



## Abbreviated Safety Study

SR 752 and Walnut Creek  
Pike Intersection

2021 Rural  
Intersection Rank  
#116

# Table of Contents

Purpose and Need .....	2
Existing Conditions .....	2
Crash Trends .....	6
Recommendations.....	7
Short Term.....	7
Long Term .....	7
Appendix.....	8
Appendix A - Crash Statistics.....	9
Appendix B - Traffic Counts .....	15
Appendix C - Traffic Forecast.....	23
Appendix D - Capacity Analysis .....	35
Appendix E - Signal Warrant Results .....	48

## Purpose and Need

This study analyzes the intersection of SR 752 and Walnut Creek Pike in Pickaway County. This intersection is ranked 116 on ODOT's 2021 rural intersections list. The purpose of this report is to study this location and analyze the crashes to determine what, if any, actions can be taken to reduce the high percentage of angle crashes that have occurred in the study area.

## Existing Conditions

The intersection of SR 752 and Walnut Creek Pike is a rural 4 legged intersection in northeastern Pickaway County. SR 752 is a 2 lane, undivided roadway classified as a major collector with a 55 mph speed limit. Walnut Creek Pike (CR7) is a 2 lane, undivided roadway classified as a rural minor collector with a 55 mph speed limit. This intersection is just over 1 ½ miles northeast of the village of Ashville and just over 1 mile east of Teays Valley High School.

Currently, Walnut Creek Pike traffic stops, with dual stop signs on both approaches. Both stop signs on the righthand side have "cross traffic does not stop" placards, which were added in 2015. Dual stop ahead signs also exist on both approaches. SR 752 has dual intersection ahead warning signs on both approaches. Daily traffic volumes are 3,400 (5.5% trucks) on SR 752, and 2,700 (3.8% trucks) on Walnut Creek Pike. A turning movement count from 2023 is available in the appendix.

Most of the land near the intersection is developed, with single family homes on all four quadrants. There is a creek approximately 800 feet to the west along with some wooded areas. The nearest driveways are about 500 feet east and 200 feet west of the intersection on SR 752 and about 240 feet north and 200 feet south of the intersection on Walnut Creek Pike.



FIGURE 1 AERIAL VIEW





FIGURE 2 NORTHBOUND APPROACH



FIGURE 3 SOUTHBOUND APPROACH



FIGURE 4 EASTBOUND APPROACH



FIGURE 5 WESTBOUND APPROACH



# Crash Trends

24 crashes were reported in this area from 2018 to 2022, with 15 involving injuries (63%). Of the 15 injury crashes, 2 were serious injury crashes. Of the 24 crashes, 20 were angle and 1 was a left turn which accounts for 21 of the 24 total crashes (88%). The angle crashes occurred in all 4 directions with 7 northbound/eastbound, 4 northbound/westbound, 5 southbound/westbound and 4 southbound/eastbound. Of the 24 crashes, 12 (50%) occurred between 3PM to 6PM with the majority happening around 4PM or when school was out. The majority of the crashes occurred during the fall with September and October accounting for 11 of the 24 crashes (46%). It should also be noted that 2 of the crashes specifically listed that the driver thought the intersection was a 4-way stop.

Full crash data is available in the appendix.

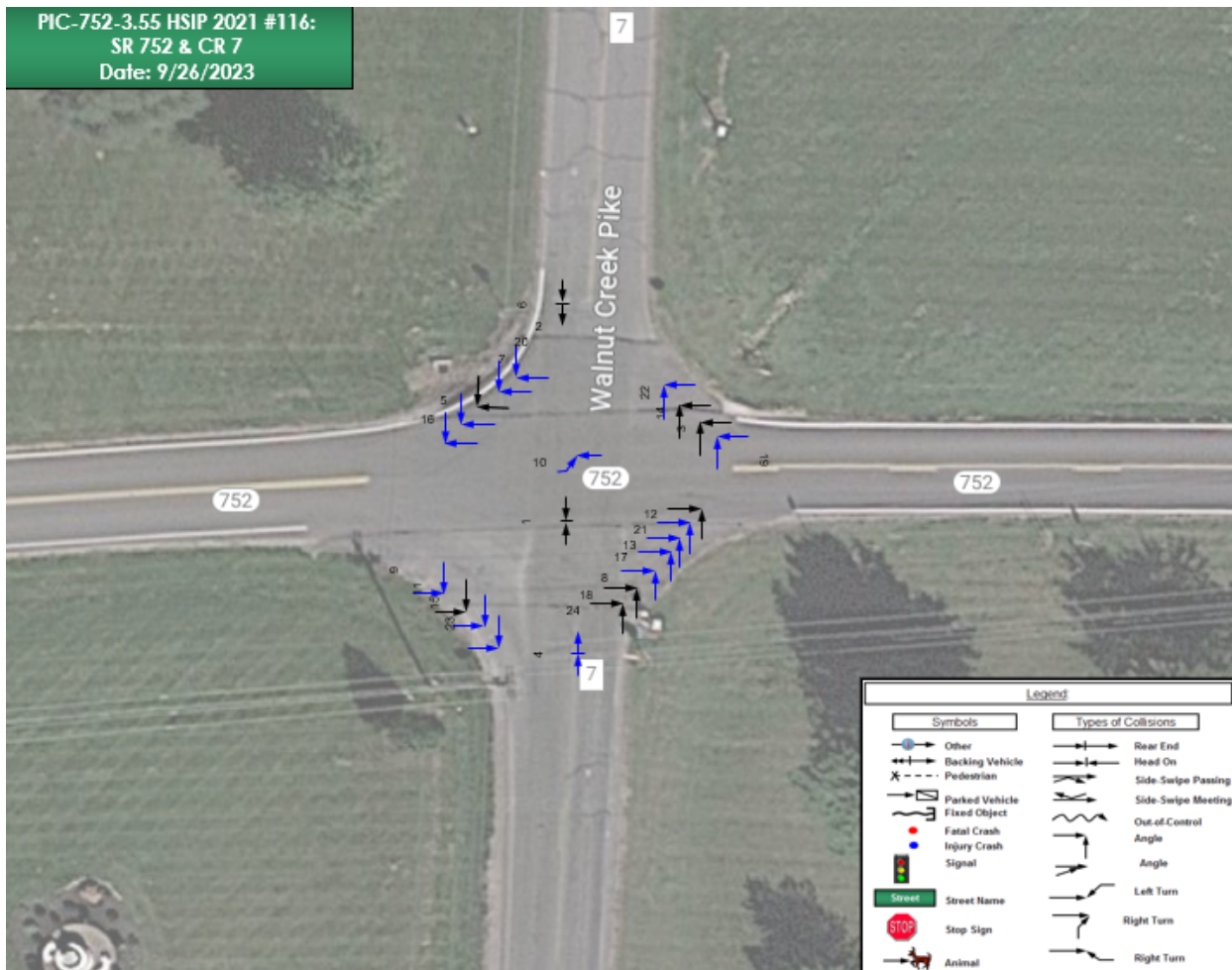


FIGURE 6 COLLISION DIAGRAM

# Recommendations

## Short Term

Maintain all existing signs. Given the fairly evenly distributed volumes of the four approaches, built up nature of the area, the existing 4-way stop 1 ¼ miles to the west, and SR 752 traffic stopping 1 ½ miles to the east at the intersection of Circleville- Winchester Road, a 4-way stop could be considered. Capacity analysis shows LOS B in the PM opening year of 2027, yet LOS E in the 2047 design year, with LOS F on the SB movement and LOS E on the EB movement. Due to capacity analysis, this would not be recommended for a long term solution. It also wouldn't be recommended as an interim solution if a roundabout is selected, as that would change the intersection control twice in a short time period.

## Long Term

Install a roundabout at the intersection. This would significantly reduce the angle crashes. Also, a roundabout would have significantly less intersection delay compared to the existing two way stop control or a four way stop. A roundabout would perform at LOS A in in both the Opening and Design years while also providing some traffic calming WB towards Teays Valley High School and the existing four way stop at SR 752 and Lockbourne Eastern Rd/Viking Way.



# Appendix

## Appendix A - Crash Statistics

**PIC-752 & Walnut Creek Pike**  
**Crash Summary Sheet**

Fatalities	0
Serious Injuries	2
Other Injuries	32

Crash Severity	Crashes	%
(2) Serious Injury Suspected	2	8.33%
(3) Minor Injury Suspected	7	29.17%
(4) Injury Possible	6	25.00%
(5) PDO/No Injury	9	37.50%
<b>Grand Total</b>	<b>24</b>	<b>100.00%</b>

Day of Week	Crashes	%
(2) Monday	5	20.83%
(3) Tuesday	6	25.00%
(4) Wednesday	1	4.17%
(5) Thursday	5	20.83%
(6) Friday	5	20.83%
(7) Saturday	2	8.33%
<b>Grand Total</b>	<b>24</b>	<b>100.00%</b>

Hour of Day	Crashes	%
7	2	8.33%
10	2	8.33%
11	2	8.33%
12	1	4.17%
14	3	12.50%
15	1	4.17%
16	7	29.17%
17	1	4.17%
18	3	12.50%
20	1	4.17%
21	1	4.17%
<b>Grand Total</b>	<b>24</b>	<b>100.00%</b>

Crashes Per Year	4.80
Fatal and All Injury Crashes	15
Percent Injury	62.5%
Equivalent PDO Index Value	7.22

Year	Crashes	%
2018	5	20.83%
2019	4	16.67%
2020	1	4.17%
2021	7	29.17%
2022	7	29.17%
<b>Grand Total</b>	<b>24</b>	<b>100.00%</b>

