercenter	301 Towne Center Blvd	Van Wert, OH 45891	
12-034452.7827	V W T C 1 LLC	4653 Trueman Blvd. Suite 100	HILLIARD OH 43026	
	Manager, Maurices	325 Towne Center Blvd Space 170	Van Wert, OH 45891	
	Manager, Anytime Fitness	303 Towne Center Blvd	Van Wert, OH 45891	
	Manager, Shoe Sensation	317 Towne Center Blvd	Van Wert, OH 45891	RETURNED TO SENDER
	Manager, Dollar Tree	327 Van Wert Town Center	Van Wert, OH 45891	RETURNED TO SENDER
	Manager, Hong Kong Buffet	349 Towne Center Blvd	Van Wert, OH 45891	
12-030476.9902	Goodwill Easter Seals	660 S MAIN ST	DAYTON OH 45402	
	Manager, Goodwill	206 Towne Center Blvd	Van Wert, OH 45891	
12-030477.0304	Van Wert County Hospital Assoc.	1250 S Washington Street	VAN WERT OH 45891	
	Manager, Van Wert Health North	214 Towne Center Blvd	Van Wert, OH 45891	
12-034452.0100	Van Wert County Area Joint Vocational Board of Education	818 N Franklin St	VAN WERT OH 45891	
01-000448.0200	Manager, Sugar Lane Dairy LLC	5624 Elm Sugar Rd	Convoy, OH 45832	
Stakeholder	Rick Turner	818 N Franklin St.	Van Wert, OH 45891	
Stakeholder	Kyle Wendel	1192 Grill Rd.	Van Wert, OH 45891	
Stakeholder	Lt. John Gray	10234 Van Wert-Decatur Road	Van Wert, OH 45891	
Stakeholder	Craig Feasby	3997 Payne Rd	Convoy, OH 45832	
Stakeholder	Tom Gibson	5241 Mentzer Rd	Convoy, OH 45832	
Stakeholder	Richard Mollenkofp	3227 Dixon Cavett Rd	Convoy, OH 45832	
Stakeholder	Robert Trentman	23241 Dolt Rd	Delphos, OH 45833	
Stakeholder	Thomas Odenweller	9810 Converse-Roselm Rd	Middle Point, OH 45863	
Stakeholder	Dean Bowersock	8502 Little Auglaize River Rd	Delphos, OH 45833	
Stakeholder	David C. Jones	5259 Liberty Union Rd.	Van Wert, OH 45891	
Stakeholder	Kent Rolsten	4121 Liberty Union Rd.	Van Wert, OH 45891	
Stakeholder	William Dowler	8662 Feasby Wisener Rd.	Convoy, OH 45832	
Stakeholder	Jay Gamble	12479 Cooper Rd	Van Wert, OH 45891	
Stakeholder	Todd Wallace	10041 Liberty Union	Van Wert, OH 45891	
Stakeholder	William B. Evans II	12442 Ireland Rd.	Van Wert, OH 45891	
Stakeholder	Scott W. Davis	16299 Lincoln Highway	Van Wert, OH 45891	

Stakeholder	William E. Poe	14133A Poe Rd.	Van Wert, OH 45891	
Stakeholder	Steve Thomas	750 North Market Street	Van Wert, Ohio 45891	RETURNED TO SENDER
Stakeholder	Cathie Malone	Van Wert Courthouse Room 106, 121 E. Main Street	Van Wert, Ohio 45891	
Stakeholder	Seth Owens	1185 Professional Drive	Van Wert, OH 45891	
Stakeholder	Benjamin A. Winans	4915 US 127	Haviland, OH 45851	
Stakeholder	Sean Pfeiffer	4915 US 127	Haviland, OH 45851	
Stakeholder	Travis McGarvey	801 West Wayne Street	Paulding, OH 45879	
Stakeholder	Mark Holtsberry	115 North Willams Street, B-1	Paulding, OH 45879	
Stakeholder	Clint Vance	115 North Willams Street, B-1	Paulding, OH 45879	
Stakeholder	Jason Landers	500 East Perry Street	Paulding, OH 45879	
Stakeholder	Mark Crosby	1065 OH-114	Payne, OH 45880	
Stakeholder	Randy Noggle	6437 OH-114	Haviland, OH 45851	
Stakeholder	Joseph Thome	6839 RD 39	Payne, OH 45880	
Stakeholder	Greg White	116 South Main St.	Paulding, OH 45879	
Stakeholder	Jason Vance	116 South Main St.	Paulding, OH 45879	
Stakeholder	Brian Knapp	208 N Williams St.	Paulding, OH 45879	RETURNED TO SENDER
Stakeholder	Randy Crawford	116 S. Main St.	Paulding, OH 45879	
Stakeholder	Todd Weidenhamer	311 W. Wall St.	Paulding, OH 45879	
Stakeholder	Dave Foltz	311 W. Wall St.	Paulding, OH 45879	
Stakeholder	Tim Copsey	101 E. Perry St.	Paulding, OH 45879	

327 Van Wert Town Center (Manager, Dollar Tree)	Unsure why these did not arrive. Will update status in stakeholder mailing list.
4854 U S Rt 127 N (Maurice and Marguerite Mcclure)	
1040 Maxine Ln (Marhl Flickinger)	
PO Box 7 (Christian Residence)	
8218 Dutch John Rd (John and Beverly Eichenlaub)	Letter sent to them at a different address arrived successfully.
317 Towne Center Blvd (Manager Shoe Sensations)	Address should be 319 Towne Center Blvd. Will send new letter.
750 North Market Street (Steve Thomas, City of Van Wert Street Superintendent)	Will try to send additional mailing to City Offices at 515 East Main Street, Municipal Building where other notifications arrived successfully.
208 North Williams Street (Brian Knapp, Paulding Village Utility & Streets Department Supervisor)	Will try to send additional mailing to Village Admin Office at 116 South Main Street, Paulding, OH 45879 where other notifications arrived successfully.

Stakeholder	**Name**	**Email**
Crestview Local School District, Superintendent	Kathy Mollenkopf	mollenkopf.kathy@crestviewknights.com
Lincolnview Local Schools, Superintendent	Jeff Snyder	jsynder@lincolnview.k12.oh.us
Lincolnview Local Schools, Transporation	Cindy DuVall	cduvall@lincolnview.k12.oh.us
Van Wert City Schools, Superintendent	Mark Bagley	m_bagley@vwcs.net
Van Wert County Commissioner	Thad Linchtensteiger	tlichtensteiger@vanwertcounty.org
Van Wert County Commissioner	Stan Owens	sowens@vanwertcounty.org
Van Wert County Commissioner	Todd Wolfrum	twolfrum@vanwertcounty.org
Van Wert County, Sheriff	Thomas Riggenbach	triggenbach@vanwertcountysheriff.com
Van Wert, EMS Coordinator	Kim Brandt	kbrandt@vanwertcountyohio.gov.
Pleasant Twp. Trustee	Gary Ashbaugh	pleasanttwpvwo@gmail.com
Village of Convoy OH, Council President	Neal Orsbon	villageofconvoy@bright.net
Village of Convoy OH, Mayor	Timothy Bolenbaugh	villageofconvoy@bright.net
City of Van Wert OH, Council President	Jon Tomlinson	vwpres@gmail.com
City of Van Wert OH, Mayor	Kenneth J. Markward	kmarkward@vanwert.org
Farm Bureau, Organization Director	Jessica Vandenbroek	vanwert@ofbf.org
Van Wert Economic Development, Executive Director	Stacy Adam	stacyadam@vanwerted.com
Van Wert Economic Development, Program Director	Krista Somerton	ksomerton@vanwerted.com
Mercer Landmark, CEO	Heath Barnes	heathb@mercerlandmark.com
Van Wert Safety Service Director	Jay Fleming	jfleming@vanwert.org
Regional Manager, ODOT Division of Jobs & Commerce	Jeff Loehrke	Jeffrey.Loehrke@dot.state.oh.us
Paulding Exempted Village Schools, Superintendent, Transportation Director	Ken Amstutz	k_amstutz@pauldingschools.org
Paulding County Commissioner	Roy Klopfenstein	pccommissioners@pauldingcountyoh.com
Paulding County Emergency Management, Director	Edward Bohn	ema@pauldingcounty-oh.com
Paulding County Economic Development, Director	Tim Copsey	director@pced.net

OHIO DEPARTMENT OF TRANSPORTATION
Mike DeWine, *Governor*
Jack Marchbanks, Ph.D., *Director*

District 1
1885 North McCullough St., Lima, OH 45801
419-222-9055
transportation.ohio.gov

US 30 Feasibility Study (PID 113196)
Frequently Asked Questions

1. **What is the project?**
   The project is conducting a feasibility study to evaluate access to the existing at-grade intersections from the Indiana state line in Paulding County to the Lincoln Highway (CR 418) interchange in Van Wert County. The study will develop feasible alternatives for access management along the corridor. No actual projects or alternatives are being proposed yet.

2. **What is a Feasibility Study?**
   A Feasibility Study (FS) is performed for certain types of projects to begin to narrow down potential options (also called alternatives) to satisfy the project's goal. For this project, the Feasibility Study will identify areas along the corridor where safety improvements may be warranted. The study will develop feasible alternatives to address the identified needs of the project; these alternatives may be selected as preferred alternatives and could eventually receive funding and separate project(s) to be designed and constructed.

3. **What is the purpose of the project?**
   To improve overall corridor safety and to provide a transportation facility that support the JobsOhio and county economic development, and the existing agricultural land uses.

4. **Why is the project needed?**
   Improve Safety:
   - Address wrong way incidents which are occurring at a higher rate on this section of the U.S. 30 than is expected or typical.
   - Reduce crashes occurring at identified high crash locations along the whole project area corridor.

   Support Economic Development:
   - Support existing and future business development needs by providing a safe and efficient transportation facility.
   - New industrial development is expected to add more traffic to the corridor, including more heavy vehicles.

5. **Have decisions been made about what exactly the project will entail?**
   No decisions have been made concerning the project yet. Currently, we are initiating our public outreach to better understand the concerns of the public and to help us develop feasible alternatives. Once feasible alternatives have been identified we will be present them at future stakeholder and public involvement meetings to solicit feedback for the next steps in the project development process.

6. **Will my property be affected?**
   Right now, it is not known which properties will be impacted because no decisions have been made about the project, project footprint, or project details. As the project moves further in the

development process, more information will be known about specific project impacts. If your property is impacted by the project, you will be contacted on an individual basis to talk to a real estate representative about the process and your rights under that process.

7. **How is this different than the previous U.S. 30 study?**
   This study will go more into detail than the previous study and will produce actionable items to implement. This study focuses more on future traffic growth and how this might impact the intersections and rerouted traffic. Crash data and public involvement will be used to determine the best alternatives for these intersections and potential strategies to group certain intersections into a project.

8. **What is the anticipated schedule for the study?**
   After the first round of stakeholder meetings, ODOT will develop preliminary alternatives for the project. The developed alternatives will be presented to the stakeholders in a second round of stakeholder meetings to help guide the selection of preferred alternatives. Once preferred alternatives are selected, a public meeting will be held to present the study results and preferred alternatives. The study is anticipated to be completed in Summer 2022, following the input received during the public meeting.

OHIO DEPARTMENT OF TRANSPORTATION

PAU/VAN-US-30-0.00/0.00, PID 113196

Public Comment Form

Contact information is not required but will ensure you receive a response.

Name: _____

Mailing address (or nearest cross streets): _____

Email address: _____ **Phone:** _____

Address of impacted property (or nearest cross streets): _____

_____

Business/Organization Name: _____

Business/Organization Address: _____

How did you hear about this meeting? *(Select all that apply.)*

☐ Newspaper ☐ Mailed letter ☐ TV or radio ☐ Church ☐ Word-of-mouth

☐ ODOT website ☐ Social media ☐ Email ☐ Other:

What is your interest in the proposed project? *(Select all that apply.)*

☐ Area Resident ☐ Area business owner or employee ☐ Commuter

☐ Other: _____

How often do you travel in the project area?

☐ Daily ☐ A few times a week ☐ Weekly ☐ A few times a month ☐ Monthly

☐ Other: _____

General comments or thoughts on the feasibility study:

_____

_____

_____

_____

_____

_____

_____

_____

COMMENTS DUE BY
September 3, 2021

Comments may be submitted:

- Verbally or in writing after the public meeting
- By email at **Kylie.Schnipke@dot.ohio.gov**
- By telephone at 419-999-6885
- Online at **transportation.ohio.gov**
- By mail

OHIO DEPARTMENT OF TRANSPORTATION

PAU/VAN-US-30-0.00/0.00, PID 113196

Public Comment Form

Thank you for taking a few minutes to complete this survey. **Answering the following questions is optional. Y**our response will be extremely helpful in ensuring the fairness and equity of ODOT's public involvement process. These questions are not listed in any particular order.

What is your interest in the proposed project? *(Select all that apply.)*
□ Area Resident □ Area business owner or employee □ Commuter
□ Other_____

What is your race?
□ Black or African American □ American Indian or Alaskan Native □ Asian □ Hispanic or Latino
□ White □ Native Hawaiian or Other Pacific Islander
□ I prefer to self-describe:_____

What is the primary language spoken in your home?
□ English □ Spanish □ Other (Please specify): _____

Was the project information translated into other languages appropriately?
□ Yes □ No □ Not Applicable

How many people live in your household?
□ 1 - 2 □ 3 - 5 □ 6 +

What are the age ranges of those living in your household? *(Check all that apply.)*
□ Under 18 □ 19 - 44 □ 45 - 64 □ 65 +

What is your annual household income?
□ Less than $10,000 □ $10,000 - $24,999 □ $25,000 - $49,999 □ $50,000 - $74,999
□ $75,000 - $99,999 □ $100,000 - $149,999 □ $150,000 +

What is the highest level of education completed by members of your household?
□ No □ Elementary school □ Middle school □ High school □ College/university
□ Other: _____

Do any individuals living in your home have a physical or mental impairment which substantially limits one or more major life activities?
□ Yes □ No

Please suggest additional ways you think ODOT can improve the inclusiveness of our public outreach efforts.

Thank you for helping ODOT improve its public involvement practices!

Please submit this page only to
Kylie.Schnipke@dot.ohio.gov
Kylie Schnipke, Transportation Engineer
Ohio Department of Transportation, District 1
1885 N. McCullough St.
Lima, OH 45801
419-999-6885

PAU/VAN-30-0.00/0.00 FEASIBILITY STUDY

OHIO DEPARTMENT OF TRANSPORTATION

Stakeholder Meeting #1
August 3, 2021

MEET THE PROJECT TEAM

- Ohio Department of Transportation District 1
- Arcadis (Design/Engineering)
- Lawhon & Associates (Environmental)

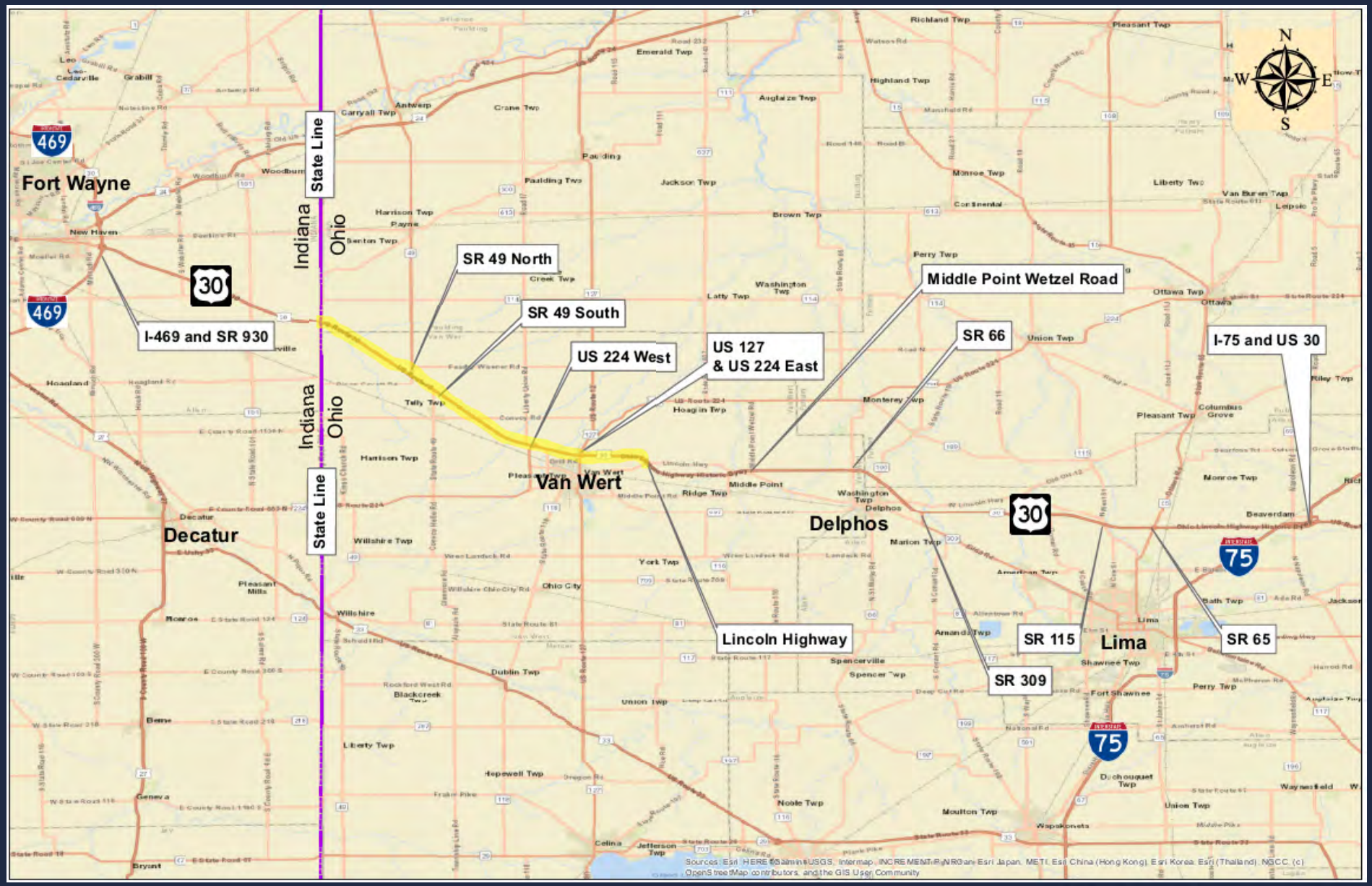
INTRODUCTION

- Mr. Chris Hughes, P.E. – ODOT District 1 Deputy Director
- Past Studies
  - Planning level to guide future development
- Current Feasibility Study
  - More detailed analysis and design concepts
  - State Route 49 interchange alternatives
  - Actionable study that can result in projects being funded

WHAT IS THE GOAL FOR TODAY?

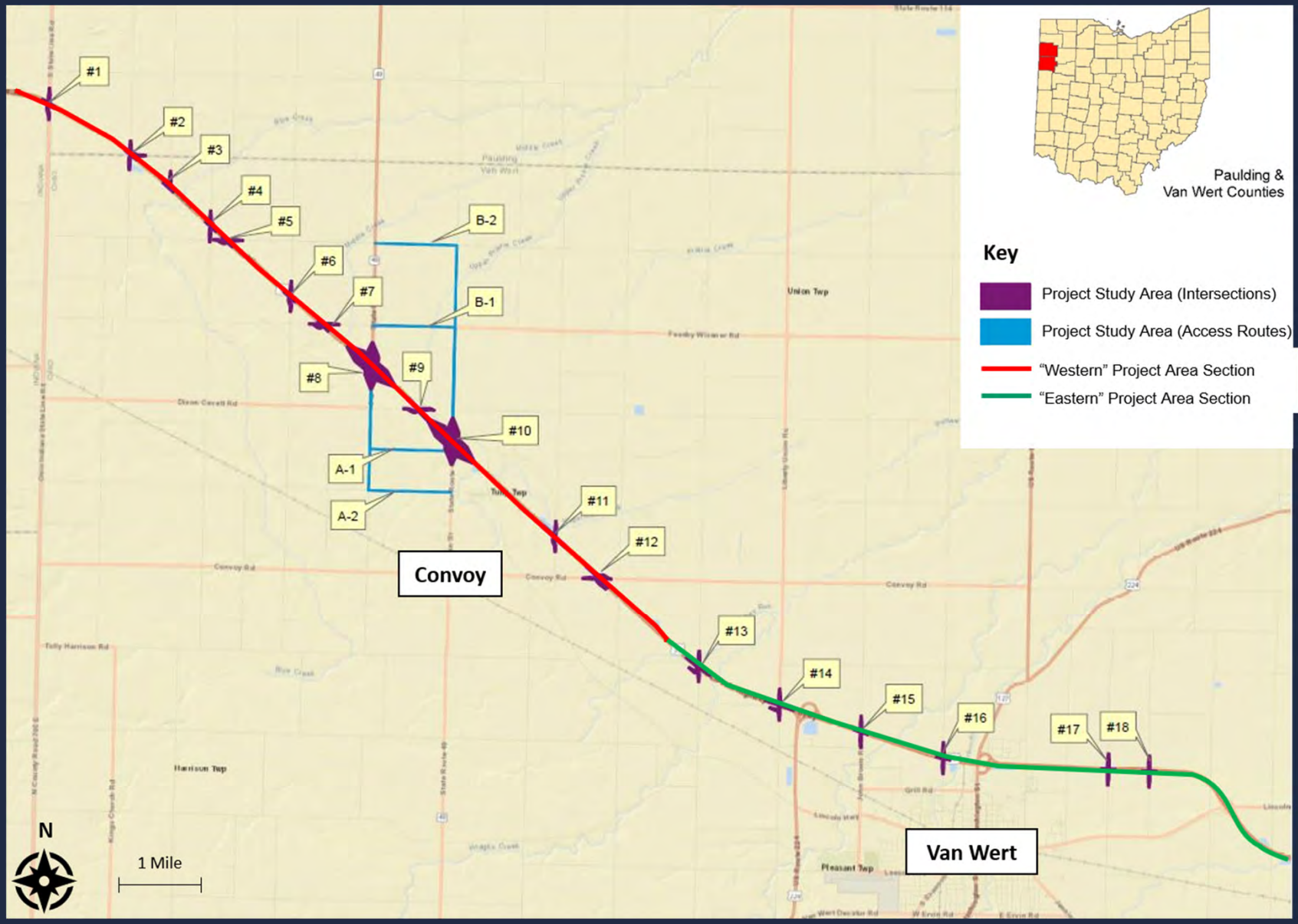
- Introduce this Feasibility Study
- Present Purpose and Need
- Gather input from identified Stakeholders
- Discuss next steps

U.S. 30 CORRIDOR



OHIO DEPARTMENT OF TRANSPORTATION

U.S. 30 CORRIDOR – STUDY LIMITS



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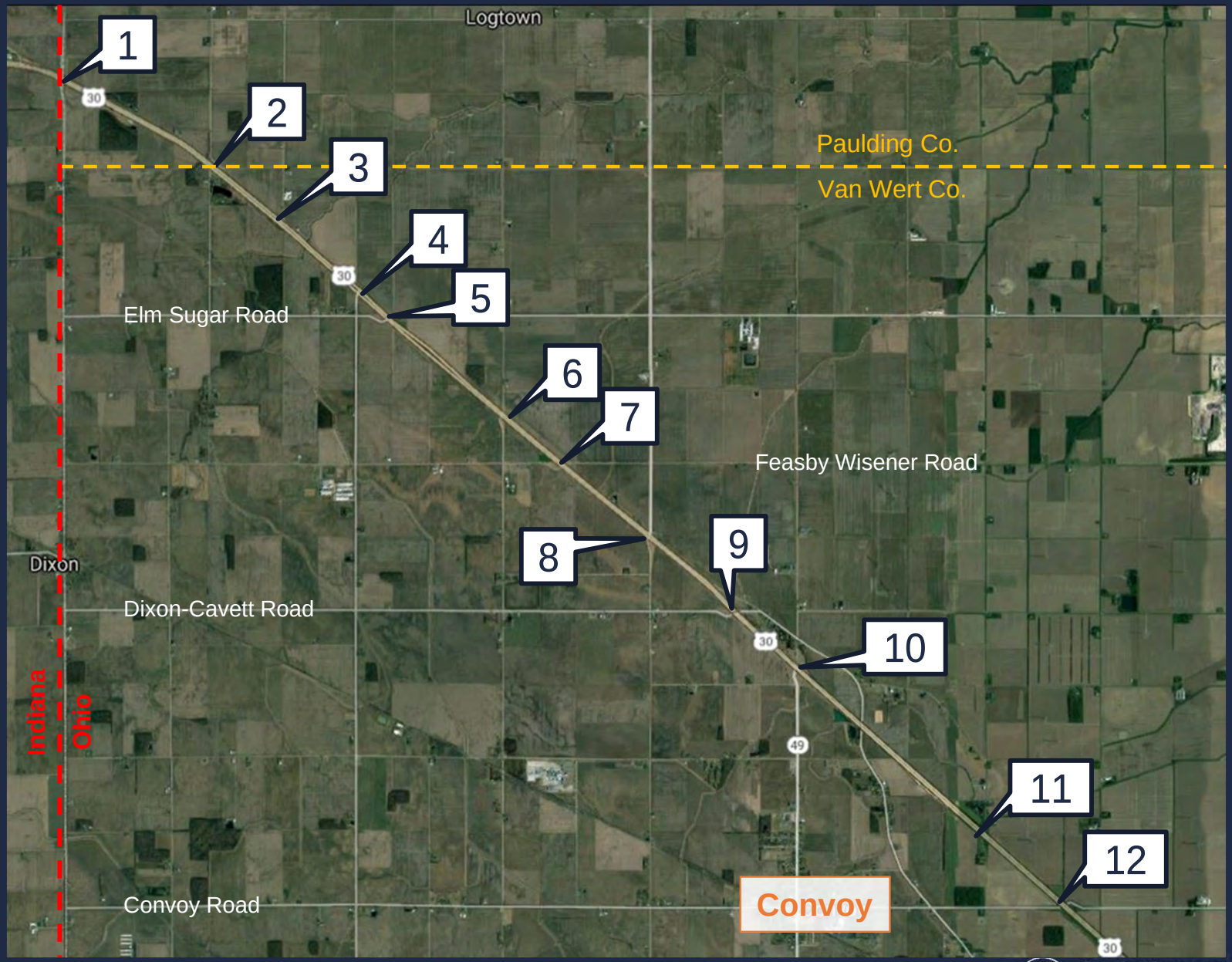
U.S. 30 - WESTERN SECTION



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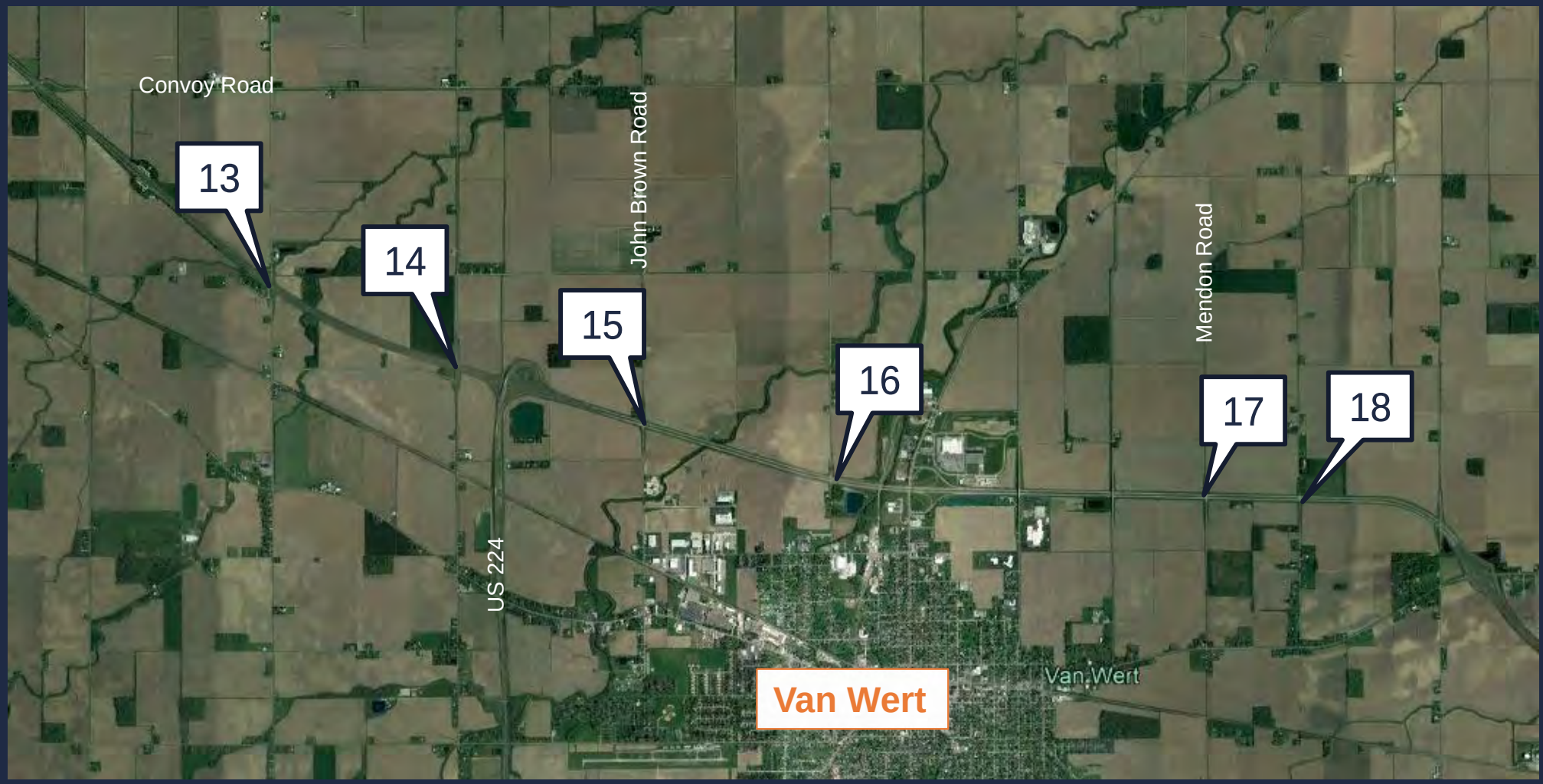
U.S. 30 - EASTERN SECTION



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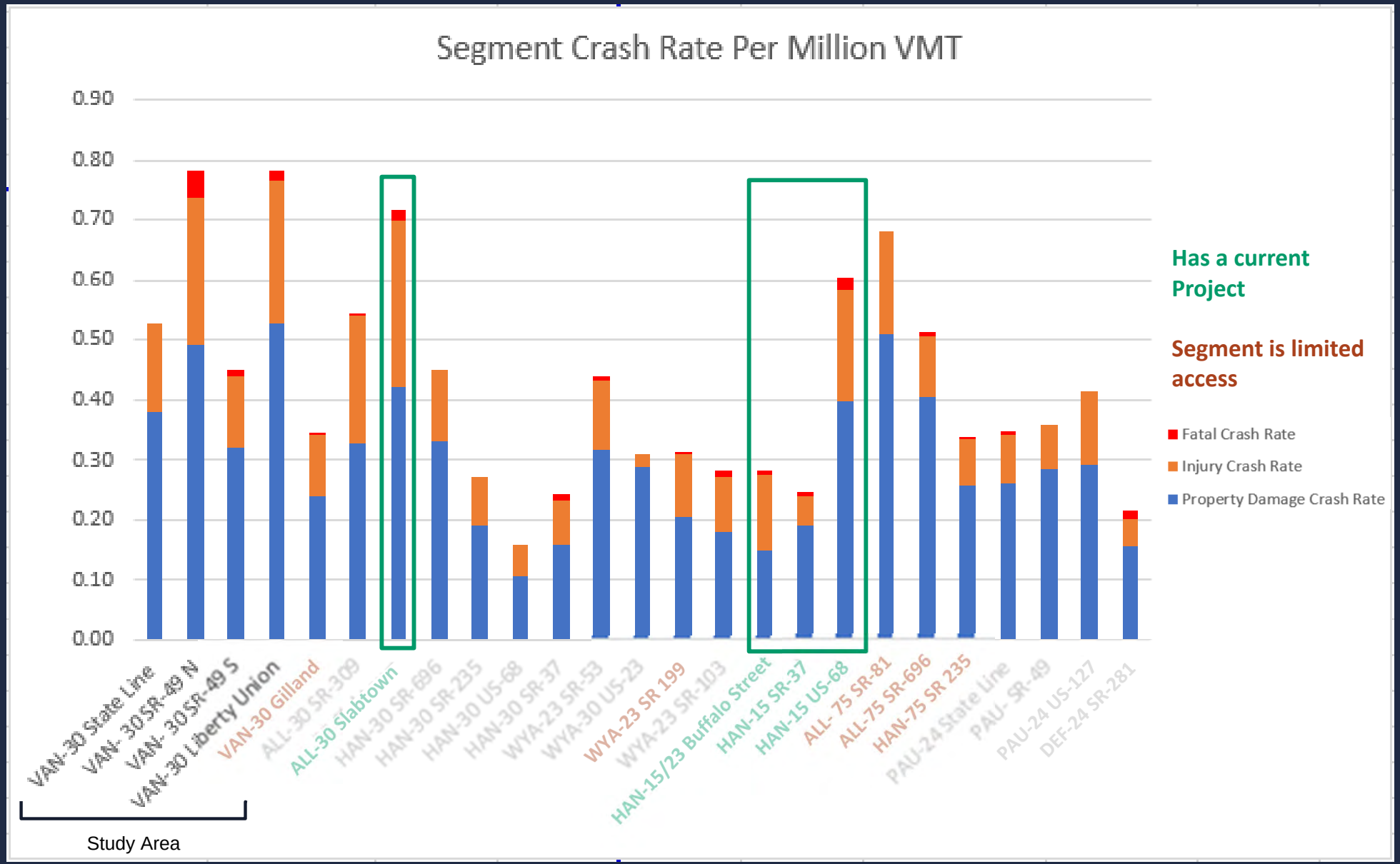
WHY HERE?



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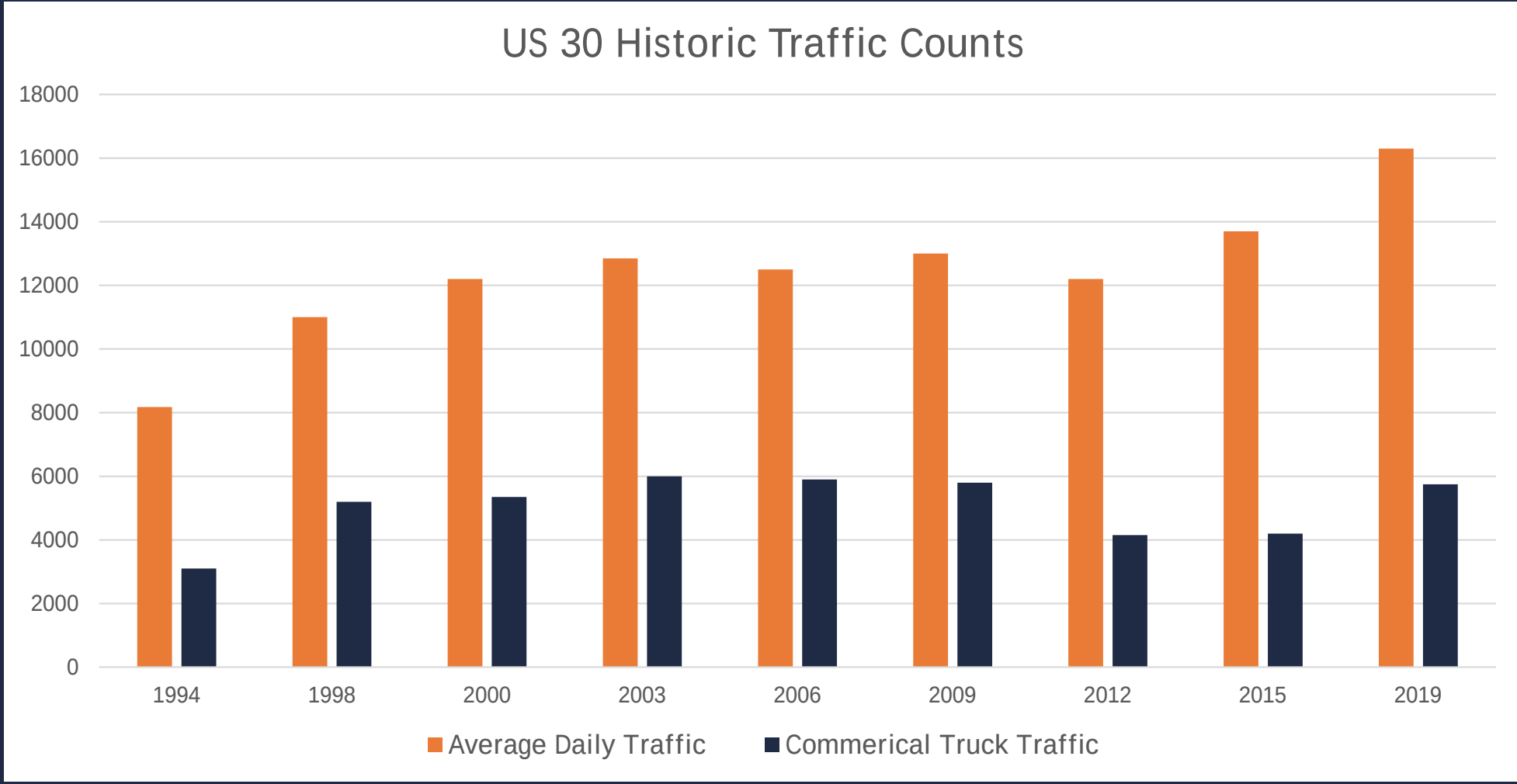
WHY NOW?



- Potential future economic development

WHAT IS A FEASIBILITY STUDY?

- Identifies Purpose and Need & Key Issues
- Identifies Alternatives that can progress into future projects
- Written in reader-friendly format to inform public of decision-making process

PURPOSE AND NEED

- To improve the overall corridor safety by reducing crashes at high-crash locations and by addressing the frequency of wrong-way incidents
- To provide a transportation facility that supports economic development sites and existing agricultural land uses along the corridor

Improve Safety

Crash Data (2017-2019): 236 total crashes
(excluding 51 animal crashes)

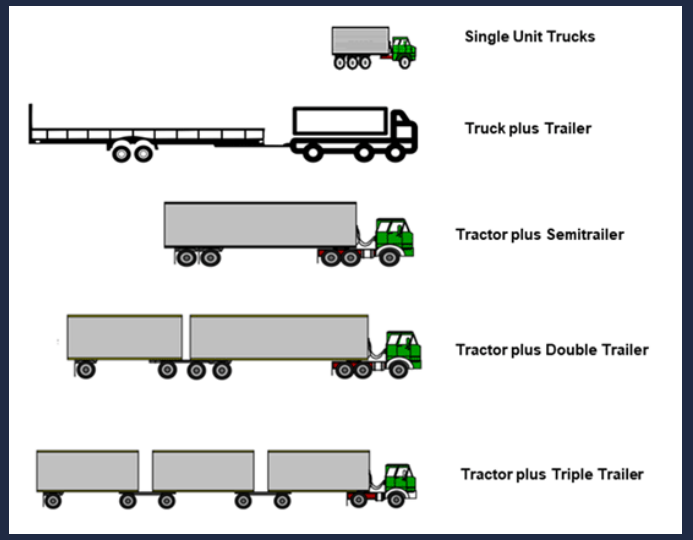
- Crash Types:
  - 87 (37%) – fixed object
  - 40 (17%) – sideswipe passing
  - 30 (13%) – rear end
- Crash Severity
  - 61 (26%) – injury crashes
  - 5 (2%) – fatal

Improve Safety

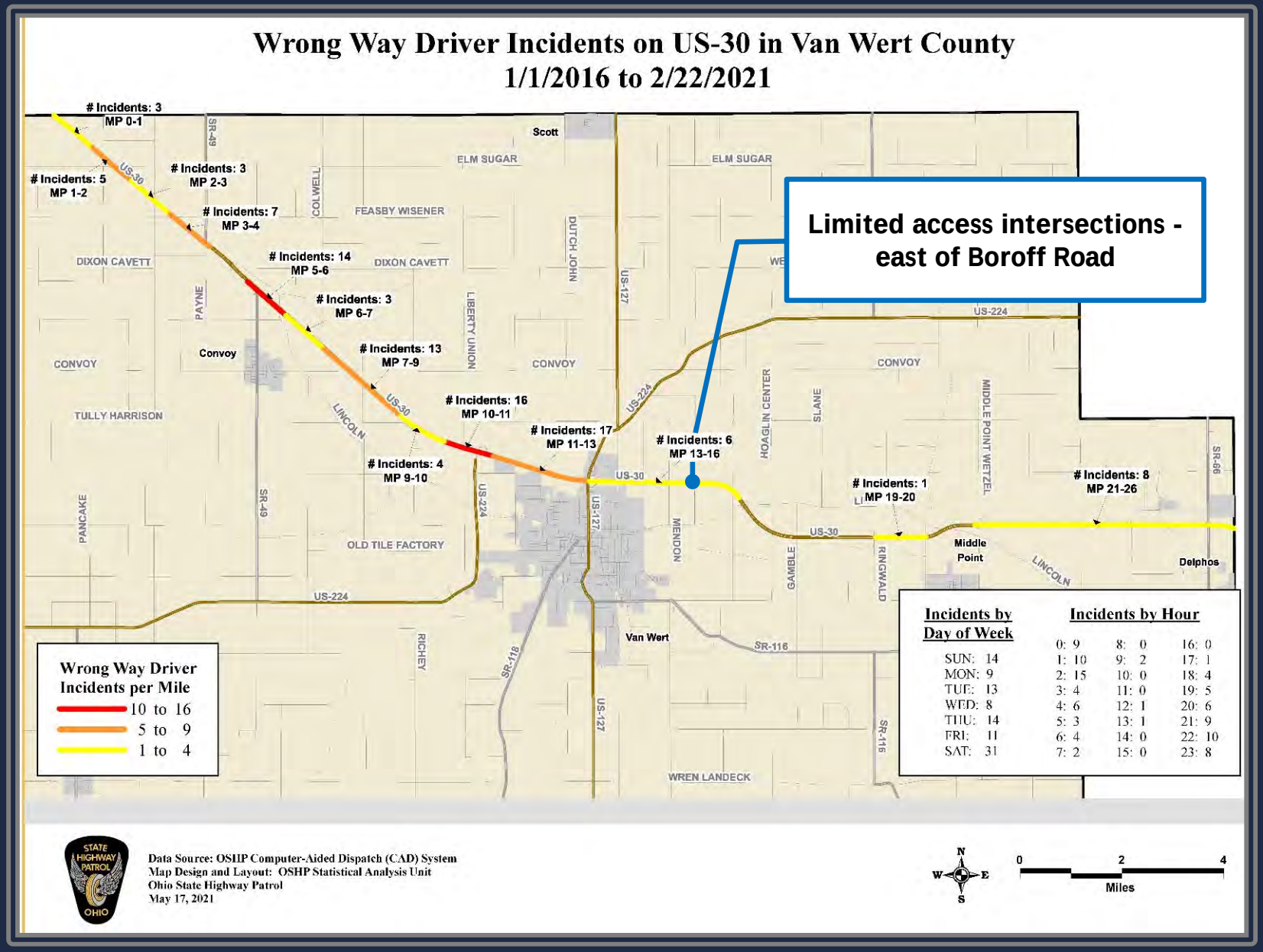
Crash Data- Heavy Vehicles:

(semi-tractor and single unit trucks)

- Fixed Object = 30%
- Sideswipe Passing = 30%
- Rear End = 8%



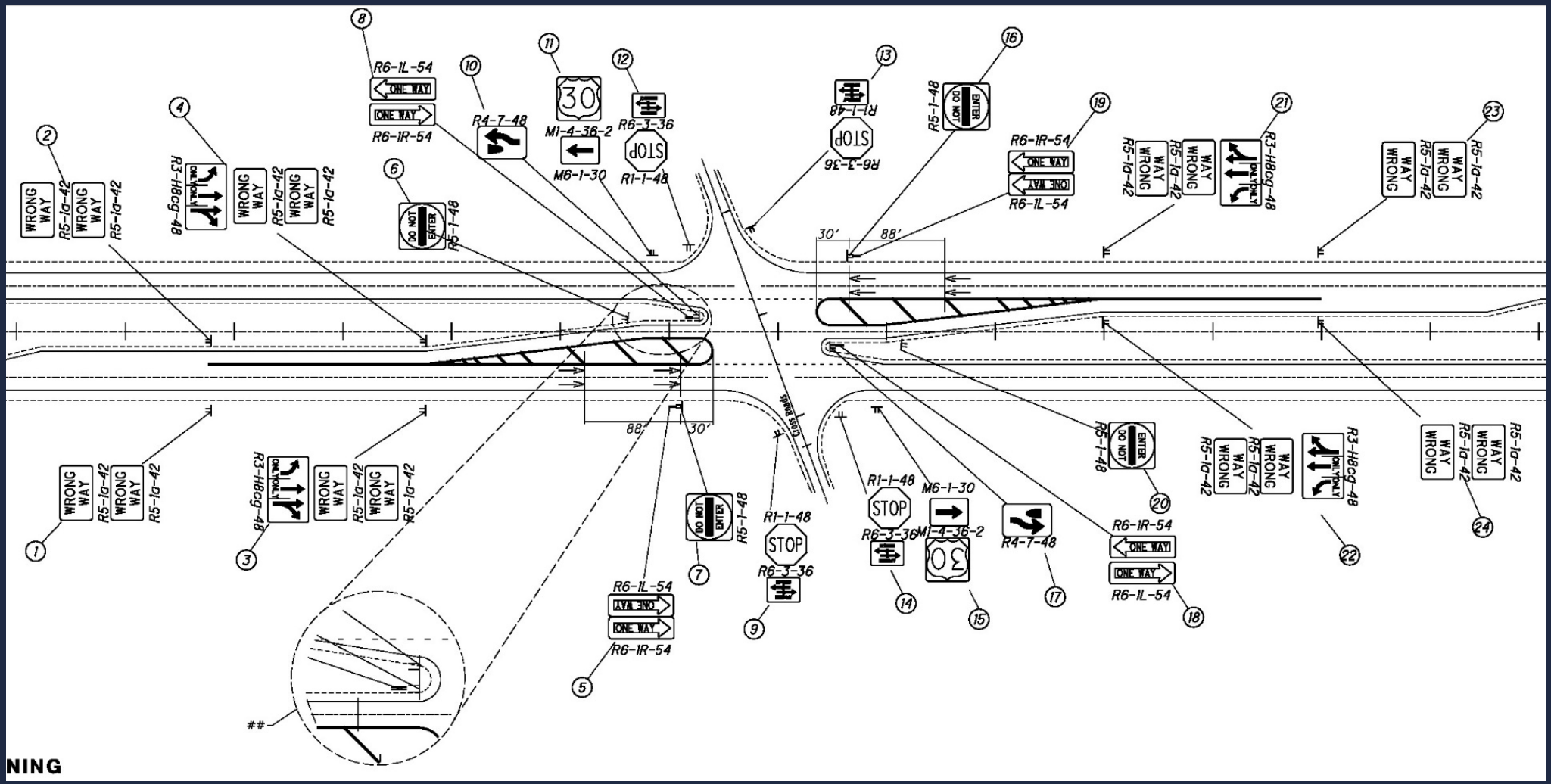
WRONG WAY INCIDENTS



East of Boroff Road has **9** wrong way incidents

West of Boroff Road has **91** wrong way incidents

SHORT TERM COUNTERMEASURES



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SUPPORT AGRICULTURAL LAND USES

- U.S. 30 utilized by large farm equipment between fields
  - Maintain acceptable access for agricultural equipment as well as for vehicular traffic
  - Drive relocations will be considered as part of the feasibility study

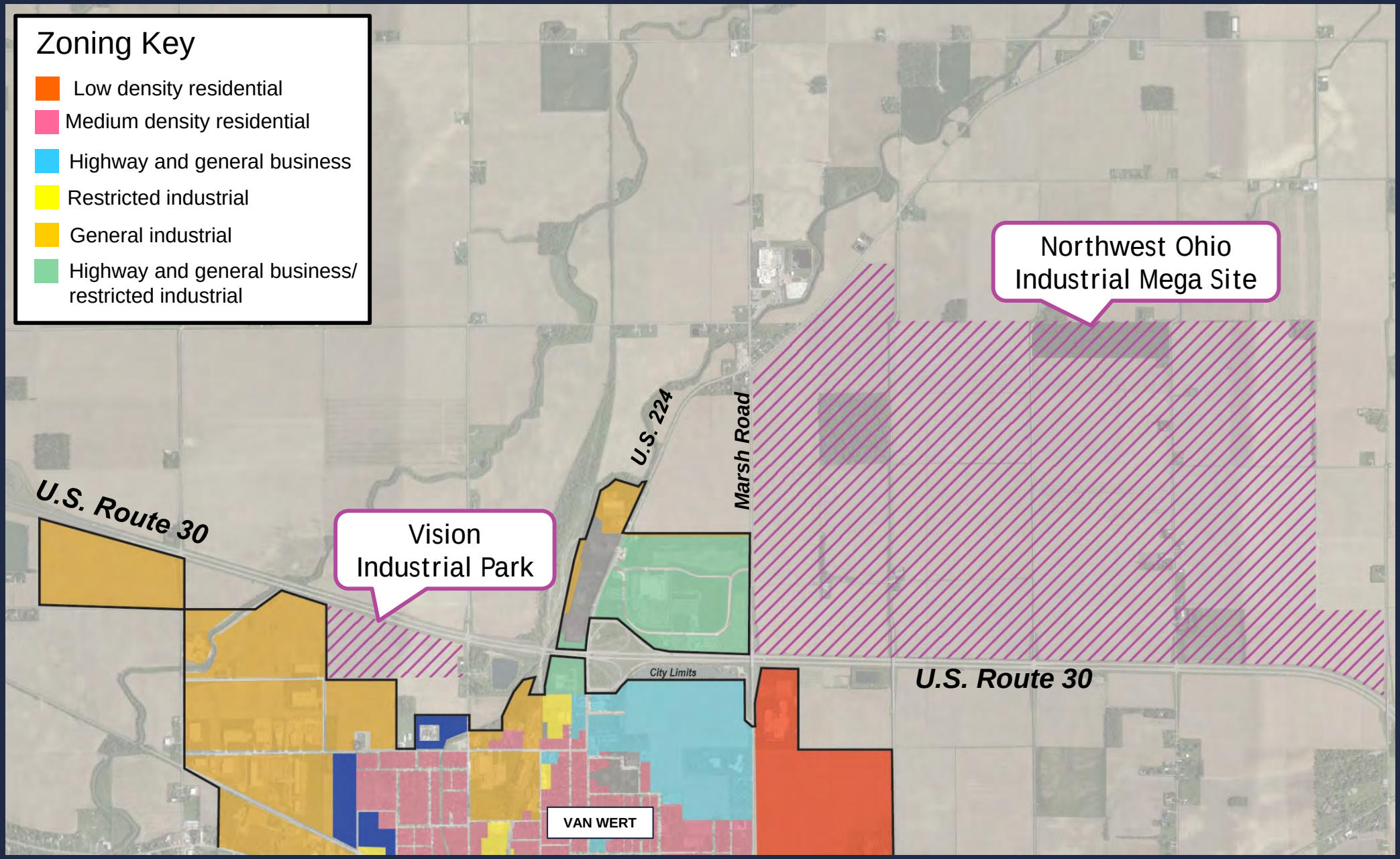
SUPPORT ECONOMIC DEVELOPMENT

Vision Industrial Park & Northwest Ohio Industrial Mega Site

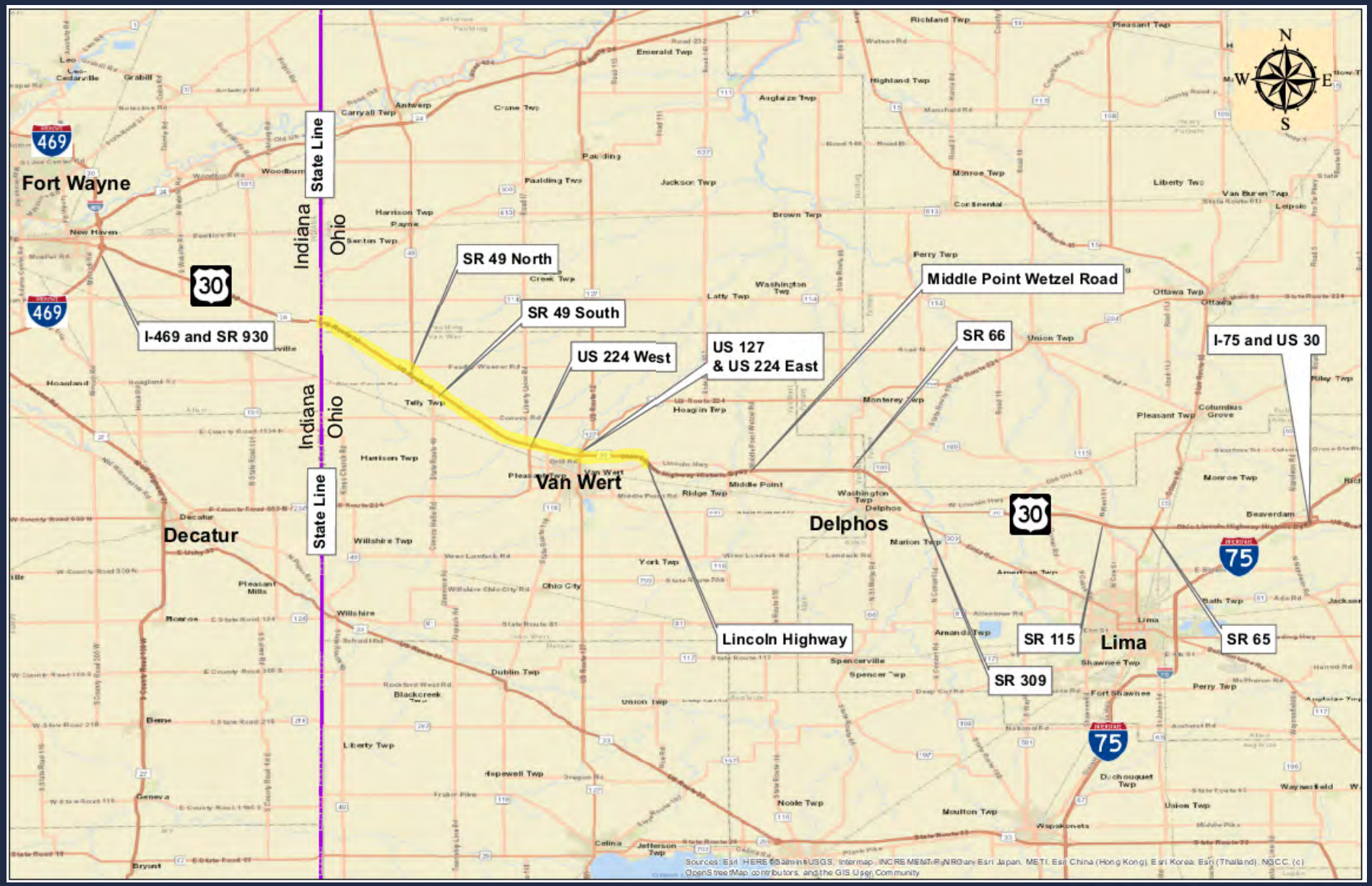
- Support high percentage of long-haul vehicles while also serving local transportation needs.
  - By 2027
    - Feasby Wisener Road, Western SR-49, John Brown Road, Dutch John Road intersections expected to become more congested
    - Could lead to more accidents and travel delays
  - By 2047
    - 15 at-grade intersections become more congested
    - Could lead to more accidents and travel delays

Source: Arcadis 2027 and 2047 No Build LOS data.

U.S. 30 CORRIDOR LAND USE



U.S. 30 CORRIDOR



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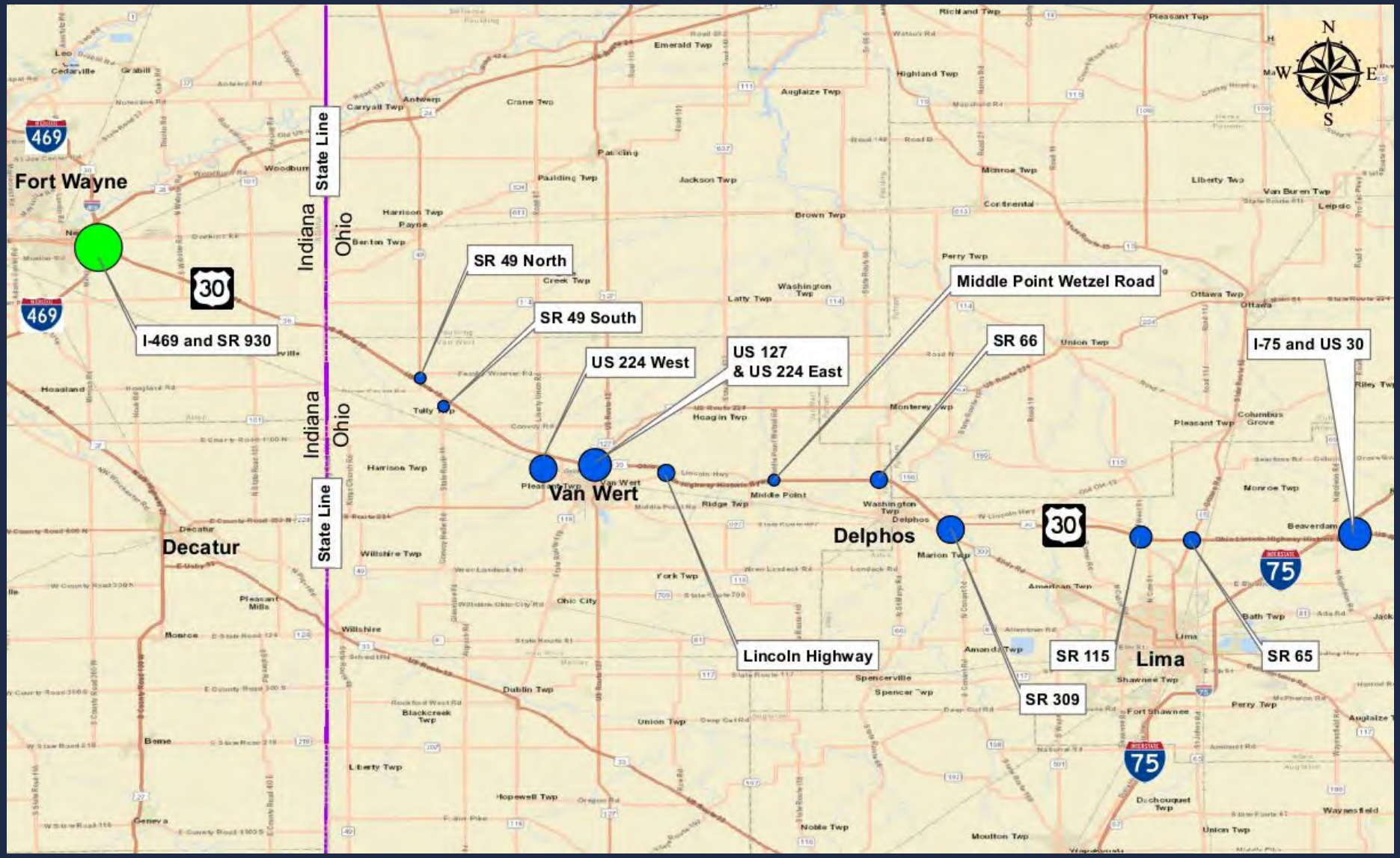
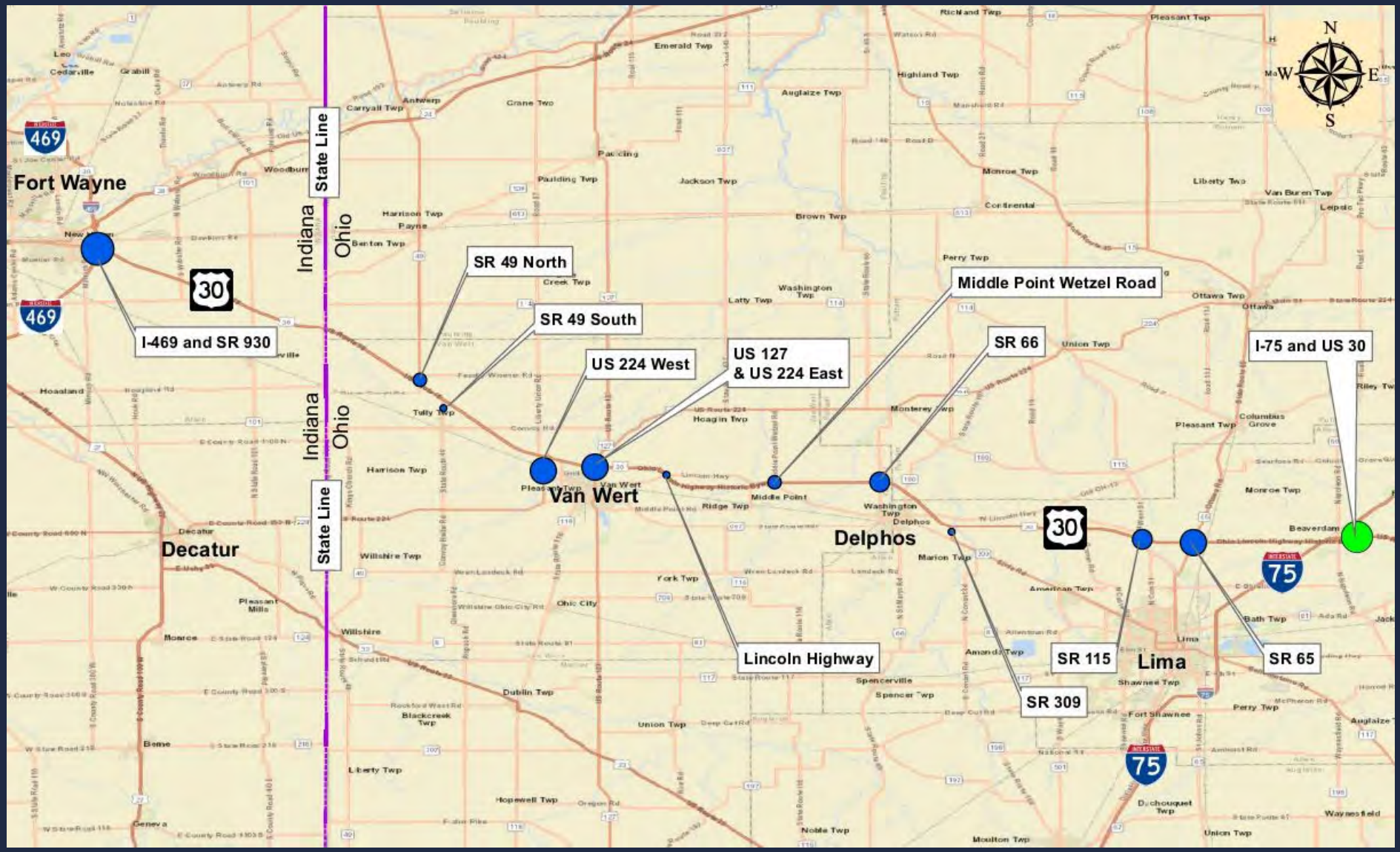
TO/FROM FORT WAYNE



OHIO DEPARTMENT OF TRANSPORTATION

TO/FROM INTERSTATE 75



OHIO DEPARTMENT OF TRANSPORTATION

TO/FROM STATE ROUTE 49 NORTH

OHIO DEPARTMENT OF TRANSPORTATION

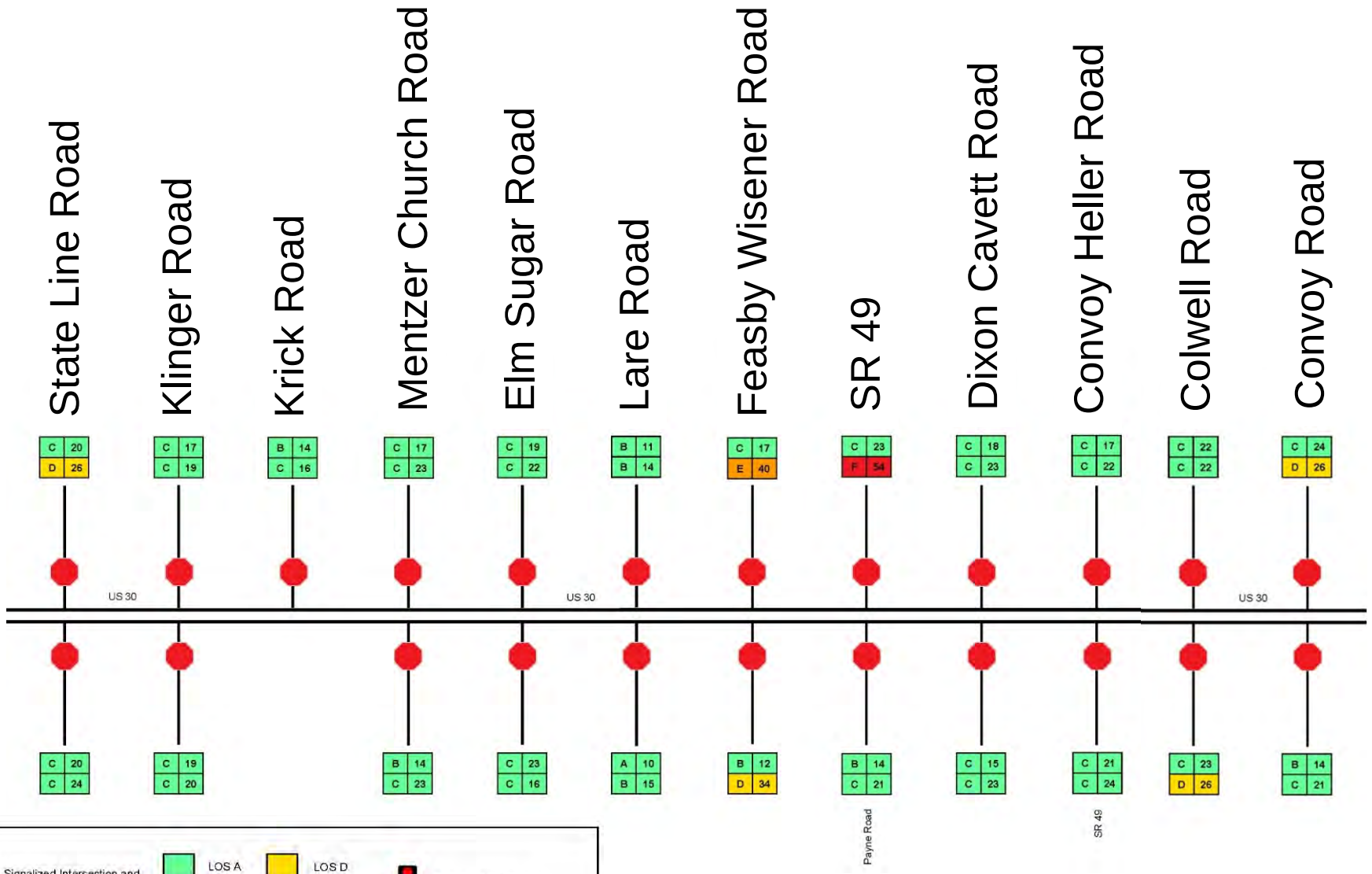
TO/FROM U.S. 127/U.S. 224 EAST

OHIO DEPARTMENT OF TRANSPORTATION

TO/FROM U.S. 224 WEST

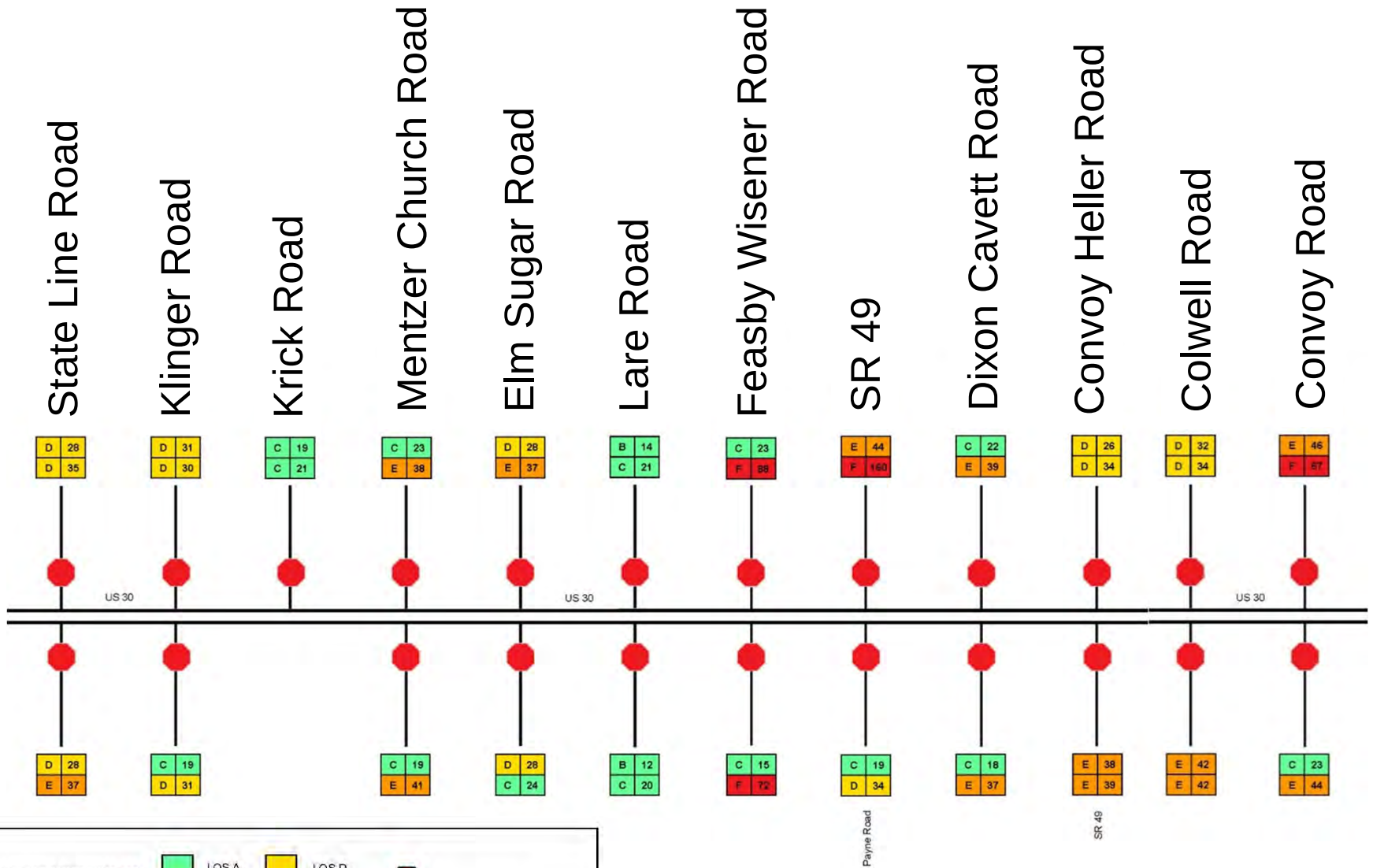
OHIO DEPARTMENT OF TRANSPORTATION

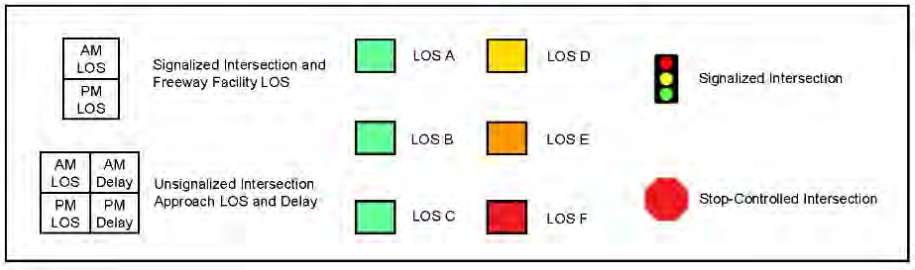
INTERSECTIONS (WEST) 2027



MJ7

INTERSECTIONS (WEST) 2047



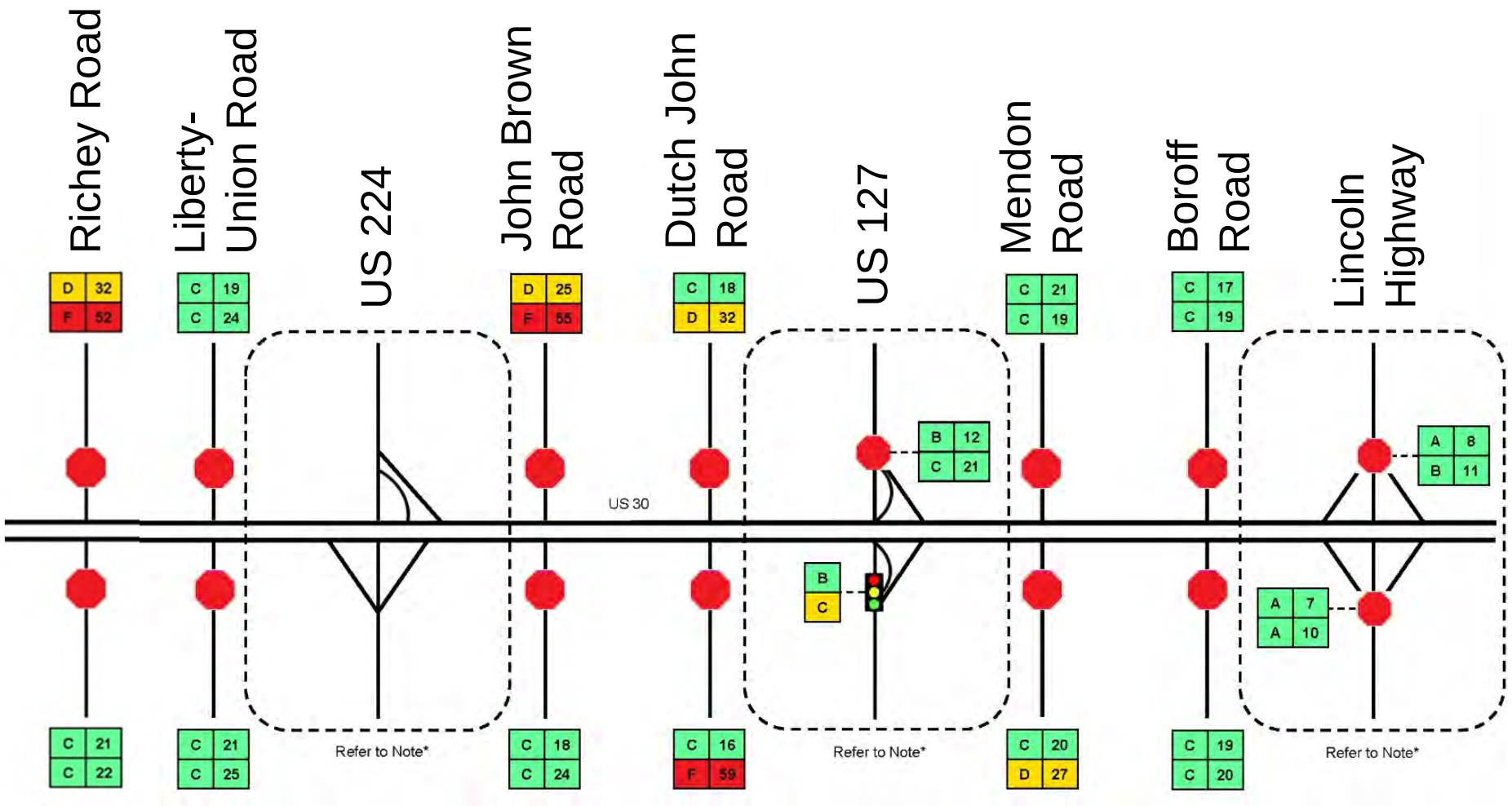


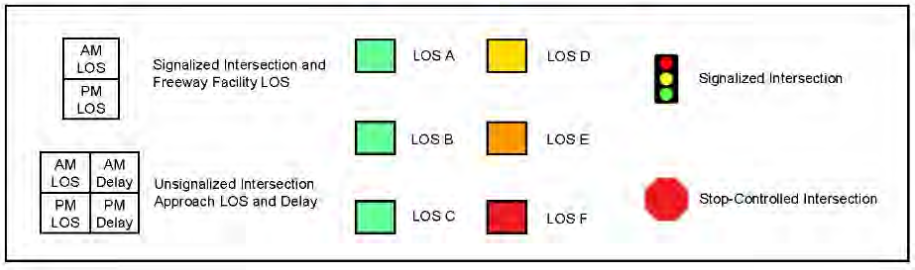
Slide 27

MJ7 sometimes i don't like to show 2047 to stakeholders...given growth projections and the number of years into the future it doesn't always resonate with them.

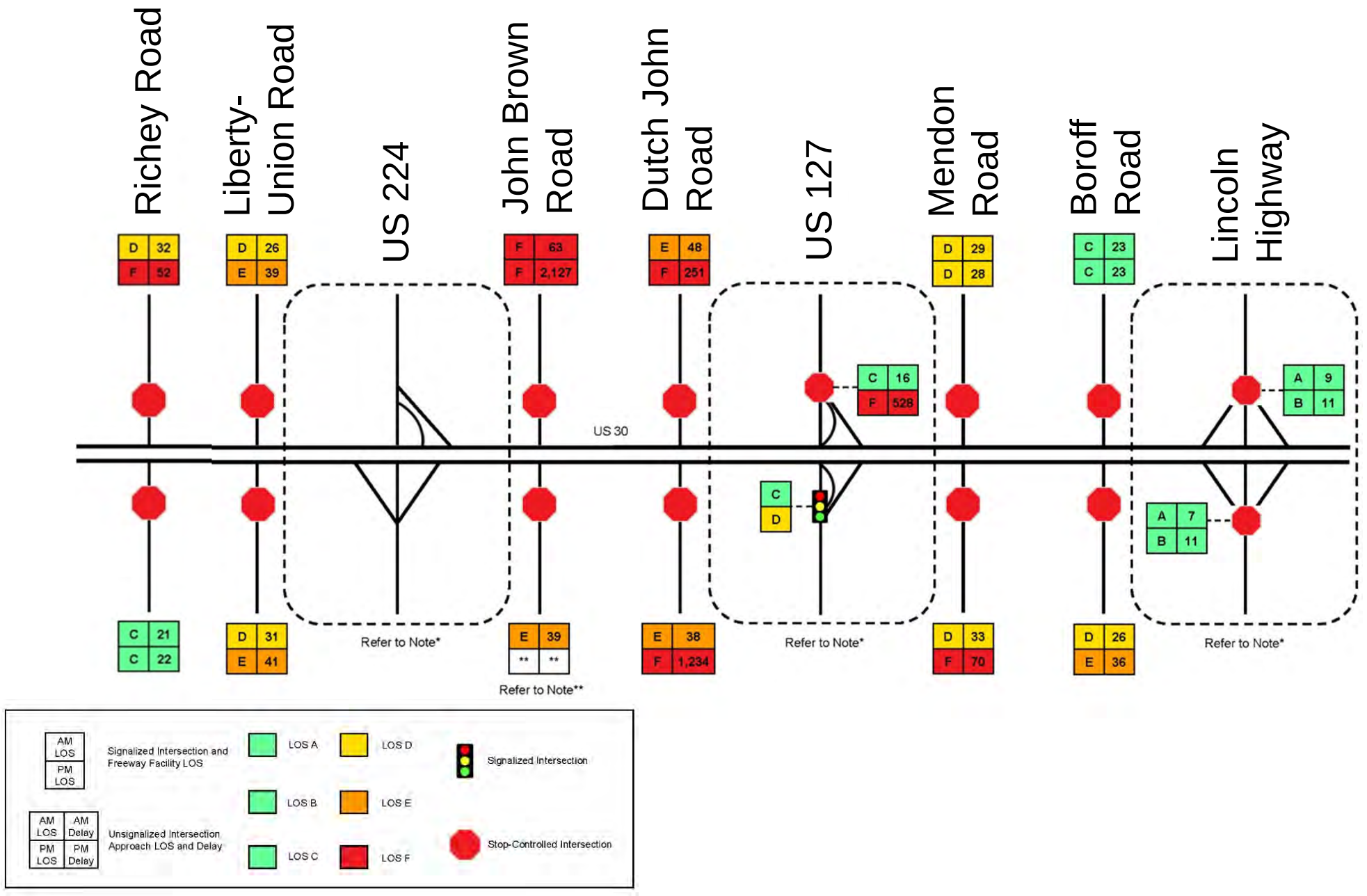
Maderia, Justin, 7/27/2021

INTERSECTIONS (EAST) 2027





INTERSECTIONS (EAST) 2047



FROM DATA TO DESIGN

- Expect this study to develop multiple solutions (alternatives) that could advance into design as separate projects.

DESIGN TOOLBOX

Cul-de-sac

Right In Right Out

Overpass

Interchange

DESIGN TOOLBOX

RCUT – Restricted Crossing U-Turn

NEXT STEPS

- September 2021- Review input from this meeting
- Fall 2021- Develop preliminary alternatives
- December 2021- Present developed alternatives to Stakeholders (Stakeholder Meeting #2)
- Early 2022- Select Preferred Alternative(s)
- Spring 2022- Present alternatives to Public (Public Meeting)
- Summer 2022- Finalize Feasibility Study

QUESTIONS AND INPUT

We Want to Hear from You!

- Any other "needs" that should be investigated?
- Other safety concerns that we did not identify?
- General questions for the project team?

HOW TO SUBMIT COMMENTS

- ODOT project website:
  transportation.ohio.gov/wps/portal/gov/odot/projects/projects/113196
- Call Kylie: 419-999-6885
- Email Kylie: kylie.schnipke@dot.ohio.gov
- Mail comment form or letter to:

  Kylie Schnipke
  ODOT– District 1
  1885 N. McCullough Street
  Lima, OH 45801

Please submit comments by September 3rd, 2021!

PAU/VAN-US 30-0.00/0.00 Feasibility Study (PID: 113196) - Public Comment Summary Table

1st Stakeholder Meeting - Formal Comment Period from 08/03/21 to 09/03/21

Date Received	Date Responded	Name	Address	Phone Number	Email	Affiliation	Comment Summary	Comment Type	Response Summary	Response Type
07/08/21	07/08/21	Carol Cavanaugh	1077A Klinger Road Convoy, Ohio 45832	419-749-2330		Property Owner	Noted the 70 mph speed limit causes problems (lots of traffic, hard to see a gap to cross the interstate safely). She lives off of Kilnger Road and noted problems with a triangle section south of US 30 being missed by ODOT mowing crews that makes it harder to see oncoming traffic on US 30	Phone Call	Explained what the study entailed and thanked her for the other comments regarding speed and the grass mowing	Phone Call
07/16/21	07/19/21	Kent Eddy	16204 Road 18 Grover Hill, Ohio 45849	419-203-4356	kpeddy@juno.com	Field Owner	Farms at the intersection of US 30 and Dutch John Road. "Moving farm equipment and semi trailers across this road without any overpasses is very difficult and dangerous both to the farmer and those travelling on US 30. Having a speed limit of 70 mph on an unlimited access highway is dangerous and irresponsible. Several overpasses would help with safety."	Email	Thank you for your comments.	Email
07/19/21	07/19/21	Jim McClure		419-605-5376		Property Owner	Owner of the water ski lake on the west side of Marsh Road overpass. He is interested in buidling a 2nd or 3rd lake ans wants to be made aware of the proposed projects so he can give some of his dirt for future overpasses.	Phone Call	Thank you for your comments. It will be noted for future reference when a project is being ready for construction	Phone Call
07/20/21	07/20/21	Gary Howt?		419-203-5103		Property Owner	Lives at the intersection of US 30 and John Brown Road. Wanted to know what the long range plan was for the John Brown Road intersection.	Phone Call	Explained that we are in the early stages of a study and had no proposed projects at this time - just looking for comments from stakeholders in the area.	Phone Call
07/22/21	07/22/21	Robert McOmber	1474 Richey Road Scott, Ohio 45886	567-259-8428	bcmac@watchtv.net	Property Owner	Needs to be limited access with cloverleafs and overpasses built	Letter	Thank you for you comment.	Email
07/22/21	07/22/21	Carol Cavanaugh	1077A Klinger Road Convoy, Ohio 45832	419-749-2330	jpc@watchtv.net	Property Owner	Suggests an access road be installed so merging onto the highway is safer. Notes more traffic now than ever and travelling over the speed limit	Letter	Thank you for your comment.	Email
07/22/21	07/22/21	Janice Kohn	206 N Shane St. Ohio City, Ohio 45874	419-203-8916	206jckohn@gmail.com	Property Owner	People on 49 South seem to be in a hurry and do not watch for traffic on US 30	Letter	Thank you for your comment.	Email
08/05/21	08/05/21	Kevin Price	7789 Boroff Road Van Wert, Ohio 45891	419-605-8708	k2thap@hotmail.com	Property Owner	Do not want Boroff Road to be a cul-de-sac due to inconveniences, Suggests right turn lanes at all intersections, John Brown seems to be the worst problem due to visability	Email	Thank you for your comment.	Email
08/06/21	08/09/21	Emily Reinhart		419-576-8162	reinhartemily12@gmail.com	Property Owner	Prefer traffic not be directed to Convoy Heller road as it significantly increases traffic past her house, supports getting rid of so many dangerous at-grade intersections	Email	Thank you for your comment.	Email
08/09/21	08/09/21	Carol Cavanaugh	1077A Klinger Road Convoy, Ohio 45832	419-749-2330	jpc@watchtv.net	Property Owner	SR 49 & US 30 is a concern with turning trucks, wanted more information on the outcome of the study	Phone Call	Explained the next steps to the study and how there are no set alternatives yet, only looking for comments	Phone Call
08/10/21	08/10/21	Roger & Carol Pollnow	1982 Mentzer Church Road Convoy, Ohio 45832	419-605-5483	vsb74@aol.com	Property Owner	Stop sign at corner of Elm Sugar and Mentzer Church Road is ignored (ran) on a daily basis. Mentzer Church south of US 30 needs to be closed/cul-de-sac. Elm Sugar could be cul-de-sac, or overpass for daily traffic and farm traffic.	Letter	Thank you for you comment.	Email
08/03/21		Darrel Clayton	5267 Mentzer Road, Convoy, OH 45832	419-605-3645	xc4@frontier.com	Property Owner, Commuter	R-Cut Intersections at SR 49 N, SR 49 S, Convoy Road Lighting (solar lights) SR 49 N, SR 49 S, Convoy Road. NO overpasses. Data collection for intersections US 30 West missing Data and roads SR 49 N, Convoy Heller (N) (SR 49 South) Payne Road. Need to separate data for each intersection analysis.	Comment Form at Meeting	Thank you for your comment.	Email
08/03/21	08/24/21	Wayne and Kathy Karges	5361 Colwell Road, Convoy, OH 45832	419-605-6889		Property Owner	SR 49 S and N signage now to tell non-natives that the highway is a divided 4-lane highway. Also blinking stop as is now on Lincoln highway and 224.	Comment Form at Meeting	Thank you for your comment.	Phone Call
08/12/21	08/12/21	Ed Fabian	2455 Lare Road, Convoy Ohio 45832	419-605-5482	edfabian54@gmail.com	Property Owner	State Route 49 needs the most improvments. Median needs some marking so you know how far to be in it safely. An overpass or interchange would be the best action. Not in favor of an RCUT because you have to get on US 30, then in the passing lane. Limited access on side roads would help save lives.	Letter	Thank you for your comment.	Email

08/03/21		Sergeant Sisco			Ohio State Highway Patrol	Noted that there had been 53 Failure to Yield Crashes. In 51 of the 53 crashes the driver stopped prior to entering US 30, but then failed to yield to traffic on US 30.	During Stakeholder Meeting	N/A.	
08/03/21		Judy Harding	18006 OH-49, Willshire, OH 45898		Resident, Property Owner	Did the change to 70 mph contribute to what's going on? Also, I've gone the wrong way on a similar road in Indiana and it was scary!	During Stakeholder Meeting	Speed is likely a contributing factor, but the study is trying to figure out exactly what is happening. Confirmed that wrong way incidents were an issue in the corridor and the study and other short term improvements are trying to prevent these.	Verbal, During Meeting
08/03/21	08/03/21	K&L Ready Mix	PO BOX 325, Ottawa, OH 45875	donr@kandlreadymix.com	Nearby business, property owner	Was wondering if the fatality was related to MOT/construction? He said that one of his companies vehicles was involved in an accident on US 30. Also noted that the Ready-Mix trucks use John Brown Road and the Sand Haulers use Rickey Road.	During Stakeholder Meeting	Not sure if the fatality was related to the construction and/or maintenance of traffic on US 30, but he did mention one was related to construction (slowing vehicle/rear end).	Verbal, During Meeting
08/03/21	08/03/21					Does the LOS also include trucks? Or does it just include regular vehicles.	During Stakeholder Meeting	Yes, the LOS data also includes trucks as well as regular passenger vehicles.	Verbal, During Meeting
08/03/21	08/03/21				Property Owner near 224 and Liberty Union	How many of the crashes are GPS related (Liberty Union, 224 landowner?	During Stakeholder Meeting	It is hard to blame GPS, but it is definitely a factor. Those turning left onto US 30 will turn before crossing the median and head the wrong way. Their GPS detects them moving in the correct direction and they think they're going the correct way, treating the road as a two-lane highway however they are really headed the wrong way on the four lane divided highway. You cannot blame the GPS systems for these incidents, however they are a factor to consider in the wrong way incidents.	Verbal, During Meeting
08/03/21	08/03/21				Resident, Property Owner	Cutting off access at Liberty Union would not be desirable because of the farm equipment/combines that access US 30 from Liberty Union Road.	During Stakeholder Meeting	We appreciate the input. Cutting off access at every at grade intersection is not the intention of the feasibility study, however it will be considered an option for the corridor.	Verbal, During Meeting
08/03/21	08/03/21				Resident, Property Owner	Can 224 be reconfigured to help with traffic on Liberty Union Road? Stakeholder suggested that if Liberty-Union were to be closed, then the US 224 interchange should be reconfigured to connect back into Liberty-Union north of US 30.	During Stakeholder Meeting	All options will be considered.	Verbal, During Meeting
08/03/21	08/03/21	Jerry Koenig		jerry@flatlandssupply.com	Resident, Property Owner	Can an extra lane can be added on US 30 for vehicles that are taking a right turn to get off onto a side route? They noted that the drivers following them assume that they are going to turn at US 224 and not Liberty-Union.	During Stakeholder Meeting	Constructing right lane turns can be a double edge sword. It's great for those who are getting off US-30 onto one of the side routes, however the vehicle being in the right lane cuts off visibility for vehicles turning right from the side route onto US 30	Verbal, During Meeting
08/03/21	08/03/21	Yvonne and James McClure	9405 Feasby Wisener Road, Convoy, OH 45832		Resident, Property Owner	224 to 40 cross over movement hard to navigate. Cul-de-sacs could cause more issues "down the road" and at other intersections. Wants to make sure the team is looking "downstream" at impacts. He also mentioned that the J-turn in Indiana is not great and is scary. Semis and other cars get backed up turning and it causes delays.	During Stakeholder Meeting	Thank you for your comment.	Verbal, During Meeting
08/03/21	08/03/21				Resident, Property Owner	Noted that ODOT already owns additional right-of-way at SR 49S that could accommodate an interchange.	During Stakeholder Meeting	Thank you for your comment.	Verbal, During Meeting
08/03/21	08/03/21	Owner, Pleasant Shores Ski Club	8386 Marsh Road Van Wert, OH 45891		Resident, Property Owner	Expressed interest in having the land adjacent to the water ski lake used as a borrow pit so that the lake could be enlarged.	During Stakeholder Meeting	Thank you for your comment.	Verbal, During Meeting
08/03/21	08/03/21	Darrel Clayton	5267 Mentzer Road, Convoy, OH 45832		Resident, Property Owner, Commuter	He commutes from Convoy to Fort Wayne for work and says that the RCUTs he's encountered have improved safety.	During Stakeholder Meeting	We appreciate the response. One is currently being constructed in another area within District 1.	Verbal, During Meeting
08/03/21	08/03/21					Stated that the FHWA has data that says RCUTs can sometimes actually increase accidents.	During Stakeholder Meeting	Thank you for your comment.	Verbal, During Meeting

08/03/21	08/03/21				What is the cost difference between an RCUT and an interchange?	During Stakeholder Meeting	A lot of different factors can come into play with the cost of a project, but generally a standard diamond interchange is $52M and an R-cut is $2M.	Verbal, During Meeting
08/03/21	08/03/21				If you were to cul-de-sac, are you considering what that would do to other areas, how it affects local traffic?	During Stakeholder Meeting	Yes! All of the local traffic and movements would be considered. Got a shaking head when Chris mentioned overpass for farm equipment.	Verbal, During Meeting
08/03/21	08/03/21				S. leg of SR-49 and State Line left turn lanes are not long enough, especially for the speed on US 30.	During Stakeholder Meeting	Thank you for your comment.	Verbal, During Meeting
08/03/21	08/03/21				Can you lower the speed limit?	During Stakeholder Meeting	The speed limit is set by the Ohio Legislature, so we cannot change it by ourselves. Lowering the speed limit also would likely not decrease crashes because the main crash type is failure to yield, meaning drivers still stop at US 30 and then proceed into traffic in which speed is not a factor. Sgt. Skisco made comment that it's still related to driver decision, not necessarily speed. People drive how they want.	Verbal, During Meeting
08/03/21	08/03/21				Can the right turn lanes be extended on US 30?	During Stakeholder Meeting	(similar to the same question that was asked in the first meeting) extending right-turn lanes is a double edge sword. However, chris said that the RCUT at Thayer road has an extended right turn lane, however it is offset so that cars that pull up to US-30 can still see oncoming traffic. Offsetting the right turn lane like the one on Thayer costs more money because there is more right-of-way needed to purchase the property off of the intersection.	Verbal, During Meeting
08/03/21	08/03/21			Property Owner	Coming from Fort Wayne on US 30 it is hard to see the southbound lane to SR 49.	During Stakeholder Meeting	Thank you for your comment.	Verbal, During Meeting
08/03/21	08/03/21			Business Owner and Worker	For material hauling - drivers to/from the west (Fort Wayne) use Elm Sugar Road. Drivers to/from the East (Lima) use Richey Road	During Stakeholder Meeting	Thank you for your comment.	Verbal, During Meeting
08/03/21	08/03/21				Drivers avoid at grade crossing and choose to use existing overpasses for grain hauling. Grain hauling traffic conflicts with Lincoln Ridge Farm traffic on Pollock Road. I'm worried about the ability for Pollock Road (width/strength) to accommodate trucks.	During Stakeholder Meeting	Thank you for your comment.	Verbal, During Meeting
08/03/21	08/03/21	Manager, Lincoln Ridge Farms	6588 Pollock Rd, Convoy, OH 45832		Lincold Ridge Farms Fall Mum and Pumkpin Festival attracts 25-30k visitors every year. 2/3 arrive from west and use dixon Cavett Road. 1/3 arrive from the east and use Colwell Road. Traffic sometimes backs up on to the lincoln highway at peak times.	During Stakeholder Meeting	Thank you for your comment.	Verbal, During Meeting
08/03/21	08/03/21				Mentzer Church Road north of US 30 is unpaved. There is no bridge over Blue Creek. Matthews Road is unpaved. There is no bridge over the drainage ditch.	During Stakeholder Meeting	Thank you for your comment.	Verbal, During Meeting
08/03/21	08/03/21				Trees in the median limit sight distance at Mentzer Church Road and Elm Sugar Road	During Stakeholder Meeting	Thank you for your comment.	Verbal, During Meeting
08/03/21	08/03/21				There is a cemetary located adjacent to US 30 between Elm Sugar Road and Mentzer Church Road.	During Stakeholder Meeting	Thank you for your comment. Cultural and Archeological resources will be documented as part of the feasibility study.	Verbal, During Meeting
08/03/21	08/03/21				Sight distance to the east of Dutch John Road is limited due to the US 30 profile which passes over the railroad, Town Creek, and US 127.	During Stakeholder Meeting	Thank you for your comment.	Verbal, During Meeting
08/03/21	08/03/21				Liberty-Union's proximity to US 224 causes confusion. Eastbound drivers turning south on Liberty Union are concerned about drivers behind them assuming they are instead turning onto US 224 West and therefore failing to slow down. Could the existing US 224 interchange be reconfigured to connect to Liberty-Union North of US 30?	During Stakeholder Meeting	Thank you for your comment. We will look at the existing 224 interchange as part of the study.	Verbal, During Meeting

08/23/21	08/23/21	Joe & Stacy Elling	6998 Boroff Road Van Wert, Ohio 45891		joestacyelling@hotmail.com	Property Owner	Heard Borrof Road will be closed, Does not want Boroff Road to be closed as they used this intersection to get to work, kids to school, and more. States there were not many crashes there. Also asks if the intersection is closed to wait until after the US 224/US 127 roundabout construction	Email	Explained we don't have any project planned currently, just studying for future safety concerns. Thanked them for their comment and exlpained future plans for the study and when it would be finalized	Email
08/24/21	N/A	Tim Copsey	101 Easy Perry Street Paulding, Ohio 45813	419-399-8282		Paulding County Economic Development	Paulding County Economic Development would support a closure of intersection #2. Requests the Intersection #1 (State Line) remain open with an R-Cut type crossing due to the distance between Indiana Highway 101 and SR 49. Also requests SR 49 remain open with an RCUT style crossing	Website	No response sent as none was requested and he only left his phone number in case of further questions or required discussions.	N/A
08/25/21	08/25/21	Kristen Dunlap			k_rdunlap@yahoo.com	Property Owner	Strongly opposes closing Boroff Road. Notes that there has been no accidents due to wrong way drivers in the 5 years she's lived there. This study is a waste of ODOT's time and we should focus more on actual proble s instead of cul-de-sacs on a simple 4-lane highway for no plausible and confirmed reason	Email	Thank you for your comment.	Email
08/31/21	08/31/21	Marsha Harting	8194 Richey Road Van Wert, Ohio 45891	419-238-3932	gemjharting@icloud.com	Land Owner	Install the signs as soon as possible. Cheaper solution and could see if it helped a lot in this area. The 70 mph speed limit is too fast.	Letter	Thank you for your comment. The pavement markins are already installed and the signs will be installed this year yet in an effort to reduce crashes along this corridor.	Email
08/31/21	08/31/21	Matt Perkins	2152 Elm Sugar Road Convoy, Ohio	419-203-9107	perkins.matt@crestviewknights.com	Property Owner	None at this time.	Letter	Thank you for taking the time to fill out the comment sheet.	Email
08/31/21	08/31/21	K&L Ready Mix			donr@kandlreadymix.com	Business Worker	K&L avoids using US 30 if possible. Braun Ambulance and many other factories employees use John Brown Road and traffic backs up a lot at peak times. If John Brown is closed, the congestion on the US 224 and US 127 ramps, especially Bonnewitz Ave. in Van Wert will be a large problem. The speed limit is too fast, making gaps in traffic hard to find	In person meeting	Conversation during the meeting. Thanked them for the comments	In person
09/01/21	09/01/21	Marc & Cindy Grubaugh	1925 Road 12 Convoy, Ohio 45832	419-203-3889	mckgrubaugh@aol.com	Property Owner & Business Owner	Trucking company on Klinger Road and if Klinger Road is closed off, then the south part of Klinger Road will need work probably to support the semis. Cross roads are not wide enough to turn a semi and trailer safely	Letter	Thank you for your comment.	Email
09/01/21	09/01/21	Village of Convoy	Convoy			Village	Liberty Union Road should be closed immediately due to the proximity of the US 224 interchange. The traffic from the east on US 30 travelling to Convoy, including school traffic to Crestview Schools, uses Convoy Road to get to Convoy. If Convoy Road were shut off, then this will put more traffic on SR 49 thus going through Convoy's downtown.	Letter	Thanks for your comment	Phone conversation

U.S. 30 Feasibility Study Stakeholder Meeting #1 Sign-In Sheet						
Meeting Attendee?	**Name of Business or Property Owner**	**Property/Mailing Address 1**	**Property/Mailing Address 2**	**Phone?**	**Email?**	**Preferred Method of Contact**
Yes, Meeting #1 (Vantage)	Yvonne and James McClure	9405 Feasby Wisener Road	Convoy, OH 45832			Postal Mail
Yes, Meeting #1 (Vantage)	Harting Residence	8194 Richey Rd	Van Wert, OH 45891			Postal Mail
Yes, Meeting #1 (Vantage)	Marsha Harting	314 N Main Street, PO BOX 463	Convoy, OH 45832			Postal Mail
Yes, Meeting #1 (Vantage)	Janice E Kohn	206 N Shane St	Ohio City, OH 45874			No preference
Yes, Meeting #1 (Vantage)	Jay Fleming	515 East Main Street	Van Wert, Ohio 45891	(419) 238-1237	jfleming@vanwert.org	No preference
Yes, Meeting #1 (Vantage)	Kahle Company	PO BOX 325	Ottawa, OH 45875		donr@kandlreadymix.com	Email
Yes, Meeting #1 (Vantage)	Kyle Wendel	1192 Grill Rd.	Van Wert, OH 45891		kylewendel@bright.net	Email
Yes, Meeting #1 (Vantage)	James Bonifas	County Engineer Office				N/A
Yes, Meeting #1 (Vantage)	Kory Thatcher	County Engineer Office		kthatcher@bright.net		Email
Yes, Meeting #1 (Vantage)	Joe Sisco	State Highway Patrol				N/A
Yes, Meeting #1 (Vantage)	Jerry Koenig			jerry@flatlandssupply.com		Email
Yes, Meeting #1 (Vantage)	Judy Harding	18006 OH-49	Willshire, OH 45898			Postal Mail
Yes, Meeting #1 (Vantage)	Rosemare Harding	18223 OH-49	Willshire, OH 45898			Postal Mail
Yes, Meeting #2 (Convoy)	Bacon Bros Farms LLC	12029 Paulding Road	New Haven, IN 46774			Postal Mail
Yes, Meeting #2 (Convoy)	Chris Galloway	1944 Convoy Heller Road	Convoy, OH 45832			Postal Mail
Yes, Meeting #2 (Convoy)	Darrel and Kimberly Clayton	5267 Mentzer Road	Convoy, OH 45832			Postal Mail
Yes, Meeting #2 (Convoy)	Doug Poling	3728 Convoy Heller Rd	Convoy, OH 45832		polingexcavating@gmail.com	Email
Yes, Meeting #2 (Convoy)	Duvall Family Farms (Robert)	247 Prairie Lane	Van Wert, OH 45891		mrduvall1@hotmail.com	Email
Yes, Meeting #2 (Convoy)	Edward and Faith Fabian	2455 Lare Road	Convoy, OH 45832			Postal Mail
Yes, Meeting #2 (Convoy)	Flatrock Farms	10820 Pancake Road	Ohio City, OH 45874			Postal Mail
Yes, Meeting #2 (Convoy)	Jason Cox	2283 St Rt 49	Convoy, OH 45832			Postal Mail
Yes, Meeting #2 (Convoy)	Joseph Motycka	4271 U S Route 30	Convoy, OH 45832		Joemotycka@me.com	Email
Yes, Meeting #2 (Convoy)	Judy Motycka	P O Box 222	Convoy, OH 45832			Postal Mail
Yes, Meeting #2 (Convoy)	Kathy Mollenkopf	531 East Tully Street	Convoy, OH 45832	419-749-9100 Ext. 4001	mollenkopf.kathy@crestviewknights.com	Email
Yes, Meeting #2 (Convoy)	Kenneth and Robin Foehl	7372 Stamm Road	Convoy, OH 45832			Postal Mail
Yes, Meeting #2 (Convoy)	Loralee and Steven Lichtensteiger	8907 Pearson Road	Convoy, OH 45832		lichtensteiger.3@osu.edu	Email
Yes, Meeting #2 (Convoy)	Manager, Lincoln Ridge Farms	6588 Pollock Rd	Convoy, OH 45832			Postal Mail
Yes, Meeting #2 (Convoy)	Marc and Cynthia Grubaugh	1925 Rd 12	Convoy, OH 45832		mckgrubaugh@aol.com	Email
Yes, Meeting #2 (Convoy)	Neal Orsbon	180 Dealey Drive, PO box 540	Convoy, OH 45832-0310	419-408-0209	norsbon@shellyco.com	Email
Yes, Meeting #2 (Convoy)	Ray Boys One LLC (Don Ray)	1149 Walnut Valley Lane	Centerville, OH 45458		don@raytheil.com	Email
Yes, Meeting #2 (Convoy)	Ryan Reinhart and Emily Reinhart	5936 Lincoln Highway	Convoy, OH 45832		reinhartemily12@gmail.com	Email
Yes, Meeting #2 (Convoy)	Scott W. Davis	16299 Lincoln Highway	Van Wert, OH 45891		davisfam11699@gmail.com	Email
Yes, Meeting #2 (Convoy)	Sixth Gen Farm LLC	6630 Payne Road	Convoy, OH 45832		cwharting@cct-hf.com	Email
Yes, Meeting #2 (Convoy)	Stephen and Joann Feasby	6261 Dixon Cavett Rd	Convoy, OH 45832			Postal Mail
Yes, Meeting #2 (Convoy)	Terill Cox Farms LLC	2396 St Rt 49	Convoy, OH 45832			Postal Mail
Yes, Meeting #2 (Convoy)	Kelly Schlemmer	123 S Main St, PO Box 310	Convoy OH 45832-0310			No preference
Yes, Meeting #2 (Convoy)	Vicki Saylor	PO Box 255	Convoy, OH 45832		sayfam@frontier.com	No preference
Yes, Meeting #2 (Convoy)	Patti Cramer	PO Box 228	Convoy, OH 45832		rtshiba@yahoo.com	Email
Yes, Meeting #2 (Convoy)	Dana Smith				dvbbsmith@gmail.com	Email
Yes, Meeting #2 (Convoy)	Tim Bolenbaugh	123 S. Main St., P.O. Box 310	Convoy, OH 45832-0310	419-749-2266	villageofconvoy@bright.net	No preference
Yes, Meeting #2 (Convoy)	Chris Bolenbaugh				ohiocb5@gmail.com	Email
Yes, Meeting #2 (Convoy)	Gerald Markley	PO BOX 325	Ottawa, OH 45875			Postal Mail
Yes, Meeting #2 (Convoy)	Dennis and Susan Rhoads	3354 Elm Sugar Road	Convoy, OH 45832			Postal Mail
Yes, Meeting #2 (Convoy)	Ken Fheal	7372 Stamm Road	Convoy, OH 45832			Postal Mail
Yes, Meeting #2 (Convoy)	Sheryl Ball				cfd81309@frontier.com	Email
Yes, Meeting #2 (Convoy)	Convoy Fire Chief				Chiefcfd@bright.net	Email
Yes, Meeting #2 (Convoy)	Kathy and Wayne Kargus	5361 Colwell Road	Convoy, OH 45832			Postal Mail

Stakeholder Meeting #2

OHIO DEPARTMENT OF TRANSPORTATION
Mike DeWine, *Governor*
Jack Marchbanks, Ph.D., *Director*

District 1
1885 North McCullough St., Lima, OH 45801
419-222-9055
transportation.ohio.gov

February 2, 2022

RE: Stakeholder Meeting #2 for U.S. 30 Feasibility Study - from the Indiana state line to Lincoln Highway interchange (PID 113196)

Dear Stakeholder:

The Ohio Department of Transportation (ODOT) would like to invite you to a second stakeholder meeting to further develop feasible alternatives for access management along the U.S. 30 corridor.

The meeting is part of an ongoing U.S. 30 feasibility study that is examining potential safety improvements along the U.S. 30 corridor from the Indiana state line in Paulding County to the Lincoln Highway (County Road 418) interchange in Van Wert County.

Based on input received at the first stakeholder meeting, the project team has developed preliminary feasible alternatives. The purpose of this second meeting is to present these alternatives and receive additional comments and input. Your comments will be used to help further develop the alternatives which will be presented at a future public meeting.

Eighteen at-grade intersections and four county road areas have been identified as part of the feasibility study (see attached study area map). We are in the early stages of the study in which we have been reviewing/collecting data and initiating our public outreach. The feasibility study is expected to be complete near the end of 2022.

We hope you can join us for a meeting at either of the following times:

Date: Wednesday, February 16, 2022

Location: Convoy Community Building, 5348 OH-49, Convoy, OH 45832

Times:

- Open House from 1:00 – 3:00 PM with Presentation at 1:30 PM
- Open House from 5:00 – 7:00 PM with Presentation at 5:30 PM

The same information will be presented at both meetings. The meeting will begin with a short presentation followed by an open house period where you can view and comment on project exhibits around the room and talk to the project team at your leisure.

In case of inclement weather, please check the project website (below) for updates on the status of the in-person meeting.

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If you cannot attend the meeting in person, or the meeting is cancelled, information can also be viewed by visiting:
https://www.transportation.ohio.gov/wps/portal/gov/odot/projects/projects/113196.

On the website you will be able to view the pre-recorded voiceover PowerPoint presentation (available on February 15, 2022), meeting materials, and provide comments via the comment form found on the website (also included in this mailing).

Requests for interpretation services or reasonable accommodation to participate in the meeting, and comments can be submitted through the project website, mail, email, and by phone to the following contact:

Questions or comments? Please contact me: Kylie Schnipke

Phone: 419-999-6885

Email: Kylie.Schnipke@dot.ohio.gov

Comments should be submitted by March 16, 2022, to be documented in the public input summary report, which will include responses to all comments submitted during the 30-day period; however, ODOT will respond to all comments received at any time. Public participation in this project is solicited without regard to race, color, sex, age, national origin, or disability.

Thank you for your involvement.

Respectfully,

Kylie Schnipke
Project Manager, ODOT District 1

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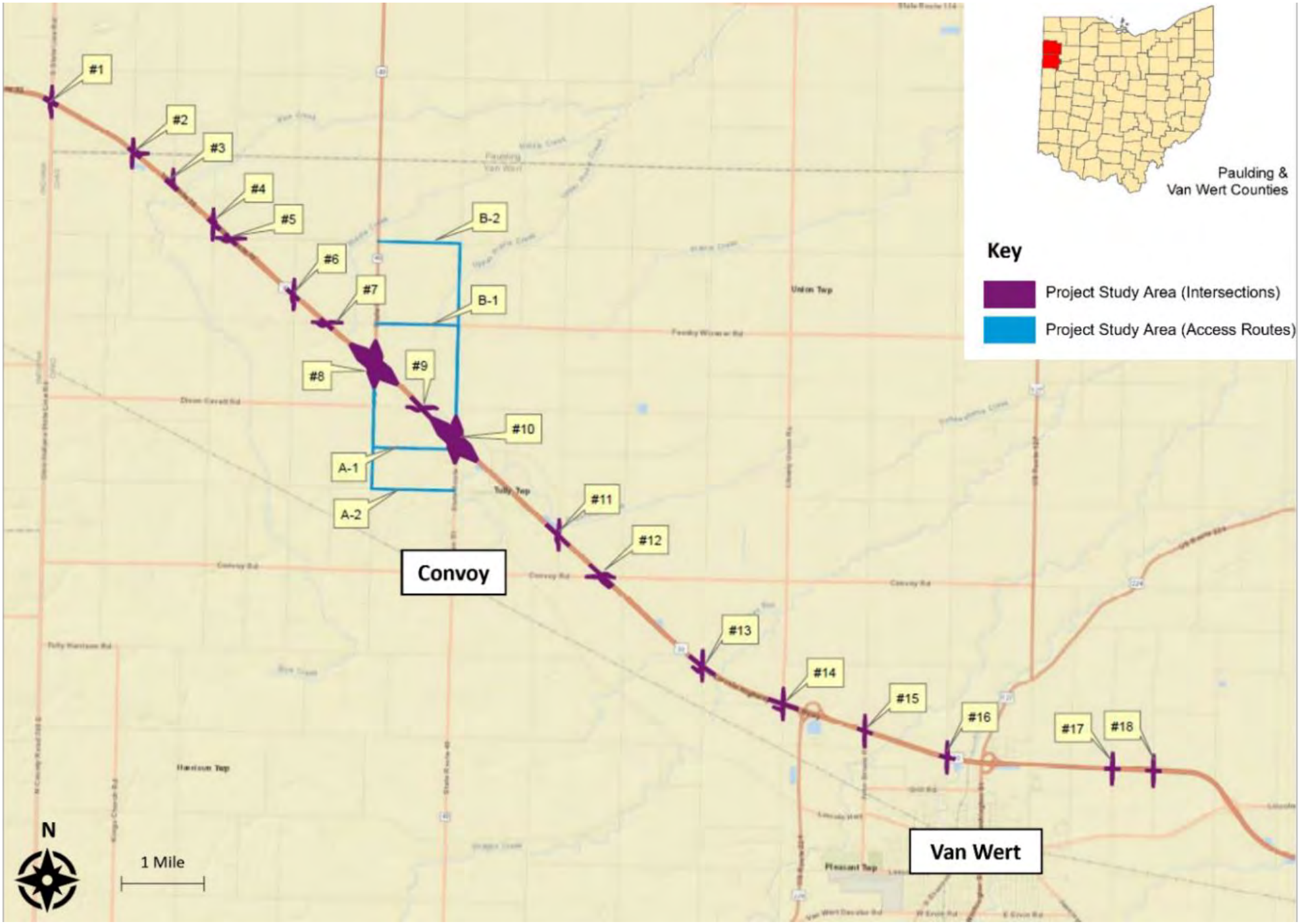
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Convoy
Van Wert
Paulding &
Van Wert Counties
Key
Project Study Area (Intersections)
Project Study Area (Access Routes)
N
1 Mile

From:	Chantil Milam
To:	cduvall@lincolnview.k12.oh.us; polingexcavating@gmail.com; mrduvall1@hotmail.com; ema@pauldingcounty-oh.com; pleasanttwpvwo@gmail.com; heathb@mercerlandmark.com; jfleming@vanwert.org; Jeffrey.Loehrke@dot.state.oh.us; jsynder@lincolnview.k12.oh.us; vanwert@ofbf.org; vwpres@gmail.com; Joemotycka@me.com; donr@kandlreadymix.com; mollenkopf.kathy@crestviewknights.com; k_amstutz@pauldingschools.org; kmarkward@vanwert.org; kbrandt@vanwertcountyohio.gov; ksomerton@vanwerted.com; kylewendel@bright.net; lichtensteiger.3@osu.edu; mckgrubaugh@aol.com; m_bagley@vwcs.net; norsbon@shellyco.com; don@raytheil.com; pccommissioners@pauldingcountyoh.com; reinhartemily12@gmail.com; davisfam11699@gmail.com; cwharting@cct-hf.com; stacyadam@vanwerted.com; sowens@vanwertcounty.org; tlichtensteiger@vanwertcounty.org; triggenbach@vanwertcountysheriff.com; director@pced.net; villageofconvoy@bright.net; twolfrum@vanwertcounty.org; kthatcher@bright.net; jerry@flatlandssupply.com; sayfam@frontier.com; rtshiba@yahoo.com; dvbbsmith@gmail.com; villageofconvoy@bright.net; ohiocb5@gmail.com; cfd81309@frontier.com; Chiefcfd@bright.net; bcschumm0@gmail.com
Cc:	kylie.schnipke@dot.ohio.gov; Nate.Tessler@dot.ohio.gov; Chris.Hughes@dot.ohio.gov; Robert.White@dot.ohio.gov; Adam.Francis@dot.ohio.gov; eric.scheckelhoff@dot.ohio.gov; Mark.mueller@dot.ohio.gov; Cheri.Newton@dot.ohio.gov; Hebebrand, Craig; Abigail Anacki
Subject:	Second Stakeholder Meeting for U.S. 30 (from the Indiana state line to Lincoln Highway interchange) Feasibility Study (PID 113196)
Date:	Wednesday, February 2, 2022 3:55:00 PM
Attachments:	PAU-VAN 30 Stakeholder Meeting 2 Notification Letter_Final_ 2.2.22.pdf image001.png PAU-VAN 30 Stakeholder Meeting 2 Comment Form.pdf

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ODOT Project Manager: Kylie Schnipke
Phone: 419-999-6885
Email: Kylie.Schnipke@dot.ohio.gov

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Thank you for your involvement.

Chantil M. Milam
Practice Leader, NEPA
Lawhon & Associates, Inc.
P: 614.481.8600 ext.173 | C: 614.425.6270
www.lawhon-assoc.com
Message sent on behalf of the Ohio Department of Transportation, District 1

PAU/VAN Stakeholder Meeting 2 Notification Mailing List		
Name of Business or Property Owner	**Property/Mailing Address 1**	**Property/Mailing Address 2**
V W T C 1 LLC	4653 Trueman Blvd. Suite 100	Hilliard, OH 43026
Alan Christian	8754 Swisher Creek Crossing	New Albany, OH 43054
Alexander Family	1158 Professional Drive	Van Wert, OH 45891
Alliance Properties Group LLC	560 Bonnewitz Ave	Van Wert, OH 45891
Alma Thornell	21715 Timbercrest Drive	Defiance, OH 43512
Anne and Bradley Guest	4700 Dixon Cavett Rd	Convoy, OH 45832
Bacon Bros Farms LLC	12029 Paulding Road	New Haven, IN 46774
Basil Dealey	2543 Elm Sugar Road	Convoy, OH 45832
Bauer Family	8633 Convoy Road	Convoy, OH 45832
Benjamin A. Winans	4915 US 127	Haviland, OH 45851
Beth Newland	Po Box 296	Captiva, FL 33924
Betty Bickel	5398 Mentzer Rd	Convoy, OH 45832
Brady Family Partnership	411 W Townline	Payne, OH 45880
Brenneman Brothers	5230 North Grubb Road	Elida, OH 45807
Brian Knapp	116 South Main Street	Paulding, OH 45879
Bruce and Diana Feasby	4726 Dixon Cavett Road	Convoy, OH 45832
Business Development Corporation of Van Wert Inc	Po Box 311	Van Wert, OH 45891
Byron Dealey	4148 N Meadow Spring Drive	New Castle, IN 47362
Cathie Malone	Van Wert Courthouse Room 106, 121 E. Main Street	Van Wert, Ohio 45891
Cheryl Baker	7633 SR 613	Payne, OH 45880
Chris Galloway	1944 Convoy Heller Road	Convoy, OH 45832
City of Van Wert	515 E Main St	Van Wert, OH 45891
Clint Vance	115 North Willams Street, B-1	Paulding, OH 45879
Convoy Real Estate LLC	6880 Albion Road	Oakfield, New York 14125
Craig and Bruce Feasby	3997 Payne Road	Convoy, OH 45832
Craig Feasby	3997 Payne Rd	Convoy, OH 45832
Dale and Lavonna Boley	8390 Boroff Road	Van Wert, OH 45891
Darlene and Barry Missler	7226 Richey Rd	Van Wert, OH 45891
Darrel and Kimberly Clayton	5267 Mentzer Road	Convoy, OH 45832
Dave Foltz	311 W. Wall St.	Paulding, OH 45879
David and Nancy Speelman	3477 Convoy Heller Road	Convoy, OH 45832
David C. Jones	5259 Liberty Union Rd.	Van Wert, OH 45891

Dean Bowersock	8502 Little Auglaize River Rd	Delphos, OH 45833
Debbra Kindell	4893 US Rt 30	Convoy, OH 45832
Deborah Morris	15848 Jonestown Road	Venedocia, OH 45894
DJ Vanwynsberghe	9706 Gilliland Road	Van Wert, OH 45891
DJ Vanwynsberghe	16246 State Route 116	Van Wert, OH 45891
Doug and Sarah Dealey	1227 Krick Rd	Convoy, OH 45832
E & R Wells Farms LLC	6174 Monmouth Road	Van Wert, OH 45891
Eddy and Pamela Kent	16204 Road 18	Grover Hill, OH 45849
Edward and Faith Fabian	2455 Lare Road	Convoy, OH 45832
Yvonne and James McClure	9405 Feasby Wisener Road	Convoy, OH 45832
Ellie Mcomber	5966 Liberty Union Road	Van Wert, OH 45891
Eric and Julie Burk	5525 Mentzer Road	Convoy, OH 45832
ESTOHN LLC	19 Longlea Drive	Little Rock, AR 72212
Evelyn Lorene Noe	6606 11th Ave W	Bradenton, Fl 34209
Feasby Residence	4508 Payne Rd	Convoy, OH 45832
FFF2 Properties LLC	10294 Sidle Rd	Van Wert, OH 45891
First Bank of Berne	102 W ain Street	Berne, IN 46711
Flatrock Farms	10820 Pancake Road	Ohio City, OH 45874
Frances Neiswander	5668 Mentzer Road	Convoy, OH 45832
Gary Steven and Jane Ellen Houg	7732 John Brown Rd	Van Wert, OH 45891
Harting Residence	8194 Richey Rd	Van Wert, OH 45891
Marsha Harting	314 N Main Street, PO BOX 463	Convoy, OH 45832
Gerald Harting	P O Box 463	Convoy, OH 45832
Goodwill Easter Seals	660 S Main Street	DAYTON OH 45402
Greentop Acres LLC	8789 State Route 114	Haviland, OH 45851
Greg and Lisa Wortman	4103 Payne Rd	Convoy, OH 45832
Greg White	116 South Main St.	Paulding, OH 45879
Grent Brown	3128 Convoy Heller Rd	Convoy, OH 45832
Hampton Residence	5296 Waller Rd	Convoy, OH 45832
Harting Residence	2535 Klinger Road	Convoy, OH 45832
J M Schmelzer	Po Box 126	Van Wert, OH 45891
JA & LJ Farms LLC	Po Box 259	Convoy, OH 45832
Jada Properties	20269 County Road 424	Defiance, OH 43512
James and Carol Cavanaugh	1077A Klinger Road	Convoy, OH 45832

James and Kay Gibson	3165 Lare Road	Convoy, OH 45832
James Miller	5305 Davenport Place	Roswell, GA 30075
James Miller C/O Tom Bosserd	1408 Penniman Avenue	Plymouth, MI 48170
James Miller, Halderman Farm	5490 Crane Rd	Ypsilanti, MI 48197-8848
James Pollnow	5634 Feasby Wisener Rd	Convoy, OH 45832
Janice E Kohn	206 N Shane St	Ohio City, OH 45874
Jason Cox	2283 St Rt 49	Convoy, OH 45832
Jason Landers	500 East Perry Street	Paulding, OH 45879
Jason Vance	116 South Main St.	Paulding, OH 45879
Jay Gamble	12479 Cooper Rd	Van Wert, OH 45891
Jay Petroleum Inc	533 S 200 W, PO Box 1285	Portland, IN 47371
Jeffrey and Linda Spear	5792 Lincoln Highway	Convoy, OH 45832
Jerry and Julie Rager	246 Alexander Drive	Maggie Valley, NC 28751
Jerry and Julie Rager	12700 Edgewood Dr	Van Wert, OH 45891
John and Beverly Eichenlaub	9608 Elm Sugar Rd	Convoy, OH 45832
John Eversman	130 Boyd Avenue	Van Wert, OH 45891
John Shutt	3572 Feasby Wisener Rd	Convoy, OH 45832
Jon and Judith Hall	P O Box 58	Convoy, OH 45832
Jones Residence	17399 Jonestown Road	Venedocia, OH 45894
Joseph Thome	6839 RD 39	Payne, OH 45880
Judy Motycka	P O Box 222	Convoy, OH 45832
Julie Poling Schenk	9107 Champions Circle	Franklin, TN 37064
Julie Poling Schenk	606 Tree Lawn Place	Franklin, TN 37064
Justin Gamble	5743 Lincoln Highway	Convoy, OH 45832
Kathy Enterline	13910 SR 101	Monroeville, IN 46773
Kathy Fair	12617 Dutton Rd	Rockford, OH 45882
Keith Reidenbach	1057 Rd 11	Convoy, OH 45832
Kelly Dickens	4142 Payne Rd	Convoy, OH 45832
Kenneth and Robin Foehl	7372 Stamm Road	Convoy, OH 45832
Kent Berheide	P O Box 863	Van Wert, OH 45891
Kent Rolsten	4121 Liberty Union Rd.	Van Wert, OH 45891
Kimberly and Francis Fling	215 Bonnewitz Ave	VAN WERT OH 45891
Kriegel Second Irrev Trust	805 S Walnut Street	VAN WERT OH 45891
Larry and Elaine Myers	2186 Mentzer Rd	Convoy, OH 45832

Larry and Rhonda Black	8290 Dutch John Rd	Van Wert, OH 45891
Larry Dealey	1439 Rd 17	Convoy, OH 45832
Larry Edwards	5102 Dixon Cavette Rd	Convoy, OH 45832
Larry Laukhuf	10553 Rd 72	Haviland, OH 45851
Lassus Bros Oil Inc	1800 Magnavox Way	Fort Wayne, IN 46804
Lester and Bonita Myers	4353 Shaw Road	Convoy, OH 45832
Lester and Bonita Myers	4833 Shaw Rd	Convoy, OH 45832
Lion Farms USA Inc	2620 Hoaglin Rd	Van Wert, OH 45891
Lois Richard	9510 Kasota Court	Ft Wayne, IN 46804
Lt. John Gray	10234 Van Wert-Decatur Road	Van Wert, OH 45891
Magic Tunnel Midwest LLC	1316 Meadow Crest Place	Columbus, OH 43228
Manager, Alliance Automation	560 Bonnewitz Ave	Van Wert, OH 45891
Manager, Anytime Fitness	303 Towne Center Blvd	Van Wert, OH 45891
Manager, Arby's	872 N Washington St	Van Wert, OH 45891
Manager, Braun Ambulances	1170 Production Dr	Van Wert, OH 45891
Manager, Fastenal	529 Bonnewitz Ave	Van Wert, OH 45891
Manager, First Bank of Berne	102 Christopher Crossing	Van Wert, OH 45891
Manager, Goodwill	206 Towne Center Blvd	Van Wert, OH 45891
Manager, GP Cycle Specialties, LLC.	6989 Richey Rd	Convoy, OH 45832
Manager, GuestKeeper Inn	875 N Washington St	Van Wert, OH 45891
Manager, Holiday Inn Express & Suites Van Wert, an IHG Hotel	140 Valam Dr	Van Wert, OH 45891
Manager, Hong Kong Buffet	349 Towne Center Blvd	Van Wert, OH 45891
Manager, K & L Ready Mix	900 John Brown Rd	Van Wert, OH 45891
Manager, Klausing Lawn Care	7737 US-127	Van Wert, OH 45891
Manager, Lassus Handy Dandy	885 N Washington St	Van Wert, OH 45891
Manager, Lincoln Ridge Farms	6588 Pollock Rd	Convoy, OH 45832
Manager, Magic Tunnel Express Car Wash - Van Wert	7965 US-127	Van Wert, OH 45891
Manager, Marathon Gas	800 N Washington St	Van Wert, OH 45891
Manager, Maurices	325 Towne Center Blvd Space 170	Van Wert, OH 45891
Manager, McDonald's	101 Christopher Crossing,	Van Wert, OH 45891
Manager, Metals Recycling Technologies	7600 US-127	Van Wert, OH 45891
Manager, Mi Ranchito	865 N Washington St	Van Wert, OH 45891
Manager, Murphy USA	201 Towne Center Blvd	Van Wert, OH 45891
Manager, Pearson Road Storage LLC	8495 Pearson Rd	Convoy, OH 45832

Manager, Scott Equity Exchange, Grain Elevator	305 Bonnewitz Ave	Van Wert, OH 45891
Manager, Shoe Sensation	319 Towne Center Blvd	Van Wert, OH 45891
Manager, Subway	109 Towne Center Blvd	Van Wert, OH 45891
Manager, Sugar Lane Dairy LLC	5624 Elm Sugar Rd	Convoy, OH 45832
Manager, Valam Hospitality/Comfort Inn	840 N Washington St	Van Wert, OH 45891
Manager, Van Wert Carts and More	883 N Washington St	Van Wert, OH 45891
Manager, Van Wert County Humane Society	309 Bonnewitz Ave	Van Wert, OH 45891
Manager, Van Wert Health North	214 Towne Center Blvd	Van Wert, OH 45891
Manager, Walmart Supercenter	301 Towne Center Blvd	Van Wert, OH 45891
Mark Crosby	1065 OH-114	Payne, OH 45880
Mark Dealey	5653 Mentzer Church Rd	Convoy, OH 45832
Mark Holtsberry	115 North Willams Street, B-1	Paulding, OH 45879
Marsh Foundation	P O Box 150	Van Wert, OH 45891
Mary and Robert Hall	5700 Colwell Road	Convoy, OH 45832
Matthew Mercer	5596 Lincoln Highway	Convoy, OH 45832
Mcbride Farms LLC	6072 Mentzer Church Road	Convoy, OH 45832
Mcodnalds Real Estate Company, C/O Jonathan Lewis	P O BOX 29	BLUFFTON OH 45817
Mercer Landmark Inc	Po Box 328	Celina, OH 45822
Michael and Shirley Lippi	6999 Richey Road	Convoy, OH 45832
Michael Bouillon	3848 Payne Rd	Convoy, OH 45832
Murphy Oil USA Inc	P O BOX 7300	El Dorado, Arkansas 71731
Nancy and Joseph Elston	8867 Pearson Road	Convoy, OH 45832
Owner, Dasher Rental LLC	10622 Lincoln Highway	Van Wert, OH 45891
P&M Gordon Frams LLC	1217 SR 49	Payne, OH 45880
P&M Gordon Frams LLC	9821 Charlotte Ln	Minocqua, WI 54548
Patricia and Everett Thatcher	5354 Colwell Road	Convoy, OH 45832
Paul Reidenbach	1491 S 13th St	Decatur In 46733
Paul Ross	5561 Mentzer Road	Convoy, OH 45832
Perl Oribel	6989 Richey Road	Convoy, OH 45832
Poling Farm Family	4144 Dull Robinson Rd	Convoy, OH 45832
Property Owner	7789 Boroff Road	Van Wert, OH 45891
Property Owner, Rhodes Investments LLC	2371 Western Ohio Ave	Lima, OH 45805
Randy Crawford	116 S. Main St.	Paulding, OH 45879
Randy Noggle	6437 OH-114	Haviland, OH 45851

Richard and Barbara Allen	5324 Mentzer Rd	Convoy, OH 45832
Richard and Margaret Miller	9756 Tumbleson Road	Van Wert, OH 45891
Richard Mollenkofp	3227 Dixon Cavett Rd	Convoy, OH 45832
Rick Turner	818 N Franklin St.	Van Wert, OH 45891
Ridgeway Farms LLC	9611 Terry Road	Van Wert, OH 45891
Robert and Diana Wallis	5044 Payne Road	Convoy, OH 45832
Robert and Sharon Custer	1049 Catalina Dr East	New Palestine, IN 46163
Robert Kampf	1134 Woodland Ave	Van Wert, OH 45891
Robert Trentman	23241 Dolt Rd	Delphos, OH 45833
Roger and Sheryl Pollnow	1982 Mentzer Church Road	Convoy, OH 45832
Roy and Patricia Hauter	5351 Mentzer Rd	Convoy, OH 45832
Ryan Spieth	5438 Mentzer Road	Convoy, OH 45832
Sarah and Dale Burden	5677 Waller Road	Convoy, OH 45832
Scott Clay	8953 Pearson Road	Convoy, OH 45832
Scott Equity Exchange Company	PO BOX 147	SCOTT OHIO 45886-0147
Sean Pfeiffer	4915 US 127	Haviland, OH 45851
Seth Owens	1185 Professional Drive	Van Wert, OH 45891
Shane and Karl Crider	5284 Colwell Road	Convoy, OH 45832
Sherry LaFontaine	2308 Sheets Road	Ohio City, OH 45874
Sherry LaFontaine	6586 Monmouth Rd	Van Wert, OH 45891
Sidney and Wanda Blush	1082 Klinger Road	Convoy, OH 45832
Spender and Joy Short	5293 Colwell Road	Convoy, OH 45832
Stephen and Joann Feasby	6261 Dixon Cavett Rd	Convoy, OH 45832
Steve Thomas	515 East Main Street	Van Wert, Ohio 45891
Steven and Susan Brown	5454 Mentzer Rd	Convoy, OH 45832
Steven and Trisha Jones	5694 Lincoln Highway	Convoy, OH 45832
Sugar Lane Dairy LLC	588 3 Mile Rd Nw, Suite 203	Grand Rapids, MI 49544
Sugar Lane Dairy LLC	5624 Elm Sugar Road	Convoy, OH 45832
Sylvia Alexander	1158 Professional Dr	Van Wert, OH 45891
Taylor Mccoy	5874 Lincoln Hwy	Convoy, OH 45832
Terill Cox Farms LLC	2396 St Rt 49	Convoy, OH 45832
Theresa and Gary Priddy	5868 Lincoln Highway	Convoy, OH 45832
Thomas and Christina Gibson	5241 Mentzer Road	Convoy, OH 45832
Thomas Fronefield	5313 Mentzer Road	Convoy, OH 45832

Thomas Odenweller	9810 Converse-Roselm Rd	Middle Point, OH 45863
Tiffany and Andrew Sidle	5451 Waller Rd	Convoy, OH 45832
Tina and Robert Pawlick	4207 Payne Rd	Convoy, OH 45832
Todd Wallace	10041 Liberty Union	Van Wert, OH 45891
Todd Weidenhamer	311 W. Wall St.	Paulding, OH 45879
Tom Gibson	5241 Mentzer Rd	Convoy, OH 45832
Tracy Wolford	3953 Convoy Heller Road	Convoy, OH 45832
Travis McGarvey	801 West Wayne Street	Paulding, OH 45879
Tully Township Trustees	Po Box 254	Convoy, OH 45832
Valerie Wood	5298 Dixon Cavett Rd	Convoy, OH 45832
Van Wert County Area Joint Vocational Board of Education	818 N Franklin St	VAN WERT OH 45891
Van Wert County Foundation	138 E Main St	Van Wert, OH 45891
Van Wert County Hospital Assoc.	1250 S Washington Street	VAN WERT OH 45891
Victor Bigham	5055 US-30	Convoy, OH 45832
Virginia Doner	8049 Boroff Road	Van Wert Ohio 45891
Wal-Mart Real Estate Business	PO BOX 8050 Mail Stop 0555	Bentonville, AR 72716-0555
Warren and Alice Morris	16749 St Rt 709	Venedocia, OH 45894
Wayne and Kathryn Karges	5361 Colwell Road	Convoy, OH 45832
William B. Evans II	12442 Ireland Rd.	Van Wert, OH 45891
William Dowler	8662 Feasby Wisener Rd.	Convoy, OH 45832
William E. Poe	14133A Poe Rd.	Van Wert, OH 45891
Judy Harding	18006 OH-49	Willshire, OH 45898
Rosemare Harding	18223 OH-49	Willshire, OH 45898
Kelly Schlemmer	123 S Main St, PO Box 310	Convoy OH 45832-0310
Gerald Markley	PO BOX 325	Ottawa, OH 45875
Dennis and Susan Rhoads	3354 Elm Sugar Road	Convoy, OH 45832
Ken Fheal	7372 Stamm Road	Convoy, OH 45832
Kathy and Wayne Kargus	5361 Colwell Road	Convoy, OH 45832
Bob Schumm	7713 State Route 49	Convoy , OH 45832

PAU/VAN Stakeholder Meeting 2 Notification Mailing List	
Name of Business or Property Owner	**Email Address**
Cindy DuVall	cduvall@lincolnview.k12.oh.us
Doug Poling	polingexcavating@gmail.com
Duvall Family Farms (Robert)	mrduvall1@hotmail.com
Edward Bohn	ema@pauldingcounty-oh.com
Gary Ashbaugh	pleasanttwpvwo@gmail.com
Heath Barnes	heathb@mercerlandmark.com
Jay Fleming	jfleming@vanwert.org
Jeff Loehrke	Jeffrey.Loehrke@dot.state.oh.us
Jeff Snyder	jsynder@lincolnview.k12.oh.us
Jessica Vandenbroek	vanwert@ofbf.org
Jon Tomlinson	vwpres@gmail.com
Joseph Motycka	Joemotycka@me.com
Kahle Company	donr@kandlreadymix.com
Kathy Mollenkopf	mollenkopf.kathy@crestviewknights.com
Ken Amstutz	k_amstutz@pauldingschools.org
Kenneth J. Markward	kmarkward@vanwert.org
Kim Brandt	kbrandt@vanwertcountyohio.gov.
Krista Somerton	ksomerton@vanwerted.com
Kyle Wendel	kylewendel@bright.net
Loralee and Steven Lichtensteiger	lichtensteiger.3@osu.edu
Marc and Cynthia Grubaugh	mckgrubaugh@aol.com
Mark Bagley	m_bagley@vwcs.net
Neal Orsbon	norsbon@shellyco.com
Ray Boys One LLC (Don Ray)	don@raytheil.com
Roy Klopfenstein	pccommissioners@pauldingcountyoh.com
Ryan Reinhart and Emily Reinhart	reinhartemily12@gmail.com
Sixth Gen Farm LLC	cwharting@cct-hf.com
Stacy Adam	stacyadam@vanwerted.com
Stan Owens	sowens@vanwertcounty.org
Thad Linchtensteiger	tlichtensteiger@vanwertcounty.org
Thomas Riggenbach	triggenbach@vanwertcountysheriff.com
Tim Copsey	director@pced.net

Timothy Bolenbaugh	villageofconvoy@bright.net
Todd Wolfrum	twolfrum@vanwertcounty.org
Kory Thatcher	kthatcher@bright.net
Jerry Koenig	jerry@flatlandssupply.com
Vicki Saylor	sayfam@frontier.com
Patti Cramer	rtshiba@yahoo.com
Dana Smith	dvbbsmith@gmail.com
Tim Bolenbaugh	villageofconvoy@bright.net
Chris Bolenbaugh	ohiocb5@gmail.com
Sheryl Ball	cfd81309@frontier.com
Convoy Fire Chief	Chiefcfd@bright.net
Bob Schumm	bcschumm0@gmail.com

OHIO DEPARTMENT OF TRANSPORTATION
Mike DeWine, *Governor*
Jack Marchbanks, Ph.D., *Director*

District 1
1885 North McCullough St., Lima, OH 45801
419-222-9055
transportation.ohio.gov

US 30 Feasibility Study (PID 113196)
Frequently Asked Questions

1. **What is the project?**
   The project is conducting a feasibility study to evaluate access to the existing at-grade intersections from the Indiana state line in Paulding County to the Lincoln Highway (CR 418) interchange in Van Wert County. The study will develop feasible alternatives for access management along the corridor. No actual projects or alternatives are being proposed yet.

2. **What is a Feasibility Study?**
   A Feasibility Study (FS) is performed for certain types of projects to begin to narrow down potential options (also called alternatives) to satisfy the project's goal. For this project, the Feasibility Study will identify areas along the corridor where safety improvements may be warranted. The study will develop feasible alternatives to address the identified needs of the project; these alternatives may be selected as preferred alternatives and could eventually receive funding and separate project(s) to be designed and constructed.

3. **What is the purpose of the project?**
   To improve overall corridor safety and to provide a transportation facility that support the JobsOhio and county economic development, and the existing agricultural land uses.

4. **Why is the project needed?**
   Improve Safety:
   - Address wrong way incidents which are occurring at a higher rate on this section of the U.S. 30 than is expected or typical.
   - Reduce crashes occurring at identified high crash locations along the whole project area corridor.

   Support Economic Development:
   - Support existing and future business development needs by providing a safe and efficient transportation facility.
   - New industrial development is expected to add more traffic to the corridor, including more heavy vehicles.

5. **Have decisions been made about what exactly the project will entail?**
   No decisions have been made concerning the project yet. Currently, we are initiating our public outreach to better understand the concerns of the public and to help us develop feasible alternatives. Once feasible alternatives have been identified we will be present them at future stakeholder and public involvement meetings to solicit feedback for the next steps in the project development process.