Crash Type	Crashes	%
Angle	20	83.33%
Rear End	2	8.33%
Left Turn	1	4.17%
Head On	1	4.17%
<b>Grand Total</b>	<b>24</b>	<b>100.00%</b>

Month	Crashes	%
2	1	4.17%
5	4	16.67%
6	1	4.17%
7	1	4.17%
8	2	8.33%
9	4	16.67%
10	7	29.17%
11	1	4.17%
12	3	12.50%
<b>Grand Total</b>	<b>24</b>	<b>100.00%</b>

## PIC-752 & Walnut Creek Pike

### Crash Summary Sheet

Weather Condition	Crashes	%
Clear	14	58.33%
Cloudy	5	20.83%
Rain	4	16.67%
Fog, Smog, Smoke	1	4.17%
Grand Total	24	100.00%

Light Condition	Crashes	%
Daylight	20	83.33%
Dark - Roadway Not Lighted	3	12.50%
Dawn/Dusk	1	4.17%
Grand Total	24	100.00%

ODOT Location	Crashes	%
Four-Way Intersection	13	54.17%
Not An Intersection	8	33.33%
Data Not Valid or Not Provided	2	8.33%
T-Intersection	1	4.17%
Grand Total	24	100.00%

Contour	Crashes	%
Straight Level	24	100.00%
Grand Total	24	100.00%

Roadway Departure	Crashes	%
No	22	91.67%
Yes	2	8.33%
Grand Total	24	100.00%

Intersection Related	Crashes	%
Yes	22	91.67%
No	2	8.33%
Grand Total	24	100.00%

Speed Related	Crashes	%
No	24	100.00%
Grand Total	24	100.00%

Road Condition	Crashes	%
Dry	17	70.83%
Wet	6	25.00%
Snow	1	4.17%
Grand Total	24	100.00%

Number of Units	Crashes	%
2	23	95.83%
3	1	4.17%
Grand Total	24	100.00%

Work Zone Related	Crashes	%
No	24	100.00%
Grand Total	24	100.00%

Alcohol Related	Crashes	%
No	24	100.00%
Grand Total	24	100.00%

Drug Related (Inc. Marijuana)	Crashes	%
No	24	100.00%
Grand Total	24	100.00%

Marijuana Related	Crashes	%
No	24	100.00%
Grand Total	24	100.00%

Older Driver (65+)	Crashes	%
No	18	75.00%
Yes	6	25.00%
Grand Total	24	100.00%

Young Driver (15-25)	Crashes	%
No	15	62.50%
Yes	9	37.50%
Grand Total	24	100.00%

Motorcycle Involved	Crashes	%
No	24	100.00%
Grand Total	24	100.00%



# PIC-752 & Walnut Creek Pike

## Crash Summary Sheet

### Unit 1 Summary

Unit 1 Pre-Crash Action	Crashes	%
Straight Ahead	20	83.33%
Making Left Turn	2	8.33%
Entering Traffic Lane	1	4.17%
Slowing or Stopped In Traffic	1	4.17%
Grand Total	24	100.00%

Unit 1 Contributing Factor	Crashes	%
Failure to Yield	18	75.00%
Ran Stop Sign	2	8.33%
Following Too Closely/ACDA	2	8.33%
None	2	8.33%
Grand Total	24	100.00%

Unit 1 Object Struck	Crashes	%
Nothing Struck	22	91.67%
Traffic Sign Post	1	4.17%
Other Post, Pole Or Support	1	4.17%
Grand Total	24	100.00%

Unit 1 Traffic Control	Crashes	%
Stop Sign	22	91.67%
No Control	2	8.33%
Grand Total	24	100.00%

Unit 1 Posted Speed	Crashes	%
0	2	8.33%
55	22	91.67%
Grand Total	24	100.00%

Unit 1 Direction From	Crashes	%
North	12	50.00%
South	11	45.83%
West	1	4.17%
Grand Total	24	100.00%

Unit 1 Direction To	Crashes	%
North	12	50.00%
South	11	45.83%
East	1	4.17%
Grand Total	24	100.00%

## PIC-752 & Walnut Creek Pike

### Crash Summary Sheet

#### Unit 1 Summary

Unit 1 Type	Crashes	%
Pick up	7	29.17%
Passenger Car	6	25.00%
Sport Utility Vehicle	5	20.83%
Cargo Van	2	8.33%
Other Vehicle	1	4.17%
Unknown or Hit/Skip	1	4.17%
Single Unit Truck	1	4.17%
Passenger Van (minivan)	1	4.17%
<b>Grand Total</b>	<b>24</b>	<b>100.00%</b>

Unit 1 Special Function	Crashes	%
None	22	91.67%
Towing	1	4.17%
Other / Unknown	1	4.17%
<b>Grand Total</b>	<b>24</b>	<b>100.00%</b>

**PIC-752 & Walnut Creek Pike**  
**Crash Summary Sheet**

**Unit 2 Summary**

Unit 2 Pre-Crash Action	Crashes	%
Straight Ahead	20	83.33%
Making Left Turn	2	8.33%
Slowing or Stopped In Traffic	2	8.33%
<b>Grand Total</b>	<b>24</b>	<b>100.00%</b>

Unit 2 Contributing Factor	Crashes	%
None	24	100.00%
<b>Grand Total</b>	<b>24</b>	<b>100.00%</b>

Unit 2 Direction From	Crashes	%
East	6	25.00%
North	1	4.17%
South	2	8.33%
West	15	62.50%
<b>Grand Total</b>	<b>24</b>	<b>100.00%</b>

Unit 2 Direction To	Crashes	%
East	14	58.33%
North	2	8.33%
South	1	4.17%
West	7	29.17%
<b>Grand Total</b>	<b>24</b>	<b>100.00%</b>

Unit 2 Type	Crashes	%
Sport Utility Vehicle	10	41.67%
Passenger Car	9	37.50%
Pick up	4	16.67%
Passenger Van (minivan)	1	4.17%
<b>Grand Total</b>	<b>24</b>	<b>100.00%</b>

Unit 2 Special Function	Crashes	%
None	24	100.00%
<b>Grand Total</b>	<b>24</b>	<b>100.00%</b>

## Appendix B - Traffic Counts





Ohio DOT - Traffic Operations  
1606 West Broad Street

Columbus, Ohio, United States 43223  
+16144667170 D06trafficcunts@dot.ohio.gov

Count Name: PIC-752-3.54  
Site Code:  
Start Date: 05/10/2023  
Page No: 1

### Turning Movement Data

Start Time	Southbound Approach						Westbound Approach						Northbound Approach						Eastbound Approach						Int. Total
	Southbound						Westbound						Northbound						Eastbound						
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 AM	2	5	0	0	0	7	0	15	2	0	0	17	0	48	21	0	0	69	4	4	2	0	0	10	103
6:15 AM	0	11	0	0	0	11	3	18	1	0	0	22	1	51	14	0	0	66	5	8	4	0	0	17	116
6:30 AM	1	15	0	0	0	16	1	15	5	0	0	21	0	50	19	0	0	69	7	10	7	0	0	24	130
6:45 AM	1	13	1	0	0	15	3	24	5	0	0	32	2	31	19	0	0	52	7	4	2	0	0	13	112
Hourly Total	4	44	1	0	0	49	7	72	13	0	0	92	3	180	73	0	0	256	23	26	15	0	0	64	461
7:00 AM	10	9	0	0	0	19	1	26	6	0	0	33	1	47	18	0	0	66	7	9	3	0	0	19	137
7:15 AM	7	15	0	0	0	22	1	44	1	0	0	46	1	45	26	0	0	72	9	20	9	0	0	38	178
7:30 AM	5	12	3	0	0	20	0	21	3	0	0	24	2	43	15	0	0	60	6	19	6	0	0	31	135
7:45 AM	2	8	2	0	0	12	2	21	3	0	0	26	0	40	10	0	0	50	7	12	7	0	0	26	114
Hourly Total	24	44	5	0	0	73	4	112	13	0	0	129	4	175	69	0	0	248	29	60	25	0	0	114	564
8:00 AM	5	14	2	0	0	21	2	18	7	0	0	27	1	19	10	0	0	30	8	10	2	0	0	20	98
8:15 AM	4	14	0	0	0	18	0	18	4	0	0	22	4	20	13	0	0	37	8	13	4	0	0	25	102
8:30 AM	1	18	1	0	0	20	2	16	0	0	0	18	2	19	9	0	0	30	18	10	2	0	0	30	98
8:45 AM	2	12	1	0	0	15	1	21	1	0	0	23	2	19	17	0	0	38	10	15	3	0	0	28	104
Hourly Total	12	58	4	0	0	74	5	73	12	0	0	90	9	77	49	0	0	135	44	48	11	0	0	103	402
9:00 AM	1	12	0	0	0	13	0	15	1	0	0	16	3	20	12	0	0	35	6	13	2	0	0	21	85
9:15 AM	3	8	0	0	0	11	2	4	1	0	0	7	1	20	11	0	0	32	7	10	1	0	0	18	68
9:30 AM	1	11	1	0	0	13	0	6	6	0	0	12	1	8	7	0	0	16	9	15	1	0	0	25	66
9:45 AM	4	13	0	0	0	17	0	8	3	0	0	11	1	12	5	0	0	18	6	8	5	0	0	19	65
Hourly Total	9	44	1	0	0	54	2	33	11	0	0	46	6	60	35	0	0	101	28	46	9	0	0	83	284
10:00 AM	2	9	1	0	0	12	0	6	1	0	0	7	0	15	6	0	0	21	12	6	1	0	0	19	59
10:15 AM	2	11	2	0	0	15	2	7	1	0	0	10	5	14	4	0	0	23	4	9	2	0	0	15	63
10:30 AM	3	15	0	0	0	18	1	16	4	0	0	21	2	14	5	0	0	21	8	8	1	0	0	17	77
10:45 AM	3	5	0	0	0	8	2	8	2	0	0	12	2	8	4	0	0	14	2	14	2	0	0	18	52
Hourly Total	10	40	3	0	0	53	5	37	8	0	0	50	9	51	19	0	0	79	26	37	6	0	0	69	251
11:00 AM	5	11	0	0	0	16	1	16	1	0	0	18	1	12	10	0	0	23	7	11	1	0	0	19	76
11:15 AM	3	11	0	0	0	14	0	10	0	0	0	10	4	9	9	0	0	22	7	7	4	0	0	18	64
11:30 AM	2	15	1	0	0	18	1	12	1	0	0	14	1	13	5	0	0	19	12	13	4	0	0	29	80
11:45 AM	3	9	2	0	0	14	1	13	2	0	0	16	0	17	6	0	0	23	7	15	1	0	0	23	76
Hourly Total	13	46	3	0	0	62	3	51	4	0	0	58	6	51	30	0	0	87	33	46	10	0	0	89	296
12:00 PM	4	10	0	0	0	14	2	13	3	0	0	18	2	15	7	0	0	24	8	14	8	0	0	30	86
12:15 PM	2	9	1	0	0	12	2	8	0	0	0	10	0	8	4	0	0	12	5	11	3	0	0	19	53
12:30 PM	4	13	0	0	0	17	0	14	2	0	0	16	0	10	11	0	0	21	10	14	2	0	0	26	80
12:45 PM	3	13	0	0	0	16	0	7	3	0	0	10	2	11	5	0	0	18	6	10	3	0	0	19	63
Hourly Total	13	45	1	0	0	59	4	42	8	0	0	54	4	44	27	0	0	75	29	49	16	0	0	94	282