6. **Will my property be affected?**
   Right now, it is not known which properties will be impacted because no decisions have been made about the project, project footprint, or project details. As the project moves further in the

development process, more information will be known about specific project impacts. If your property is impacted by the project, you will be contacted on an individual basis to talk to a real estate representative about the process and your rights under that process.

7. **How is this different than the previous U.S. 30 study?**
   This study will go more into detail than the previous study and will produce actionable items to implement. This study focuses more on future traffic growth and how this might impact the intersections and rerouted traffic. Crash data and public involvement will be used to determine the best alternatives for these intersections and potential strategies to group certain intersections into a project.

8. **What is the anticipated schedule for the study?**
   After the first round of stakeholder meetings, ODOT will develop preliminary alternatives for the project. The developed alternatives will be presented to the stakeholders in a second round of stakeholder meetings to help guide the selection of preferred alternatives. Once preferred alternatives are selected, a public meeting will be held to present the study results and preferred alternatives. The study is anticipated to be completed in Summer 2022, following the input received during the public meeting.

PAU/VAN-30-0.00/0.00 FEASIBILITY STUDY

OHIO DEPARTMENT OF TRANSPORTATION

Stakeholder Meeting #2
February 16, 2022

MEET THE PROJECT TEAM

- Ohio Department of Transportation District 1
- Arcadis (Design/Engineering)
- DGL (Design/Engineering Support)
- Lawhon & Associates (Environmental)

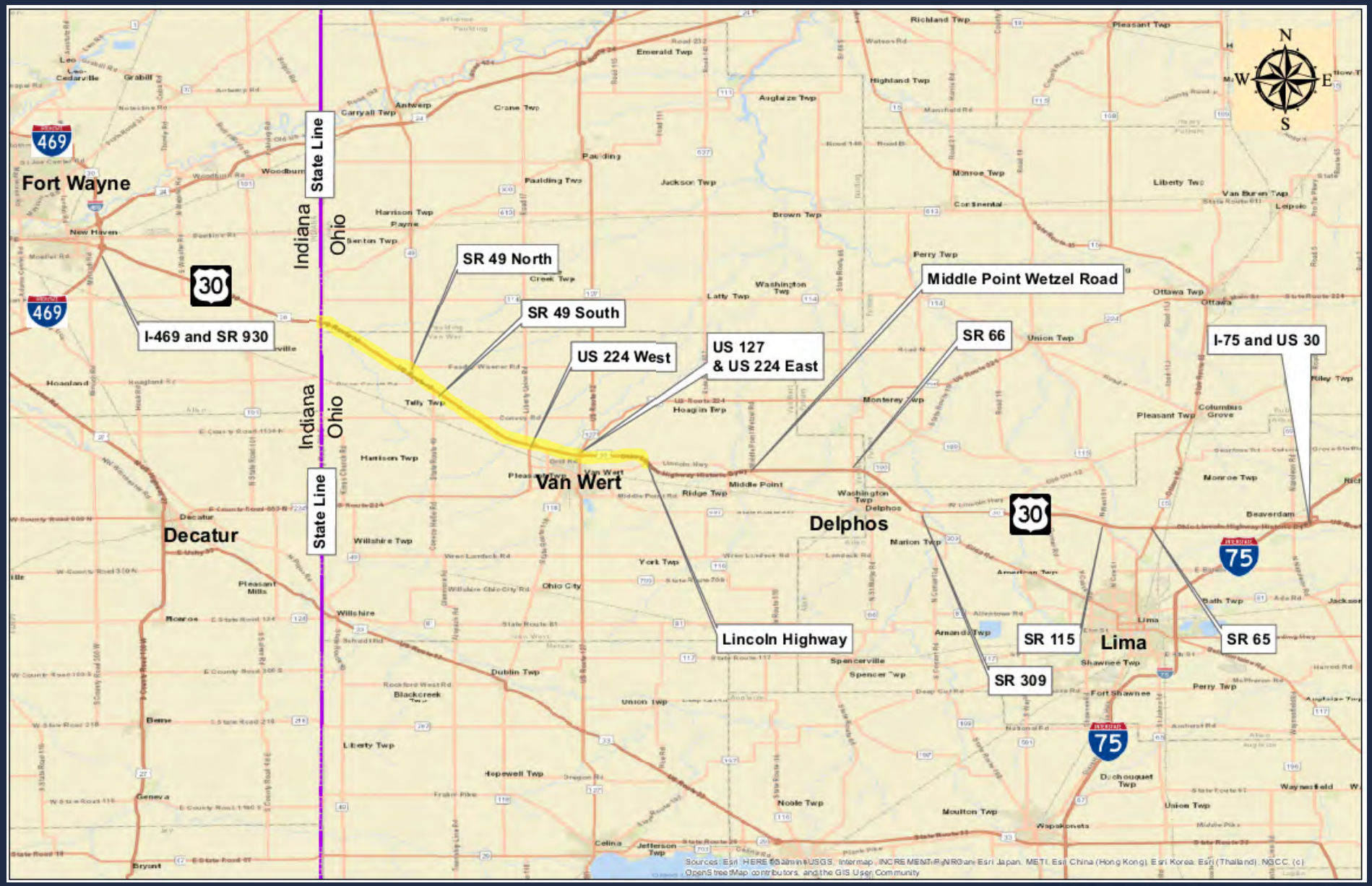
INTRODUCTION

- Mr. Chris Hughes, P.E. – ODOT District 1 Deputy Director
- Past Studies
  - Planning level to guide future development
- Current Feasibility Study
  - More detailed analysis and design concepts
  - State Route 49 interchange alternatives
  - Actionable study that can result in projects being funded

WHAT IS THE GOAL FOR TODAY?

- Present Preliminary Alternates
- Gather Input

U.S. 30 CORRIDOR



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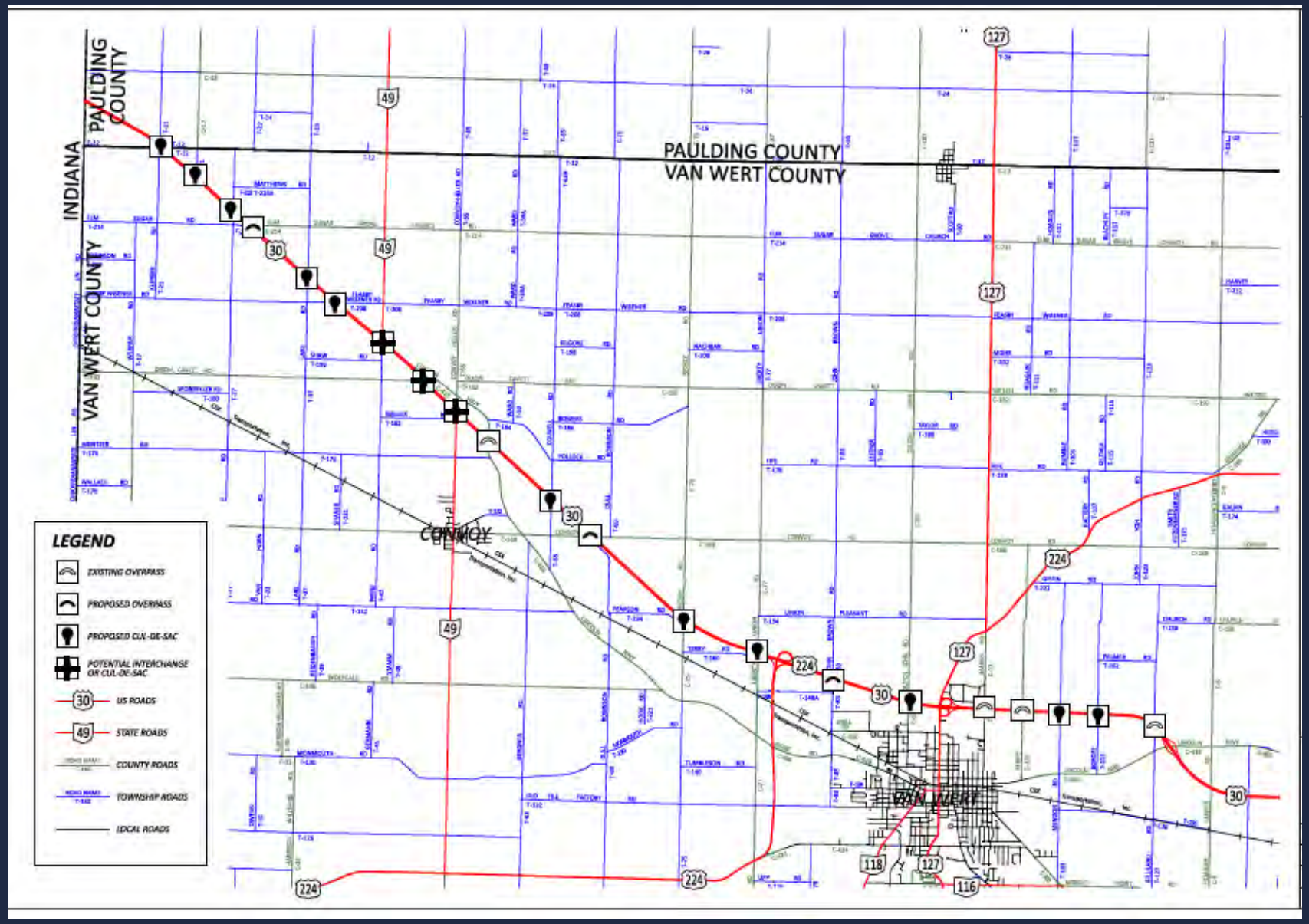
U.S. 30 CORRIDOR – STUDY LIMITS



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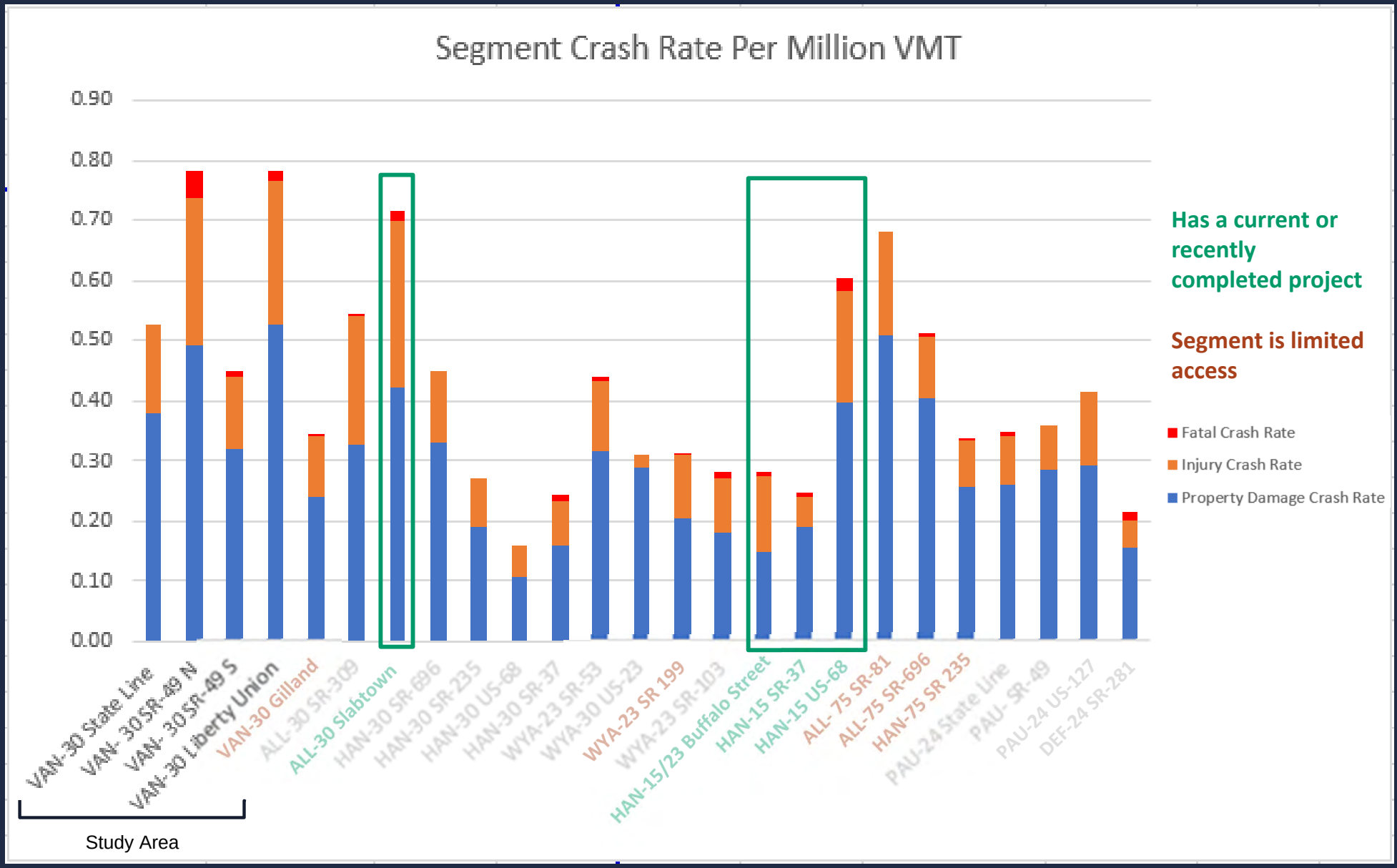
WHY HERE?



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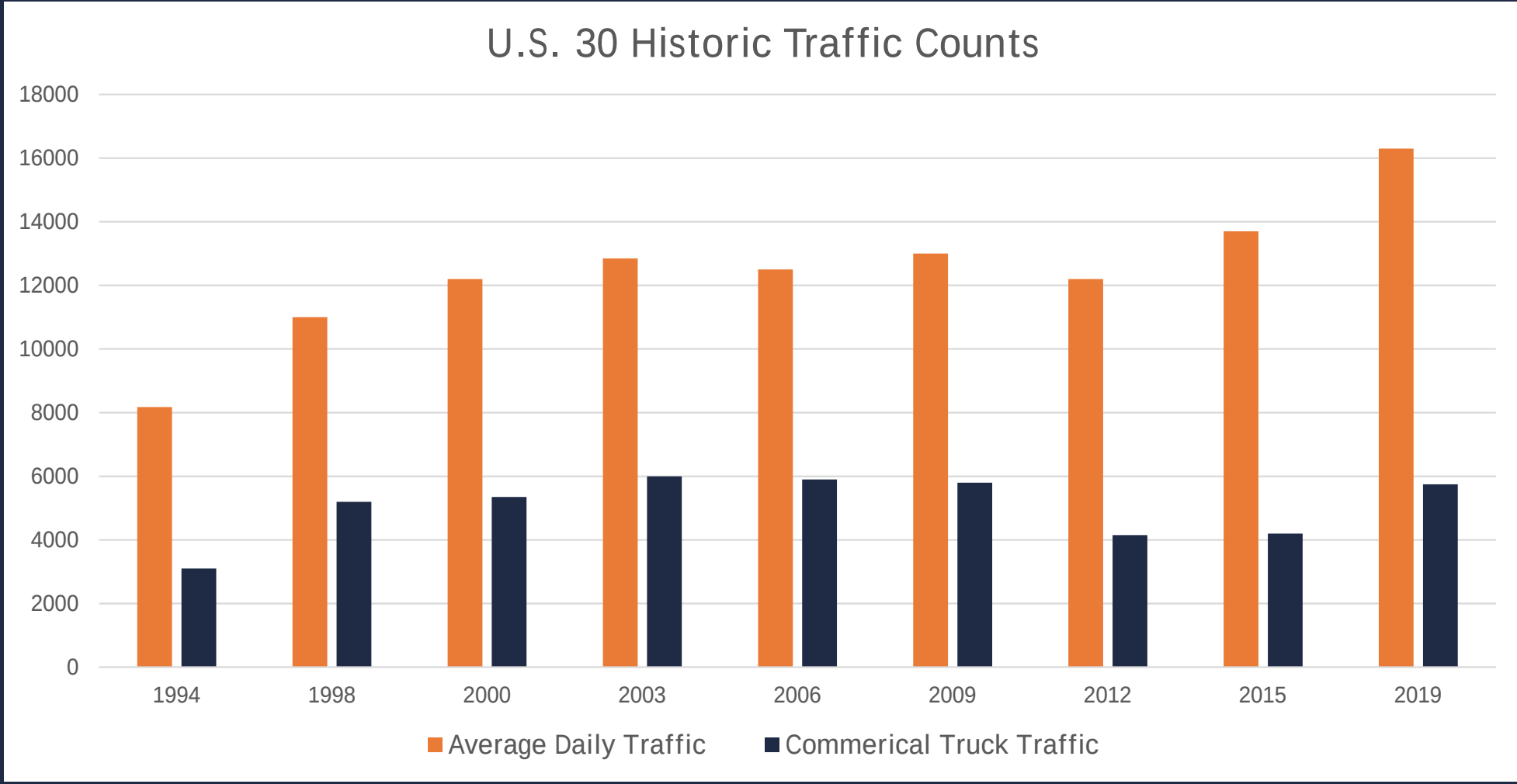
WHY NOW?



- Potential future economic development

STAKEHOLDER MEETING #1 (8/3/2022)

What We Heard from You

Summary of Comments from August 2021 Stakeholder Meeting

- 36% - General questions/comments about project study:
  - More information on outcome of study, how data was collected, what data is included, questions on crashes at specific intersections, other project impacts, general suggestions for access strategies
- 20% – Concerns about speed
- 16% – Business/farm impacts (equipment, access, detours, construction)
- < 10% each - Specific comments related to proposed strategies:
  - Concerned about cul-de-sac, support limited access, extending right turn lanes, concerned about R-cut, support of R-cut

STAKEHOLDER MEETING #2 (2/16/2022)

We Want to Hear from You!

- Thoughts on the proposed interchange and access alternates
- General questions for the project team?

FEASIBILITY STUDY STEPS

- February 2021 - Began Feasibility Study
- August 2021 – Reviewed Existing & Future Conditions
- February 2022 – Review Preliminary Alternates
- Fall 2022- Review Recommended Alternate(s)
- December 2022- Complete Feasibility Study

WHAT IS A FEASIBILITY STUDY?

- Purpose and Need & Key Issues
- Alternates that may progress into future projects
- Document the decision-making process in a reader-friendly format

PURPOSE AND NEED

- Improve the overall corridor safety by reducing crashes at high-crash locations and by addressing the frequency of wrong-way incidents
- Provide a transportation facility that maintains access and connectivity and supports existing land uses along the corridor

Improve Safety

Crash Data (2017-2019): 236 total crashes
(excluding 51 animal crashes)

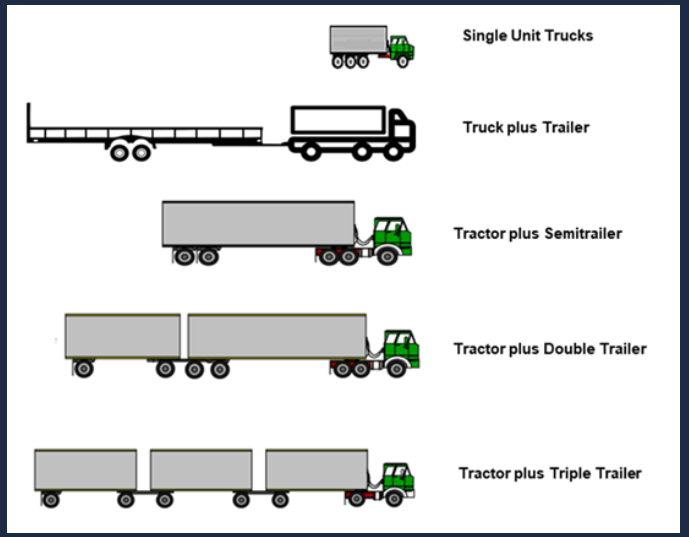
- Crash Types:
  - 87 (37%) – fixed object
  - 40 (17%) – sideswipe passing
  - 30 (13%) – rear end
- Crash Severity
  - 61 (26%) – injury crashes
  - 5 (2%) – fatal

Improve Safety

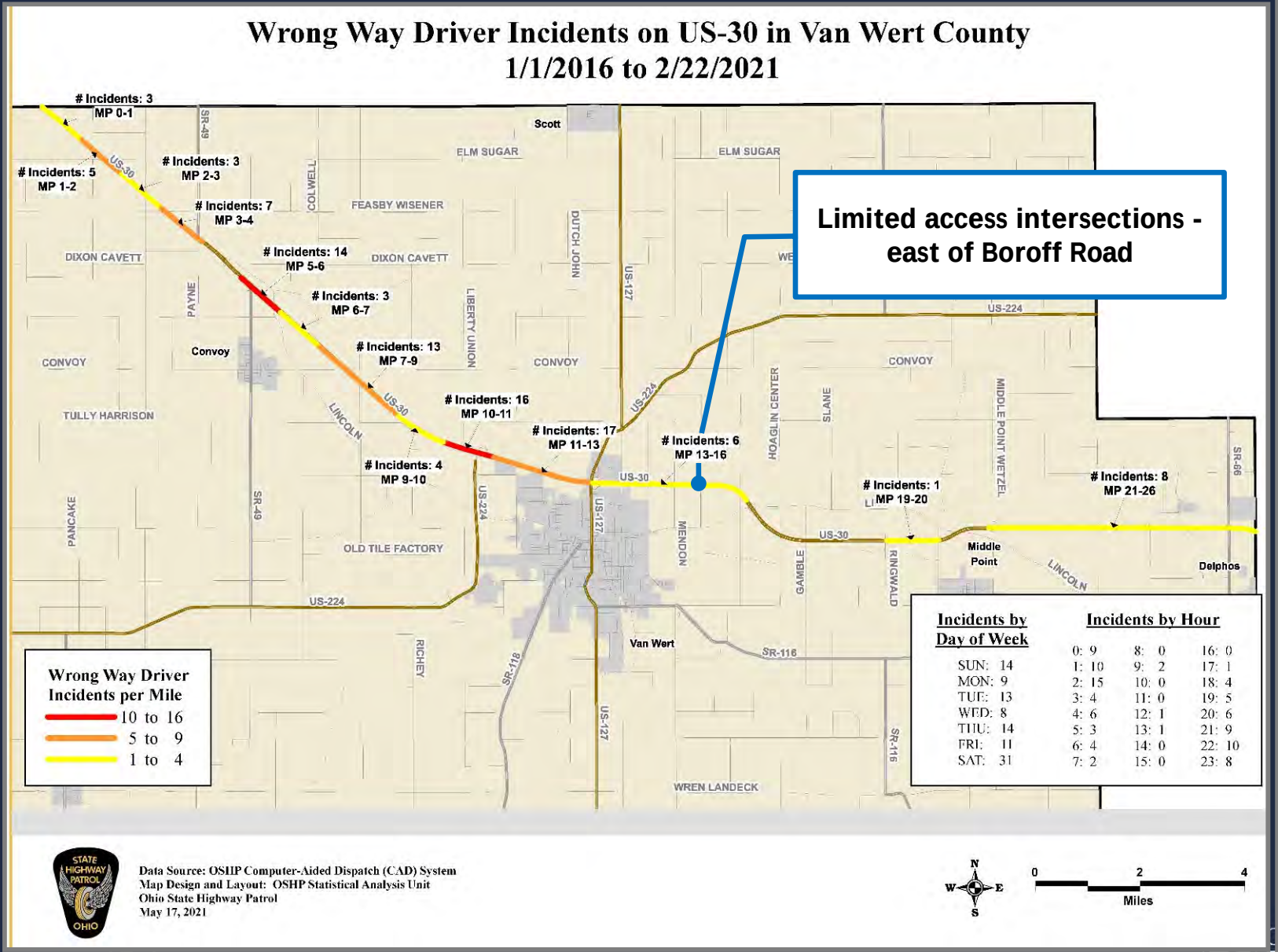
Crash Data- Heavy Vehicles:

(semi-tractor and single unit trucks)

- Fixed Object = 30%
- Sideswipe Passing = 30%
- Rear End = 8%



WRONG WAY INCIDENTS



East of Boroff Road has **9** wrong way incidents

West of Boroff Road has **91** wrong way incidents

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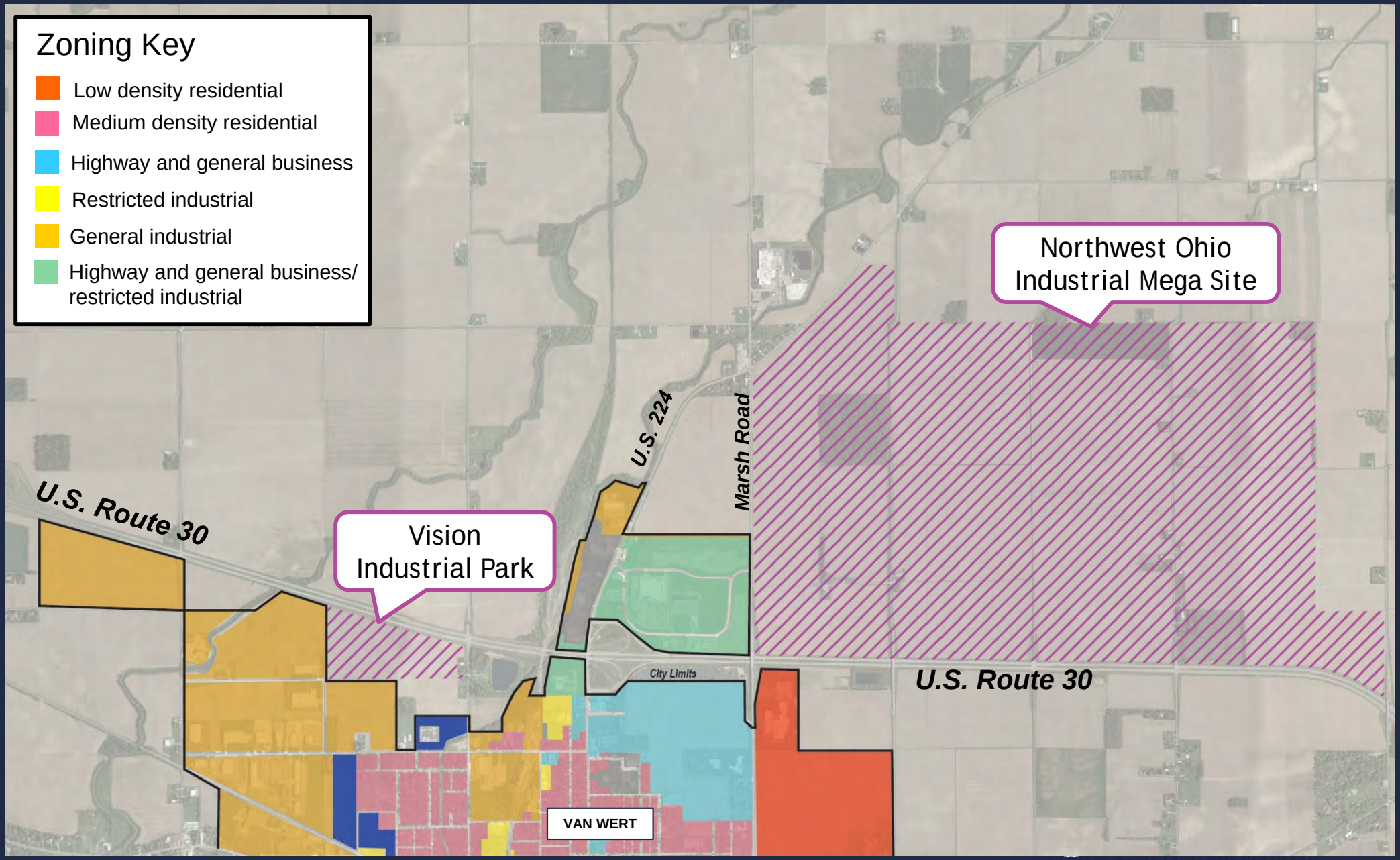
MAINTAIN ACCESS & SUPPORT AGRICULTURAL LAND USES

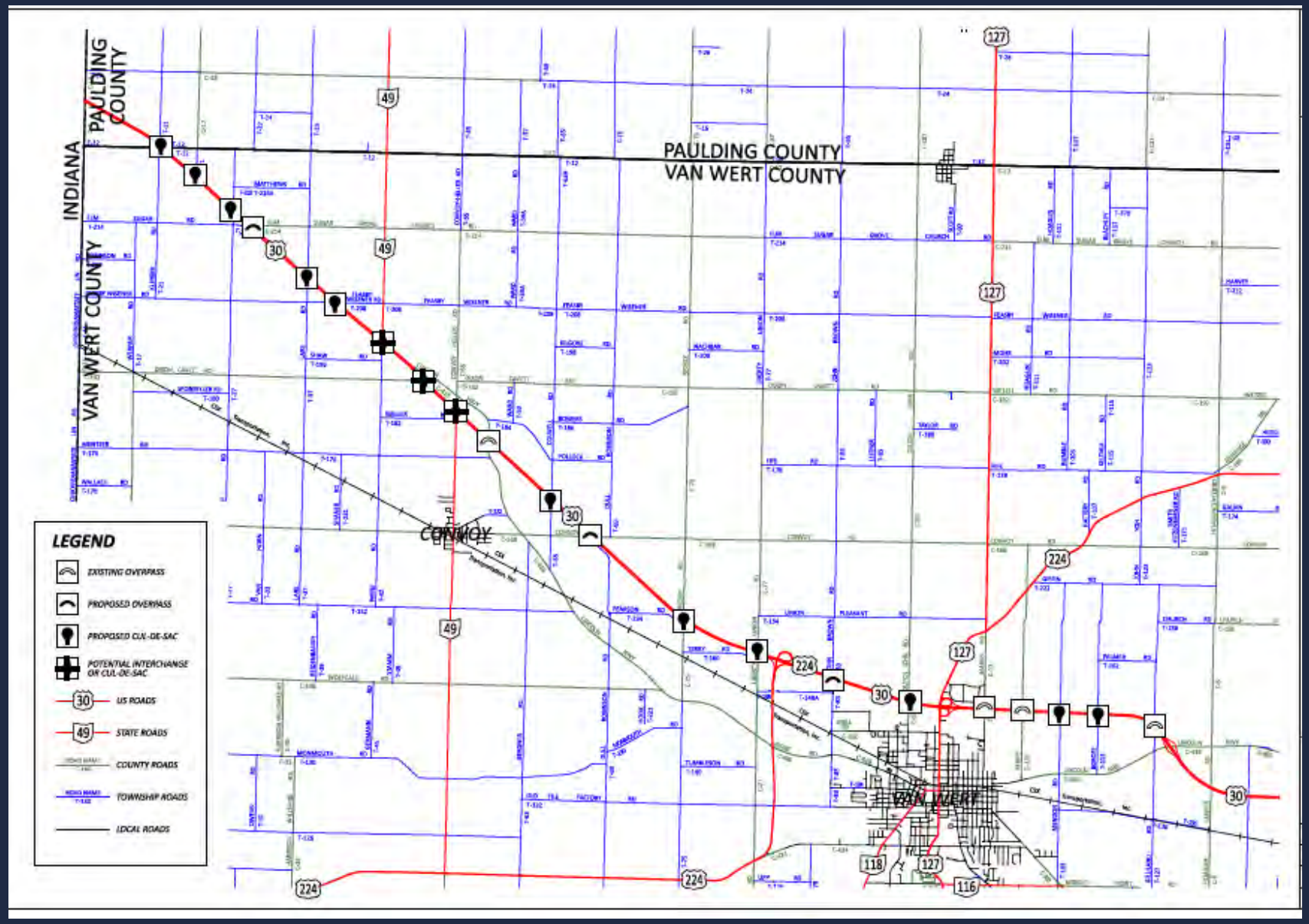
U.S. 30 utilized by large farm equipment with unique operating characteristics

- Maintain acceptable access for agricultural equipment as well as for vehicular traffic
- Driveway and field drive relocations will be considered as part of the feasibility study

MAINTAIN ACCESS & SUPPORT INDUSTRIAL LAND USES



U.S. 30 CORRIDOR – PRELIMINARY ALTERNATES



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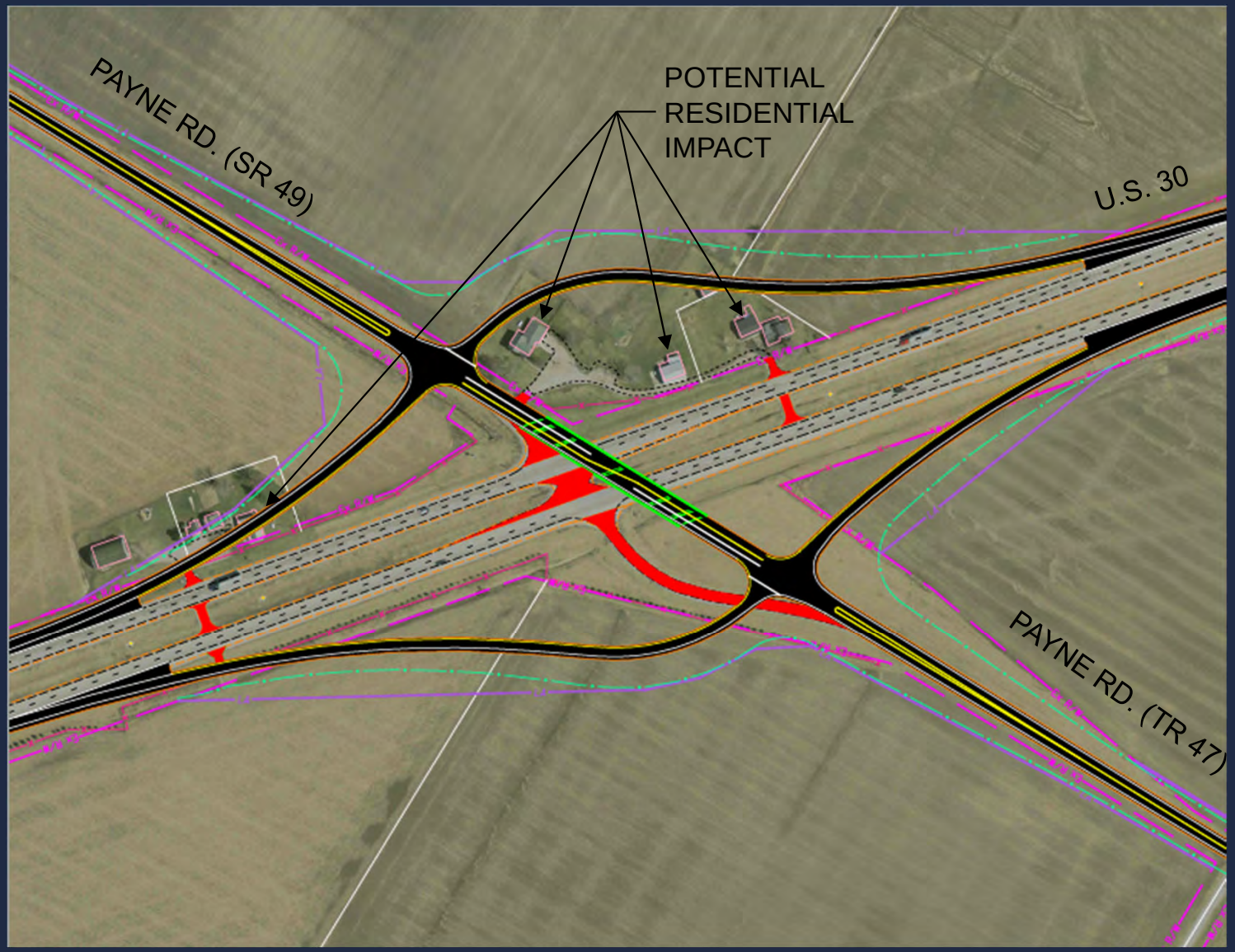
INTERCHANGE ALTERNATE 1
SR 49/PAYNE ROAD AND U.S. 30



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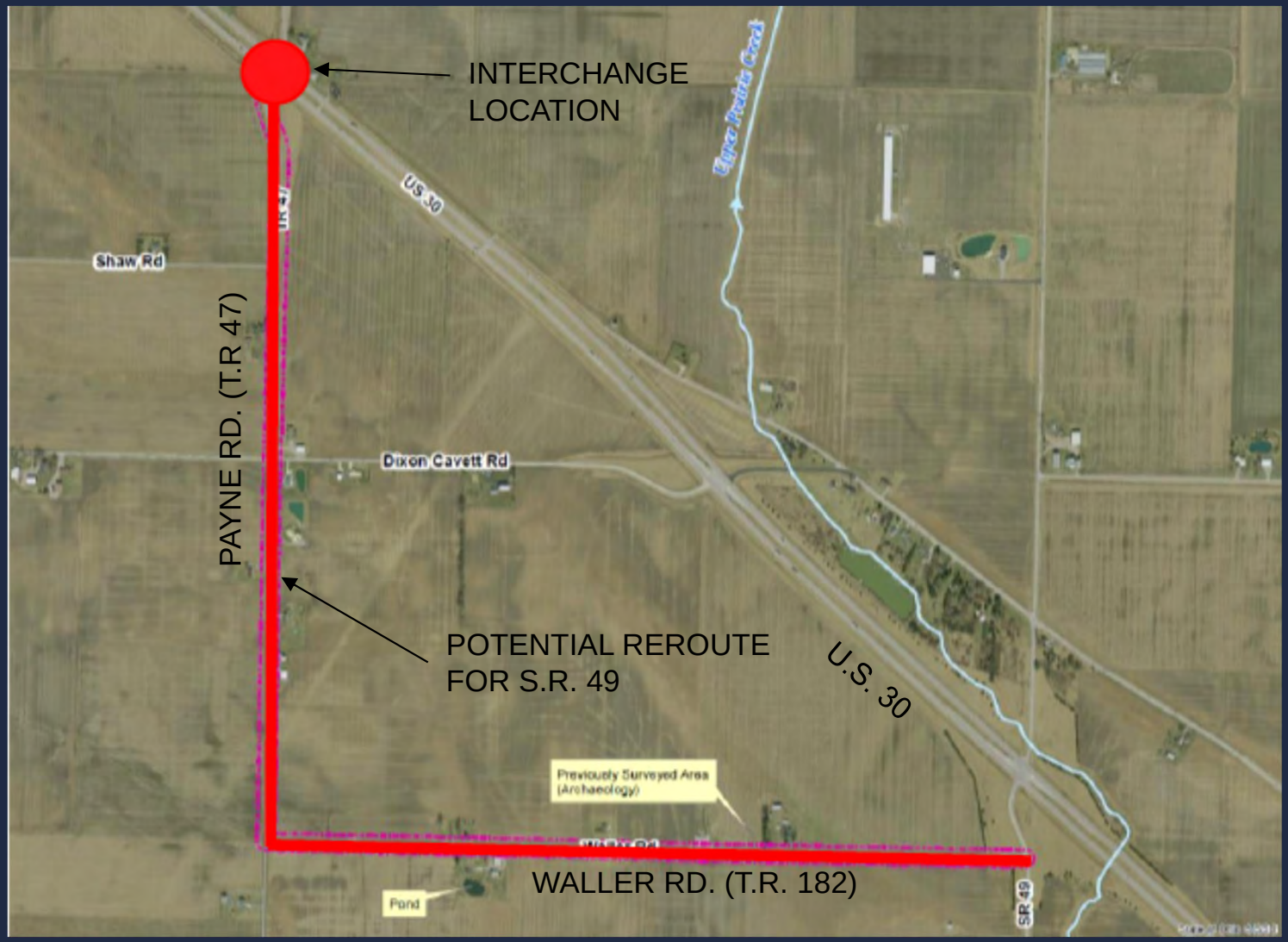
INTERCHANGE ALTERNATE 1
POTENTIAL RELOCATION OF SR 49



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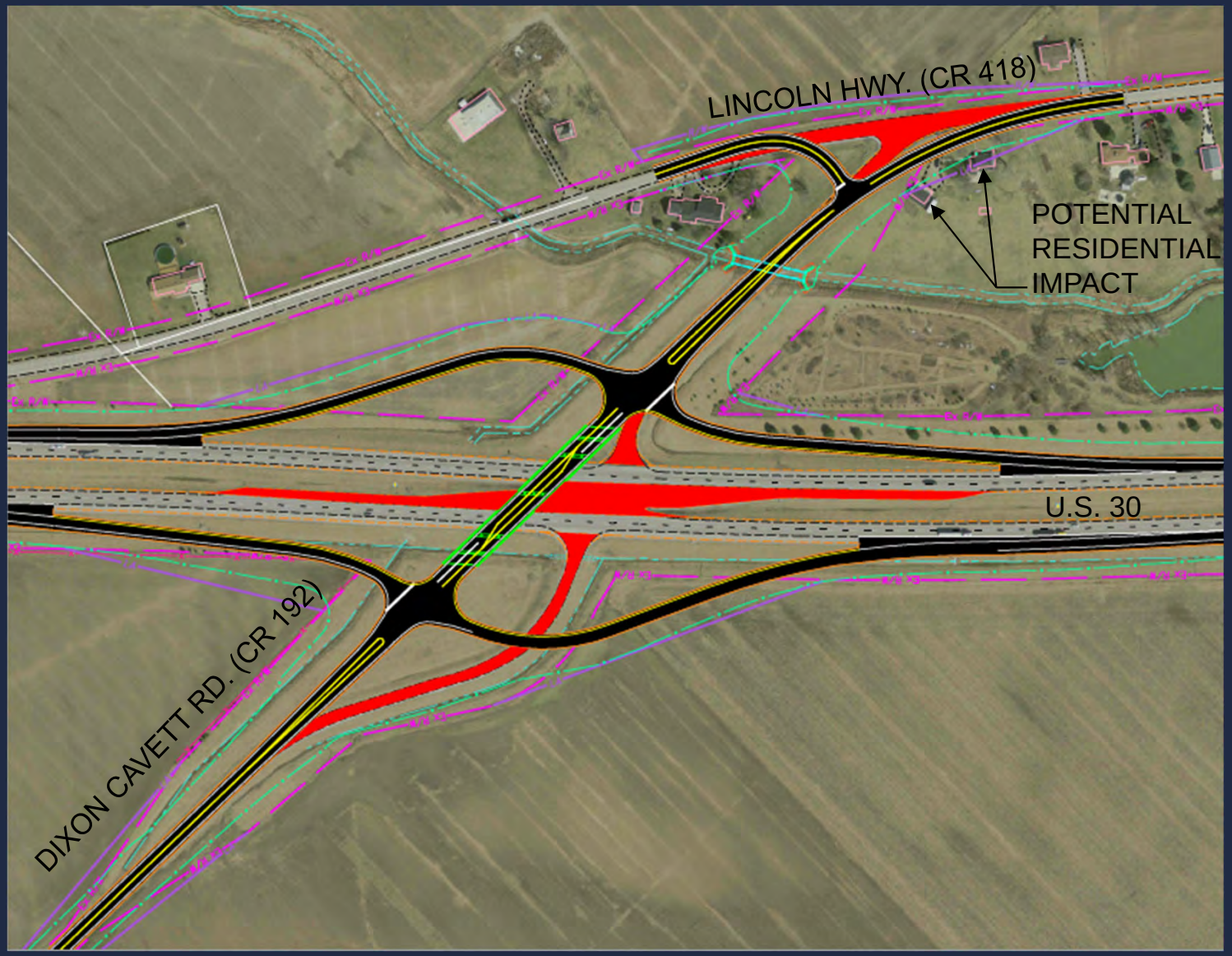
INTERCHANGE ALTERNATE 2
DIXON CAVETT ROAD AND U.S. 30



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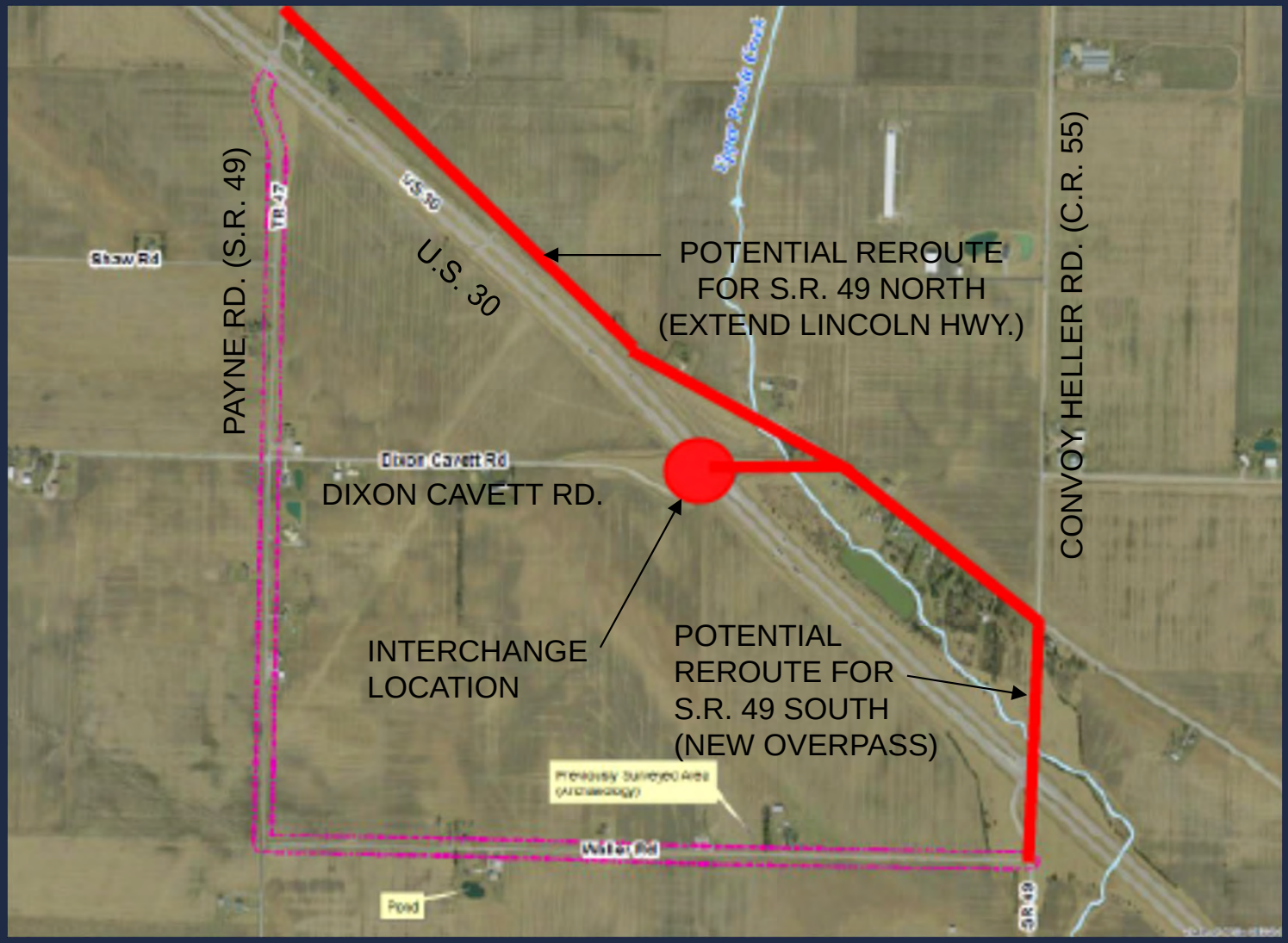
INTERCHANGE ALTERNATE 2
POTENTIAL RELOCATION OF SR 49



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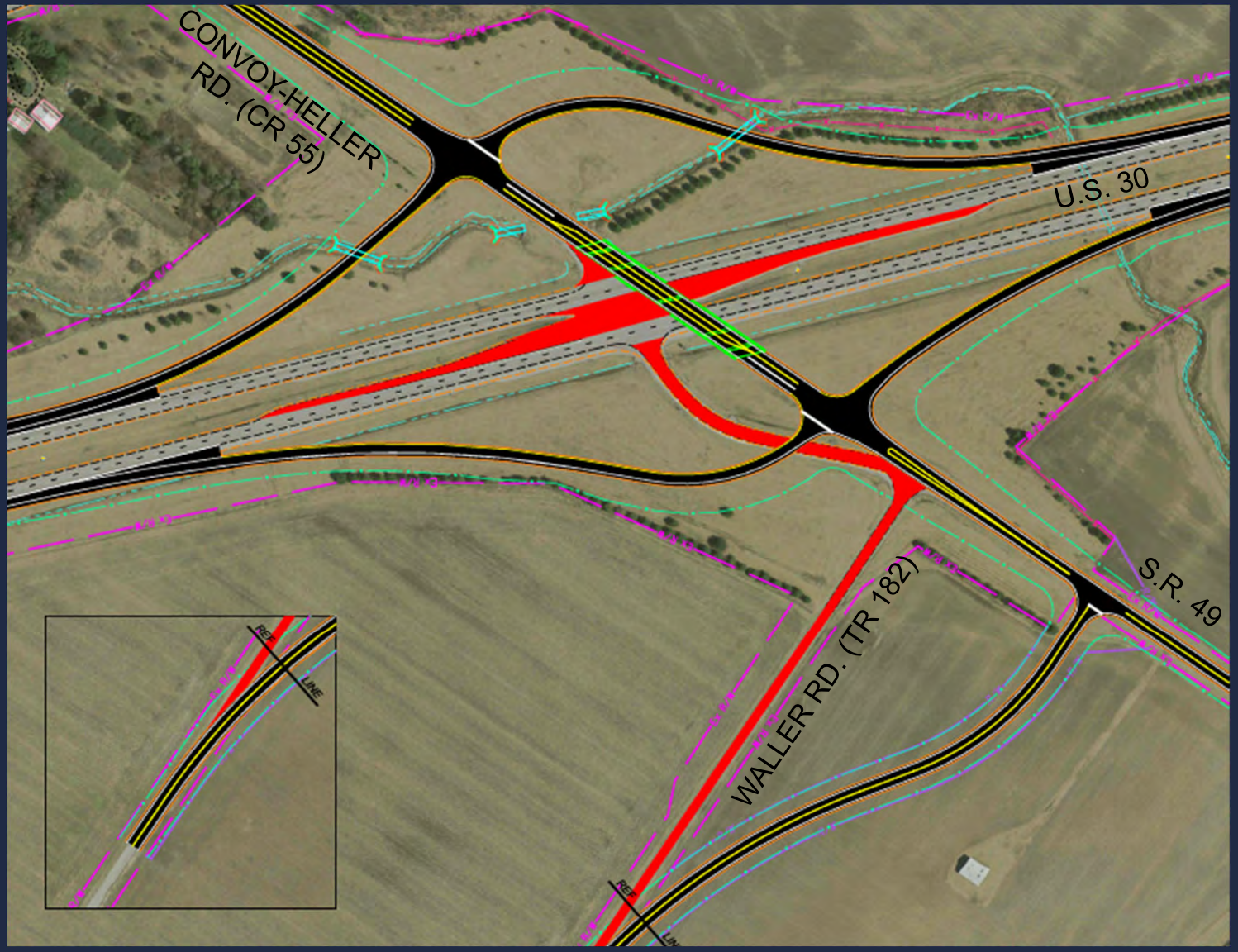
INTERCHANGE ALTERNATE 3
SR 49/CONVOY HELLER ROAD AND U.S. 30



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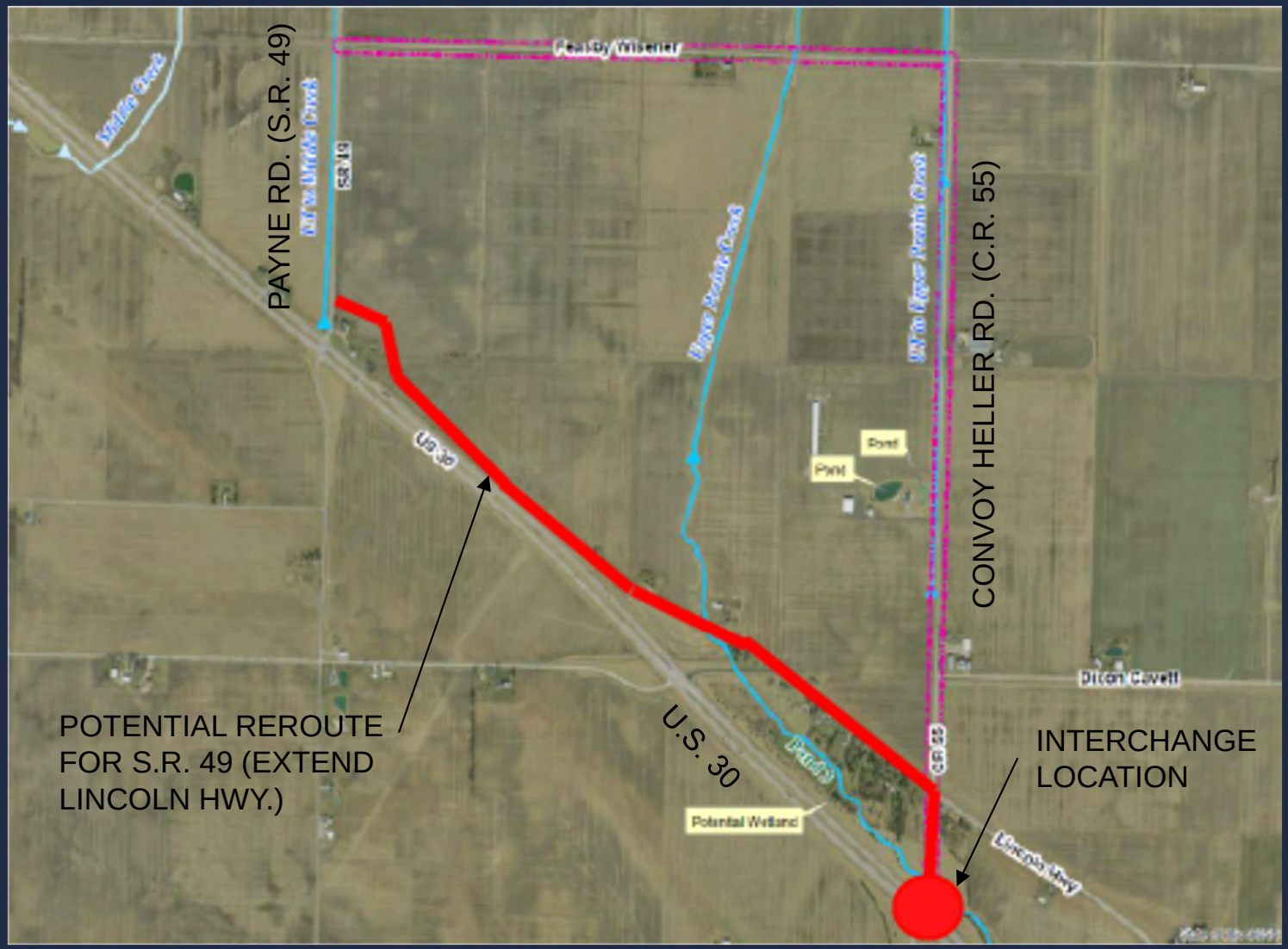
INTERCHANGE ALTERNATE 3
POTENTIAL RELOCATION OF SR 49



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INTERCHANGE COMPARISON OF ALTERNATES

SR 49 Interchange Comparison Matrix							
	Alternate 1 - SR 49 North /Payne		Alternate 2 - Dixon Cavett		Alternate 3 - SR 49 South/Convoy Heller		Comments
Interchange Construction Cost		$9,045,000		$9,450,000		$8,370,000	Construction Cost - Construction cost, not including R/W, of major items only.
R/W		13.11 acre		3.31 acre		1.65 acre	R/W-Amount of new permanent R/W required to construct alternate
Building Impacts		8 Buildings		2 Buildings		0 Buildings	Building Impacts - Number of impacts to residential homes or substanial out buildings
Environmental Impacts		1000 lf		285 lf		1600 lf	Environmental Impacts - Amount of impact to named streams
Traffic Demand Impact		2000 vpd		3390 vpd		2590 vpd	Traffic Demand Impact - Number of vehicles that would have to re-route to use this alternate
Farmland Impact		10.10 acre		3.00 acre		1.65 acre	Farmland Impact - Amount of impact to farmland
Connectivity Cost/Reroute Length		$2,900,000 2.00 miles		$4,805,011 1.19 miles		$2,100,000 1.28 miles	Connectivity Cost/Reroute Length - Length of travel to use new route with associated cost to improve that route. See Travel Route matrix for details.

INTERSECTION 1
STATE LINE ROAD AND U.S. 30

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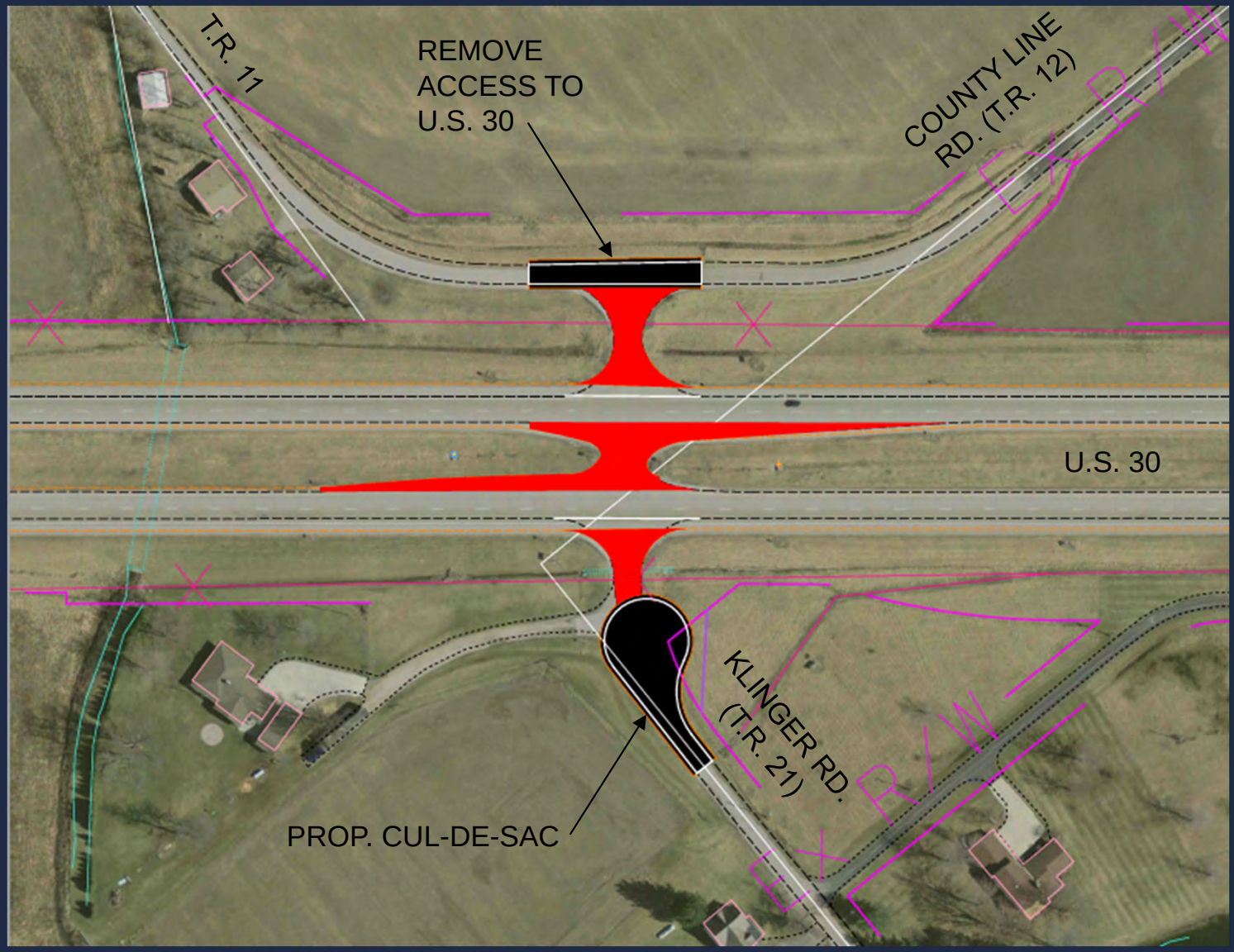
INTERSECTION 2
KLINGER ROAD AND U.S. 30



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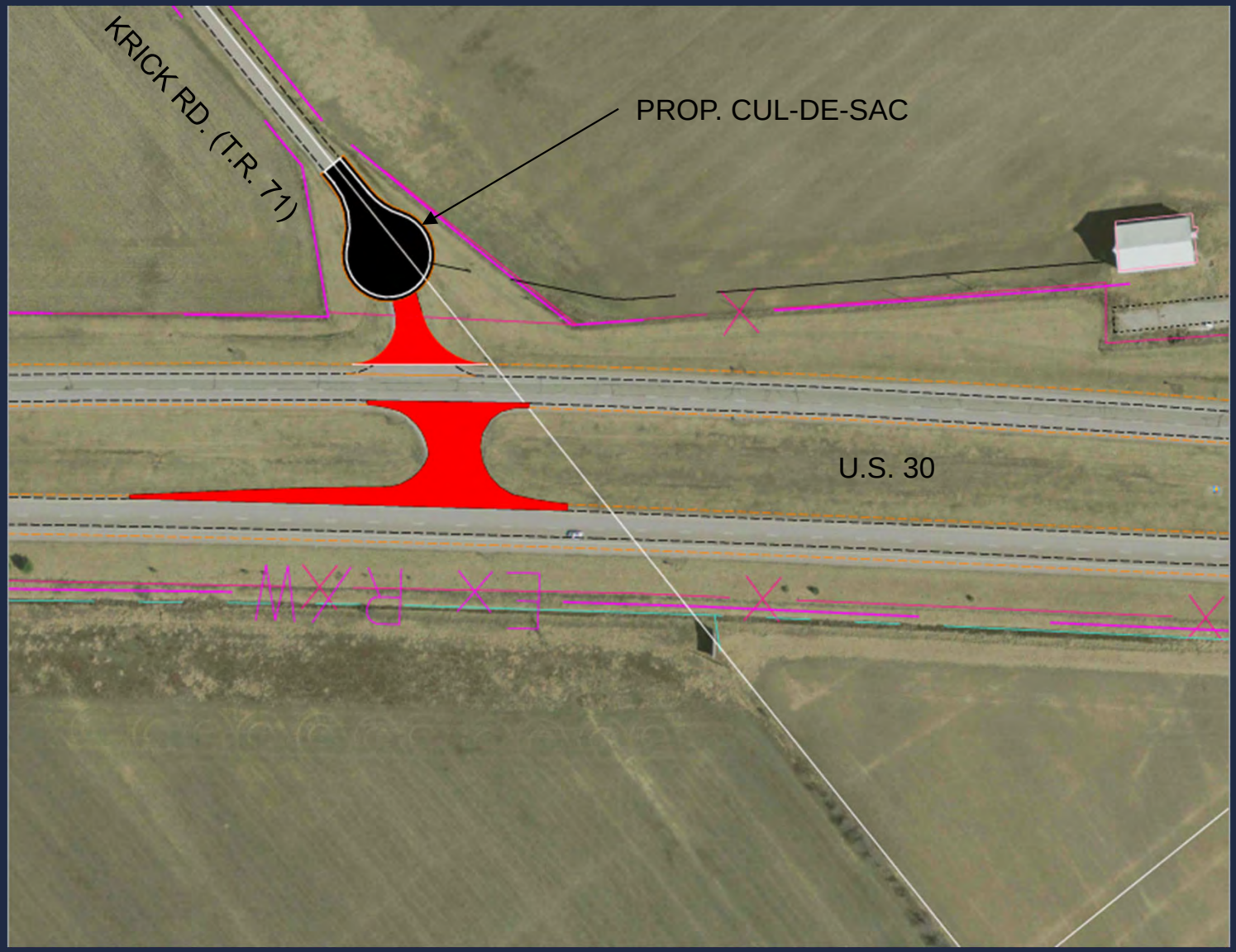
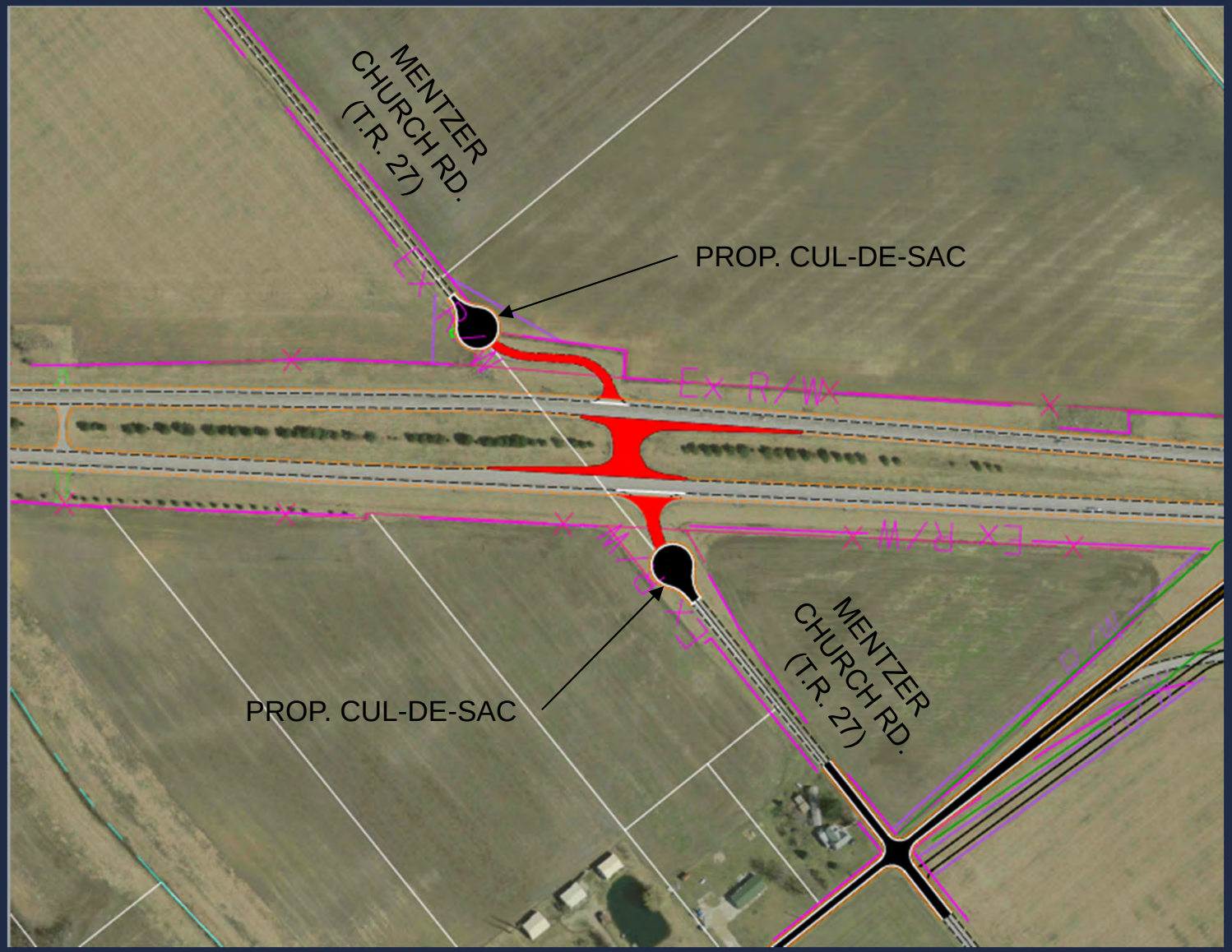
INTERSECTION 3
KRICK ROAD AND U.S. 30



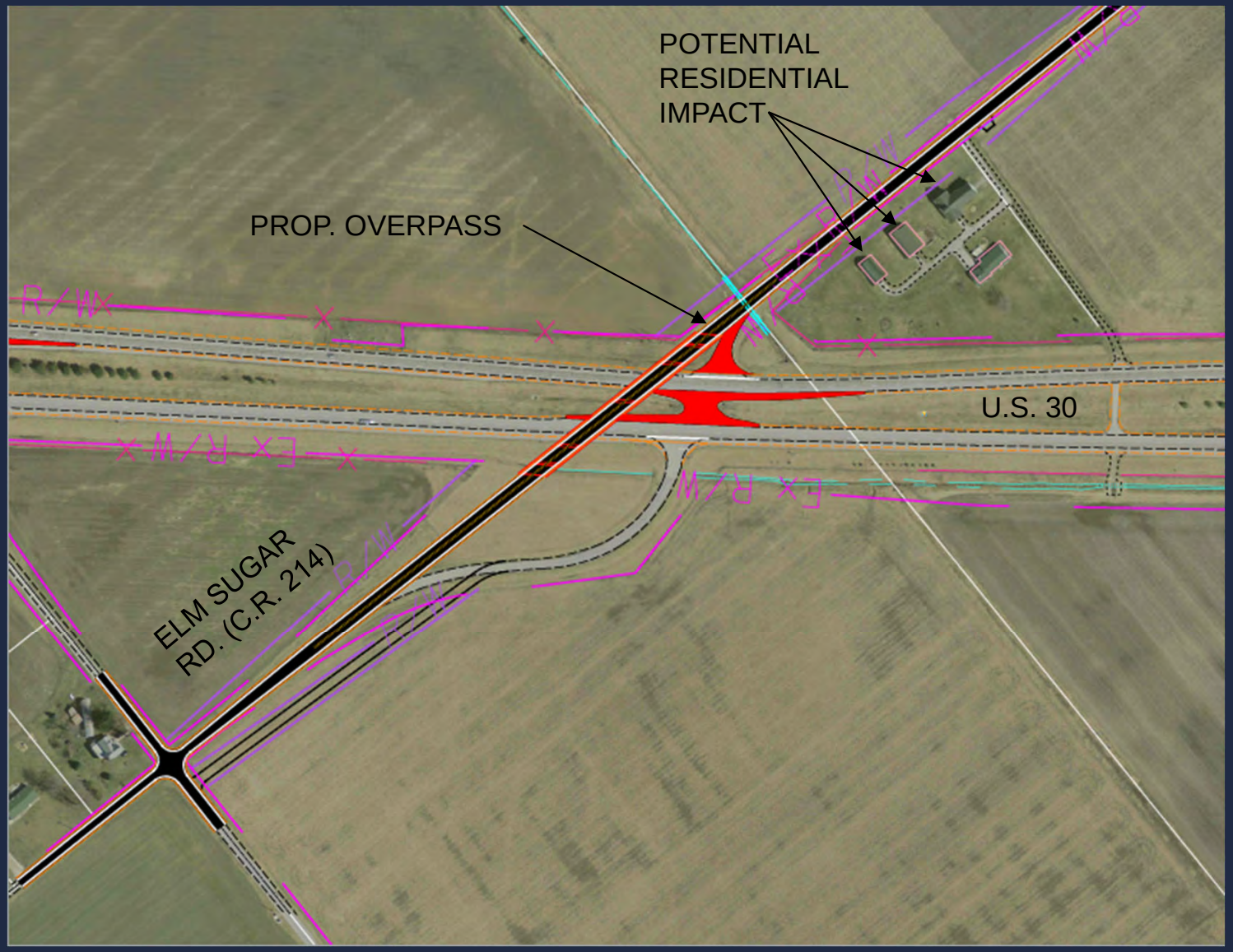
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 4
MENTZER CHURCH ROAD AND U.S. 30