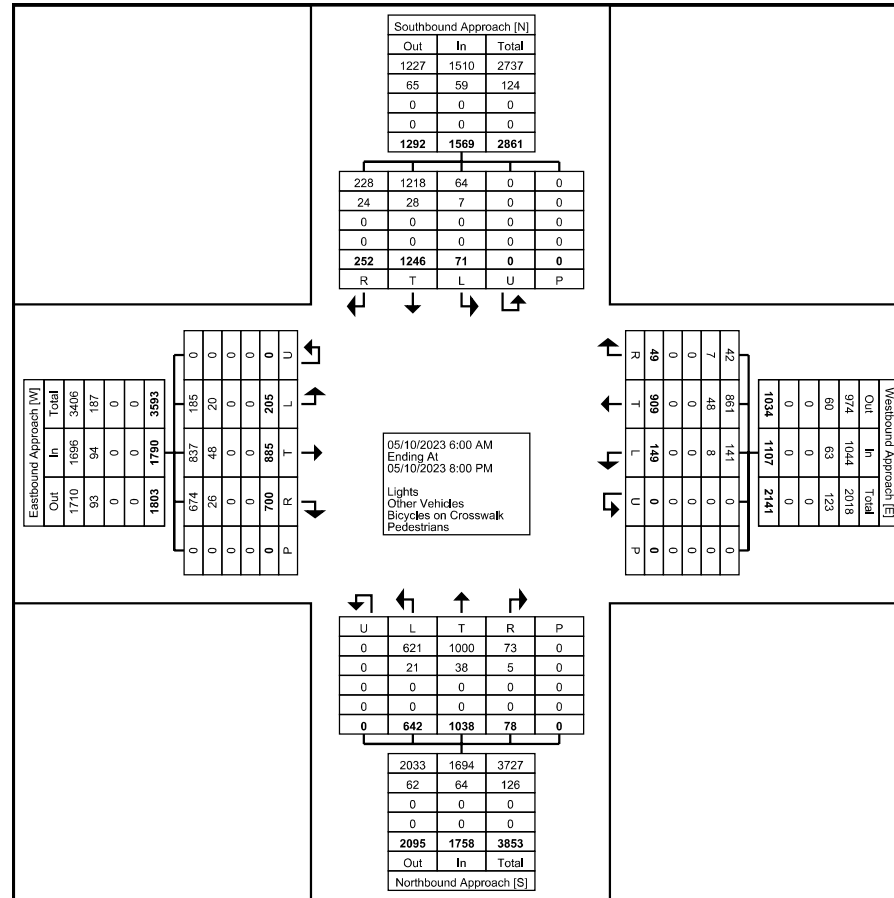




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Page No: 3



Turning Movement Data Plot



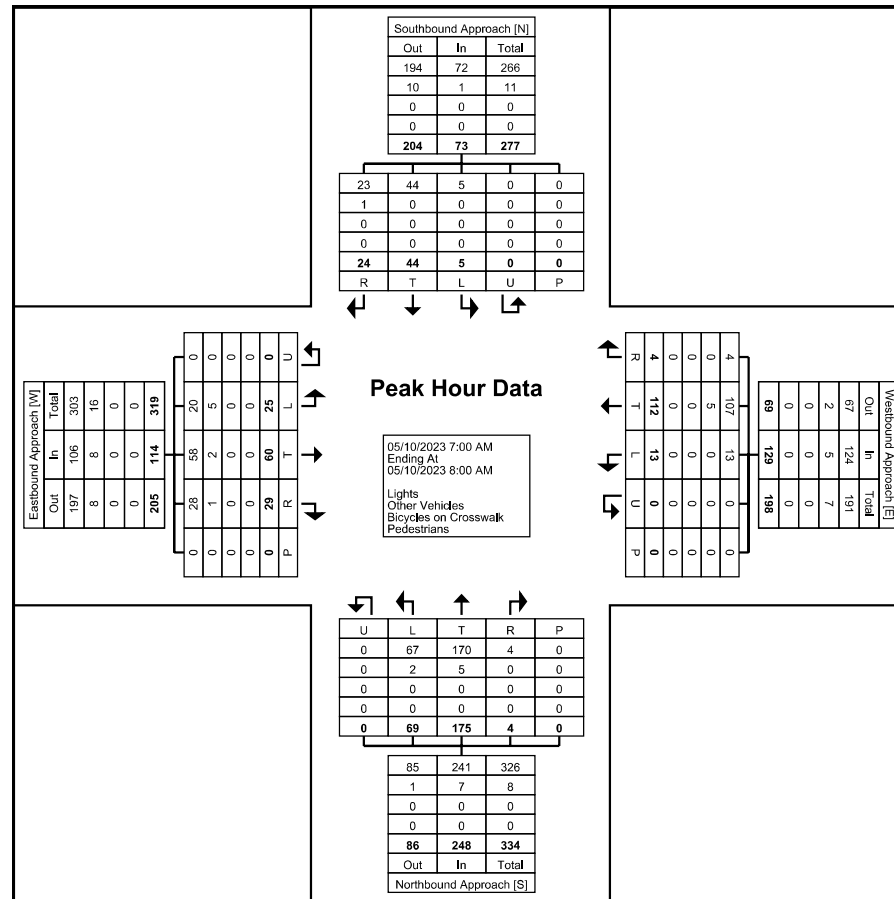




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Page No: 5



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

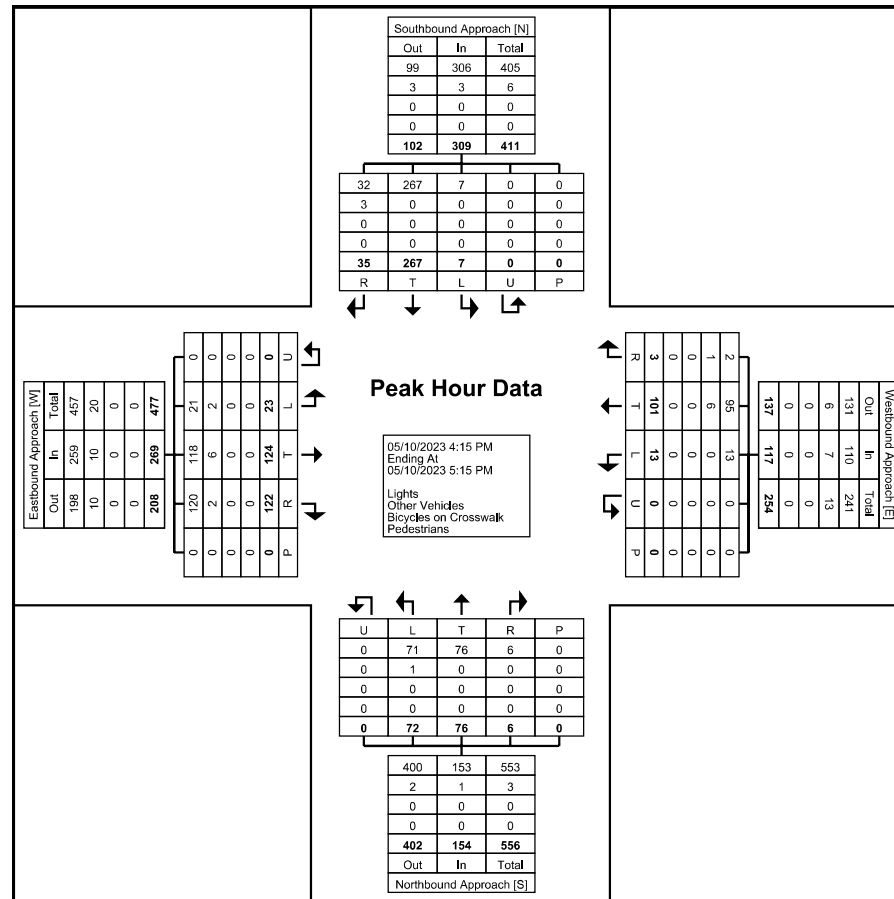




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Site Code:  
Start Date: 05/10/2023  
Page No: 7