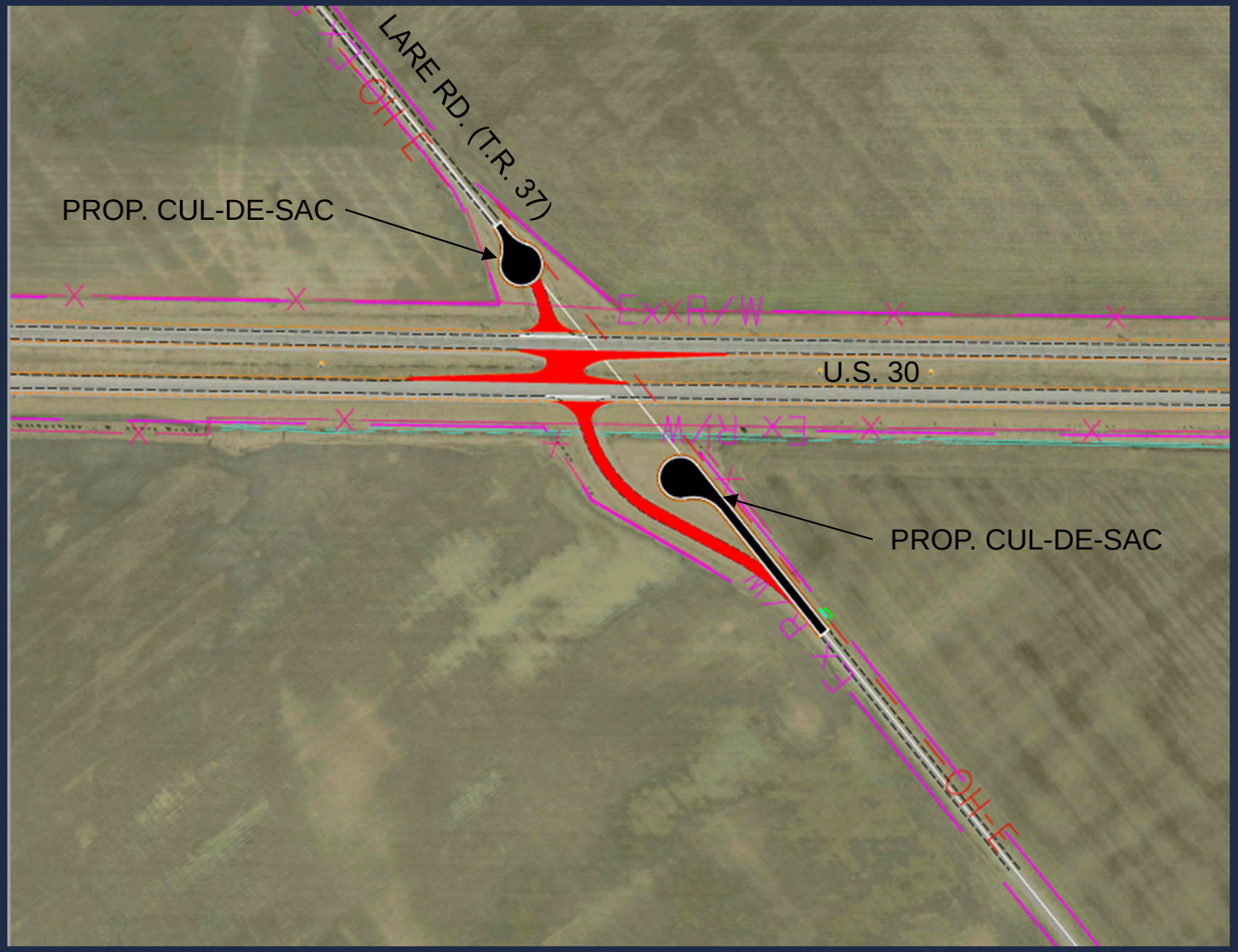
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 5
ELM SUGAR ROAD AND U.S. 30



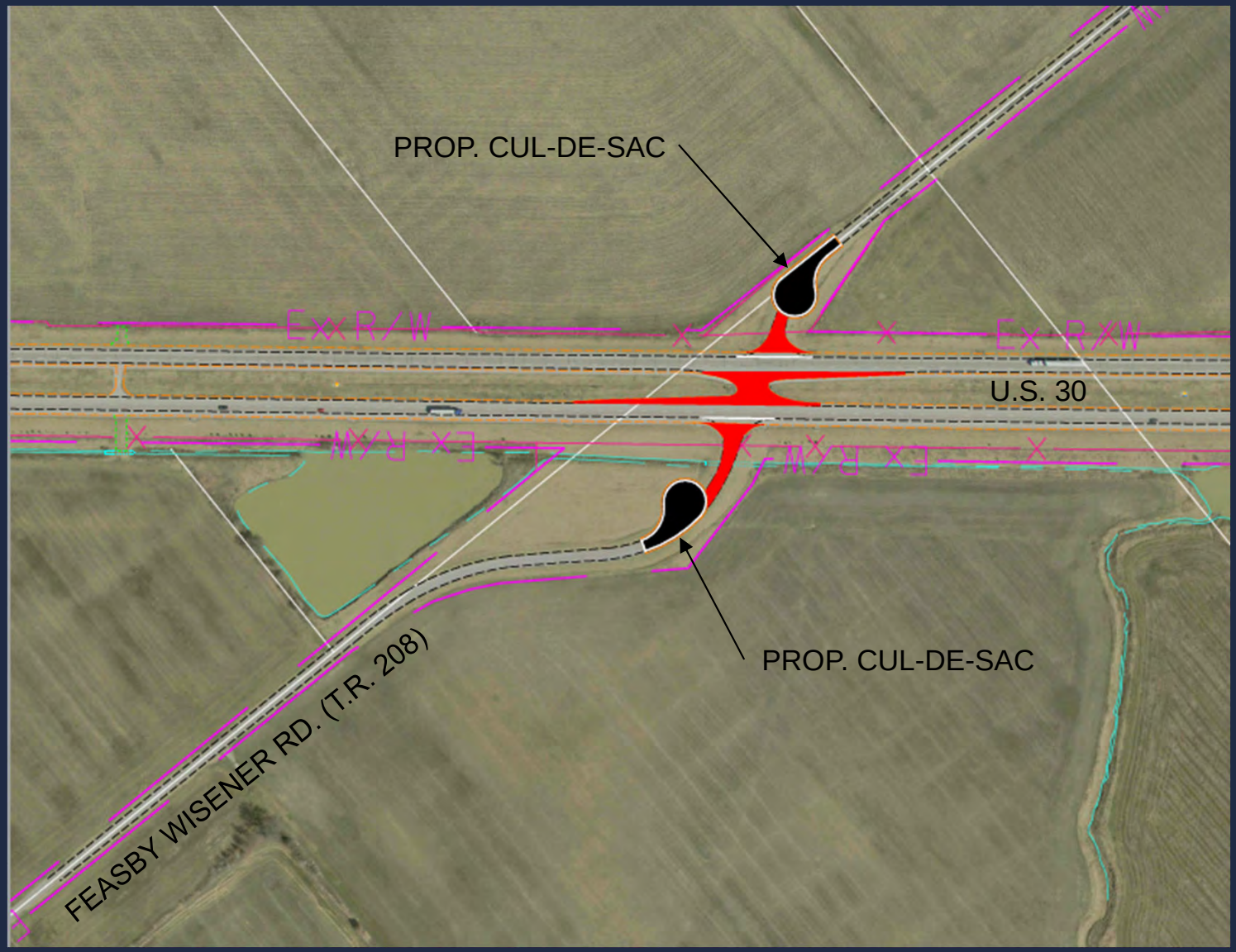
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 6
LARE ROAD AND U.S. 30



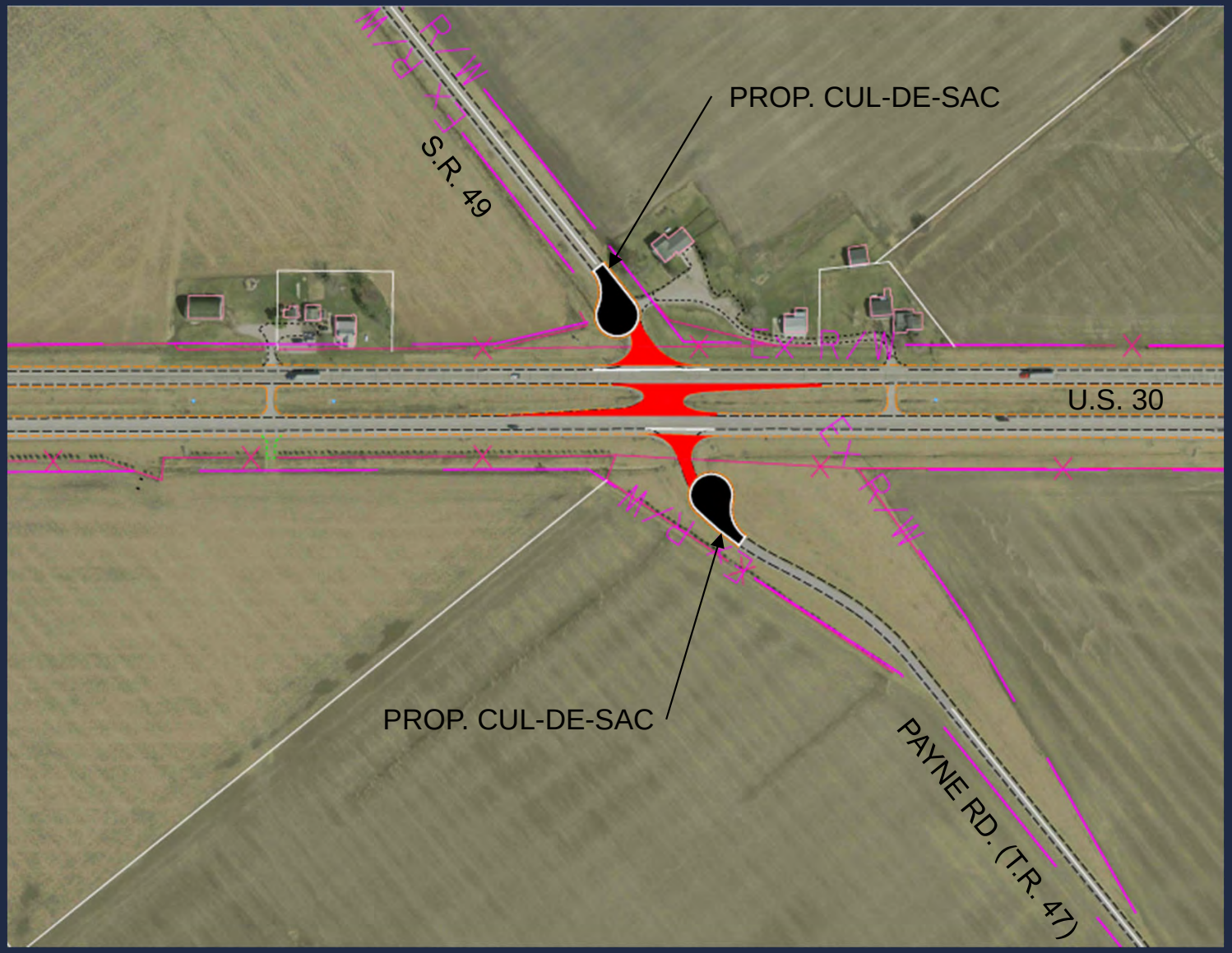
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 7
FEASBY-WISENER ROAD AND U.S. 30



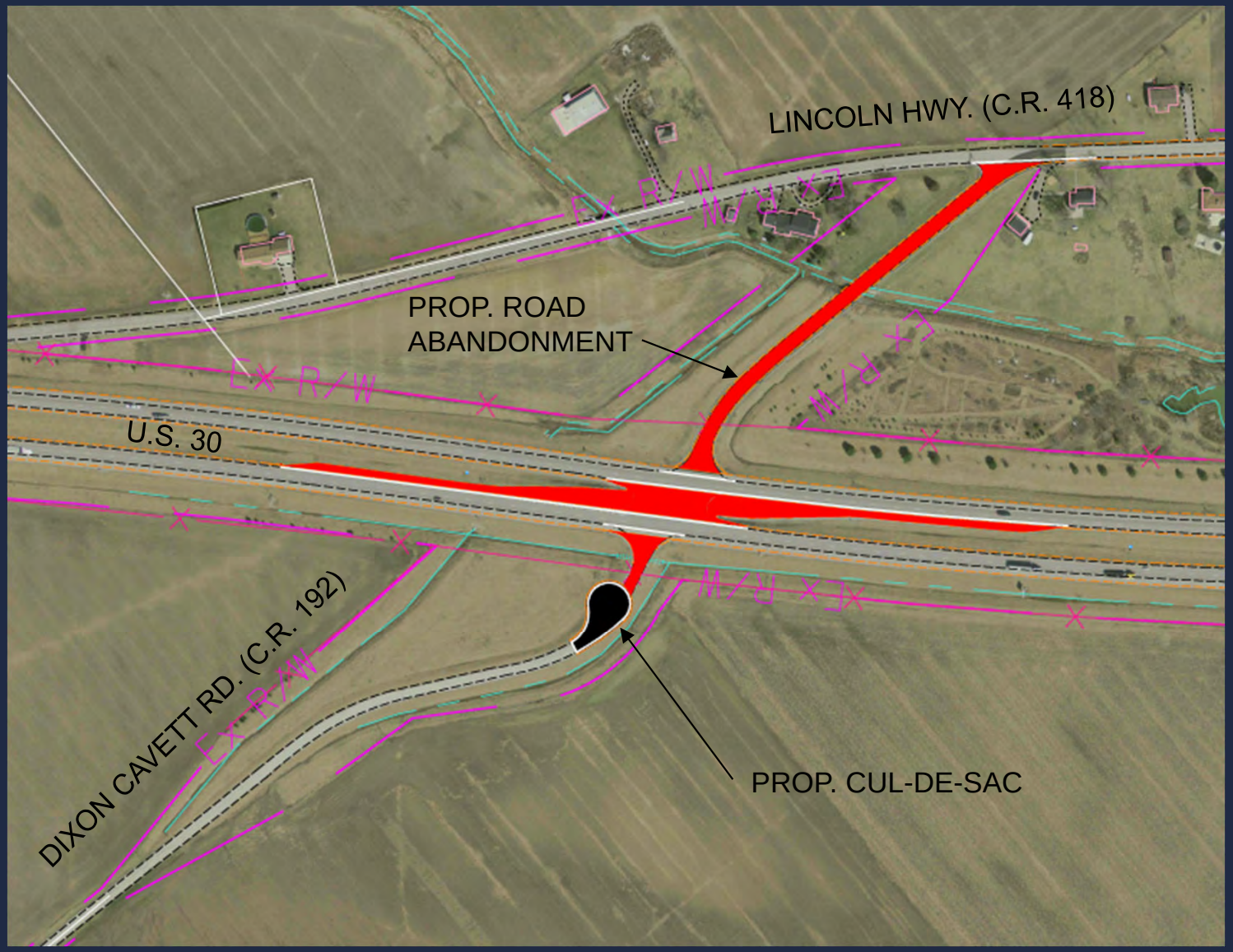
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 8
SR 49/PAYNE ROAD AND U.S. 30



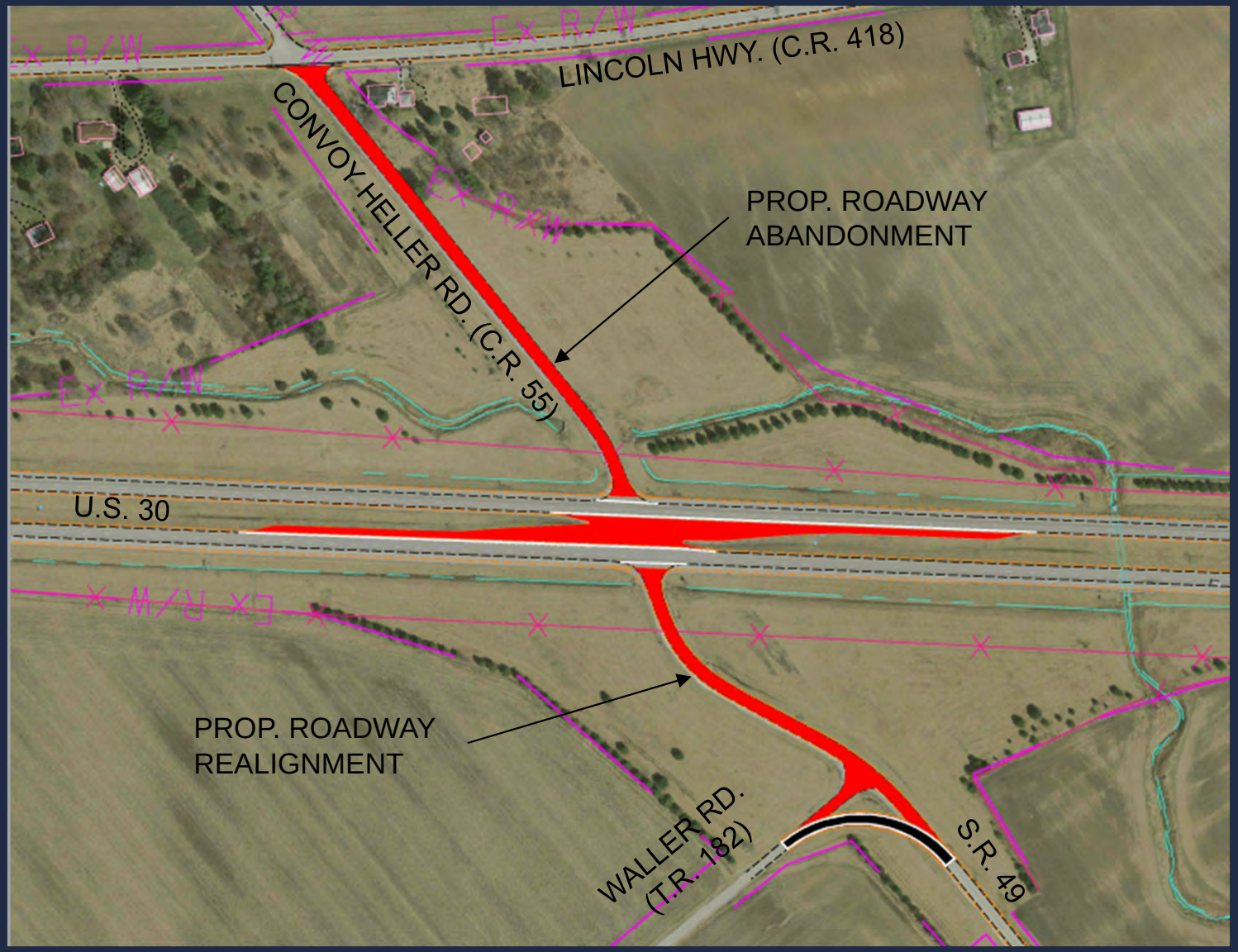
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 9
DIXON CAVETT ROAD AND U.S. 30



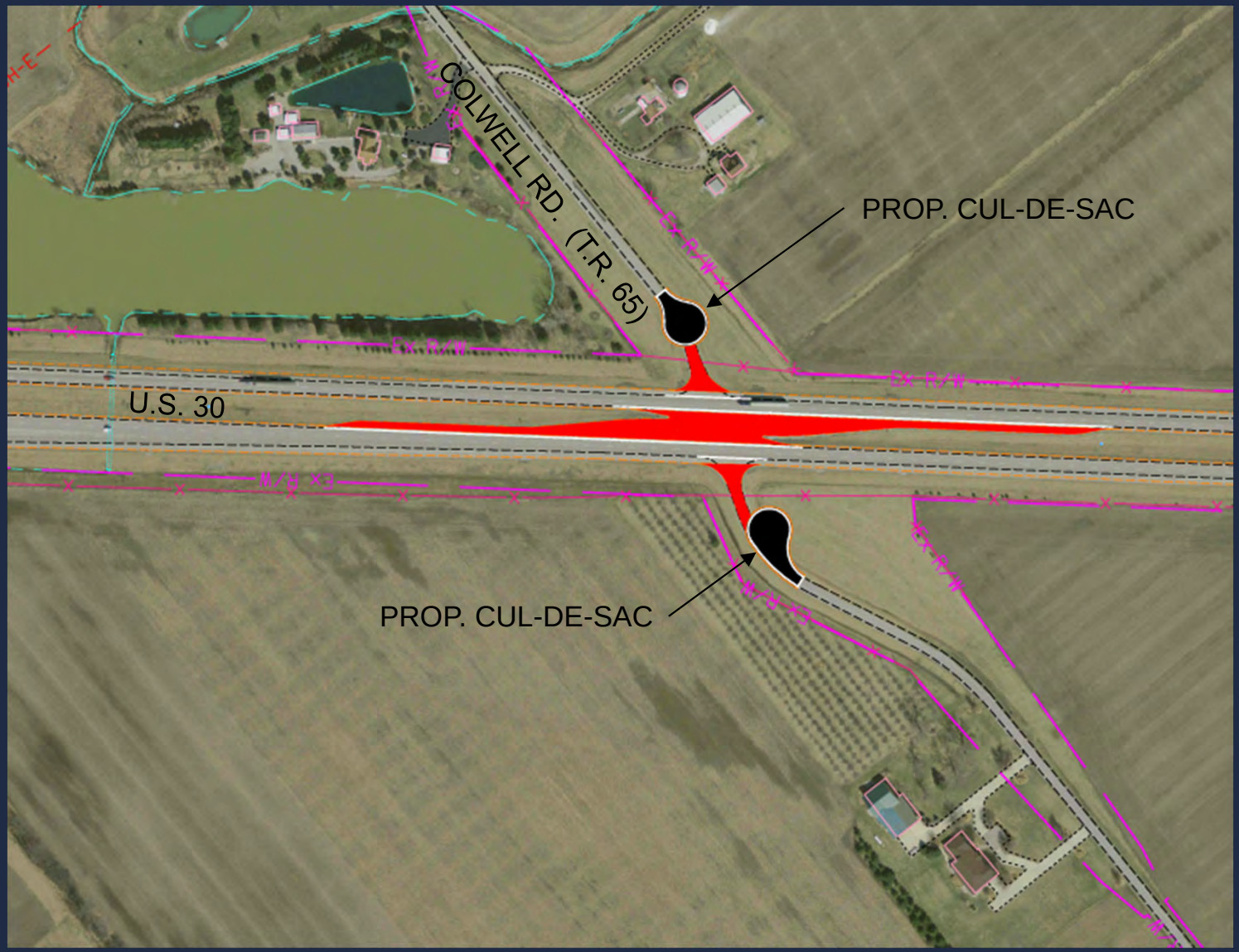
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 10
CONVOY HELLER ROAD AND U.S. 30



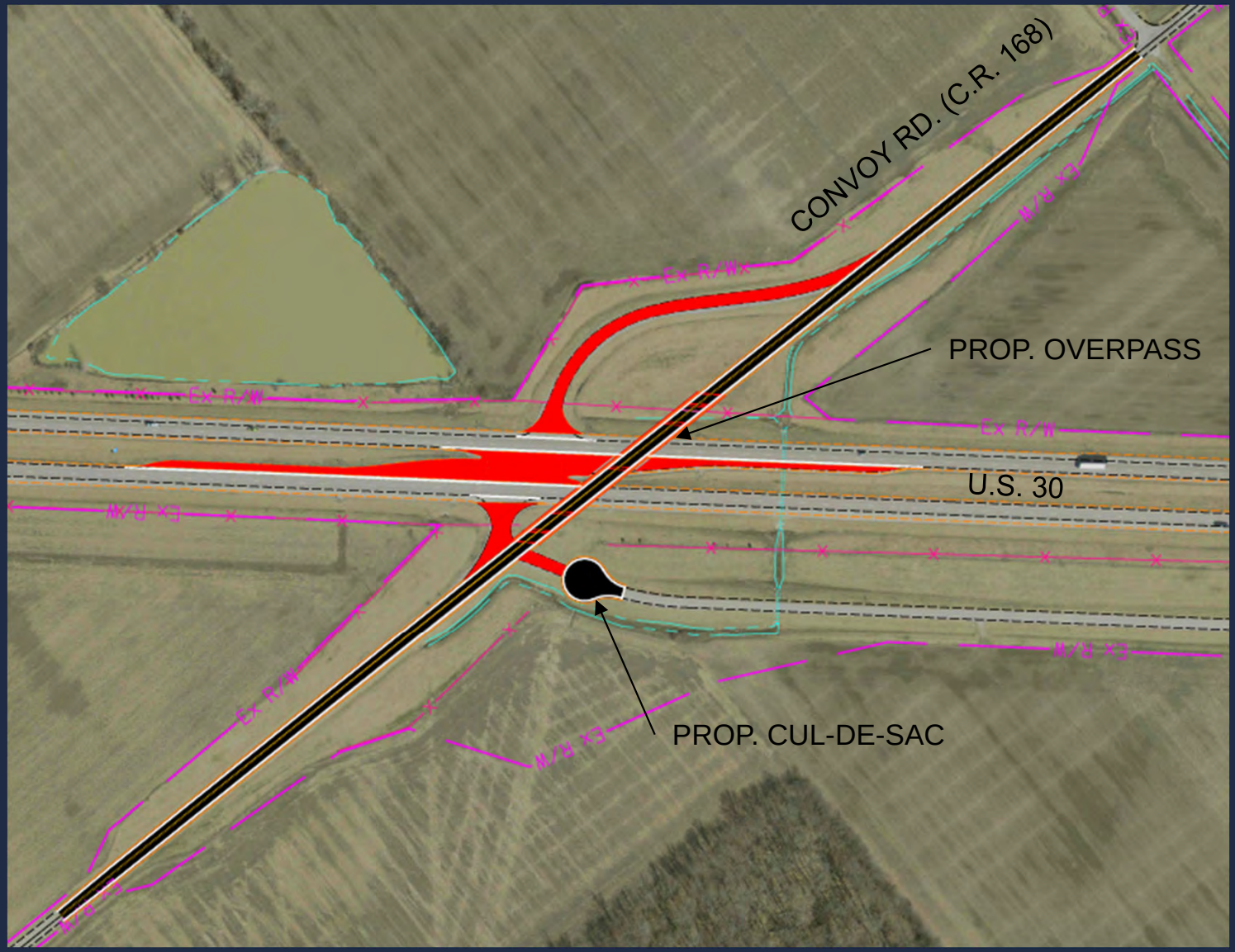
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 11
COLWELL ROAD AND U.S. 30



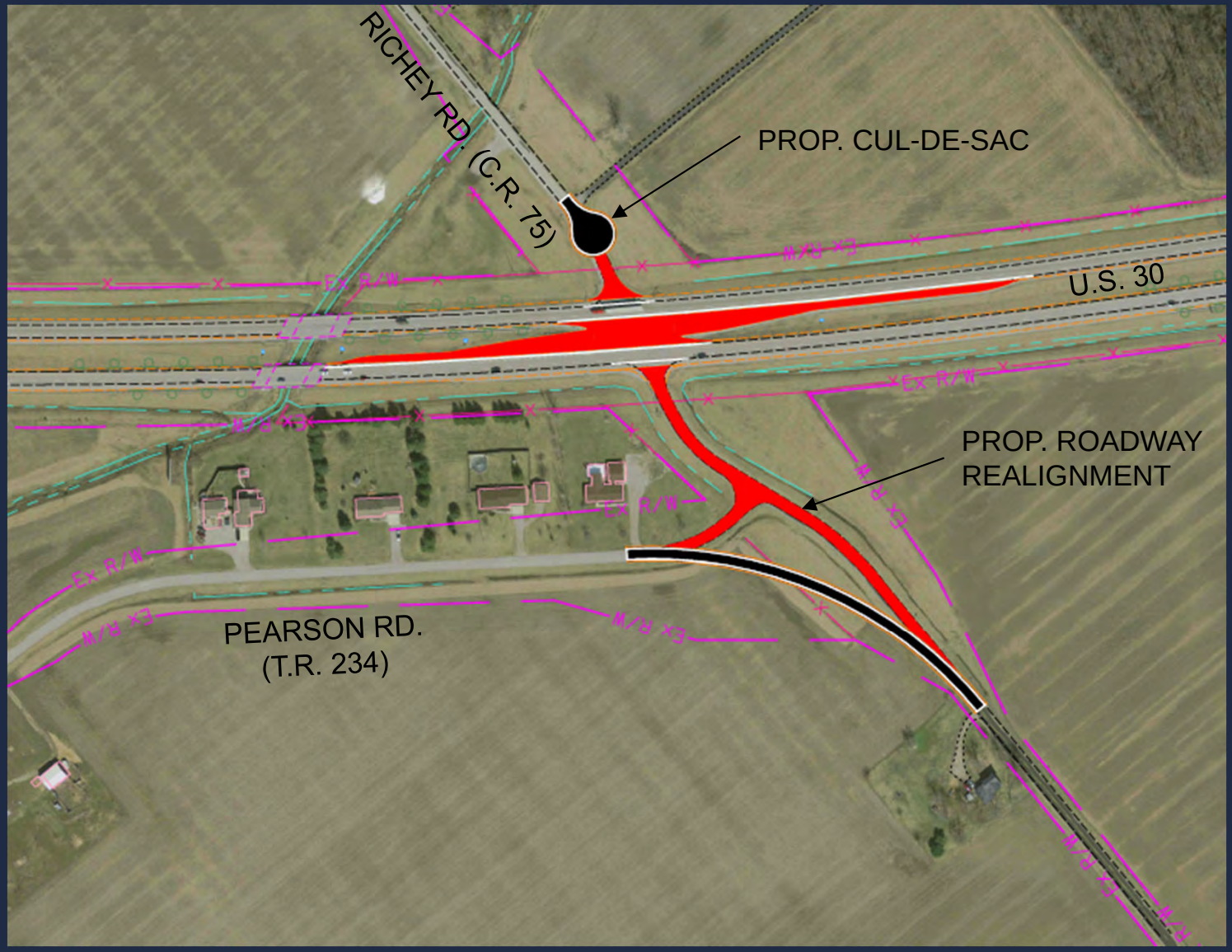
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 12
CONVOY ROAD AND U.S. 30



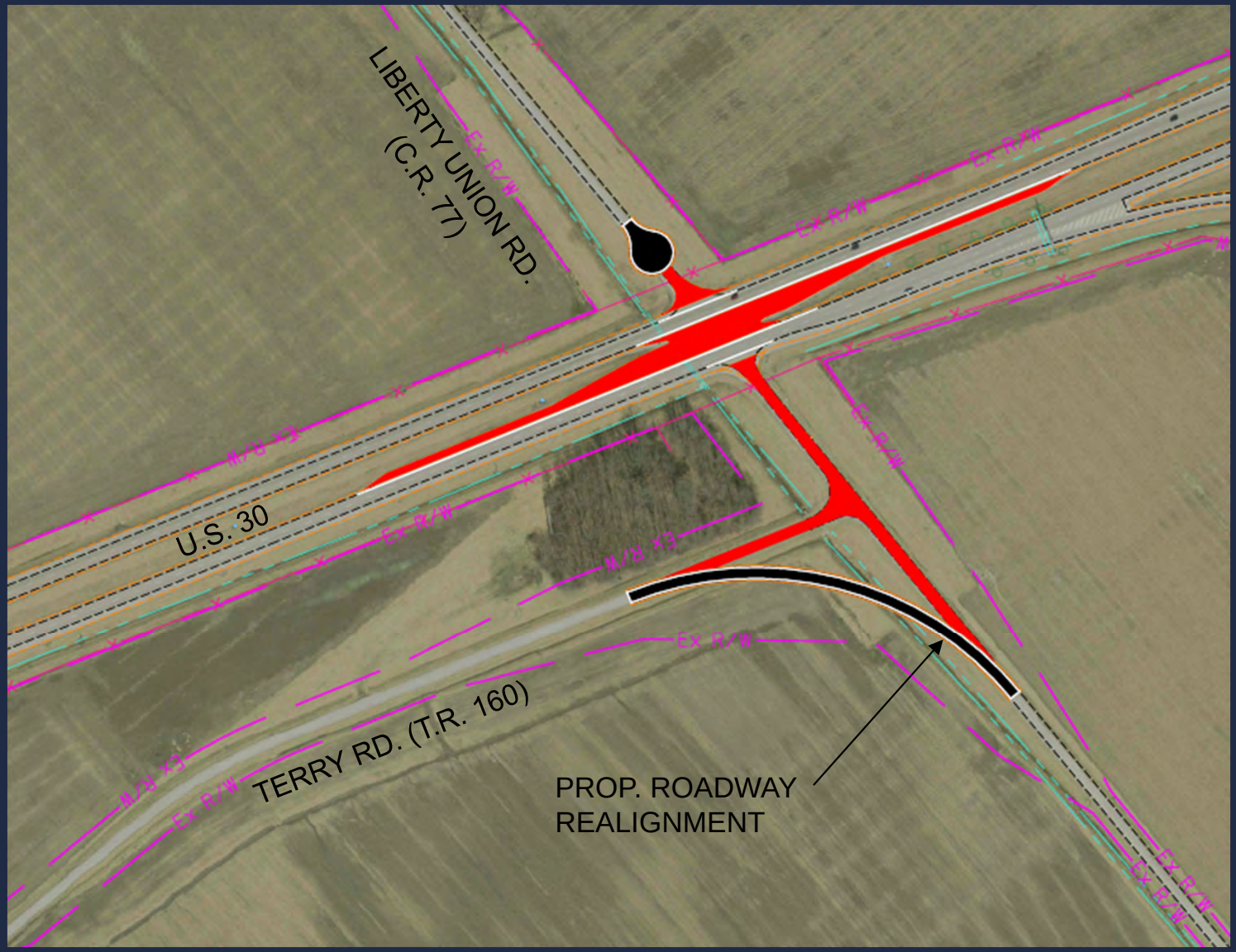
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 13
RICHEY ROAD AND U.S. 30



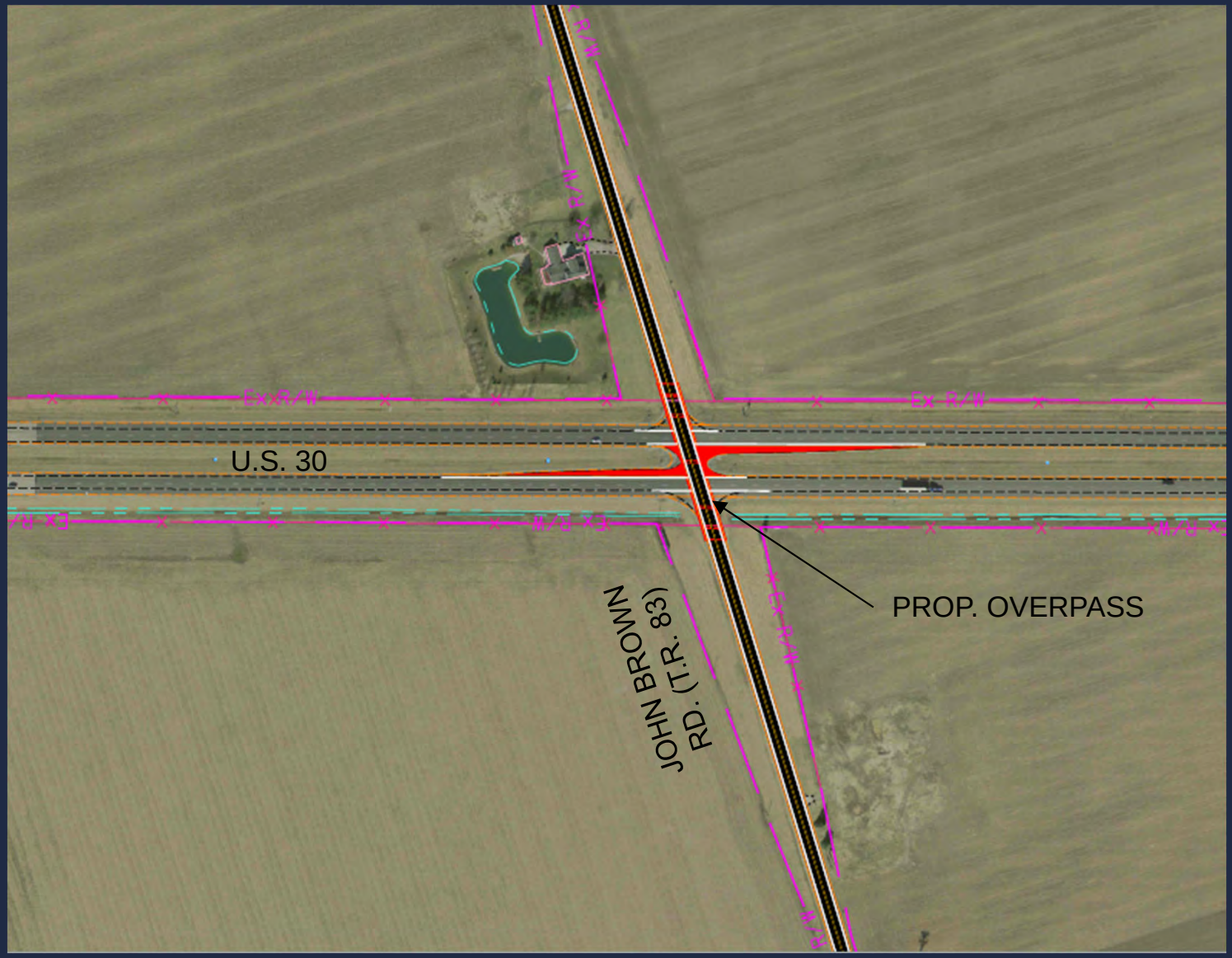
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 14
LIBERTY-UNION ROAD AND U.S. 30



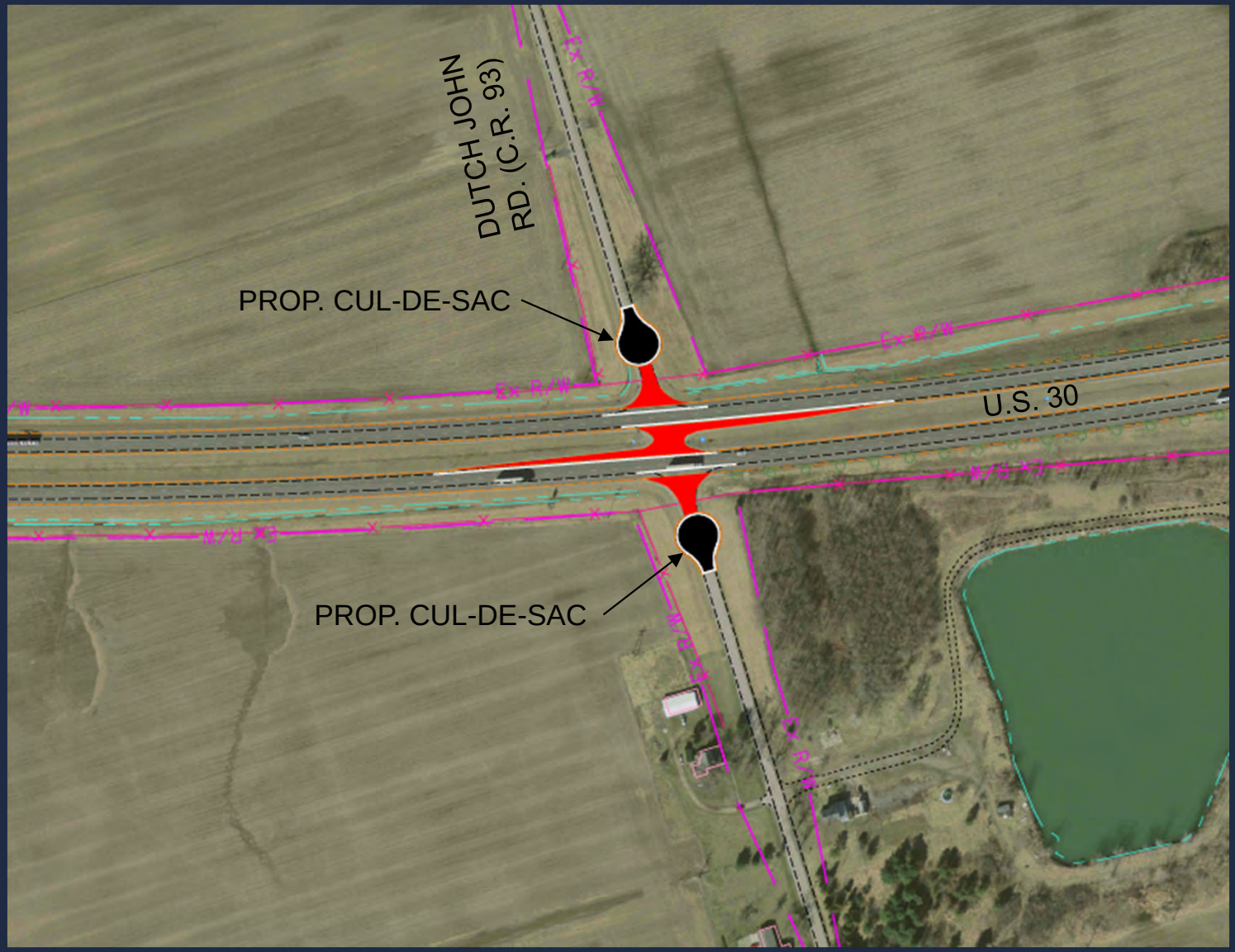
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 15
JOHN BROWN ROAD AND U.S. 30



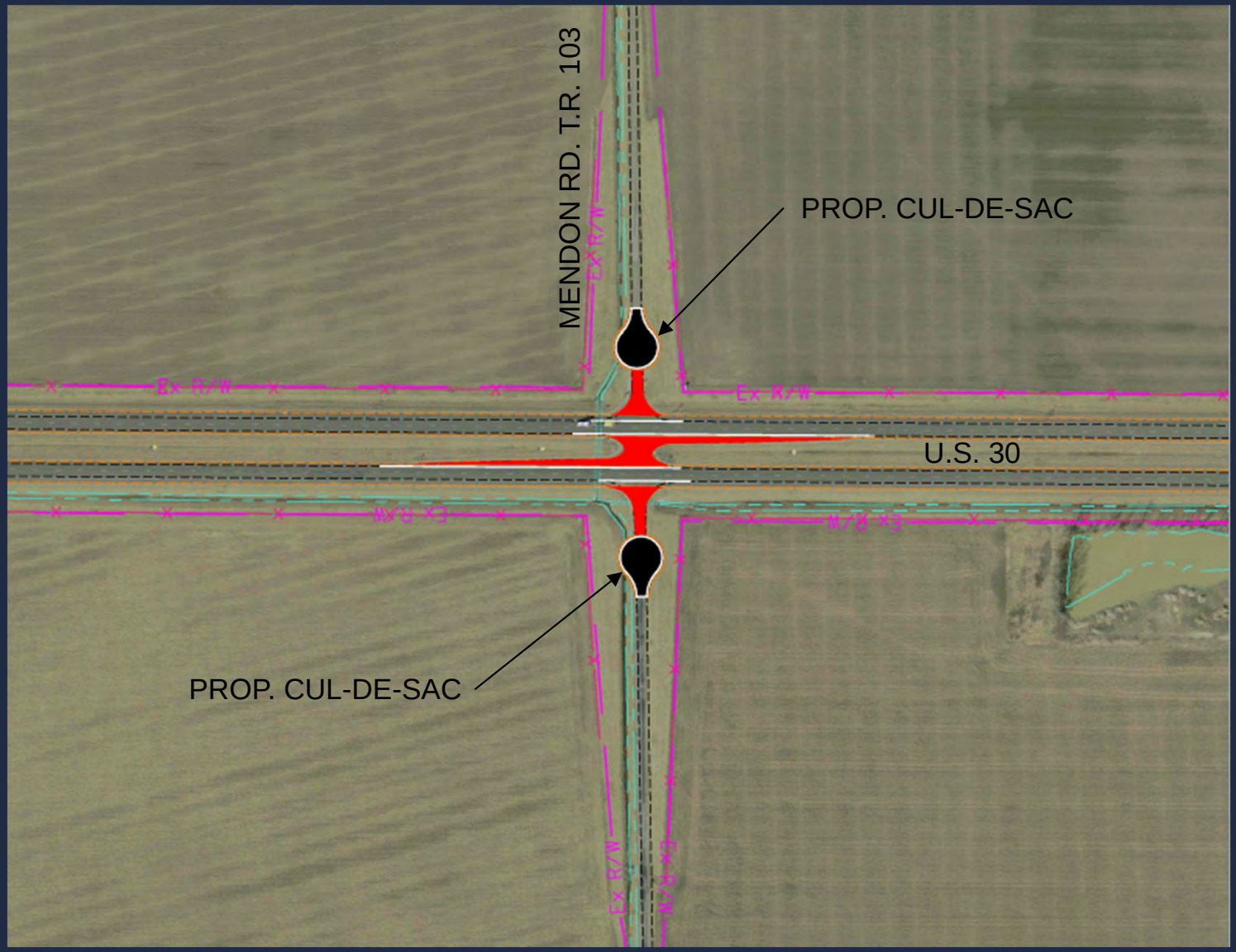
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 16
DUTCH JOHN ROAD AND U.S. 30



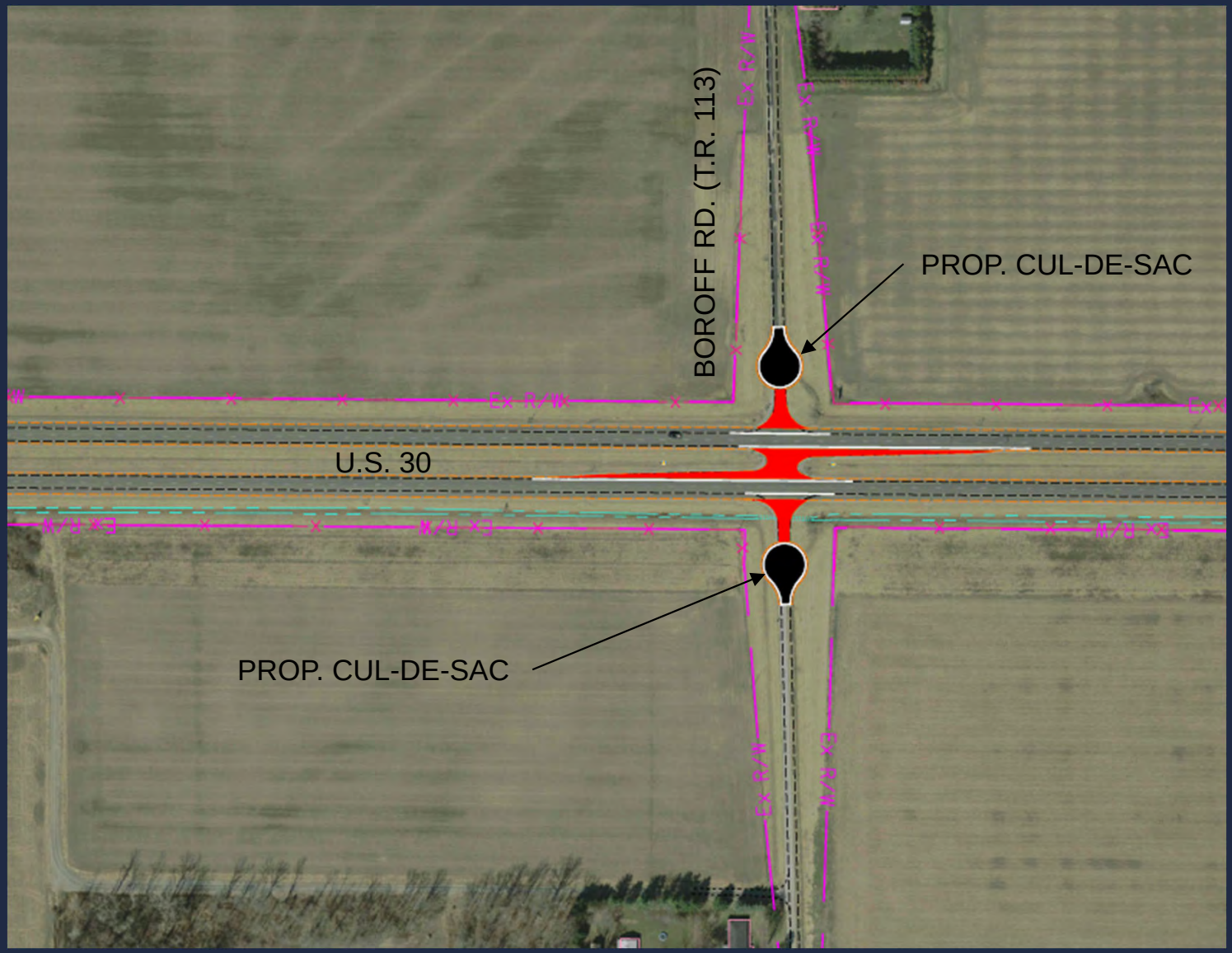
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 17
MENDON ROAD AND U.S. 30



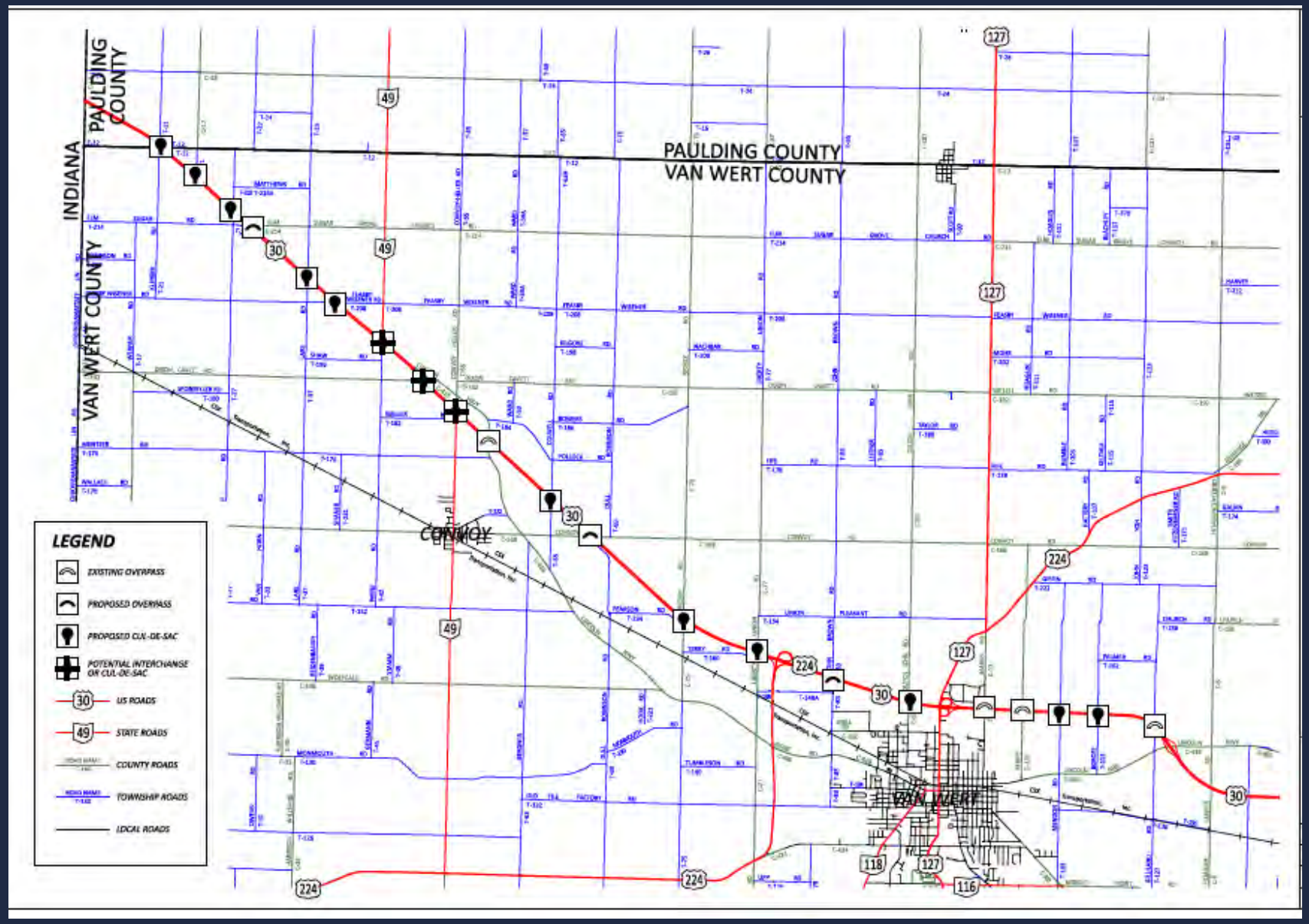
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 18
BOROFF ROAD AND U.S. 30



OHIO DEPARTMENT OF TRANSPORTATION

U.S. 30 CORRIDOR – PRELIMINARY ALTERNATES



OHIO DEPARTMENT OF TRANSPORTATION

HOW TO SUBMIT COMMENTS

- ODOT project website:
  transportation.ohio.gov/wps/portal/gov/odot/projects/projects/113196
- Call Kylie: 419-999-6885
- Email Kylie: kylie.schnipke@dot.ohio.gov
- Mail comment form or letter to:

  Kylie Schnipke
  ODOT– District 1
  1885 N. McCullough Street
  Lima, OH 45801

Please submit comments by March 16th, 2022!

INDIANA
PAULDING COUNTY
VAN WERT COUNTY

PAULDING COUNTY
VAN WERT COUNTY

CONVOY

VAN WERT

CSX Transportation, Inc.

LEGEND

- EXISTING OVERPASS
- PROPOSED OVERPASS
- PROPOSED CUL-DE-SAC
- POTENTIAL INTERCHANGE OR CUL-DE-SAC
- 30 — US ROADS
- 49 — STATE ROADS
- ROAD NAME C-146 — COUNTY ROADS
- ROAD NAME T-130 — TOWNSHIP ROADS
- LOCAL ROADS

HORIZONTAL SCALE IN FEET
0 1500 3000 6000

CORRIDOR MAP US 30

DESIGN AGENCY
ARCADIS
222 SOUTH MAIN STREET SUITE 200
AKRON, OHIO 44308
(330) 434-3855
www.arcadis.com

DESIGNER BLW
REVIEWER SMG 01/04/22
PROJECT ID 113196
SHEET 1 TOTAL 1

PAU/VAN-030-0.00

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PAU/VAN-030-0.00

HORIZONTAL SCALE IN FEET
0 100 200 400

OHIO/INDIANA STATE LINE TO KRICK RD (CR 17)
LINCOLN HIGWAY (US 30)

DESIGN AGENCY
ARCADIS
22 SOUTHWEST SIXTH AVENUE, SUITE 200
PORTLAND, OR 97204
PHONE: 503.220.1696
WWW.ARCADIS.COM

DESIGNER
BLW

REVIEWER
SMG 10-29-21

PROJECT ID
113196

SHEET 1 TOTAL 8

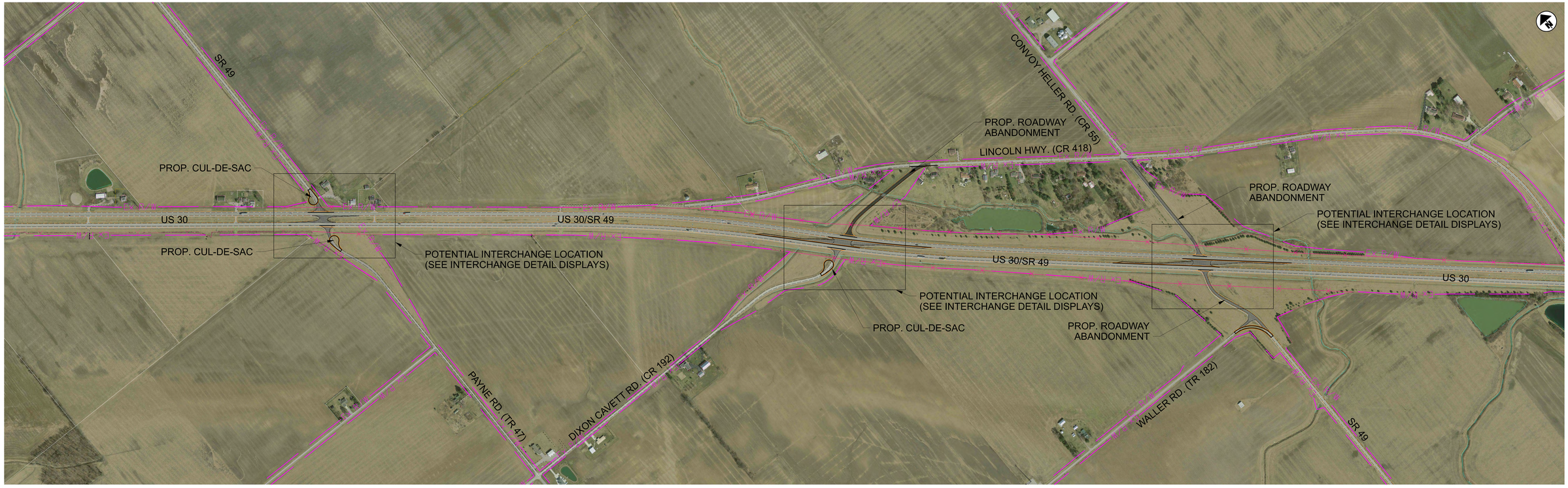
PAU/VAN-030-0.00

HORIZONTAL SCALE SHEET
0 100 200 400

MENTZER CHURCH RD (CR 27) TO FEASBY WISENER RD (CR 208)
LINCOLN HIGHWAY (US 30)

DESIGN AGENCY
ARCADIS
23 SOUTH MAIN STREET SUITE 300
AKRON, OHIO 44308
(330) 434-7600
WWW.ARCADIS.COM

DESIGNER
BLW
REVIEWER
SMG 10-29-21
PROJECT ID
113196
SHEET 2 TOTAL 8



PAU/VAN-030-0.00

HORIZONTAL SCALE: FEET
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PAYNE RD/SR 49 TO CONVOY-HELLER RD (CR 55)/SR 49
LINCOLN HIGHWAY (US 30/SR 49)

DESIGN AGENCY
ARCADIS
DESIGNER: BLW
REVIEWER: SMG 10-29-21
PROJECT ID: 113196
SHEET 3 TOTAL 8

PAULVAN-030-0.00

HORIZONTAL SCALE: 1"=200'
0 100 200 400

LINCOLN HIGHWAY (CR 418) TO CONVOY RD (CR 168)
US 30

DESIGN AGENCY
ARCADIS
22 SOUTH THIRD STREET, 5TH FLOOR
COLUMBUS, OHIO 43215
PHONE: (614) 486-0884
FAX: (614) 486-1555

DESIGNER: BLW
REVIEWER: SMG 10-29-21
PROJECT ID: 113196
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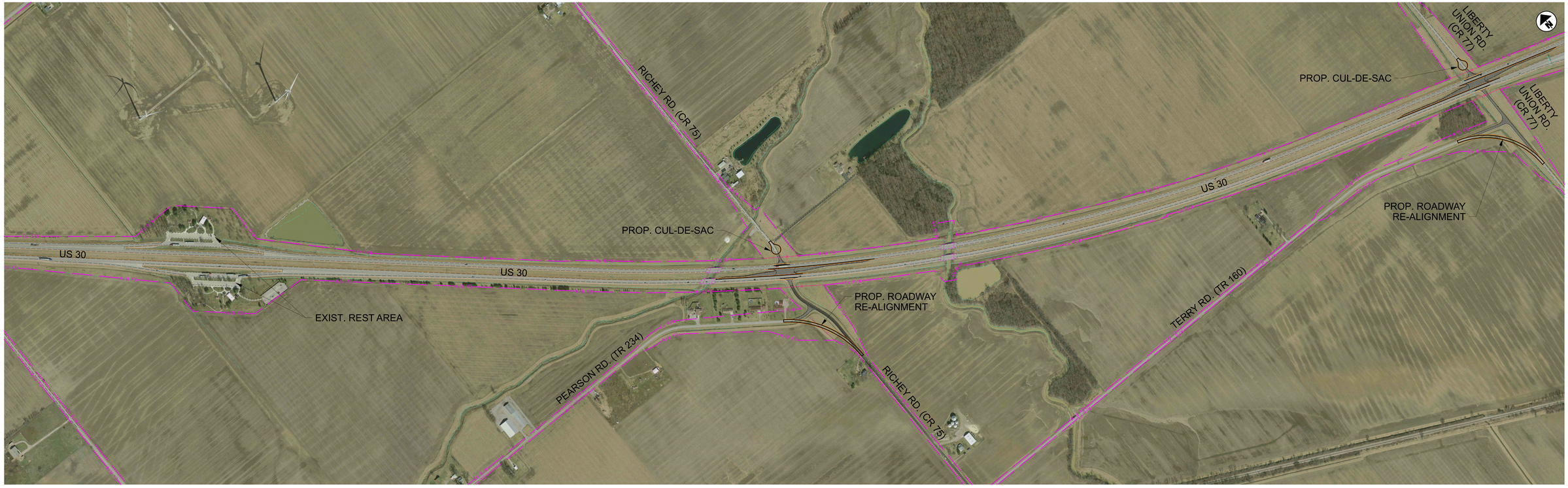

HORIZONTAL SCALE: FEET
0 100 200 400

RICHEY RD (CR 75) TO LIBERTY-UNION RD (CR 77)
US 30

DESIGN AGENCY
ARCADIS
DESIGNER: BLW
REVIEWER: SMG 10-29-21
PROJECT ID: 113196
SHEET: 5 TOTAL: 8

PAU/VAN-030-0.00

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Date/Time: 10/29/2021 4:44:21 PM - User Name: SMGoodman - Project Path: C:\Users\smith.gs\Desktop\Project Files\PAU-030-0.00 Richey Rd (CR 75) to Liberty-Union Rd (CR 77)\Engineering\Roadway\Sheet\PAU-030-0.00 Richey Rd (CR 75) to Liberty-Union Rd (CR 77).dgn

PAU/VAN-030-0.00

HORIZONTAL SCALE: FEET
0 100 200 400

US 224 TO DUTCH-JOHN RD (CR 93)
US 30

DESIGN AGENCY
ARCADIS
ARCADIS OHIO, INC.
22 SOUTH THIRD STREET, SUITE 300
COLUMBUS, OHIO 43215
PHONE: 614.486.4383
FAX: 614.486.4384

DESIGNER
BLW

REVIEWER
SMG 10-29-21

PROJECT ID
113196

SHEET 6 TOTAL 8

PAU/VAN-030-0.00

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18	TOTAL SHEETS	7	SHEET NO.	10-26-21	DATE	DESIGNED BWM
		13196	PID NO.	SMG	DRAWN BY	CHECKED AW

ARCADIS
220 SOUTH MAIN STREET SUITE 200
AKRON, OHIO 44308
(330) 434-1555
www.arcadis.com

US 127 TO BOROFF RD (CR 113)
US 30

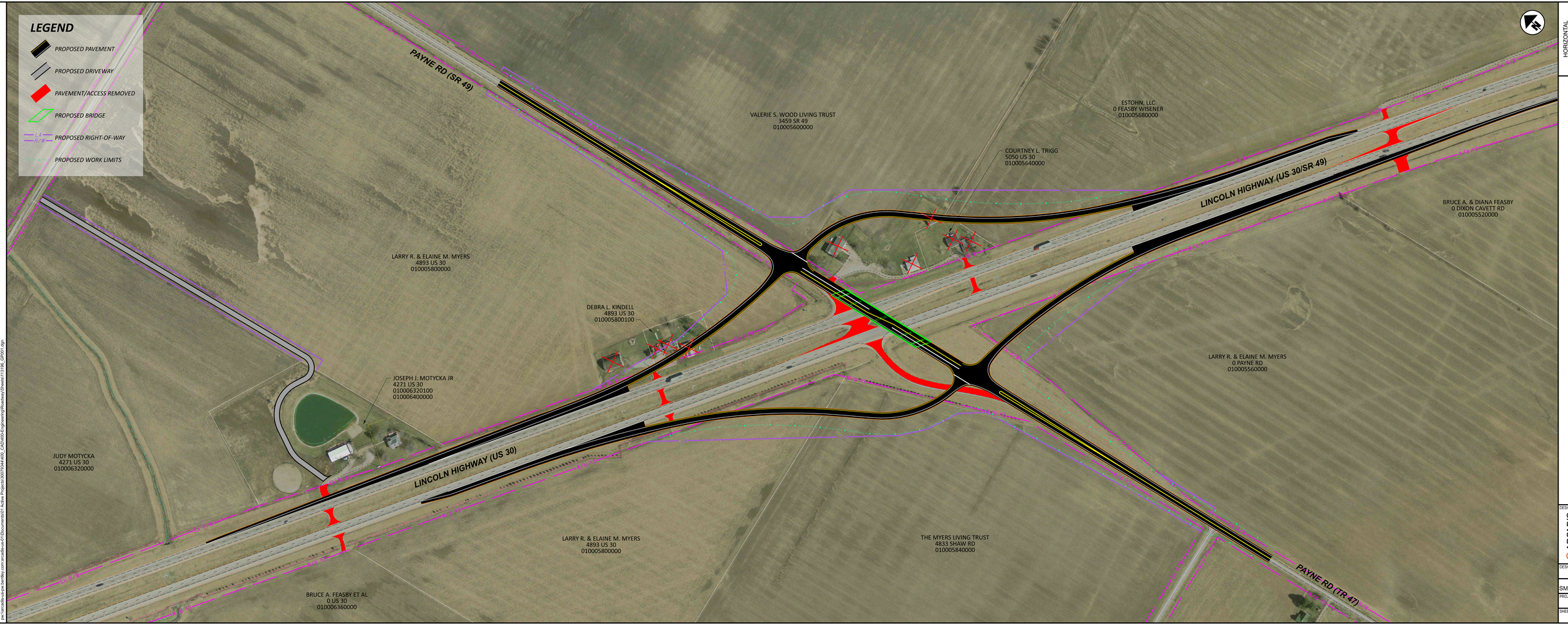
HORIZONTAL SCALE IN FEET
0 100 200 400

PAU/VAN-030-0.00

HORIZONTAL SCALE IN FEET
0 100 200 400

BOROFF RD. TO GAMBLE RD.
US 30

DESIGN AGENCY
ARCADIS
DESIGNER
BLW
REVIEWER
SMG 10-29-21
PROJECT ID
113196
SHEET 8 TOTAL 8



HORIZONTAL SCALE IN FEET
0 50 100 200

LINCOLN HIGHWAY (US 30 & SR 49) AT PAYNE RD (SR 49 & CR 47)

PAU/VAN-30-0.00

DESIGN AGENCY
ARCADIS
2200 DUBLIN ROAD | SUITE 200
ARCOLA, OHIO 43220
614.351.3600
www.arcadis.com

DESIGNER
MAL

REVIEWER
SMG 10-18-21

PROJECT ID
113196

SHEET 1 TOTAL 3

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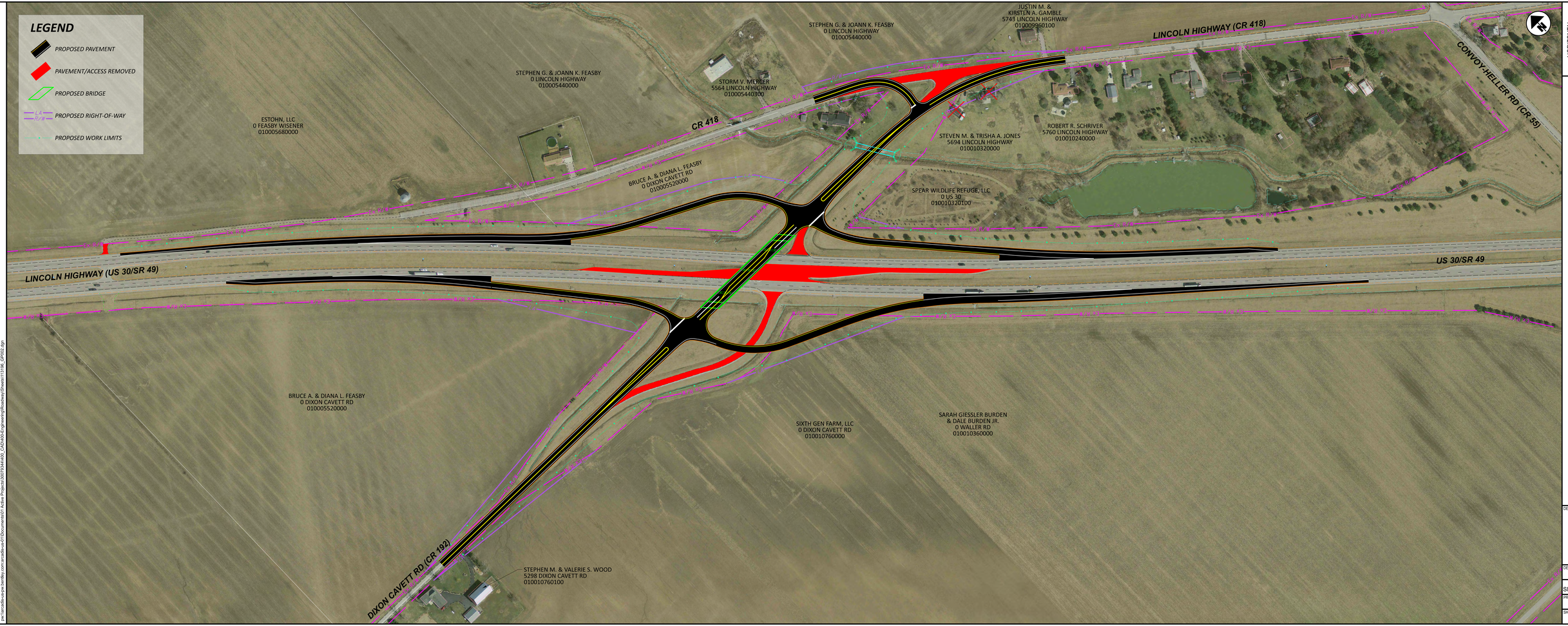

HORIZONTAL SCALE IN FEET
0 50 100 200

LINCOLN HIGHWAY (US 30/SR 49) AT DIXON CAVETT RD (CR 192)

PAU/VAN-30-0.00

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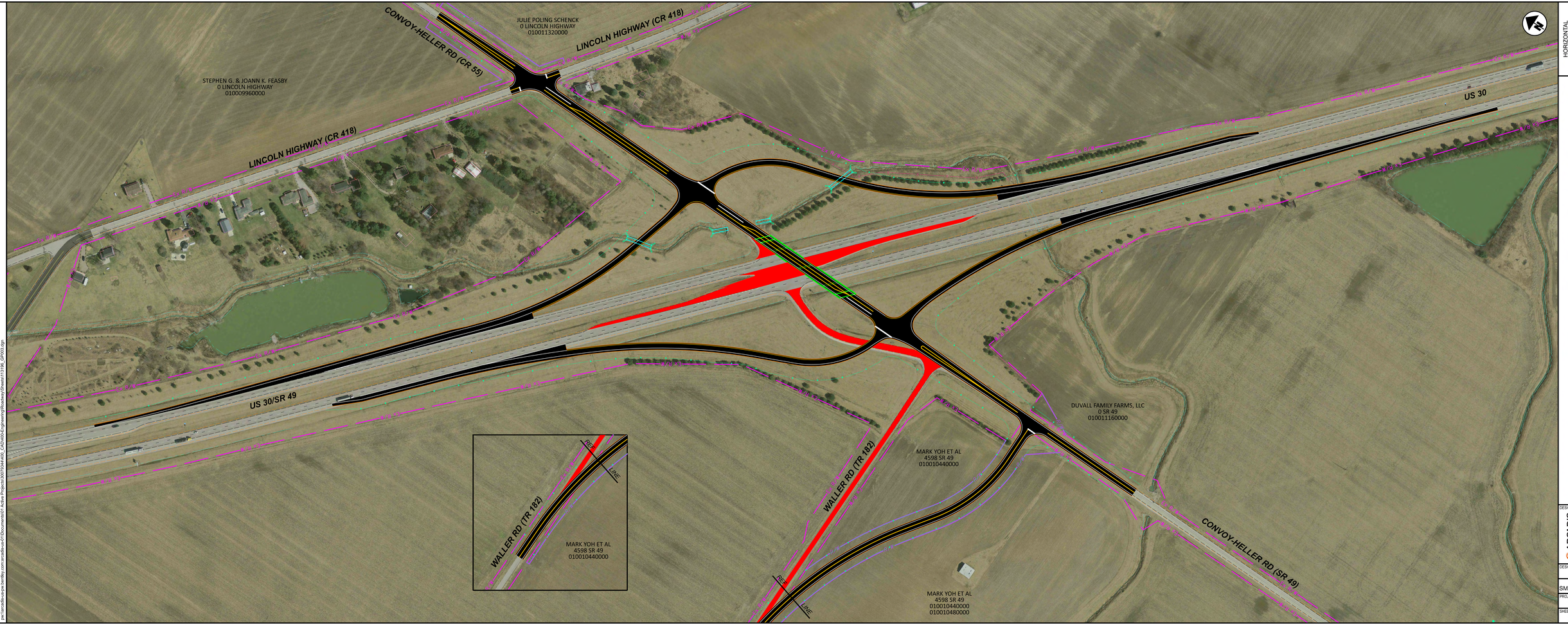
DESIGN AGENCY
ARCADIS
2222 GRAND BOULEVARD, SUITE 200
KANSAS CITY, MO 64108
816.520.3838
www.arcadis.com

DESIGNER
BLW

REVIEWER
SMG 10-18-21

PROJECT ID
113196

SHEET 2 TOTAL 3



HORIZONTAL SCALE IN FEET
0 50 100 200

US 30/SR 49 AT CONVOY-HELLER RD (SR 49 & CR 55)

DESIGN AGENCY
ARCADIS
2220 OLIVE-HARRIS STREET, STE 700
ARCADIS OHIO, INC.
ARCADIS.COM
www.arcadis.com

DESIGNER: MAL
REVIEWER: SMG 10-18-21
PROJECT ID: 113196
SHEET: 3 TOTAL: 3

PAU/VAN-30-0.00

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SR 49 Interchange Comparison Matrix

	Alternate 1 - SR 49 North /Payne		Alternate 2 - Dixon Cavett		Alternate 3 - SR 49 South/Convoy Heller		Comments
Interchange Construction Cost		$9,045,000		$9,450,000		$8,370,000	Construction Cost - Construction cost, not including R/W, of major items only.
R/W		13.11 acre		3.31 acre		1.65 acre	R/W-Amount of new permanent R/W required to construct alternate
Building Impacts		8 Buildings		2 Buildings		0 Buildings	Building Impacts - Number of potential impacts to residential homes or substanial out buildings
Environmental Impacts		1000 lf		285 lf		1600 lf	Environmental Impacts - Amount of impact to named streams
Traffic Demand Impact		2000 vpd		3390 vpd		2590 vpd	Traffic Demand Impact - Number of vehicles that would have to re-route to use this alternate
Farmland Impact		10.10 acre		3.00 acre		1.65 acre	Farmland Impact - Amount of impact to farmland
Connectivity Cost/Reroute Length		$2,900,000 2.00 miles		$4,805,011 1.19 miles		$2,100,000 1.28 miles	Connectivity Cost/Reroute Length - Length of travel to use new route with associated cost to improve that route. See Travel Route matrix for details.