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

## Appendix C - Traffic Forecast



# TFMS - Segment Forecast Report

Username	Email	Script Import Date	Script Version	Model Version
Jsanor	Jerry.Sanor@dot.ohio.gov	4/14/2020 5:30:19 PM	2020.001	2023.1900

## Forecast Summary

Project ID	Project Name	Opening Year	Design Year
		2027	2047

Project Description

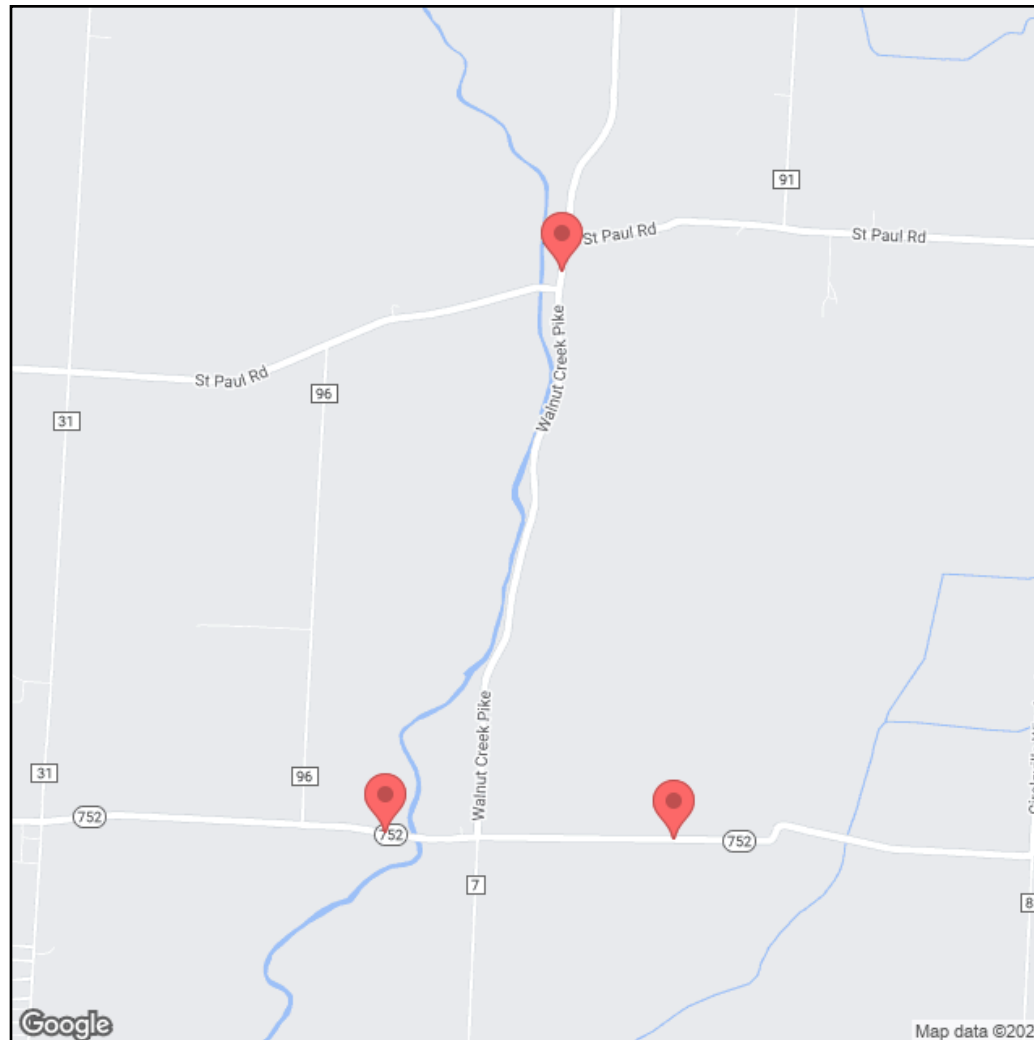
\*Users of this data need to be aware that there are limitations to the forecasts generated by this product that make it suitable only for roadway design projects which are low risk.

## Segment Information

Segment ID	LRS ID	BMP	EMP	Length	Latitude	Longitude
1803920	CPICCR00007**C	7.101	10.351	3.250	-82.9156896106166	39.7457377441548
1858124	SPICSR00752**C	3.051	3.529	0.478	-82.9250283430793	39.7228819565485
1858127	SPICSR00752**C	3.529	4.678	1.149	-82.9097905532764	39.7226436178207

## Forecast Information

Segment ID	2027 AADT	2047 AADT	DHV-30	K%	D%	T24%	TD%
1803920	2,100	2,500	300	13.0	70.0	0	0
1858124	2,000	2,900	450	15.6	53.5	10	11
1858127	1,900	2,700	400	15.6	53.5	11	12



**Definitions:**

- o AADT – Annual Average Daily Traffic
- o DHV30 – Design Hour Volume for 30th highest hour of the year
- o  $DHV30 = K * AADT$
- o K % – Design Hour Factor
- o D % – Peak Direction Factor
- o T24 % – Percent Daily Trucks
- o TD % – Percent Design Hour Trucks

Forecast Segment ID	Route	BMP	EMP
1803920	CPICCR00007**C	7.101	10.351

## Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	13.0	0	2,500	Average	0.900	0.900
AADT	D%	TD % (Existing)	BC AADT	BC Method	BC Growth Rate %	BC Calculated Rate %
2,500	70.0	0	! 0	Model	● -999999.000	0.000

● Warning: The growth rate was negative and was capped.

! Warning: FORECAST TRUCKS ZERO BECAUSE NO TRUCK COUNTS ON SEGMENT

## Regression

Method Number	PA AADT	BC AADT	AADT
2	2,621		2,621

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
1145	4479	0	68	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.28	0.00	0	0	2,778		2,745	
2	1.06	0.00	4	0	2,597		2,621	
3	1.71	0.00	0	0	3,046		2,986	
4	1.47	0.00	4	0	2,858		2,854	
5	1.36	0.00	0	0	2,835		2,789	
6	-999999.00	0.00	0	0				

## Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-6,112	3,231	-305	68	2.02	0.00
2	RAT	0.25	2,321	0.00		0.53	0.00
3	MRAT	1.15	2,439	1.22	12	0.72	0.00
4	RAF		2,835		40	1.37	0.00

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Model Ratio	Model Ratio	0.700	0.000

### Method 1 - 4 Volume

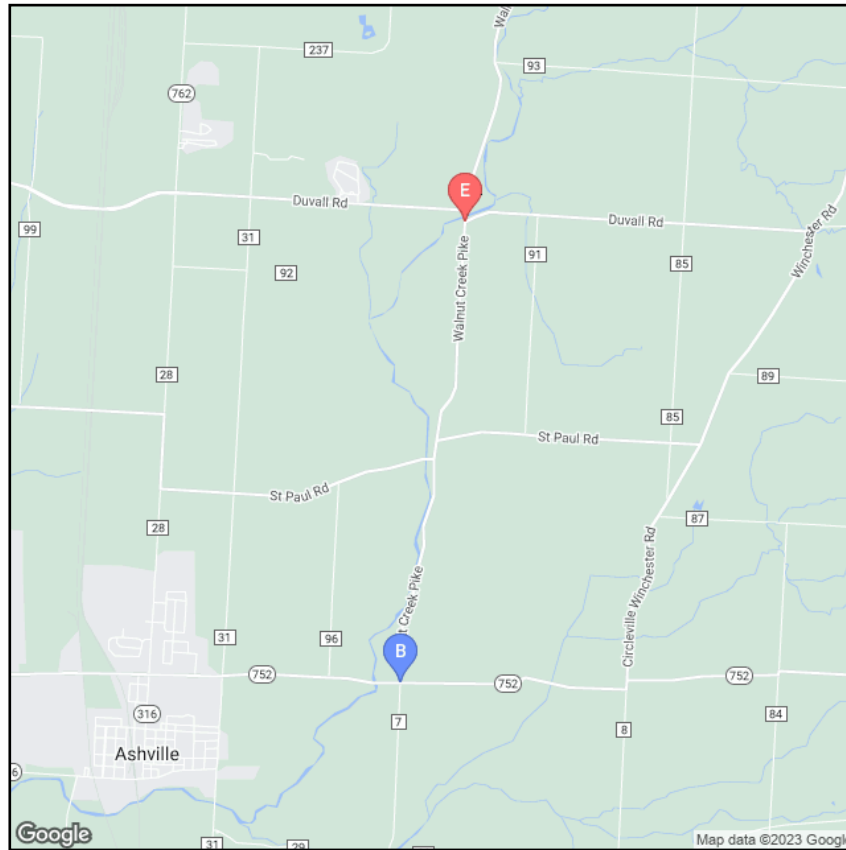
PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
2321	3163	0	68	2321	3231

Process Flag:	Adjusted model to counts with process per ODOT 255 spreadsheet
Comment:	No Comment

## Historical Count

Year	All	Cars	Trucks
2009	1,761	1,761	
2013	1,748	1,748	
2016	1,855	1,855	
2019	2,075	2,075	
* 2022	2,020	2,020	

\* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2027 AADT	Yr 2047 AADT	DHV30	K %	D %	T24 %	TD %
1803920	CPICCR00007**C	7.101	10.351	3.250	2,100	2,500	300	13.0	70.0	0	0

Forecast Segment ID	Route	BMP	EMP
1858124	SPICSR00752**C	3.051	3.529

## Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 15.6	9	2,800	Average	2.800	2.800
AADT	D%	TD % (Existing)	BC AADT	BC Method	BC Growth Rate %	BC Calculated Rate %
3,120	◆ 53.5	9	320	Average	■ 5.500	4.000

■ Warning: The truck growth rate was exceeded the maximum and was capped at 5.500%

◆ K/D factors from TCDS were used.

## Regression

Method Number	PA AADT	BC AADT	AADT
2	2,286	548	2,834

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
1668	5031	92	928	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.13	5.32	0	0	2,014	368	2,049	371
2	1.67	9.56	1	1	2,285	570	2,286	548
3	1.67	9.56	0	0	2,285	570	2,286	548
4	1.68	8.29	4	5	2,279	496	2,289	495
5	1.65	10.31	0	0	2,273	604	2,275	579
6	1.76	9.08	4	5	2,318	532	2,325	528

## Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-5,452	5,254	-124	223	7.97	1.77
2	RAT	0.24	2,551	0.55	189	1.85	0.96
3	MRAT	1.50	3,447	1.27	196	3.89	1.13
4	RAF		4,350		210	5.92	1.46

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Model Ratio	Average	3.900	1.500

### Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
2362	5031	189	223	2551	5254

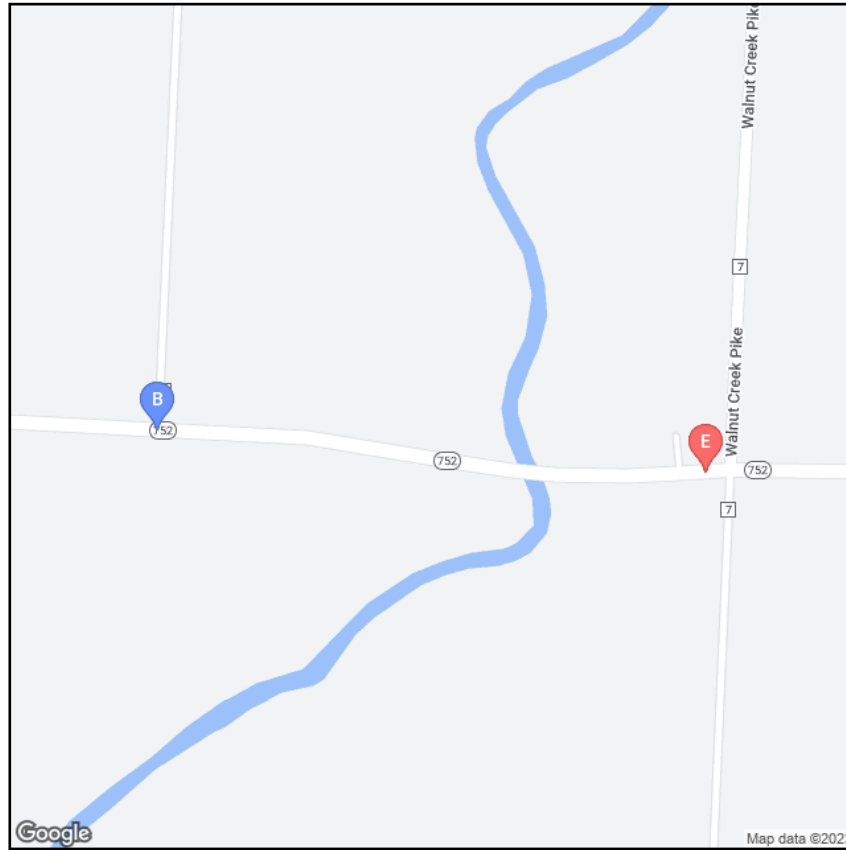
Process Flag:	Adjusted model to counts with process per ODOT 255 spreadsheet
Comment:	No Comment

## Historical Count

Year	All	Cars	Trucks
2007	1,410	1,330	80
2011	1,289	1,267	22
2013	1,329	1,306	23
2016	1,523	1,439	83
2019	1,622	1,456	166
* 2022	1,706	1,557	149

\* Pivot Point





Segment ID	LRS ID	BMP	EMP	Length	Yr 2027 AADT	Yr 2047 AADT	DHV30	K %	D %	T24 %	TD %
1858124	SPICSR00752**C	3.051	3.529	0.478	2,000	2,900	450	15.6	53.5	10	11

Forecast Segment ID	Route	BMP	EMP
1858127	SPICSR00752**C	3.529	4.678

## Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 15.6	9	2,500	Average	2.300	2.300
AADT	D%	TD % (Existing)	BC AADT	BC Method	BC Growth Rate %	BC Calculated Rate %
2,820	◆ 53.5	9	320	Average	■ 5.900	4.000

■ Warning: The truck growth rate was exceeded the maximum and was capped at 5.900%

◆ K/D factors from TCDS were used.

## Regression

Method Number	PA AADT	BC AADT	AADT
2	2,286	548	2,834

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
1668	4461	92	928	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.13	5.32	0	0	2,014	368	2,049	371
2	1.67	9.56	1	1	2,285	570	2,286	548
3	1.67	9.56	0	0	2,285	570	2,286	548
4	1.68	8.29	4	5	2,279	496	2,289	495
5	1.65	10.31	0	0	2,273	604	2,275	579
6	1.76	9.08	4	5	2,318	532	2,325	528

## Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-5,915	4,706	-10	245	6.66	2.30
2	RAT	0.22	2,377	0.94	239	1.33	2.16
3	MRAT	1.39	3,035	1.61	241	2.84	2.21
4	RAF		3,870		243	4.75	2.25

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Model Ratio	Average	2.800	2.300

### Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
2138	4461	239	245	2377	4706

Process Flag:	Adjusted model to counts with process per ODOT 255 spreadsheet
Comment:	No Comment

## Historical Count

Year	All	Cars	Trucks
2007	1,410	1,330	80
2011	1,289	1,267	22
2013	1,329	1,306	23
2016	1,523	1,439	83
2019	1,622	1,456	166
* 2022	1,706	1,557	149

\* Pivot Point



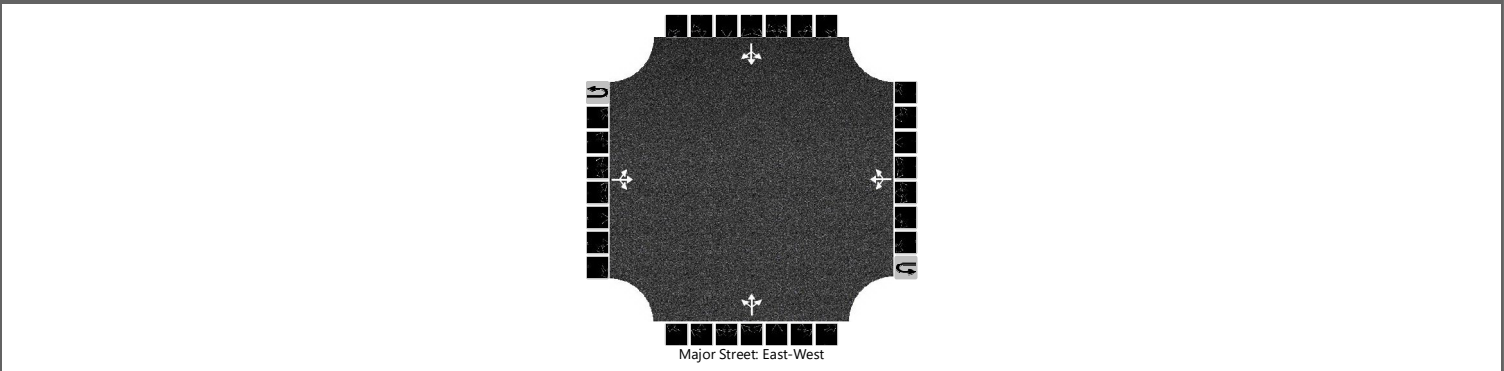
Segment ID	LRS ID	BMP	EMP	Length	Yr 2027 AADT	Yr 2047 AADT	DHV30	K %	D %	T24 %	TD %
1858127	SPICSR00752**C	3.529	4.678	1.149	1,900	2,700	400	15.6	53.5	11	12

## Appendix D - Capacity Analysis

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Jerry Sanor			Intersection	SR 752 & Walnut Creek Pike		
Agency/Co.	D6			Jurisdiction	ODOT		
Date Performed	10/4/2023			East/West Street	SR 752		
Analysis Year	2027			North/South Street	Walnut Creek Pike		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SR 752						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		30	60	30		10	120	5		70	180	5		10	50	20
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
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				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
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)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