Legend

Least Impact/Best	→		→		→		→	Most Impact/Worst

PAU/VAN-US 30-0.00/0.00 Feasibility Study (PID: 113196) - Public Comment Summary Table

2nd Stakeholder Meeting - Formal Comment Period from 02/16/2022 to 03/16/2022

Date Received	Date Responded	Name	Address	Phone Number	Email	Affiliation	Comment Summary	Comment Type	Response Summary	Response Type
02/07/22	02/07/22	Neal Orsbon	PO Box 540 Convoy, Ohio 45832	419-408-0209	Norsbon@shellyco.com	Property Owner, President of Villiage of Convoy Council	For Village of Convoy and Stone Co. haul route builing overpass with a westbound off ramp and east bound on ramp are a must! This would allow access to Convoy for the school and the elevator. This would also allow haul route to be switched from Richey Rd to Convoy Rd. We would also have to change our west bound Feasby Weisner haul route to turn and go SB on 49 to 30. Biggest affected hauling would be WB to quarry from Indiana, would have to use R-cut back to 49N to haul route. Also to save cost, an extended RCUT could be built between 49 N & S. Would need to make Dixon Cavet and Lincoln Highway a right/left turn only. I feel most of the issue with wrong way drivers is due to the size of the median crossovers. There are a few that are very large and help the crossing traffic but can be confusing to the mainline travelers. I do not have issue with eliminating the hazard by building over passes. IMO I would do nothing with State Line, I am not sure what the accident data shows there, I don't ever see a lot of traffic there.	Email	Thank you for providing this comment.	Email
02/08/22	02/08/22	Robert Schnumm	7713 SR 49 Convoy, Ohio 45832	419-749-2820	bcschumm0@gmail.com	Property Owner	While I appreciate the many intersections under study, there is only one that I use. That exit is State Route 49 exiting south off of U.S. 30. It needs a Right Turn exit lane as semi's about run over your rear bumper when there is eastbound traffic in both lanes! It is another fatality waiting to happen.	Email	Thank you for providing this comment.	Email
02/10/22	02/11/22	Cheryl Baker			crtb1855@yahoo.com	Property Owner	Very concerned about losing land. I have a century farm. It has been in family for 100+ years. My tenant farmer takes my grain to the north across US 30 at State Line Road	Email	Thank you for taking time to comment on the study. The presentation that will be shown at the meeting and posted on the website will show the proposed alternatives and potential right of way impacts for each intersection with US 30. At this time, there are no shown R/W impacts at the State Line Road intersection.	Email
02/10/22	02/11/22	Jerry Koenig	8361 Liberty Union Road Van Wert, Ohio	419-203-4651	jerry@flatlandssupply.com	Property Owner/ Business Owner	The intersection of US 224 & Lincoln Highway is so dark and dangerous after ODOT took out the flashing light. Coud 1 or 2 more LED Street lights be installed to make the intersection safer? Jerry also provided a sjetch for rerouting Liberty Union Road into the US 224 interchange. It is saced in the comment folder.	Email	Thank you for taking the time to comment on this study. I will share your idea for rerouting Liberty Union into US 224 with the study group and look into crashes and potentially getting street lights installed at US 224 & Lincoln Highway.	Email
02/10/22	02/28/22	Ronald Neiswanoler	5668 Mentzer Church Road Convoy, Ohio 45832	419-203-0902		Property Owner	There is busy truck traffic getting off the 4 lane on to Old Lincoln Highway to north Van Wert.	Letter	Thanked him for the comment and told him to contact me with any other questions or comments.	Phone
02/23/22	02/28/22	Isaiah Jones	17399 Jonestown Road Venedocia, Ohio	419-605-8927		County Resident	Please leave the highlighted intersections alone. We have seen updated intersections along US 30 and think these designs are foolish. These new intersections make crossing 30 more of a challenge than the current set up. Also these projects seem to over-complicate things and cost tax payers money senselessly.	Letter	Thanked him for the comment and told him to contact me with any other questions or comments. He had asked about financial figures for the proposed alternatives so I told him there will be a public meeting in the summer sometime and at this time we can dicuss costs. Also reminded him that none of these projects have any funding sources yet and we are doing the study to get ahead of the potential economic development and traffic growth in the area.	Phone
02/08/22	N/A	Estohn LLC	19 Longlea Drive Little Rock, AR 72212			Previous Owner	All property owned by Estohn LLC was sold in 2021. Please redirect future mailings to the current owners.	Letter	N/A: Will just have to make sure to send information about the public meeting to the current owners	N/A
02/23/22	02/28/22	Seth Baker	138 East Main Street Van Wert, Ohio		seth@vanwertcountyfoundation.org	Business	The Van Wert County Foundation owns farm ground that is bisected by US 30. Cul-de-Sacs to both Elm Sugar Road and Mentzer Church Road would dramatically affect how we can access those farms. We have a current private drive that crosses US 30 immediately to the southeast of the Elm Sugar Road crossing. We would need that maintained to access the farm on the south side of US 30. The more significant issue pertains to the closure of Mentzer Church Road, and to the access to a parcel we have on that road. We currently only have access to that parcel through the Mentzer Church Road entry off of US30, directly accessed by Elm Sugar Road. If Elm Sugar and Metzer Church Road access is eliminated, we have no ability to access our farm parcel on Mentzer Church Road, unless a bridge is constructed over the creek that divides our parcels (east of Mentzer Church, South of Matthews Road, North of US 30). Can you provide information on how access will be maintained?	Website	Thank you for sending in your comments regarding access along US 30. At this time, none of these projects have received funding and are not planned to be constructed at this time. To answer your access question, Elm Sugar is currently proposed to be an overpass so you would still be able to cross US 30 using this overpass to access your property on either side of US 30. The overpass would be designed to be wide enough to accommodate farming equipment. I realize if Mentzer Church were cut off, then this would cause issues since there is a ditch that goes through your property. This has been noted and will be looked into further to make sure that you still are able to have access to your farm if Mentzer Church were to become a cul-de-sac as is currently proposed.	Email
02/23/22	02/28/22	Seth Baker	8115 Liberty Union Road Van Wert, Ohio			Property Owner	I would love to see restricted access at Liberty Union Road from US 30. However, I'm concerned about how to cross US 30 to the North. There won't be many options to do so, without going into Van Wert, or add approximately six miles to the trip if I went west to a potential overpass maybe at Convoy Road (and then back to Liberty Union Road). I would definitely prefer an overpass instead of a cul-de-sac. Is there a way to extend the current 224 overpass north, t-ing into Union-Pleasant Road? If that were to be an option, I'd be okay with LIberty Union as a cul-desac.	Website	See above. He did not leave a method to be contacted by for this comment	Email
02/22/22	02/22/22	Kent Berheide		419-771-8966	Kberheide12@gmail.com	Property/ Business 0wner	Interested in more information about SR 49 interchange and rerouting. I sent him the presentation and proposed alternatives drawings.	Phone Call	Discussed how no projects are planned, we are just trying to get ahead of potential traffic growth. Sent him the proposed alternatives drawings.	Phone/Email

03/01/22	03/01/22	Douglas Dealey	1227 Krick Road Convoy, Ohio	419-203-2333		Property/ Business 0wner	How do I get to south side of US 30 with farm machinery? Checmical trucks deliver product 2-6 trucks a day on average of 9 moneths at Krick Road.	Letter	I told him we discussed potentially needing another overpass other than Elm Sugar on the west side of SR 49 for connectivity so we will take his comment into consideation. He just wanted to be sure we knew about the business he was running and the amount fo traffic using the road and that would have to be rerouted onton township roads that were not built for trucks.	Phone Call
03/03/22	03/09/22	Gary Kreischer	117 Franklin St., Convoy Ohio	419-203-1562	cheifcfd@bright.net	Convoy Fire Chief	For the most part I am in favor of the proposals. My fire and EMS coverage goes north to the Paulding county line, west to the Indiana,Ohio State line south to Harrison Center road and east to Liberty Union Road. So, if everything from the state line to Liberty Union Road was a cul-de-sac or overpass, I would have to lengthen my arrival times. If alternative 3 were used I believe that would be the most satisfactory decision for an interchange. However, we have a few water sources (dry hydrant) within our coverage area that would definitely impact turn around tiimes for truck drivers if they has to use on SR 49 to access them. He agrees with all of the proposals except the following: State Line could have an RCUT installed if needed, Elm Sugar-install an RCUT instead of overpass, use Alt # 3 for the interchange, Convoy Road- overpass with westbound exit and EB entrance to US 30 from Convoy Road, Richey Road - overpass (truck traffic from Stoneco Quarry could teh utilize Lincoln Hwy)	Email	Thank you for you comments and insight on the fire coverage area. Emergency access is important to us so we will use these to help furhter develop the porposed alternatives.	
02/16/22	02/16/22	Convoy					Spoke with members of Convoy at the meeting. They believe that overpassing Convoy Road will impact those trying to access Convoy, specifically the school, from the northeast. They do not agree with the overpass.	Meeting	Thanked them for the comment and discussed this with them.	Meeting
03/08/22	03/09/22	Chris Galloway			cjrebel1@yahoo.com	Truck driver	also be considered prior to decisions being made as to how this project should proceed. For example, what percentage of the accidents in each category at each intersection were due to misjudgment, (speed, distance, ability)? What percentage were due to driver not paying attention or driver impairment (traveling on, entering or exiting US-30)? What percentage were due to impatience? How many accidents were in reaction to vehicles slowing to turn, or turning off of US-30 onto a secondary road? How many of those were due to left hand turns vs right hand turns? How many accidents were at night vs daytime? How many accidents were due to not being able to see lane or border markings due to weather or night? There are many other comments her made-look at the email saved to see all his comments. Here are his other suggestions: US-30 & Klinger Rd.-- Increase & widen/update left turn lanes and add right turn lane on each side. US-30 & Krick Rd.--North side & South side, Right in Right out Or Cul-de-sac. US-30 & Mentzer Church Rd.-- North side, Right in Right out, South side Cul-de-sac. US-30 & Elm Sugar-- Increase & widen/update left turn lanes and add right turn lane on each side. US-30 & Lare Rd.-- North side, Right in Right out, South side Cul-de-sac. US-30 & Feasby Wisener Rd.-- Increase & widen/update left turn lanes and add right turn lane on each side. US-30 & SR49/Payne Rd.-- North and South side, Right in Right out. US-30 & Dixon Cavett Rd.-- North side Cul-de-sac, South side Right in Right out. US-30 & Convoy Heller Rd./SR49-- Interchange or Increase & widen/update left turn lanes and add right turn lane on each side. US-30 & Colwell Rd.-- Add right turn lanes on North & South side. US-30 & Convoy Rd.-- Add right turn lanes on North & South side. US-30 & Richey Rd.-- Add right turn lane on North & South side. US-30 & Liberty Union Rd.-- North side, Right in Right out, South side Cul-de-sac. US-30 & John Brown Rd.-- Increase & widen/update left turn lanes and add right turn lane	Email	Thank you for your comments about the US 30 corridor study. Some of the questions you had as far as what caused a crash is hard to tell based on the information we are given about the individual crashes. We do not have access to information such as driver misjudgment or drivers not paying attention during crashes because the report we see is obtained after the crash has occurred. Turning vehicles and crashes occurring during the day or night are considered as we develop these proposed alternatives. All of these are important factors and while I agree it is important to pay attention and be cautious while driving, there will always be drivers out there that are not completely focused on the task at hand. These proposed changes to the intersections help to mitigate their chances of being in a serious crash at these intersections.As for the reflective paint, this is something that ODOT has began installing on four lane (or more) highways throughout the state. The reflective paint will be installed on US 30 with resurfacing projects in the upcoming years to help with any visibility issues. Currently US 30 is seeing less traffic than other interstates in the state, however as shown in the presentation the traffic is growing. Our goal with this study is to get a plan in place to prepare for these changes if needed as traffic increases and safety problems arise. We are trying to get residents, businesses and emergency personnel opinions to have this plan for limited access in the future as needed. The turn lanes suggested are good countermeasures for short term, especially preventing rear end crashes, but if traffic continues to increase, then complete access removal may have to be considered at these intersections. This may not happen for many years into the future, but we are trying to get ahead of any problems that could arise. I have recorded your suggestions for each of the intersections and will take them into consideration as we develop the final proposed alternatives for the public meeting. Keep in mind the final alternatives will be for a limited access highway, so many of the suggestions you had could still be done short term to reduce the chance of a crash occurring. In the meantime, if you have any other questions, feel free to contact me.	Email
03/14/22	03/14/22	Ryan Reinhart	5936 Lincoln Hwy. Convoy, Ohio	419-796-8996		Property Owner	Asked about impacts to his property and how the right of way would be purchased if needed.	Phone Call	Discussed that it did not look like there would be any major impacts to his property, but that we would know more for sure once the alternatives and reroutes were more finalized.	Phone
02/16/22		Steven Cramer	320 Sycamore Street, Convoy OH	567-259-7145	Steve@cramersmower.com	Business	Turning off of US 30 to 49 or Convoy Road is very dangerous. Traffic does not slow down because drivers think there is a "turn off" lane. Drivers not knowing the area don't slow down or get over to the passing lane. We need "turn off" lanes now.	Meeting Comment Form	N/A: Will just have to make sure to send information about the public meeting to the current owners	
02/16/22		Jeff and Linda Spear	5792 Lincoln Highway	419-236-0899		Property Owners	Don't know yet. Need more information.	Meeting Comment Form	N/A: Will just have to make sure to send information about the public meeting to the current owners	
02/16/22	02/16/22						Is the cul-de-sac design- wide enough for truck turn around? Needs to be wide enough for farm equipment and semi.	Verbal Meeting Comment	We will take a look and make sure that a semi will be able to turn around in the cul-de-sac if that is the strategy selected for that intersection.	Verbal
02/16/22	02/16/22						Will State-Line Road continue to be "at grade"?	Verbal Meeting Comment	ODOT will be working with Indiana DOT about that area in particular. It was not included in this study.	Verbal
02/16/22	02/16/22						Connecting to Lincoln Hwy to US-49, what is a safe distance from a residential structure to the road? (7-8 children live in those house(s) near 49; also what would happen to the historic bridge in that location, that was already an issue when rehab options for bridge were on the table.	Verbal Meeting Comment	Detailed design is forthcoming, we do not know the impacts at this time to this area. There isn't a "Standard" for a safe distance of a house to road	Verbal
02/16/22	02/16/22						Can we assume that we are only going to build one interchange?	Verbal Meeting Comment	One interchange in the area meets the design criteria for interchange spacing; however, we are unsure at this time.	Verbal
02/16/22	02/16/22						127 N out of Paulding where berm is built up at 24…there is not a good radius or decel lane for trucks to turn (get stuck behind them) and blocked in with guardrail that is also prohibitive…would like to incorporate better "turn radii" at the interchange (proposed) to eliminate this type of situation.	Verbal Meeting Comment	We agree. That area was constructed under different design standards.	Verbal

02/16/22	02/16/22						Krick road, semi's trucks and trailers, dairy, etc.; how will they get to US-30; twp roads will not handle increased traffic?	Verbal Meeting Comment	This plan will result in restricted access to US-30. People, trucks, and businesses will have to go longer distances to get where they want to go, but that's why we are planning and getting you all involved. We understand that this will be a stepped approach and we're not going to go out and "build everything". West of 49 there isn't a lot that is "driving" action.	Verbal
02/16/22	02/16/22						What guidelines do we use for property impacts; who gets stuck with something we don't want, or be forced to sell?	Verbal Meeting Comment	The proposed right-of-way line has to "hit" the house in order for ODOT to buy it; ODOT will make an offer (through appraisal) and then negotiation, if an agreement cannot be made, then eminent domain could occur.	Verbal
02/16/22	02/16/22						Does truck traffic (how many are using US-30 now) and how many would need to re-route go into the equation?	Verbal Meeting Comment	Yes! We know the truck usage and numbers which is factored in. We have the traffic counts.	Verbal
02/16/22	02/16/22						Are you working with the County Eng. and Trustees on this (b/c it's their roads that will have to bear the brunt of this)?	Verbal Meeting Comment	We have and will continue to involve them in the process. Sherriff commented on what they did in Allen Co. with Cul-de-sac and coordination with fire, ems, schools, etc. and how the process works during the design process. Chris- County and twps have been invited to everything that we've done so far and are part of the converstation and will continue to be.	Verbal
02/16/22	02/16/22						Final FS to be submitted at the end of the year; what's next after that?	Verbal Meeting Comment	Public meeting and stakeholder meeting in the fall. After the study ODOT will work with local officials on what the action steps will be. It's possible that once the study is complete, that there is not a push to do anything...Chris stated that the interchange at 49 is likely, and it is also a critical piece to the puzzle before other things can be fixed. Likely 6-10 year plan for any construction.	Verbal
02/16/22	02/16/22						Indiana has a bunch of right turns, nice turns; can we just get a nice right turn at 49 now? And not wait until 10 years down the road for an interchange.	Verbal Meeting Comment	Yes there are things that we can do that are simpler, cheaper, etc., yes, those are options, we want to make sure we don't create more problems, needs to be the right thing to do.	Verbal
02/16/22	02/16/22						Things to consider- closing these will create more on Ridge Road and 224 (and you took away the flasher already); Also wrong way signs are obstructing views	Verbal Meeting Comment	This intersection is already on ODOT's radar for safety; overhead flasher was removed and replaced with signs, hasn't warranted "flashing stop signs"; ODOT would have to consider improvements for sure at this location and others. Wrong Way Signs- will get moved, ODOT's heard that they are obstructing, they are working to get those moved (this spring).	Verbal
02/16/22	02/16/22						To build the overpasses, will need ponds to get the dirt; do they have to be isolated?	Verbal Meeting Comment	Contractor will negotiate as to where the ponds will be located. The contractor has to go through the environmental clearance process as well.	Verbal
02/16/22	02/16/22						What happened to all of the r-cuts and right in and right outs discussed at the first meeting?	Verbal Meeting Comment	They are still on the table, they will be looked as interim solutions. We're not showing them here now, but they could be considered as part of short term plans, and not necessarily long term. If the need is there, these types of solutions may be planned and ultimately constructed.	Verbal
02/16/22	02/16/22						No one wants to have an accident out there...we appreciate you doing the study...other areas of US-30 (E. Van Wert County) have overpasses and provide/keep access to farms; First meeting he attended showed US-49 and Liberty Union as highest crash rate area (he uses Liberty Union all the time); that proposed closure of Liberty Union will create more tax impact to Twp and also potential for more crashes in the Country.	Verbal Meeting Comment	Overpasses at each mile was done in the 70's, that is not realistic from a funding perspective for this corridor. We want your feedback as to where the overpasses should be, if you all feel like there needs to be a north/south connection and east/west connection, we want to know.	Verbal
02/16/22	02/16/22						West of US-49 do your right in and right outs and space out the R-cuts in this area; Will need an interchange at US-49	Verbal Meeting Comment	Chris agreed that is a good idea, most bang for your buck right in and right outs.	Verbal
02/16/22	02/16/22						De-cel lane right lane would be a good idea, so that it keeps access to the side/county roads (like they did at the R-cut); another comment at the same time....I drive truck and I turn my signal on about a mile away .....another comment at same time: same happens in the left turn lane when de-cel to turn is a problem as well.	Verbal Meeting Comment	Chris talked about Thayer Road and also as the interim solutions and also potential to create more of a sight distance issue, need to look at these and make sure they are the right solution at the right locations.	Verbal
02/16/22	02/16/22						I live just south of 49 (sent sketch to Kylie) when turning south onto 224 almost got rear ended by semi (224 interchange to tie back into Liberty Union)	Verbal Meeting Comment	Thanked them for the comment and Kylie confirmed that she received the sketch.	Verbal
02/16/22	02/16/22						Kudos to the ODOT crews for raising the height of the Wrong Way signs (Elm Sugar area needs tree trimmed or cut back to improve sight distance); Dairy Farm on Minster Church already using the routes as "detour"	Verbal Meeting Comment	Thanked for their comment.	Verbal
02/16/22	02/16/22						Thank you for getting the pole light back on, also adding additional signage at 127; look at them from a farm tractor or semi height, some of the signs you cannot see.	Verbal Meeting Comment	Thanked for their comment.	Verbal

PAU/VAN Stakeholder Meeting 2 Sign-In List											
Attendee	**Name of Business or Property Owner**	**Property/Mailing Address 1**	**Property/Mailing Address 2**	**Email**	**Notification Preference?**	**Attended S1**					
√	Bacon Bros Farms LLC	12029 Paulding Road	New Haven, IN 46774		Postal Mail	Yes					
√	Bob Schumm	7713 State Route 49	Convoy , OH 45832	bcschumm0@gmail.com	Email	Yes					
√	Chris and Erica Galloway	1944 Convoy Heller Road	Convoy, OH 45832		Postal Mail	Yes					
√	Convoy Fire Chief (Gary Kreischer)			Chiefcfd@bright.net	Email						
√	Dennis and Susan Rhoads	3354 Elm Sugar Road	Convoy, OH 45832		Postal Mail	Yes					
√	Jeffrey and Linda Spear	5792 Lincoln Highway	Convoy, OH 45832		Postal Mail						
√	Joe Sisco / UPDATE SHP NAME	State Highway Patrol			N/A	Yes					
√	Kahle Company	PO BOX 325	Ottawa, OH 45875	donr@kandlreadymix.com	Email	Yes					
√	Kathy Mollenkopf	531 East Tully Street	Convoy, OH 45832	mollenkopf.kathy@crestviewknights.com	Email	Yes					
√	Kory Thatcher			kthatcher@bright.net	Email	Yes					
√	Kyle Wendel	1192 Grill Rd.	Van Wert, OH 45891	kylewendel@bright.net	Email	Yes					
√	Matthew and Vanessa Mercer	5596 Lincoln Highway	Convoy, OH 45832		Postal Mail						
√	Neal Orsbon	180 Dealey Drive, PO box 540	Convoy, OH 45832-0310	norsbon@shellyco.com	Email	Yes					
√	Patti Cramer	PO Box 228	Convoy, OH 45832	rtshiba@yahoo.com	Email	Yes					
√	Terill Cox Farms LLC	2396 St Rt 49	Convoy, OH 45832		Postal Mail	Yes					
√	Tim Copsey	101 E. Perry St.	Paulding, OH 45879	director@pced.net	Email						
√	Yvonne and James McClure	9405 Feasby Wisener Road	Convoy, OH 45832		Postal Mail	Yes					
√	David Gordon	1433 US Route 30	Convoy, Ohio		Postal Mail						
√	Seth Baker			seth@vanwertcountyfoundation.org	Email						
√	Charley Krieteleyer			charliek@mercerlandmark.com	Email						
√	Kyle Gehres			kgehres704@gmail.com	Email						
√	Gary Moser	7750 Dull-Rosbinson Road		gmoser1@yahoo.com							
√	Bauer Family	8633 Convoy Road	Convoy, OH 45832								
√	Cheryl Baker	7633 SR 613	Payne, OH 45880				Attendee was for Cherly (landlord)				
√	Flatrock Farms (David)	10820 Pancake Road	Ohio City, OH 45874	loghouse@wcoil.com	Postal Mail	Yes					
√	Frances and Ronald Neiswander	5668 Mentzer Road	Convoy, OH 45832		Postal Mail		Ronald Attended #2				
√	Jerry Koenig	1220 E. Jackson	Van Wert, OH 45801	jerry@flatlandssupply.com	Email	Yes					
√	Marc and Cynthia Grubaugh	1925 Rd 12	Convoy, OH 45832	mckgrubaugh@aol.com	Email	Yes					
√	Robert and Diana Wallis	5044 Payne Road	Convoy, OH 45832								
√	Roy Klopfenstein	115 North Willams Street, B-1	Paulding, OH 45879	pccommissioners@pauldingcountyoh.com							
√	Sixth Gen Farm LLC	6630 Payne Road	Convoy, OH 45832	cwharting@cct-hf.com	Email	Yes					
√	Tim Bolenbaugh	123 S. Main St., P.O. Box 310	Convoy, OH 45832-0310	villageofconvoy@bright.net	No preference	Yes					
√	Robert Mcomber	1474 Richey Road	Convoy, OH 45832		Postal Mail						
√	Tim Grisby	State Highway Patrol (post commander Van Wert)									
√	Sandy and Layken Klinger	9165 Elm Sugar Road	Convoy, OH 45832								
√	Dave Thomas			dltdet@frontier.com	email						

Public Meeting

OHIO DEPARTMENT OF TRANSPORTATION
Mike DeWine, *Governor*
Jack Marchbanks, Ph.D., *Director*

District 1
1885 North McCullough St., Lima, OH 45801
419-222-9055
transportation.ohio.gov

September 16, 2022

RE: Public Meeting for U.S. 30 (from the Indiana state line to Lincoln Highway interchange) Feasibility Study (PID 113196)

Dear neighbor,

The Ohio Department of Transportation (ODOT) would like to invite you to a public meeting to further develop feasible alternatives for access management along the U.S. 30 corridor.

This meeting is part of an ongoing U.S. 30 feasibility study that is examining potential safety improvements along the U.S. 30 corridor from the Indiana state line in Paulding County to the Lincoln Highway (County Road 418) interchange in Van Wert County. Eighteen at-grade intersections and four local access roads have been identified as part of the study (see attached study area map). The feasibility study is expected to be complete near the end of 2022.

Based on input received at two prior stakeholder meetings, the project team has developed preliminary feasible alternatives. The purpose of this meeting is to present these alternatives and receive your comments and feedback. Although no actual projects are being proposed at this time, the alternatives presented in the feasibility study often lead to the development of future construction projects.

We hope you can join us for a meeting at either of the following times:

Date: October 19, 2022

Location: Convoy Community Building, 5348 OH-49, Convoy, OH 45832

Times:

- Open House from 12:30 - 2:30 PM with presentation at 1:00 PM
- Open House from 5:00 - 7:00 PM with presentation at 5:30 PM

The same information will be presented at both meetings. The meeting will begin with a short presentation followed by an open house period where you can view and comment on project exhibits around the room and talk to the project team at your leisure.

If you cannot attend the meeting in person, all materials presented during the public meeting will be available on the project website immediately following the meeting by visiting the website below or scanning the QR code to the right:

https://www.transportation.ohio.gov/wps/portal/gov/odot/projects/projects/113196

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Requests for interpretation services or reasonable accommodation to participate in the meeting, and comments can be submitted through the project website, mail, email, and by phone to me at the following contact information:

Kylie Schnipke

Phone: 419-999-6885

Email: Kylie.Schnipke@dot.ohio.gov

Address: 1885 North McCullough Street, Lima, OH 45801

Comments should be submitted by November 21, 2022, to be documented in the public input summary report, which will include responses to all comments submitted during the 30-day period; however, ODOT will respond to all comments received at any time. Public participation in this project is solicited without regard to race, color, sex, age, national origin, or disability.

We sincerely appreciate your involvement!

Respectfully,

Kylie Schnipke
Project Manager, ODOT District 1

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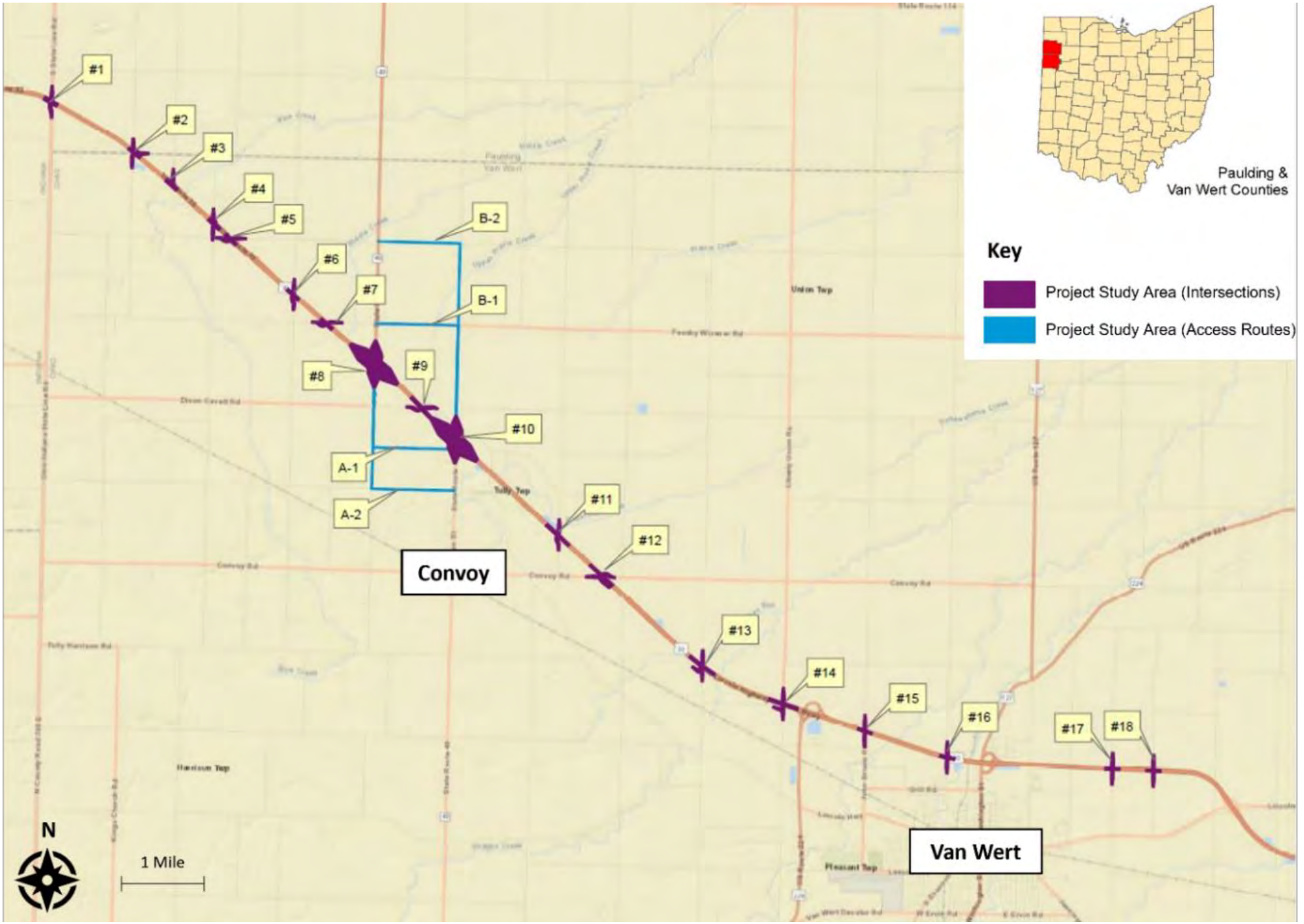
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Convoy
Van Wert
Paulding &
Van Wert Counties
Key
Project Study Area (Intersections)
Project Study Area (Access Routes)
N
1 Mile

PAU/VAN Public Meeting Notification Mailing List			
Name of Business, Property Owner, or stakeholder	**Property/Mailing Address 1**	**Property/Mailing Address 2**	
V W T C 1 LLC	4653 Trueman Blvd. Suite 100	Hilliard, OH 43026	
Alan Christian	8754 Swisher Creek Crossing	New Albany, OH 43054	
Alexander Family	1158 Professional Drive	Van Wert, OH 45891	
Alliance Properties Group LLC	560 Bonnewitz Ave	Van Wert, OH 45891	
Alma Thornell	21715 Timbercrest Drive	Defiance, OH 43512	
Anne and Bradley Guest	4700 Dixon Cavett Rd	Convoy, OH 45832	
Bacon Bros Farms LLC	12029 Paulding Road	New Haven, IN 46774	
Basil Dealey	2543 Elm Sugar Road	Convoy, OH 45832	
Bauer Family	8633 Convoy Road	Convoy, OH 45832	
Benjamin A. Winans	4915 US 127	Haviland, OH 45851	
Beth Newland	Po Box 296	Captiva, FL 33924	
Betty Bickel	5398 Mentzer Rd	Convoy, OH 45832	
Brady Family Partnership	411 W Townline	Payne, OH 45880	
Brenneman Brothers	5230 North Grubb Road	Elida, OH 45807	
Brian Knapp	116 South Main Street	Paulding, OH 45879	
Bruce and Diana Feasby	4726 Dixon Cavett Road	Convoy, OH 45832	
Business Development Corporation of Van Wert Inc	Po Box 311	Van Wert, OH 45891	
Byron Dealey	4148 N Meadow Spring Drive	New Castle, IN 47362	
Cathie Malone	Van Wert Courthouse Room 106, 121 E. Main Street	Van Wert, Ohio 45891	
Cheryl Baker	7633 SR 613	Payne, OH 45880	
Chris Galloway	1944 Convoy Heller Road	Convoy, OH 45832	
City of Van Wert	515 E Main St	Van Wert, OH 45891	
Clint Vance	115 North Willams Street, B-1	Paulding, OH 45879	
Convoy Real Estate LLC	6880 Albion Road	Oakfield, New York 14125	
Craig and Bruce Feasby	3997 Payne Road	Convoy, OH 45832	
Craig Feasby	3997 Payne Rd	Convoy, OH 45832	
Dale and Lavonna Boley	8390 Boroff Road	Van Wert, OH 45891	
Darlene and Barry Missler	7226 Richey Rd	Van Wert, OH 45891	
Darrel and Kimberly Clayton	5267 Mentzer Road	Convoy, OH 45832	
Dave Foltz	311 W. Wall St.	Paulding, OH 45879	
David and Nancy Speelman	3477 Convoy Heller Road	Convoy, OH 45832	
David C. Jones	5259 Liberty Union Rd.	Van Wert, OH 45891	
Dean Bowersock	8502 Little Auglaize River Rd	Delphos, OH 45833	
Debbra Kindell	4893 US Rt 30	Convoy, OH 45832	
Deborah Morris	15848 Jonestown Road	Venedocia, OH 45894	

DJ Vanwynsberghe	9706 Gilliland Road	Van Wert, OH 45891	
DJ Vanwynsberghe	16246 State Route 116	Van Wert, OH 45891	
Doug and Sarah Dealey	1227 Krick Rd	Convoy, OH 45832	
E & R Wells Farms LLC	6174 Monmouth Road	Van Wert, OH 45891	
Eddy and Pamela Kent	16204 Road 18	Grover Hill, OH 45849	
Edward and Faith Fabian	2455 Lare Road	Convoy, OH 45832	
Yvonne and James McClure	9405 Feasby Wisener Road	Convoy, OH 45832	
Ellie Mcomber	5966 Liberty Union Road	Van Wert, OH 45891	
Eric and Julie Burk	5525 Mentzer Road	Convoy, OH 45832	
ESTOHN LLC	19 Longlea Drive	Little Rock, AR 72212	
Evelyn Lorene Noe	6606 11th Ave W	Bradenton, Fl 34209	
Feasby Residence	4508 Payne Rd	Convoy, OH 45832	
FFF2 Properties LLC	10294 Sidle Rd	Van Wert, OH 45891	
First Bank of Berne	102 W ain Street	Berne, IN 46711	
Flatrock Farms	10820 Pancake Road	Ohio City, OH 45874	
Frances Neiswander	5668 Mentzer Road	Convoy, OH 45832	
Gary Steven and Jane Ellen Houg	7732 John Brown Rd	Van Wert, OH 45891	
Harting Residence	8194 Richey Rd	Van Wert, OH 45891	
Marsha Harting	314 N Main Street, PO BOX 463	Convoy, OH 45832	
Gerald Harting	P O Box 463	Convoy, OH 45832	
Goodwill Easter Seals	660 S Main Street	DAYTON OH 45402	
Greentop Acres LLC	8789 State Route 114	Haviland, OH 45851	
Greg and Lisa Wortman	4103 Payne Rd	Convoy, OH 45832	
Greg White	116 South Main St.	Paulding, OH 45879	
Brent Brown	3128 Convoy Heller Rd	Convoy, OH 45832	
Hampton Residence	5296 Waller Rd	Convoy, OH 45832	
Harting Residence	2535 Klinger Road	Convoy, OH 45832	
J M Schmelzer	Po Box 126	Van Wert, OH 45891	
JA & LJ Farms LLC	Po Box 259	Convoy, OH 45832	
Jada Properties	20269 County Road 424	Defiance, OH 43512	
James and Carol Cavanaugh	1077A Klinger Road	Convoy, OH 45832	
James and Kay Gibson	3165 Lare Road	Convoy, OH 45832	
James Miller	5305 Davenport Place	Roswell, GA 30075	
James Miller C/O Tom Bosserd	1408 Penniman Avenue	Plymouth, MI 48170	
James Miller, Halderman Farm	5490 Crane Rd	Ypsilanti, MI 48197-8848	
James Pollnow	5634 Feasby Wisener Rd	Convoy, OH 45832	
Janice E Kohn	206 N Shane St	Ohio City, OH 45874	
Jason Cox	2283 St Rt 49	Convoy, OH 45832	

Jason Landers	500 East Perry Street	Paulding, OH 45879	
Jason Vance	116 South Main St.	Paulding, OH 45879	
Jay Gamble	12479 Cooper Rd	Van Wert, OH 45891	
Jay Petroleum Inc	533 S 200 W, PO Box 1285	Portland, IN 47371	
Jeffrey and Linda Spear	5792 Lincoln Highway	Convoy, OH 45832	
Jerry and Julie Rager	246 Alexander Drive	Maggie Valley, NC 28751	
Jerry and Julie Rager	12700 Edgewood Dr	Van Wert, OH 45891	
John and Beverly Eichenlaub	9608 Elm Sugar Rd	Convoy, OH 45832	
John Eversman	130 Boyd Avenue	Van Wert, OH 45891	
John Shutt	3572 Feasby Wisener Rd	Convoy, OH 45832	
Jon and Judith Hall	P O Box 58	Convoy, OH 45832	
Jones Residence	17399 Jonestown Road	Venedocia, OH 45894	
Joseph Thome	6839 RD 39	Payne, OH 45880	
Judy Motycka	P O Box 222	Convoy, OH 45832	
Julie Poling Schenk	9107 Champions Circle	Franklin, TN 37064	
Julie Poling Schenk	606 Tree Lawn Place	Franklin, TN 37064	
Justin Gamble	5743 Lincoln Highway	Convoy, OH 45832	
Kathy Enterline	13910 SR 101	Monroeville, IN 46773	
Kathy Fair	12617 Dutton Rd	Rockford, OH 45882	
Keith Reidenbach	1057 Rd 11	Convoy, OH 45832	
Kelly Dickens	4142 Payne Rd	Convoy, OH 45832	
Kenneth and Robin Foehl	7372 Stamm Road	Convoy, OH 45832	
Kent Berheide	P O Box 863	Van Wert, OH 45891	
Kent Rolsten	4121 Liberty Union Rd.	Van Wert, OH 45891	
Kimberly and Francis Fling	215 Bonnewitz Ave	Van Wert, OH 45891	
Kriegel Second Irrev Trust	805 S Walnut Street	Van Wert, OH 45891	
Larry and Elaine Myers	2186 Mentzer Rd	Convoy, OH 45832	
Larry and Rhonda Black	8290 Dutch John Rd	Van Wert, OH 45891	
Larry Dealey	1439 Rd 17	Convoy, OH 45832	
Larry Edwards	5102 Dixon Cavette Rd	Convoy, OH 45832	
Larry Laukhuf	10553 Rd 72	Haviland, OH 45851	
Lassus Bros Oil Inc	1800 Magnavox Way	Fort Wayne, IN 46804	
Lester and Bonita Myers	4353 Shaw Road	Convoy, OH 45832	
Lester and Bonita Myers	4833 Shaw Rd	Convoy, OH 45832	
Lion Farms USA Inc	2620 Hoaglin Rd	Van Wert, OH 45891	
Lois Richard	9510 Kasota Court	Ft Wayne, IN 46804	
Lt. John Gray	10234 Van Wert-Decatur Road	Van Wert, OH 45891	
Magic Tunnel Midwest LLC	1316 Meadow Crest Place	Columbus, OH 43228	

Manager, Alliance Automation	560 Bonnewitz Ave	Van Wert, OH 45891	
Manager, Anytime Fitness	303 Towne Center Blvd	Van Wert, OH 45891	
Manager, Arby's	872 N Washington St	Van Wert, OH 45891	
Manager, Braun Ambulances	1170 Production Dr	Van Wert, OH 45891	
Manager, Fastenal	529 Bonnewitz Ave	Van Wert, OH 45891	
Manager, First Bank of Berne	102 Christopher Crossing	Van Wert, OH 45891	
Manager, Goodwill	206 Towne Center Blvd	Van Wert, OH 45891	
Manager, GP Cycle Specialties, LLC.	6989 Richey Rd	Convoy, OH 45832	
Manager, GuestKeeper Inn	875 N Washington St	Van Wert, OH 45891	
Manager, Holiday Inn Express & Suites Van Wert, an IHG Hotel	140 Valam Dr	Van Wert, OH 45891	
Manager, Hong Kong Buffet	349 Towne Center Blvd	Van Wert, OH 45891	
Manager, K & L Ready Mix	900 John Brown Rd	Van Wert, OH 45891	
Manager, Klausing Lawn Care	7737 US-127	Van Wert, OH 45891	
Manager, Lassus Handy Dandy	885 N Washington St	Van Wert, OH 45891	
Manager, Lincoln Ridge Farms	6588 Pollock Rd	Convoy, OH 45832	
Manager, Magic Tunnel Express Car Wash - Van Wert	7965 US-127	Van Wert, OH 45891	
Manager, Marathon Gas	800 N Washington St	Van Wert, OH 45891	
Manager, Maurices	325 Towne Center Blvd Space 170	Van Wert, OH 45891	
Manager, McDonald's	101 Christopher Crossing,	Van Wert, OH 45891	
Manager, Metals Recycling Technologies	7600 US-127	Van Wert, OH 45891	
Manager, Mi Ranchito	865 N Washington St	Van Wert, OH 45891	
Manager, Murphy USA	201 Towne Center Blvd	Van Wert, OH 45891	
Manager, Pearson Road Storage LLC	8495 Pearson Rd	Convoy, OH 45832	
Manager, Scott Equity Exchange, Grain Elevator	305 Bonnewitz Ave	Van Wert, OH 45891	
Manager, Shoe Sensation	319 Towne Center Blvd	Van Wert, OH 45891	
Manager, Subway	109 Towne Center Blvd	Van Wert, OH 45891	
Manager, Sugar Lane Dairy LLC	5624 Elm Sugar Rd	Convoy, OH 45832	
Manager, Valam Hospitality/Comfort Inn	840 N Washington St	Van Wert, OH 45891	
Manager, Van Wert Carts and More	883 N Washington St	Van Wert, OH 45891	
Manager, Van Wert County Humane Society	309 Bonnewitz Ave	Van Wert, OH 45891	
Manager, Van Wert Health North	214 Towne Center Blvd	Van Wert, OH 45891	
Manager, Walmart Supercenter	301 Towne Center Blvd	Van Wert, OH 45891	
Mark Crosby	1065 OH-114	Payne, OH 45880	
Mark Dealey	5653 Mentzer Church Rd	Convoy, OH 45832	
Mark Holtsberry	115 North Willams Street, B-1	Paulding, OH 45879	
Marsh Foundation	P O Box 150	Van Wert, OH 45891	
Mary and Robert Hall	5700 Colwell Road	Convoy, OH 45832	
Matthew Mercer	5596 Lincoln Highway	Convoy, OH 45832	

Mcbride Farms LLC	6072 Mentzer Church Road	Convoy, OH 45832	
Mcodnalds Real Estate Company, C/O Jonathan Lewis	P O BOX 29	Bluffton, OH 45817	
Mercer Landmark Inc	Po Box 328	Celina, OH 45822	
Michael and Shirley Lippi	6999 Richey Road	Convoy, OH 45832	
Michael Bouillon	3848 Payne Rd	Convoy, OH 45832	
Murphy Oil USA Inc	P O BOX 7300	El Dorado, Arkansas 71731	
Nancy and Joseph Elston	8867 Pearson Road	Convoy, OH 45832	
Owner, Dasher Rental LLC	10622 Lincoln Highway	Van Wert, OH 45891	
P&M Gordon Frams LLC	1217 SR 49	Payne, OH 45880	
P&M Gordon Frams LLC	9821 Charlotte Ln	Minocqua, WI 54548	
Patricia and Everett Thatcher	5354 Colwell Road	Convoy, OH 45832	
Paul Reidenbach	1491 S 13th St	Decatur In 46733	
Paul Ross	5561 Mentzer Road	Convoy, OH 45832	
Perl Oribel	6989 Richey Road	Convoy, OH 45832	
Poling Farm Family	4144 Dull Robinson Rd	Convoy, OH 45832	
Property Owner	7789 Boroff Road	Van Wert, OH 45891	
Property Owner, Rhodes Investments LLC	2371 Western Ohio Ave	Lima, OH 45805	
Randy Crawford	116 S. Main St.	Paulding, OH 45879	
Randy Noggle	6437 OH-114	Haviland, OH 45851	
Richard and Barbara Allen	5324 Mentzer Rd	Convoy, OH 45832	
Richard and Margaret Miller	9756 Tumbleson Road	Van Wert, OH 45891	
Richard Mollenkofp	3227 Dixon Cavett Rd	Convoy, OH 45832	
Rick Turner	818 N Franklin St.	Van Wert, OH 45891	
Ridgeway Farms LLC	9611 Terry Road	Van Wert, OH 45891	
Robert and Diana Wallis	5044 Payne Road	Convoy, OH 45832	
Robert and Sharon Custer	1049 Catalina Dr East	New Palestine, IN 46163	
Robert Kampf	1134 Woodland Ave	Van Wert, OH 45891	
Robert Trentman	23241 Dolt Rd	Delphos, OH 45833	
Roger and Sheryl Pollnow	1982 Mentzer Church Road	Convoy, OH 45832	
Roy and Patricia Hauter	5351 Mentzer Rd	Convoy, OH 45832	
Ryan Spieth	5438 Mentzer Road	Convoy, OH 45832	
Sarah and Dale Burden	5677 Waller Road	Convoy, OH 45832	
Scott Clay	8953 Pearson Road	Convoy, OH 45832	
Scott Equity Exchange Company	PO BOX 147	Scott, OH 45886-0147	
Sean Pfeiffer	4915 US 127	Haviland, OH 45851	
Seth Owens	1185 Professional Drive	Van Wert, OH 45891	
Shane and Karl Crider	5284 Colwell Road	Convoy, OH 45832	
Sherry LaFontaine	2308 Sheets Road	Ohio City, OH 45874	

Sherry LaFontaine	6586 Monmouth Rd	Van Wert, OH 45891	
Sidney and Wanda Blush	1082 Klinger Road	Convoy, OH 45832	
Spender and Joy Short	5293 Colwell Road	Convoy, OH 45832	
Stephen and Joann Feasby	6261 Dixon Cavett Rd	Convoy, OH 45832	
Steve Thomas	515 East Main Street	Van Wert, Ohio 45891	
Steven and Susan Brown	5454 Mentzer Rd	Convoy, OH 45832	
Steven and Trisha Jones	5694 Lincoln Highway	Convoy, OH 45832	
Sugar Lane Dairy LLC	588 3 Mile Rd Nw, Suite 203	Grand Rapids, MI 49544	
Sugar Lane Dairy LLC	5624 Elm Sugar Road	Convoy, OH 45832	
Sylvia Alexander	1158 Professional Dr	Van Wert, OH 45891	
Taylor Mccoy	5874 Lincoln Hwy	Convoy, OH 45832	
Terill Cox Farms LLC	2396 St Rt 49	Convoy, OH 45832	
Theresa and Gary Priddy	5868 Lincoln Highway	Convoy, OH 45832	
Thomas and Christina Gibson	5241 Mentzer Road	Convoy, OH 45832	
Thomas Fronefield	5313 Mentzer Road	Convoy, OH 45832	
Thomas Odenweller	9810 Converse-Roselm Rd	Middle Point, OH 45863	
Tiffany and Andrew Sidle	5451 Waller Rd	Convoy, OH 45832	
Tina and Robert Pawlick	4207 Payne Rd	Convoy, OH 45832	
Todd Wallace	10041 Liberty Union	Van Wert, OH 45891	
Todd Weidenhamer	311 W. Wall St.	Paulding, OH 45879	
Tom Gibson	5241 Mentzer Rd	Convoy, OH 45832	
Tracy Wolford	3953 Convoy Heller Road	Convoy, OH 45832	
Travis McGarvey	801 West Wayne Street	Paulding, OH 45879	
Tully Township Trustees	Po Box 254	Convoy, OH 45832	
Valerie Wood	5298 Dixon Cavett Rd	Convoy, OH 45832	
Van Wert County Area Joint Vocational Board of Education	818 N Franklin St	VAN WERT OH 45891	
Van Wert County Foundation	138 E Main St	Van Wert, OH 45891	
Van Wert County Hospital Assoc.	1250 S Washington Street	VAN WERT OH 45891	
Victor Bigham	5055 US-30	Convoy, OH 45832	
Virginia Doner	8049 Boroff Road	Van Wert Ohio 45891	
Wal-Mart Real Estate Business	PO BOX 8050 Mail Stop 0555	Bentonville, AR 72716-0555	
Warren and Alice Morris	16749 St Rt 709	Venedocia, OH 45894	
Wayne and Kathryn Karges	5361 Colwell Road	Convoy, OH 45832	
William B. Evans II	12442 Ireland Rd.	Van Wert, OH 45891	
William Dowler	8662 Feasby Wisener Rd.	Convoy, OH 45832	
William E. Poe	14133A Poe Rd.	Van Wert, OH 45891	
Judy Harding	18006 OH-49	Willshire, OH 45898	
Rosemare Harding	18223 OH-49	Willshire, OH 45898	

Kelly Schlemmer	123 S Main St, PO Box 310	Convoy OH 45832-0310	
Gerald Markley	PO BOX 325	Ottawa, OH 45875	
Dennis and Susan Rhoads	3354 Elm Sugar Road	Convoy, OH 45832	
Ken Fheal	7372 Stamm Road	Convoy, OH 45832	
Kathy and Wayne Kargus	5361 Colwell Road	Convoy, OH 45832	
Bob Schumm	7713 State Route 49	Convoy , OH 45832	
Senator Rob McColley	Senate Building, 1 Capitol Square, 2nd Floor	Columbus, OH 43215	Suggested by Chris
Representative Craig S. Riedel	77 South High Street, 11th Floor	Columbus, OH 43215	Suggested by Chris

Abigail Anacki

From: Abigail Anacki
Sent: Friday, September 16, 2022 11:54 AM
To: Abigail Anacki
Cc: kylie.schnipke@dot.ohio.gov; Nate.Tessler@dot.ohio.gov; Chris.Hughes@dot.ohio.gov; Robert.White@dot.ohio.gov; Adam.Francis@dot.ohio.gov; Eric.Scheckelhoff@dot.ohio.gov; Mark.Mueller@dot.ohio.gov; Cheri.Newton@dot.ohio.gov; Hebebrand, Craig; Chantil Milam
Subject: Public Meeting for U.S. 30 (from the Indiana state line to Lincoln Highway interchange) Feasibility Study (PID 113196)
Attachments: PAU-VAN 30 - Public Mtg Notification Letter_Final_9.16.22.pdf; PAU-VAN 30 - Public Mtg Comment Form_Final_9.16.22.pdf

Dear neighbor,

The Ohio Department of Transportation (ODOT) would like to invite you to a public meeting to further develop feasible alternatives for access management along the U.S. 30 corridor.

This meeting is part of an ongoing U.S. 30 feasibility study that is examining potential safety improvements along the U.S. 30 corridor from the Indiana state line in Paulding County to the Lincoln Highway (County Road 418) interchange in Van Wert County. Eighteen at-grade intersections and four local access roads have been identified as part of the study (see study area map in attached Notification Letter). The feasibility study is expected to be complete near the end of 2022.

Based on input received at two prior stakeholder meetings, the project team has developed preliminary feasible alternatives. The purpose of this meeting is to present these alternatives and receive your comments and feedback. Although no actual projects are being proposed at this time, the alternatives presented in the feasibility study often lead to the development of future construction projects.

We hope that you can join us for a meeting at either of the following times:

Date: October 19, 2022
Location: Convoy Community Building, 5348 OH-49, Convoy, OH 45832
Times:

- Open House from 12:30 – 2:30 PM with presentation at 1:00 PM
- Open House from 5:00 – 7:00 PM with presentation at 5:30 PM

The same information will be presented at both meetings. The meeting will begin with a short presentation followed by an open house period where you can view and comment on project exhibits around the room and talk to the project team at your leisure.

If you cannot attend the meeting in person, all materials presented during the public meeting will be available on the project website immediately following the meeting by visiting: https://www.transportation.ohio.gov/wps/portal/gov/odot/projects/projects/113196.

Requests for interpretation services or reasonable accommodation to participate in the meeting, and comments can be submitted through the project website, mail, email, and by phone to the following contact:

ODOT Project Manager: Kylie Schnipke
Phone: 419-999-6885
Email: Kylie.Schnipke@dot.ohio.gov

Comments should be submitted by November 21, 2022, to be documented in the public input summary report, which will include responses to all comments submitted during the 30-day period; however, ODOT will respond to all comments received at any time. Public participation in this project is solicited without regard to race, color, sex, age, national origin, or disability.

Thank you for your involvement.

Abby Anacki
Planner II, NEPA Team
Lawhon & Associates, Inc.
P: 614.481.8600 ext.175 | C: 614.398.7392
www.lawhon-assoc.com

PAU/VAN Public Meeting Notification Email List		
Name of Business or Property Owner	**Email Address**	
Cindy DuVall	cduvall@lincolnview.k12.oh.us	
Doug Poling	polingexcavating@gmail.com	
Duvall Family Farms (Robert)	mrduvall1@hotmail.com	
Edward Bohn	ema@pauldingcounty-oh.com	
Gary Ashbaugh	pleasanttwpvwo@gmail.com	
Heath Barnes	heathb@mercerlandmark.com	
Jay Fleming	jfleming@vanwert.org	
Jeff Loehrke	Jeffrey.Loehrke@dot.state.oh.us	
Jeff Snyder	jsynder@lincolnview.k12.oh.us	Undeliverable
Jessica Vandenbroek	vanwert@ofbf.org	
Jon Tomlinson	vwpres@gmail.com	
Joseph Motycka	Joemotycka@me.com	
Kahle Company	donr@kandlreadymix.com	
Kathy Mollenkopf	mollenkopf.kathy@crestviewknights.com	
Ken Amstutz	k_amstutz@pauldingschools.org	
Kenneth J. Markward	kmarkward@vanwert.org	
Kim Brandt	kbrandt@vanwertcountyohio.gov.	Undeliverable
Krista Somerton	ksomerton@vanwerted.com	
Kyle Wendel	kylewendel@bright.net	
Loralee and Steven Lichtensteiger	lichtensteiger.3@osu.edu	
Marc and Cynthia Grubaugh	mckgrubaugh@aol.com	
Mark Bagley	m_bagley@vwcs.net	
Neal Orsbon	norsbon@shellyco.com	
Ray Boys One LLC (Don Ray)	don@raytheil.com	
Roy Klopfenstein	pccommissioners@pauldingcountyoh.com	
Ryan Reinhart and Emily Reinhart	reinhartemily12@gmail.com	
Sixth Gen Farm LLC	cwharting@cct-hf.com	
Stacy Adam	stacyadam@vanwerted.com	
Stan Owens	sowens@vanwertcounty.org	
Thad Linchtensteiger	tlichtensteiger@vanwertcounty.org	
Thomas Riggenbach	triggenbach@vanwertcountysheriff.com	
Tim Copsey	director@pced.net	

Timothy Bolenbaugh	villageofconvoy@bright.net	
Todd Wolfrum	twolfrum@vanwertcounty.org	
Kory Thatcher	kthatcher@bright.net	
Jerry Koenig	jerry@flatlandssupply.com	
Vicki Saylor	sayfam@frontier.com	
Patti Cramer	rtshiba@yahoo.com	
Dana Smith	dvbbsmith@gmail.com	
Tim Bolenbaugh	villageofconvoy@bright.net	
Chris Bolenbaugh	ohiocb5@gmail.com	
Sheryl Ball	cfd81309@frontier.com	
Convoy Fire Chief	Chiefcfd@bright.net	
Bob Schumm	bcschumm0@gmail.com	
Stacy Adam	stacyadam@vanwerted.com	
Kent Berheide	kberheide12@gmail.com	

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(Corrected Link) ODOT to hold public meetings for U.S. 30 feasibility study

Ohio Department of Transportation sent this bulletin at 10/07/2022 10:19 AM EDT

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Contact: ODOT District 1's public information office
(419) 999-6803; D01.PIO@dot.ohio.gov

(Corrected Link)

ODOT to hold public meetings for U.S. 30 feasibility study

Presentation and open house on potential safety strategies for the route

LIMA (Oct. 6, 2022) – The Ohio Department of Transportation (ODOT) will hold a public meeting to further develop feasible alternatives for potential safety improvements along the U.S. 30 corridor.

The meeting is part of an ongoing study of the U.S. 30 corridor from the Indiana state line in Paulding County to the Lincoln Highway (County Road 418) interchange in Van Wert County. Eighteen at-grade intersections have been identified as part of the study. The feasibility study is expected to be completed near the end of 2022.

Based on input received at two prior stakeholder meetings, the project team has developed preliminary feasible alternatives. The purpose of this meeting is to present these alternatives and receive comments and feedback. Feasible alternatives could be developed and funded for future construction projects.

Date: Wednesday, Oct.19, 2022

Location: Convoy Community Building, 5348 State Route 49, Convoy, OH

Times:

- Open House from 12:30 – 2:30 p.m. with a presentation at 1 p.m.
- Open House from 5:00 – 7:00 p.m. with a presentation at 5:30 p.m.

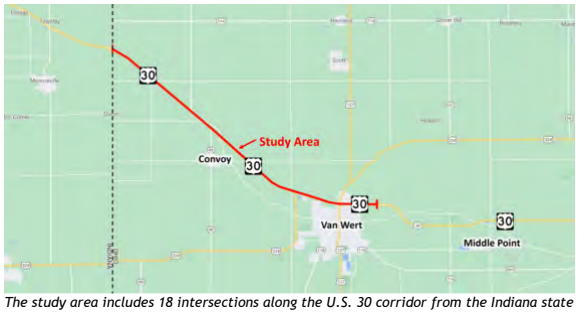
The same information will be presented at both meetings. The meetings will include a short presentation followed by an open house period.

Materials presented during the public meeting will be available immediately following the meeting by visiting the website or scanning the QR code below:

www.transportation.ohio.gov/projects/projects/113196

Requests for interpretation services or reasonable accommodation to participate in the meeting, and comments can be submitted through the project website or by contacting ODOT District 1 at 419-999-6802.

Comments should be submitted by November 21, 2022, to be documented in the public input summary report, which will include responses to all comments submitted during the 30-day period; however, ODOT will respond to all comments received at any time.



The study area includes 18 intersections along the U.S. 30 corridor from the Indiana state line in Paulding County to the Lincoln Highway (County Road 418) interchange in Van Wert County.

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U.S. 30 to be addressed at meeting

VW independent staff/submitted information

The Ohio Department of Transportation (ODOT) will hold a public meeting to further develop feasible alternatives for potential safety improvements along the U.S. 30 corridor.

The meeting is part of an ongoing study of the U.S. 30 corridor from the Indiana state line in Paulding County to the Lincoln Highway (County Road 418) interchange in Van Wert County. 18 at-grade intersections have been identified as part of the study. The feasibility study is expected to be completed near the end of 2022.

Based on input received at two prior stakeholder meetings, the project team has developed preliminary feasible alternatives. The purpose of this meeting is to present these alternatives and receive comments and feedback. Feasible alternatives could be developed and funded for future construction projects.

The meeting will be held Wednesday, October 19, at the Convoy Community Building, 5348 Ohio 49. An open house will be held from 12:30-2:30 p.m. with a presentation at 1 p.m., and a second open house will be offered from 5-7 p.m. with a presentation at 5:30 p.m. The same information will be presented at both meetings.

POSTED: 10/06/22 at 10:23 am. FILED UNDER: News

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ODOT asking for input on U.S. 30 corridor

SCOTT TRUXELL/*independent editor*

CONVOY — Ohio Department of Transportation officials are seeking public input as they try to figure out the best way or ways to improve safety along a 17-mile stretch of U.S. 30, from the Indiana line to the Lincoln Highway interchange just east of Van Wert.

ODOT District 1 officials held a pair of open houses in Convoy on Wednesday, with the afternoon session attracting over 50 people. A feasibility study, which is nearing the end, was outlined along with possible ways to make the U.S. 30 corridor safer, while supporting existing and future business development needs. The corridor currently has 18 at-grade intersections that allow access to the highway, but some have opened the door to high crash rates.

ODOT personnel, along with Lt. Timothy Grigsby, Commander of Van Wert Post of the Ohio State Highway Patrol and a representative from Arcadis answered questions and used a series of renderings to show possible future plans that would affect current at-grade intersections along the western portion of the corridor. Also shown were high-priority intersections, including Ohio 49, Dixon-Cavett, Liberty-Union, and John Brown roads.

ODOT District 1 Deputy Director Chris Hughes talks about safety along U.S. 30 in Van Wert County. *Scott Truxell/Van Wert independent*

“Eventually traffic is going to get to a point on U.S. 30 where at-grade intersections simply are not going to work,” said Chris Hughes, Deputy Director, ODOT District 1. “They’re not going to work from a safety perspective and they’re not going to work from a mobility perspective. At-grade intersections have served this part of the county well for the last 50 years and provided a lot of access, but there have also been some terrible crashes.”

“What our fear is when we see the data, when we see what traffic is doing and the change in crash patterns, we’re going to continue to see terrible crashes happen at an increasing rate,” he added. “We want to be prepared. We don’t want to be five, 10 or 15 years down the road and have not done anything.”

Hughes shared data that showed between 2011-2015, one fatal crash occurred between the state line and Boroff Road. That number rose to 10 between 2016-2022, with eight related to access intersections. Three fatal crashes, including two intersection related crashes have occurred in 2022 alone.

Grisby added that cell phone usage while driving is a major contributor to crashes and despite laws designed to curtail the problem, it isn’t going away anytime soon.

“If there’s a way to simplify roadway engineering and bring it up to a modern day standard that makes it safer, then those particular avenues have to be explored,” Grisby stated.

Current recommendations include cul-de-sacs, which would completely eliminate access, overpasses and interchanges. Restricted crossing U-turns, often referred to as “R-cuts” were mentioned as an option as well. One was built at U.S. 30 and Thayer Road in Lima.

Right now, cul-de-sacs are recommended at 13 different locations, overpasses are recommended at Elm Sugar Road and 30, Convoy Road and 30 and John Brown Road and 30, while an interchange is suggested at Ohio 49 (Convoy Heller Road) and 30. However, Hughes cautioned overpasses and interchanges can be cost prohibitive.

“It’s going to be expensive,” he said. “We’re talking $20-$25 million and that’s a challenge to fund, but if it’s the right thing to do and it’s the next logical step in this corridor, we’re going to take steps in that direction.”

Hughes later added that if and when funding is secured, it can take 3-4 years to build an overpass and 5-8 years to construct an interchange. He also said what’s being discussed now is far from being the final plan and he noted there will be changes.

ODOT will accept public comments, feedback and ideas until November 21. From there, the feasibility study will be reviewed and finalized by the end of the year or early 2023. The link to leave comments can be found here.

POSTED: 10/20/22 at 3:45 am. FILED UNDER: News

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U.S. 30 FEASIBILITY STUDY (PID 113196)
FREQUENTLY ASKED QUESTIONS

1. **What is the purpose of the study?**
   The study is evaluating existing access to U.S. 30 at intersections from the Indiana state line in Paulding County to the Lincoln Highway (CR 418) interchange in Van Wert County. The study will develop feasible alternatives for access management along the corridor. The study aims to improve overall corridor safety by addressing wrong-way incidents which are occurring at a higher rate on this section of U.S. 30 than is expected or typical and reduce crashes occurring at identified high crash locations along the whole U.S. 30 corridor. Other goals of the study include supporting existing and future business development needs by providing a safe and efficient transportation facility and prepare for new industrial development that is expected to add more traffic to the corridor, including more heavy vehicles.

2. **What is a Feasibility Study?**
   A feasibility study is performed to begin to narrow down potential options (also called alternatives). The Feasibility Study will identify areas along the corridor where safety improvements may be warranted. The study will develop feasible alternatives to address the identified needs; these alternatives may be selected as preferred alternatives and could eventually receive funding and be developed into separate project(s) to be designed and constructed.

3. **Will my property be affected?**
   At this point in time, it is not known which properties will be impacted because no decisions have been made about any future project details. We currently do not have detailed design plans for any of the alternatives or any project funding secured. As the project development process moves forward, more information will be known about specific impacts and additional meetings will be held in the future. If your property is impacted by the project, you will be contacted by a real estate representative to talk specifically about the impacts to your property.

4. **What did the previous study do?**
   This study will go more into detail than the previous study and will produce actionable items to implement. This study focuses more on future traffic growth and how this might impact the intersections and rerouted traffic. Crash data and public involvement will be used to determine the best alternatives for these intersections and potential strategies to group certain intersections into a project.

5. **What is the anticipated schedule for the study?**
   After the first round of stakeholder meetings, ODOT developed preliminary alternatives for the project. The developed alternatives were then presented to the stakeholders in a second round of stakeholder meetings to help guide the selection of preferred alternatives. Now that preferred alternatives have been identified, they will be presented at the public meeting for additional feedback. The study is anticipated to be complete near the end of 2022, following the input received during the public meeting.

Public Meeting Handout

PAU/VAN U.S. 30 Feasibility Study, PID 113196

Study Background

The study is evaluating access to U.S. 30 at 18 at-grade intersections from the from the Indiana state line in Paulding County to the Lincoln Highway (CR 418) interchange in Van Wert County. The study is being undertaken to address several segments of U.S. 30 that have high crash rates.

The current study is building upon previous studies by providing:

- More detailed analysis and preliminary design concepts
- Several alternatives for an interchange at State Route 49
- Actionable recommendations/findings that can result in future projects being funded

Completed short-term counter measures:

- Arrows, painting/striping, wrong-way signage
- Dedicated Distracted Driving Corridor
- Median removal

Purpose of the Current Study

Improve overall corridor safety by:

- Reducing crashes at high-crash locations
- Addressing frequency of wrong-way incidents

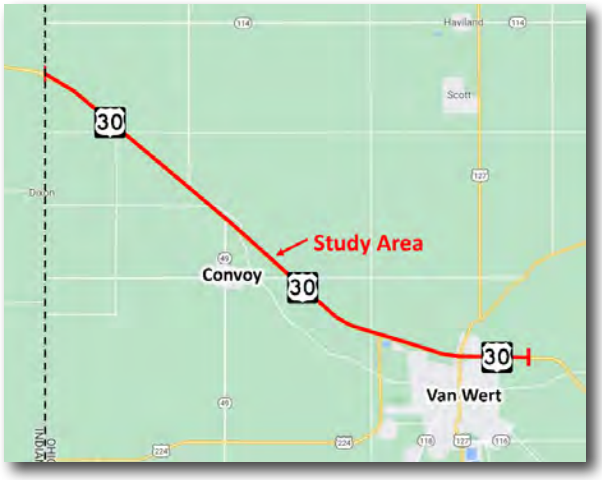
Provide a transportation facility that supports:

- Existing agricultural land uses along the corridor
- Economic development sites

Purpose of Public Meeting

The public meeting is intended for the team to present the current findings and to receive feedback on recommendations so that the team can revise them as needed prior to finalizing the feasibility study.

Study Area Map



How to Submit Comments:

Kylie Schnipke, Project Manager

419-999-6885

Kylie.Schnipke@dot.ohio.gov

1885 North McCullough Street,
Lima, OH 45801

Online:

transportation.ohio.gov/projects/projects/113196

Scan Me

PLEASE SUBMIT COMMENTS BY NOVEMBER 21, 2022

Information continues on next page →

Current Recommendations:

**See proposed corridor improvement exhibit for more information*

Cul-de-sac/Access Removal Overpass/Access Removal Interchange

Improvement Icon	Location
	Klinger Road & U.S. 30
	Krick Road & U.S. 30
	Mentzer Church Road & U.S. 30
	Elm Sugar Road & U.S. 30
	Lare Road & U.S. 30
	Feasby Wisener & U.S. 30
	Payne Road (State Route 49) & U.S. 30
	Dixon Cavett & U.S. 30
	Convoy Heller (State Route 49) & U.S. 30
	Colwell Road & U.S. 30
	Convoy Road & U.S. 30
	Richey Road & U.S. 30
	Liberty Union Road & U.S. 30
	John Brown Road & U.S. 30
	Dutch John Road & U.S. 30
	Mendon Road & U.S. 30
	Boroff Road & U.S. 30

Expected Schedule

PAULDING / VAN WERT – US 30 - STUDY

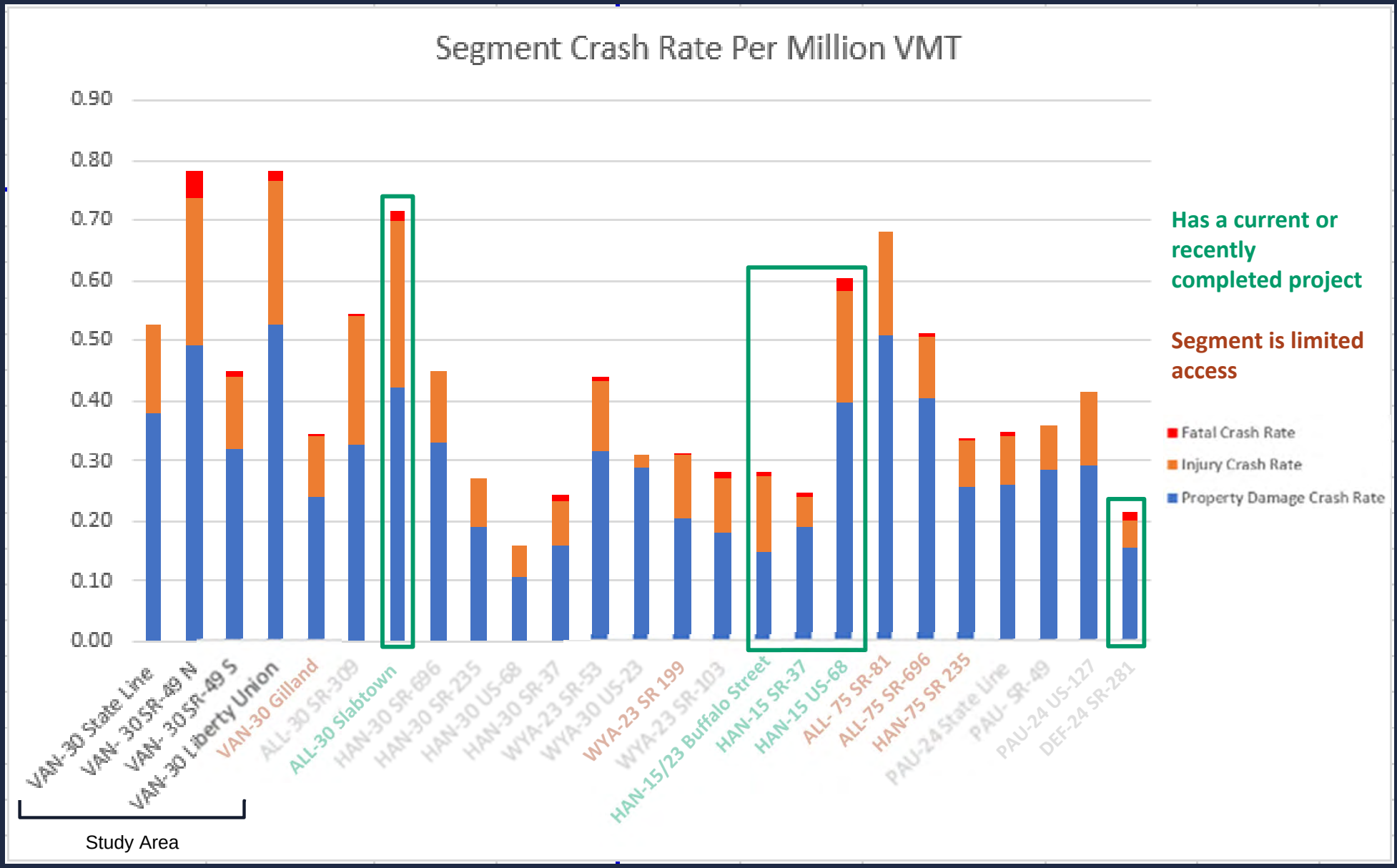
OHIO DEPARTMENT OF TRANSPORTATION

Public Meeting
October 19, 2022

INTRODUCTION

- Mr. Chris Hughes, P.E.,
  ODOT District 1 Deputy Director
- Ohio Department of Transportation District 1
  - Arcadis (Design/Engineering)
    - DGL (Design/Engineering Support)
    - Lawhon & Associates (Environmental)

WHY HERE?



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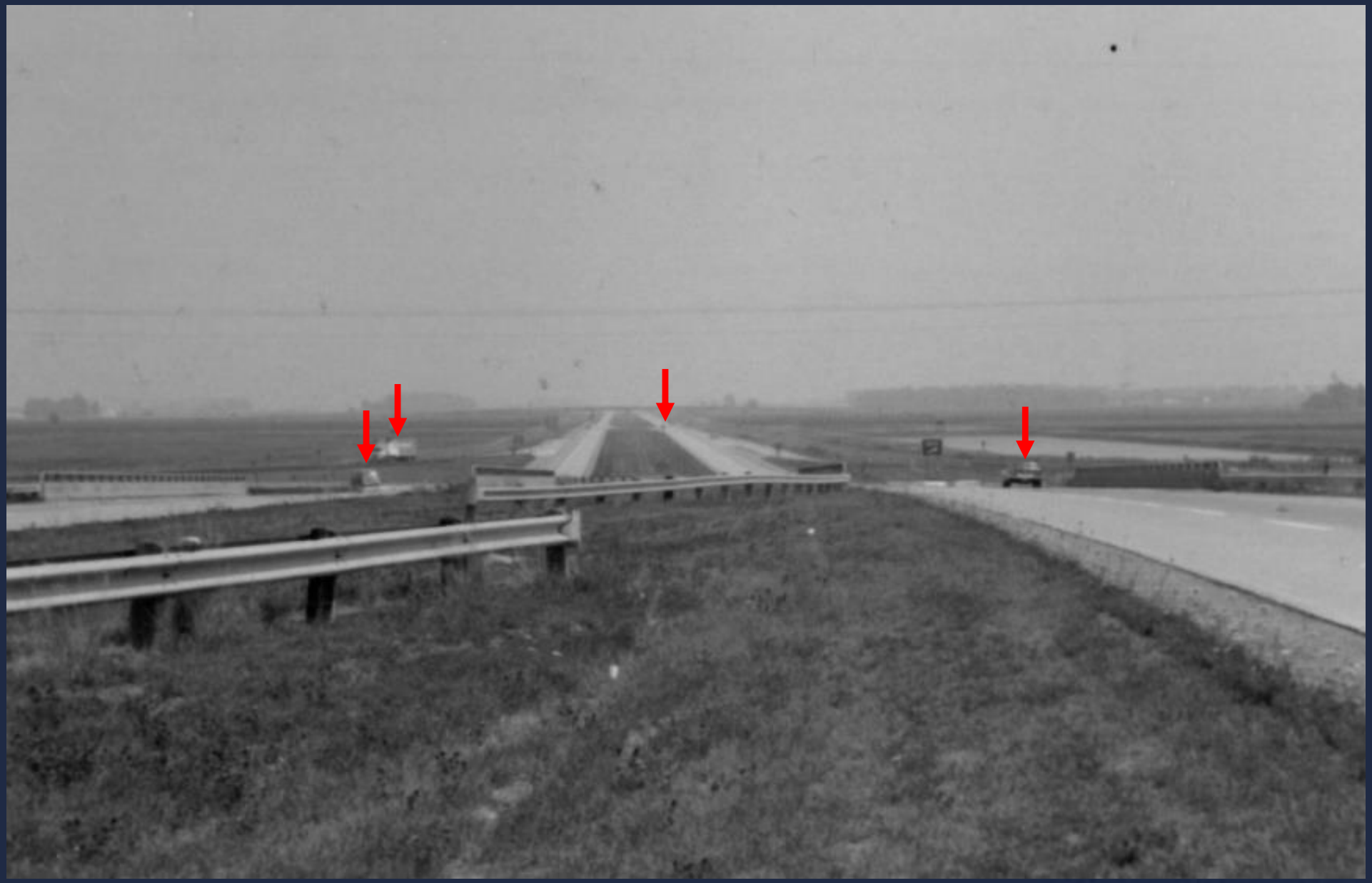
WHY NOW?

WHY NOW?



WHY NOW?

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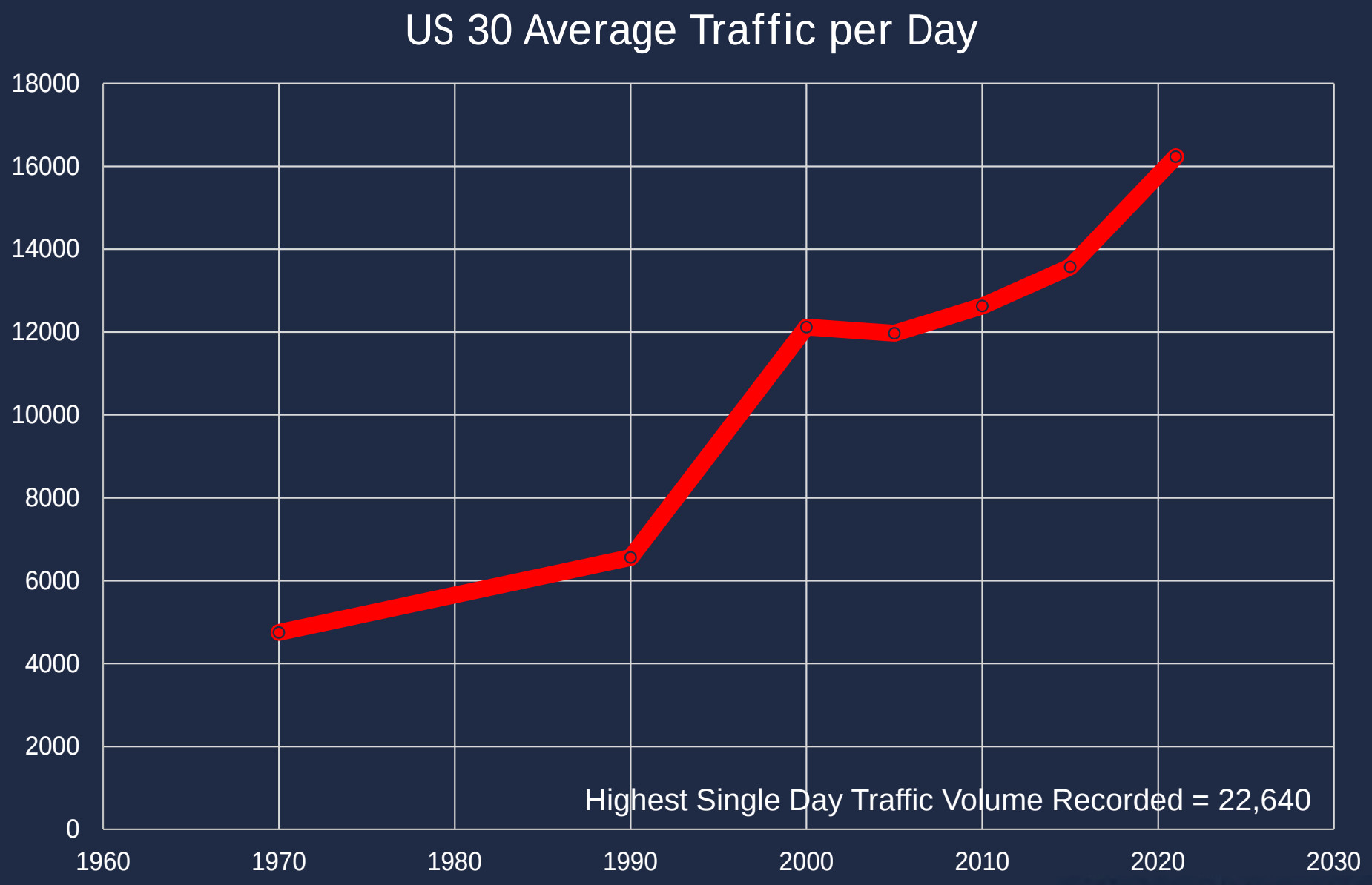

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WHY NOW?

Study Area Fatal Crashes

2011 - 2015:	1 Fatal Crash 0 Intersection Related
2016 – 2022	10 Fatal Crashes 8 Intersection Related
2022	3 Fatal Crashes 2 Intersection Related

US 30 from Boroff Rd. to Delphos (Eastern Van Wert County): 1 Fatal Crash 2011-2022

THE GOAL

Establish a long-range plan for the future conversion of US 30 to a full limited-access highway

Identify short-term, medium-term, and long-term alternatives for intersections

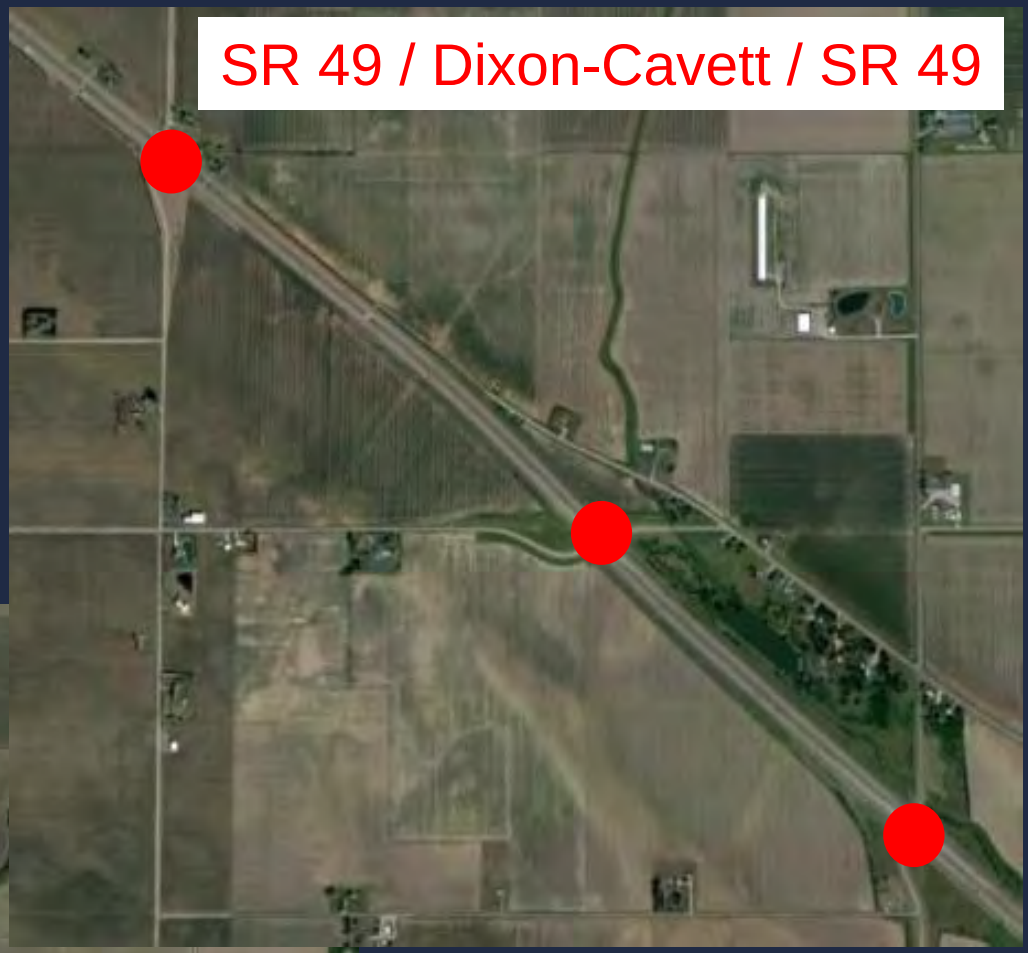
Next Possible Steps:

-Implement short-term, low-cost improvements
-Seek funding for high priority medium-term and/or long-term improvements
-Continue to monitor entire corridor for changes in crash and traffic conditions

THE GOAL

High-Priority Locations

6 of the 8 intersection-related fatal crashes since 2016 occurred in one of these 2 segments



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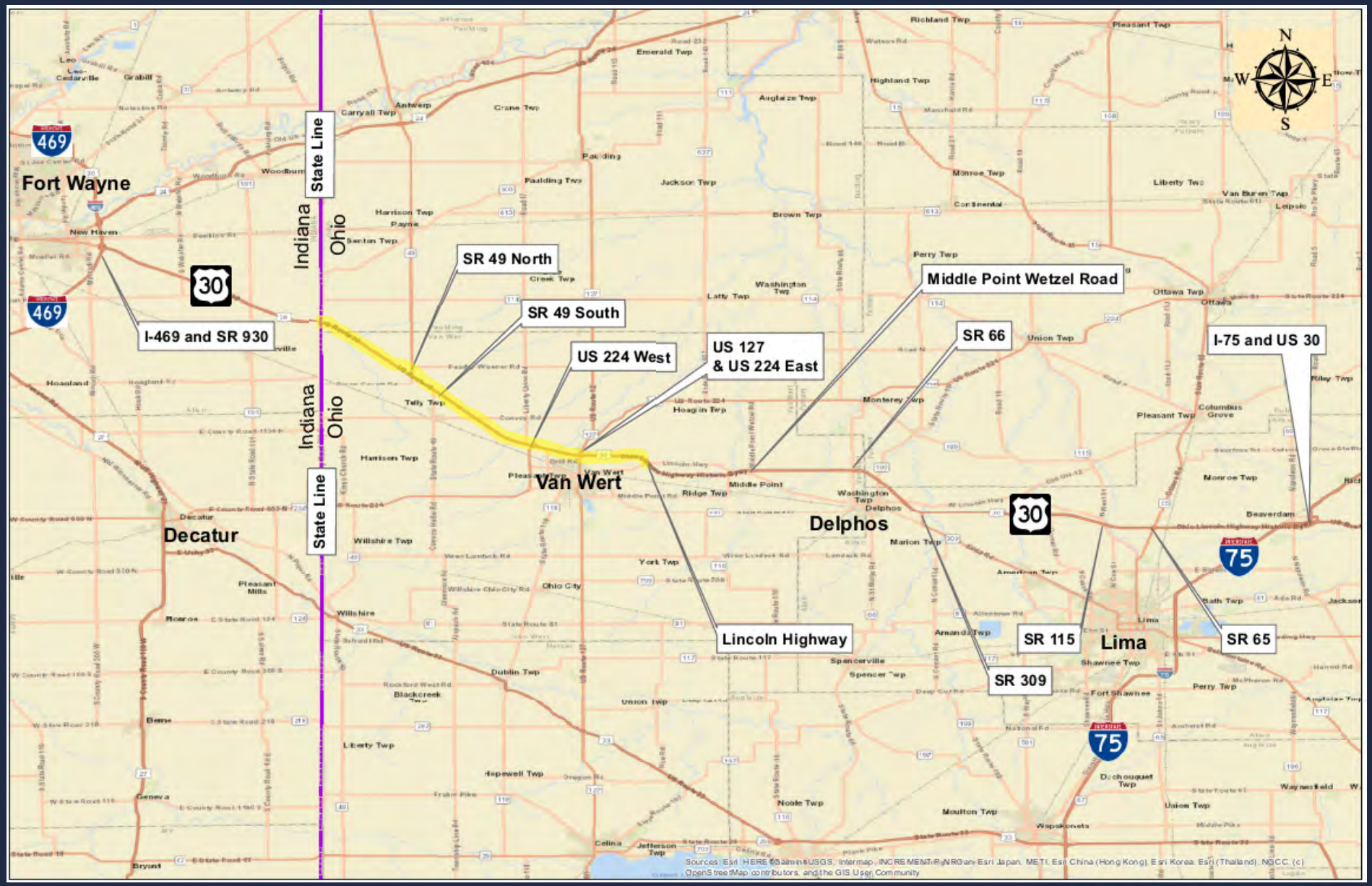
PAULDING / VAN WERT US 30 CORRIDOR



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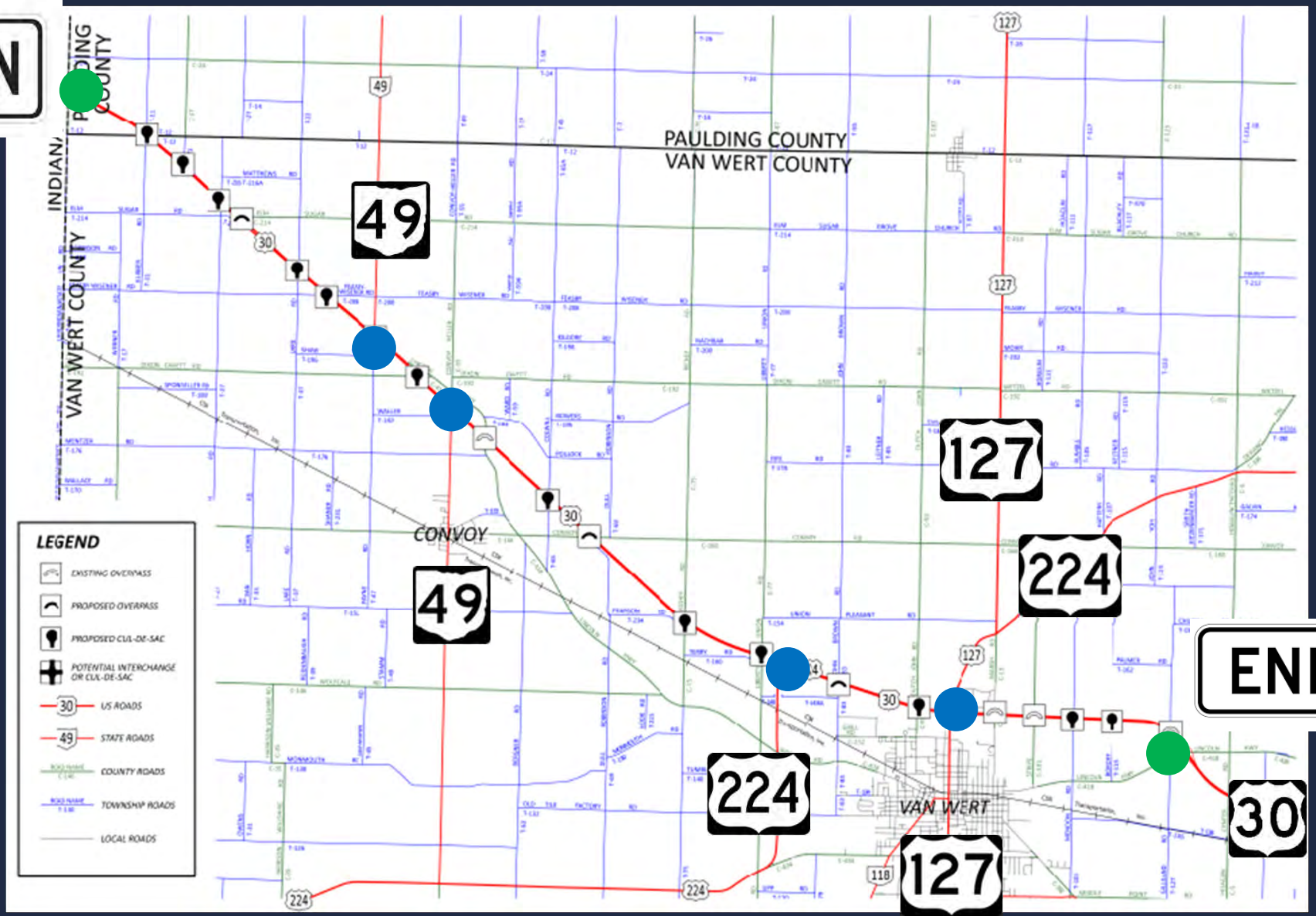
PAU/VAN-30 FEASIBILITY STUDY LIMITS



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PAULDING / VAN WERT 30 CORRIDOR

- 17 Miles Long
  - Ohio/Indiana State Line
  - Lincoln Highway Interchange (East of the City of Van Wert)
- 18 At Grade Intersections
- High Speed: 70 mph
- High Truck Volumes: 30% to 40%
- Oversized Vehicles (Farm Equipment) Crossing
- Provides Fast / Efficient Through Movement
- Traffic Volumes and Crashes Increasing

WHAT IS A FEASIBILITY STUDY?

- Identifies Purpose and Need & Key Issues
- Identifies Alternatives that can progress into future projects
- Written in reader-friendly format to inform public of decision-making process

PURPOSE AND NEED

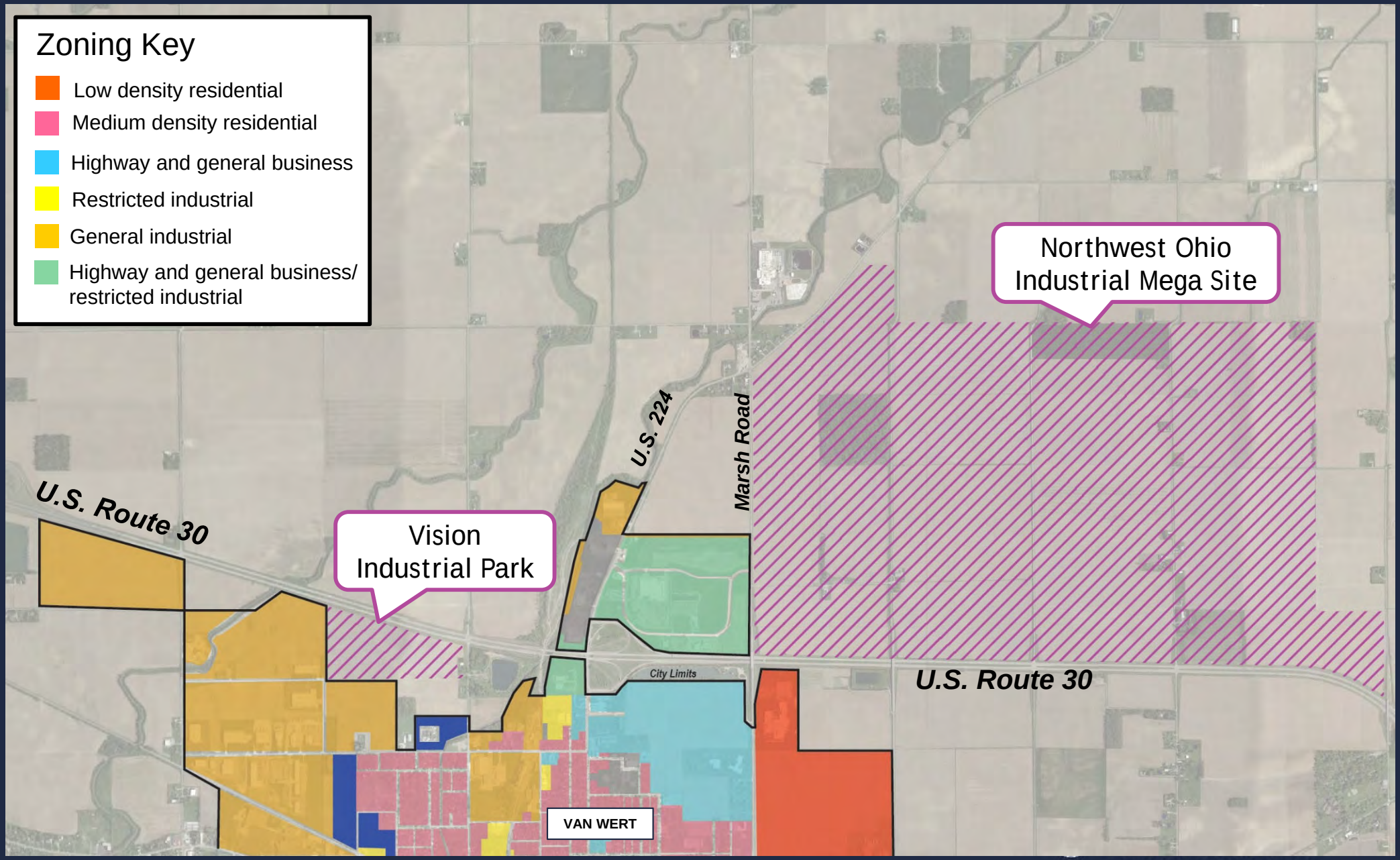
- To improve the overall corridor safety by reducing crashes at high-crash locations and by addressing the frequency of wrong-way incidents
- To provide a transportation facility that supports economic development sites and existing agricultural land uses along the corridor

MAINTAIN ACCESS & SUPPORT AGRICULTURAL LAND USES

U.S. 30 utilized by large farm equipment with unique operating characteristics

- Maintain acceptable access for agricultural equipment as well as for vehicular traffic

MAINTAIN ACCESS & SUPPORT INDUSTRIAL LAND USES



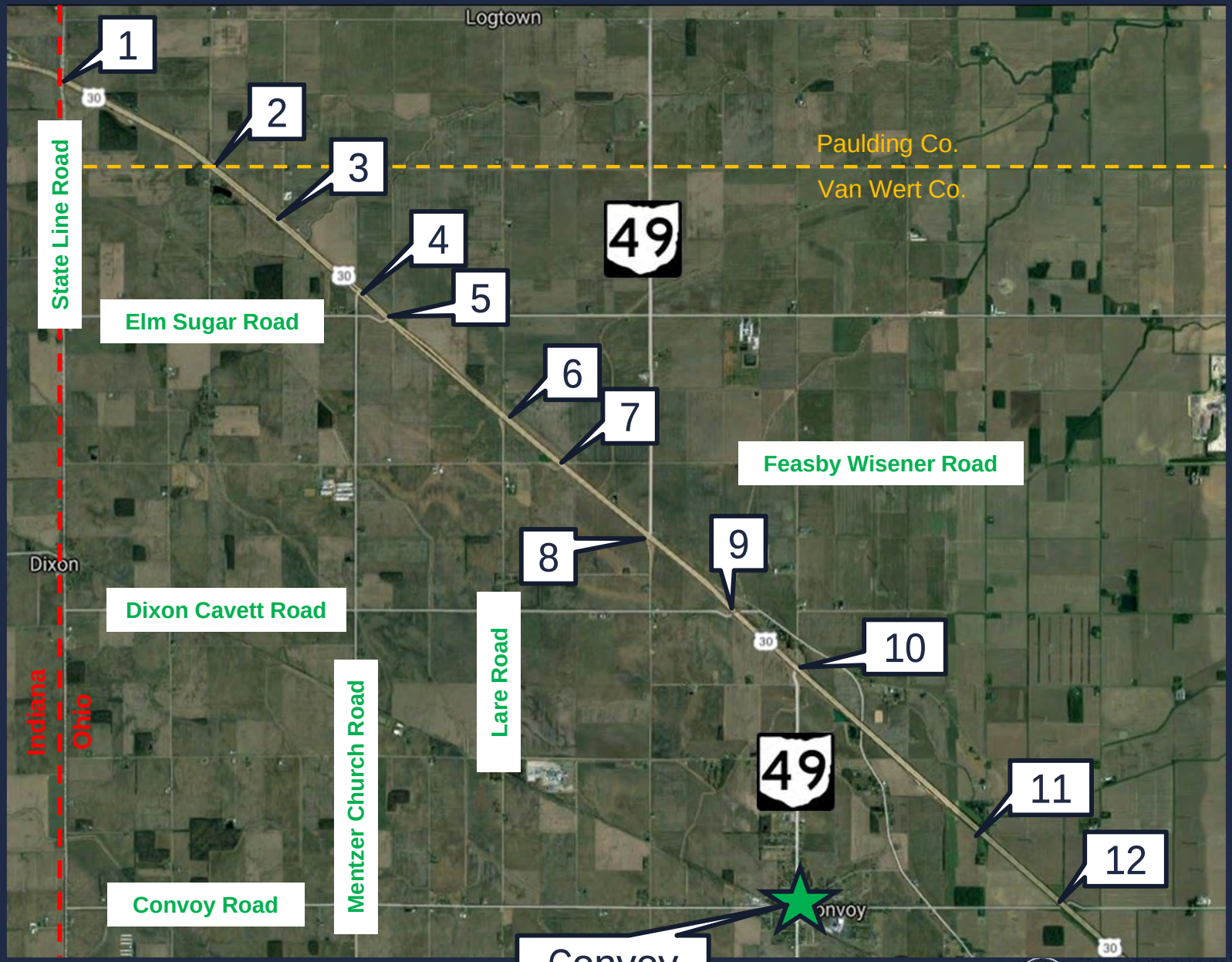
PAU/VAN-30 FEASIBILITY STUDY

- Project Development Process

PAU/VAN-30 FEASIBILITY STUDY SCHEDULE

- February 2021 - Began Feasibility Study
- August 2021 – Reviewed Existing & Future Conditions
- February 2022 – Review Preliminary Alternates
- October 2022- Review Recommended Alternate(s)
- December 2022- Complete Feasibility Study

PAULDING / VAN WERT 30 CORRIDOR



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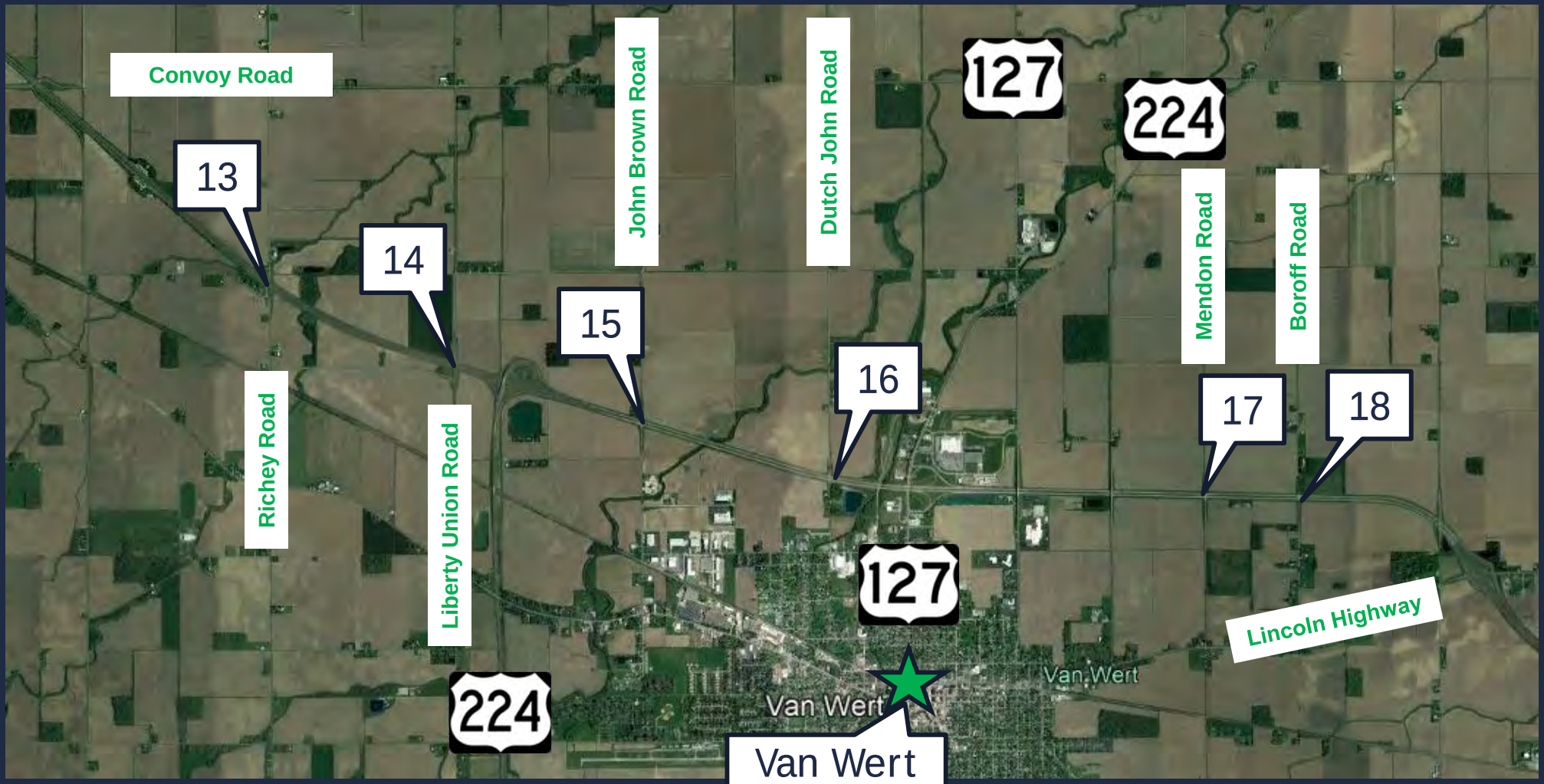
PAULDING / VAN WERT 30 CORRIDOR



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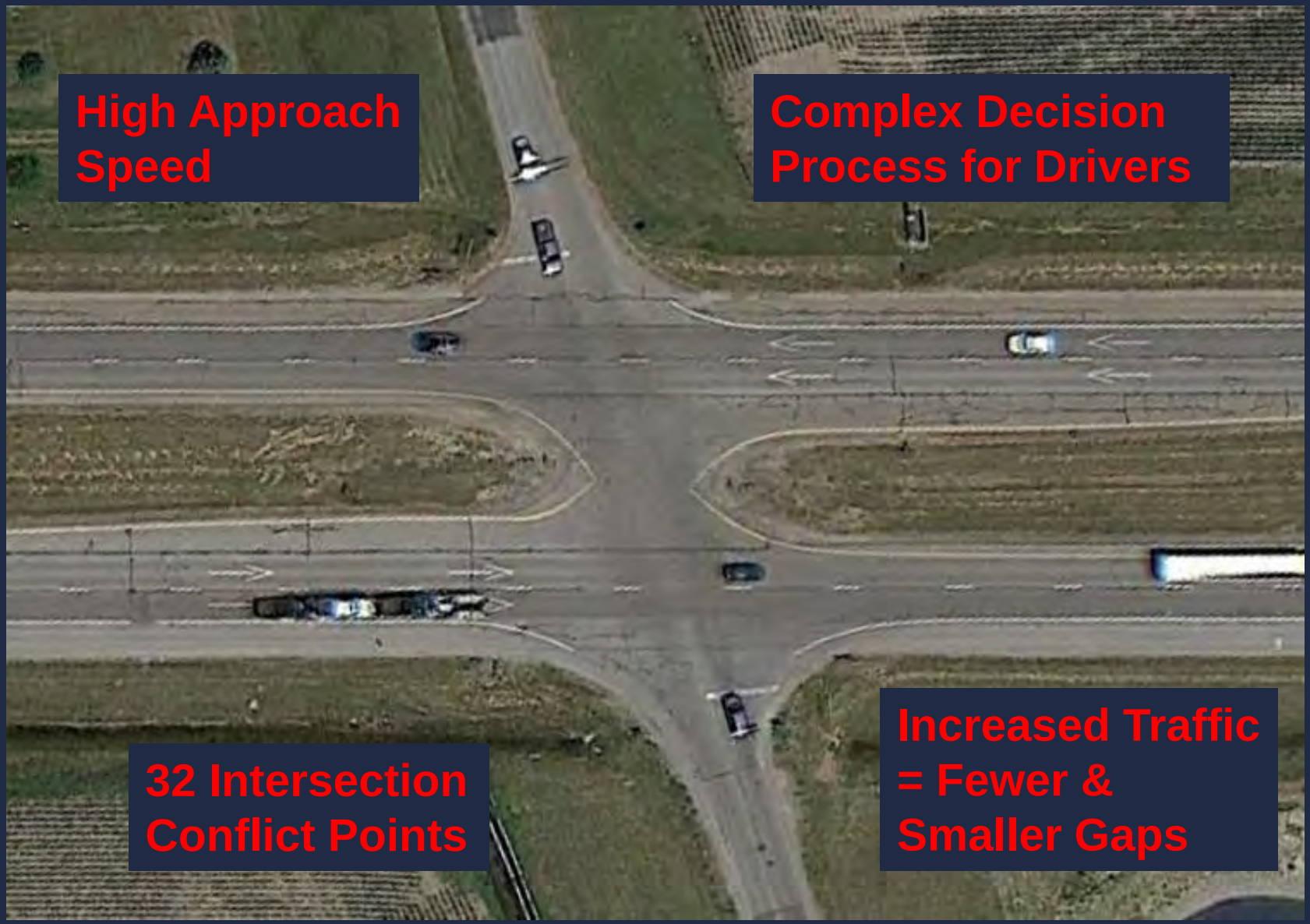
AT-GRADE INTERSECTIONS



DESIGN TOOLBOX

Cul-de-sac

Right In Right Out

Overpass

Interchange

DESIGN TOOLBOX

RCUT – Restricted Crossing U-Turn

Improve Safety

Crash Data (2017-2019): 236 total crashes
(excluding 51 animal crashes)

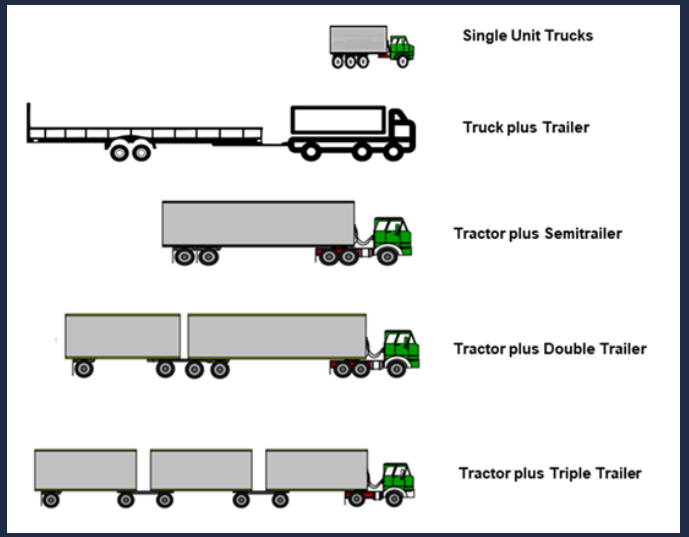
- Crash Types:
  - 87 (37%) – fixed object
  - 40 (17%) – sideswipe passing
  - 30 (13%) – rear end
- Crash Severity
  - 61 (26%) – injury crashes
  - 5 (2%) – fatal

Improve Safety

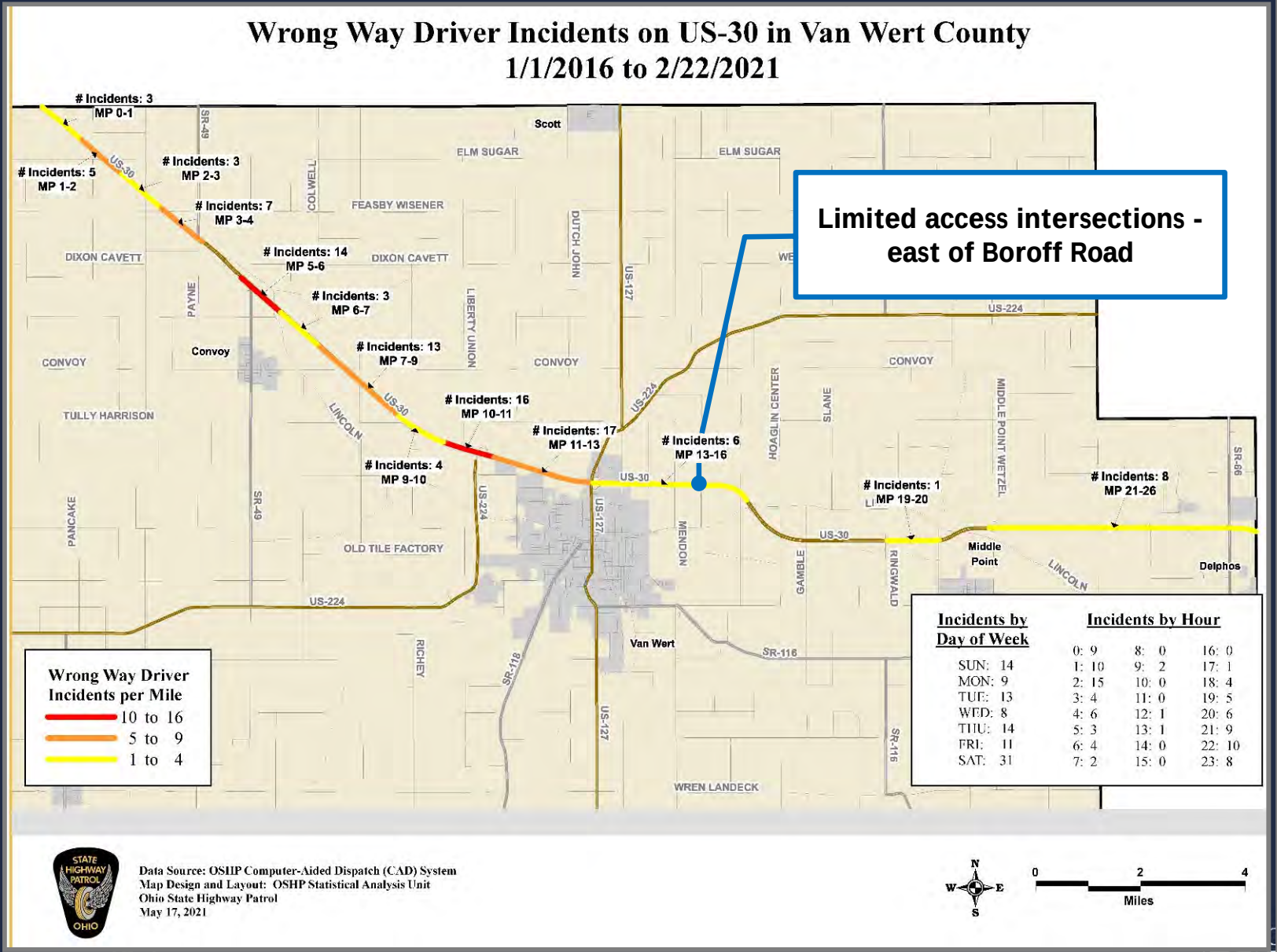
Crash Data- Heavy Vehicles:

(semi-tractor and single unit trucks)

- Fixed Object = 30%
- Sideswipe Passing = 30%
- Rear End = 8%



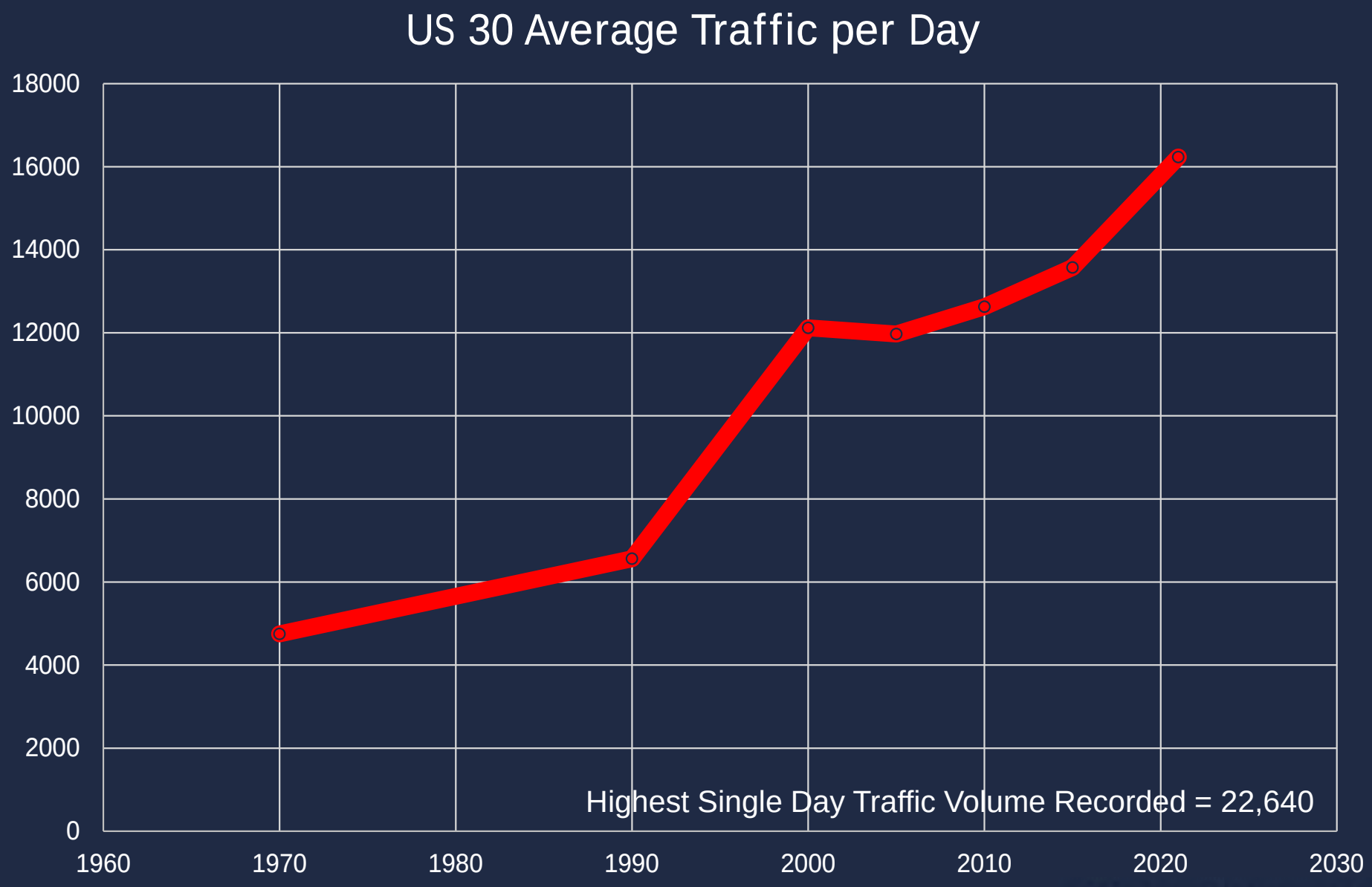
WRONG WAY INCIDENTS



East of Boroff Road has **9** wrong way incidents

West of Boroff Road has **91** wrong way incidents

WHY NOW?



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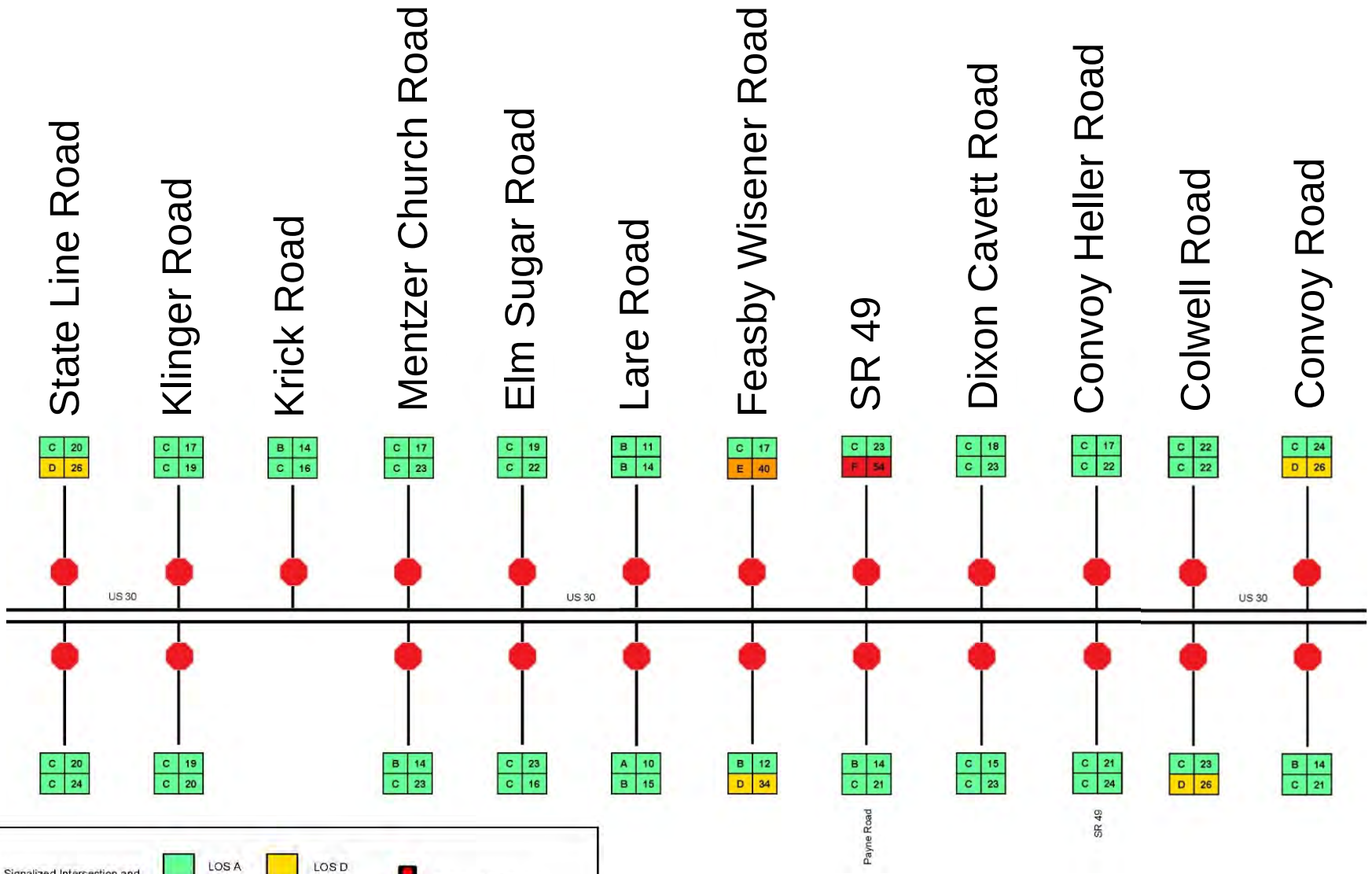
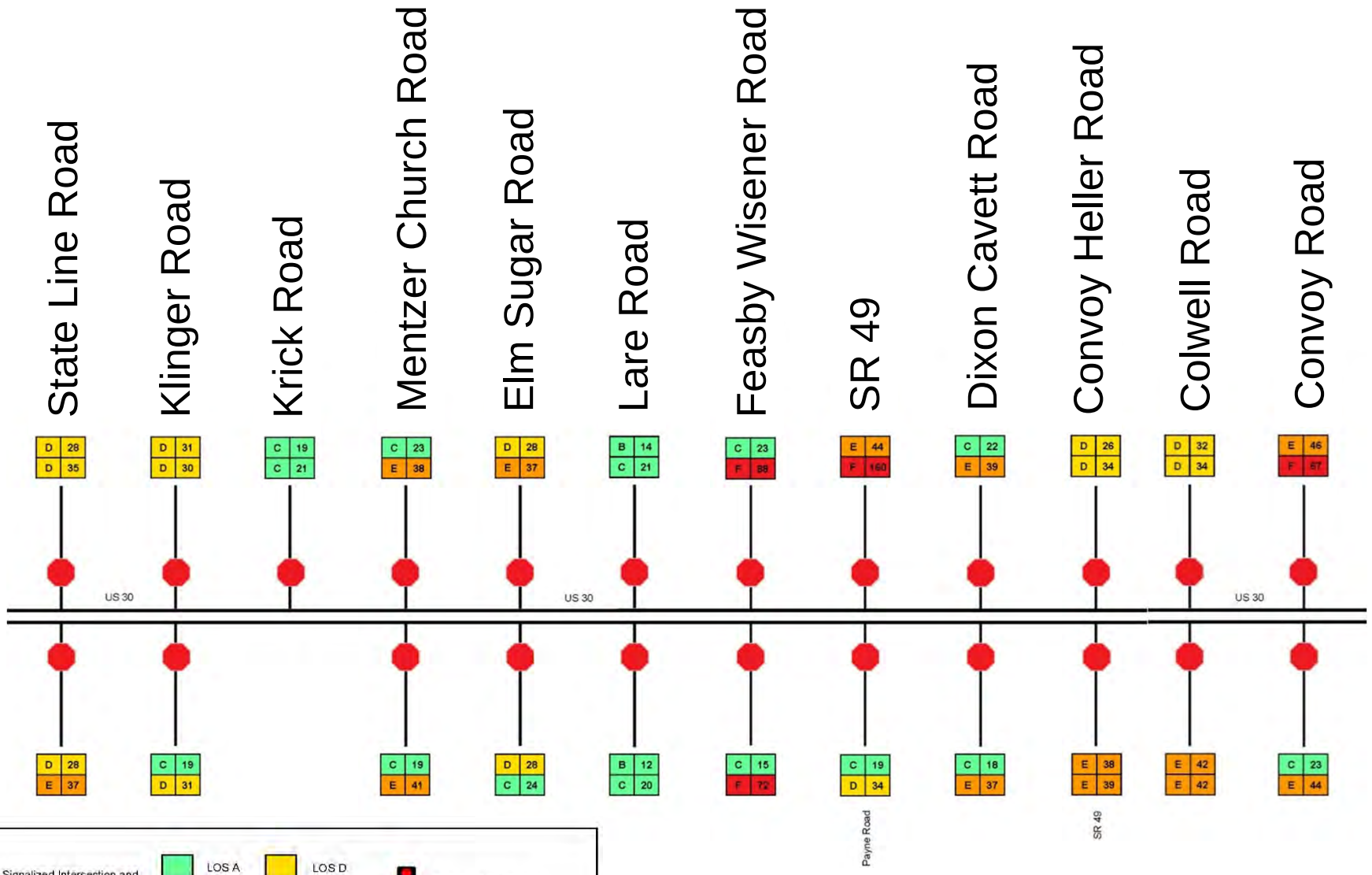
INTERSECTIONS (WEST) 2027



MJ12

INTERSECTIONS (WEST) 2047

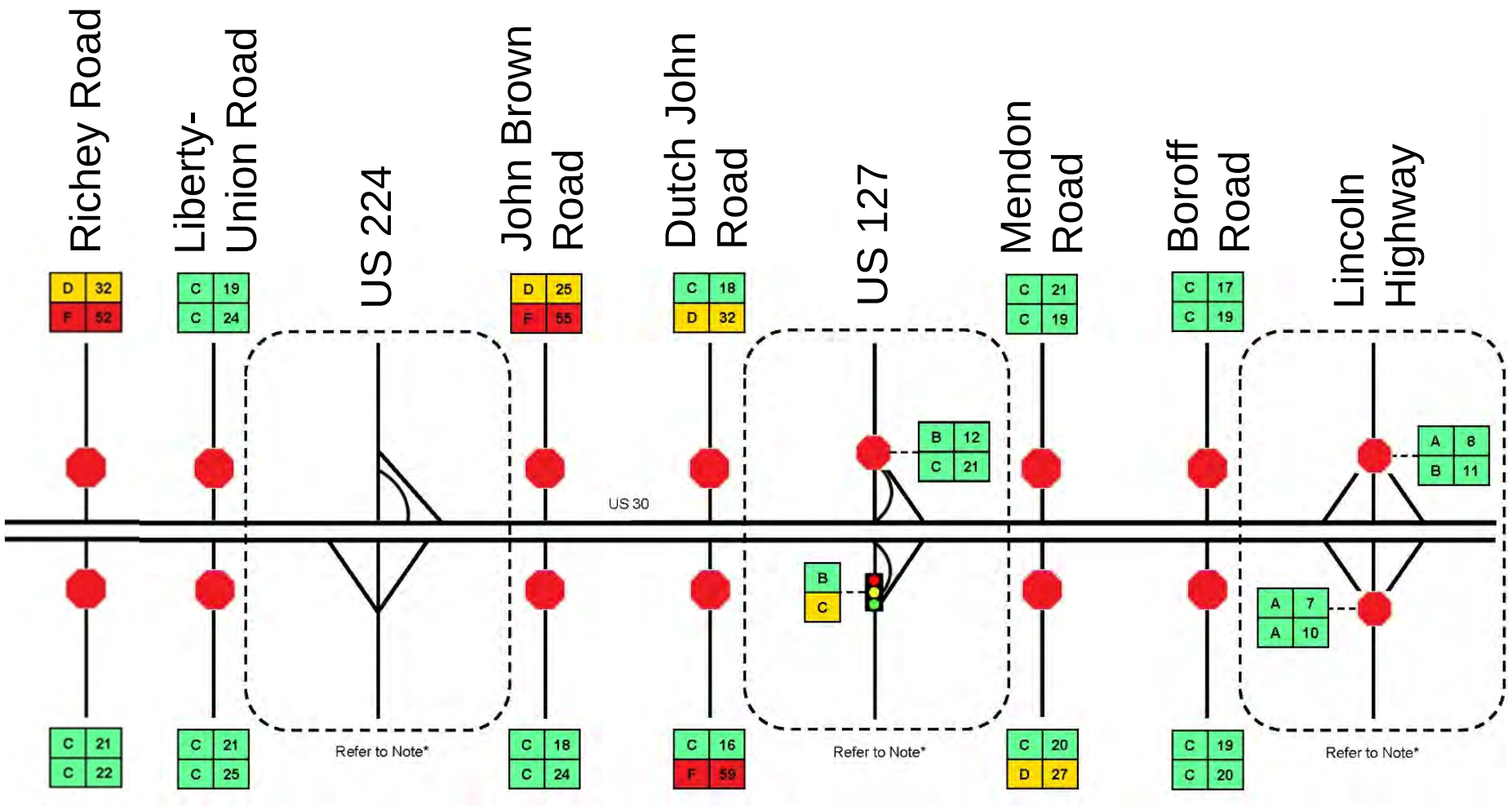


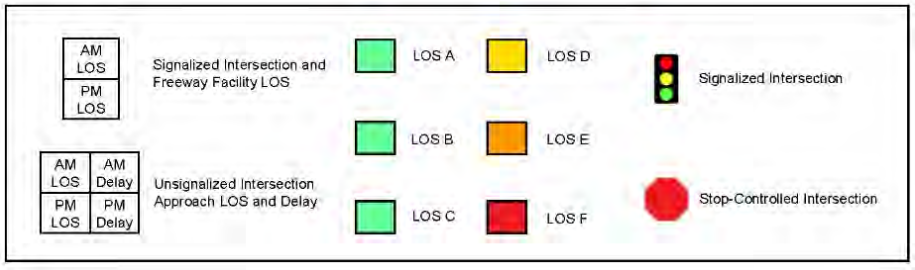
Slide 31

MJ12 sometimes i don't like to show 2047 to stakeholders...given growth projections and the number of years into the future it doesn't always resonate with them.

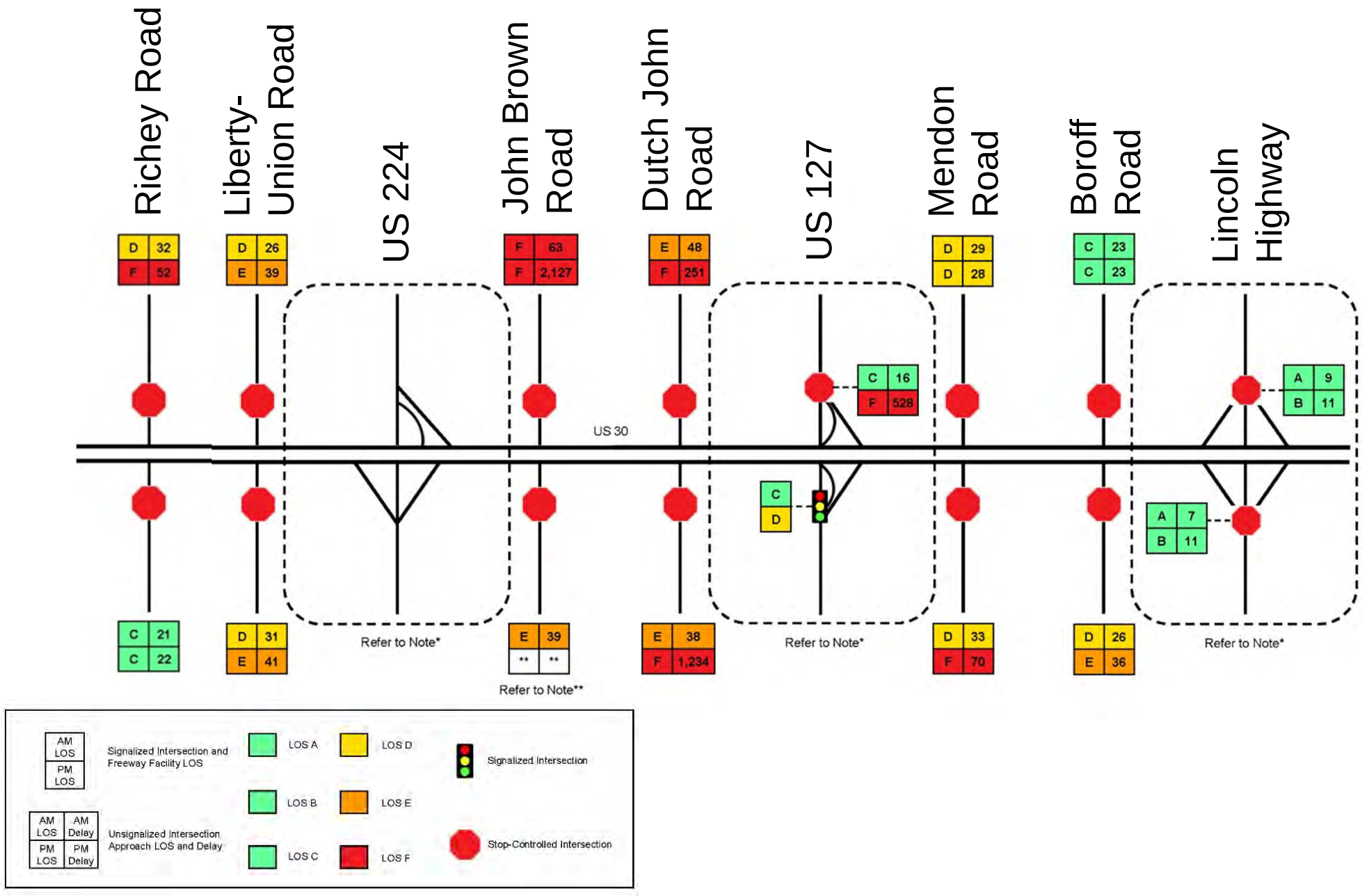
Maderia, Justin, 7/27/2021

INTERSECTIONS (EAST) 2027

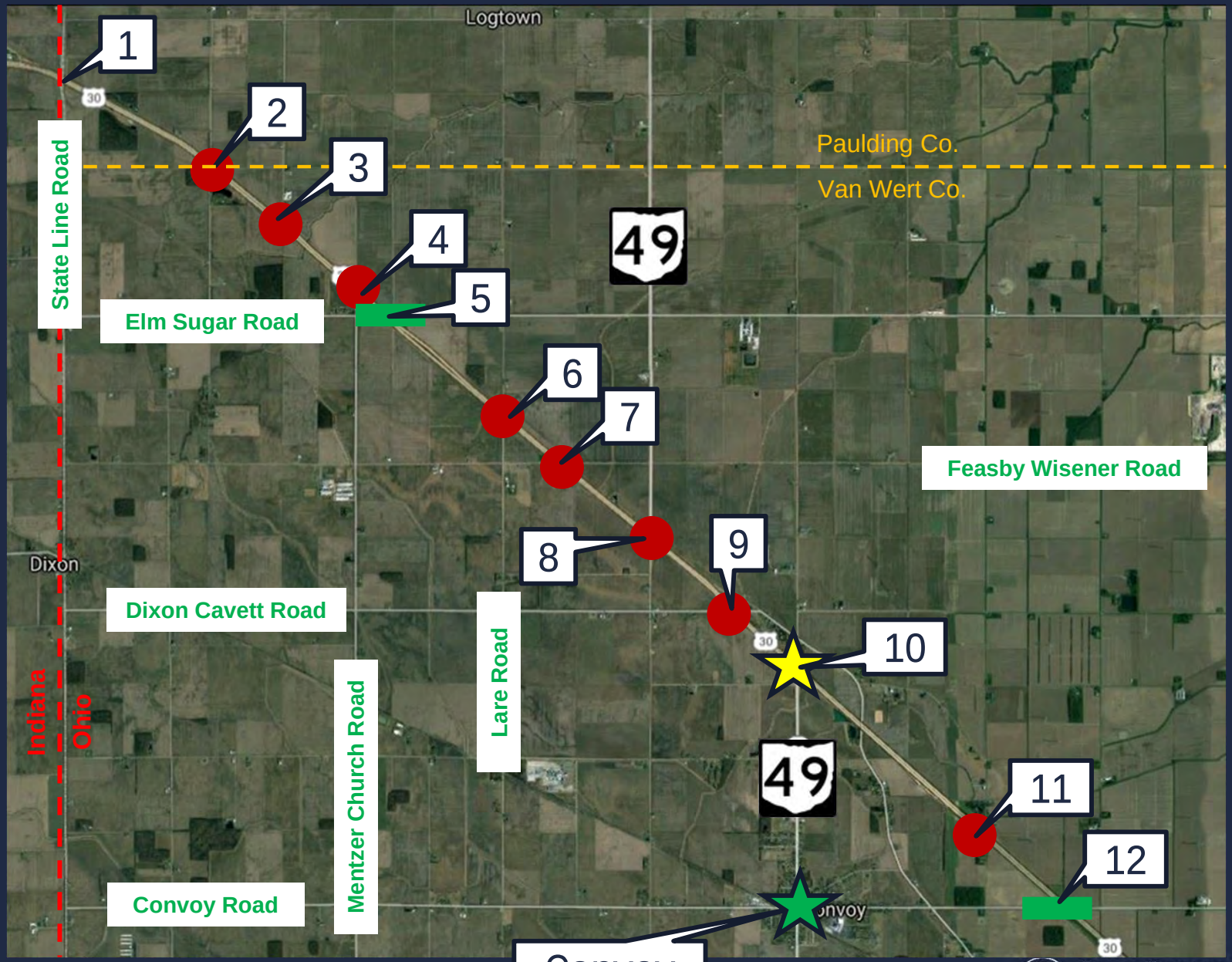




INTERSECTIONS (EAST) 2047



DRAFT RECOMMENDATIONS



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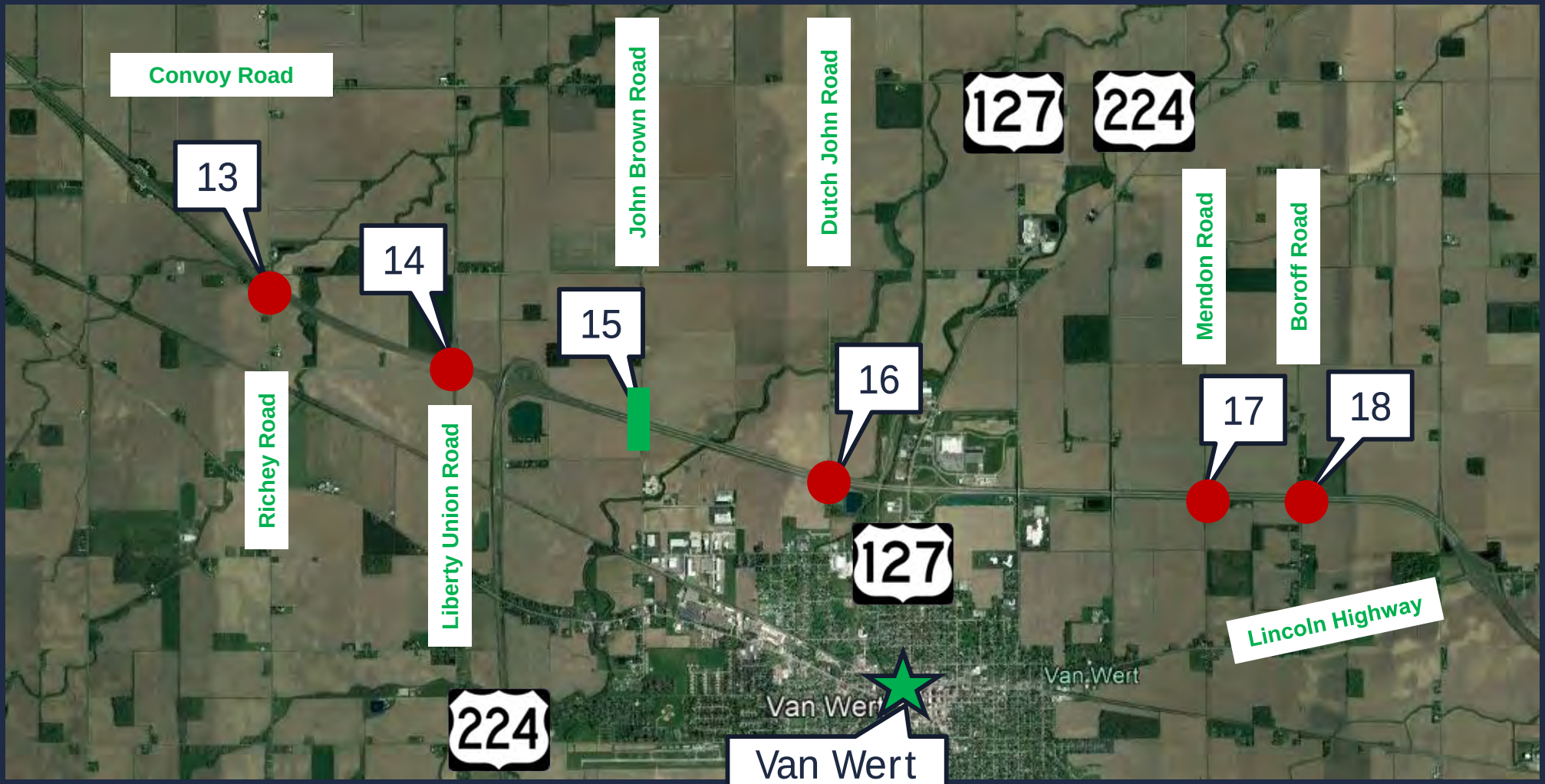
DRAFT RECOMMENDATIONS



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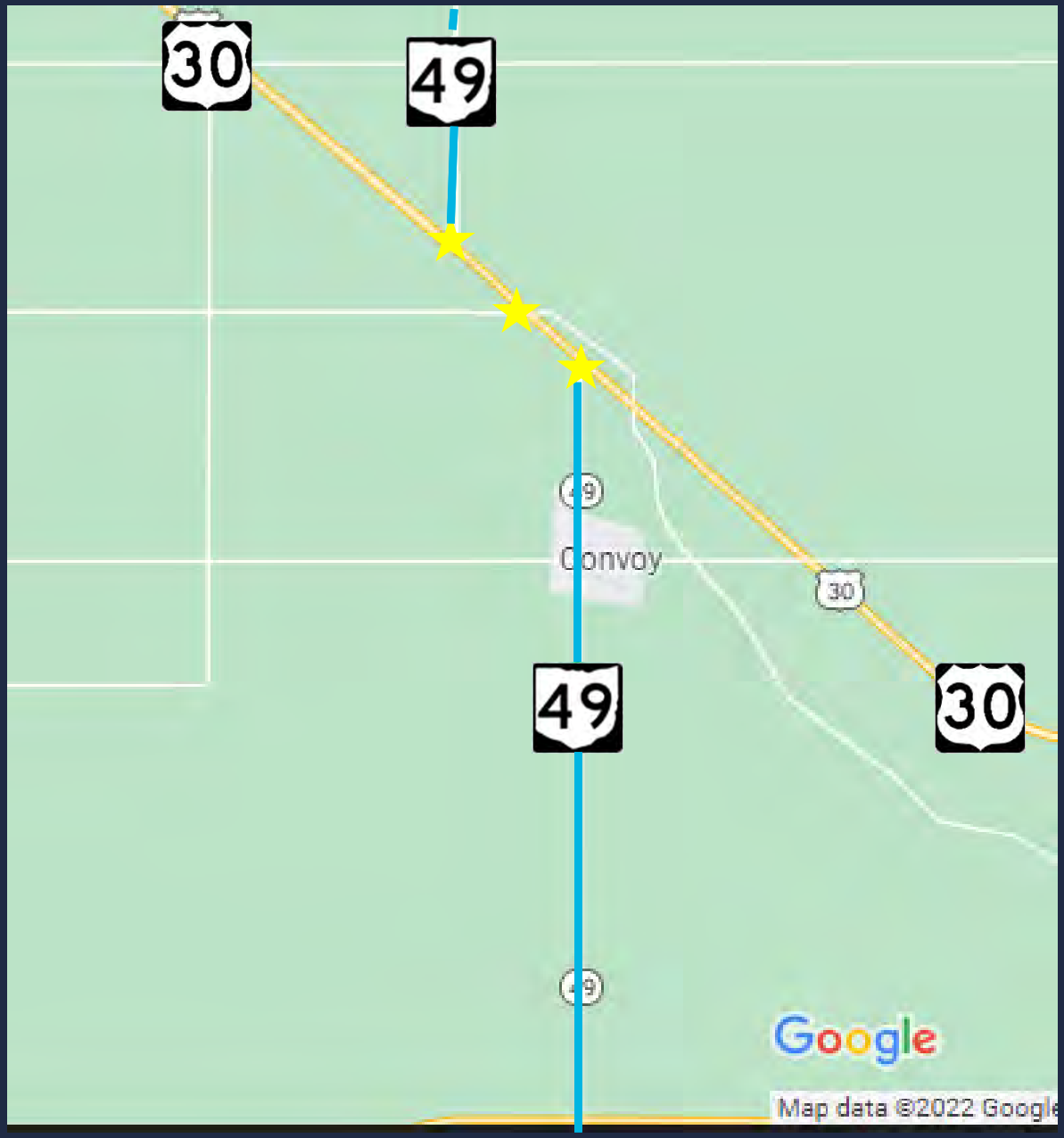
SR 49 INTERCHANGE LOCATIONS CONSIDERED



Payne

Dixon-Cavett

Convoy-Heller

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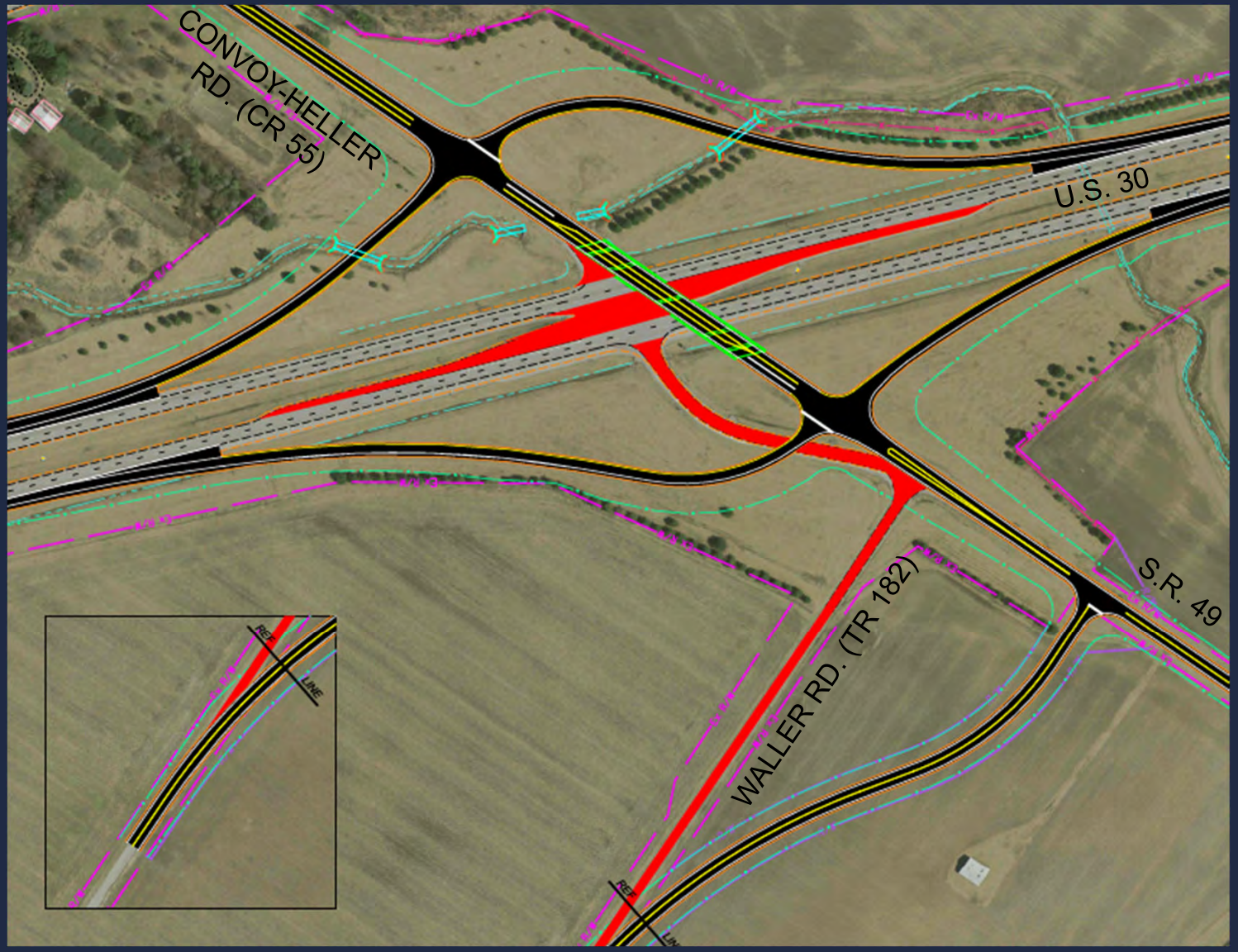
DRAFT RECOMMENDATION
SR 49/CONVOY HELLER ROAD AND U.S. 30



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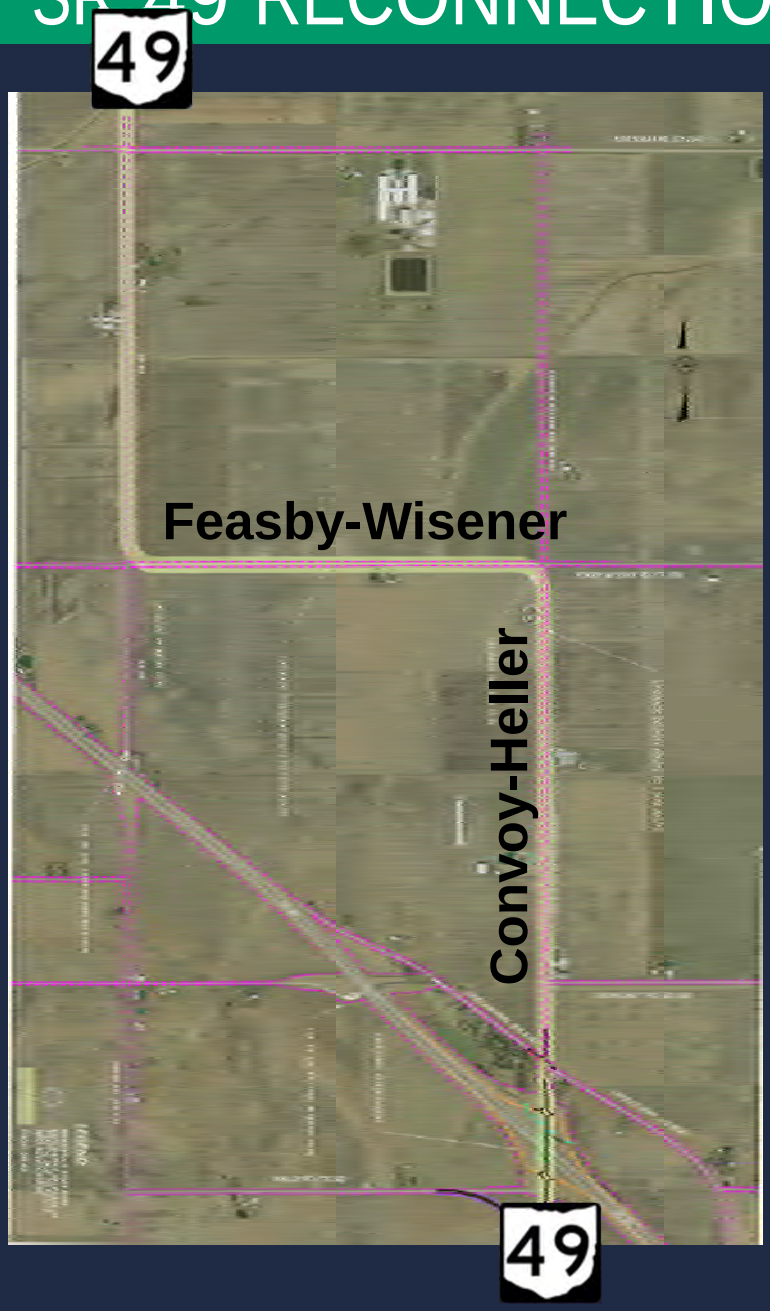
RECOMMENDED SR 49 INTERCHANGE
SR 49 RECONNECTION ALTERNATE 1



Convoy-Heller (1)

Feasby-Wisener (1)

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RECOMMENDED SR 49 INTERCHANGE
SR 49 RECONNECTION ALTERNATE 2

Convoy-Heller (2)

Elm Sugar (1)

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RECOMMENDED SR 49 INTERCHANGE
SR 49 RECONNECTION ALTERNATE 3

Lincoln Hwy (0.65)

New Road (0.55)

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INTERSECTION 1
STATE LINE ROAD AND U.S. 30

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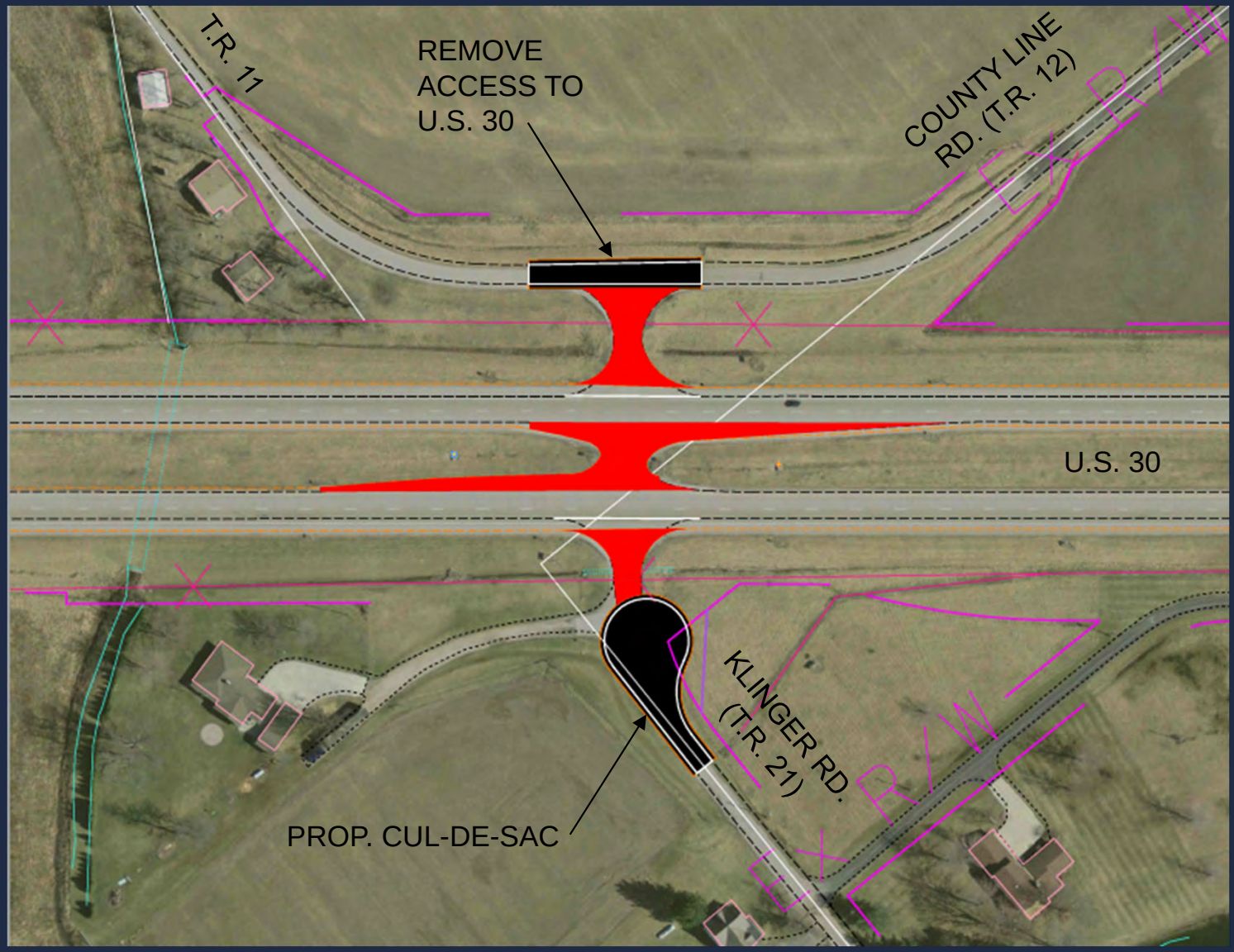
INTERSECTION 2
KLINGER ROAD AND U.S. 30



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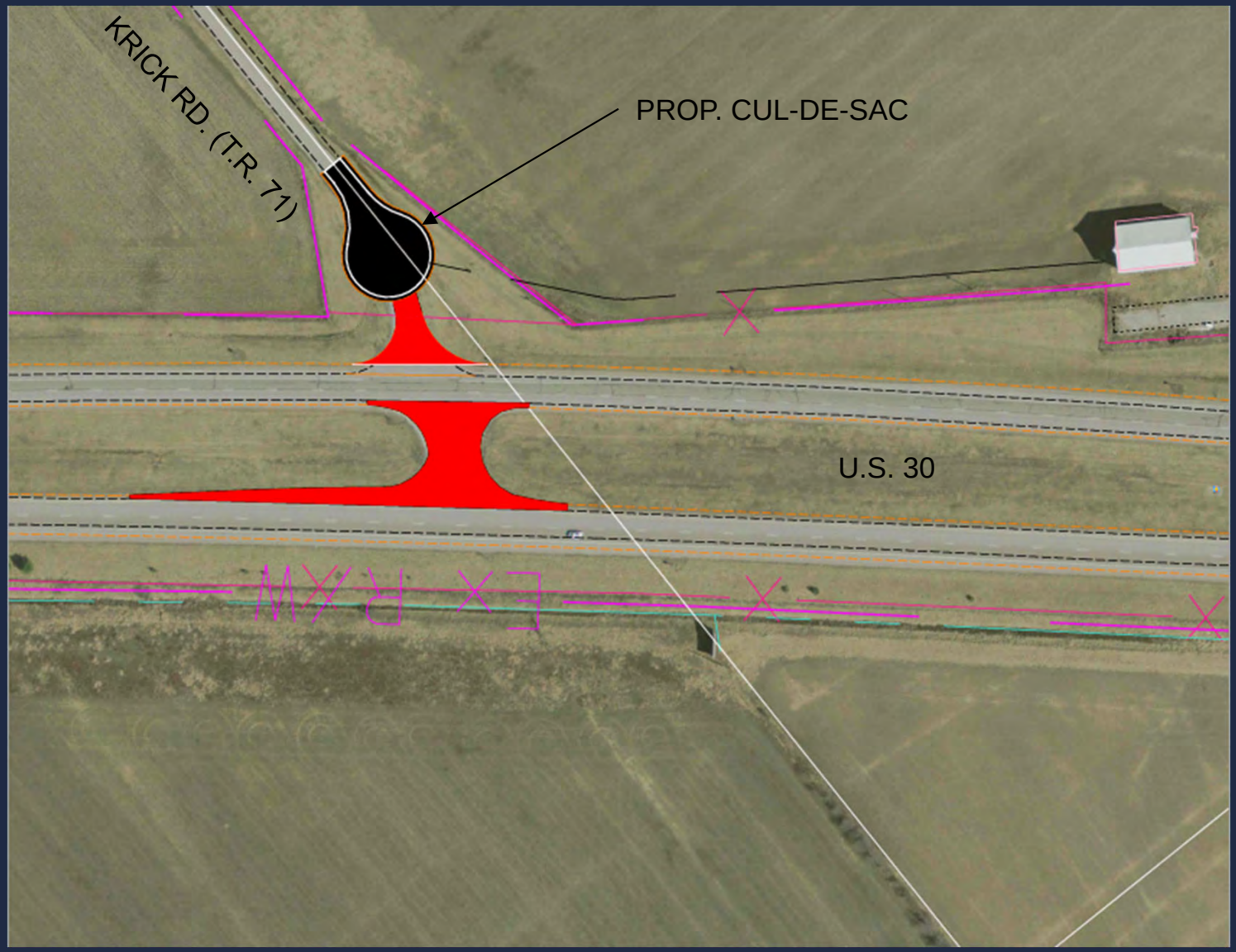
INTERSECTION 3
KRICK ROAD AND U.S. 30



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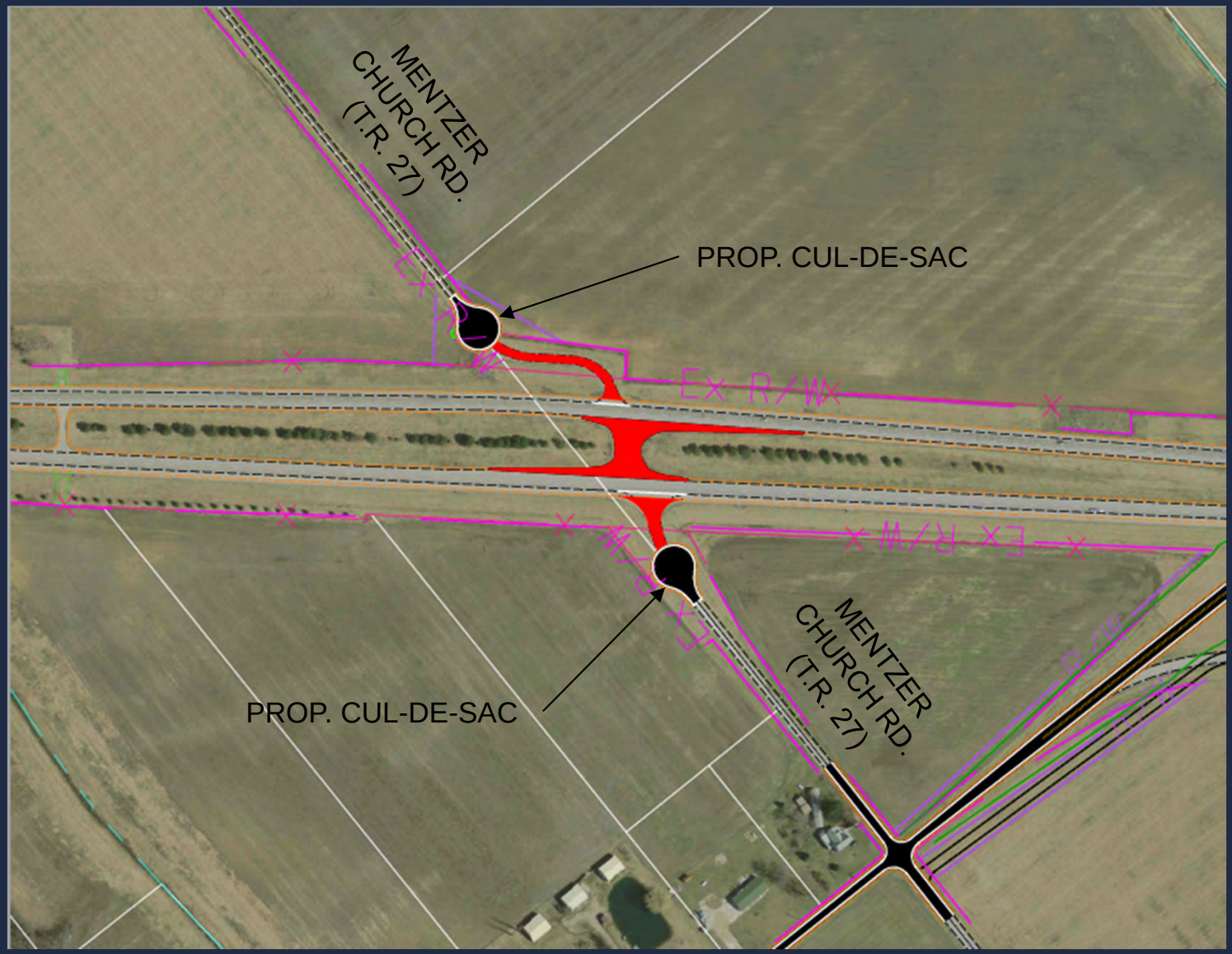
INTERSECTION 4
MENTZER CHURCH ROAD AND U.S. 30



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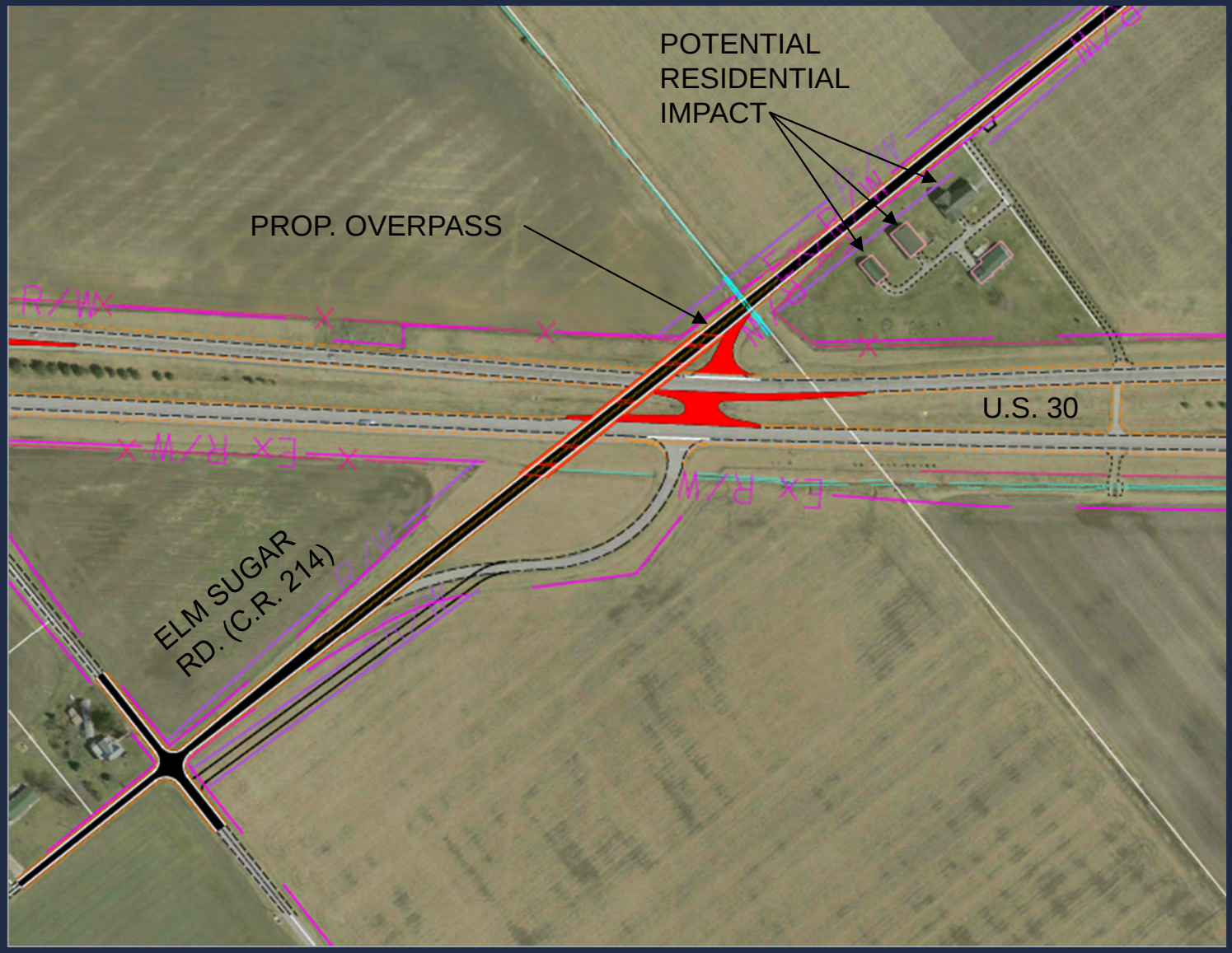
INTERSECTION 5
ELM SUGAR ROAD AND U.S. 30



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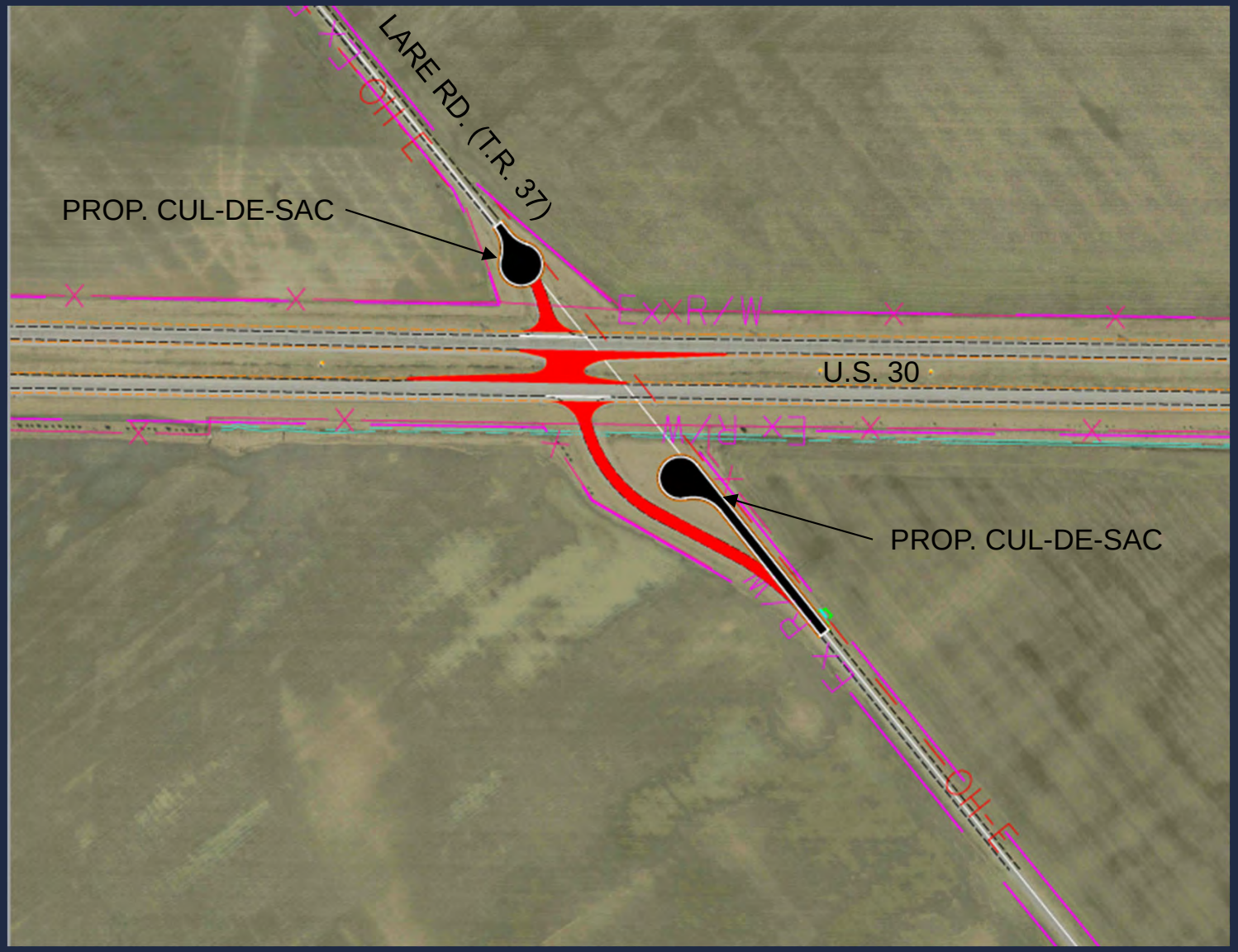
INTERSECTION 6
LARE ROAD AND U.S. 30



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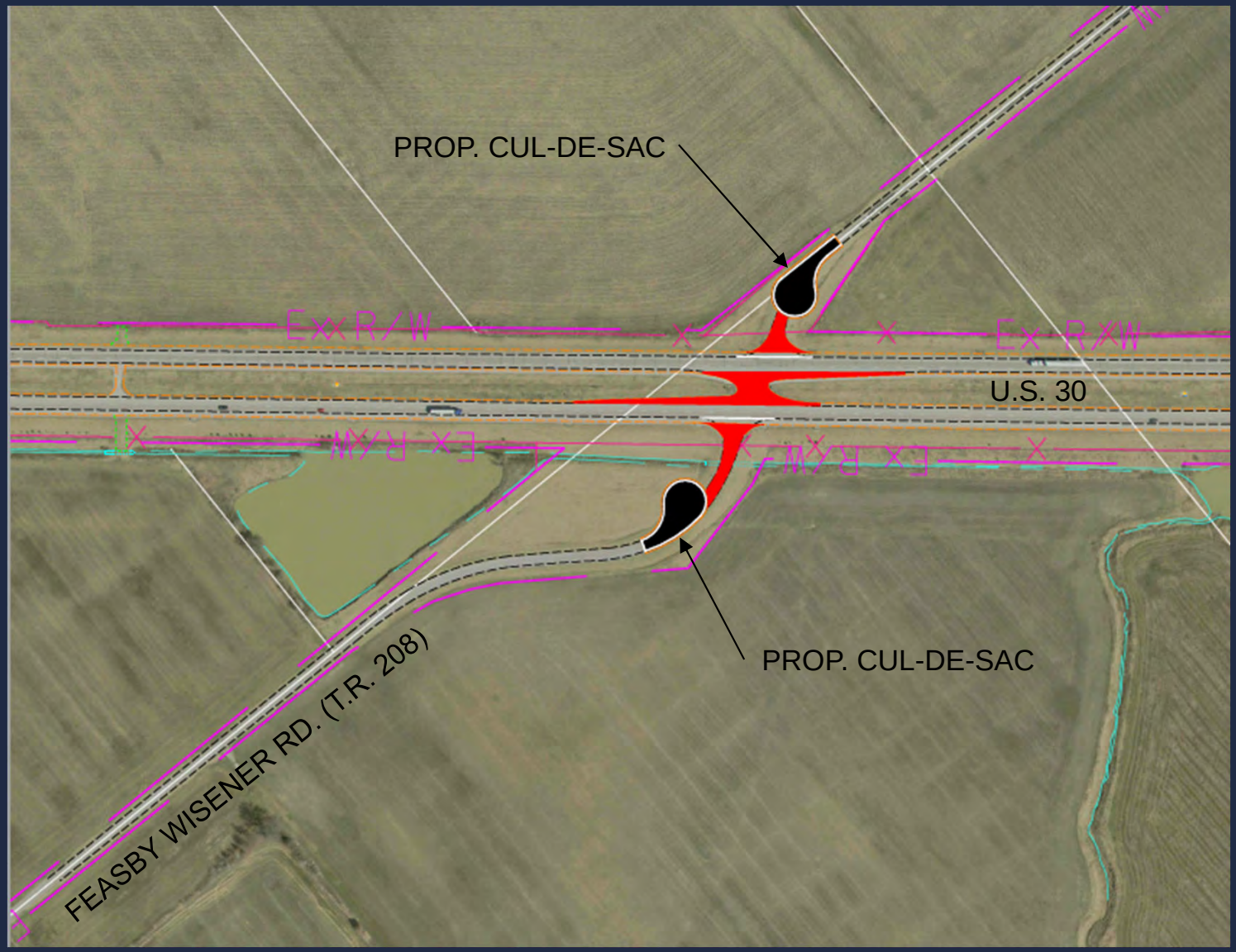
INTERSECTION 7
FEASBY-WISENER ROAD AND U.S. 30



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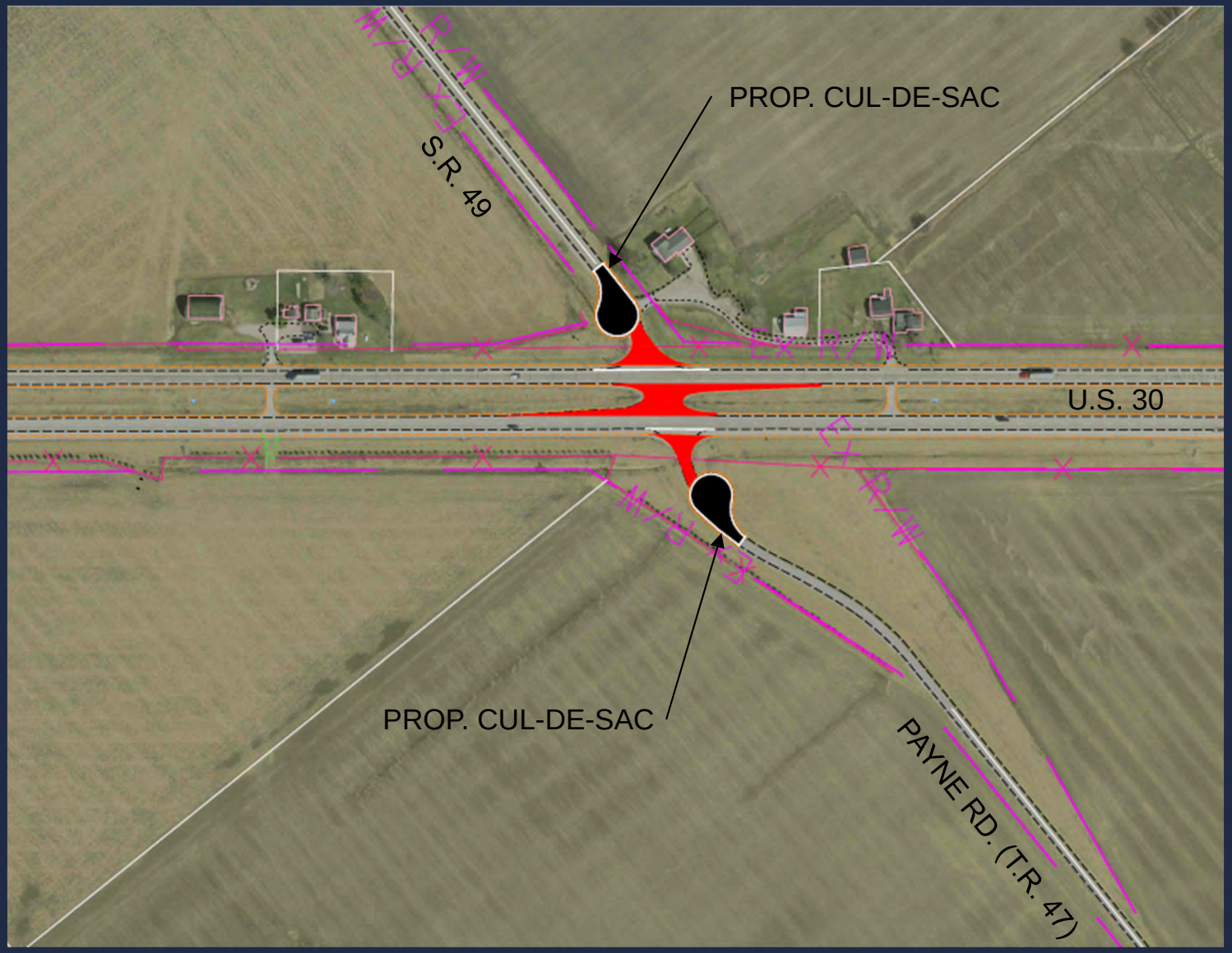
INTERSECTION 8
SR 49/PAYNE ROAD AND U.S. 30



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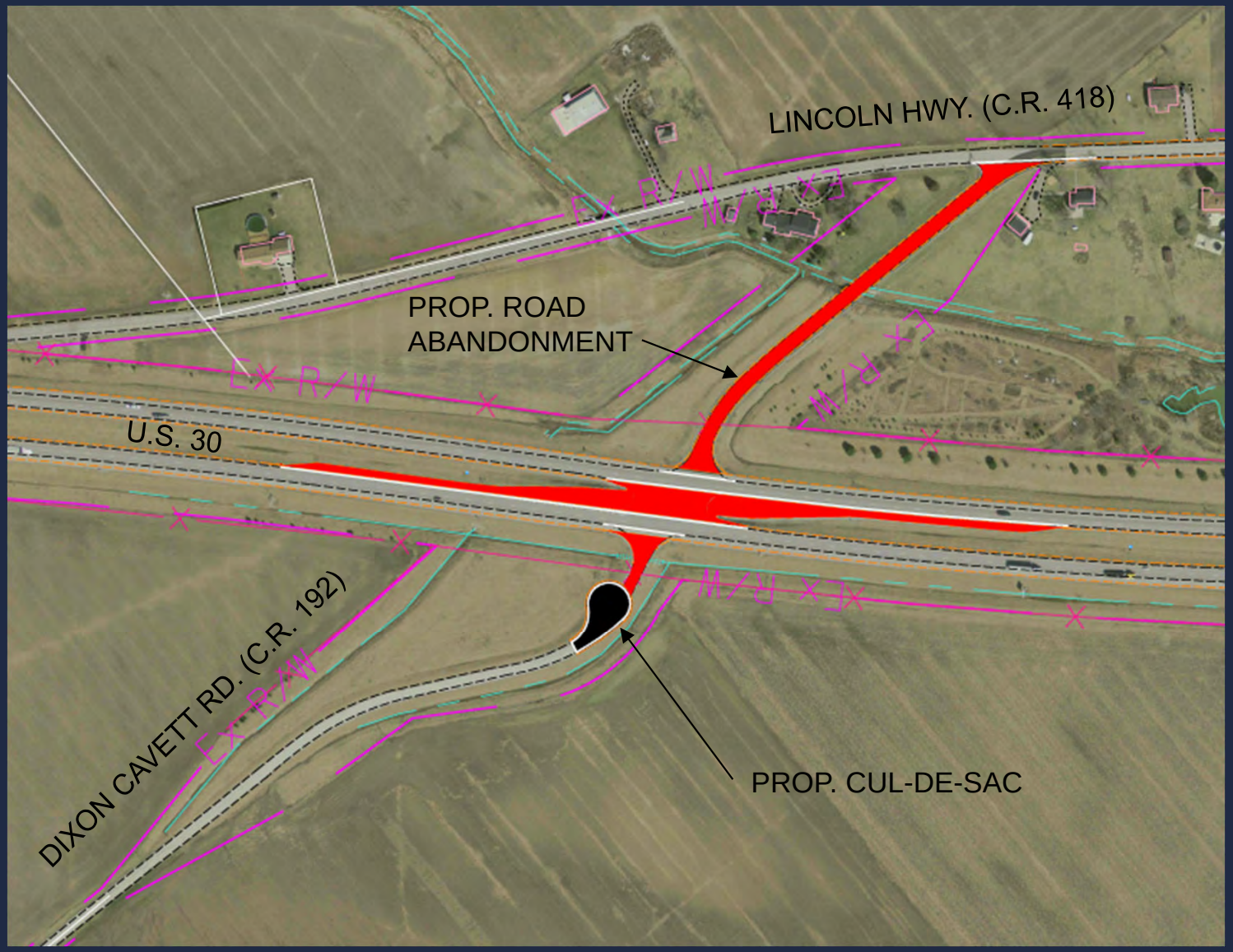
INTERSECTION 9
DIXON CAVETT ROAD AND U.S. 30



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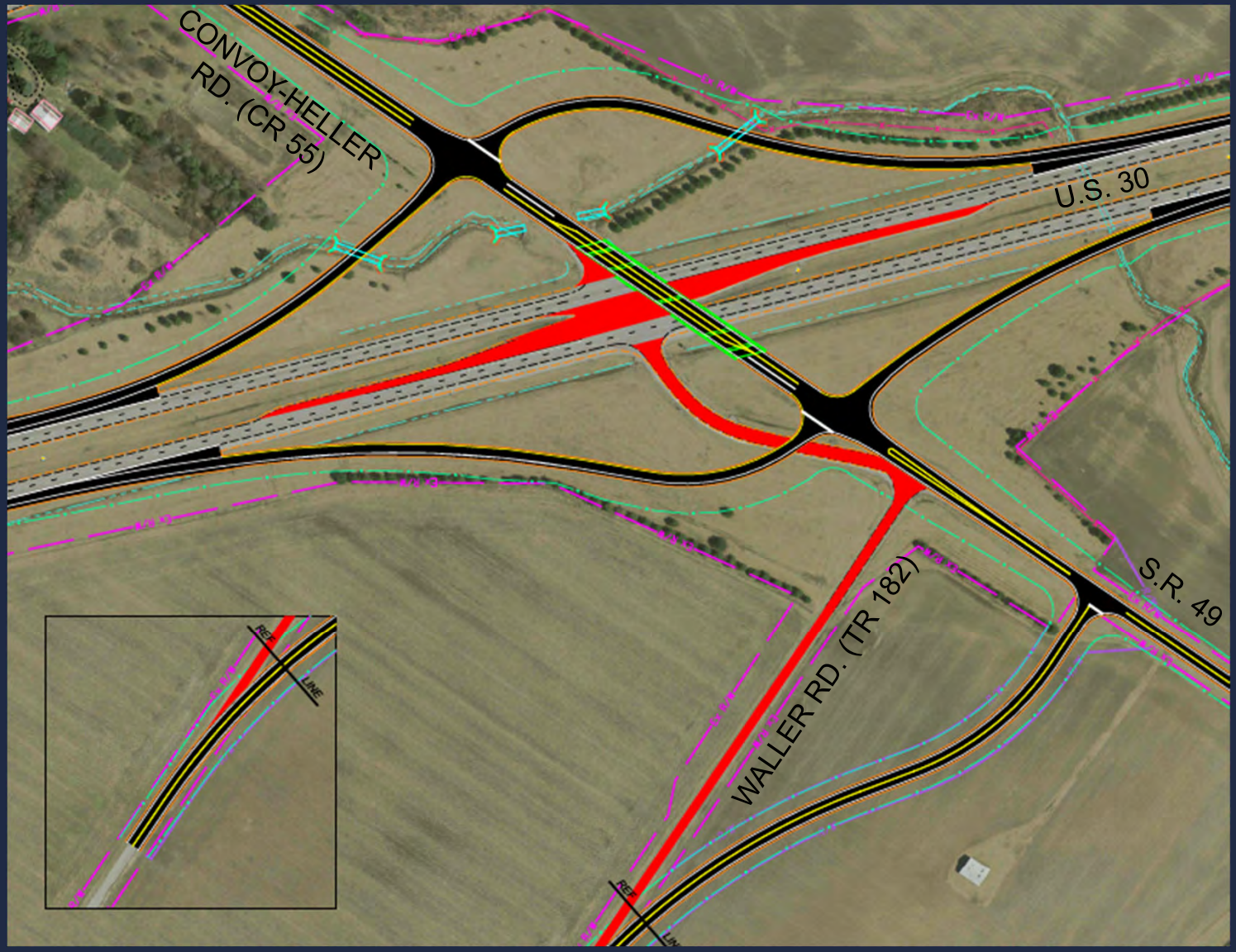
INTERSECTION 10 (INTERCHANGE ALTERNATE)
SR 49/CONVOY HELLER ROAD AND U.S. 30



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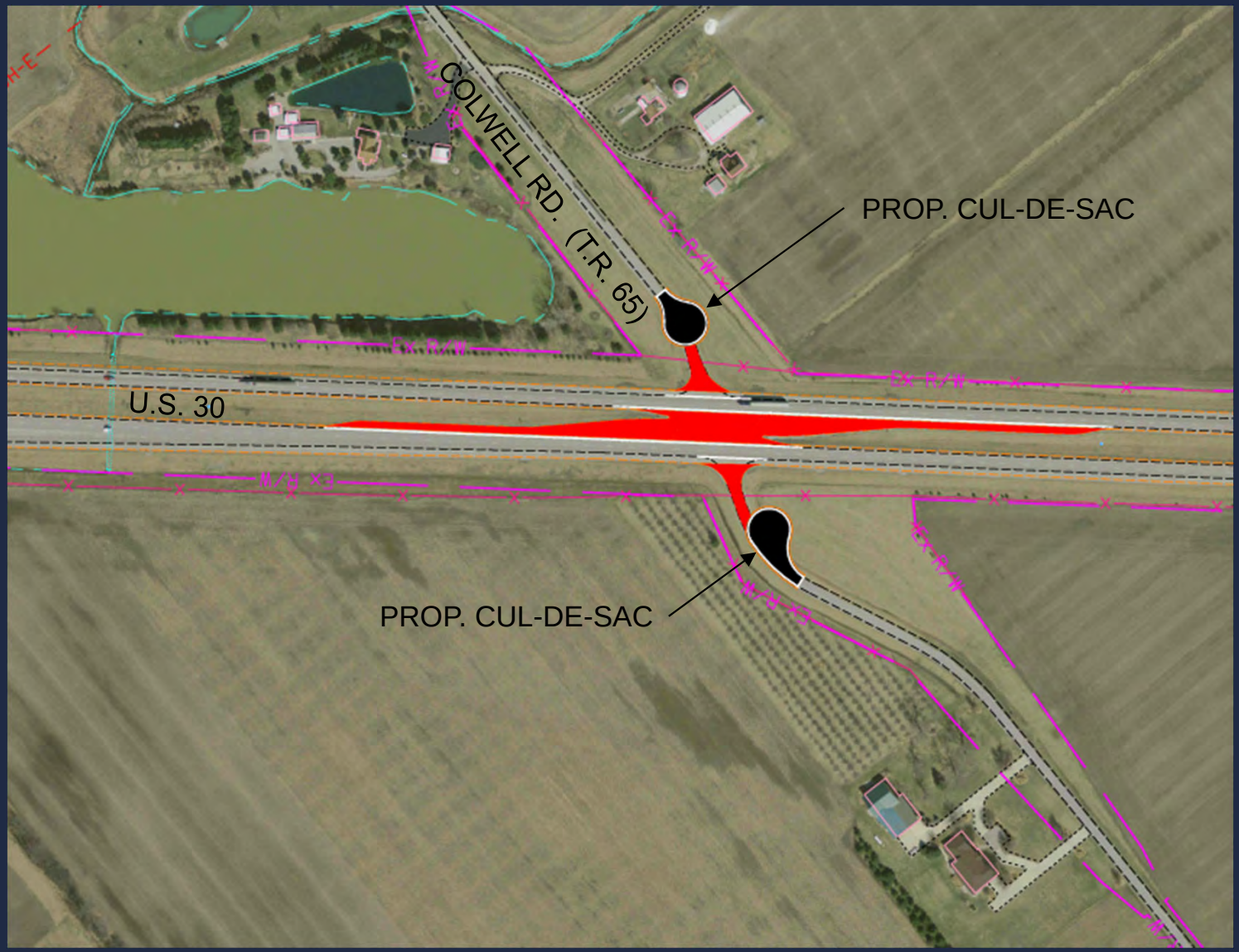
INTERSECTION 11
COLWELL ROAD AND U.S. 30



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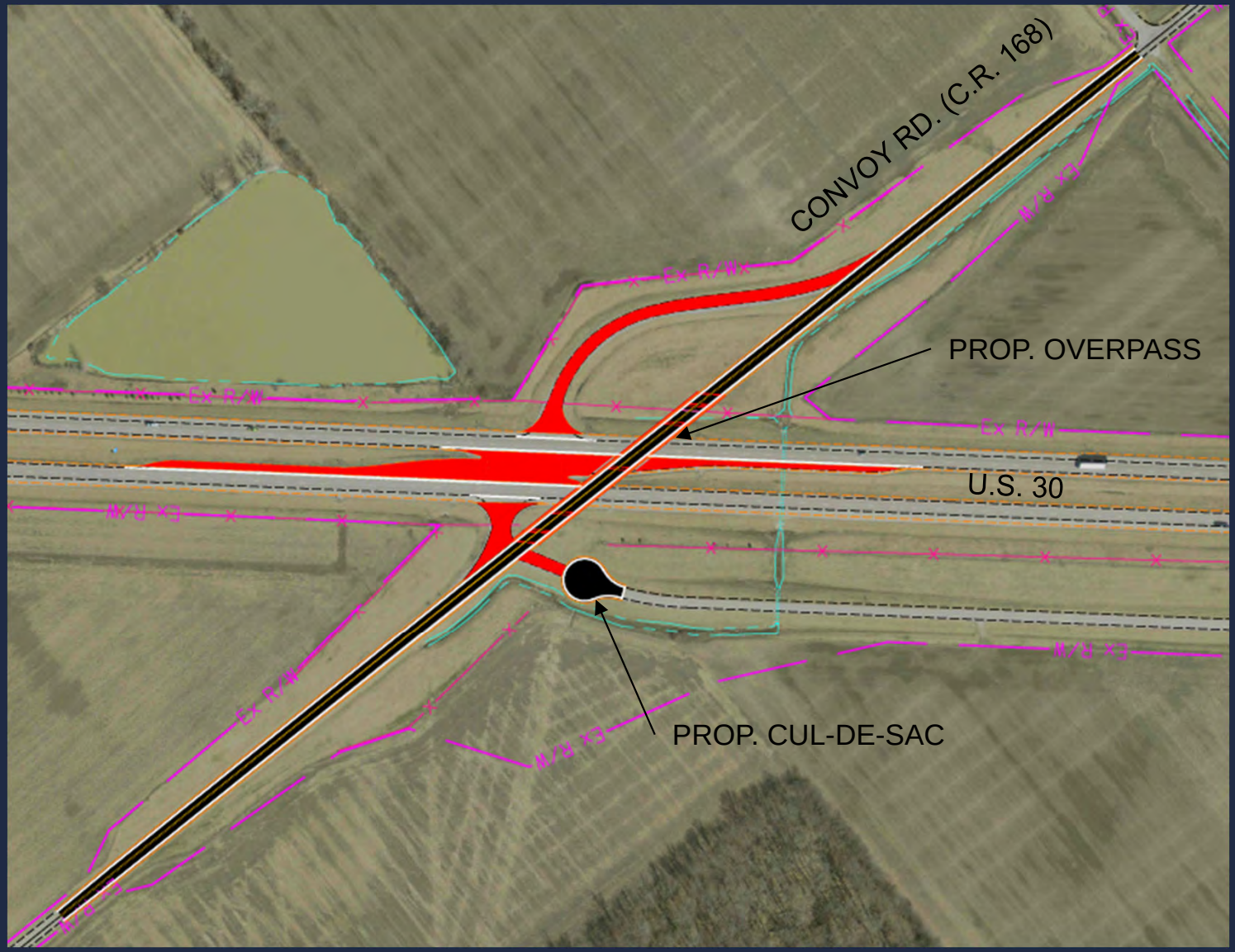
INTERSECTION 12
CONVOY ROAD AND U.S. 30



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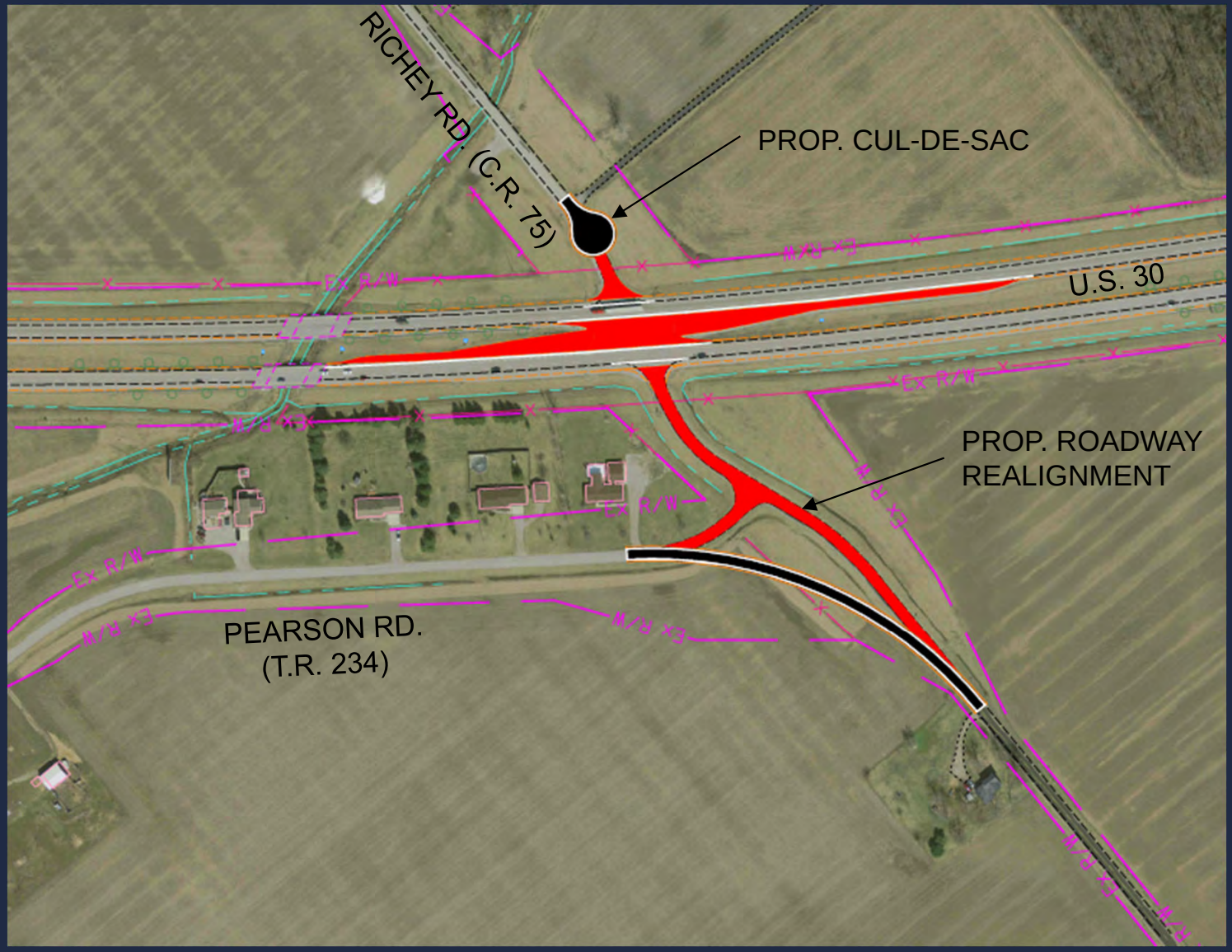
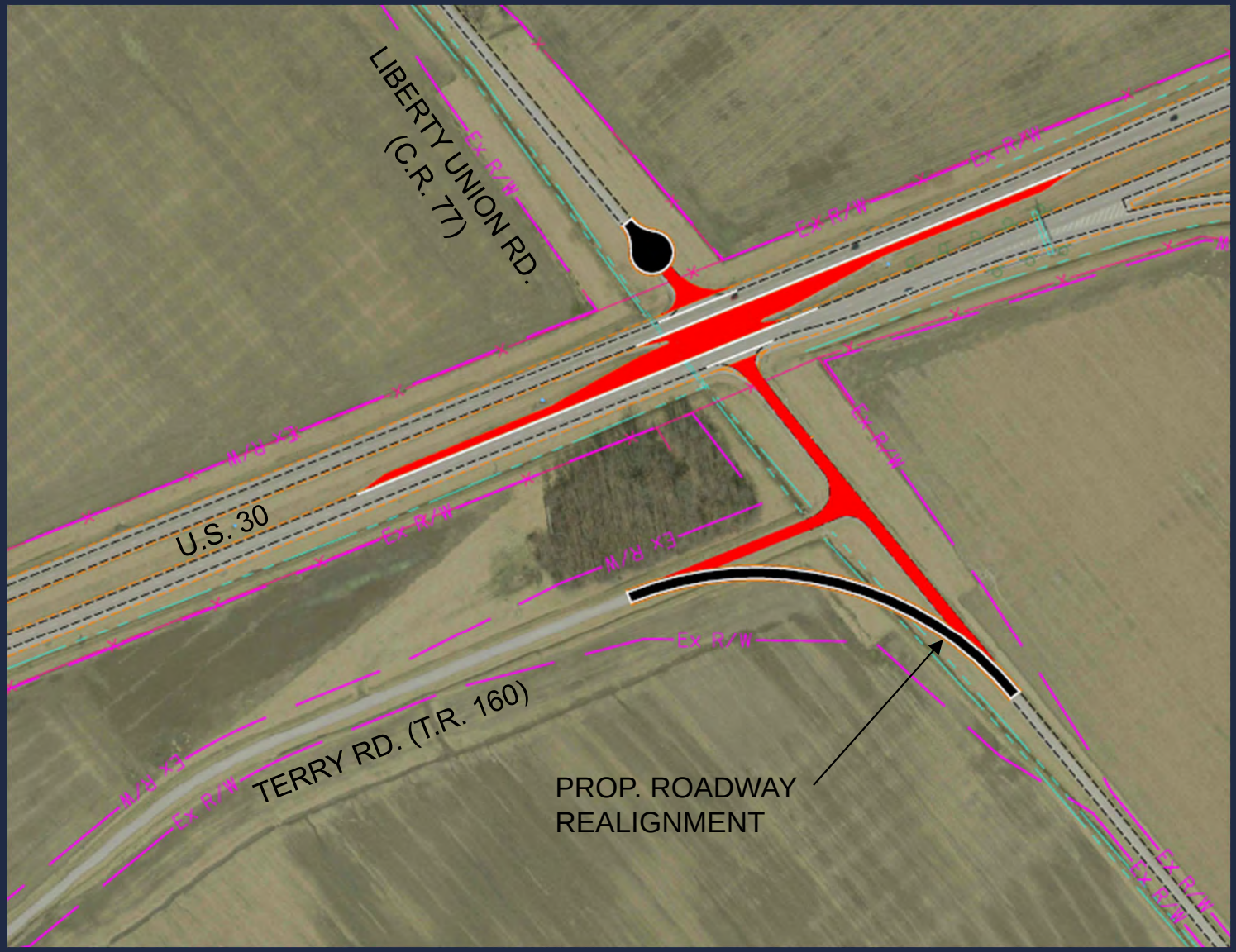
INTERSECTION 13
RICHEY ROAD AND U.S. 30



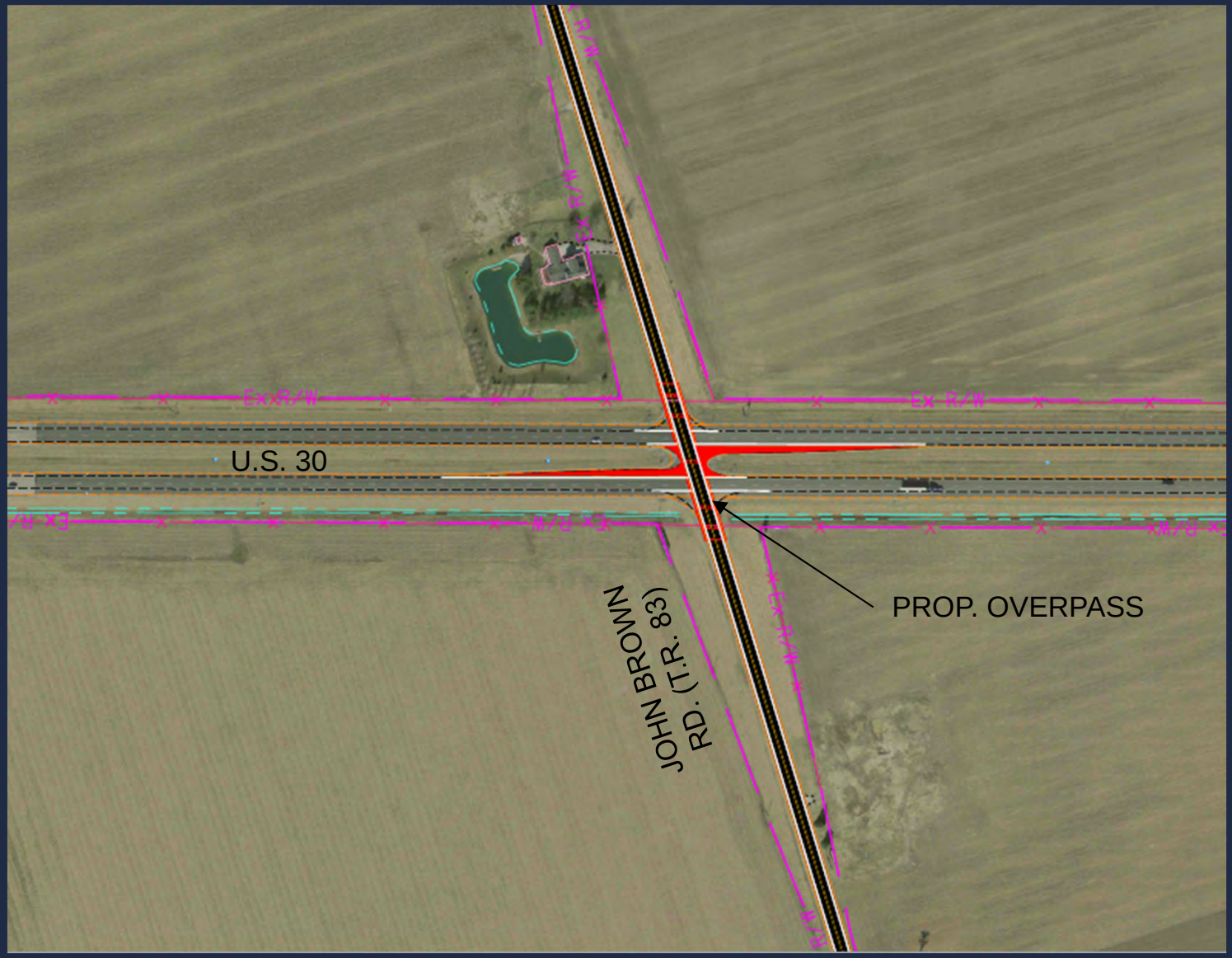
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 14
LIBERTY-UNION ROAD AND U.S. 30



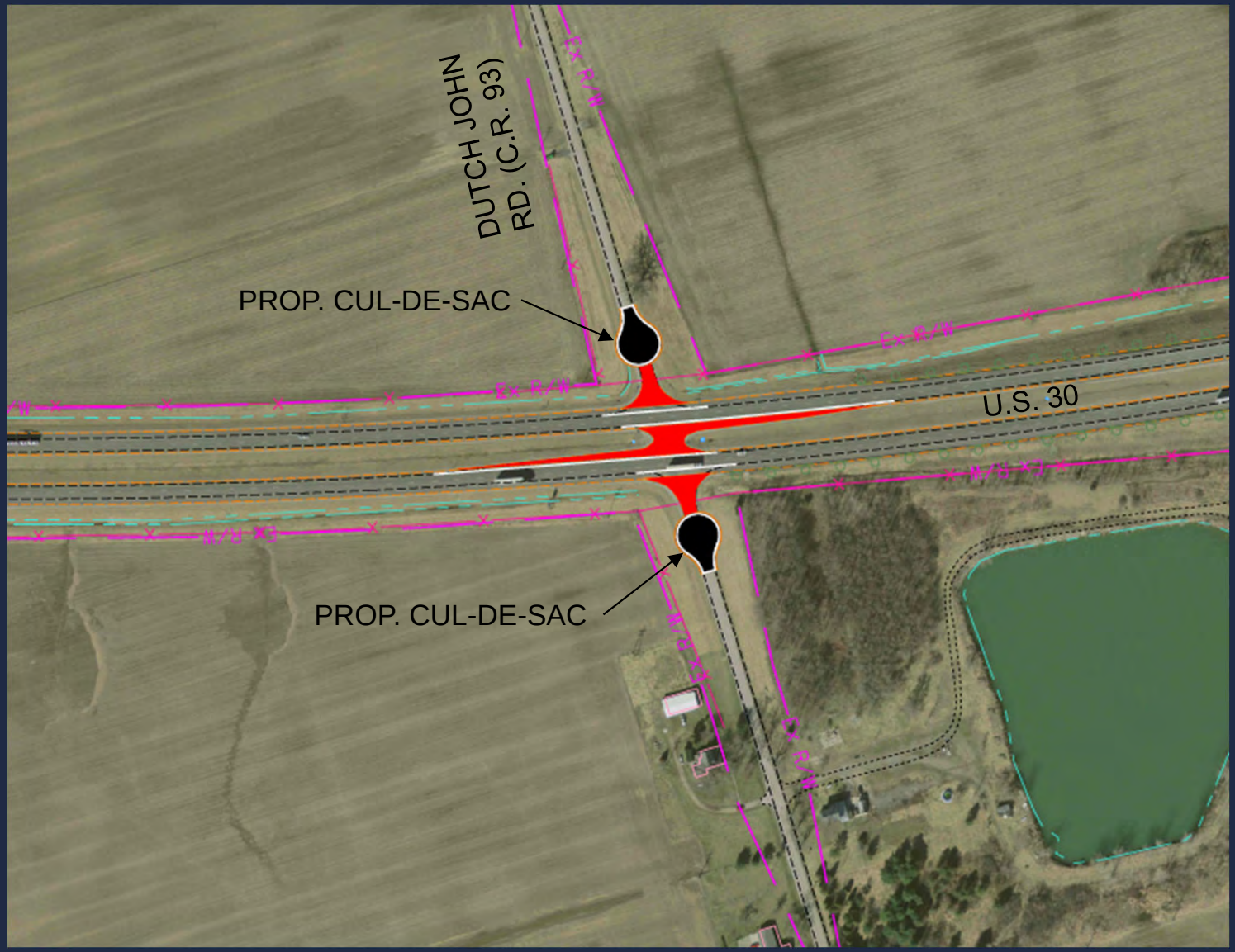
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 15
JOHN BROWN ROAD AND U.S. 30



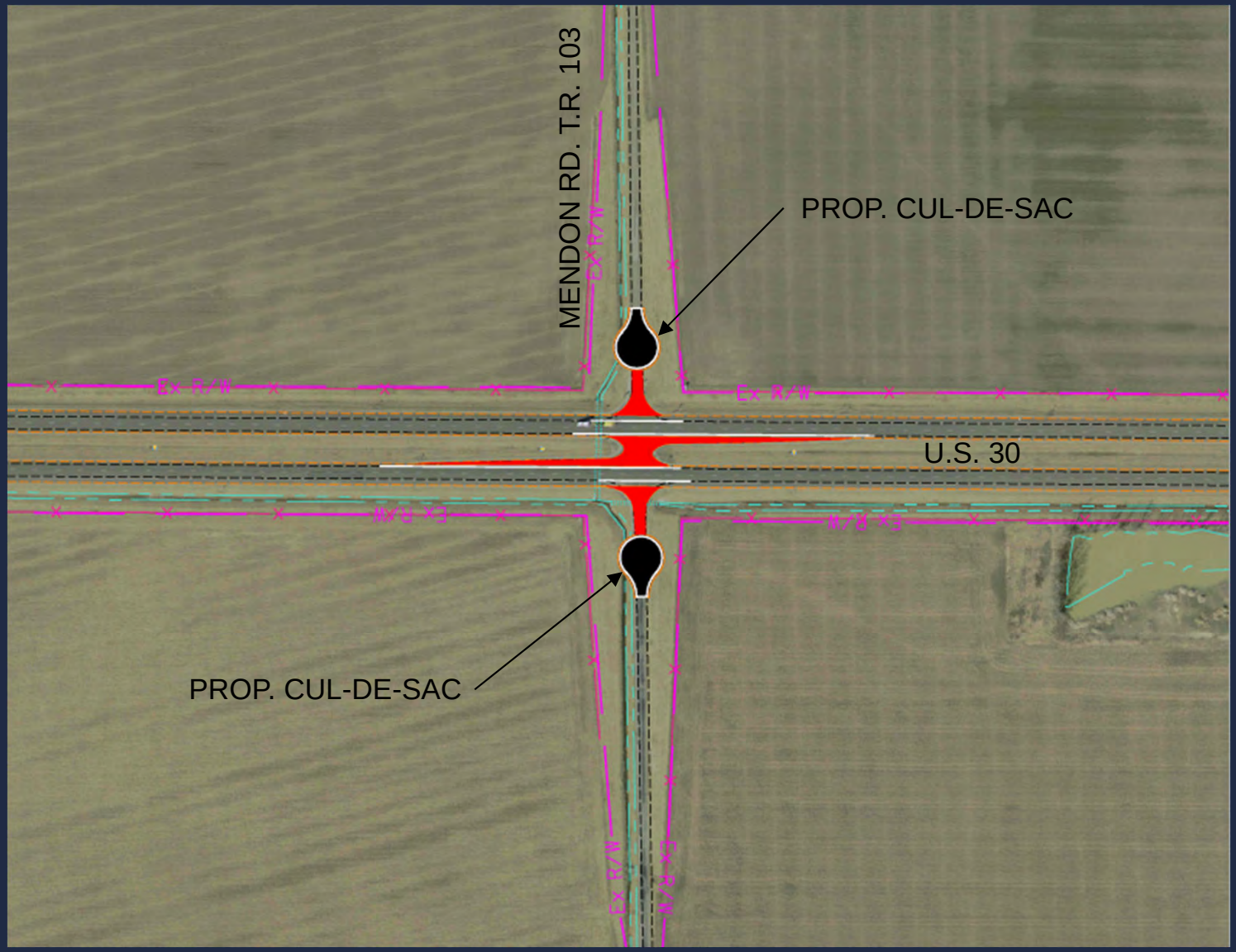
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 16
DUTCH JOHN ROAD AND U.S. 30



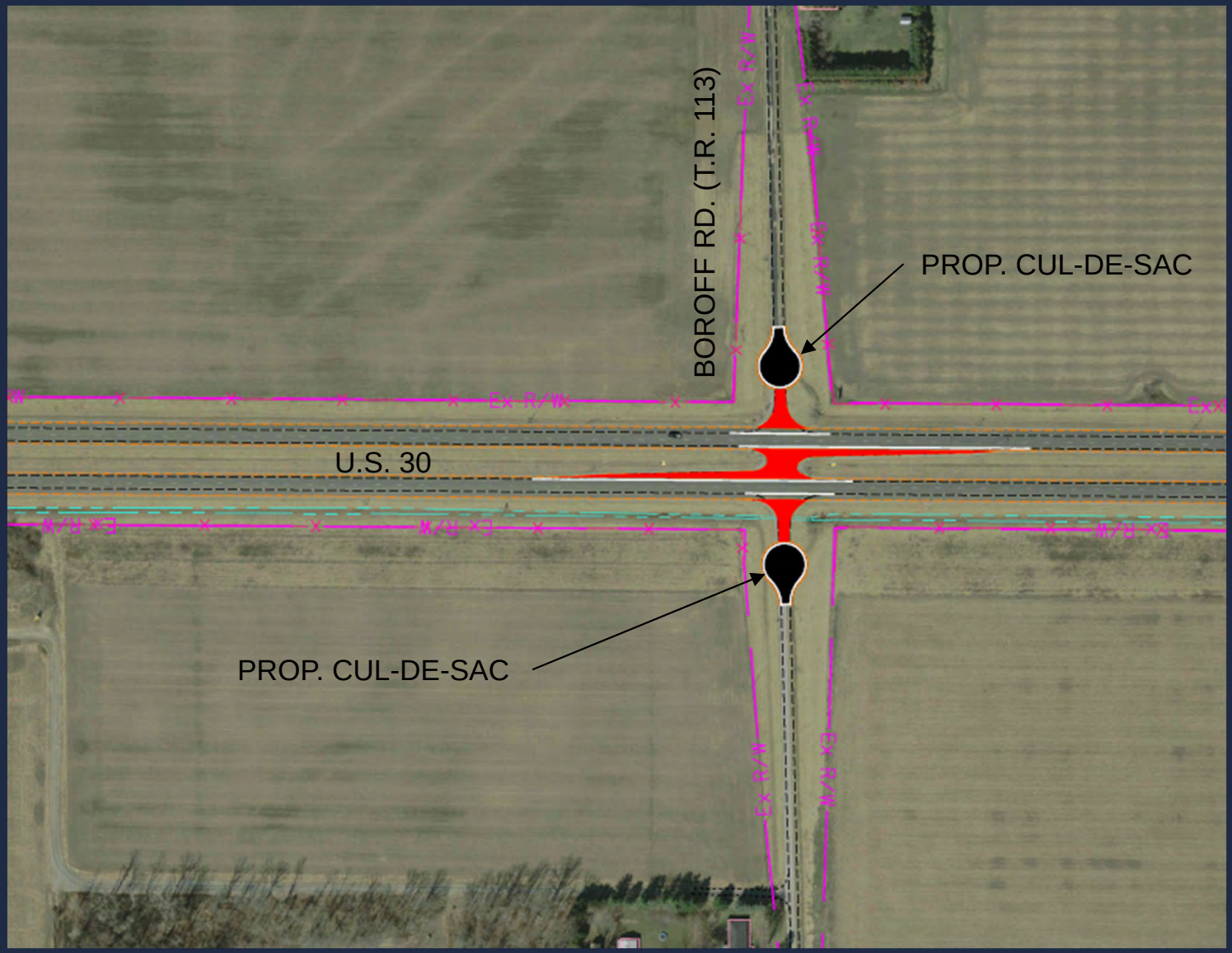
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 17
MENDON ROAD AND U.S. 30



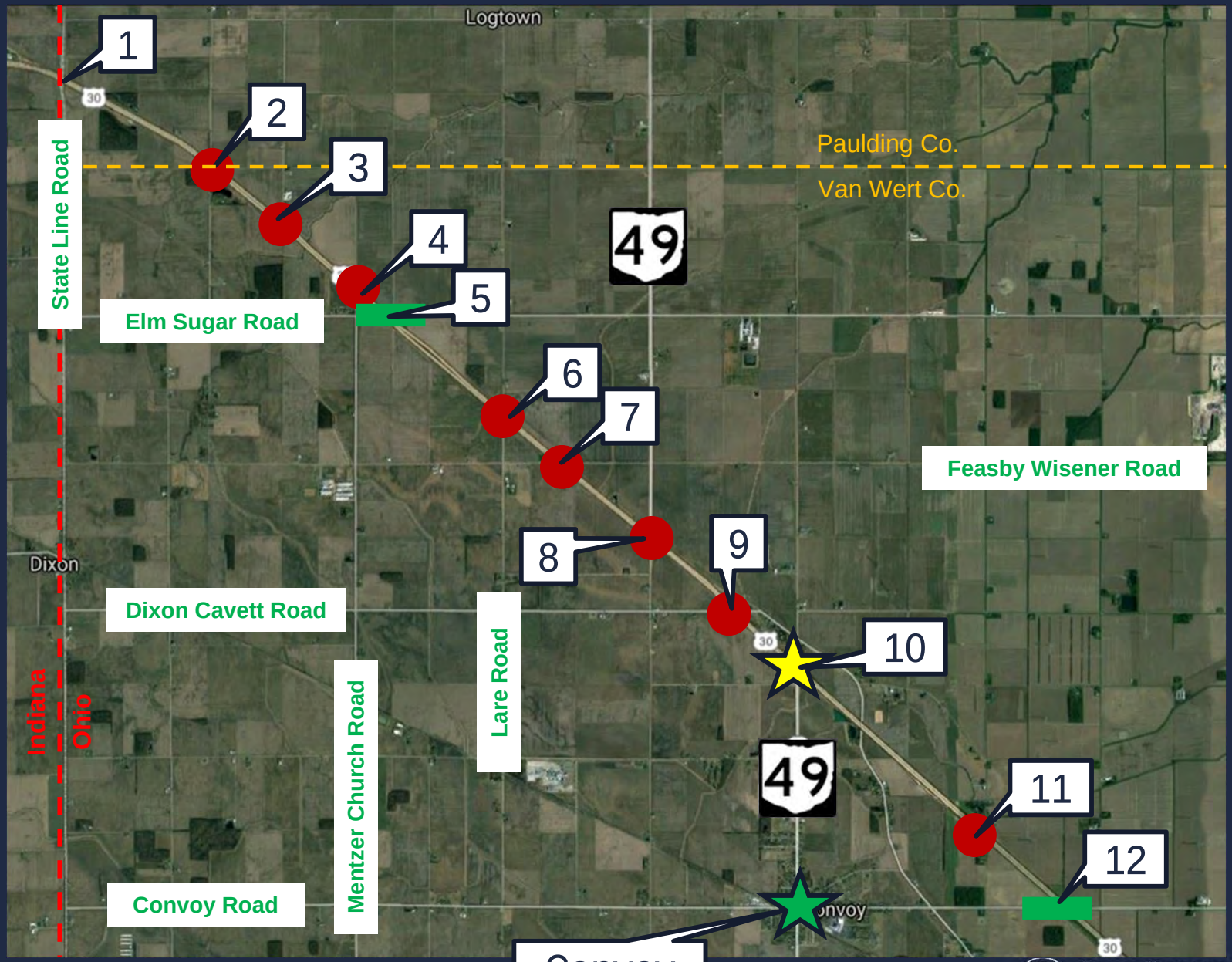
OHIO DEPARTMENT OF TRANSPORTATION

INTERSECTION 18
BOROFF ROAD AND U.S. 30



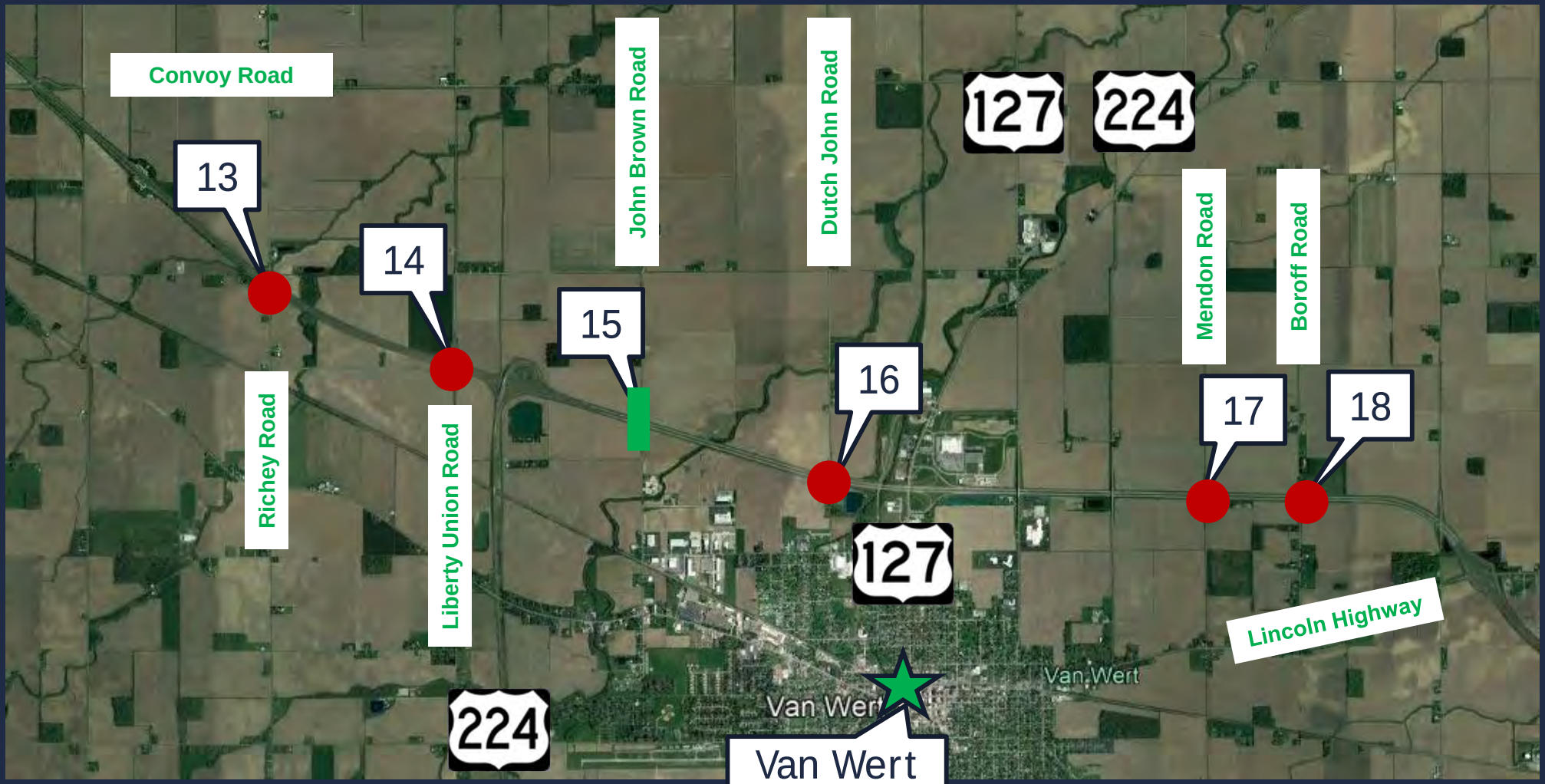
OHIO DEPARTMENT OF TRANSPORTATION

DRAFT RECOMMENDATIONS



OHIO DEPARTMENT OF TRANSPORTATION

DRAFT RECOMMENDATIONS



OHIO DEPARTMENT OF TRANSPORTATION

HOW TO SUBMIT COMMENTS

- ODOT project website:
  transportation.ohio.gov/wps/portal/gov/odot/projects/projects/113196
- Call Kylie: 419-999-6885
- Email Kylie: kylie.schnipke@dot.ohio.gov
- Mail comment form or letter to:

  Kylie Schnipke
  ODOT– District 1
  1885 N. McCullough Street
  Lima, OH 45801

Please submit comments by November 20, 2022!

PAU/VAN-US 30-0.00/0.00 Feasibility Study (PID: 113196) - Public Comment Summary Table

Public Meeting - Formal Comment Period from October 19, 2022 to November 21, 2022

Date Received	Date Responded	Name	Address	Phone Number	Email	Affiliation	Comment Summary	Comment Type	Response Summary	Response Type
05/27/21	05/28/21	Jane Doe	123 CR 169, Vanlue OH	000-000-0000	Jane.Doe@gmail.com	Property Owner	I like the idea of an overpass at this location.	Email	Thank you for providing this comment.	Email
09/19/22	09/21/22	Ory Perl	6989 Richey Rd. Convoy, OH 45832	419-605-7064	wolf1251955@gmail.com	Business Owner	Interested in what is happening at the intersection of US 30 & Rickey Road and how this might impact their business- GP Cycle Specialties	Email	The lines on what was sent just show what intersections are part of this study. I want to emphasize that no projects have been funded yet and this study is just a way to prepare for the future as traffic continues to increase and in case there becomes a safety concern at these intersections. The current proposal for Richey Road at US 30 is a cul-de-sac. The purpose of this meeting is to collect comments about the proposed alternatives. Feel free to watch the previous 2 presentations and let me know if you have any other comments.	Email
09/27/22	10/11/22	Bob Schumm	7713 State Route 49 Convoy, Ohio 45832	419-749-2820	bcschumm0@gmail.com	Resident	Proposing the addition of a right turn lane on U.S. 30 Eastbound at Convoy Rd. I notice in the News of the Van Wert Independent that Mr. Huges stated " if and when funding is secured, it can take 3-4 years to build an overpass and 5-8 years to construct an interchange." If it i will take 5-8 years to construct an interchange "ONCE funding is APPROVED", doesn't your group believe that in the interim, for safety purposes, a "basic" right turn lane could be created southbound into Convoy ?? We are talking at LEAST 5 years from now before an interchange is operational and let's be honest, it will be a lot longer than that.	Letter	Thank you for taking time to submit a comment regarding the US 30 feasibility study. The feasibility study is recommending long term options to complete a limited access corridor with no at-grade access - which will take many years. However, right turn lanes are a good short term, lower cost countermeasure to be considered as needed to address safety concerns. This is an option that will be considered moving forward as needed.	Email
10/04/22	10/04/22	Dale Burden		419-203-2507		Resident	Lives on Waller Road and was curious about the proposed reroute for SR 49. He also owns farm ground at the southwest corner of the proposed SR 49 interchange. Agrees that something needs done at these intersection. Suggests that Mentzer Road would be better as a reroute as it is wider and was recently improved from the power plant. Trucks could also use Mentzer Road to go east to Lincoln Highway	Phone	Discussed the preliminary options for the SR 49 reroute with him and also explained the process for if his ground was needed to be purchased for the interchange.	Phone
10/09/22	10/11/22	Emily Hoskins	402 S. Washington St.		emilymhoskins@hotmail.com	Resident	Thankful for the study and proposed changes as she has lived in this corridor and experienced wrong way drivers, motorcycles zooming across without stopping and sudden stops from 70 mph to turn. . I am hopeful that you will consider a bypass around Van Wert for 127. Maybe 30 to 224, to Liberty Union road, to 6 and add to the road to connect to Dustman Road to 127. I hope you will consider as the traffic has increased 10 fold in the last 10 years and it runs right through neighborhoods with a lot of children that cross 127 (Washington Street). After additional emails, she has concerned with the amount of truck traffic in the city and pedestrian safety as well as health concerns from the passing semis and the emmissions. (I recommended she bring these concerns to the City since it is ultimately their decision since it is in their jurisdiction)	Website	I am not aware of any conversations regarding a US 127 by-pass around Van Wert. We are aware there are some problems with congestion along S. Washington Street and the increased traffic. Part of the feasibility study includes US 127 through S. Washington Street (N. Towne Blvd. to Gleason Ave) to see what can be done to help accommodate this increased traffic and help with safer pedestrian movements. These recommendations will likely be lower cost than installing a by-pass would be. If you have additional questions about this after seeing the presentation, feel free to ask.	Email

10/18/22	10/20/22	Jason Quirk		419-863-0236	jquirk@lakeviewfarms.com	Business Supervisor	I live in northeast Van Wert county and am a supervisor at Lakeview Farms in Delphos. One of my employees lost his brother in a crash at US 30 and SR 49 about 4 years ago. SR 49 is the only at-grade intersecting state route from Indiana all the way to Mansfield. All other state route junctions are interchanges. Many people in Convoy travel to Fort Wayne/New Haven, requiring them to make that treacherous left turn onto US 30. Because of the county roads in Van Wert Co are laid out in a grid, It seems the best solution for SR 49 is to construct an interchange at US 30 just north of Convoy. SR 49 could be rerouted to continue north on Convoy-Heller Rd and then left onto Feasby-Weisner or Elm Sugar Rd back over to the existing alignment of 49 to Payne. Some or all of the at grade county road intersections should be eliminated. None of them carry any traffic and all tie into Lincoln Hwy and other roads to get to 30 safely. The 3 at grade intersections at Van Wert should be eliminated. They serve no purpose with interchanges at 127/224 and Lincoln Hwy.	Email	Thank you for taking time to comment on this study. I have attached the presentation from the meeting for your reference. It should be noted that this is a draft recommendation and based on comments from last night and the next month things are subject to change. In addition, none of these projects are funded at this time- we are just making this plan for the future. As the presentation notes we have 2 locations that are our priority based on crashes at this time, but no project funded yet. If/when a project gets funding there will be another meeting to discuss the project at that time and any impacts it may have to the public in most cases.	Email
10/18/22	10/20/22	Kent Berheide	6010 Lincoln Highway	419-771-8966	sberheide12@gmail.com	Resident	Attached is a petition signed by just a few people, including myself, against the proposition of re-routing hwy 49 from the north using Convoy Heller road. 95% of all truck traffic from the north do NOT go beyond route 30 to the south into Convoy. So changing the straight highway in another direction through a residential/farm area makes no sense to the neighbors. We all agree that something needs to be done to alleviate the accidents and we agree that the overpass should take place at the intersection where route 49 from the north enters route 30 currently.	Email	Thank you for the comment. The presentation from the public meeting will be posted by the end of the week for your reference. There are 3 different reroute options presented we are looking for comments on that would be of interest to you.	Email
10/19/22	10/20/22	Patsy Halliwill	1012 Washington St. Scott, Ohio		carr241@frontier.com	Resident	I think they should put some overpasses on some of the roads they have closed, like Dutch John and Liberty Union. I really would like to see one on Dutch John. It would be nice to have an overpass at one of them in case the roundabout had to be losed for some reason too.	Website	Thank you for your comment on the US 30 study. We received many comments about an overpass at Liberty Union yesterday so this will be recorded and taken into consideration when we develop the final plan. As a reminder none of these projects are funded and if/when projects are funded there will likely be other meetings to discuss further.	Email
10/19/22	10/19/22						North side of Convoy Rd. - Convoy fire chief would like on and off ramps. South side of Convoy Rd. (intersection with Dull Robinson Rd.) is used as a haul route to the quarry.	Roll Plot	Discussions about this during the meeting	
10/19/22	10/19/22						Add a right turn lane on US 30 westbound at Liberty-Union Rd.	Roll Plot	Discussions about this during the meeting	
10/19/22	10/19/22						South of intersection with Richey Rd. - Bull riding rodeo on Saturday nights from November to April	Roll Plot	Discussions about this during the meeting	
10/19/22	10/19/22						"No one wants this application" refering to the cul-de-sac on the northside of Richey Rd. Instead, consider an overpass or R-cut. Also consider truck traffic from stone quarry.	Roll Plot	Discussions about this during the meeting	
10/19/22	10/19/22						Gary & Ory Pearl own GP Cycle Specialties LLC on the northside of Richey Rd.	Roll Plot	Discussions about this during the meeting	
10/19/22	10/19/22						Remove wrong way signage or lower the signs at Lare Rd. intersection.	Roll Plot	Discussions about this during the meeting	
10/19/22	10/19/22						Remove trees placed in the median from Lare Rd. to the west of Mentzer Church Rd. to improve line of sight.	Roll Plot	Discussions about this during the meeting	

10/19/22	10/19/22	Convoy Dairy farm is located on the south side of Mentzer Church Rd. about 1.5 miles south of US 30. Feed trucks and milk trucks need access to and from Sugar Lane Dairy farm on Elm Sugar Rd east of US 30. The proposed intersection at Mentzer Church Rd. and Elm Sugar Rd. is a tight turn for trucks.	Roll Plot	Discussions about this during the meeting
10/19/22	10/19/22	There is no access over Blue Creek on the northside of Mentzer Church Rd. because the bridge was taken out and the road is dirt.	Roll Plot	Discussions about this during the meeting
10/19/22	10/19/22	On Krick Rd, north of US 30, Dealey Farms has around 15 semis running during season.	Roll Plot	Discussions about this during the meeting
10/19/22	10/19/22	Residences east of the Indiana State Line want a no jake break sign	Roll Plot	Discussions about this during the meeting
10/19/22	10/19/22	Large field tile that drains into the pond between the intersections of Dixon Cavett Rd. and Convoy-Heller Rd.	Roll Plot	Discussions about this during the meeting
10/19/22	10/19/22	The east side has overpasses at almost every intersection what is different here? Why are there not more overpasses proposed on this side of the county? (We are being cut off)	Verbal Meeting Comment	Overpass at every intersection would be great but is not feasible from a funding perspective. These decisions are made by balancing the needs of all of them. Let us know where they're needed most and where more need to be.
10/19/22	10/19/22	RCut at least 1 intersection between Convoy and Indiana State Line seems like a good idea to help keep/provide access to US30. (From a Convoy to Ft. Wayne commuter perspective)	Verbal Meeting Comment	Yes, let us know where.
10/19/22	10/19/22	Only 3 Access points is not adequate. Need more access points. Cul-de-sac, would that completely cut off access?	Verbal Meeting Comment	
10/19/22	10/19/22	How has Dutch John gone since removing access, have the improvements helped?	Verbal Meeting Comment	No crashes since. 1 Crash in area, but it was not intersection related. Access removal will not happen within 3 or so years. This may be a helpful solution to others in the corridor.
10/19/22	10/19/22	When will we know when our property is impacted or when the plan is finalized? Is there a date when we will know what the future will be?	Verbal Meeting Comment	We intend to wrap up feasibility study by the end of the year. There is a 30-day commitment period. The study will then be announced online, etc. However, that is not a project, a project will have additional public involvement once funding is received.
10/19/22	10/19/22	When was Thayer Road R-cut proposed/started? How long ago was that?	Verbal Meeting Comment	2 years it took to get done, but that was a rushed job and were able to get funding right away. It was an urgent safety project and occurred about as fast as it possibly could have. 3 years is typical for some projects and overpasses are normally 3-4 years. Interchanges are normally 5-7 years.
10/19/22	10/19/22	Cul-de-sac will put farm traffic on other roads. Farm equipment also keeps getting bigger, how will local roads / communities (townships) maintain the improvements to accommodate this? If access is cut off to US30?	Verbal Meeting Comment	Trade offs will need to happen. Traffic is increasing, anything we do will cause disruptions, we understand your concerns but if we do not do anything traffic will increase and safety will continue to be a concern. Townships have been contacted and coordinated with to improve local roads. Township roads need improvements if traffic is rerouted. There is a plan to partner with these townships to work together and get things done.

10/19/22	10/19/22	Chart from 70's to today, the speed limit was 55, now its 70. Agree that there is more traffic but what about the raise in speed limit? If speeds were reduced there would be less crashes, why can't we just do this?	Verbal Meeting Comment	ODOT does not have the legal authority to reduce the speed limit. When the speed was increase that was done by the state legislature, state law dictates the speed limit. It could be changed but it would take state legislature action. LT. Grisby response: Reduction of speed is not likely to cause safety improvements because most do not adhere to speed limits. The trucking industry also has some say in the speed limits. Also, some crashes are caused by sudden speed limit reductions.
10/19/22	10/19/22	Asked for crash data for each intersection and did not receive it. E-mail from Cheri N about not having crash data prior to 2012. Data seems to show that we are safer now than we were 10 years ago. Why are we doing this? Liberty Union has been planned, but nothing has been done, why does it need to be done here?	Verbal Meeting Comment	Crash data is sometimes sensitive data based on some information included. We show data from 2011-2022. From 2011-2015 there was 1 fatal crash, 0 intersection related crashes. In 2016-2022, there were 10 fatal crashed, 8 were intersection related. 2022 alone had 3 fatal crashed, 2 of which were intersection related. It should be noted that we are not reacting to 1 bad crash, we are looking at the entire corridor. Certain intersections have higher numbers of crashes.
10/19/22	10/19/22	Fix the graph that shows accidents because it is misleading and remove wrong way signs cause you can't see. They obstruct traffic.	Verbal Meeting Comment	Noted.
10/19/22	10/19/22	Eliminate trees (pine trees) in the median by Elm Sugar Road, they are a sight obstruction.	Verbal Meeting Comment	Noted.
10/19/22	10/19/22	Driving farm machinery is hard when access is closed, and construction is going on. It can be hard for large farm equipment to share the road with traffic. The length of the re-route for farmers should also be taken into consideration.	Verbal Meeting Comment	Noted.
10/19/22	10/19/22	Liberty Union needs to be overpassed-very busy in this area	Verbal Meeting Comment (Kylie)	Discussions about this during the meeting
10/19/22	10/19/22	Lots of increased traffic making John Brown more dangerous after Dutch John median was closed. Also, the people at the NW corner of John Brown and US 30 would move out of their house if the overpass was there.	Verbal Meeting Comment (Kylie)	Discussions about this during the meeting
10/19/22	10/19/22	An overpass at Klinger Road or near would help with farmers crossing to fields- specifically from Krick Road crossing to a field northeast of US 30	Verbal Meeting Comment (Kylie)	Discussions about this during the meeting
10/19/22	10/19/22	The haul road for the stone quarry on Richey Road is something that is going to need discussed. Ramps on Convoy Road overpass were requested (or some other route for the truck traffic)	Verbal Meeting Comment (Kylie)	Discussions about this during the meeting
10/19/22	10/19/22	John Brown Road is dangerous now, a lot of near misses if overpassed will move / fight it. Concerns with those accelerating in the right speed lane.	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	Paulding County Travel South on Dutch John to work cut it off and have to go east to middle?	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	US 127 is congested.	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	SR49 N reroute distance is long.	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	Shut them all down!	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	Concerns with extending old Lincoln Highway west to SR 49 N. Person had takes	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	Concerns with the distance of SR49 N reroutes.	Verbal Meeting Comment (Justin)	Discussions about this during the meeting

10/19/22	10/19/22	Overpass at liberty union?	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	Connect 224 to Liberty Union Road North of 30.	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	RNRO strategy	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	John Brown road is narrow and low quality. It will need improved if overpass stays.	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	Connect US 224 to Liberty Union.	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	Closure on Dutch John is terrible. It pushed traffic to 127 and John Brown.	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	Closing Richey will kill Quarry.	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	Don't say nothing will be built. That was said in Feb. and Dutch John closure happened.	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	Businesses and Development between 224 and 127 need access at Dutch John and John Brown.	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	Remove the recently place wrong way signs.	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	Do not close Pearson tie it into convoy after overpass.	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	Rcut at Richey.	Verbal Meeting Comment (Justin)	Discussions about this during the meeting
10/19/22	10/19/22	Kenn Feld Group LLC – John Dealer dealership is located on US 224 & Lincoln Highway – Equipment travelling to/from dealership uses Liberty-Union to points north of US 30.	Verbal Meeting Comment (Craig)	Discussions about this during the meeting
10/19/22	10/19/22	State Line Road between SR 114 and US 30 – Attendee reported that INDOT had restricted use (no trucks). Is D1 able to confirm, or correct this statement?	Verbal Meeting Comment (Craig)	Discussions about this during the meeting
10/19/22	10/19/22	Several attendees mentioned that APPS are routing vehicles away from US 127 & US 224. Several mentioned that the APPS "bypass" US 127 using Mendon to the east and Liberty-Union to the west. One specific listed the following route being provided: EB US 30 to Liberty Union (vs US 224) to Emerson to SR 118 to Wren-Landeck to US 127.	Verbal Meeting Comment (Craig)	Discussions about this during the meeting
10/19/22	10/19/22	Several attendees mentioned that there are significant trucks using the SR 49 north of US 30.	Verbal Meeting Comment (Craig)	Discussions about this during the meeting
10/19/22	10/19/22	Several attendees mentioned discomfort in slowing down to make right turns off US 30 with vehicles coming up quickly from behind.	Verbal Meeting Comment (Craig)	Discussions about this during the meeting
10/19/22	10/19/22	An attendee mentioned discomfort in entering US 30 with heavy vehicles and struggling to get up the speed with vehicles coming up quickly from behind. He mentioned that his preferred route would be US 30 EB to US 224 WB, however, he avoids US 30 and instead takes Richey SB to US 224 WB.	Verbal Meeting Comment (Craig)	Discussions about this during the meeting
10/19/22	10/19/22	Spoke with Jeff Thomas of Lincoln Ridge Farm (419) 774-0962. He was in favor of constructing an interchange at Convoy Heller in the long term. He asked if a WB deceleration lane could be added at Colwell to allow buses (school and tour) to pull out of the through lane when slowing to turn on to Colwell on their way to Lincoln Ridge Farm. He mentioned that the farm attracted 6,000 visitors last weekend. He also mentioned his concern about additional traffic being diverted onto Pollack Road if/when Colwell is closed.	Verbal Meeting Comment (Craig)	Discussions about this during the meeting

10/19/22	10/19/22						County Commissioner Thad Lichtensteiger asked if RCUT's could be considered for both SR 49N & SR 49S. This could potentially provide a 20-30 year fix to the problem.	Verbal Meeting Comment (Craig)	Discussions about this during the meeting
10/19/22	10/19/22						Several attendees asked about the concept of connecting Liberty-Union to US 224 and were shown the slide we had prepared.	Verbal Meeting Comment (Craig)	Discussions about this during the meeting
10/19/22	10/19/22						Several attendees suggested that an overpass should be constructed at Liberty-Union.	Verbal Meeting Comment (Craig)	Discussions about this during the meeting
10/19/22	10/19/22						An attendee mentioned that when Dutch John was converted to Right-In/Right-Out is resulted in additional traffic on John Brown.	Verbal Meeting Comment (Craig)	Discussions about this during the meeting
10/19/22		Matthew & Storm Mercer	5596 Lincoln Hwy Convoy, OH, 45832	419-203-3302	vstorm.mercer@gmail.com	Property Owner / Local Farmer	My concern is in reroute option #3. Several homes and approximatley 15 children would be involved in this option. Homes are close to the road. There are fewer homes involved in other options, I feel any option will not make everyone happy. Using farm ground would be easier and not have a long term negative impact on residential homes.	Comment Form at Meeting	
10/19/22		Seth Baker	8115 Liberty Union Road, Van Wert, OH	419-203-4938	seth@vanwertcountyfoundation.org	Property Owner / Farmer	1. Farm bound by mentzer church road, US 30 has 0 access point as shown in the proposed drawings. The property has a ditch to the east with no brdige, and mentzer church road does not have access from the north because of no bridge. Our property could be accessed from Matthews road, but again there is no bridge. Mentzer church is our only access to this parcel west half of parcel 010001280000. Our only access to south side of parcel 010003880000 is through a private access lane crossing vs 30. Can we get assurance that this will remain or that there is an alternative access point provided?	Comment Form at Meeting	
10/19/22		Terry Cox	2396 State Route 49, 45832 Convoy OH	419-749-2201	NA	Property Owner / Farmer	Reroute Alternate B-2 preferred. Preferred crossover / grade sperations at liberty union or Ritchey vs. John Brown Road. (Farmers perspective)	Comment Form at Meeting	
10/19/22		David Lichtensteinger	10820 Pancake Road Ohio City, OH 45874	419-771-0428	loghouse@wcoil.com		Notification ahead of time, signage on roadway ahead of changes. (Example: This road will be cul-de-sac in the future). Notification at the end of the study, not 2 years before the project.	Comment Form at Meeting	
10/19/22		Seth Baker	8115 Liberty Union Road, Van Wert, OH	419-203-4938	seth@vanwertcountyfoundation.org	Business Development Corporation	Vision park on US30 is a prime industrial tool planned by the buisness development corporation (BDC). One of the best attributes of that park is quick acess to US-30. How does ODOT 6 guarantee quick, reliable, painless access to US-30. Can John Road have an accessible interchange with US 30? will all trucks have to head south to Lincoln highway and then to 224 or to corner of main & Washington, or down bonnewitez to washington? These solutions could be very problematic without improvements to those intersections.	Comment Form at Meeting	

10/19/22	Neal Orsborn	180 Dealey Drive Convoy, OH 45832	419-408-0209	norsbon@shellyco.com	Area resident / Business Owner	Concerns of Access for Convoy that people would drive west to 49 south to get to village. Quarry would need US 30 access via Richey Road to convoy west to EB ramp or new county haul route to 127 then have to do interchange at Van wert adding considerable haul time to trucks.	Comment Form at Meeting
10/19/22	Vicki Saylor	201 Franklin Street Convoy, OH	419-749-2055	sayfam@frontier.com	Council Person	Extending pavement to both sides of highway for allowing getting off highway for period of time until study is complete and funding secured.	Comment Form at Meeting
10/19/22	Seth Baker	8115 Liberty Union Road, Van Wert, OH	419-203-4938	seth@vanwertcountyfoundation.org	Resident	Im great with closing Liberty Union however it will take 3 miles to go out of the way to get north, can you connect / extend the 224/US30 overpass to also exit north onto union-pleasant or directly back onto Liberty-Union road? -or- provide overpass for Liberty Union over US30.	Comment Form at Meeting
10/19/22	Stephen Feasby	6261 Dixon Cavett Road Convoy, OH 45832	419-203-2106	NA	Farmer	B3 Less Stops	Comment Form at Meeting
10/19/22	Randy Noggle	6437 State route 114 Haviland, OH 45851	419-576-8227	nogglefarms@metalink.net	Business owner (Farmer)	At State Route 49 on both ends need either a start up lane in the median or a michigan U Turn because semi trucks cannot get across safely. Also, Something needs the same at the State Line Road as a lot of Trucks go SR. 114 to State Line Road.	Comment Form at Meeting
10/19/22	Kyle Gehres	6614 Dull Robinson Road Convoy, OH 45832	419-203-4669	NA	Property Owner	Agreed that something needs to be done as far as saftey. My concern is water drainage if over pass is put in on Convoy Rd.	Comment Form at Meeting
10/19/22	Dave Jones	5259 Liberty Union Road	419-513-0248	daverosejones95@gmail.com	Union Twp Trustee	Address 4 major road Dutch John - Done Richey Road - interchange Convoy Road - Overpass 49 South - Interchange with Rcut for 49 North	Comment Form at Meeting
10/19/22	Doug Poling	3728 Convoy Heller Road	419-771-0953	Polingexcavating@gmail.com	Property Owner / Business Owner	(I am against reroute of 49 Down Convoy-Heller road) It is only going to cause more problems for the farmers, and I as a business owner from my home. -Spend the money and put 2 interchanges in on 49 N and S. There will be more problems for the local people along Lincoln Highway by increasing traffic along this area Doug Not Happy	Comment Form at Meeting
10/19/22	Bailey Poling	5874 Lincoln Highway	419-786-0214	bpoling9@hotmail.com	Property Owner / Business Owner	Do not want 49 to run on Lincoln Highway or Convoy-Heller. Saftey risks from increased traffic. We are leaving work driveway with pick up trucks, heavy trucks, and trailers several times a day. DO NOT NEED more traffic. Build a interchange from 49 south to 30. DO NOT chagen traffic in front of residence on Convoy-Heller and Lincoln Hwy.	Comment Form at Meeting
10/19/22	Tim Dealey	1328 Robinson Road	419-203-6352	NA	Property Owner	Need to remove the trees in the middle at Elm Sugar and 30 Intersection and at Mentzer Church and 30 intersection. They severly obstruct your view. It is very dangerous to cross 30 with farm equipment especially because you can't see.	Comment Form at Meeting

10/19/22		Beverly Krueckeberg	P.O Box 475 Convoy, OH 45832	419-605-5086	NA	Property Owner (Moving to Ft. Wayne)	Coming home from Ft. Wayne with semi's behind me, I turn on signal 1 mile back to make sure they see me. If not I have to get offside of the road to turn on 49 South.	Comment Form at Meeting		
10/20/22	10/20/22	Rick Brown II					As long as they keep the 70 mph speed limit they can do whatever they want	Facebook	The Ohio General Assembly set the speed lmit. The state would have to change the laws regarding them for the speed limit to change.	Social Media Comment
10/23/22	10/24/22	Brenda DeLong	4533 Liberty Union Rd. Van Wert, Ohio		b_delong@hotmail.com	Resident	NO overpass on Liberty Union. It would be worse coming out on Lincoln Hwy than crossing 30. Unless Lincoln Hwy/ Liberty Union and then 224 & Lincoln Hwy would be reconfigured. John Brown overpass would be better. a round about at 224 and Lincoln Hwy is a suggestion. I like the idea of connecting 224 interchange to Liberty Union to the North. Until that could be completed or costs are too much, construct an Rcut. I live north on Liberty Union and as you are well aware traffic is terrible. I like the idea of an overpass on Convoy Rd.	Email	Thank you for your comments on the US 30 feasibility study. These will be taken into consideration as we develop the long range plan further. If you have any additional questions or comments, feel free to reach out.	Email
10/24/22	10/24/22	Scott Eddy			scott.eddy@live.com	Resident	I'm obviously concerned about getting farm equipment across 30. It's very difficult now due to the high traffic & will become worse. I'm not sure what the best approach is, but we need 2 crossings: 1. At John Brown - otherwise all of the farms on the south side of 30 would have to go through town, which is impossible with a combine. 2. At either Richey or Convoy Rd. - otherwise, we would have to go all the way to 49 to get to the John Deere dealer & access farms south of 30 - and 49 is too busy to be taking a combine. Also concerns with overpasses being wide enough for farm equiment to cross without using a spotter on one side.	Email	Thank you for your comments on the US 30 study. We understand the need for overpasses and other alternatives to be able to accommodate farm equipment traffic so this will be considered for any final designs. Just as a reminder everything shown in the presentation has a potential to change based on comments from the public after this meeting. We do not have any funding for any projects at this time.	Email
10/24/22	10/24/22	Dawn Fitzcharles		419-439-0736	dawnf@edgerton-ohio.com	Edgerton Village Administrator	Can you share with me the public information from the ODOT meeting with Paulding County Officials?	Email	Sent the website presentation. As a reminder, none of the proposals are set in stone. Based on public comment these proposals can change as no projects are funded at this time. Let me know if you have any comments or questions after reviewing the presentation.	
10/26/22	10/27/22	Lori Snyder	Boroff Road	260-557-5531	lorisnyder2005@gmail.com	Resident	There has been a great need for the last 50 years to close off the road entrance to Route 30. 1. I have seen people enter the wrong lane on Rt. 30 twice. Luckily no accidents and they cut through the median to get back to the correct lane. In the past 2 years, entrance to Rt. 30 from Boroff Road not only is treacherous, but takes forever due to the traffic. It's not uncommon to sit at the end of the road waiting to turn on for at least 1 - 2 minutes. 2. Boroff is used as a route between Lincoln Highway and Rt 30 instead of the very next exit which is the Lincoln Hwy exit. As a result, we have a large amount of traffic that pays no attention to the posted speed limit. It's almost as if they see how fast they can actually go. There are young children, elderly people, pets, and walkers on this road and everyone of them is in danger. Our neighbor, who has lived on this road for at least 70 years, is 98 and every time I see her go to her mailbox I hold my breath. 3. Boroff is the last road heading East in Van Wert County that does not have an overpass so that also adds to the increase of traffic / race car drivers. The roads with overpasses are also considerably less populated. I'm not lobbying for an overpass, simply terminating the access to Boroff from US 30.	Website	Thank you for taking the time to comment on US 30 & Boroff Road. Our current proposed alternative for Boroff is a cul-de-sac like you commented. However, as a reminder we have no funding for any of the projects at this time. As traffic continues to increase, if there is a safety concern and a need for changes, we will apply for funding and address these intersections then.	Email
10/26/22	10/27/22	Ron Jones	111 S. Main St. Hicksville, Ohio	419-542-6161	hixmayor@metalink.net	Mayor-Village of Hicksville	From Hicksville to US 30 we travel SR 49. This is a major route from our village. So if there is an interchange to connect to US 30 it would be great.	Email-Letter	Thank you for taking the time to comment on the feasibility study. As a reminder we currently have no funding for any of the proposed alternatives, but as safety concerns arise we will utilize this study to apply for funding and make necessary changes to US 30.	Email

10/26/22	10/27/22	Alice Knueve	1033 Krick Road	419-749-2282	r.knueve@hotmail.com	Resident	Need for additional overpass! We live on Krick Road north of US 30 and have farm land on Robinson Road south of US 30. The distance is a little over 2 miles. Just to get to the proposed overpass on Elm Sugar is 4 miles, then 2 more to the farm. This completly isoloates our location. To get on US 30 to go west to Indiana is 5.5 miles east to SR 49, then 5 miles back west. Western Van Wert county needs an additional overpass and intersection access to US 30.	Letter	Thank you for your comment on the US 30 study. As we discussed at the meeting, we know there likely is a need for an additional overpass west of the SR 49 interchange, just aren't sure where would be the best. We are hoping through comments on this study that we will get a better idea of this location. Thanks again for your comment.	Email
10/28/22	10/31/22	Tom Burenga	10305 Liberty Union Road		tom.burenga@kfgllc.net	Business Owner	Liberty Union Road is a major artery for our customers to bring us equipment for repair and for delivery of new items. The proposal to make it cul-de-sac would create a significant imposition on our customers and our business. We routinely inspect and repair customers combines, sprayers, tractors and planters. Customer from Paulding County and Northern Van Wert County bring those to us year round via Liberty Union Road. This is done because of its width and it is the most direct and safest route for northern customers around Van Wert city. An overpass at John Brown would route this traffic through Vision Park and parts of Van Wert City as well as 224. This farm traffic as well as the consolidated car traffic forced to use this much narrower road will result in a far less safe environment than Liberty Union Road offers. The accident data I've been shown shows far more accidents at John Brown and Dutch John than on Liberty Union. We would encourage to either leave Liberty Union open as a at grade crossing or construct an overpass at this intersection. The width and natural traffic patterns into Paulding County (Rd87) make its selection much more useful to farmers and passenger car traffic combined. We understand Route 30 will need to evolve but closing Liberty Union Road off to the ability to pass over Route 30 would be signficant mistake causing an unsafe environment in other parts of the county	Website	Thank you for taking time to comment on the US 30 feasibility study. We have received many comments about Liberty Union needing to be the overpass instead of John Brown. I believe we plan to change the recommendation in the final study to show the overpass at Liberty Union, not john Brown based on the number of comments received. As a reminder no projects have been funded for any changes along US 30 at this time. If/when projects are funded, there will be additional public involvement to keep the public involved with what is going on. Thanks again for you comments.	Email
10/31/22	11/01/22	Yvonne & James McClure	9405 Feasby Wisener Road Convoy, Ohio 45832	419-605-5376 Jim 260-615-1786 Yvonne	plshores@bright.net	Farm Owner	Need access to US 30 going both directions, not cul-de-sacs and right turns only. These do not help. Overpasses or slowing traffic speed on US 30 with enforcement may help and allow traffic to flow. Otherwise you are just pushing more traffic on country roads or to one intersection. Need right turn lanes on US 30 so you don't get rear ended trying to turn on Liberty Union off of 224 exit. Richie Road should not be closed. This is a truck route for stone co quarry.	Letter	Thank you for taking time to comment on the US 30 study. We understand the concern for traffic being rerouted once intersections are closed or overpassed and will take this into consideration when we complete the final study. In addition, right turn lanes will be considered as short term counter measures as needed.	Email
11/01/22	11/02/22	AJ Wiseman	Dutch John Road		me@amberwiseman.com	Resident	I have two comments about the Feasibility Study. First, I want to know if you have considered how this will affect the fact that 127 is already backed up horribly. Forcing EVERYONE who wants to get onto 30 to go through town is going to make this problem even worse! I know this is exasperated because of the current construction, but it has been a problem before that. Second, I live near Dutch John Rd. in Van Wert and I know you spent a lot of our money removing the intersection there and turning it into a right turn only - I think possibly other intersections as well, though your presentation doesn't mention this at all. How has that change affected the traffic? Has it made a difference in statistics? It seems premature and possibly wasteful for you to move forward with another project without knowing the effect of this change first.	Email	Thank you for taking time to comment on the US 30 Study. We understand the concern for the US 127 traffic, especially with the potential rerouted traffic. Part of the study is also to look at US 127 from Gleason Ave. to Towne Center Blvd. to see what can be done to address the congestion now and as traffic is rerouted in the future. We are aware the traffic has been rerouted that was trying to cross US 30 at the Dutch John intersection. The median at Dutch John Road was too recently removed to accurately see how this has impacted the crash patterns.None of the projects proposed in this study have any funding at this time. The goal of this study was to complete a long term plan to make US 30 limited access and use this to address intersections as needed when there are safety concerns. In addition, there are no plans to go out and complete all of these projects right now. The projects will occur as needed when there are safety concerns- which could take many years and may not even happen in our lifetime.	Email

11/02/22	11/02/22	William H				So what are the recommendations for the first project, how many projects can go on at one time since we're all in different locations and what are we looking at a 10 year program	Social Media	This study was completed to propose recommendations to make US 30 limited access and address safety concerns as needed. There are no projects funded at this time. There is no set timeline for how long it might be until any changes are made to these at-grade intersections. As projects get funded, there will be additional public involvement to keep everyone updated.	Social Media Comment
11/02/22	11/02/22	Olivia Profit				Why take the median out at SR 49 and Payne Road? Why not make it an interchange? How would truckers go east turning off of SR 49? Also I think it needs a right turn lane getting off of 30.	Social Media	Due to funding constraints, the draft proposal shows one interchange location for SR 49 and US 30 being at SR 49/ Convoy Heller and US 30. SR 49 would be rerouted to connect at this interchange location so trucks turning east would be able to access the interchange at SR 49/Convoy Heller Road and enter US 30 eastbound.	Social Media Comment
11/02/22	11/02/22	William Chivington	208 E. 1st Street		wec1957@embargmail.com	The first move towards safety is to lower the speed limit from the first exit of East Van Wert at Lincoln Highway to the Ohio/Indiana State Line down to 60 MPH. Speed is the biggest problem because 70 means 80 to the drivers	Website	Thank you for taking time to comment on the US 30 feasibility study. We have received many comments about the speed limit on US 30 needing lowered. ODOT cannot change the speed limit as it is set by the Ohio Revised Code from the Ohio Legislature. Even with lower speed limits drivers are still travelling faster than they should, making any crashes that do occur more severe.	Email
11/02/22	11/02/22	Greg Yinger	10021 Convoy Road Van Wert, Ohio 45891		vwyinger@hotmail.com	Resident	I thought the need for the study and the presentation of the traffic statistics was well presented. Plans need to be in place as US 30 continues to have more traffic in future years. I am in favor of the proposed changes to intersections and the addition of overpasses. I have just a couple of specific comments regarding the Liberty Union and John Brown intersections since my family and I use them often. I believe an overpass at both intersections is warranted in future planning. Liberty Union is important to keep open for access to Van Wert for us who live north of town and for businesses like Kenn Feld that services the farmers in this area. The John Brown intersection is important to keep open because of access to the industrial park and the factories located on W. Main St (Danfoss & Federal Mogul).In the short term, the decision to close the Liberty Union intersection in favor of John Brown Rd would have been a disaster! The intersection at John Brown is half the size of the one at Liberty Union and you would have been doubling the traffic there. Both are important intersections for the reasons mentioned above, and both need to remain open. It would be beneficial to expand the John Brown intersection and make it wider or an R-CUT. My other suggestion is to add a turn lane at Liberty Union and US 30 West by extending the exit ramp from US 224. It is increasingly difficult to merge into traffic and then make an immediate right turn (North) onto Liberty-Union.	Website	Thank you for taking time to comment on the US 30 Feasibility Study. Due to funding constraints constructing an overpass at both the Liberty Union and John Brown intersections is not likely to happen as overpasses cost around $5 million each. We understand that Liberty Union is travelled a lot by people going from north of US 30 south into Van Wert and after many comments we are considering moving the overpass location to Liberty Union instead of John Brown as was proposed in the study. In addition, an RCUT could be considered at John Brown like you suggested to improve the intersection, yet allow access to Vision Industrial Park. As a reminder, we have no projects funded at this time. When funding is received for any project, there will be additional public involvement so the public is aware of the proposed changes. Thanks again for the comments.	
11/21/2022	11/21/2022	Dale Boley	8390 Boroff Road Van Wert 45891		d.boley@gmail.com	Business (DLR Design, Inc.)	All at grade intersections on U.S. 30, from the state line, East to Boroff Rd., are insanely dangerous. I've never seen a section of highway that was so dangerous. 70-80mph traffic with at grade intersections and stop signs. Every crash that happens out there looks like a plane crash. The speed limit should be immediately lowered to 60mph; or all of the cross roads should be turned to overpasses or closed off. It's madness to leave it as it is. How many people will die between now and when it's finally addressed?	Website	Thank you for taking the time to comment on the US 30 feasibility study. ODOT is not able to change the speed limit as this is set in the Ohio Revised Code by the Ohio legislature. As you suggested overpasses or closures are being considered as alternatives to address some of the higher priority high crash locations along US 30. Once this study is complete we plan to use what was studied to pursue projects on these at-grade intersections as needed in the future.	Email
11/15/22	11/16/22	Roger & Carol Pollnow	1982 Mentzer Church Road Concoy, Ohio 45832		vsb74@aol.com	Resident	The proposed ideas are very good this far. There have been complaints, but there always will be until the project is finished. The roundabout at US 127/US 224/Marsh Rd was met with resistance as well, but now that it's finished, people love it. My only suggestion would be to save on costs, perhaps a J turn could be used at SR 49 North and South as well as Liberty Union Rd. This seems to work well in Indiana at US 30 on St. Rd. 101.	Letter	Thank you for taking time to comment on the US 30 study. We agree with your suggestions about RCUT's being a cost effective solution as well. Once the study is complete we will consider RCUTs as we work with locals to address the priority sections.	Email
11/16/22	11/16/22	Robert Stanley	4675 Liberty Union Road Van Wert 45891	419-203-7841	Stanbb2@gmail.com	Resident	I feel we need right turn lanes off of US 30 Hour dual Lane highway this is for safety. Indiana has right turn lanes but Ohio doesn't follow. I feel this would make turning off this dueling much safer as the highway is getting more and more heavily traveled.	Website	Thank you for taking time to comment on the US 30 study. At the public meeting we discussed considering right turn lanes as an interim improvement at these at grade intersections. These will be considered moving forward with the completion of the study to address priority intersections as needed.	Email

PUBLIC MEETING SIGN-IN SHEET

PAU/VAN U.S. 30 Feasibility Study (PID 113196)
Public meeting for U.S. 30 (from the Indiana State Line to Lincoln Highway Interchange)
October 19, 2022

COMPLETE

	NAME (Please Print)	ORGANIZATION	ADDRESS	EMAIL	PHONE
1.	RYAN REINHART		5936 LINCOLN HWY CONVOY OH	rcr45879@yahoo.com	419-796-8996
2.	Doug Poling		3728 Convoy Heller Rd Convoy OH	Polingexcavating.Gmail.com	419.771.0952
3.	Bailey Poling		5874 Lincoln Hwy Convoy OH	Bpoling9@hotmail.com	419-786-0214
4.	Tim Bokenkamp		556 N MAIN Convoy OH		419-203-8813
5.	Yvonne McClure		9405 Feasby Wisner Rd. Convoy OH	ymcclure18@gmail.com	260-615-1786
6.	John Ream		4548 Richey Rd VAN WERT	jabaj@bluetch tv.net	419 203 5634
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	NAME (Please Print)	ORGANIZATION	ADDRESS	EMAIL	PHONE
1.	RICHARD L MILLER		9756 TUMBLESON	VAN WERT	RMILLER99@FRONTIER.COM 419 438 3308
2.	SANDRA HOERSTEN		4824 Liberty Union Rd	VAN WERT	Shoersten@CenturyLink.net
3.	JACK HOERSTEN		" " "	" "	" " "
4.	Michael Ulrich		3084 W Maple Av	"	mulrich@woh.rr.com
5.	JOHN GRUBAUGH		10404 FEASBY-WISNER RD	VanWert	
6.	JAMES E McCLURE		9405 FEASBY WISNER RD	CONVOY	plshores@bright.net
7.	Nick + Penny Wade		5052 Richey Rd	VanWert	npwade@frontier.com
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	NAME (Please Print)	ORGANIZATION	ADDRESS	EMAIL	PHONE
1.	Tim Lichtenstiger	County Commissioner			419 203-1855
2.	Steve & Lorabee Lichtenstiger		8907 Pearson Rd Convoy 45832	lichtensteiger.3@gmail.com	419-306-9401
3.	Rick Schriver		5760 Lincoln Hwy Convoy 54832		419-203-1192
4.	DAVE & DEB GORDON		1433 US RT 30 CONVOY 45832	DGOHIO@GMAIL.COM	260-413-3618
5.	JR Ebel		144 Pettit St PO Box 323 Convoy		419-203-3117
6.	Gary Kreischer		118 S. Cherry Convoy, OH 45832	chiefcfd@bright.net	4192031562
7.	Tim + Stacy Dealey		1328 Robinson Rd Convoy OH 45832		419 203-6352
8.	ROBERT OUVALE		247 PRAIRIE LANE VAN WERT 45891		419 203-5864
9.	Henry Lehmann		12766 Hog Creek Rd Delphos OH 45833		419 203 4089
10.	Nicholas Dealey		1328 Robinson Rd Convoy OH 45832		419-605-3709
11.	GARY + ORY PERL		6985 RICHEY RD. CONVOY, OH 45832		419 605-7064
12.	Mike Kreischer		134 Dealey Drive Convoy OH 45832		419-203-7022
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	NAME (Please Print)	ORGANIZATION	ADDRESS	EMAIL	PHONE
1.	Dennis + Susan		3354 Elm Sugar Rd Convoy OH 45832	dsRhoades72@gmail.com	419-203-5009
2.	Alan Delong		11556 Feasby Wisener Rd Van Wert OH 45891		419 203 4575
3.	Josh Grubaugh		9305 Elm Sugar RD	farmboy1201l@yahoo.com	567-712-4708
4.	Jim Miller		PO Box 885 Bowling Green, OH 43402	bretts@halderman.com	419-806-5643
5.	Dave Jones		5254 Liberty Union Rd Vanlue	daverosejones95@gmail.com	419-573-0248
6.	Dusty Wade		4504 Richey Rd Convoy ohio		419-203-0065
7.	Steve + Trisha Jones		5694 Lincoln Hwy Convoy, OH		(419)203-7641
8.	Mark Hartman		1220 E. Ervin Rd., Van Wert, OH		(419) 203-2875
9.	Greg Yinger		10021 Convoy Rd Van Wert OH		567-259-5277
10.	JEFF THOMAS / LINCOLN RIDGE FARMS		6588 PARNOCK RD CONVOY, OH 45832		419-771-0962
11.	Kyle Gehres		6614 Dill Robinson Rd Convoy OH 45832		419-203-4669
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	NAME (Please Print)	ORGANIZATION	ADDRESS	EMAIL	PHONE
1.	Kenneth Merkle		8322 Richey Road	merkleipads25@gmail.com	419-605-1449
2.	Brandon Wobler		Wayne Trace Local School	woblerb@waynetrace.org	419-622-5171 ext 405
3.	ROGER KNUEVE		1033 KRICK RD CONVOY OH	r_knueve@hotmail.com	419-605-3339
4.	Kent Eddy		16204 Rd 18 Grover Hill, OH	Kpaddy@juno.com	419-203-4356
5.	Terry Cox		2396 St Rt 49 Convoy, OH		419-749-2201
6.	Brenda DeLong		4533 Liberty Union Van Wert	b_delong@hotmail.com	419-203-3598
7.	Don Holdgreve		10667 Fife Rd VW		567-315-9571
8.	ED WELLS		7981 LIBERTY UNION VW	EDWELLS@BRIGHT.NET	419 203 3884
9.	Brent Jones		10280 Mendon Rd VW	brent8600@yahoo.com	419-605-8908
10.	Tim GRIGSBY	OSHP VAN WERT			
11.	David Lichtenstalger		16820 Pancake Rd 45874	Loghouse@wcoil.com	419-771-0428
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	NAME (Please Print)	ORGANIZATION	ADDRESS	EMAIL	PHONE
1.	V. Storm Mercer				
2.	Ray Young			rfy@frontier.com	
3.	Charlie Krietemeyer	Mercer Landmark		charlick@mercerlandmark.com	
4.	Seth Baker	VANWERT CO FOUNDATION			
5.	News Castle		3459 State Route 49 Convoy		
6.	Stephanie Bowman		1445 US 30 Convoy	Stephaniebowman54@yahoo.com	419-940-0345
7.	Clark Schlatter			clarks@pcohio.us	
★ 8.	Bert & Jim Kruesbeley		P.O. Box 475 Convoy, O. 45832		419-605-5086
9.	Todd Wolfrum	VW Commissioners			
10.	Dale Boley			d.boley@gmail.com	419-203-0597
11.	Terri Ulrey		3629 Liberty Union Rd. V.W	ltulrey@gmail.com	419-622-3191
12.	JERRY KOENIG		8361 LIBERTY UNION RD V.W	JERRY@FLATLANDSSUPPLY.COM	419-203-4651
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1.	Tom Burenga	Kenn-Feld Group, LLC	10305 Liberty Union Rd VanWert	tom.burenga@KFGLLC.NET	419-605-4546
2.	Todd Wallace	Pleasant Twp	10041 Liberty Union Rd V.W.	Wallaceplumbing79@ychca.com	419-203-4539
3.	Donald B Rall	K-L Ready Mix	10391 SR 15 Ottawa, OH.	donr@kandlreadymix.com	419 969 0521
4.	Tim Copsey	Paulding County Economic Development	101 E. Perry Paulding, OH	director@PCED.NET	419-399-8282
5.	Emily Hoskins		402 S Washington St VanWert	emilymhoskins@hotmail.com	260-438-8329
6.	Vicki Saylor	Village of Convoy	201 Franklin St Convoy OH	sayfam@frontier.com	419-749-2855
7.	Ronald Neiswanday	FARMER	5668 Mentzer Rd	Convoy	— 419-203-0902
8.	Cody Mabis	Mercer Landmark Inc		Cody@MercerLandmark.com	419-234-8926
9.	CW Harting	Harting Farms	6630 Payne RD	cwharting@cct-hf.com	419-203-2117
10.	Ray Klopfenstein	Paulding City Comm.			419-771-6935
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Public meeting for U.S. 30 (from the Indiana State Line to Lincoln Highway Interchange)
October 19, 2022

	NAME (Please Print)	ORGANIZATION	ADDRESS	EMAIL	PHONE
1.	Neal Orsbon	Shelly Co / Village of Convoy	180 Dealey Dr Convoy OH 45832	norsbon@shellyco.com	419-408-0209
2.	Gary & Jane Houg		7732 John Brown Rd. V.W. 45891	gsh-vwo@embarqmail.com	419-203-5103
3.	Stephen Feasby	Farmer	6261 Dixon Lovett 45832		419 203 2106
4.	RANDY WERNER		414 So MAIN 45832	rbwermer@frontier.com	419-749-2064
5.	Randy Noggle	Farmer / Benton Twp Trustee	6437 SR. 114 Haviland, OH 45851	noggleFarms@metnet.net	419-571-8227
6.	Alice J. Knueve		1033 Krick Rd. 45832	r-Knueve@hotmail.com	419-749-2282
7.	Linda Spear		5792 Lincoln Hwy. 45832	↓	419-236-0899
8.	Jeff Spear		5792 Lincoln Hwy 45832	Jim.spear@frontier.com	419236-0895
9.	Valerie (Wood) Myers		3459 St Rt 49	val8959@Gmail.com	419-605-7210
10.	EMMETT MINNICH		1079 STATE LINE ROAD 45832		419-749-4135
11.	Travis Feaf		8913 Convoy Rd - Convoy, Oh.		419-910-1163
12.	Roger Thompson		1465 U.S. 30 Convoy Oh.	rogerthis4756@gmail.com	419-771-8912
13.	SCOTT TRUXELL		VW INDEPENDENT		
14.	Dwight R Rhoades		650-40 Golden Oaks, Van Wert		419-203-2142
15.	Don Swander		4859 Liberty Union Rd		