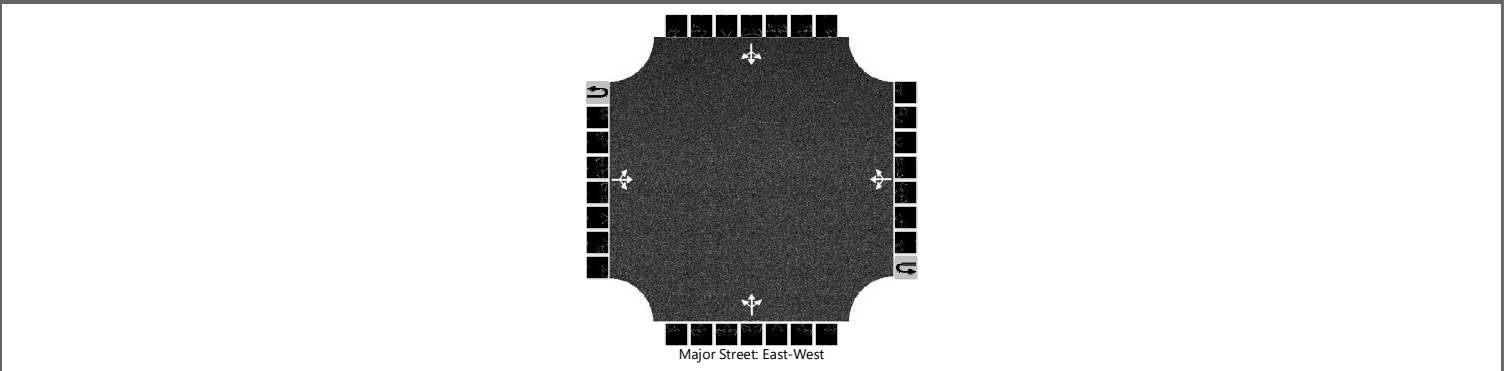
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		33				11					277					87
Capacity, c (veh/h)		1442				1489					574					588
v/c Ratio		0.02				0.01					0.48					0.15
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.0					2.6					0.5
Control Delay (s/veh)		7.6	0.2	0.2		7.4	0.1	0.1			17.0					12.2
Level of Service (LOS)		A	A	A		A	A	A			C					B
Approach Delay (s/veh)		2.0				0.6				17.0				12.2		
Approach LOS		A				A				C				B		

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Jerry Sanor			Intersection	SR 752 & Walnut Creek Pike		
Agency/Co.	D6			Jurisdiction	ODOT		
Date Performed	10/4/2023			East/West Street	SR 752		
Analysis Year	2047			North/South Street	Walnut Creek Pike		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SR 752						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		40	90	40		20	170	10		100	260	10		10	70	30
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
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				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
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)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

## Delay, Queue Length, and Level of Service

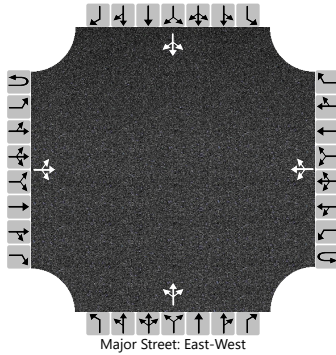
Flow Rate, v (veh/h)		43				22					402					120
Capacity, c (veh/h)		1371				1436					451					450
v/c Ratio		0.03				0.02					0.89					0.27
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.0					9.6					1.1
Control Delay (s/veh)		7.7	0.3	0.3		7.5	0.1	0.1			50.3					15.9
Level of Service (LOS)		A	A	A		A	A	A			F					C
Approach Delay (s/veh)		2.0				0.9				50.3				15.9		
Approach LOS		A				A				F				C		



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Jerry Sanor	Intersection	SR 752 & Walnut Creek Pike				
Agency/Co.	D6	Jurisdiction	ODOT				
Date Performed	10/4/2023	East/West Street	SR 752				
Analysis Year	2027	North/South Street	Walnut Creek Pike				
Time Analyzed	PM Peak	Peak Hour Factor	0.92				
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25				
Project Description	SR 752						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6	7	8	9		10	11	12	
Priority																
Number of Lanes	0	0	1	0	0	0	1	0	0	1	0		0	1	0	
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		20	130	130		10	110	0		80	80	10		10	290	40
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
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				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
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)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

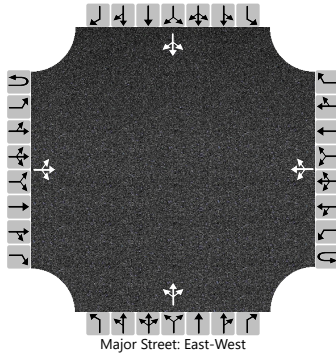
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		22				11				185				370		
Capacity, c (veh/h)		1462				1274				228				505		
v/c Ratio		0.01				0.01				0.81				0.73		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0				6.1				6.0		
Control Delay (s/veh)		7.5	0.1	0.1		7.8	0.1	0.1		65.4				29.1		
Level of Service (LOS)		A	A	A		A	A	A		F				D		
Approach Delay (s/veh)	0.7				0.7				65.4				29.1			
Approach LOS	A				A				F				D			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Jerry Sanor			Intersection	SR 752 & Walnut Creek Pike		
Agency/Co.	D6			Jurisdiction	ODOT		
Date Performed	10/4/2023			East/West Street	SR 752		
Analysis Year	2027			North/South Street	Walnut Creek Pike		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SR 752						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6	7	8	9		10	11	12	
Priority																
Number of Lanes	0	0	1	0	0	0	1	0	0	1	0		0	1	0	
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		30	190	180		20	150	0		110	110	10		10	300	50
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
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				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
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)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

## Delay, Queue Length, and Level of Service

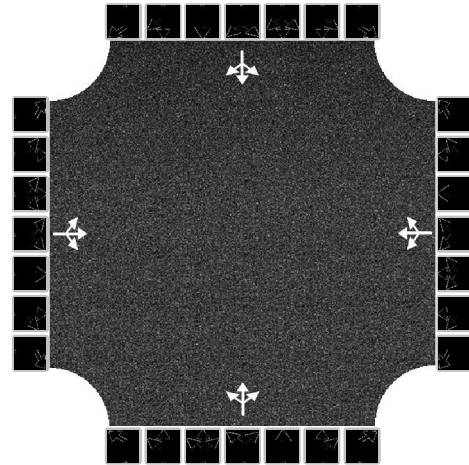
Flow Rate, v (veh/h)		33				22				250				391		
Capacity, c (veh/h)		1410				1151				49				384		
v/c Ratio		0.02				0.02				5.12				1.02		
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.1				28.4				12.6		
Control Delay (s/veh)		7.6	0.2	0.2		8.2	0.2	0.2		2020.7				84.8		
Level of Service (LOS)		A	A	A		A	A	A		F				F		
Approach Delay (s/veh)	0.8				1.1				2020.7				84.8			
Approach LOS	A				A				F				F			

# HCS All-Way Stop Control Report

## General and Site Information

Analyst	Jerry Sanor
Agency/Co.	ODOT
Date Performed	10/10/2023
Analysis Year	2027
Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak
Project Description	SR 752 & Walnut Creek Pike
Intersection	SR 752 & Walnut Creek Pike
Jurisdiction	D6
East/West Street	SR 752
North/South Street	Walnut Creek Pike
Peak Hour Factor	0.92

## Lanes



## Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume (veh/h)	30	60	30	10	120	5	70	180	5	10	50	20
% Thrus in Shared Lane												

## Lane Flow Rate and Adjustments

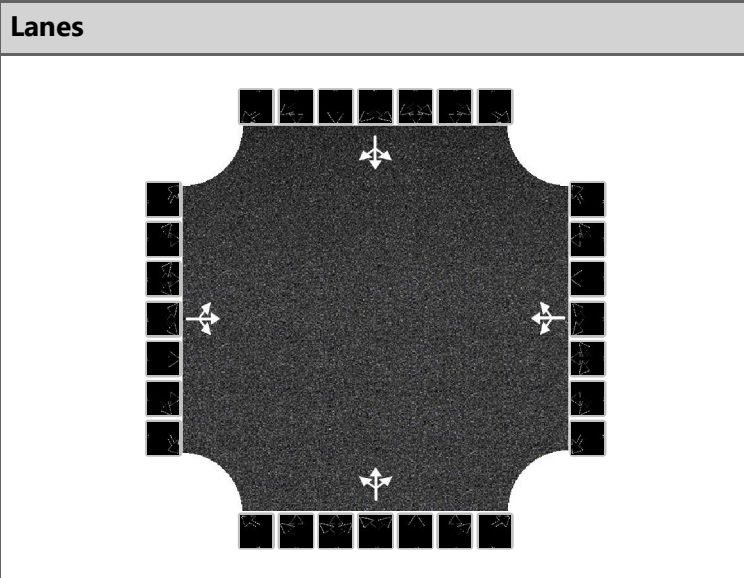
Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	130			147			277			87		
Percent Heavy Vehicles	3			3			3			3		
Initial Departure Headway, $h_d$ (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.116			0.130			0.246			0.077		
Final Departure Headway, $h_d$ (s)	4.98			5.05			4.83			4.92		
Final Degree of Utilization, x	0.181			0.206			0.372			0.119		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, $t_s$ (s)	2.98			3.05			2.83			2.92		

## Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	130			147			277			87		
Capacity (veh/h)	723			713			745			732		
95% Queue Length, $Q_{95}$ (veh)	0.7			0.8			1.7			0.4		
Control Delay (s/veh)	9.1			9.4			10.7			8.6		
Level of Service, LOS	A			A			B			A		
Approach Delay (s/veh)   LOS	9.1		A	9.4		A	10.7		B	8.6		A
Intersection Delay (s/veh)   LOS	9.8						A					

# HCS All-Way Stop Control Report

General and Site Information	
Analyst	Jerry Sanor
Agency/Co.	ODOT
Date Performed	10/10/2023
Analysis Year	2047
Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak
Project Description	SR 752 & Walnut Creek Pike
Intersection	SR 752 & Walnut Creek Pike
Jurisdiction	D6
East/West Street	SR 752
North/South Street	Walnut Creek Pike
Peak Hour Factor	0.92



## Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume (veh/h)	40	90	40	20	170	10	100	260	10	10	70	30
% Thrus in Shared Lane												

## Lane Flow Rate and Adjustments

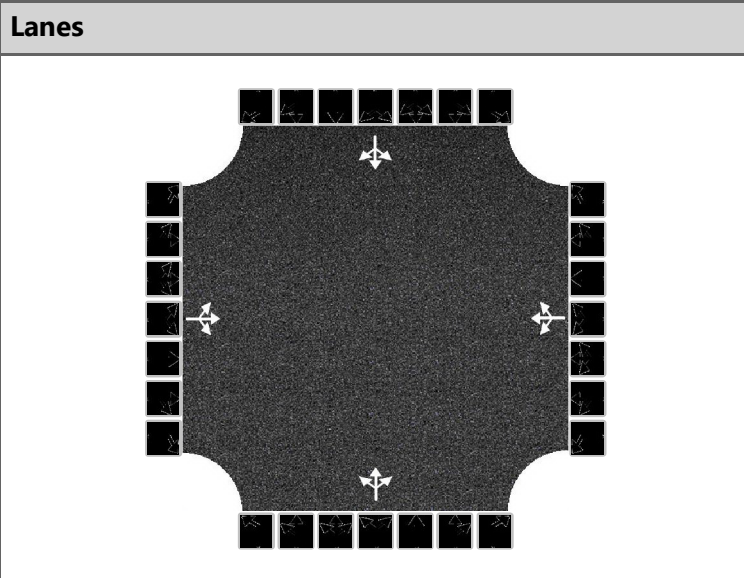
Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	185			217			402			120		
Percent Heavy Vehicles	3			3			3			3		
Initial Departure Headway, $h_d$ (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.164			0.193			0.357			0.106		
Final Departure Headway, $h_d$ (s)	5.75			5.76			5.38			5.69		
Final Degree of Utilization, x	0.295			0.348			0.601			0.189		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, $t_s$ (s)	3.75			3.76			3.38			3.69		

## Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	185			217			402			120		
Capacity (veh/h)	627			625			669			632		
95% Queue Length, $Q_{95}$ (veh)	1.2			1.6			4.0			0.7		
Control Delay (s/veh)	11.1			11.8			16.2			10.0		
Level of Service, LOS	B			B			C			B		
Approach Delay (s/veh)   LOS	11.1		B	11.8		B	16.2		C	10.0		B
Intersection Delay (s/veh)   LOS	13.3						B					

# HCS All-Way Stop Control Report

General and Site Information	
Analyst	Jerry Sanor
Agency/Co.	ODOT
Date Performed	10/10/2023
Analysis Year	2027
Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak
Project Description	SR 752 & Walnut Creek Pike
Intersection	SR 752 & Walnut Creek Pike
Jurisdiction	D6
East/West Street	SR 752
North/South Street	Walnut Creek Pike
Peak Hour Factor	0.92



## Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume (veh/h)	20	130	130	10	110	5	80	80	10	10	290	40
% Thrus in Shared Lane												

## Lane Flow Rate and Adjustments

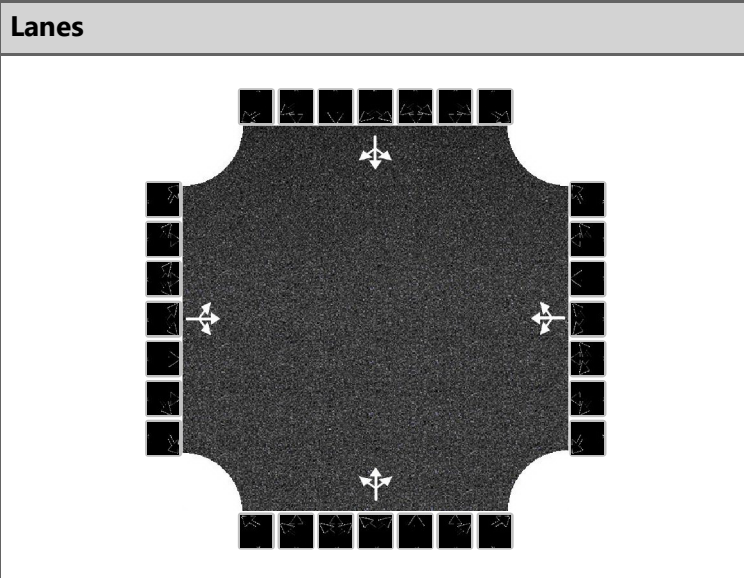
Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	304			136			185			370		
Percent Heavy Vehicles	3			3			3			3		
Initial Departure Headway, $h_d$ (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.271			0.121			0.164			0.329		
Final Departure Headway, $h_d$ (s)	5.56			6.15			5.98			5.54		
Final Degree of Utilization, x	0.470			0.232			0.307			0.568		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, $t_s$ (s)	3.56			4.15			3.98			3.54		

## Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	304			136			185			370		
Capacity (veh/h)	647			585			602			650		
95% Queue Length, $Q_{95}$ (veh)	2.5			0.9			1.3			3.6		
Control Delay (s/veh)	13.4			11.0			11.6			15.6		
Level of Service, LOS	B			B			B			C		
Approach Delay (s/veh)   LOS	13.4		B	11.0		B	11.6		B	15.6		C
Intersection Delay (s/veh)   LOS	13.6						B					

# HCS All-Way Stop Control Report

General and Site Information	
Analyst	Jerry Sanor
Agency/Co.	ODOT
Date Performed	10/10/2023
Analysis Year	2047
Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak
Project Description	SR 752 & Walnut Creek Pike
Intersection	SR 752 & Walnut Creek Pike
Jurisdiction	D6
East/West Street	SR 752
North/South Street	Walnut Creek Pike
Peak Hour Factor	0.92



## Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume (veh/h)	30	190	180	20	150	5	110	110	10	10	400	50
% Thrus in Shared Lane												

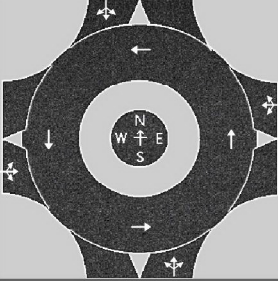
## Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	435			190			250			500		
Percent Heavy Vehicles	3			3			3			3		
Initial Departure Headway, h <sub>d</sub> (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.386			0.169			0.222			0.444		
Final Departure Headway, h <sub>d</sub> (s)	7.23			8.38			8.08			7.16		
Final Degree of Utilization, x	0.873			0.443			0.561			0.995		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t <sub>s</sub> (s)	5.23			6.38			6.08			5.16		

## Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Lane												
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	435			190			250			500		
Capacity (veh/h)	498			430			446			502		
95% Queue Length, Q <sub>95</sub> (veh)	9.4			2.2			3.4			13.5		
Control Delay (s/veh)	42.1			17.9			20.9			65.7		
Level of Service, LOS	E			C			C			F		
Approach Delay (s/veh)   LOS	42.1		E	17.9		C	20.9		C	65.7		F
Intersection Delay (s/veh)   LOS	43.5						E					

# HCS Roundabouts Report

General Information				Site Information				
Analyst	Jerry Sanor				Intersection	SR 752 & Walnut Creek Pike		
Agency or Co.	ODOT				E/W Street Name	SR 752		
Date Performed	10/10/2023				N/S Street Name	Walnut Creek Pike		
Analysis Year	2027				Analysis Time Period, hrs	0.25		
Time Analyzed	AM Peak				Peak Hour Factor	0.92		
Project Description	SR 752 & Walnut Creek Pike				Jurisdiction	D6		

## Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
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	30	90	30	0	10	120	5	0	70	180	5	0	10	50	20
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (V <sub>PCE</sub> ), pc/h	0	34	101	34	0	11	134	6	0	78	202	6	0	11	56	22
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

## Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	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		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v <sub>e</sub> ), pc/h		169			151			286			89	
Entry Volume, veh/h		164			147			278			86	
Circulating Flow (v <sub>c</sub> ), pc/h	78			314			146			223		
Exiting Flow (v <sub>ex</sub> ), pc/h	118			234			242			101		
Capacity (C <sub>PCE</sub> ), pc/h		1274			1002			1189			1099	
Capacity (c), veh/h		1237			973			1154			1067	
v/c Ratio (x)		0.13			0.15			0.24			0.08	

## Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.0			5.1			5.3			4.1	
Lane LOS		A			A			A			A	
95% Queue, veh		0.5			0.5			0.9			0.3	
Approach Delay, s/veh   LOS	4.0   A			5.1   A			5.3   A			4.1   A		
Intersection Delay, s/veh   LOS	4.8									A		

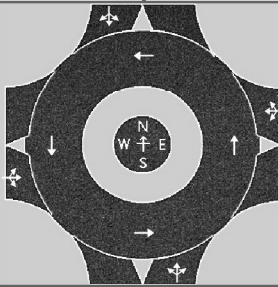


# HCS Roundabouts Report

## General Information

## Site Information

Analyst	Jerry Sanor
Agency or Co.	ODOT
Date Performed	10/10/2023
Analysis Year	2047
Time Analyzed	AM Peak
Project Description	SR 752 & Walnut Creek Pike



Intersection	SR 752 & Walnut Creek Pike
E/W Street Name	SR 752
N/S Street Name	Walnut Creek Pike
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	D6

## Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
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	40	90	40	0	20	170	10	0	100	260	10	0	10	70	30
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (V <sub>PCE</sub> ), pc/h	0	45	101	45	0	22	190	11	0	112	291	11	0	11	78	34
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

## Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	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		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v <sub>e</sub> ), pc/h		191			223			414			123	
Entry Volume, veh/h		185			217			402			119	
Circulating Flow (v <sub>c</sub> ), pc/h	111			448			157			324		
Exiting Flow (v <sub>ex</sub> ), pc/h	123			336			347			145		
Capacity (C <sub>PCE</sub> ), pc/h		1232			874			1176			992	
Capacity (c), veh/h		1196			848			1142			963	
v/c Ratio (x)		0.15			0.26			0.35			0.12	

## Delay and Level of Service

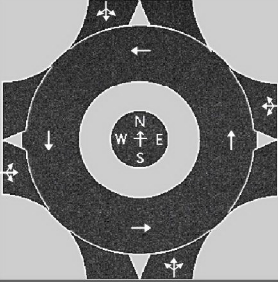
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.3			7.0			6.6			4.9	
Lane LOS		A			A			A			A	
95% Queue, veh		0.5			1.0			1.6			0.4	
Approach Delay, s/veh   LOS	4.3	A		7.0	A		6.6	A		4.9	A	
Intersection Delay, s/veh   LOS	6.0						A					



# HCS Roundabouts Report

## General Information

## Site Information

Analyst	Jerry Sanor		Intersection	SR 752 & Walnut Creek Pike
Agency or Co.	ODOT		E/W Street Name	SR 752
Date Performed	10/10/2023		N/S Street Name	Walnut Creek Pike
Analysis Year	2027		Analysis Time Period, hrs	0.25
Time Analyzed	PM Peak		Peak Hour Factor	0.92
Project Description	SR 752 & Walnut Creek Pike		Jurisdiction	D6

## Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
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	20	130	130	0	10	110	5	0	80	80	10	0	10	290	40
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (V <sub>PCE</sub> ), pc/h	0	22	146	146	0	11	123	6	0	90	90	11	0	11	325	45
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

## Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	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	

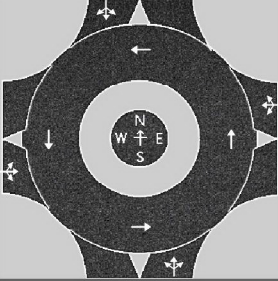
## Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v <sub>e</sub> ), pc/h		314			140			191			381	
Entry Volume, veh/h		305			136			185			370	
Circulating Flow (v <sub>c</sub> ), pc/h	347			202			179			224		
Exiting Flow (v <sub>ex</sub> ), pc/h	168			258			118			482		
Capacity (C <sub>PCE</sub> ), pc/h		969			1123			1150			1098	
Capacity (c), veh/h		940			1090			1116			1066	
v/c Ratio (x)		0.32			0.12			0.17			0.35	

## Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		7.3			4.4			4.7			6.9	
Lane LOS		A			A			A			A	
95% Queue, veh		1.4			0.4			0.6			1.6	
Approach Delay, s/veh   LOS	7.3	A		4.4	A		4.7	A		6.9	A	
Intersection Delay, s/veh   LOS	6.3						A					

# HCS Roundabouts Report

General Information				Site Information				
Analyst	Jerry Sanor				Intersection		SR 752 & Walnut Creek Pike	
Agency or Co.	ODOT				E/W Street Name		SR 752	
Date Performed	10/10/2023				N/S Street Name		Walnut Creek Pike	
Analysis Year	2047				Analysis Time Period, hrs		0.25	
Time Analyzed	PM Peak				Peak Hour Factor		0.92	
Project Description	SR 752 & Walnut Creek Pike				Jurisdiction		D6	

## Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	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	30	190	180	0	20	150	0	0	110	110	10	0	10	400	50
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (V <sub>PCE</sub> ), pc/h	0	34	213	202	0	22	168	0	0	123	123	11	0	11	448	56
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

## Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	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		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v <sub>e</sub> ), pc/h		449			190			257			515	
Entry Volume, veh/h		436			184			250			500	
Circulating Flow (v <sub>c</sub> ), pc/h	481			280			258			313		
Exiting Flow (v <sub>ex</sub> ), pc/h	235			347			157			672		
Capacity (C <sub>PCE</sub> ), pc/h		845			1037			1061			1003	
Capacity (c), veh/h		820			1007			1030			974	
v/c Ratio (x)		0.53			0.18			0.24			0.51	

## Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		11.9			5.3			5.8			10.1	
Lane LOS		B			A			A			B	
95% Queue, veh		3.2			0.7			1.0			3.0	
Approach Delay, s/veh   LOS	11.9   B			5.3   A			5.8   A			10.1   B		
Intersection Delay, s/veh   LOS	9.2						A					

## Appendix E - Signal Warrant Results

## STUDY AND ANALYSIS INFORMATION

Municipality:	ODOT	Traffic Volumes Obtained By:	ABC Engineering
County:	Pickaway	Analysis Date:	10/10/2023
ODOT Engineering District:	6	Agency/ Company Name Performing Warrant Analysis:	ABC Engineering
Google map link:	<a href="#">Map</a>		

### Analysis Information

Data Collection Date:   
 Day of the Week:

Is the intersection in a built-up area of an isolated community of <10,000 population?

Existing Traffic Signal at intersection:

Total Number of Approaches at Intersection:

### Major Street Information

Major Street Name and Route Number:

Major Street Approach Direction:

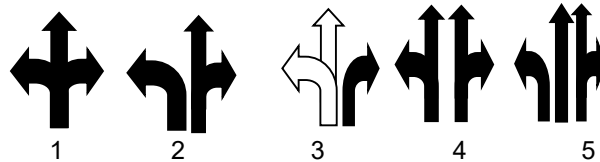
Number of Thru Lanes on Each Major Street Approach:  LANE(S)

Speed Limit or 85th Percentile Speed on the Major Street\*:  MPH  
\*Unknown assumes below 45 mph

### Minor Street Information

Minor Street Name and Route Number:

Minor Street Approach Configuration:  E-Bound  
 W-Bound



Number of Thru Lanes on Each Minor Street Approach:  LANE(S)

Apply Right Turn Lane Reduction\*:

\*Right Turn Lane Reduction Shall be used for Warrants 1, 2, & 3 for New ODOT Signals. Please refer to TEM 402-3.2 for clarification and criteria under which Right Turn Reduction is not required.

## TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Warrant		Notes and Comments:			
	Applicable?	Satisfied?				
<b>Warrant 1, Eight-Hour Vehicular Volume</b>	Yes	No				
<b>Warrant 2, Four-Hour Vehicular Volume</b>	Yes	No				
<b>Warrant 3, Peak Hour</b>	Yes	No	Signals installed under Warrant 3 should be traffic actuated. <table border="1" style="float: right; margin-top: 5px;"> <tr><td style="text-align: center;"><b>Peak Hour</b></td></tr> <tr><td style="text-align: center;">4:15 PM</td></tr> <tr><td style="text-align: center;">5:15 PM</td></tr> </table>	<b>Peak Hour</b>	4:15 PM	5:15 PM
<b>Peak Hour</b>						
4:15 PM						
5:15 PM						
For Warrants 1-3, new ODOT signals must be based off of 100% volume thresholds (TEM 402-3.2)						
<b>Warrant 4, Pedestrian Volume</b>	No		If this warrant is met, and a traffic control signal is justified by an engineering study, the traffic control signal shall be equipped with pedestrian signal heads complying with the provisions set forth in Chapter 4E of the OMUTCD. <table border="1" style="float: right; margin-top: 5px;"> <tr><td style="text-align: center;"><b>Peak Hour</b></td></tr> <tr><td style="text-align: center;">4:15 PM</td></tr> <tr><td style="text-align: center;">5:15 PM</td></tr> </table>	<b>Peak Hour</b>	4:15 PM	5:15 PM
<b>Peak Hour</b>						
4:15 PM						
5:15 PM						
<b>Warrant 5, School Crossing</b>	No		N/A			
<b>Warrant 6, Coordinated Signal System</b>	No		(Shall not be used as the sole warrant in the analysis)			
<b>Warrant 7, Crash Experience</b>	No		If this is the sole warrant, signal must be semi-actuated with control devices which provide proper coordination if installed at an intersection within a coordinated system and normally should be fully traffic actuated if installed at an isolated intersection.			
<b>Warrant 8, Roadway Network</b>	No		(Shall not be used as the sole warrant in the analysis)			
<b>Warrant 9, Intersection Near a Grade Crossing</b>	No		Figure 4C-9			
<b>Multi-Way Stop Warrant</b>	Yes	Yes	May be used as an interim measure if traffic signal warrants are satisfied.			

**The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.**

If no warrants are satisfied, additional options may be considered:

1. An engineering study, performed by a firm prequalified by ODOT for signal design, if approved by the ODOT district, may be used to justify a new signal installation or retention of an existing signal that otherwise does not meet the published warrants. An example of such an instance is a traffic signal in proximity to a railroad crossing that serves to reduce queuing across the tracks.
2. According to TEM 402-2, If the actual turning movement counts fail to satisfy a signal warrant, it may be acceptable to use traffic volumes projected to the second year after project completion. The **Modeling and Forecasting Section** should provide the projected traffic volumes.
3. A pedestrian hybrid beacon may be considered for installation to facilitate pedestrian crossings at a location that does not meet traffic signal warrants (see Chapter 4C of TEM) or at a location that meets traffic signal warrants under Sections 4C.05 and/or 4C.06 but a decision is made to not install a traffic control signal. **Please fill inputs on PHB Score Sheet and submit to ODOT.**

Considerations such as geometrics and lack of sight distance generally have not been accepted in lieu of satisfying signal warrants. These considerations may allow an otherwise unwarranted traffic signal to be retained at **100 percent** local cost. Please review TEM 402-4 for details.

Conclusion: Do Not Install New Traffic Signal

Notes: