

MOT/GRE I-675/Wilmington, PID 115160



Alternative Evaluation Report (AER)

Montgomery County Transportation Improvement District (MCTID)

April 18, 2025



Department of
Transportation



GREENE COUNTY
OHIO



MONTGOMERY COUNTY
TRANSPORTATION IMPROVEMENT DISTRICT



Jacobs



Engineering
Building Partnerships

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Introduction

The final Feasibility Study for the project, dated September 10, 2024, assessed several alternatives for improving the I-675 / Wilmington Pike interchange, focusing on addressing the primary needs of Congestion and Safety, as well as the secondary need for Pedestrian Connectivity. The study concluded that two build alternatives, Alternative 1B (DDI/Diverging Diamond Interchange) and Alternative 2 (Split Interchange), were feasible and recommended further analysis to determine the preferred alternative. Both alternatives had comparable ability to meet the purpose and need and similar cost estimates. Therefore, it was determined that an Alternative Evaluation Report (AER) should be prepared to provide additional information and refinement of the feasible alternatives to aid stakeholders in the determination of a preferred alternative.

The additional evaluations and analyses completed for this AER for both feasible alternatives are as follows:

- Review of the traditional DDI interchange configurations with conservative assumptions regarding the DDIs capacity considered in the Feasibility Study was completed. Specifically, the potential to preserve the existing I-675 bridges while maintaining adequate operations and pedestrian/bike connectivity through the interchange.
- Preliminary environmental field studies to identify any red flags that might necessitate modifying the alternatives in including mitigation efforts in the project cost estimate.
- Assessment of impacts on public and private utilities to better understand compensable relocation estimates and the requirements for acquiring additional right of way to accommodate these relocations.
- Analysis of the anticipated acquisition costs related to the multiple impacts to commercial properties along the corridor.
- Evaluation of travel times along various routes within and through the project limits for design year traffic as compared to no-build to further evaluate capacity.
- Development of a phased construction implementation plan outlining a series of smaller, independently programmed projects that can be implemented over time.

This Alternatives Evaluation Report (AER) builds on the Feasibility Study by refining the analysis of the two feasible build alternatives, focusing on key issues identified by the project stakeholders. The scope of the analysis presented in this document was identified through coordination within the project management team group consisting of representatives of each of the following project stakeholders:

- Montgomery County TID
- Ohio Department of Transportation District 8
- City of Centerville
- Sugarcreek Township
- Greene County Engineer's Office



Purpose and Need

Purpose and Need for the project were documented in a Purpose and Need Statement (MOT/GRE-I-675/Wilmington Pike PID 115160) approved by ODOT District 8 on August 3, 2022. The purpose of the project is to reduce congestion and improve safety in the Wilmington Pike and I-675 interchange area while improving pedestrian connectivity and supporting economic development in the area surrounding the interchange.

The alternatives included in the AER were determined to meet the purpose of the project, address the primary needs for improved congestion and safety, and support the secondary need goals for the infrastructure to support future community growth and development and improve pedestrian/bike connectivity.

Alternatives

Alternatives Considered and Dismissed

The Feasibility Study considered the No Build and five build alternatives.

- Alternative 1 – Upgrade Existing Interchange
- Alternative 1A – Diverging Diamond Interchange with Existing I-675 Bridge
- Alternative 1B – Diverging Diamond Interchange
- Alternative 2 – Split Interchange
- Alternative 3 – Swigart Road Interchange

Alternatives 1, 1A, and 3 were evaluated and dismissed through the Feasibility Study.

Feasible Alternatives

The Feasibility Study identified Alternative 1B (Diverging Diamond Interchange (DDI)) and Alternative 2 (Split Interchange with access to I-675 from both Wilmington Pike and Feedwire Road) as Feasible Alternatives warranting additional analysis. Additional analysis of the No Build alternative with respect to the AER key issues was not required, and the AER focuses the evaluation of alternatives on Alternative 1B and Alternative 2.

Key Issues

The key issues for determining a preferred alternative were identified by the project stakeholders. The key issues included environmental impacts, impacts to public and private utilities, right of way acquisition costs at the parcel level, travel times for key routes through and within the project area, and construction implementation and phasing considerations.

Alternative Refinement and FHWA Coordination

Prior to beginning the detailed evaluation of the feasible alternatives, the stakeholders recognized that the conservative capacity assumptions applied to the DDI alternatives in the Feasibility Study warranted additional investigations. Specifically, opportunities for refinements to the design were evaluated for the potential to preserve the existing I-675 bridges while maintaining adequate operations and pedestrian/bike connectivity through the interchange. The LJB team conducted in-depth review and analysis of Alternative 1B to evaluate opportunities to reduce the footprint and evaluate the ability to avoid replacement of the I-675 overpass bridges. A summary of that review and modifications to Alternative 1B can be found in a memo dated August 7, 2024, that was presented to the Project Management Team (PMT) and included in **Appendix A**. The PMT reviewed the capacity restrictions caused by reducing the turn lane lengths for the northbound and southbound I-675 entrance ramps and elected to advance the modified Alternative 1B through the AER. This memo predates the conclusion of this AER and the current design configurations are included in the AER rather than in the memo. In addition, it is noted that design of the at-grade pedestrian crossing of the I-675 SB on-ramp (considering enhanced crosswalk signing and marking, use of an RRFB, or use of pedestrian activation and inclusion with the adjacent signal) will be completed during detailed design phases. The revised DDI configuration, detailed in Concept Plans included in **Appendix B**, provides sufficient capacity to accommodate design year traffic and does not require reconstruction of the I-675 overpass bridges. These modifications significantly reduce the construction costs for Alternative 1B.

Moving forward, ODOT will continue to lead the coordination of approval for the recommended preferred alternative with FHWA on behalf of the City of Centerville.

Environmental Analysis

Environmental analysis was completed using secondary source review within the current project study area. This environmental analysis was undertaken with the understanding that the project will require a full National Environmental Policy Act (NEPA) environmental review by ODOT once a Preferred Alternative is confirmed. Additional studies following ODOT's procedures, and agency coordination and/or reviews may be needed as the project progresses through ODOT's Project Development Process.

Aquatic Resources

The project area is located within the Sugar Creek drainage basin. The aquatic resources within the project area are shown on the Water Resources Maps in **Appendix C**. A total of thirteen streams, eight wetlands, one pond, and one potentially jurisdictional ditch were identified within the project areas of Alternatives 1B and 2 during the onsite investigation for the presence of wetlands and other Waters of the United States (WOTUS) on June 10th and June 11th, 2024, by Crawford, Murphy, and Tilly, Inc (CMT). Based on the location of water resources, Alternative 2 would have 719 feet of greater impacts to streams than Alternative 1B, with up to approximately 1,682 linear feet of stream impacts, as summarized in **Table 1**. Potential wetland impacts between Alternatives 1B and 2 are similar, with Alternative 1B requiring 0.05 acre more impact to wetlands compared to Alternative 2.

TABLE 1: AQUATIC RESOURCE IMPACTS

	Alternative 1B	Alternative 2
Stream Impacts	963 linear feet	1,682 linear feet
Stream Mitigation Cost*	\$216,099	\$442,566
Wetland Impacts	0.43 acre	0.38 acre
Ditch Impacts	277 linear feet	277 linear feet
Pond Impacts	0 acre	0.008 acre

** Mitigation costs are based on maximum stream impacts within the construction limits and current costs through the in-lieu fee program.*

Impacts are estimated using the current construction limits of the alternatives. Impacts are likely to be reduced based on final design and avoidance and minimization measures. Waterway permits would be obtained, and compensatory mitigation for wetland and stream impacts will be implemented if required.

The Ecological Survey Report documented impacts to aquatic resources for the project areas of both Alternatives 1B and 2. The report will be coordinated with the appropriate state and federal regulatory and resources agencies.

Floodplains and Stormwater

A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) for the project study areas was conducted. Most of the project areas for both Alternatives 1B and 2 are located within the Area of Minimal Flood Hazard, which is an area determined to be outside the 500-year floodplain. The southeast quadrant of the I-675 and Wilmington Pike interchange is located within the FEMA designated Special Flood Hazard Zones for both Alternatives 1B and 2. The two build alternatives have improvements within the designated floodplain with insubstantial differences in impacts between the two. Alternative 1B is located within 0.94-acre of the regulatory floodway and is located within 0.61-acre of floodplain Zone AE (1% annual chance of flooding), while Alternative 2 is located within 0.80-acre of the regulatory floodway and is located within 0.38-acre of floodplain Zone AE. Because the current flood impact study for the area doesn't accurately reflect the current conditions and because there would be fill necessary within the floodway and floodplain for both alternatives, a detailed hydraulic analysis will be required and a Letter of Map Revision (LOMR) or Conditional Letter of Map Revision (CLOMR) is expected to be necessary.

The No Build Alternative would not impact any aquatic resources or special flood hazard zones.

Stormwater Best Management Practices (BMP) would be expected to be similar for the two alternatives.

Threatened or Endangered Species

The United States Fish and Wildlife Service (USFWS) species list for Montgomery and Greene County indicates that the following species' known, or historic range are within the project areas of both Alternatives 1B and 2:

- *Myotis sodalis* (Indiana Bat) – Endangered
- *Myotis septentrionalis* (Northern Long-eared Bat) – Endangered
- *Perimyotis subflavus* (Tricolored Bat) – Proposed Endangered

Potential Suitable Wooded Habitat (SWH) for federally listed bat species is defined in the Framework Programmatic Biological Opinion between ODOT and USFWS. Based on the June 10 and 11, 2024, site visits, the project areas for both Alternatives 1B and 2 contain several wooded areas that may provide SWH for bat species. Alternative 2 would result in the greatest impacts to potential SWH, with 5.7 more acres of impact to SWH compared to Alternative 1B, as shown in **Table 2**.

TABLE 2: POTENTIAL SUITABLE WOODED HABITAT FOR BATS

Potential Suitable Wooded Habitat	Alternative 1B	Alternative 2
	14.0 acres	19.7 acres

On July 9, 2024 the Ohio Department of Natural Resources (ODNR) confirmed that there are no records of rare or endangered species within the project areas of Alternatives 1B and 2. The Little brown bat (*Myotis lucifugus*), Spotted turtle (*Clemmys guttata*), Kirtland's snake (*Clonophis kirtlandii*), Upland sandpiper (*Bartramia longicauda*), Northern harrier (*Circus cyaneus*), Lark sparrow (*Chondestes grammacus*), Least bittern (*Ixobrychus exilis*), Black-crowned night heron (*Nycticorax nycticorax*), and the Loggerhead shrike (*Lanius ludovicianus*) are state listed species known to occur within Montgomery and Greene counties; neither alternative is expected to have impacts on any of the state listed species.

An Ecological Survey Report documenting impacts to threatened or endangered species for the project areas of both Alternatives 1B and 2 has been uploaded into Environet. The report will be coordinated with the appropriate state and federal regulatory and resources agencies as the project progresses.

The species list from USFWS is provided in **Appendix C**.

Cultural Resources

Section 106 of the National Historic Preservation Act of 1966 requires federal agencies to consider the effects of their actions on historic properties. Based on currently recorded information at the Ohio History Connect the Terry Frazee House, which has been identified as eligible for the National Register of Historic Places (NRHP) is the only known cultural resource within the project areas. The Terry Frazee House is located within the project areas of both Alternatives 1B and 2. Proposed impacts under any of the alternatives would be minor (i.e., potential right-of-way strip takes). There are no known archaeological resources within any of the project areas. The No Build Alternative would not impact any Historic/Architectural or Archaeological resources.

A Section 106 request and a Phase I cultural resource survey have been completed for the project. Ohio Valley Archaeology (OVAI) completed a Phase I cultural resource survey for Alternatives 1B and 2. OVAI deemed that although the Terry Frazee House (MOT0012003; at 6239 Wilmington Pike) retains integrity of location, modern modification has reduced its integrity of materials, design, and workmanship. OVAI concluded that it also no longer has integrity of setting, feeling, or association due to the surrounding extensive modern commercial development and is not recommended as eligible for the NRHP. OVAI recommended that no further archaeological work be conducted for the project and concluded that regardless of which alignment option is selected, the scope and scale of the proposed LPA project has little to no potential for effects to NRHP-eligible properties.

Regulated Materials

Based on a review of aerial maps, the study area is primarily within commercial land uses. Per ODOT's Regulated Materials Review (RMR) process, commercial land uses may be considered high risk depending on current or previous activities (e.g., involving vehicle or equipment storage or maintenance). A review of ODOT's Ohio Regulated Properties Search (ORPS) website was completed to assist in identifying potential RM concerns within the current project area. Several regulated properties and records of releases are located within the project footprints of both alternatives, primarily located along Wilmington Pike. A review of leaking underground storage tank (LUST) records available from the Bureau of Underground Storage Tank Regulations (BUSTR) confirmed no existing regulated materials concerns related to any of the LUST sites within the project area. No substantial difference exists between Alternative 1B and Alternative 2 in terms of impacts from regulated properties.

Properties within the project areas will be further evaluated on a parcel specific basis through the completion of an RMR Screening and any required subsequent studies. Depending on the need for additional permanent right-of-way or the extent of deep excavation (6 feet or greater in depth), properties with current or historic high risk land uses may require additional RMR studies. There are no active or historic landfills or known solid waste facilities located within 300 feet of the project study area.

Section 4(f) and Section 6(f) Resources

Section 4(f) of the Department of Transportation Act of 1966 protects public parks, recreation areas, wildlife and waterfowl refuges, and historic sites included in or eligible for inclusion in the National Register of Historic Places (NRHP). One 4(f) property, Sweet Arrow Reserve, located north of Feedwire Road and east of I-675, is located within the project areas for both Alternatives 1B and 2. Alternative 2 would require the conversion of more parkland than Alternative 1B, with Alternative 2 impacting up to 1.95 acres of Sweet Arrow Reserve. Impacts to Sweet Arrow Reserve because of Alternative 2 would include impacts to wooded areas, prairie, and an existing passive recreational trail (see **Table 3** and **Figure 1**). Impacts to Sweet Arrow Reserve because of Alternative 1B would include impacts to wooded areas, prairie, and potentially an existing passive recreational trail. Both Alternatives 1B and 2 are anticipated to have *de minimus* 4(f) determinations. A section 4(f) evaluation including avoidance and minimization measures for parkland impacts will be necessary once a preferred alternative alignment has been confirmed, regardless of alternative.

TABLE 3: SECTION 4(F) IMPACTS

Sweet Arrow Reserve Impacts	Alternative 1B	Alternative 2
	0.6 acres	1.95 acres

Section 6(f) of the Land and Water Conservation Act applies to the conversion of recreational lands that have received Land and Water Conservation Fund (LWCF) money to non-recreational purposes. The United States Department of Interior's National Park Service listings of LWCF grant properties for Hamilton and Greene County was reviewed in August of 2024. No Section 6(f) properties are currently located in or near either alternative.

Noise

Alternative 2 includes the realignment of Clyo Road closer to an apartment complex located south of Feedwire Road, as well as closer to several residential properties, which could result in noise impacts on these properties. Alternatives 1B would have minor lane adjustments which has the potential to bring higher levels of noise, to noise sensitive land uses. A noise analysis would be undertaken by ODOT on the preferred alternative to identify any potential noise impacts along with reasonable and feasible noise mitigation.

Farmland

According to the United States Census Bureau mapping, the majority of the project areas for both Alternatives 1B and 2 are within the designated Dayton Urban Area and are not subject to the Farmland Protection Policy Act of 1981 (FPPA). Alternative 1B has approximately 4.13 acres of land that is not developed or within the Dayton Urban Area boundary that is prime farmland. Alternative 2 has approximately 5.14 acres of land that is not developed or within the Dayton Urban Area boundary that is prime farmland. All of the prime farmland within the project areas is located within Sweet Arrow Reserve. As summarized in **Table 4**, potential prime farmland impacts between Alternatives 1B and 2 are similar, with Alternative 2 requiring 1.01 acre more impact to prime farmland compared to Alternative 1B.

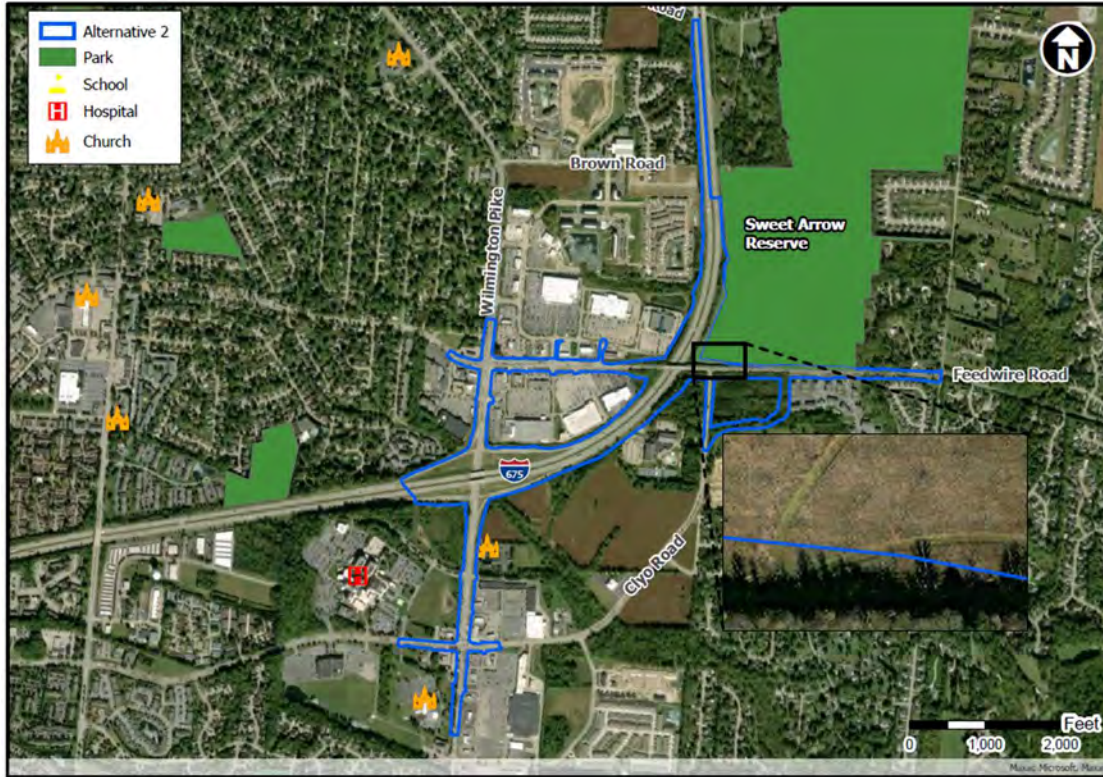
Farmland Coordination with the Natural Resource Conservation Service (NRCS) will need to occur once an alternative is chosen.

TABLE 4: FARMLAND IMPACTS

Farmland Impacts	Alternative 1B	Alternative 2
	4.13 acres	5.14 acres

FIGURE 1: ALTERNATIVE 1B & ALTERNATIVE 2 – SECTION 4(F) RESOURCES





Water Wells and Drinking Water Resources

A cursory review of available drinking and ground water resource mapping was completed to assess the project's potential to impact drinking water resources (i.e., residential wells, public water systems, and drinking water source protection areas). Based on a review of Ohio EPA Drinking and Ground Waters online mapping system, the project is not located over a sole source aquifer. Based on a review of ODNR's Ohio Water Wells online database, impacts to three wells located at the southern portion of the project areas for both Alternatives 1B and 2 may occur (ID Numbers 294616, 608165, and 614851). If a private drinking water well were impacted, a new well may be drilled or the property can be connected to the local public water supply. If this is not feasible, the property and/or dwelling may be acquired. There are no anticipated differences in impacts to water wells and drinking water resources between alternatives.

Underrepresented Populations

ODOT's Transportation Information Mapping System (TIMS) tool was used to obtain U.S. Census Data to identify whether Underrepresented Populations are present within the proposed project or study area. Based on census mapping, the project areas for both Alternative 1B and 2 fall within the following four Block Groups:

- Block Group 390572201001 – 10% minority, 14% low-income
- Block Group 390572202001 – 24% minority, 12% low-income
- Block Group 391130402032 – 10% minority, 10% low-income
- Block Group 391130402031 – 13% Minority, 8% Low-income

Community Impacts

Executive Order 12898, which was rescinded as of January 20, 2025, directs Federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities upon minority (people of color) and low-income populations.

Potential community impacts are detected by locating minority and low-income populations relative to a reference population to determine if populations of community concern exists and whether there could be disproportionately high and adverse impacts to them. The reference population may be a county, city or town and is called the community of comparison (COC). In this project, the COC is Sugarcreek Township and City of Centerville. The community that overlaps the project area is called the affected community (AC). In this project, the ACs are Block Groups 390572201001 and 390572202001 in Sugarcreek Township and Block Groups 391130402032 and 391130402031 in City of Centerville. An AC has a population of concern if the population is more than 50% minority or low-income or if the low-income or minority population is 125% of the COC. The data for minority and low-income populations within the ACs are summarized in **Table 5** below.

TABLE 5: COMMUNITY IMPACTS

Area Name	Percent minority	125% COC	Community Impact Population	Percent Low-Income	125% COC	Community Impact Population
Sugarcreek Township	14	18		4	5	
Block Group 390572201001	10		No	14		Yes
Block Group 390572202001	24		Yes	12		Yes
City of Centerville	17	21		8	10	
Block Group 391130402032	10		No	10		Yes
Block Group 391130402031	13		No	8		No

As shown in Table 5, while the percentages of minority and low-income persons are all below 50% and don't indicate a particular community impact concern, the COC comparisons indicate both minority and low-income populations of concern. Specifically, when compared to the noted thresholds, Block Group 390572202001 has a minority population and Block Groups 390572201001, 390572202001, and 391130402032 have low-income populations.

The highest percentages for all underserved population categories are located east of the Wilmington Pike and I-675 interchange (east of the Greene County line). It is likely this corresponds with the low-income housing located approximately 0.4 mile south of the project area.

While each block group within the project area will be impacted by the construction of the project, the project's purpose is to improve safety and reduce congestion for the surrounding communities. Therefore, based on the nature of the improvements and the resulting impacts, the impacts associated with this project are not expected to result in disproportionately high and adverse effects on minority and/or low-income populations. However, a community impact analysis will likely be required to determine the impact of the project on the community for either alternative once a preferred alternative alignment has been confirmed.

There are no identifiable differences in community impacts between Alternatives 1B and 2.

Section 8 housing is the federal government's housing choice voucher program for assisting very low-income families, the elderly, and the disabled to afford decent, safe, and sanitary housing in the private market. The presence of Section 8 housing within or immediately adjacent to the project areas was reviewed using the U.S. Department of Housing and Urban Development (HUD) Resource Locator website. No HUD or Section 8 housing is located within the project areas for either Alternative 1B or 2. No impacts to HUD or Section 8 housing would occur so no further action would need to be taken regarding HUD resources.

Title VI

Under Title VI of the Civil Rights Act of 1964, each Federal agency is required to ensure that no person, on the grounds of race, color, or national origin, is excluded from participation in, denied the benefits of, or subjected to discrimination under any program or activity receiving Federal financial assistance.

As indicated above, there are minority and low-income populations within the block groups encompassing the project areas of Alternatives 1B and 2. There are no known populations with Limited English Proficiency in the block groups that encompass the project areas of Alternatives 1B and 2. The project is expected to impact each block group within the project areas. Based on the nature of the improvements and the resulting impacts, the project is not expected to result in discrimination based on race, color, or national origin. Additionally, there are no identifiable differences in impacts to Title VI protected populations between Alternatives 1B and 2.

The No Build Alternative would not include community impacts or Title VI Protected Populations.

Public involvement (PI) efforts will ensure all Underrepresented Populations are given sufficient opportunity to participate in the PI process. A full evaluation of underrepresented populations would occur once a preferred alternative alignment has been confirmed.

Public Involvement

Public involvement efforts have been documented in the Feasibility Study. No additional public involvement activities have been completed to date as part of the AER. Following acceptance of the AER, project stakeholders will be notified of the recommended preferred alternative through written correspondence and by posting the AER on the project sponsor's website.

Utility Relocations

The LJB team completed an initial utility coordination review with each substantially affected utility to determine the presence of existing easement and review anticipated impacts. A conceptual relocation two-dimensional layout for major utility impacts was developed

(primarily pole lines and accommodation of Greene County Waterline). The team identified the need for required additional right of way for utility relocations and these limits have been included in the additional right of way assessment below. Project eligible cost estimates for utility relocations are included in the project cost estimates in **Appendix D** by phase for each relocation. A summary of each of the relocations and estimates for miscellaneous adjustments include:

- Realignment of 6 electrical poles along Feedwire Road, including the purchase of an existing utility easement belonging to Ohio Edison, totaling approximately \$75,000 for Phase 5 of Alternative 1B
- Realignment of 1,700' of 12" water main belonging to Greene and Montgomery County, each located within public utility easements adjacent to existing L/A Right-of-Way along the southside of the I-675/Wilmington Pike, totaling approximately \$400,000 for Phase 4 of Alternative 1B
- Miscellaneous relocations and impacts including sanitary, electrical, telecom, gas, water, and unidentified easements, totaling approximately \$200,000 for Alternative 1B and \$250,000 for Alternative 2

The total cost of relocations for Alternative 1B and Alternative 2 were \$675,000 and \$250,000, respectively.

Right-of-Way Acquisition

LJB partnered with Beck Consulting for the preliminary evaluation of anticipated right of way acquisition cost estimates for both build alternatives. The LJB team developed a specific parcel listing with impacts identified through cross sections review and quantified as partial or total take (based on precedence and zoning implications for current and future use), acreage and budgetary costs based on preliminary appraisal review for both alternatives and various phasing stages. The Beck Consulting team evaluated the impacts depicted on the concept plans included in **Appendix B**, acreage estimates, property characteristics, and leveraged comparable sales, and knowledge of the industry to develop estimates for each parcel. A 30% contingency was applied to parcel estimates. A summary of the anticipated right of way acquisition cost estimates for the alternatives are included below.

- Alternative 1B – \$8,940,000
 - This alternative includes additional right of way acquisition from 39 parcels including the potential for at least one total take.
- Alternative 2 – \$7,440,000
 - This alternative includes additional right of way acquisition from 44 parcels.

These cost estimates are included in the comparison of alternatives table in this report and included in the project cost estimates in **Appendix D**.

Travel Time Analysis

Travel times were analyzed for seven different routes during the PM peak period for the 2050 Design Year. Five of the seven routes are bi-directional (two directions) and two are one-direction only. These travel times were analyzed assuming that vehicles travel through the most direct path/ route. The seven routes were calculated for the No Build, Alternative 1B, and Alternative 2 scenarios and are summarized in the Travel Time Analysis Paths graphics and descriptions included in **Appendix E**.

Travel times on Wilmington Pike and Feedwire Road corridors were taken from the HCS PM Peak segment analyses when available. Where corridor travel times are not available from HCS, travel times were approximated by dividing the roadway segment distances by the following speed information in order of highest priority/ value: segment travel speed from HCS, assumed speed, or the posted speed limit.

The I-675 entrance ramps are assumed to have operating speed of 50 MPH. A 55 MPH speed is assumed on the C-D roadways for Alternative 2, and a 15 MPH queue “crawling” speed assumed on roadway segments within the 95th percentile queue length where no travel time is available in HCS. Control Delays at intersections were then added from HCS as applicable.

For roadways not modeled as a corridor in HCS (i.e., I-675 ramps and C-D roads), travel times were estimated by adding the following sub segments:

- Divide the length of non-queue subsegment (total segment length subtracted by HCS 95%-tile queue length) by the posted or assumed speeds
- Divide 95%-tile queue length by the 15 MPH assumed queue crawl speed
- Add intersection Control Delay from HCS

Alternative 1B and Alternative 2 are expected to reduce travel times on all the seven analyzed routes in comparison to the No Build condition. The greatest reduction occurs in Route #1 and #2 with Alternative 2 having a projected travel time savings of 10.5 minutes when travelling from NB/SB I-675 to the Feedwire Road at Brookdale Boulevard intersection (new apartments). Alternative 1B is also expected to reduce travel times for these trips by 7.5 to 8 minutes. An average travel time reduction of 4 minutes and 5 minutes are expected across all trips by Alternative 1B and Alternative 2, respectively. Travel Time analysis summary table is shown in Table 6.

TABLE 6: TRAVEL TIME ANALYSIS SUMMARY TABLE

Route	Description	Travel Time (Minutes)			
		No Build	Alt 1B	Alt 2 (via Wilm Pike)	Alt 2 (via Feedwire)
1	SB I-675 to EB Feedwire Road at Brookdale Blvd (new apartments)	13.00	5.00		2.48
	WB Feedwire at Brookdale Blvd to NB I-675	5.18	4.99		1.17
2	NB I-675 to EB Feedwire Road at Brookdale Blvd	13.21	5.74		2.71
	WB Feedwire at Brookdale Blvd to SB I-675	3.03	2.97		2.70
3	SB I-675 to NB Wilm Pike at Brown Road	8.92	4.18	3.83	4.20
	SB Wilm Pike at Brown Rd to NB I-675	7.83	5.17	4.69	3.61
4	NB I-675 to NB Wilm Pike at Brown Road	9.13	4.92	3.47	
	SB Wilm Pike at Brown Rd to SB I-675	5.68	3.15	2.97	
5	SB I-675 to SB Wilm Pike at Clio Road	10.62	5.49	4.14	
6	NB Wilm Pike at Clio Rd to SB I-675	7.37	3.85	2.22	
7	SB I-675 to Whipp Road at Old Whipp Ct	7.92	3.06	2.77	3.14
	EB Whipp at Old Whipp Ct to NB I-675	6.41	3.61	3.40	2.33
Average Travel Time (Minutes)		8.19	4.34	3.44	2.79
Average Travel Time Reduction (Minutes)		-	3.85	5.08	

Implementation Phasing

The LJB team developed implementation phasing projects for both feasible alternatives that will reduce the scope, scale, and cost of construction for projects working towards the full build-out of each alternative. Mapping and brief descriptions of the recommended phasing projects is included in **Appendix D**. Each project phase is anticipated to have independent utility in support of the full alternative build-out allowing for development of the environmental documentation for project phases or for the full alternative. Programming and scheduling of the improvements should be completed when local, state, and federal funding becomes available.

Project estimates for each project phase are included in the Alternative Project Cost Estimates included in **Appendix C**.

Comparison of Alternatives

Table 7 updates the comparative analysis that was completed in the Feasibility Study for the key issue evaluation completed during the AER phase of the project. The table also summarizes the evaluation in terms of revised project costs.

TABLE 7: ALTERNATIVES COMPARISON

Analysis Category	ALTERNATIVE 1B			ALTERNATIVE 2		
	Analysis Description & Finding	Benefit	Cost	Analysis Description & Finding	Benefit	Cost
Refined Alternatives and Assessment of Purpose and Need Elements	Refinement of Alternative 1B to improve geometric layout and salvage existing bridges over Wilmington Pike.		\$ 33,390,000	Modifications to the Clyo Road realignment to minimize impacts to the stream identified through the environmental field studies.		\$ 52,815,000
Congestion (Primary Need)		●			●	
Safety (Primary Need)		●			●	
Pedestrian Connectivity (Secondary Need)		●			●	
Environmental Impacts	Approximately 1,000 feet of stream impact.	●	\$ 225,000	Stream identified and mapped in the field resulting in relocation of Clyo Road realignment. Mitigation of remaining impacts estimated.	●	\$ 450,000
Utility Relocations	Relocation of 6 poles along the south side of Feedwire near Wilmington within an existing easement. Approximately 1,700' of 12" water relocations and miscellaneous additional public utility relocations.	●	\$ 675,000	Miscellaneous public utility adjustments and relocations.	●	\$ 250,000
Subtotal			\$ 34,290,000			\$ 53,515,000
45.7% Contingency (25% Design, 20.7% Inflation)			\$ 15,670,530			\$ 24,456,355
Construction Total			\$ 49,960,530			\$ 77,971,355
Design (20%)			\$ 9,992,106			\$ 15,594,271
Right of Way Acquisition	Detailed analysis of each parcel identifying the most significant impacts to the Cracker Barrel parcel.	●	\$ 8,940,000	Detailed analysis of each parcel identifying the most significant impacts to the Cabela's parcel.	●	\$ 7,440,000
Construction Engineering (7%)			\$ 3,497,237			\$ 5,457,995
Grand Total Project Cost			\$ 72,389,873			\$ 106,463,621
Travel Time Analysis	Significant improvement over the No Build alternative for all movements.	●		Improvement beyond Alt. 1B for nearly all movements, particularly those east of Feedwire overpass.	●	

- Construction costs were estimated using 2024 unit prices and inflated to 2029 estimates using ODOT's inflation calculator.

Legend

● - Low Benefit

● - Medium Benefit

● - High Benefit



Conclusion

This Alternative Evaluation Report (AER) for the I-675 and Wilmington Pike Interchange was developed in response to the Feasibility Study, which identified two viable options for improving congestion and safety: Alternative 1B (DDI/Diverging Diamond Interchange) and Alternative 2 (Split Interchange). Since both alternatives had similar costs and the ability to meet the project's goals, this AER was completed to provide additional details and aid in the selection of a recommended preferred alternative. The AER compares the two alternatives in terms of environmental impact, utility relocations, and additional right-of-way acquisition, and provides improved project cost estimates for construction of each of those elements. The AER also included travel time analysis comparisons of the two alternatives to the No Build.

The AER improved the detail available for each of the analysis categories beyond the Feasibility Study and allowed for improved stakeholder understanding of the impacts of the two alternatives. Cost estimates provided for the environmental impacts, utility relocations, and right of way acquisition vary between the two alternatives, with Alternative 1B having slightly less environmental impacts and higher utility and right of way impacts. However, these variations are not significant with respect to the scope and scale of the total project costs. Travel time analysis indicates that Alternative 2 reduces travel times more than Alternative 1B, but both alternatives provide significant improvements over the No Build. Refinements to Alternative 1B have significantly reduced the construction cost estimate for that alternative in comparison to Alternative 2.

The AER has determined that the two alternatives perform comparably across all study metrics, except for total project cost. There are no significant impacts that would render either alternative unfeasible in fulfilling the project's purpose and need. Therefore, given that Alternative 1B meets the project's objectives at a significantly lower cost estimate than Alternative 2, **Alternative 1B is recommended as the preferred option.**

Next Steps

Following approval of the AER and the identification of the preferred alternative, it is recommended for the project stakeholders to collaborate on a strategy for executing the project phases necessary to fully implement Alternative 1B.

We recommend that this strategy includes the following elements:

- **Conduct additional public involvement activities:** share the preferred alternative with community stakeholders and members of the public.
- **Identify agencies to lead the pursuit of federal and state funding** and collaborate in the identification of the local match needed for pursuit of these grants.
- **Confirm a project programming schedule** that accounts for inflation
- **Consider improvements required on the local roadway network:** for areas beyond the limits of this TRAC project area, evaluate the recommendations outlined in the Local Roads Planning Study that was developed in collaboration with this report.

APPENDIX A:
Alternative 1B DDI Review Memo



Memo

To: I-675 / Wilmington Pike, PID 115160 Project Management Team
From: Dan Hoying, P.E., P.S.
Date: August 7, 2024
Subject: Alternative 1B DDI Review
Project #: 0117953A.00

A significant element of the subject project's Alternative Evaluation Report (AER) is the review of the footprint, layout and configuration of the conceptual Diverging Diamond Interchange (DDI) that was included in the project's Feasibility Study as Alternative 1B. LJB partnered with Jacobs and our Feasibility Study project partners at Crawford, Murphy & Tilly (CMT) to review the capacity and operations of the DDI. One goal of this review was to determine if the conceptual design could be optimized to allow the existing bridges carrying I-675 over Wilmington Pike to remain, reducing a major cost driver in this alternative.

DDI Interchange Design Review of Traffic Analysis

Jacobs led the review and optimization study. A copy of their report, dated June 10, 2024, is attached to this memo. The memo acknowledges the Feasibility Study layout to be the preferred DDI configuration if either the existing bridges needed replacement or if the cost of replacing them was not a constraint. The optimized design presented by Jacobs differed from the Feasibility Study layout in two primary aspects:

- the location of the bicycle and pedestrian shared use facility was moved from the inside to the outside of the typical section, allowing the space between the bridge piers to be utilized for through lanes. A shared use path was provided on the west side of the typical section and a sidewalk was provided on the east side.
- auxiliary lanes for the on-ramps were developed outside of the limits of the structures, allowing for the existing structures to remain.

The optimized design did not revise the lane configuration at the cross-over intersections and did not change the design of Wilmington Pike outside of those intersections.

Capacity analysis of this optimized design found minimal impacts to level of service and delay by reducing the turn lane lengths. The primary operational concern identified for the alternative were the pedestrians and bicycles crossing free-flow freeway on-ramps. The use of pedestrian activated signalized ramp crossings at those locations was identified as a potential solution, acknowledging sight distances, capacity constraints and storage length issues that would need to be evaluated during detailed design phases.

Using this initial optimized concept, the LJB, CMT and Jacobs teams collaborated in additional review and refinement resulting in the development of a revised conceptual Alternative 1B layout that will be included in the AER. A depiction of the AER Alternative 1B is attached as Exhibit 1. The summary of differences between the layout included in the referenced Jacobs report and the recommended AER Alternative 1B layout is summarized as follows:

- Larger intersection angles for both the north and south intersections (meeting the



recommended minimum of 40°) and longer tangent lengths as per design guidance were provided to reduce the risk of wrong way operation between the crossover intersections.

- These changes required that the northern crossover intersection be shifted slightly north. The width of the median traffic island south of the southern crossover intersection was widened to the east to increase the NB Wilmington tangent length entering the intersection, resulting in a widening of the typical section to the east at this location.
- The typical section was adjusted and the raised center island was replaced with a barrier to prevent drivers from crossing the median into a wrong-way movement. Lane widths were adjusted under the structure such that a single 12' wide lane was provided in each direction with remaining lanes being 11' wide.
- Bicycle and pedestrian facilities within the interchange limits were changed to reduce the operational concerns of these facilities crossing free-flow on-ramps. Specifically, a bi-directional shared use path is provided on the west side of Wilmington Pike from the Miami Valley Drive intersection to the northern crossover intersection. The shared use path will be transitioned back to the east side of Wilmington Pike in the northern crossover intersection. While sidewalks may be constructed and routed to signalized crossings of Wilmington Pike on the east side of Wilmington Pike south of the interchange and on the west side of Wilmington Pike north of the interchange, crossing through the interchange will require use of the shared use path. This layout reduces the number of ped/bike crossings at free flow ramps to only the northbound Wilmington Pike to southbound I-675 ramp in the northwest quadrant of the interchange. The revised crossing geometry increases the storage length south of the crossing and bike/ped visibility for drivers while separating the crossing from the vehicular yield point for merging northbound Wilmington Pike into the southbound I-675 ramp.
- Use of tunnels under the northbound Wilmington to southbound I-675 and southbound Wilmington Pike to northbound I-675 interchanges were evaluated using existing plans and LiDAR information and are not recommended due to drainage challenges associated with large culverts crossing through the interchange carrying a branch of Little Sugar Creek. Detailed design will evaluate the need for signalization of this crossing.

Summary

Alternative 1B included in the AER meets the Purpose & Need of the project and can be constructed without the replacement of the bridges carrying I-675 over Wilmington Pike. The revisions incorporated into Alternative 1B allows for reduction in the project construction cost estimate because of salvaging the existing bridges.

Detailed design will refine the horizontal and vertical alignments to account for surveyed pavement limits, barrier and structural elements, and project elevations.

***Distribution list:** LJB Project Team

MIAMI VALLEY SOUTH HOSPITAL



SCALE: 1" = 100'

NORTHBOUND EXIT RAMP

SOUTHBOUND ENTRANCE RAMP

MULTI-USE PATH

EXISTING I-675 BRIDGE
OVER WILMINGTON PIKE

WILMINGTON PIKE

237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253

WILMINGTON PIKE

SOUTHBOUND EXIT RAMP

NORTHBOUND ENTRANCE RAMP



I-675 and Wilmington Pike Interchange

DDI Interchange Design Review of Traffic Analysis

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1. Introduction

1.1 Project Overview

The project addresses improvements to the interchange at I-675 and Wilmington Pike in the City of Centerville and Sugarcreek Township, Ohio. This report's main objective is to review a refinement to the proposed design for the diverging diamond interchange (DDI) at this location. The design refinement includes northbound and southbound lane reductions at the interchange movements under the existing bridge.

1.2 Analysis and Document Purpose

Jacobs conducted a traffic analysis to identify the minimum number of lanes that are required for the design year 2050 under the bridge at the I-675/Wilmington Pike interchange. The analysis identifies the traffic operations effects of reducing the cross-section to three lanes in each direction under the I-675 bridge. The motivation for reducing the cross-section to three lanes in each direction is to avoid performing major structural changes to the existing bridge structure.

2. Traffic Analysis Approach and Assumptions

This section provides a summary of the traffic analysis approach and assumptions. Traffic analysis was conducted to evaluate the operations on the entire DDI at the study interchange and the adjacent intersections of Feedwire Road/East Whipp Road/Wilmington Pike and Clyo Road/Wilmington Pike.

2.1 Peak Periods and Alternatives/Scenarios

Two peak hours were studied: weekdays from 7:30 to 8:30 AM and 4:30 to 5:30 PM. The traffic analysis was conducted for the future year 2050. The 2050 demand used in this analysis was developed for the *Feasibility Study for I-675 and Wilmington Pike Interchange* from April 7, 2023. The analysis was conducted for a single design refinement.

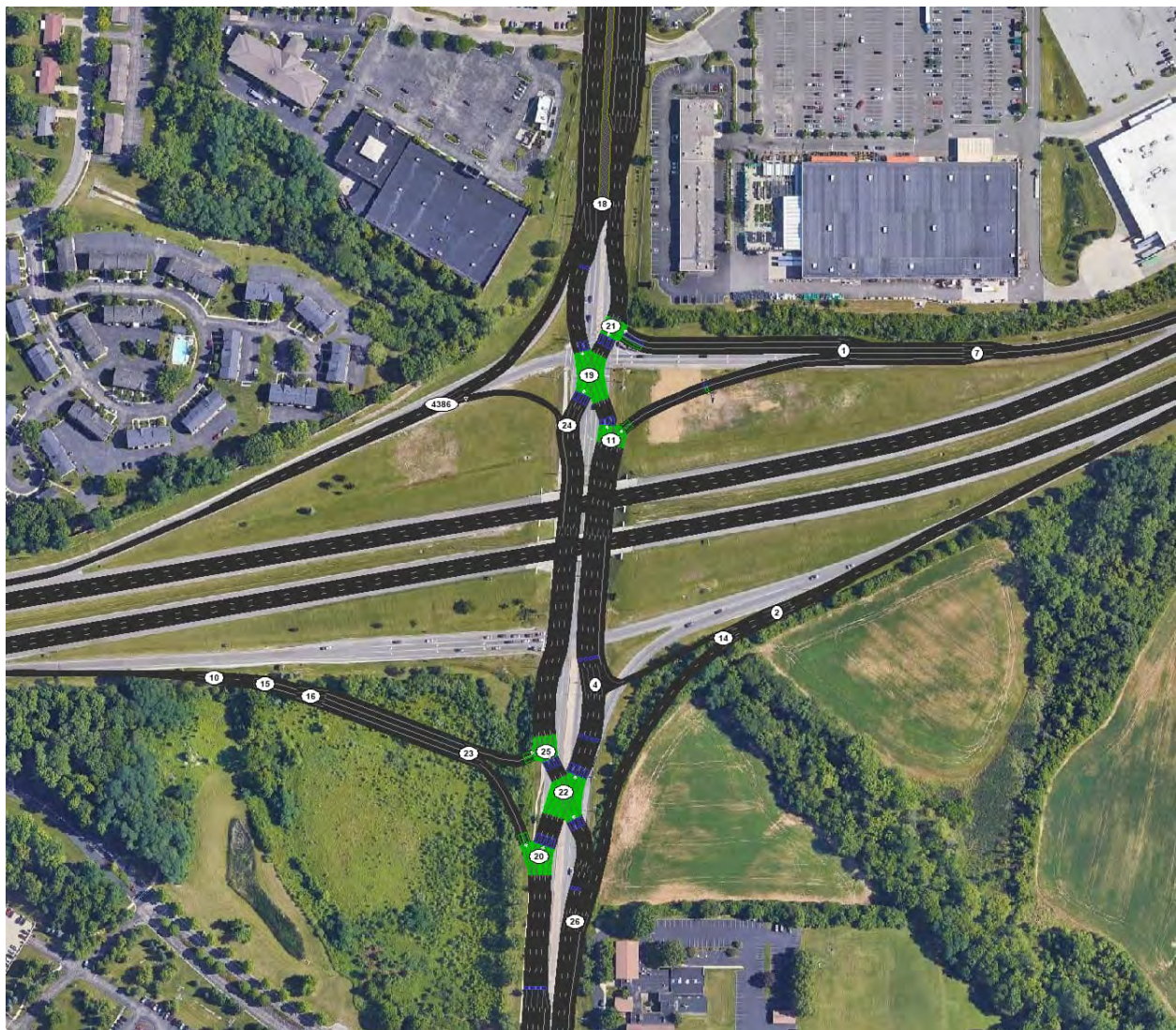
2.2 TransModeler Simulation Modeling

The traffic operational analysis was conducted using TransModeler software Version 6.1 Build 8635. The Level of Service (LOS), delay and queuing reports were obtained from the outputs from the TransModeler software.

2.2.1 Model Development/Simulation Modeling Assumptions

The baseline DDI alternative model was developed by CMT Consultants, reflecting 2050 traffic conditions. A traffic model was developed in TransModeler. Figure 2-1 shows the configuration of the interchange in the model.

Figure 2-1 Baseline DDI Alternative Configuration

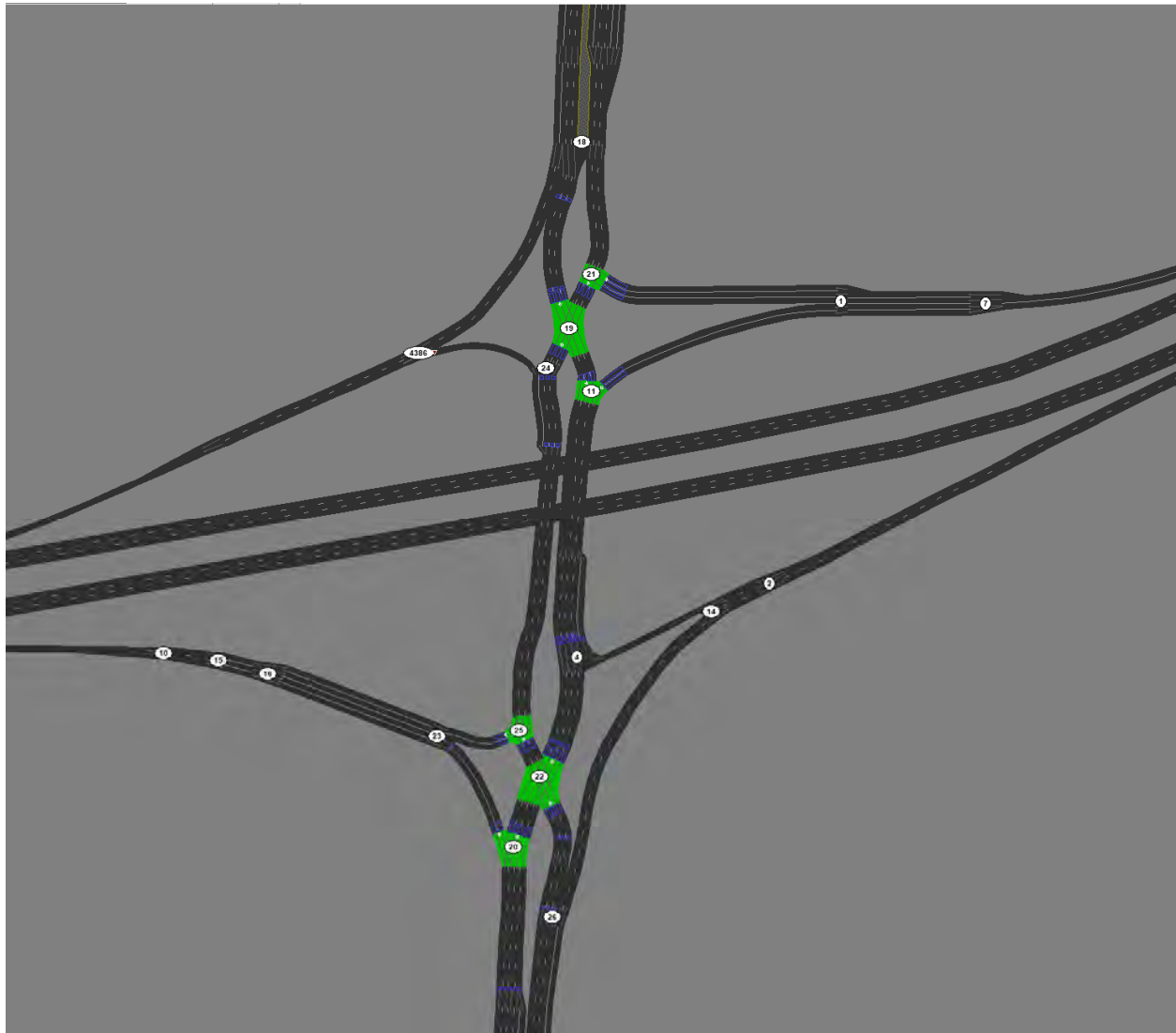


The following are the assumptions and key steps applied for the evaluation of the design refinement using TransModeler:

- A review of the 2050 CMT Consultants baseline DDI alternative model was performed.
- No changes were made to the 2050 traffic demand.
- No changes were made to the signal timing (cycle lengths and phases).
- One run of the model was performed, consistent with the CMT analysis.
- No calibration was conducted.
- The results are reported directly by TransModeler.

Figure 2-2 shows the configuration for the design refinement model.

Figure 2-2 Design Refinement Configuration



2.3 Reported Measure of Effectiveness

The following measures of effectiveness (MOEs) were extracted from the model:

- Intersection delay and LOS.
- Approach delay and LOS.
- Vehicles processed at the intersections/approaches.
- Intersection LOS by lane.
- Lane queues by intersection.
- Spillback queue by intersection.

Appendix A includes the detailed reports from TransModeler software.

2.4 Analysis Results

This section presents the results from the comparison of the baseline DDI alternative and the design refinement. Tables 2-1 and 2-2 are summaries of the results for the intersections LOS, delay, and vehicles processed for the intersections in the study area for the AM and PM peak hours.

Table 2-1 Baseline DDI Alternative vs. Design Refinement Results for AM Peak Hour

AM		Baseline DDI Alternative			Design Refinement		
Node ID	Intersection	Num Veh	Delay (sec/veh)	LOS	Num Veh	Delay (sec/veh)	LOS
19	WILMINGTON PIKE 1	1,802	26.6	C	1,810	28.5	C
22	WILMINGTON PIKE 2	2,084	27.4	C	2,085	22.6	C
29	WILMINGTON PIKE & CLYO RD	4,577	31.4	C	4,602	31.9	C
25	WILMINGTON PIKE & I-675 NB RAMP - EBLT	684	0.1	A	686	0.3	A
20	WILMINGTON PIKE & I-675 NB RAMP - EBRT	2,110	10.9	B	2,114	9.6	A
11	WILMINGTON PIKE & I-675 SB RAMP - WBLT	2,062	14.2	B	2,059	15.2	B
21	WILMINGTON PIKE & I-675 SB RAMP - WBRT	834	0.1	A	836	0.9	A
9	WILMINGTON PIKE & MIAMI VALLEY DR	4,218	12.3	B	4,243	14.2	B
33	WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD	3,811	38.4	D	3,791	35.8	D

Table 2-2 Baseline DDI Alternative vs. Design Refinement Results for PM Peak Hour

PM		Baseline DDI Alternative			Design Refinement		
Node ID	Intersection	Num Veh	Delay (sec/veh)	LOS	Num Veh	Delay (sec/veh)	LOS
19	WILMINGTON PIKE 1	3,281	26.0	C	3,283	26.8	C
22	WILMINGTON PIKE 2	3,453	31.5	C	3,447	26.6	C
29	WILMINGTON PIKE & CLYO RD	6,066	34	C	6,068	34.7	C
25	WILMINGTON PIKE & I-675 NB RAMP - EBLT	1,264	0.0	A	1,277	0.5	A
20	WILMINGTON PIKE & I-675 NB RAMP - EBRT	3,503	12.2	B	3,484	11.2	B
11	WILMINGTON PIKE & I-675 SB RAMP - WBLT	3,545	19.6	B	3,523	20.8	C
21	WILMINGTON PIKE & I-675 SB RAMP - WBRT	1,896	0.3	A	1,909	1.7	A
9	WILMINGTON PIKE & MIAMI VALLEY DR	5,063	15.8	B	5,058	15.5	B
33	WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD	6,932	36.9	D	6,890	42.6	D

There is no substantive change in the overall LOS and delay between the baseline DDI alternative and the design refinement. The number of vehicles processed at each intersection is within 1% for all of the intersections. The LOS is the same for all intersections except for intersection #20 in the AM peak (which changes from LOS B to LOS A) and intersection #11 in the PM peak (which changes from LOS B to LOS C). Both changes are a result of small changes in delay (approximately one second) that happen to cross the LOS threshold values. All the interchange intersections are projected to operate at LOS C or better for both time periods.

Tables 2-3 and 2-4 are a comparison of the delay and LOS for each ramp terminal intersection approach.

Table 2-3 LOS and Delay per Approach for AM Peak Hour

AM		Baseline DDI Alternative			Design Refinement		
Node ID	Intersection/Approach	Num Veh	Delay (sec/veh)	LOS	Num Veh	Delay (sec/veh)	LOS
19	WILMINGTON PIKE 1						
	S	968	25	C	975	32	C
	NE	834	29	C	835	24	C
22	WILMINGTON PIKE 2						
	SW	1,398	21	C	1,396	16	B
	NW	686	39	D	689	36	D
25	WILMINGTON PIKE & I-675 NB RAMP - EBLT						
	NW	684	0	A	686	0	A
20	WILMINGTON PIKE & I-675 NB RAMP - EBRT						
	SE	712	32	C	718	28	C
11	WILMINGTON PIKE & I-675 SB RAMP - WBLT						
	S	972	0	A	973	2	A
	W	1,090	27	C	1,086	27	C
21	WILMINGTON PIKE & I-675 SB RAMP - WBRT						
	NE	834	0	A	836	1	A

Table 2-4 LOS and Delay per Approach for PM Peak Hour

PM		Baseline DDI Alternative			Design Refinement		
Node ID	Intersection/Approach	Num Veh	Delay (sec/veh)	LOS	Num Veh	Delay (sec/veh)	LOS
19	WILMINGTON PIKE 1						
	S	1,385	18	B	1,374	25	C
	NE	1,896	32	C	1,909	28	C
22	WILMINGTON PIKE 2						
	SW	2,189	24	C	2,171	18	B
	NW	1,264	45	D	1,276	41	D
25	WILMINGTON PIKE & I-675 NB RAMP - EBLT						
	NW	1,264	0	A	1,277	1	A
20	WILMINGTON PIKE & I-675 NB RAMP - EBRT						
	SE	1,315	33	C	1,313	29	C
	S	2,188	0	A	2,171	0	A
11	WILMINGTON PIKE & I-675 SB RAMP - WBLT						
	S	1,384	0	A	1,375	1	A
	W	2,161	32	C	2,148	34	C
21	WILMINGTON PIKE & I-675 SB RAMP - WBRT						
	NE	1,896	0	A	1,909	2	A

As with the analysis of the intersection delay and LOS, the results for the baseline DDI alternative and design refinement are similar. Average delays are generally within a few seconds, and the LOS is generally the same.

A focus of the analysis was the dedicated left turn lanes for the free movements to northbound and southbound I-675. An additional analysis was conducted, focusing on the delays for through and left-turn movements at these locations. An additional TransModeler model run was conducted to measure the delays.

Table 2-5 is a comparison of the performance for these left-turn movements.

Table 2-5 Traffic Operations for Free Left-Turn Ramp Movements

Period	Movement to the On-Ramp	Scenario	# of vehicles	Delay (hr)	Number Of Stops	% Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
AM	SB Left	Baseline	266	0.54	0	0%	7.3	0	0
		Refinement	266	0.55	0	0%	7.5	0	0
	NB Left	Baseline	178	0.14	0	0%	2.9	0	0
		Refinement	181	0.24	1	1%	4.8	0.1	0
PM	SB Left	Baseline	229	0.38	0	0%	6	0	0
		Refinement	230	0.5	0	0%	7.8	0	0
	NB Left	Baseline	204	0.19	0	0%	3.4	0	0
		Refinement	207	0.84	85	41%	14.6	6.6	0.4

During the AM peak hour, the traffic operations is essentially the same for the left-turn movements for all the reported performance measures. In the PM peak, there is an increase in the number of stops for the left-turn movements, as the queues from the northbound through movement sometimes reach the back of the left-turn bay. The delay increases for the left-turn movements, but only to 14.6 seconds/vehicle, equivalent to LOS B.

From the simulation, it was observed that the queues within the DDI (for both the baseline DDI alternative and the design refinement) fully dissipated at each cycle, and there were no queues that extended to the traffic signal upstream.

Also, the TransModeler simulation showed unbalanced lane utilization for southbound Wilmington Pike, with a high percentage of traffic in the leftmost through lanes. Even with the unbalanced traffic, the southbound queueing did not result in an appreciable effect on access to the northbound on-ramp via the free left turn.

With the design variation, pedestrians will be moved to the outside of the roadway. To cross the on-ramps, an actuated signal will likely be needed to protect pedestrians from free-flow left-turns to the on-ramps. The signal at the on-ramp could be coordinated with the downstream signal, minimizing the delay for left-turns. Also, the signal would be actuated, so that movements would be free flow during the majority of the time when pedestrians aren't present. With these strategies in place, the additional signal phase wouldn't have a substantive effect on traffic operations (i.e., delay and LOS).

3. Geometric Considerations

The existing geometry on Wilmington Pike under the I-675 bridge consists of seven 11-foot lanes with four-foot lateral clearance to the barriers which protect the existing piers, in both the northbound and southbound directions (see Appendix B – Exhibit 1). The refined geometry under the bridge consists of six 12-foot lanes with four-foot lateral clearance to the existing barriers and a 5-foot raised median. The median separates the northbound and southbound traffic.

With the proposed configuration, the 150-foot left-turn bays would be outside the bridge limits. The geometry of the northbound entrance ramp would need to be revised slightly to accommodate the left-turn bay. The pedestrians would be routed under the bridge on either side of the piers as shown in Appendix B – Exhibit 2.

4. Summary and Conclusions

The baseline DDI alternative configuration has four lanes in the northbound and five lanes in the southbound direction at the I-675 bridge. The left turns to I-675 are dedicated left turns in this alternative. The design variation eliminates one through lane in each direction, and the left turns are served with a 150-foot turn bay. With this variation, the need to reconstruct the bridge is eliminated. Pedestrians would be moved to the outside of the roadway with this design variation.

Traffic analysis (using simulation) of the baseline DDI alternative and design variation was conducted, with the following findings:

- There were no substantive differences in the analysis results for the number of vehicles processed, the delay, or LOS at the study area intersections. The delay and LOS at the approaches to the ramp terminal intersections were also similar for the design variation.
- The queues at the ramp terminal intersections cleared in each cycle for both the baseline DDI alternative, and the design variation.
- The only difference was in the PM peak for the free northbound left-turn movement at the on-ramp. The queues from the through movement would often block access to the turn bay. Left-turn vehicles were delayed in reaching the free movement approximately 40 percent of the time, but the average delay was only about 15 seconds (LOS B). There was no delay in the AM peak, or for the southbound left-turn movement.

With the base design, the bridge will need to be widened. The design variation eliminates the need for widening. However, the pedestrians will then have to be moved to a separate path on the outside. Doing so likely will require signaling the left-turn movement (with an actuated movement to accommodate the occasional pedestrians). That additional signal phase wouldn't have a substantive effect on traffic operations (i.e., delay and LOS). Additional right-of-way along the northbound entrance ramp may be required to accommodate the 150-foot left-turn bay.

While there are minor differences in traffic operations with the design variation, most of the delay and queuing doesn't change, and the few cases where there are increases in delay are well within acceptable limits (LOS B or C). The stakeholders (ODOT and the Montgomery County TID) should determine if the improvement in traffic operations warrants the capital investment required to expand the bridge.

Appendix A - TransModeler Reports

Project: WilmPike_Option1B_DDI_Alt1
 Scenario: AM Pk 120s CL
 Run(s): 05/23/24 16:53:15
 Simulated: 05/23/24 16:53:15
 Time: 10:00:00 - 11:00:00
 Interval: Summary
 Selection: --

Intersection Level of Service

Node ID	Intersection	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service	Control Type
19	WILMINGTON PIKE	1,810	14.33	28.5	C	Actuated
22	WILMINGTON PIKE	2,085	13.08	22.6	C	Actuated
29	WILMINGTON PIKE & CLYO RD	4,602	40.78	31.9	C	Actuated
25	WILMINGTON PIKE & I675 NB RAMP - EBLT	686	0.06	0.3	A	Actuated
20	WILMINGTON PIKE & I675 NB RAMP - EBRT	2,114	5.66	9.6	A	Actuated
11	WILMINGTON PIKE & I675 SB RAMP - WBLT	2,059	8.67	15.2	B	Actuated
21	WILMINGTON PIKE & I675 SB RAMP - WBRT	836	0.21	0.9	A	Actuated
9	WILMINGTON PIKE & MIAMI VALLEY DR	4,243	16.75	14.2	B	Actuated
33	WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD	3,791	37.74	35.8	D	Actuated

Project: WilmPike_Option1B_DDI_Alt1
 Scenario: PM Pk 120s CL
 Run(s): 05/23/24 16:57:06
 Simulated: 05/23/24 16:57:06
 Time: 18:00:00 - 19:00:00
 Interval: Summary
 Selection: --

Intersection Level of Service

Node ID	Intersection	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service	Control Type
19	WILMINGTON PIKE	3,283	24.44	26.8	C	Actuated
22	WILMINGTON PIKE	3,447	25.49	26.6	C	Actuated
29	WILMINGTON PIKE & CLYO RD	6,068	58.55	34.7	C	Actuated
25	WILMINGTON PIKE & I675 NB RAMP - EBLT	1,277	0.19	0.5	A	Actuated
20	WILMINGTON PIKE & I675 NB RAMP - EBRT	3,484	10.83	11.2	B	Actuated
11	WILMINGTON PIKE & I675 SB RAMP - WBLT	3,523	20.33	20.8	C	Actuated
21	WILMINGTON PIKE & I675 SB RAMP - WBRT	1,909	0.90	1.7	A	Actuated
9	WILMINGTON PIKE & MIAMI VALLEY DR	5,058	21.78	15.5	B	Actuated
33	WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD	6,890	81.45	42.6	D	Actuated

Project: WilmPike_Option1B_DDI_Alt1
Scenario: AM Pk 120s CL
Run(s): 05/23/24 16:53:15
Simulated: 05/23/24 16:53:15
Time: 10:00:00 - 11:00:00
Interval: Summary
Selection: --

Intersection Level of Service by Approach

WILMINGTON PIKE -- SIGNALIZED

NODE: 19

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
S	WILMINGTON PIKE	720510559	975	8.67	32.0	C
NE	WILMINGTON PIKE	720510595	835	5.66	24.4	C

WILMINGTON PIKE -- SIGNALIZED

NODE: 22

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
SW	WILMINGTON PIKE	720510577	1,396	6.22	16.0	B
NW	WILMINGTON PIKE	720510597	689	6.86	35.9	D

WILMINGTON PIKE & CLYO RD -- SIGNALIZED

NODE: 29

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
S	WILMINGTON PIKE	720510608	1,380	9.01	23.5	C
E	CLYO RD	720510609	840	10.42	44.7	D
W	CLYO RD	720510610	653	6.06	33.4	C
N	WILMINGTON PIKE	720510611	1,729	15.29	31.8	C

WILMINGTON PIKE & I675 NB RAMP - EBLT -- SIGNALIZED

NODE: 25

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NW	WILMINGTON PIKE	720510587	686	0.06	0.3	A

WILMINGTON PIKE & I675 NB RAMP - EBRT -- SIGNALIZED

NODE: 20

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
S	I675 NB RAMP - EBRT	720510584	718	5.63	28.2	C
S	WILMINGTON PIKE	720510588	1,396	0.03	0.1	A

WILMINGTON PIKE & I675 SB RAMP - WBLT -- SIGNALIZED

NODE: 11

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
S	WILMINGTON PIKE	720510560	973	0.60	2.2	A
SW	I675 SB RAMP - WBRT	720510575	1,086	8.08	26.8	C

WILMINGTON PIKE & I675 SB RAMP - WBRT -- SIGNALIZED**NODE: 21**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NE	WILMINGTON PIKE	720510591	836	0.21	0.9	A

WILMINGTON PIKE & MIAMI VALLEY DR -- SIGNALIZED**NODE: 9**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
S	WILMINGTON PIKE	720510585	1,789	3.36	6.8	A
E	MIAMI VALLEY DR	720510605	121	1.91	56.7	E
W	MIAMI VALLEY DR	720510606	33	0.45	49.5	D
N	WILMINGTON PIKE	720510608	2,300	11.03	17.3	B

WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD -- SIGNALIZED**NODE: 33**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
N	WILMINGTON PIKE	16151	1,161	12.92	40.1	D
E	WHIPP RD	720510613	652	4.92	27.2	C
S	WILMINGTON PIKE	720510614	988	10.42	38.0	D
W	FEEDWIRE RD	720510615	990	9.47	34.4	C

Project: WilmPike_Option1B_DDI_Alt1
Scenario: PM Pk 120s CL
Run(s): 05/23/24 16:57:06
Simulated: 05/23/24 16:57:06
Time: 18:00:00 - 19:00:00
Interval: Summary
Selection: --

Intersection Level of Service by Approach

WILMINGTON PIKE -- SIGNALIZED

NODE: 19

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
S	WILMINGTON PIKE	720510559	1,374	9.68	25.3	C
NE	WILMINGTON PIKE	720510595	1,909	14.77	27.9	C

WILMINGTON PIKE -- SIGNALIZED

NODE: 22

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
SW	WILMINGTON PIKE	720510577	2,171	10.95	18.2	B
NW	WILMINGTON PIKE	720510597	1,276	14.54	41.0	D

WILMINGTON PIKE & CLYO RD -- SIGNALIZED

NODE: 29

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
S	WILMINGTON PIKE	720510608	2,450	16.93	24.9	C
E	CLYO RD	720510609	999	11.68	42.1	D
W	CLYO RD	720510610	914	9.76	38.5	D
N	WILMINGTON PIKE	720510611	1,705	20.19	42.6	D

WILMINGTON PIKE & I675 NB RAMP - EBLT -- SIGNALIZED

NODE: 25

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NW	WILMINGTON PIKE	720510587	1,277	0.19	0.5	A

WILMINGTON PIKE & I675 NB RAMP - EBRT -- SIGNALIZED

NODE: 20

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
S	I675 NB RAMP - EBRT	720510584	1,313	10.64	29.2	C
S	WILMINGTON PIKE	720510588	2,171	0.19	0.3	A

WILMINGTON PIKE & I675 SB RAMP - WBLT -- SIGNALIZED

NODE: 11

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
S	WILMINGTON PIKE	720510560	1,375	0.18	0.5	A
SW	I675 SB RAMP - WBRT	720510575	2,148	20.14	33.8	C

WILMINGTON PIKE & I675 SB RAMP - WBRT -- SIGNALIZED**NODE: 21**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NE	WILMINGTON PIKE	720510591	1,909	0.90	1.7	A

WILMINGTON PIKE & MIAMI VALLEY DR -- SIGNALIZED**NODE: 9**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
S	WILMINGTON PIKE	720510585	2,653	3.06	4.1	A
E	MIAMI VALLEY DR	720510605	350	5.21	53.6	D
W	MIAMI VALLEY DR	720510606	29	0.35	43.0	D
N	WILMINGTON PIKE	720510608	2,026	13.17	23.4	C

WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD -- SIGNALIZED**NODE: 33**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
N	WILMINGTON PIKE	16151	2,966	21.47	26.1	C
E	WHIPP RD	720510613	881	8.45	34.5	C
S	WILMINGTON PIKE	720510614	1,641	17.09	37.5	D
W	FEEDWIRE RD	720510615	1,402	34.44	88.4	F

Project: WilmPike_Option1B_DDI_Alt1
 Scenario: AM Pk 120s CL
 Run(s): 05/23/24 16:53:15
 Simulated: 05/23/24 16:53:15
 Time: 10:00:00 - 11:00:00
 Interval: Summary
 Selection: --

Intersection Level of Service by Lane Group

WILMINGTON PIKE -- SIGNALIZED

NODE: 19

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NEB T	WILMINGTON PIKE	720510595	835	5.66	24.4	C
SB T	WILMINGTON PIKE	720510559	975	8.67	32.0	C

WILMINGTON PIKE -- SIGNALIZED

NODE: 22

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NWB T	WILMINGTON PIKE	720510597	689	6.86	35.9	D
SWB T	WILMINGTON PIKE	720510577	1,396	6.22	16.0	B

WILMINGTON PIKE & CLYO RD -- SIGNALIZED

NODE: 29

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
EB L	CLYO RD	720510609	480	7.21	54.1	D
EB R	CLYO RD	720510609	87	0.13	5.2	A
EB T	CLYO RD	720510609	273	3.08	40.6	D
NB L	WILMINGTON PIKE	720510611	153	2.17	51.2	D
NB T	WILMINGTON PIKE	720510611	979	7.66	28.2	C
NB TR	WILMINGTON PIKE	720510611	597	5.45	32.9	C
SB L	WILMINGTON PIKE	720510608	278	6.44	83.4	F
SB R	WILMINGTON PIKE	720510608	397	0.63	5.7	A
SB T	WILMINGTON PIKE	720510608	705	1.94	9.9	A
WB L	CLYO RD	720510610	99	1.25	45.5	D
WB R	CLYO RD	720510610	292	2.01	24.8	C
WB T	CLYO RD	720510610	262	2.80	38.4	D

WILMINGTON PIKE & I675 NB RAMP - EBLT -- SIGNALIZED

NODE: 25

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NWB T	WILMINGTON PIKE	720510587	686	0.06	0.3	A

WILMINGTON PIKE & I675 NB RAMP - EBRT -- SIGNALIZED**NODE: 20**

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
EB L	I675 NB RAMP - EBRT	720510584	327	2.16	23.8	C
SB T	I675 NB RAMP - EBRT	720510584	391	3.47	32.0	C
SB T	WILMINGTON PIKE	720510588	1,396	0.03	0.1	A

WILMINGTON PIKE & I675 SB RAMP - WBLT -- SIGNALIZED**NODE: 11**

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NWB R	I675 SB RAMP - WBRT	720510575	398	3.46	31.3	C
SB T	WILMINGTON PIKE	720510560	973	0.60	2.2	A
SWB T	I675 SB RAMP - WBRT	720510575	688	4.61	24.1	C

WILMINGTON PIKE & I675 SB RAMP - WBRT -- SIGNALIZED**NODE: 21**

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NEB T	WILMINGTON PIKE	720510591	836	0.21	0.9	A

WILMINGTON PIKE & MIAMI VALLEY DR -- SIGNALIZED**NODE: 9**

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
EB L	MIAMI VALLEY DR	720510605	88	1.39	56.8	E
EB TR	MIAMI VALLEY DR	720510605	33	0.52	56.5	E
NB L	WILMINGTON PIKE	720510608	34	0.18	18.9	B
NB T	WILMINGTON PIKE	720510608	1,545	7.45	17.4	B
NB TR	WILMINGTON PIKE	720510608	721	3.40	17.0	B
SB L	WILMINGTON PIKE	720510585	10	0.06	20.0	B
SB T	WILMINGTON PIKE	720510585	1,212	2.21	6.6	A
SB TR	WILMINGTON PIKE	720510585	567	1.10	7.0	A
WB L	MIAMI VALLEY DR	720510606	13	0.17	46.4	D
WB TR	MIAMI VALLEY DR	720510606	20	0.29	51.4	D

WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD -- SIGNALIZED**NODE: 33**

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
EB L	WHIPP RD	720510613	75	0.28	13.3	B
EB R	WHIPP RD	720510613	425	3.47	29.4	C
EB T	WHIPP RD	720510613	152	1.18	27.8	C
NB L	WILMINGTON PIKE	16151	233	3.36	51.8	D
NB R	WILMINGTON PIKE	16151	296	2.43	29.6	C
NB T	WILMINGTON PIKE	16151	632	7.13	40.6	D
SB L	WILMINGTON PIKE	720510614	163	1.48	32.7	C
SB R	WILMINGTON PIKE	720510614	22	0.22	35.8	D
SB T	WILMINGTON PIKE	720510614	803	8.72	39.1	D
WB L	FEEDWIRE RD	720510615	565	7.78	49.6	D
WB R	FEEDWIRE RD	720510615	207	0.00	0.0	A
WB T	FEEDWIRE RD	720510615	218	1.69	27.8	C

Project: WilmPike_Option1B_DDI_Alt1
Scenario: PM Pk 120s CL
Run(s): 05/23/24 16:57:06
Simulated: 05/23/24 16:57:06
Time: 18:00:00 - 19:00:00
Interval: Summary
Selection: --

Intersection Level of Service by Lane Group

WILMINGTON PIKE -- SIGNALIZED

NODE: 19

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NEB T	WILMINGTON PIKE	720510595	1,909	14.77	27.9	C
SB T	WILMINGTON PIKE	720510559	1,374	9.68	25.3	C

WILMINGTON PIKE -- SIGNALIZED

NODE: 22

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NWB T	WILMINGTON PIKE	720510597	1,276	14.54	41.0	D
SWB T	WILMINGTON PIKE	720510577	2,171	10.95	18.2	B

WILMINGTON PIKE & CLYO RD -- SIGNALIZED

NODE: 29

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
EB L	CLYO RD	720510609	335	4.50	48.4	D
EB R	CLYO RD	720510609	165	0.86	18.7	B
EB T	CLYO RD	720510609	499	6.32	45.6	D
NB L	WILMINGTON PIKE	720510611	218	2.93	48.5	D
NB T	WILMINGTON PIKE	720510611	984	10.40	38.1	D
NB TR	WILMINGTON PIKE	720510611	503	6.85	49.0	D
SB L	WILMINGTON PIKE	720510608	464	8.31	64.4	E
SB R	WILMINGTON PIKE	720510608	369	0.46	4.5	A
SB T	WILMINGTON PIKE	720510608	1,617	8.17	18.2	B
WB L	CLYO RD	720510610	261	4.46	61.5	E
WB R	CLYO RD	720510610	326	1.77	19.5	B
WB T	CLYO RD	720510610	327	3.53	38.9	D

WILMINGTON PIKE & I675 NB RAMP - EBLT -- SIGNALIZED

NODE: 25

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NWB T	WILMINGTON PIKE	720510587	1,277	0.19	0.5	A

Intersection Level of Service by Lane Group

WILMINGTON PIKE & I675 NB RAMP - EBRT -- SIGNALIZED

NODE: 20

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
EB L	I675 NB RAMP - EBRT	720510584	833	6.33	27.4	C
SB T	I675 NB RAMP - EBRT	720510584	480	4.30	32.3	C
SB T	WILMINGTON PIKE	720510588	2,171	0.19	0.3	A

WILMINGTON PIKE & I675 SB RAMP - WBLT -- SIGNALIZED

NODE: 11

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NWB R	I675 SB RAMP - WBRT	720510575	1,121	12.44	39.9	D
SB T	WILMINGTON PIKE	720510560	1,375	0.18	0.5	A
SWB T	I675 SB RAMP - WBRT	720510575	1,027	7.70	27.0	C

WILMINGTON PIKE & I675 SB RAMP - WBRT -- SIGNALIZED

NODE: 21

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NEB T	WILMINGTON PIKE	720510591	1,909	0.90	1.7	A

WILMINGTON PIKE & MIAMI VALLEY DR -- SIGNALIZED

NODE: 9

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
EB L	MIAMI VALLEY DR	720510605	273	4.68	61.7	E
EB TR	MIAMI VALLEY DR	720510605	77	0.53	24.8	C
NB L	WILMINGTON PIKE	720510608	11	0.07	22.4	C
NB T	WILMINGTON PIKE	720510608	1,576	10.31	23.6	C
NB TR	WILMINGTON PIKE	720510608	439	2.79	22.9	C
SB L	WILMINGTON PIKE	720510585	74	0.20	9.7	A
SB T	WILMINGTON PIKE	720510585	2,095	2.20	3.8	A
SB TR	WILMINGTON PIKE	720510585	484	0.65	4.9	A
WB L	MIAMI VALLEY DR	720510606	8	0.10	44.8	D
WB TR	MIAMI VALLEY DR	720510606	21	0.25	42.4	D

WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD -- SIGNALIZED**NODE: 33**

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
EB L	WHIPP RD	720510613	140	1.05	27.1	C
EB R	WHIPP RD	720510613	317	1.99	22.6	C
EB T	WHIPP RD	720510613	424	5.41	45.9	D
NB L	WILMINGTON PIKE	16151	461	6.12	47.8	D
NB R	WILMINGTON PIKE	16151	1,059	4.84	16.4	B
NB T	WILMINGTON PIKE	16151	1,446	10.52	26.2	C
SB L	WILMINGTON PIKE	720510614	294	2.86	35.0	C
SB R	WILMINGTON PIKE	720510614	120	0.38	11.5	B
SB T	WILMINGTON PIKE	720510614	1,227	13.85	40.6	D
WB L	FEEDWIRE RD	720510615	602	29.31	175.3	F
WB R	FEEDWIRE RD	720510615	310	0.01	0.1	A
WB T	FEEDWIRE RD	720510615	490	5.12	37.6	D

Project: WilmPike_Option1B_DDI_Alt1
Scenario: AM Pk 120s CL
Run(s): 05/23/24 16:53:15
Simulated: 05/23/24 16:53:15
Time: 10:00:00 - 11:00:00
Interval: Summary
Selection: --

Lane Queue by Intersection

WILMINGTON PIKE

NODE: 19

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T	33649822	WILMINGTON PIKE	119	28.2	1.1	155.3	6.0	0.0%
NEB T	33649823	WILMINGTON PIKE	119	31.9	1.3	166.5	6.1	0.0%
NEB T	33649824	WILMINGTON PIKE	119	26.5	1.1	140.1	5.1	0.0%
SB T	33649711	WILMINGTON PIKE	119	83.0	3.1	235.8	9.0	10.1%
SB T	33649712	WILMINGTON PIKE	119	61.8	2.3	187.9	7.0	2.5%
SB T	33649833	WILMINGTON PIKE	119	49.5	2.0	165.9	6.0	0.8%

WILMINGTON PIKE

NODE: 22

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NWB T	33649843	WILMINGTON PIKE	119	78.4	2.9	204.3	8.0	0.0%
NWB T	33649844	WILMINGTON PIKE	119	49.4	1.8	152.2	5.0	0.0%
NWB T	33649845	WILMINGTON PIKE	119	23.8	1.0	80.1	3.0	0.0%
SWB T	33649839	WILMINGTON PIKE	119	21.1	0.8	121.6	5.0	0.0%
SWB T	33649780	WILMINGTON PIKE	119	31.6	1.2	163.7	6.0	0.0%
SWB T	33649781	WILMINGTON PIKE	119	20.3	0.8	128.0	5.0	0.0%
SWB T	33649782	WILMINGTON PIKE	119	26.8	1.1	150.9	6.0	0.0%

WILMINGTON PIKE & CLYO RD

NODE: 29

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L	33649944	CLYO RD	119	84.2	3.2	199.3	7.0	0.0%
EB L	33649945	CLYO RD	119	91.5	3.5	193.3	8.0	0.0%
EB R	33649948	CLYO RD	119	2.4	0.1	17.7	1.0	0.0%
EB T	33649946	CLYO RD	119	37.2	1.5	101.2	4.0	0.0%
EB T	33649947	CLYO RD	119	33.9	1.5	95.3	4.0	0.0%
NB L	33649967	WILMINGTON PIKE	119	25.2	1.1	65.2	2.0	0.0%
NB L	33649968	WILMINGTON PIKE	119	21.1	1.0	55.7	2.0	0.0%
NB T	33649969	WILMINGTON PIKE	119	52.5	2.1	188.2	7.0	0.0%
NB T	33649970	WILMINGTON PIKE	119	102.7	3.7	362.7	11.0	0.0%
NB TR	33649971	WILMINGTON PIKE	119	117.9	4.2	362.4	12.0	0.0%
SB L	33649934	WILMINGTON PIKE	119	77.1	3.0	136.9	5.0	0.0%

WILMINGTON PIKE & CLYO RD**NODE: 29**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SB L	33649925	WILMINGTON PIKE	119	77.0	3.0	147.6	5.0	0.0%
SB R	33649929	WILMINGTON PIKE	119	6.0	0.3	43.7	2.0	0.0%
SB T	33649926	WILMINGTON PIKE	119	4.9	0.2	23.2	1.1	0.0%
SB T	33649927	WILMINGTON PIKE	119	8.6	0.4	49.3	2.1	0.0%
SB T	33649928	WILMINGTON PIKE	119	11.1	0.5	78.8	3.1	0.0%
WB L	33649951	CLYO RD	119	25.3	1.2	70.7	3.0	0.0%
WB R	33649953	CLYO RD	119	48.6	1.9	144.3	5.0	0.0%
WB T	33649938	CLYO RD	119	34.5	1.5	88.5	4.0	0.0%
WB T	33649952	CLYO RD	119	26.9	1.2	80.4	3.0	0.0%

WILMINGTON PIKE & I675 NB RAMP - EBLT**NODE: 25**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NWB T	33649801	WILMINGTON PIKE	119	0.3	0.0	0.0	0.0	1.7%
NWB T	33649802	WILMINGTON PIKE	119	0.0	0.0	0.0	0.0	0.0%
NWB T	33649803	WILMINGTON PIKE	119	0.0	0.0	0.0	0.0	0.0%

WILMINGTON PIKE & I675 NB RAMP - EBRT**NODE: 20**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L	33649807	I675 NB RAMP - EBRT	119	20.0	0.9	86.6	4.0	0.0%
EB L	33649808	I675 NB RAMP - EBRT	119	22.6	0.9	87.4	3.1	0.0%
SB T	33649793	I675 NB RAMP - EBRT	119	33.2	1.4	115.7	4.0	0.0%
SB T	33649794	I675 NB RAMP - EBRT	119	37.3	1.5	123.4	5.0	0.0%
SB T	33649840	WILMINGTON PIKE	119	0.3	0.0	0.0	0.0	0.0%
SB T	33649804	WILMINGTON PIKE	119	0.0	0.0	0.0	0.0	0.0%
SB T	33649805	WILMINGTON PIKE	119	0.0	0.0	0.0	0.0	0.0%
SB T	33649806	WILMINGTON PIKE	119	0.0	0.0	0.0	0.0	0.0%

WILMINGTON PIKE & I675 SB RAMP - WBLT**NODE: 11**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NWB R	33649772	I675 SB RAMP - WBRT	119	32.5	1.3	98.2	4.0	0.0%
NWB R	33649773	I675 SB RAMP - WBRT	119	21.4	1.0	75.0	3.0	0.0%
NWB R	33649835	I675 SB RAMP - WBRT	119	21.1	1.0	66.5	3.0	0.0%
SB T	33649713	WILMINGTON PIKE	119	10.5	0.5	47.1	2.0	15.1%

WILMINGTON PIKE & I675 SB RAMP - WBLT**NODE: 11**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SB T	33649714	WILMINGTON PIKE	119	1.6	0.1	16.0	1.0	1.7%
SB T	33649715	WILMINGTON PIKE	119	0.0	0.0	0.0	0.0	0.0%
SWB T	33649774	I675 SB RAMP - WBRT	119	39.4	1.6	161.5	6.0	0.0%
SWB T	33649775	I675 SB RAMP - WBRT	119	51.0	2.0	193.3	7.0	0.0%

WILMINGTON PIKE & I675 SB RAMP - WBRT**NODE: 21**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T	33649812	WILMINGTON PIKE	119	1.0	0.1	14.6	1.0	5.9%
NEB T	33649813	WILMINGTON PIKE	119	1.4	0.1	14.8	1.0	6.7%
NEB T	33649814	WILMINGTON PIKE	119	0.8	0.1	1.5	0.1	5.0%

WILMINGTON PIKE & MIAMI VALLEY DR**NODE: 9**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L	33649889	MIAMI VALLEY DR	119	5.0	0.3	19.6	1.0	0.0%
EB L	33649890	MIAMI VALLEY DR	119	24.0	1.1	59.0	2.1	0.0%
EB TR	33649891	MIAMI VALLEY DR	119	11.4	0.6	51.4	2.0	0.0%
NB L	33649898	WILMINGTON PIKE	119	1.6	0.2	15.7	1.0	0.0%
NB T	33649903	WILMINGTON PIKE	119	16.5	0.6	98.9	4.0	0.0%
NB T	33649904	WILMINGTON PIKE	119	24.5	0.9	143.8	5.0	0.0%
NB T	33649905	WILMINGTON PIKE	119	75.8	2.7	358.6	13.1	0.0%
NB TR	33649906	WILMINGTON PIKE	119	56.1	2.1	286.9	10.0	0.0%
SB L	33649884	WILMINGTON PIKE	119	0.1	0.0	0.0	0.0	0.0%
SB T	33649885	WILMINGTON PIKE	119	5.7	0.3	44.7	2.0	0.0%
SB T	33649886	WILMINGTON PIKE	119	3.9	0.2	23.5	1.0	0.0%
SB T	33649887	WILMINGTON PIKE	119	11.4	0.4	98.9	4.0	0.0%
SB TR	33649888	WILMINGTON PIKE	119	12.8	0.5	93.8	4.0	0.0%
WB L	33649897	MIAMI VALLEY DR	119	3.2	0.2	17.7	1.0	0.0%
WB TR	33649883	MIAMI VALLEY DR	119	6.0	0.3	18.7	1.0	0.0%

WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD**NODE: 33**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L	33650000	WHIPP RD	119	4.8	0.3	21.7	1.0	0.0%
EB R	33650002	WHIPP RD	119	71.6	2.7	255.7	9.0	0.0%

WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD**NODE: 33**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB T	33649999	WHIPP RD	119	11.5	0.6	47.6	2.0	0.0%
EB T	33650001	WHIPP RD	119	11.4	0.5	46.1	2.0	0.0%
NB L	33649989	WILMINGTON PIKE	119	38.5	1.5	137.6	4.0	0.0%
NB L	33649995	WILMINGTON PIKE	119	35.6	1.5	116.9	4.0	0.0%
NB R	33649993	WILMINGTON PIKE	119	30.9	1.3	125.8	5.0	0.0%
NB R	33649994	WILMINGTON PIKE	119	28.4	1.2	103.4	4.0	0.0%
NB T	33649990	WILMINGTON PIKE	119	65.2	2.5	199.2	7.1	0.0%
NB T	33649991	WILMINGTON PIKE	119	59.4	2.4	165.0	7.0	0.0%
NB T	33649992	WILMINGTON PIKE	119	47.9	1.9	131.5	5.0	0.0%
SB L	33650018	WILMINGTON PIKE	119	14.4	0.7	49.2	2.0	0.0%
SB L	33650020	WILMINGTON PIKE	119	12.6	0.7	45.9	2.0	0.0%
SB R	33650024	WILMINGTON PIKE	119	3.9	0.2	19.3	1.0	0.0%
SB T	33650021	WILMINGTON PIKE	119	47.8	1.9	151.7	5.1	0.0%
SB T	33650022	WILMINGTON PIKE	119	70.1	2.6	186.0	7.0	0.0%
SB T	33650023	WILMINGTON PIKE	119	99.6	3.8	244.0	9.0	0.0%
WB L	33650027	FEEDWIRE RD	119	99.5	3.8	243.6	9.0	0.0%
WB L	33650028	FEEDWIRE RD	119	71.2	2.7	206.8	7.0	0.0%
WB R	33650042	FEEDWIRE RD	119	0.7	0.0	0.0	0.0	0.0%
WB T	33650029	FEEDWIRE RD	119	16.4	0.7	68.6	2.0	0.0%
WB T	33650030	FEEDWIRE RD	119	19.8	0.9	73.6	3.0	0.0%

Project: WilmPike_Option1B_DDI_Alt1
Scenario: PM Pk 120s CL
Run(s): 05/23/24 16:57:06
Simulated: 05/23/24 16:57:06
Time: 18:00:00 - 19:00:00
Interval: Summary
Selection: --

Lane Queue by Intersection

WILMINGTON PIKE

NODE: 19

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T	33649822	WILMINGTON PIKE	119	58.4	2.2	320.1	12.0	0.0%
NEB T	33649823	WILMINGTON PIKE	119	74.2	2.8	372.2	14.0	0.0%
NEB T	33649824	WILMINGTON PIKE	119	66.3	2.5	314.4	11.0	0.0%
SB T	33649711	WILMINGTON PIKE	119	70.2	2.8	250.2	9.0	7.6%
SB T	33649712	WILMINGTON PIKE	119	59.0	2.3	179.4	7.0	1.7%
SB T	33649833	WILMINGTON PIKE	119	51.1	2.0	179.3	6.0	0.8%

WILMINGTON PIKE

NODE: 22

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NWB T	33649843	WILMINGTON PIKE	119	99.2	3.6	312.2	11.0	0.0%
NWB T	33649844	WILMINGTON PIKE	119	89.4	3.3	304.8	11.0	0.0%
NWB T	33649845	WILMINGTON PIKE	119	58.1	2.1	202.9	7.0	0.0%
SWB T	33649839	WILMINGTON PIKE	119	60.8	2.2	331.0	11.1	0.0%
SWB T	33649780	WILMINGTON PIKE	119	58.8	2.2	294.8	11.0	0.0%
SWB T	33649781	WILMINGTON PIKE	119	36.2	1.4	203.0	8.0	0.0%
SWB T	33649782	WILMINGTON PIKE	119	36.1	1.3	203.5	7.0	0.0%

WILMINGTON PIKE & CLYO RD

NODE: 29

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L	33649944	CLYO RD	119	54.2	2.2	138.0	5.1	0.0%
EB L	33649945	CLYO RD	119	55.8	2.2	127.6	5.0	0.0%
EB R	33649948	CLYO RD	119	18.6	0.8	59.2	2.1	0.0%
EB T	33649946	CLYO RD	119	73.0	2.9	203.8	8.0	0.0%
EB T	33649947	CLYO RD	119	66.8	2.6	192.3	7.0	0.0%
NB L	33649967	WILMINGTON PIKE	119	35.2	1.5	90.0	3.0	0.0%
NB L	33649968	WILMINGTON PIKE	119	36.8	1.5	88.8	3.0	0.0%
NB T	33649969	WILMINGTON PIKE	119	83.0	3.0	271.0	10.0	0.0%
NB T	33649970	WILMINGTON PIKE	119	124.4	4.6	362.7	12.0	0.0%
NB TR	33649971	WILMINGTON PIKE	119	139.8	5.1	362.4	13.0	0.0%
SB L	33649934	WILMINGTON PIKE	119	109.3	4.3	215.0	8.0	0.0%

WILMINGTON PIKE & CLYO RD**NODE: 29**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SB L	33649925	WILMINGTON PIKE	119	102.5	3.8	198.1	7.0	0.0%
SB R	33649929	WILMINGTON PIKE	119	6.7	0.3	50.2	2.0	0.0%
SB T	33649926	WILMINGTON PIKE	119	44.3	1.8	127.9	5.0	0.0%
SB T	33649927	WILMINGTON PIKE	119	39.5	1.6	139.2	5.1	0.0%
SB T	33649928	WILMINGTON PIKE	119	36.8	1.4	197.1	7.0	0.0%
WB L	33649951	CLYO RD	119	108.4	3.8	266.3	9.0	0.0%
WB R	33649953	CLYO RD	119	33.6	1.4	142.1	5.0	0.0%
WB T	33649938	CLYO RD	119	36.2	1.5	114.6	4.0	0.0%
WB T	33649952	CLYO RD	119	43.9	1.8	134.0	5.0	0.0%

WILMINGTON PIKE & I675 NB RAMP - EBLT**NODE: 25**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NWB T	33649801	WILMINGTON PIKE	119	0.3	0.0	0.0	0.0	1.7%
NWB T	33649802	WILMINGTON PIKE	119	0.0	0.0	0.0	0.0	0.0%
NWB T	33649803	WILMINGTON PIKE	119	0.0	0.0	0.0	0.0	0.0%

WILMINGTON PIKE & I675 NB RAMP - EBRT**NODE: 20**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L	33649807	I675 NB RAMP - EBRT	119	61.6	2.5	192.0	7.1	0.0%
EB L	33649808	I675 NB RAMP - EBRT	119	75.6	3.0	215.3	8.0	0.0%
SB T	33649793	I675 NB RAMP - EBRT	119	51.2	2.0	155.3	6.0	0.0%
SB T	33649794	I675 NB RAMP - EBRT	119	42.1	1.7	130.2	5.0	0.0%
SB T	33649840	WILMINGTON PIKE	119	0.4	0.0	0.0	0.0	0.8%
SB T	33649804	WILMINGTON PIKE	119	1.3	0.1	0.0	0.0	2.5%
SB T	33649805	WILMINGTON PIKE	119	0.3	0.0	0.0	0.0	0.0%
SB T	33649806	WILMINGTON PIKE	119	0.3	0.0	0.0	0.0	0.0%

WILMINGTON PIKE & I675 SB RAMP - WBLT**NODE: 11**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NWB R	33649772	I675 SB RAMP - WBRT	119	92.5	3.4	242.4	9.1	0.0%
NWB R	33649773	I675 SB RAMP - WBRT	119	82.8	3.2	244.1	9.0	0.0%
NWB R	33649835	I675 SB RAMP - WBRT	119	93.6	3.5	241.2	9.0	0.0%
SB T	33649713	WILMINGTON PIKE	119	0.0	0.0	0.0	0.0	0.0%

WILMINGTON PIKE & I675 SB RAMP - WBLT**NODE: 11**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SB T	33649714	WILMINGTON PIKE	119	0.3	0.0	0.0	0.0	0.0%
SB T	33649715	WILMINGTON PIKE	119	1.3	0.1	1.6	0.1	1.7%
SWB T	33649774	I675 SB RAMP - WBRT	119	77.4	2.9	273.6	10.0	0.0%
SWB T	33649775	I675 SB RAMP - WBRT	119	77.5	3.0	270.7	10.1	0.0%

WILMINGTON PIKE & I675 SB RAMP - WBRT**NODE: 21**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T	33649812	WILMINGTON PIKE	119	6.0	0.3	35.1	2.0	26.1%
NEB T	33649813	WILMINGTON PIKE	119	3.1	0.2	17.9	1.0	13.4%
NEB T	33649814	WILMINGTON PIKE	119	5.2	0.3	42.8	2.0	20.2%

WILMINGTON PIKE & MIAMI VALLEY DR**NODE: 9**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L	33649889	MIAMI VALLEY DR	119	34.7	1.5	99.0	4.0	0.0%
EB L	33649890	MIAMI VALLEY DR	119	68.6	2.7	151.6	6.0	0.0%
EB TR	33649891	MIAMI VALLEY DR	119	9.6	0.5	47.6	2.0	0.0%
NB L	33649898	WILMINGTON PIKE	119	0.3	0.0	0.0	0.0	0.0%
NB T	33649903	WILMINGTON PIKE	119	63.2	2.4	244.7	9.0	0.0%
NB T	33649904	WILMINGTON PIKE	119	54.8	2.0	251.3	9.0	0.0%
NB T	33649905	WILMINGTON PIKE	119	85.5	3.1	345.9	13.0	0.0%
NB TR	33649906	WILMINGTON PIKE	119	51.4	1.9	254.0	9.0	0.0%
SB L	33649884	WILMINGTON PIKE	119	1.0	0.2	14.5	1.0	0.0%
SB T	33649885	WILMINGTON PIKE	119	11.1	0.5	67.1	3.0	0.0%
SB T	33649886	WILMINGTON PIKE	119	5.1	0.2	32.1	1.0	0.0%
SB T	33649887	WILMINGTON PIKE	119	5.5	0.2	46.3	2.0	0.0%
SB TR	33649888	WILMINGTON PIKE	119	5.1	0.2	21.6	1.0	0.0%
WB L	33649897	MIAMI VALLEY DR	119	1.8	0.1	17.5	1.0	0.0%
WB TR	33649883	MIAMI VALLEY DR	119	7.8	0.3	47.1	2.0	4.2%

WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD**NODE: 33**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L	33650000	WHIPP RD	119	20.7	1.0	72.6	3.0	0.0%
EB R	33650002	WHIPP RD	119	38.5	1.6	139.1	5.0	0.0%

WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD**NODE: 33**

Movements	Lane ID	Street Name	Observations	Avg Queue Length (ft)	Avg Num Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB T	33649999	WHIPP RD	119	67.3	2.5	163.6	6.0	0.0%
EB T	33650001	WHIPP RD	119	62.9	2.5	153.0	6.0	0.0%
NB L	33649989	WILMINGTON PIKE	119	74.3	2.7	177.0	7.0	0.0%
NB L	33649995	WILMINGTON PIKE	119	72.2	2.8	192.6	7.0	0.0%
NB R	33649993	WILMINGTON PIKE	119	53.1	2.0	210.8	8.0	0.0%
NB R	33649994	WILMINGTON PIKE	119	28.5	1.1	127.9	5.0	0.0%
NB T	33649990	WILMINGTON PIKE	119	84.0	3.1	267.3	10.0	0.0%
NB T	33649991	WILMINGTON PIKE	119	71.4	2.7	253.6	8.1	0.0%
NB T	33649992	WILMINGTON PIKE	119	53.1	2.0	197.5	7.1	0.0%
SB L	33650018	WILMINGTON PIKE	119	31.2	1.5	88.3	3.0	0.0%
SB L	33650020	WILMINGTON PIKE	119	22.6	1.2	73.8	3.0	0.0%
SB R	33650024	WILMINGTON PIKE	119	6.0	0.3	23.8	1.0	0.0%
SB T	33650021	WILMINGTON PIKE	119	87.2	3.4	273.0	10.0	0.0%
SB T	33650022	WILMINGTON PIKE	119	101.1	3.8	323.3	10.1	0.0%
SB T	33650023	WILMINGTON PIKE	119	124.8	4.6	323.0	12.0	0.0%
WB L	33650027	FEEDWIRE RD	119	391.6	14.1	735.5	27.0	21.0%
WB L	33650028	FEEDWIRE RD	119	304.8	11.1	561.4	21.0	1.7%
WB R	33650042	FEEDWIRE RD	119	3.6	0.2	18.3	1.0	0.0%
WB T	33650029	FEEDWIRE RD	119	43.7	1.8	144.9	6.0	0.0%
WB T	33650030	FEEDWIRE RD	119	79.6	2.9	226.1	8.0	0.0%

Project: WilmPike_Option1B_DDI_Alt1
Scenario: AM Pk 120s CL
Run(s): 05/23/24 16:53:15
Simulated: 05/23/24 16:53:15
Time: 10:00:00 - 11:00:00
Interval: Summary
Selection: --

Spillback Queue by Intersection

WILMINGTON PIKE

NODE: 19

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
NEB	WILMINGTON PIKE	60	53.5	4.5	238.3	20	4.5	20
SB	WILMINGTON PIKE	60	95.1	7.5	257.4	23	7.5	23

WILMINGTON PIKE

NODE: 22

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
NWB	WILMINGTON PIKE	60	78.6	5.7	241.8	18	5.7	18
SWB	WILMINGTON PIKE	60	53.2	5.3	196.8	24	5.3	24

WILMINGTON PIKE & CLYO RD

NODE: 29

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
EB	CLYO RD	60	129.6	10.6	267.3	23	10.6	23
WB	CLYO RD	60	77.6	6.9	220.2	14	6.9	14
NB	WILMINGTON PIKE	60	143.0	12.6	502.5	33	12.6	33
SB	WILMINGTON PIKE	60	103.0	7.5	167.6	16	7.5	16

WILMINGTON PIKE & I675 NB RAMP - EBLT

NODE: 25

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
EB	I675 NB RAMP - EBLT	60	30.1	1.9	112.5	8	1.9	8
NWB	WILMINGTON PIKE	60	0.3	0.0	16.0	1	0.0	1

WILMINGTON PIKE & I675 NB RAMP - EBRT

NODE: 20

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
SB	I675 NB RAMP - EBRT	60	52.6	3.4	192.5	11	3.4	11
SB	WILMINGTON PIKE	60	0.3	0.0	16.2	1	0.0	1

WILMINGTON PIKE & I675 SB RAMP - WBLT**NODE: 11**

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
SWB	I675 SB RAMP - WBLT	60	68.3	4.3	217.9	15	4.3	15
SB	WILMINGTON PIKE	60	8.0	0.5	52.5	3	0.5	3

WILMINGTON PIKE & I675 SB RAMP - WBRT**NODE: 21**

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
NWB	I675 SB RAMP - WBRT	60	36.8	3.4	115.5	12	3.4	12
NEB	WILMINGTON PIKE	60	3.0	0.2	31.6	1	0.2	1

WILMINGTON PIKE & MIAMI VALLEY DR**NODE: 9**

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
EB	MIAMI VALLEY DR	60	29.9	2.0	96.8	6	2.0	6
WB	MIAMI VALLEY DR	60	8.6	0.5	49.6	3	0.5	3
NB	WILMINGTON PIKE	60	110.4	8.4	496.0	36	8.4	36
SB	WILMINGTON PIKE	60	28.8	2.4	185.1	15	2.4	15

WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD**NODE: 33**

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
WB	FEEDWIRE RD	60	114.5	8.5	281.2	19	8.5	19
EB	WHIPP RD	60	90.7	4.8	337.5	14	4.8	14
NB	WILMINGTON PIKE	60	94.8	12.5	228.5	31	12.5	31
SB	WILMINGTON PIKE	60	100.6	9.5	273.1	24	9.5	24

ABOUT SPILLBACK QUEUES

Spillback queues begin at the front bumper of the first vehicle in queue on a link. From there, the queue can branch as a tree in different directions as it spills upstream through intersections. The various branches of the spillback queue will extend beyond the originating link and superlink boundaries until the back of the queue is reached on every branch in the tree.

- Average/Maximum Queue Length: Distance from the front bumper of the first queued vehicle to the back bumper of the last queued vehicle for the longest branch
- Average/Maximum Vehicles Queued: Number of vehicles queued in all lanes for the longest branch

Project: WilmPike_Option1B_DDI_Alt1
Scenario: PM Pk 120s CL
Run(s): 05/23/24 16:57:06
Simulated: 05/23/24 16:57:06
Time: 18:00:00 - 19:00:00
Interval: Summary
Selection: --

Spillback Queue by Intersection

WILMINGTON PIKE

NODE: 19

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
NEB	WILMINGTON PIKE	60	116.3	9.7	602.5	50	9.7	50
SB	WILMINGTON PIKE	60	102.8	8.5	261.8	23	8.5	23

WILMINGTON PIKE

NODE: 22

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
NWB	WILMINGTON PIKE	60	127.9	10.8	438.4	37	10.8	37
SWB	WILMINGTON PIKE	60	96.7	8.4	439.8	34	8.4	34

WILMINGTON PIKE & CLYO RD

NODE: 29

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
EB	CLYO RD	60	103.7	11.2	231.5	26	11.2	26
WB	CLYO RD	60	135.0	9.1	310.0	20	9.1	20
NB	WILMINGTON PIKE	60	140.3	15.1	431.6	34	15.1	34
SB	WILMINGTON PIKE	60	152.8	14.3	271.5	37	14.3	37

WILMINGTON PIKE & I675 NB RAMP - EBLT

NODE: 25

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
EB	I675 NB RAMP - EBLT	60	91.6	5.9	306.3	17	5.9	17
NWB	WILMINGTON PIKE	60	0.6	0.0	16.9	1	0.0	1

WILMINGTON PIKE & I675 NB RAMP - EBRT

NODE: 20

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
SB	I675 NB RAMP - EBRT	60	59.0	3.7	180.4	12	3.7	12
SB	WILMINGTON PIKE	60	1.7	0.1	52.5	2	0.1	2

WILMINGTON PIKE & I675 SB RAMP - WBLT**NODE: 11**

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
SWB	I675 SB RAMP - WBLT	60	118.9	7.5	373.4	22	7.5	22
SB	WILMINGTON PIKE	60	2.6	0.2	44.4	3	0.2	3

WILMINGTON PIKE & I675 SB RAMP - WBRT**NODE: 21**

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
NWB	I675 SB RAMP - WBRT	60	134.4	11.9	327.2	31	11.9	31
NEB	WILMINGTON PIKE	60	26.2	1.9	594.3	44	1.9	44

WILMINGTON PIKE & MIAMI VALLEY DR**NODE: 9**

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
EB	MIAMI VALLEY DR	60	75.3	5.2	190.5	13	5.2	13
WB	MIAMI VALLEY DR	60	8.2	0.3	74.8	2	0.3	2
NB	WILMINGTON PIKE	60	84.8	9.2	382.0	41	9.2	41
SB	WILMINGTON PIKE	60	22.3	1.6	272.3	17	1.6	17

WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD**NODE: 33**

Dir	Street Name	Observations	-----LONGEST BRANCH-----				-----ALL BRANCHES-----	
			Avg Queue Length (ft)	Avg Num Queued	Max Queue Length (ft)	Max Num Queued	Avg Total Queued	Max Total Queued
WB	FEEDWIRE RD	60	381.9	27.9	735.6	55	27.9	55
EB	WHIPP RD	60	83.0	7.9	212.1	20	7.9	20
NB	WILMINGTON PIKE	60	133.2	17.5	351.0	42	17.5	42
SB	WILMINGTON PIKE	60	120.6	13.6	289.0	32	13.6	32

ABOUT SPILLBACK QUEUES

Spillback queues begin at the front bumper of the first vehicle in queue on a link. From there, the queue can branch as a tree in different directions as it spills upstream through intersections. The various branches of the spillback queue will extend beyond the originating link and superlink boundaries until the back of the queue is reached on every branch in the tree.

- Average/Maximum Queue Length: Distance from the front bumper of the first queued vehicle to the back bumper of the last queued vehicle for the longest branch
- Average/Maximum Vehicles Queued: Number of vehicles queued in all lanes for the longest branch

Additional Analysis - TransModeler Reports

Project: WilmPike_Option1B_DDI_Alt1
Scenario: AM Pk 120s CL
Run(s): 05/29/24 14:07:38
Simulated: 05/29/24 14:07:38
Time: 10:00:00 - 11:00:00
Interval: Summary
Selection: --

Delay by Lane

I 675 & RAMP

NODE: 13

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SWB on I 675								
SWB T	33649716	1775	3.95	0.00	0	8.0	0.0	0.0
SWB T	33649717	1195	3.54	0.00	0	10.7	0.0	0.0
SWB T	33649718	850	3.17	0.00	0	13.4	0.0	0.0
SWB R	33649730	666	2.30	0.00	0	12.4	0.0	0.0
SWB R	33649731	440	1.51	0.00	0	12.4	0.0	0.0

I 675 & RAMP

NODE: 4388

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
EB on I 675								
EB T	9213	1927	3.28	0.00	0	6.1	0.0	0.0
EB T	9214	1381	3.81	0.00	0	9.9	0.0	0.0
EB T	9215	1043	3.99	0.00	0	13.8	0.0	0.0
EB R	9216	730	2.40	0.00	0	11.9	0.0	0.0

RAMP

NODE: 2

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
NEB on RAMP								
NEB T	33649859	868	0.28	0.00	0	1.1	0.0	0.0
NEB T	33649863	781	0.25	0.00	0	1.1	0.0	0.0
NEB T	33649865	266	0.09	0.00	0	1.3	0.0	0.0

RAMP

NODE: 7

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
WB on RAMP								
WB T	33649755	689	0.33	0.00	0	1.7	0.0	0.0
WB T	33649756	401	0.28	0.00	0	2.5	0.0	0.0

RAMP

NODE: 10

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
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RAMP**NODE: 10**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
EB on RAMP								
EB T	33649783	716	0.33	0.00	0	1.6	0.0	0.0

RAMP**NODE: 14**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
NEB on RAMP								
NEB T	33649825	773	0.44	0.00	0	2.1	0.0	0.0
NEB T	33649846	877	0.43	0.00	0	1.8	0.0	0.0
NEB on RAMP								
NEB T	33649838	266	0.16	0.00	0	2.2	0.0	0.0

RAMP**NODE: 15**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
EB on RAMP								
EB T	33649784	152	0.02	0.00	0	0.6	0.0	0.0
EB T	33649785	563	0.10	0.00	0	0.6	0.0	0.0

RAMP**NODE: 16**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
EB on RAMP								
EB T	33649786	155	0.04	0.00	0	0.9	0.0	0.0
EB T	33649787	174	0.05	0.00	0	1.1	0.0	0.0
EB T	33649788	386	0.11	0.00	0	1.1	0.0	0.0

RAMP**NODE: 4386**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SWB on RAMP								
SWB T	9208	423	0.17	0.00	0	1.5	0.0	0.0
SWB T	33649868	458	0.17	0.00	0	1.3	0.0	0.0
WB on RAMP								
WB T	33649821	181	0.55	0.30	70	11.0	5.9	0.4

WILMINGTON PIKE**NODE: 19**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SB on WILMINGTON PIKE								
SB T	33649711	421	3.99	3.14	239	34.1	26.9	0.6
SB T	33649712	312	2.91	2.27	209	33.5	26.2	0.7
SB T	33649833	241	2.68	2.12	189	40.0	31.6	0.8
NEB on WILMINGTON PIKE								
NEB T	33649822	326	0.99	0.78	56	10.9	8.6	0.2
NEB T	33649823	282	0.96	0.82	59	12.3	10.5	0.2
NEB T	33649824	239	0.83	0.75	54	12.6	11.3	0.2

WILMINGTON PIKE**NODE: 22**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SWB on WILMINGTON PIKE								
SWB T	33649780	383	1.84	1.28	171	17.3	12.1	0.4
SWB T	33649781	250	1.58	1.12	150	22.7	16.1	0.6
SWB T	33649782	364	2.08	1.49	188	20.6	14.8	0.5
SWB T	33649839	404	1.50	0.99	132	13.4	8.8	0.3
NWB on WILMINGTON PIKE								
NWB T	33649843	312	3.87	2.86	223	44.6	33.0	0.7
NWB T	33649844	229	2.61	1.92	165	41.1	30.1	0.7
NWB T	33649845	158	1.46	0.99	96	33.2	22.6	0.6

WILMINGTON PIKE & CLYO RD**NODE: 29**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
EB on CLYO RD								
EB L	33649944	244	4.28	3.45	231	63.1	51.0	0.9
EB L	33649945	229	4.45	3.62	223	70.0	56.8	1.0
EB T	33649946	145	1.91	1.54	116	47.4	38.3	0.8
EB T	33649947	128	1.70	1.37	105	47.8	38.5	0.8
EB R	33649948	87	0.28	0.12	65	11.4	4.8	0.7
WB on CLYO RD								
WB T	33649938	137	1.71	1.38	110	45.0	36.4	0.8
WB L	33649951	97	1.37	1.14	79	50.8	42.3	0.8
WB T	33649952	125	1.64	1.36	99	47.2	39.1	0.8
WB R	33649953	296	2.35	1.83	256	28.6	22.2	0.9

WILMINGTON PIKE & CLYO RD**NODE: 29**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SB on WILMINGTON PIKE								
SB L	33649925	141	3.50	2.96	139	89.3	75.6	1.0
SB T	33649926	270	0.69	0.22	66	9.2	3.0	0.2
SB T	33649927	244	0.93	0.39	100	13.7	5.8	0.4
SB T	33649928	185	1.04	0.52	110	20.2	10.2	0.6
SB R	33649929	402	1.53	0.33	143	13.7	2.9	0.4
SB L	33649934	138	3.70	3.22	141	96.5	84.1	1.0
NB on WILMINGTON PIKE								
NB L	33649967	76	1.28	1.05	68	60.9	49.6	0.9
NB L	33649968	77	1.27	1.02	67	59.4	47.7	0.9
NB T	33649969	400	3.17	2.12	248	28.5	19.1	0.6
NB T	33649970	585	5.85	4.04	383	36.0	24.9	0.7
NB TR	33649971	592	6.30	4.36	397	38.3	26.5	0.7

WILMINGTON PIKE & I675 NB RAMP - EBLT**NODE: 25**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
NWB on WILMINGTON PIKE								
NWB T	33649801	318	0.20	0.04	2	2.2	0.4	0.0
NWB T	33649802	228	0.10	0.00	0	1.6	0.0	0.0
NWB T	33649803	155	0.06	0.00	0	1.3	0.0	0.0

WILMINGTON PIKE & I675 NB RAMP - EBRT**NODE: 20**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SB on I675 NB RAMP - EBRT								
SB T	33649793	185	1.99	1.55	137	38.7	30.1	0.7
SB T	33649794	202	2.13	1.67	142	38.0	29.7	0.7
EB L	33649807	150	1.12	0.83	83	26.9	20.0	0.6
EB L	33649808	179	1.39	1.00	110	27.9	20.1	0.6
SB on WILMINGTON PIKE								
SB T	33649804	382	0.19	0.02	1	1.8	0.1	0.0
SB T	33649805	246	0.13	0.00	0	2.0	0.0	0.0
SB T	33649806	371	0.20	0.00	0	1.9	0.0	0.0
SB T	33649840	402	0.16	0.00	0	1.5	0.0	0.0

WILMINGTON PIKE & I675 SB RAMP - WBLT**NODE: 11**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
NWB on I675 SB RAMP - WBRT								
NWB R	33649772	148	1.61	1.26	96	39.3	30.6	0.6
NWB R	33649773	117	1.19	0.92	80	36.7	28.5	0.7
SWB T	33649774	330	2.46	1.84	196	26.9	20.1	0.6
SWB T	33649775	361	2.89	2.15	219	28.8	21.4	0.6
NWB R	33649835	138	1.25	0.97	89	32.6	25.2	0.6
SB on WILMINGTON PIKE								
SB T	33649713	428	0.57	0.36	18	4.8	3.0	0.0
SB T	33649714	304	0.14	0.02	1	1.6	0.2	0.0
SB T	33649715	241	0.11	0.02	1	1.7	0.3	0.0

WILMINGTON PIKE & I675 SB RAMP - WBRT**NODE: 21**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
NEB on WILMINGTON PIKE								
NEB T	33649812	335	0.30	0.08	5	3.3	0.8	0.0
NEB T	33649813	263	0.23	0.04	3	3.1	0.6	0.0
NEB T	33649814	249	0.25	0.07	5	3.6	1.1	0.0

WILMINGTON PIKE & MIAMI VALLEY DR**NODE: 9**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
EB on MIAMI VALLEY DR								
EB L	33649889	17	0.23	0.20	16	49.7	42.4	0.9
EB L	33649890	73	1.24	1.06	67	61.2	52.5	0.9
EB TR	33649891	34	0.69	0.62	33	73.0	66.2	1.0
WB on MIAMI VALLEY DR								
WB TR	33649883	21	0.32	0.27	21	54.3	45.9	1.0
WB L	33649897	11	0.13	0.10	11	42.4	33.9	1.0
SB on WILMINGTON PIKE								
SB L	33649884	10	0.07	0.04	7	25.9	14.6	0.7
SB T	33649885	491	0.80	0.21	46	5.9	1.5	0.1
SB T	33649886	312	0.57	0.15	42	6.6	1.7	0.1
SB T	33649887	413	1.23	0.47	105	10.7	4.1	0.3
SB TR	33649888	561	2.18	0.70	143	14.0	4.5	0.3
NB on WILMINGTON PIKE								
NB L	33649898	32	0.20	0.08	20	22.6	8.7	0.6
NB T	33649903	389	1.70	0.74	129	15.8	6.8	0.3
NB T	33649904	264	1.55	0.73	121	21.2	9.9	0.5
NB T	33649905	879	6.82	3.68	453	27.9	15.1	0.5
NB TR	33649906	718	4.46	2.03	331	22.4	10.2	0.5

WILMINGTON PIKE & RAMP**NODE: 4**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SB on WILMINGTON PIKE								
SB L	33649847	266	0.55	0.00	0	7.5	0.0	0.0
SB T	33649848	405	0.44	0.00	0	3.9	0.0	0.0
SB T	33649849	406	0.44	0.01	11	3.9	0.1	0.0
SB T	33649850	271	0.28	0.00	3	3.7	0.0	0.0
SB T	33649851	318	0.36	0.02	13	4.0	0.2	0.0

WILMINGTON PIKE & RAMP**NODE: 18**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SB on WILMINGTON PIKE								
SB T	70733	399	0.48	0.00	15	4.3	0.0	0.0
SB T	70734	348	0.37	0.00	4	3.9	0.0	0.0
SB R	70735	415	0.36	0.00	0	3.1	0.0	0.0
SB TR	33649832	691	0.83	0.00	1	4.3	0.0	0.0
NB on WILMINGTON PIKE								
NB T	33649818	508	0.29	0.00	0	2.0	0.0	0.0
NB T	33649819	293	0.17	0.00	0	2.1	0.0	0.0
NB T	33649820	449	0.27	0.00	0	2.2	0.0	0.0

WILMINGTON PIKE & RAMP**NODE: 24**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
NB on WILMINGTON PIKE								
NB L	33649852	181	0.24	0.00	1	4.8	0.1	0.0
NB T	33649853	322	1.50	0.68	137	16.8	7.7	0.4
NB T	33649854	291	1.50	0.76	140	18.5	9.4	0.5
NB T	33649855	234	1.20	0.59	115	18.4	9.0	0.5

WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD**NODE: 33**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
WB on FEEDWIRE RD								
WB L	33650027	305	5.30	4.20	278	62.5	49.6	0.9
WB L	33650028	260	3.70	2.75	221	51.2	38.0	0.9
WB T	33650029	110	1.06	0.83	72	34.7	27.3	0.7
WB T	33650030	108	1.18	0.93	82	39.2	30.9	0.8
WB R	33650042	208	0.24	0.04	23	4.1	0.7	0.1

WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD**NODE: 33**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
EB on WHIPP RD								
EB T	33649999	83	0.77	0.55	53	33.2	24.0	0.6
EB L	33650000	76	0.46	0.25	39	22.0	11.7	0.5
EB T	33650001	68	0.72	0.54	45	38.1	28.4	0.7
EB R	33650002	424	4.22	2.61	278	35.9	22.2	0.7
NB on WILMINGTON PIKE								
NB L	33649989	114	1.93	1.51	113	61.0	47.5	1.0
NB T	33649990	246	3.27	2.56	198	47.8	37.5	0.8
NB T	33649991	228	2.74	2.12	163	43.2	33.5	0.7
NB T	33649992	165	2.08	1.63	130	45.3	35.5	0.8
NB R	33649993	169	1.68	1.26	122	35.8	26.7	0.7
NB R	33649994	135	1.42	1.11	100	37.8	29.6	0.7
NB L	33649995	120	2.09	1.63	126	62.8	48.8	1.1
SB on WILMINGTON PIKE								
SB L	33650018	81	1.03	0.77	68	45.9	34.3	0.8
SB L	33650020	82	0.92	0.64	73	40.2	28.1	0.9
SB T	33650021	220	2.62	1.98	166	42.8	32.4	0.8
SB T	33650022	258	3.56	2.73	221	49.7	38.1	0.9
SB T	33650023	323	4.71	3.62	266	52.5	40.4	0.8
SB R	33650024	22	0.27	0.22	18	44.5	35.7	0.8

Project: WilmPike_Option1B_DDI_Alt1
Scenario: PM Pk 120s CL
Run(s): 05/29/24 11:37:02
Simulated: 05/29/24 11:37:02
Time: 18:00:00 - 19:00:00
Interval: Summary
Selection: --

Delay by Lane

I 675 & RAMP

NODE: 13

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SWB on I 675								
SWB T	33649716	1903	16.64	0.01	22	31.5	0.0	0.0
SWB T	33649717	1333	13.06	0.01	24	35.3	0.0	0.0
SWB T	33649718	859	10.05	0.01	27	42.1	0.1	0.0
SWB R	33649730	1056	11.47	0.01	24	39.1	0.0	0.0
SWB R	33649731	1090	11.84	0.01	22	39.1	0.0	0.0

I 675 & RAMP

NODE: 4388

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
EB on I 675								
EB T	9213	1971	5.19	0.00	0	9.5	0.0	0.0
EB T	9214	1354	5.07	0.00	0	13.5	0.0	0.0
EB T	9215	790	3.76	0.00	0	17.1	0.0	0.0
EB R	9216	1325	5.91	0.00	0	16.0	0.0	0.0

RAMP

NODE: 2

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
NEB on RAMP								
NEB T	33649859	453	0.13	0.00	0	1.1	0.0	0.0
NEB T	33649863	560	0.18	0.00	0	1.1	0.0	0.0
NEB T	33649865	229	0.07	0.00	0	1.1	0.0	0.0

RAMP

NODE: 7

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
WB on RAMP								
WB T	33649755	1025	0.66	0.00	0	2.3	0.0	0.0
WB T	33649756	1116	1.04	0.00	0	3.3	0.0	0.0

RAMP

NODE: 10

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
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RAMP**NODE: 10**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
EB on RAMP								
EB T	33649783	1315	0.75	0.00	0	2.1	0.0	0.0

RAMP**NODE: 14**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
NEB on RAMP								
NEB T	33649825	560	0.33	0.00	0	2.1	0.0	0.0
NEB T	33649846	453	0.20	0.00	0	1.6	0.0	0.0
NEB on RAMP								
NEB T	33649838	229	0.13	0.00	0	2.1	0.0	0.0

RAMP**NODE: 15**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
EB on RAMP								
EB T	33649784	410	0.07	0.00	0	0.6	0.0	0.0
EB T	33649785	905	0.17	0.00	0	0.7	0.0	0.0

RAMP**NODE: 16**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
EB on RAMP								
EB T	33649786	423	0.13	0.00	0	1.1	0.0	0.0
EB T	33649787	413	0.13	0.00	0	1.1	0.0	0.0
EB T	33649788	480	0.14	0.00	0	1.1	0.0	0.0

RAMP**NODE: 4386**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SWB on RAMP								
SWB T	9208	439	0.18	0.00	0	1.5	0.0	0.0
SWB T	33649868	440	0.16	0.00	0	1.3	0.0	0.0
WB on RAMP								
WB T	33649821	207	0.45	0.12	75	7.8	2.2	0.4

WILMINGTON PIKE**NODE: 19**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SB on WILMINGTON PIKE								
SB T	33649711	534	4.55	3.38	180	30.7	22.8	0.3
SB T	33649712	465	3.44	2.54	188	26.6	19.7	0.4
SB T	33649833	361	2.86	2.20	157	28.6	22.0	0.4
NEB on WILMINGTON PIKE								
NEB T	33649822	671	1.67	0.79	65	8.9	4.2	0.1
NEB T	33649823	609	1.63	0.90	82	9.6	5.3	0.1
NEB T	33649824	638	1.61	0.86	68	9.1	4.9	0.1

WILMINGTON PIKE**NODE: 22**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SWB on WILMINGTON PIKE								
SWB T	33649780	675	2.76	2.01	203	14.7	10.7	0.3
SWB T	33649781	375	2.14	1.54	208	20.6	14.8	0.6
SWB T	33649782	314	1.80	1.20	195	20.6	13.8	0.6
SWB T	33649839	781	2.96	2.02	212	13.7	9.3	0.3
NWB on WILMINGTON PIKE								
NWB T	33649843	511	7.33	5.17	433	51.6	36.4	0.8
NWB T	33649844	432	5.51	3.90	316	45.9	32.5	0.7
NWB T	33649845	348	3.69	2.48	242	38.2	25.6	0.7

WILMINGTON PIKE & CLYO RD**NODE: 29**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
EB on CLYO RD								
EB L	33649944	169	2.53	2.06	140	53.9	43.9	0.8
EB L	33649945	170	2.69	2.16	150	57.0	45.8	0.9
EB T	33649946	265	4.01	3.22	231	54.5	43.8	0.9
EB T	33649947	235	3.39	2.73	199	51.9	41.8	0.8
EB R	33649948	165	1.18	0.86	135	25.7	18.8	0.8
WB on CLYO RD								
WB T	33649938	139	1.83	1.45	113	47.4	37.7	0.8
WB L	33649951	261	7.07	5.85	329	97.5	80.7	1.3
WB T	33649952	188	2.49	1.98	166	47.7	37.9	0.9
WB R	33649953	325	2.52	1.87	278	28.0	20.7	0.9

WILMINGTON PIKE & CLYO RD**NODE: 29**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SB on WILMINGTON PIKE								
SB L	33649925	237	4.87	3.90	213	73.9	59.3	0.9
SB T	33649926	556	3.21	1.83	140	20.8	11.8	0.3
SB T	33649927	531	3.15	1.65	178	21.4	11.2	0.3
SB T	33649928	508	3.43	1.59	240	24.3	11.2	0.5
SB R	33649929	363	1.20	0.30	122	11.9	3.0	0.3
SB L	33649934	223	4.54	3.67	203	73.2	59.2	0.9
NB on WILMINGTON PIKE								
NB L	33649967	111	1.73	1.37	93	56.1	44.4	0.8
NB L	33649968	106	1.75	1.38	94	59.3	46.9	0.9
NB T	33649969	457	5.05	3.56	339	39.8	28.0	0.7
NB T	33649970	532	7.10	5.19	415	48.1	35.1	0.8
NB TR	33649971	499	7.88	5.65	434	56.8	40.7	0.9

WILMINGTON PIKE & I675 NB RAMP - EBLT**NODE: 25**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
NWB on WILMINGTON PIKE								
NWB T	33649801	517	0.27	0.00	0	1.9	0.0	0.0
NWB T	33649802	427	0.18	0.00	0	1.6	0.0	0.0
NWB T	33649803	348	0.13	0.00	0	1.3	0.0	0.0

WILMINGTON PIKE & I675 NB RAMP - EBRT**NODE: 20**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SB on I675 NB RAMP - EBRT								
SB T	33649793	257	2.81	2.15	182	39.4	30.1	0.7
SB T	33649794	223	2.17	1.66	147	35.1	26.7	0.7
EB L	33649807	395	3.46	2.49	257	31.5	22.7	0.7
EB L	33649808	441	3.87	2.73	266	31.6	22.3	0.6
SB on WILMINGTON PIKE								
SB T	33649804	673	0.33	0.02	3	1.8	0.1	0.0
SB T	33649805	371	0.20	0.00	0	1.9	0.0	0.0
SB T	33649806	316	0.18	0.00	0	2.0	0.0	0.0
SB T	33649840	784	0.46	0.08	5	2.1	0.3	0.0

WILMINGTON PIKE & I675 SB RAMP - WBLT**NODE: 11**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
NWB on I675 SB RAMP - WBRT								
NWB R	33649772	390	4.52	3.26	281	41.7	30.1	0.7
NWB R	33649773	347	4.03	2.94	276	41.8	30.5	0.8
SWB T	33649774	503	4.27	3.01	311	30.6	21.5	0.6
SWB T	33649775	519	4.74	3.40	339	32.9	23.6	0.7
NWB R	33649835	379	4.45	3.33	283	42.2	31.7	0.7
SB on WILMINGTON PIKE								
SB T	33649713	554	0.46	0.17	8	3.0	1.1	0.0
SB T	33649714	446	0.27	0.10	5	2.2	0.8	0.0
SB T	33649715	361	0.12	0.00	0	1.2	0.0	0.0

WILMINGTON PIKE & I675 SB RAMP - WBRT**NODE: 21**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
NEB on WILMINGTON PIKE								
NEB T	33649812	674	0.74	0.27	18	3.9	1.4	0.0
NEB T	33649813	564	0.65	0.24	16	4.2	1.5	0.0
NEB T	33649814	679	0.61	0.12	9	3.2	0.6	0.0

WILMINGTON PIKE & MIAMI VALLEY DR**NODE: 9**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
EB on MIAMI VALLEY DR								
EB L	33649889	123	2.08	1.76	110	61.0	51.6	0.9
EB L	33649890	149	3.34	2.86	161	80.7	69.1	1.1
EB TR	33649891	77	0.45	0.32	64	21.0	15.0	0.8
WB on MIAMI VALLEY DR								
WB TR	33649883	23	0.33	0.28	23	51.8	43.6	1.0
WB L	33649897	10	0.14	0.12	9	50.7	41.9	0.9
SB on WILMINGTON PIKE								
SB L	33649884	72	0.36	0.13	40	17.9	6.5	0.6
SB T	33649885	867	1.76	0.48	77	7.3	2.0	0.1
SB T	33649886	625	1.08	0.23	61	6.2	1.3	0.1
SB T	33649887	598	1.41	0.37	109	8.5	2.2	0.2
SB TR	33649888	465	1.32	0.41	106	10.2	3.2	0.2
NB on WILMINGTON PIKE								
NB L	33649898	11	0.13	0.08	13	44.1	26.9	1.2
NB T	33649903	515	4.00	2.36	278	27.9	16.5	0.5
NB T	33649904	410	3.23	1.90	253	28.4	16.7	0.6
NB T	33649905	655	5.99	3.72	419	32.9	20.4	0.6
NB TR	33649906	443	3.48	1.93	277	28.3	15.7	0.6

WILMINGTON PIKE & RAMP**NODE: 4**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SB on WILMINGTON PIKE								
SB L	33649847	230	0.50	0.00	0	7.8	0.0	0.0
SB T	33649848	784	1.82	0.46	142	8.3	2.1	0.2
SB T	33649849	689	1.43	0.37	124	7.5	1.9	0.2
SB T	33649850	376	0.57	0.04	45	5.4	0.4	0.1
SB T	33649851	301	0.37	0.01	20	4.4	0.1	0.1

WILMINGTON PIKE & RAMP**NODE: 18**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
SB on WILMINGTON PIKE								
SB T	70733	510	1.15	0.17	32	8.1	1.2	0.1
SB T	70734	519	0.81	0.08	23	5.6	0.6	0.0
SB R	70735	444	0.43	0.00	0	3.5	0.0	0.0
SB TR	33649832	768	1.05	0.03	10	4.9	0.1	0.0
NB on WILMINGTON PIKE								
NB T	33649818	1079	0.67	0.00	0	2.2	0.0	0.0
NB T	33649819	718	0.48	0.00	0	2.4	0.0	0.0
NB T	33649820	1235	0.99	0.00	2	2.9	0.0	0.0

WILMINGTON PIKE & RAMP**NODE: 24**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
NB on WILMINGTON PIKE								
NB L	33649852	207	0.84	0.38	85	14.6	6.6	0.4
NB T	33649853	668	3.92	1.86	341	21.1	10.0	0.5
NB T	33649854	618	4.26	2.35	363	24.8	13.7	0.6
NB T	33649855	630	4.15	2.37	361	23.7	13.6	0.6

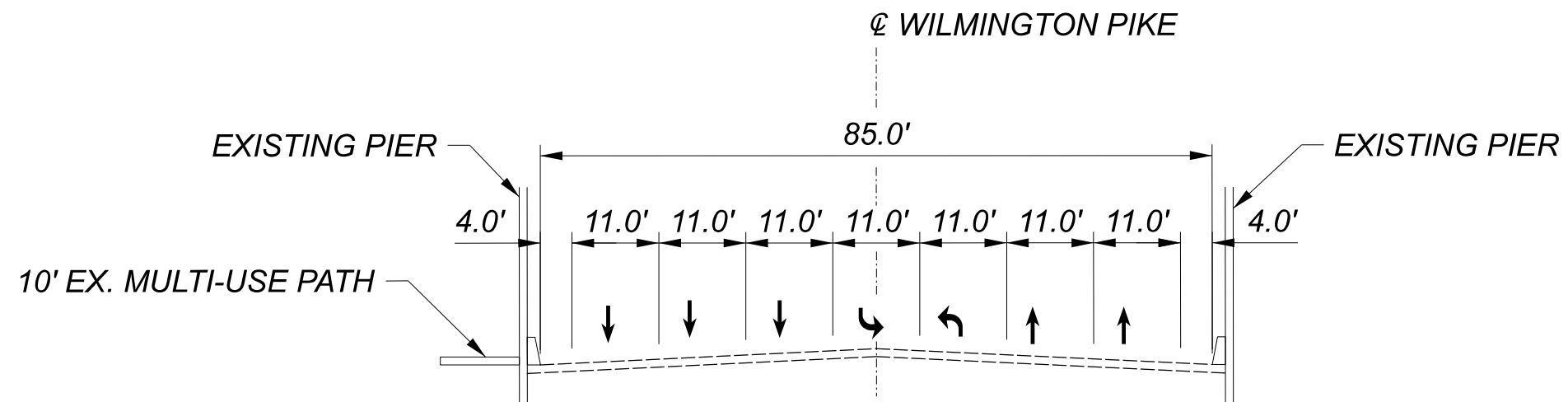
WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD**NODE: 33**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
WB on FEEDWIRE RD								
WB L	33650027	294	19.13	16.49	702	234.2	201.9	2.4
WB L	33650028	274	15.06	12.81	544	197.9	168.4	2.0
WB T	33650029	166	2.61	2.17	127	56.5	47.1	0.8
WB T	33650030	296	3.92	3.23	170	47.6	39.3	0.6
WB R	33650042	297	0.45	0.13	38	5.5	1.5	0.1

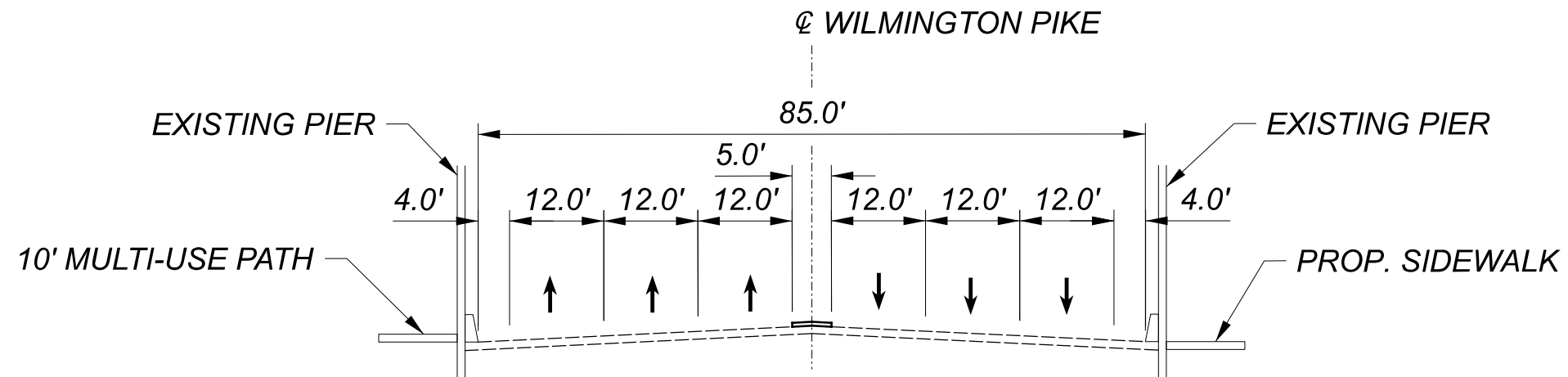
WILMINGTON PIKE, WHIPP RD & FEEDWIRE RD**NODE: 33**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/Veh
EB on WHIPP RD								
EB T	33649999	216	3.26	2.53	184	54.3	42.2	0.9
EB L	33650000	142	1.50	1.01	132	38.1	25.6	0.9
EB T	33650001	207	3.20	2.51	180	55.7	43.7	0.9
EB R	33650002	314	2.47	1.55	230	28.3	17.8	0.7
NB on WILMINGTON PIKE								
NB L	33649989	226	3.47	2.58	169	55.3	41.1	0.7
NB T	33649990	545	4.82	3.09	324	31.8	20.4	0.6
NB T	33649991	494	4.42	2.85	307	32.2	20.8	0.6
NB T	33649992	408	3.42	2.10	259	30.1	18.5	0.6
NB R	33649993	508	3.78	2.02	270	26.8	14.3	0.5
NB R	33649994	556	3.04	1.43	254	19.7	9.3	0.5
NB L	33649995	224	3.63	2.73	185	58.4	43.8	0.8
SB on WILMINGTON PIKE								
SB L	33650018	143	1.76	1.31	126	44.4	33.0	0.9
SB L	33650020	150	1.70	1.16	134	40.8	27.9	0.9
SB T	33650021	391	4.94	3.63	308	45.5	33.4	0.8
SB T	33650022	391	5.50	4.01	338	50.7	36.9	0.9
SB T	33650023	447	7.01	5.30	395	56.5	42.6	0.9
SB R	33650024	120	0.70	0.40	84	21.1	12.1	0.7

Appendix B - Typical Section and Revised Plan View



**7 - EXISTING LANES UNDER I-675 BRIDGE
WILMINGTON PIKE**



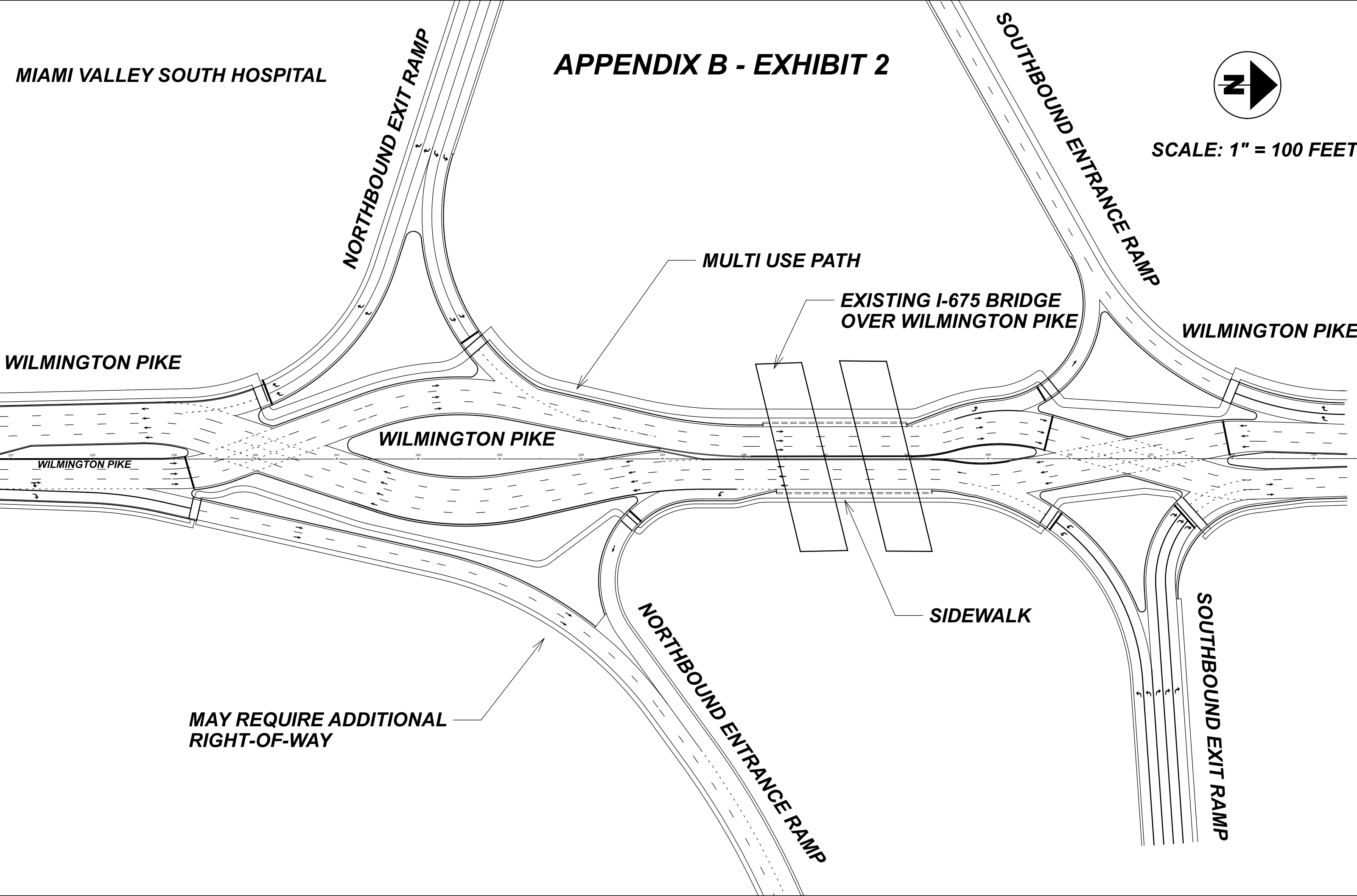
OPTION 1A - DIVERGING DIAMOND INTERCHANGE
MAXIMUM LANES THAT CAN BE ACCOMMODATED WITHIN
THE EXISTING PIERS WITHOUT REBUILDING THE BRIDGE
WILMINGTON PIKE

MIAMI VALLEY SOUTH HOSPITAL

APPENDIX B - EXHIBIT 2

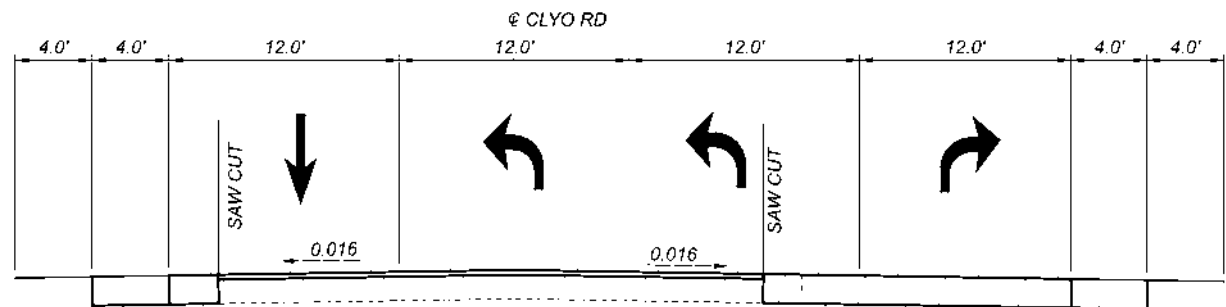


SCALE: 1" = 100 FEET



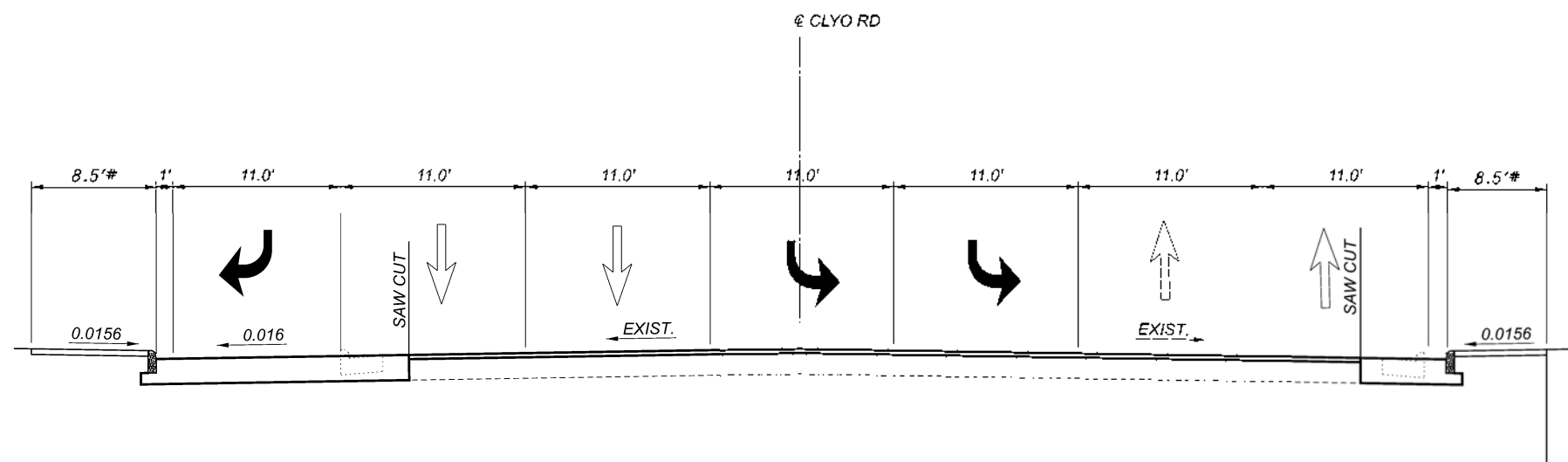
APPENDIX B:
Concept Plans



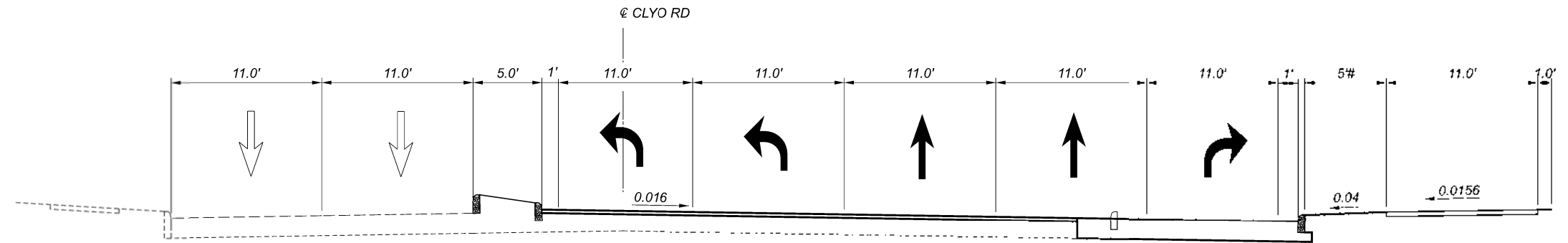


CLYO ROAD, ALT 1B
STA. 758+00

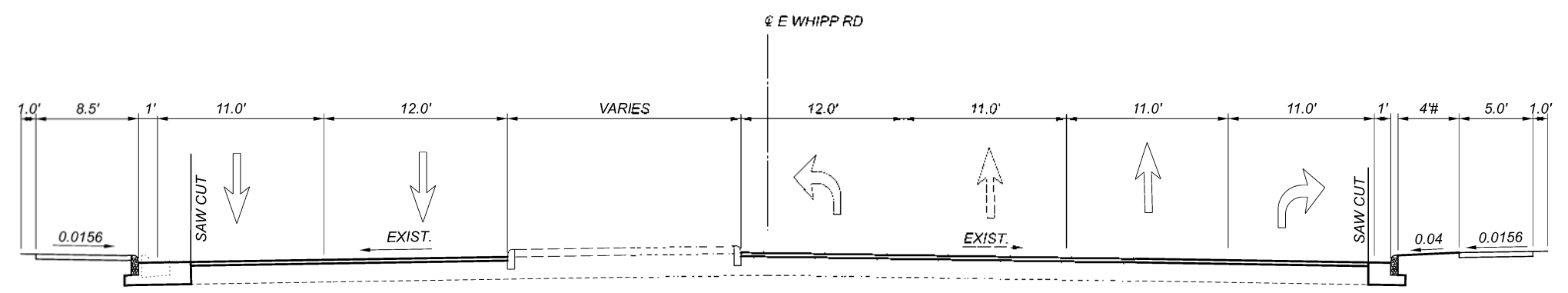
	Feedwire	Clyo	Wilmington	Whipp
Functional classification	Major Collector	Major Collector	Principal Arterial	Minor Arterial
Design speed	35	35	40	35
Speed Limit	35	35	40	35
Design year ADT	>6000	>6000	>6000	>6000



CLYO ROAD, ALT 2
STA. 715+00



CLYO ROAD, ALT 1B/2
STA. 712+00



E. WHIPP ROAD, ALT 1B/2
STA. 764+00

TYPICAL SECTIONS

STANDARD DESIGN WIDTHS MAY
BE ADJUSTED DURING FINAL DESIGN
IF REQUIRED FOR RW CONSTRAINTS.

DESIGN AGENCY

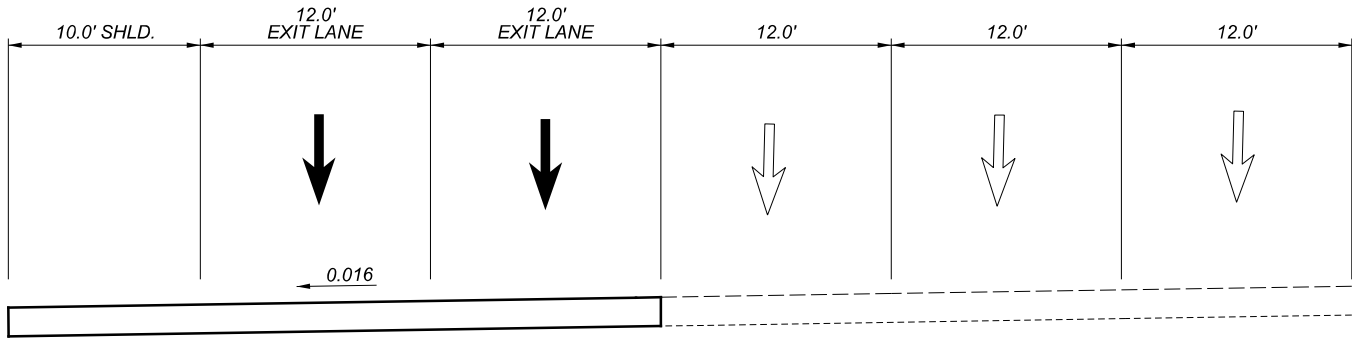
DESIGNER
ARW

REVIEWER
JRE 03/24/23

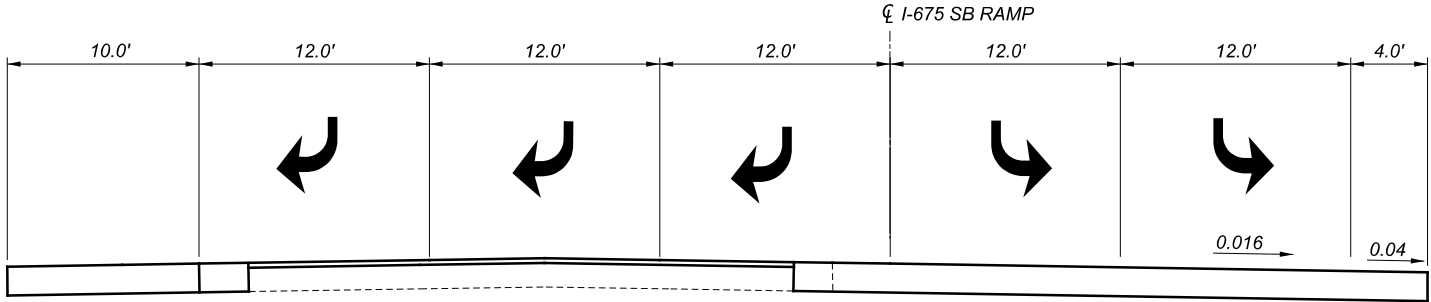
PROJECT ID
115160

SHEET
1

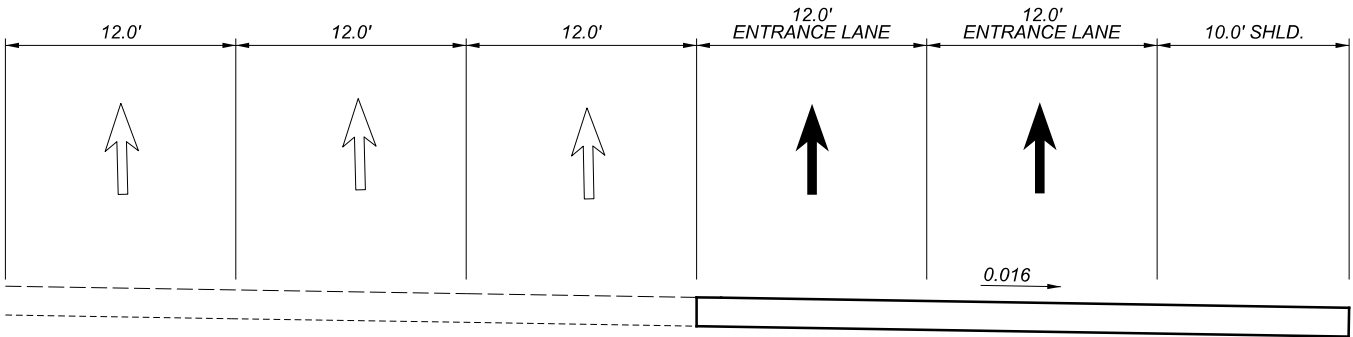
TOTAL
59



I-675, SB, ALT. 1B
STA. 127+00



I-675, SB EXIT RAMP, ALT 1B
STA. 453+00



I-675, NB, ALT. 1B
STA. 127+00

TYPICAL SECTIONS

DESIGN AGENCY



DESIGNER

ARW

REVIEWER

JRE 03/24/23

PROJECT ID

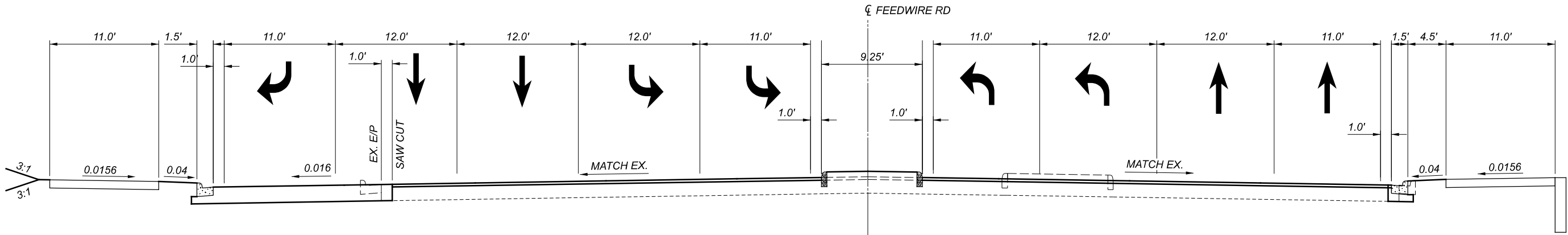
115160

SHEET

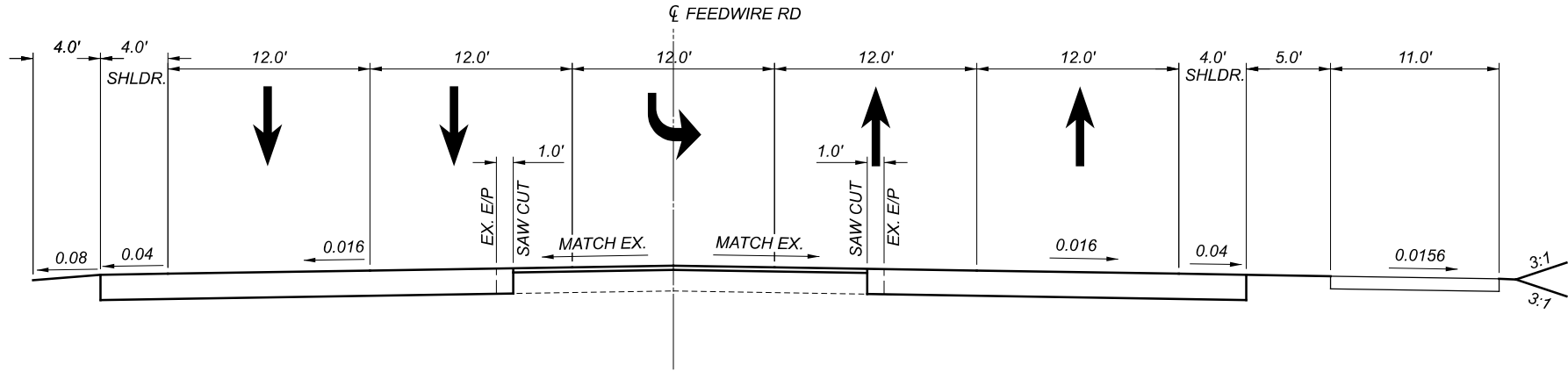
2

TOTAL

59



FEEDWIRE RD
STA. 504+00.00

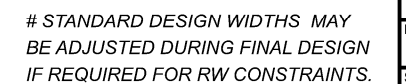


FEEDWIRE RD
STA. 532+00.00

TYPICAL SECTIONS

DESIGN AGENCY	
DESIGNER	
ARW	
REVIEWER	
JRE 03/24/23	
PROJECT ID	
115160	
SHEET	TOTAL
3	59

MODEL: Sheet PAPER: 17x11 (in.) DATE: 4/16/2025 TIME: 10:25:08 AM USER: jespelaje
Q:\Montgomery Cnty TID0117953A.00 - I-675 Wilmington Interchange\115160400-Engineering\Roadway\Sheets\115160_GY001-2.dgn



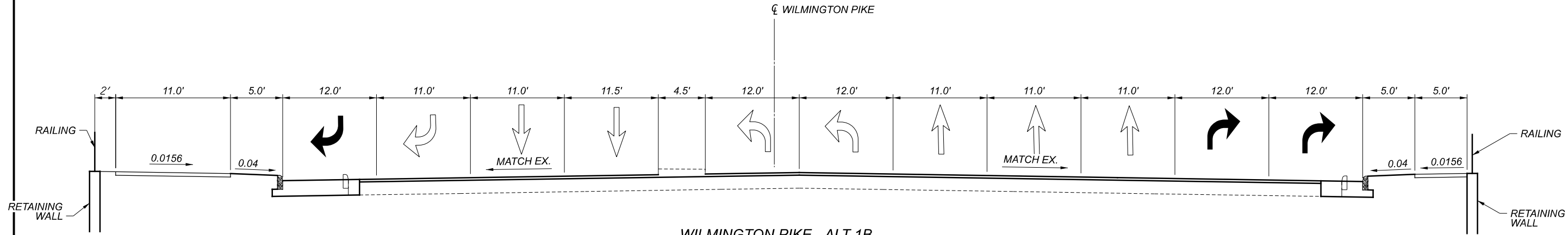
TYPICAL SECTIONS

DESIGN AGENCY

DESIGNER
ARWREVIEWER
RE 03/24/23

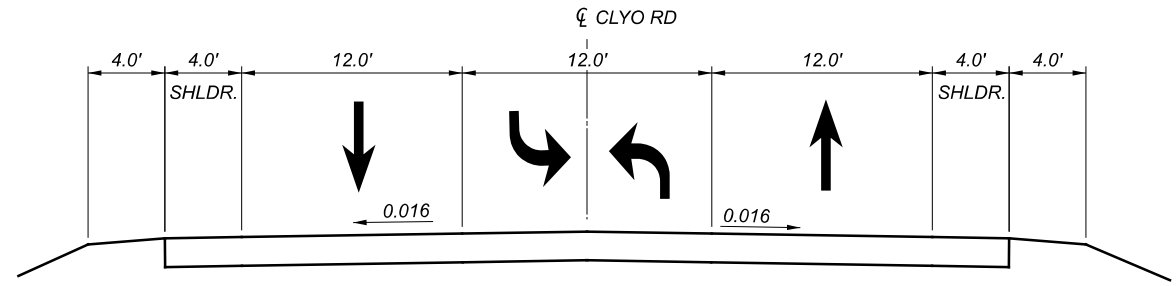
PROJECT ID
115160

MEET	TOTAL
4	59



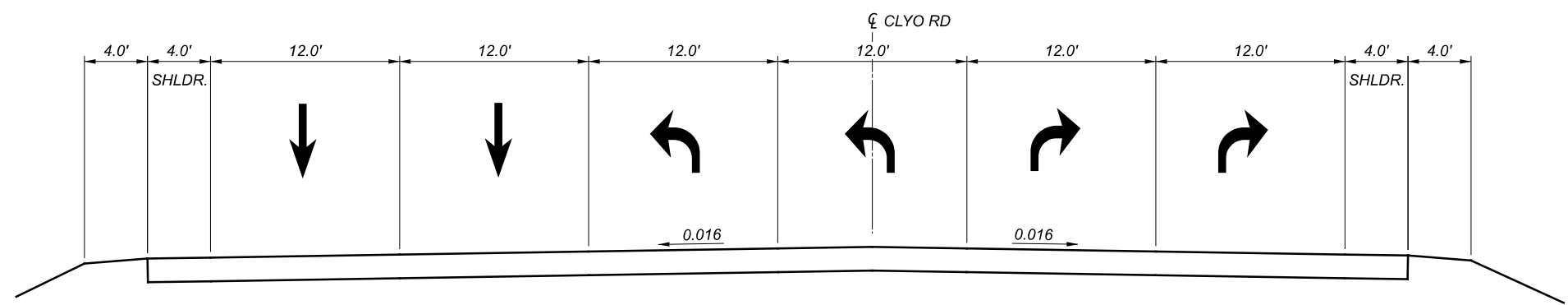
WILMINGTON PIKE - ALT 1B

STA. 260+50



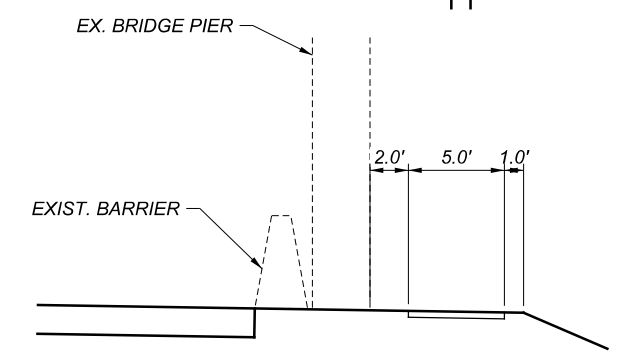
CLYO RD - ALT 2

STA. 768+00



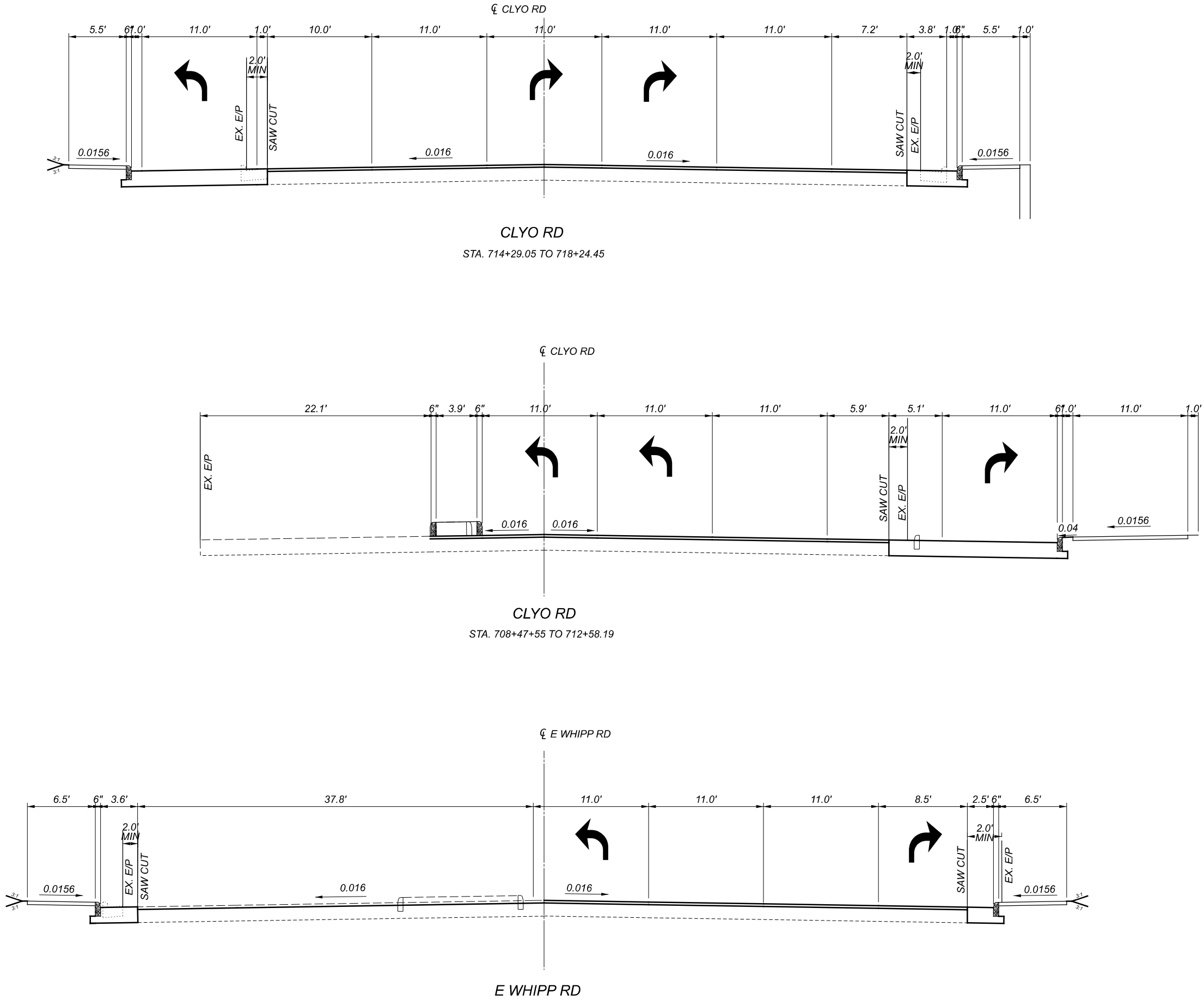
CLYO RD - ALT 2

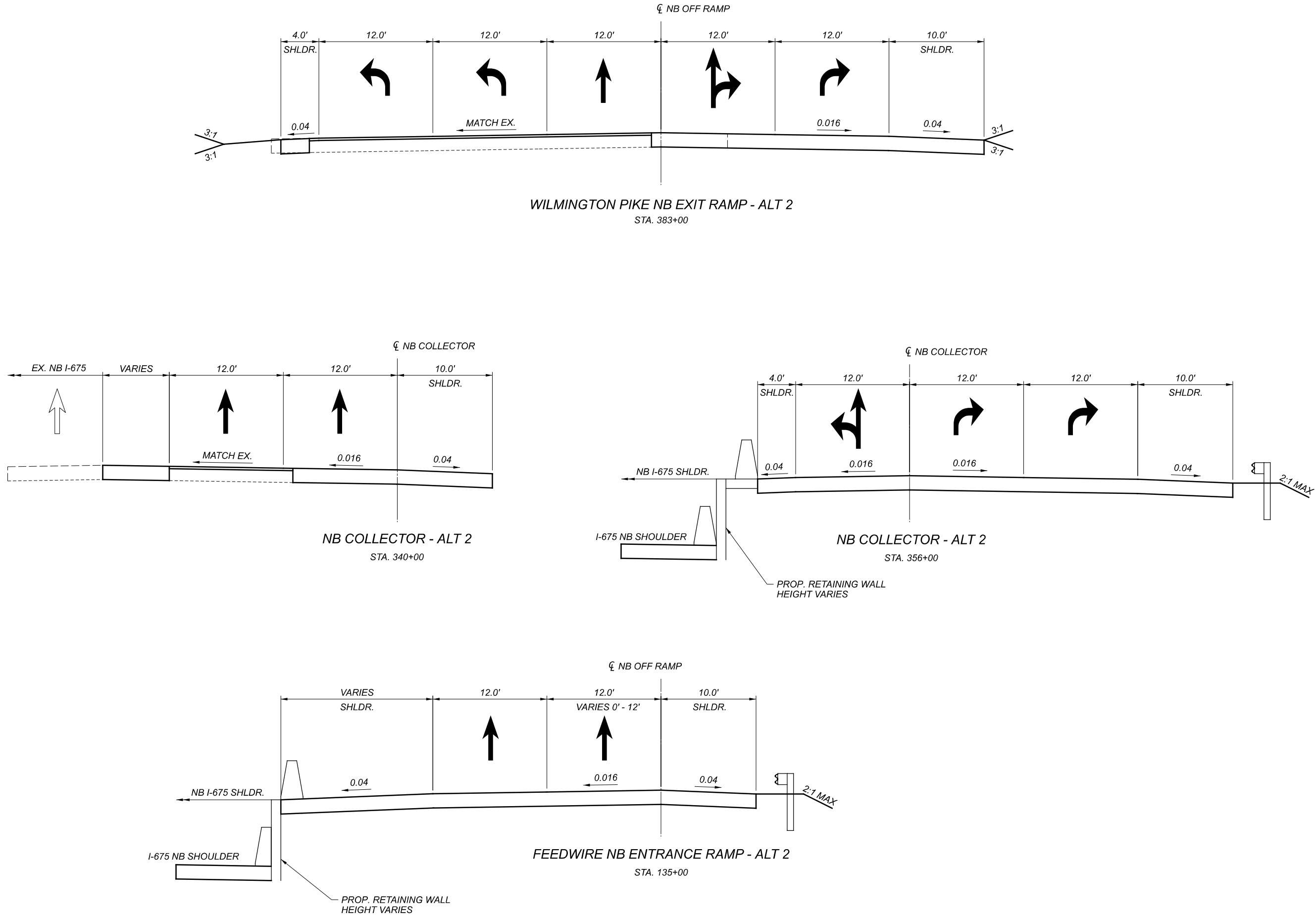
STA. 776+00

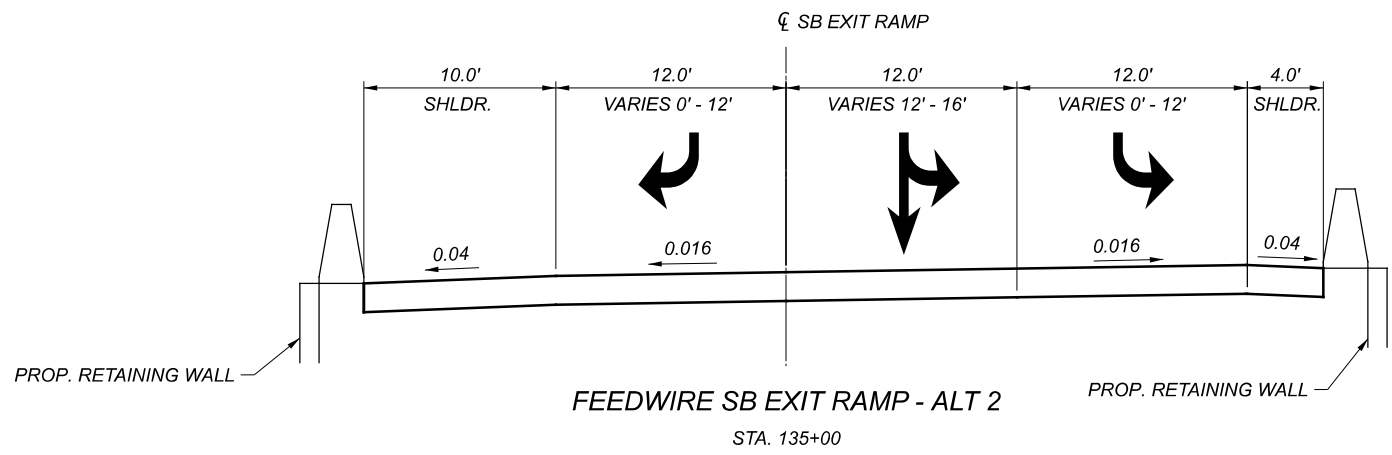
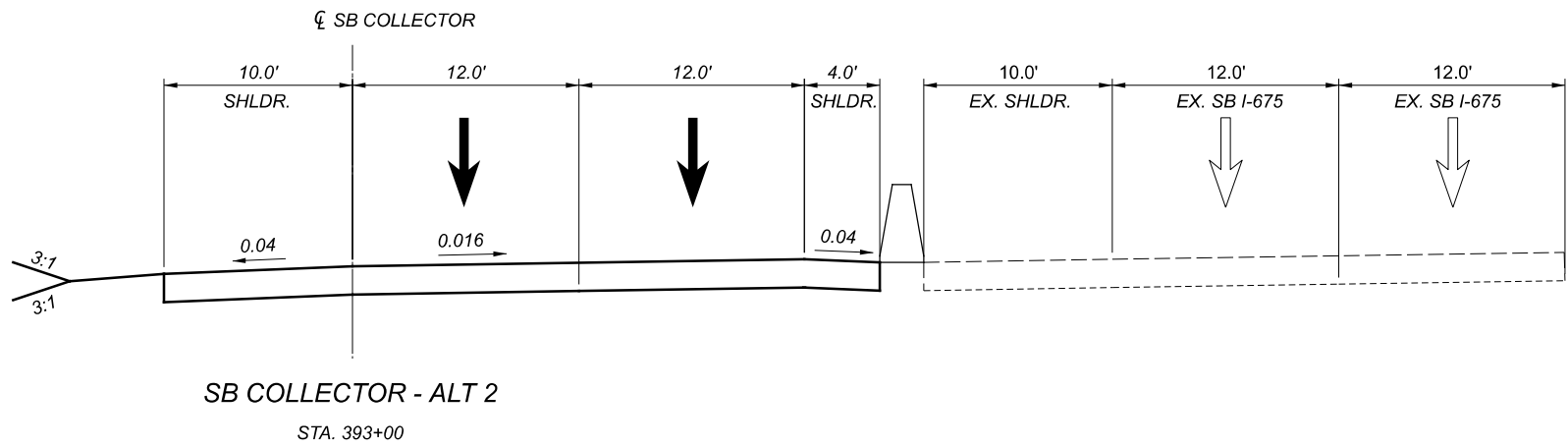
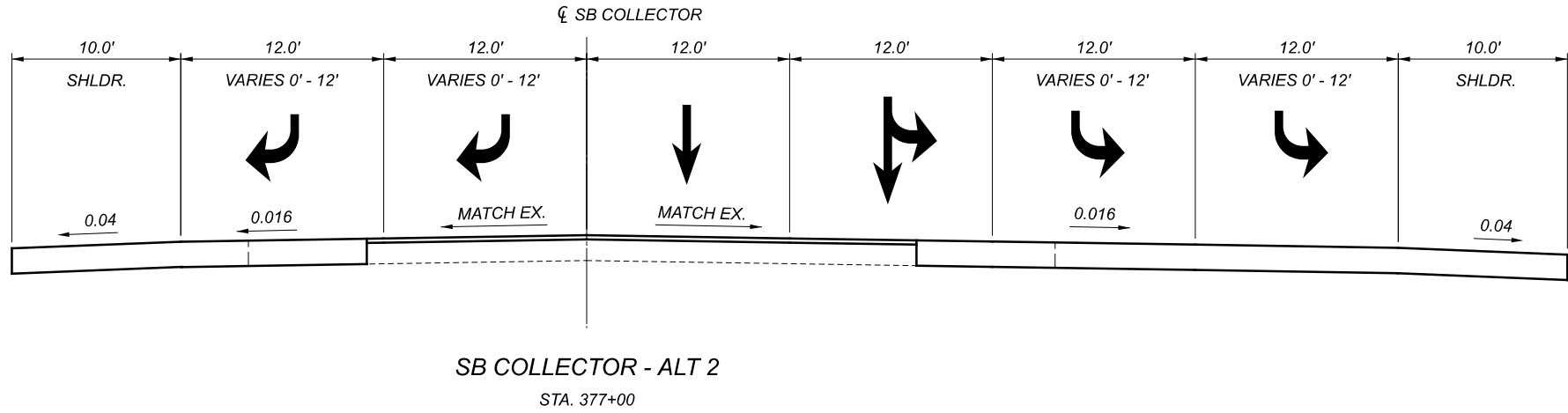
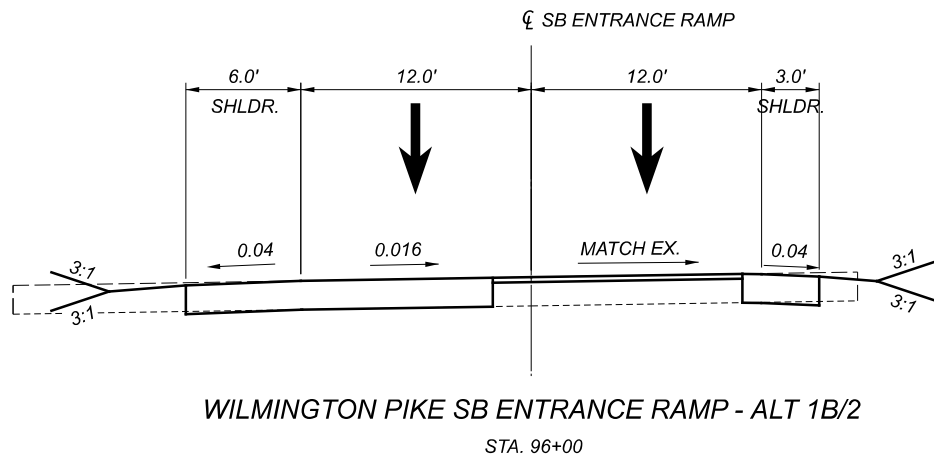


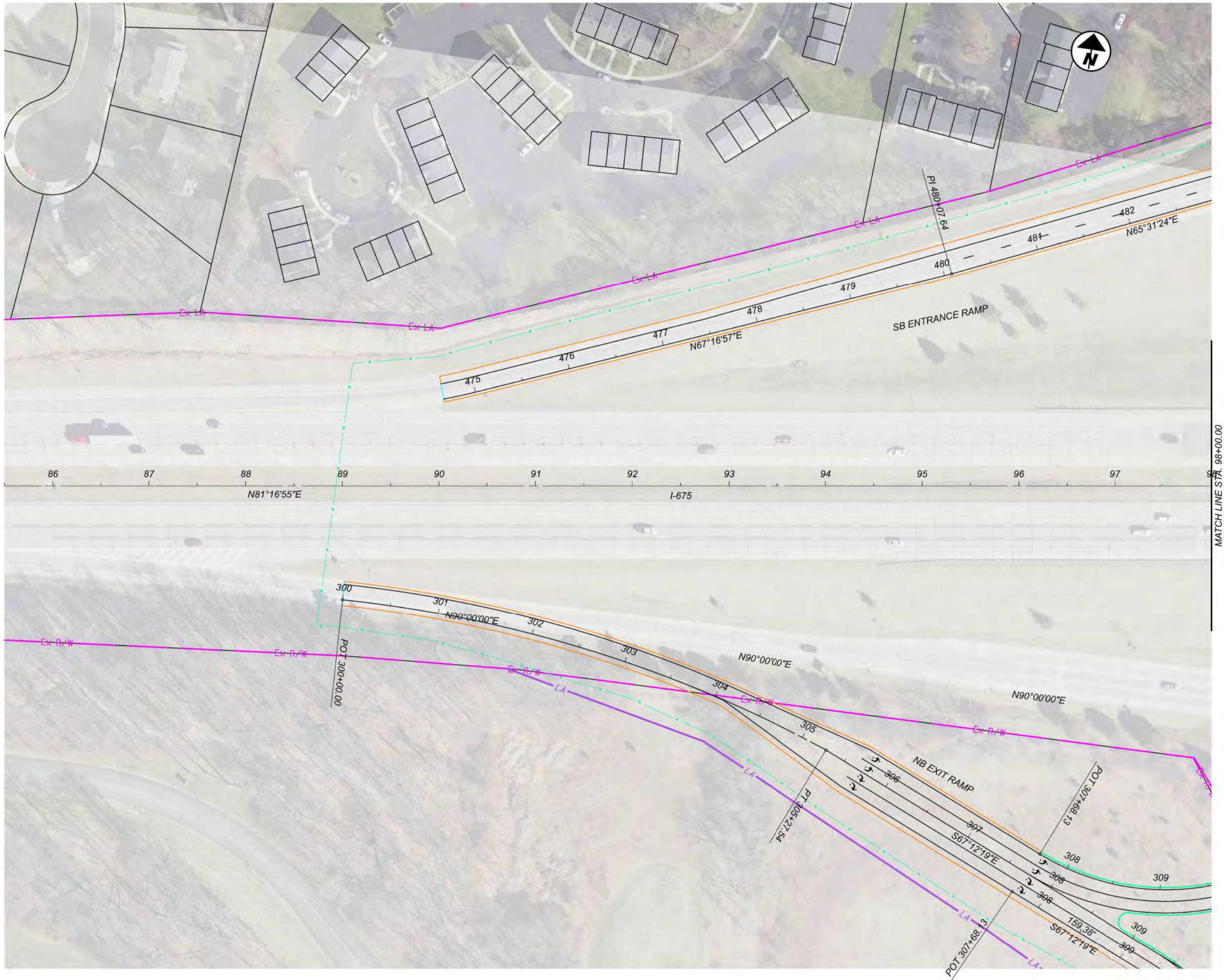
WILMINGTON PIKE - ALT 2

STA. 247+00 RT

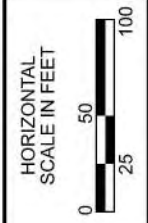








MATCH LINE STA. 98+00.00

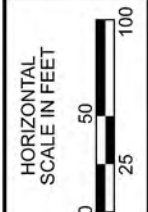
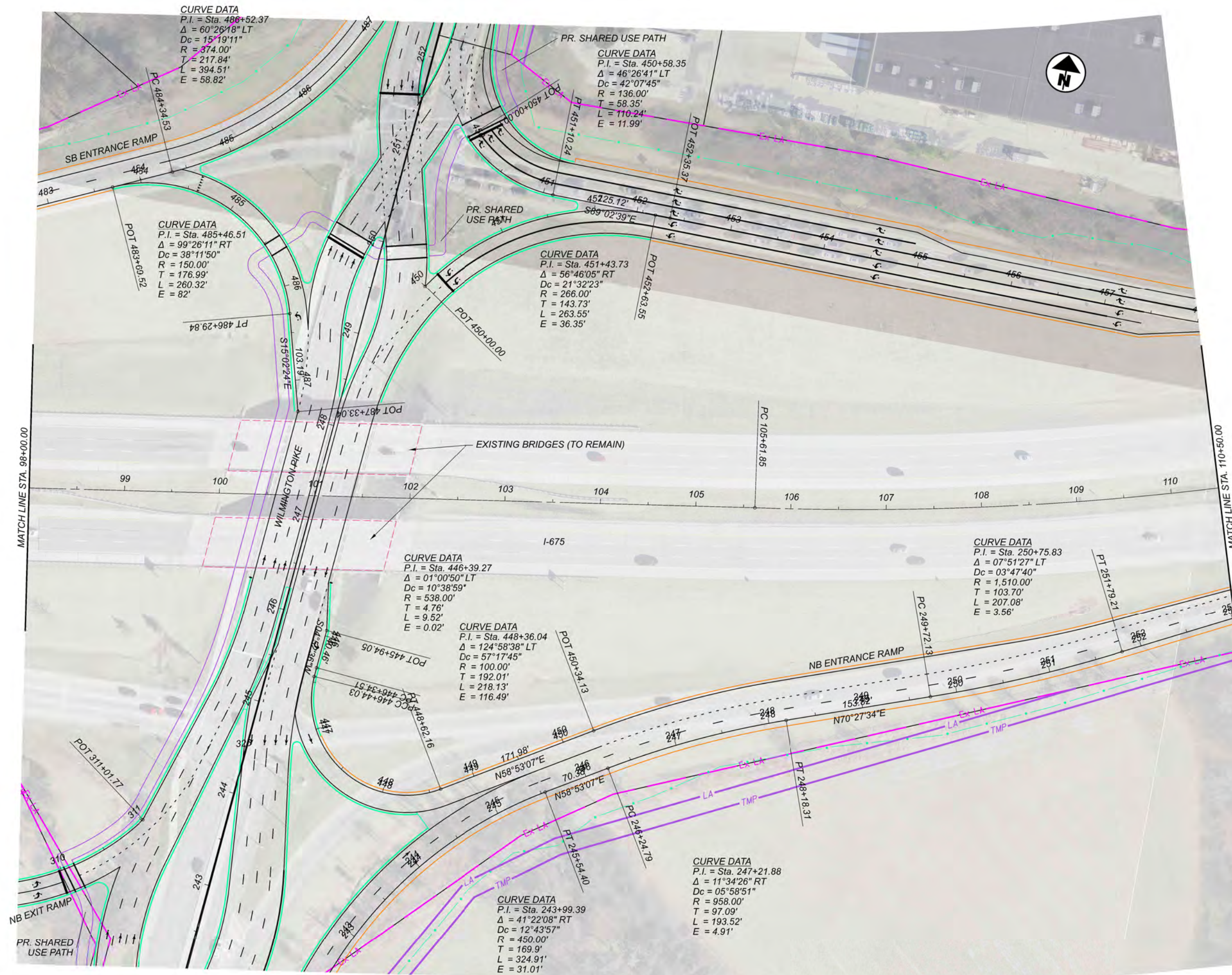


PLAN-I-675
ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE
PROJECT ID	115160
SHEET	9
TOTAL	59

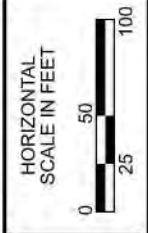
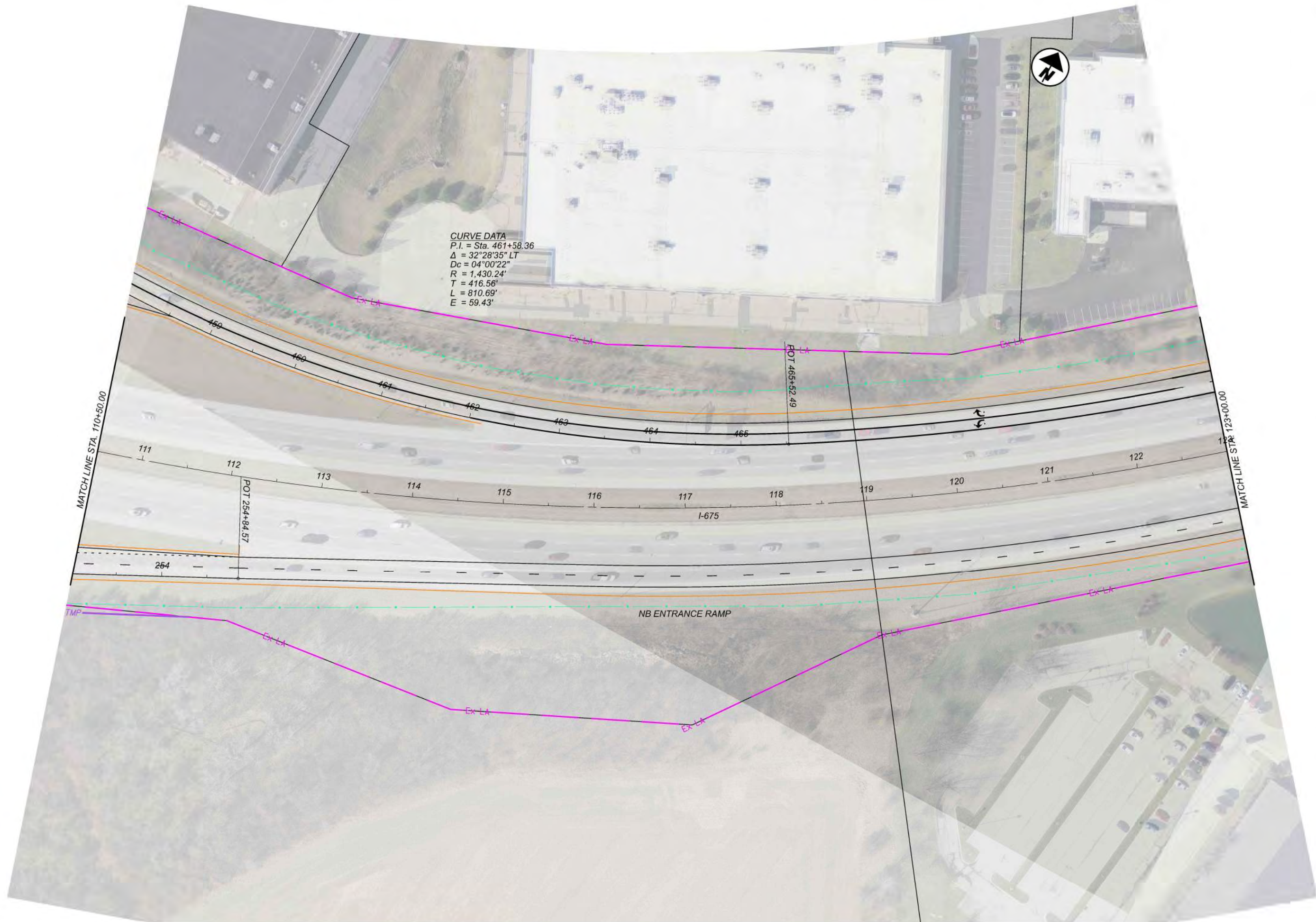


PLAN-I-675
 ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE
PROJECT ID	115160
SHEET	10
TOTAL	59

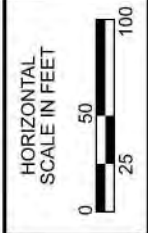
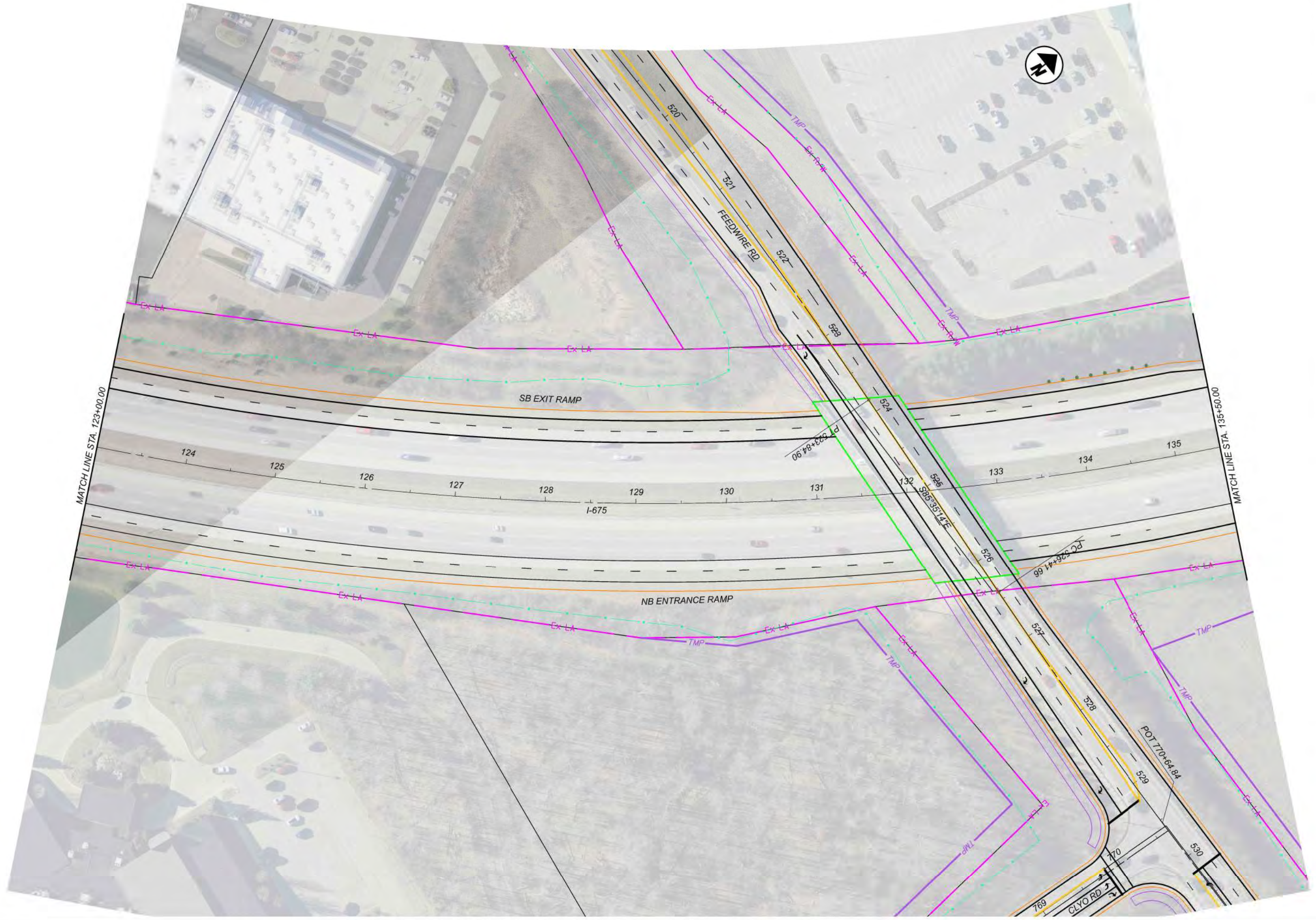


PLAN-I-675
ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE 03/24/23
PROJECT ID	115160
SHEET	11
TOTAL	59

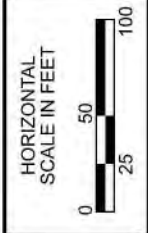
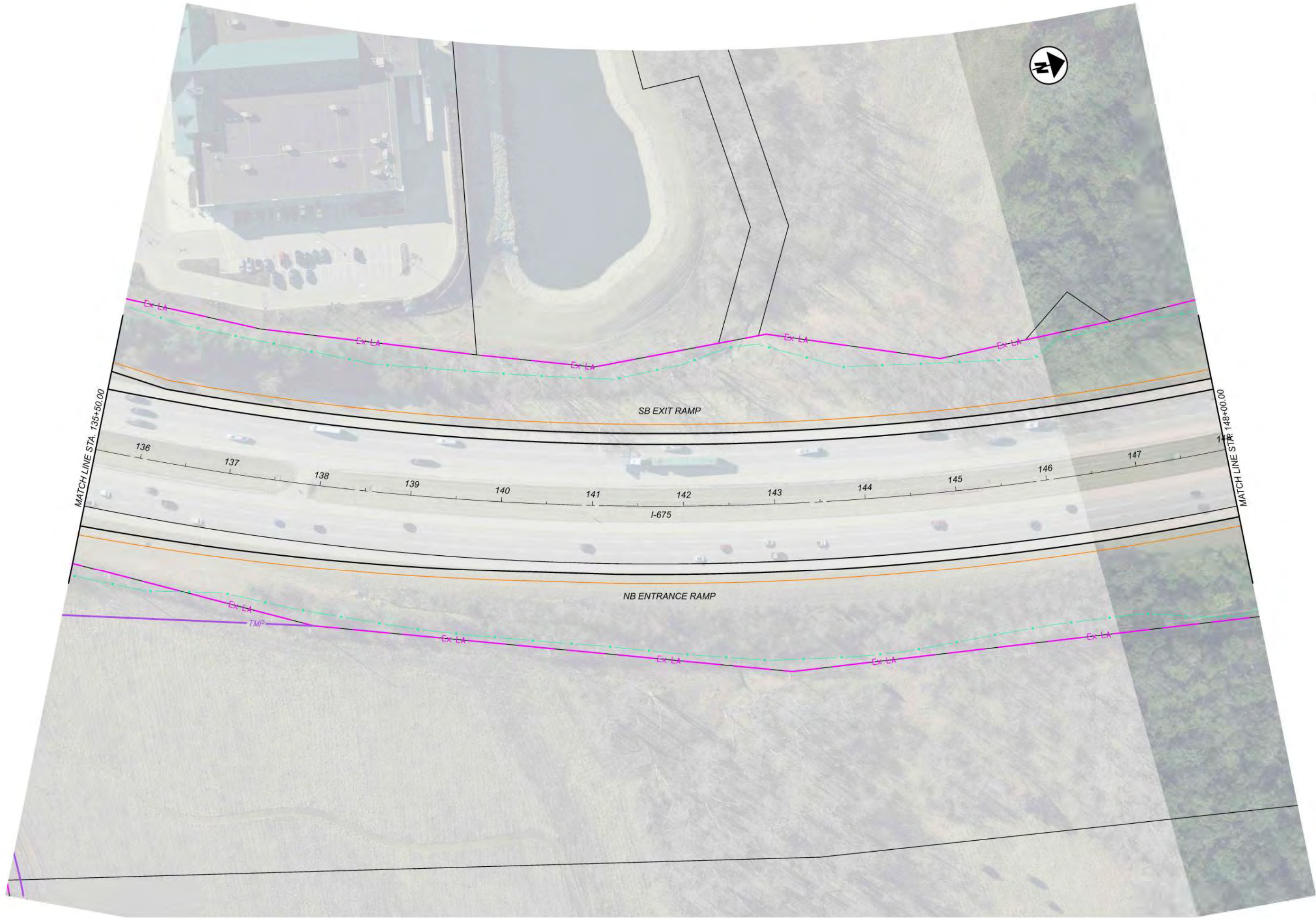


PLAN-I-675
ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE 03/24/23
PROJECT ID	115160
SHEET	TOTAL
12	59

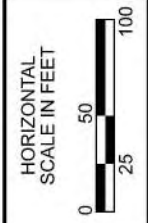
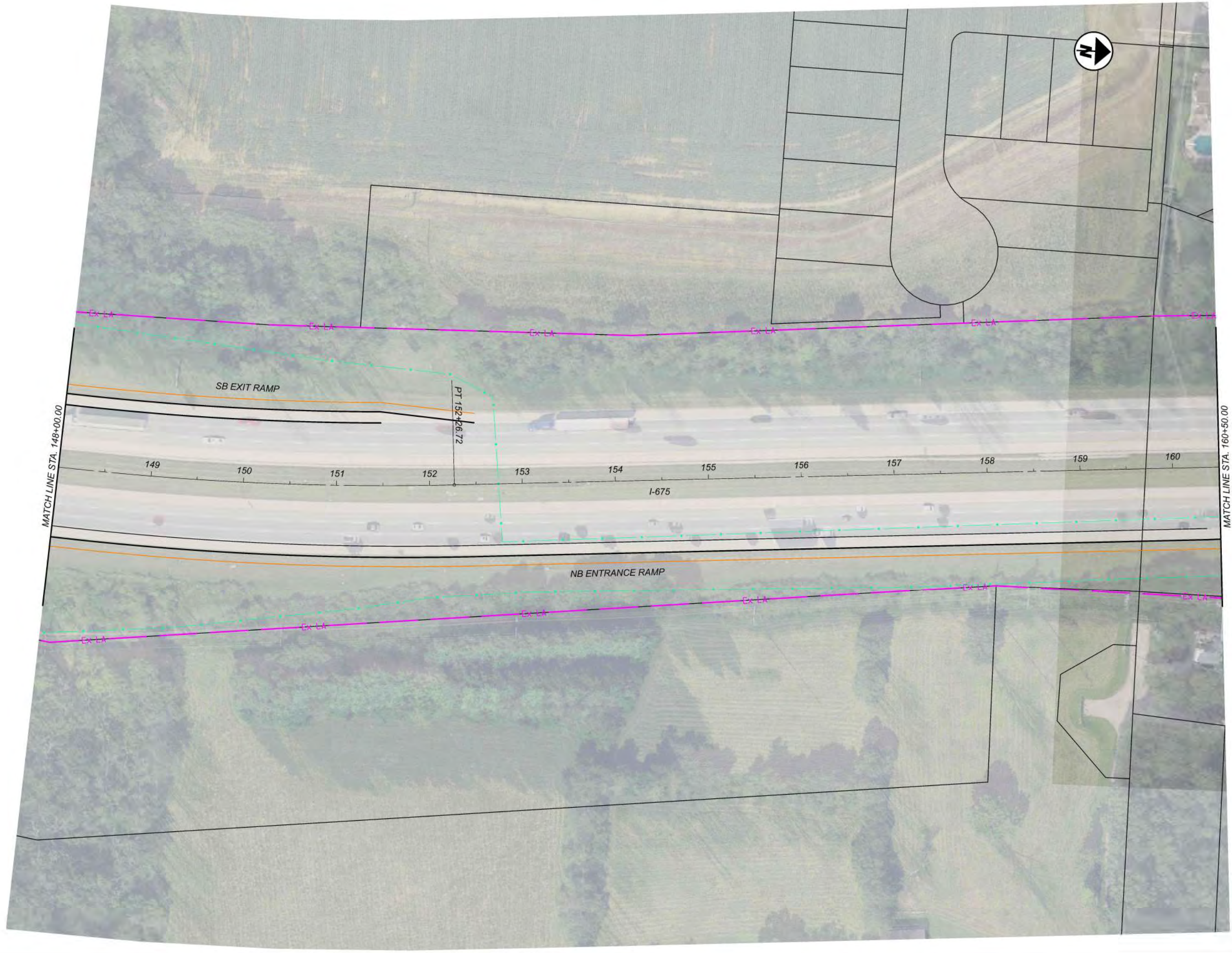


PLAN-I-675
ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE 03/24/23
PROJECT ID	115160
SHEET	13
TOTAL	59



PLAN-I-675
ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE
PROJECT ID	115160
SHEET	14
TOTAL	59



**HORIZONTAL
SCALE IN FEET**

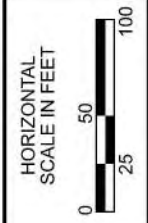
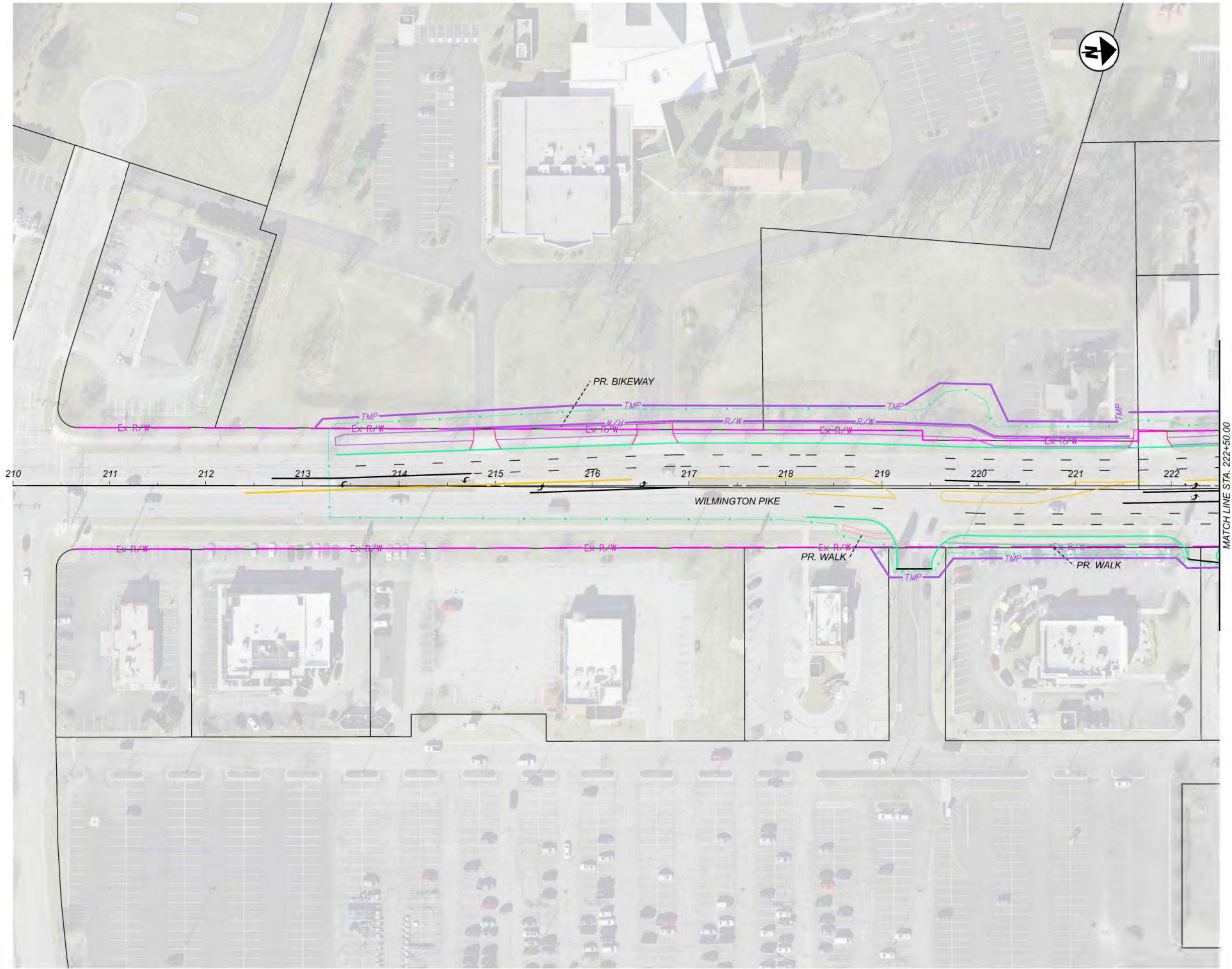
A horizontal scale bar with a black and white checkerboard pattern. The bar is divided into four equal segments of 25 feet each. The segments are black, white, black, and white from left to right. The number 0 is at the left end, 25 is at the first segment boundary, 50 is at the second segment boundary, and 100 is at the right end.

PLAN-I-675
ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER	
BMG	
REVIEWER	
JRE	03/24/23
PROJECT ID	
115160	
SHEET	TOTAL
15	59

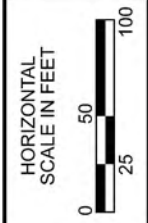
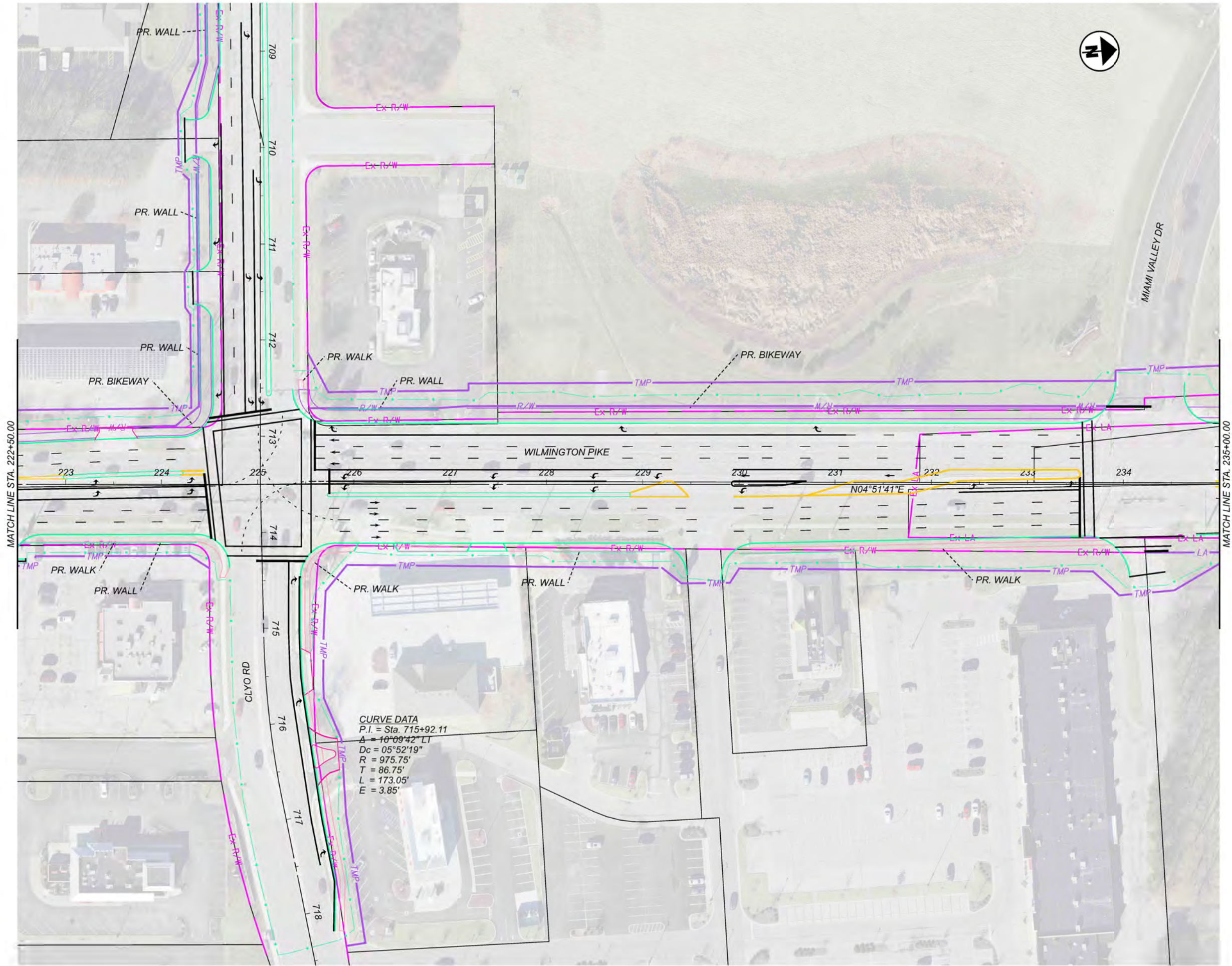


PLAN-WILMINGTON PK
ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE 03/24/23
PROJECT ID	115160
SHEET	TOTAL
16	59

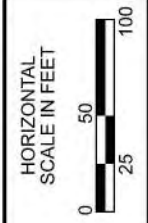
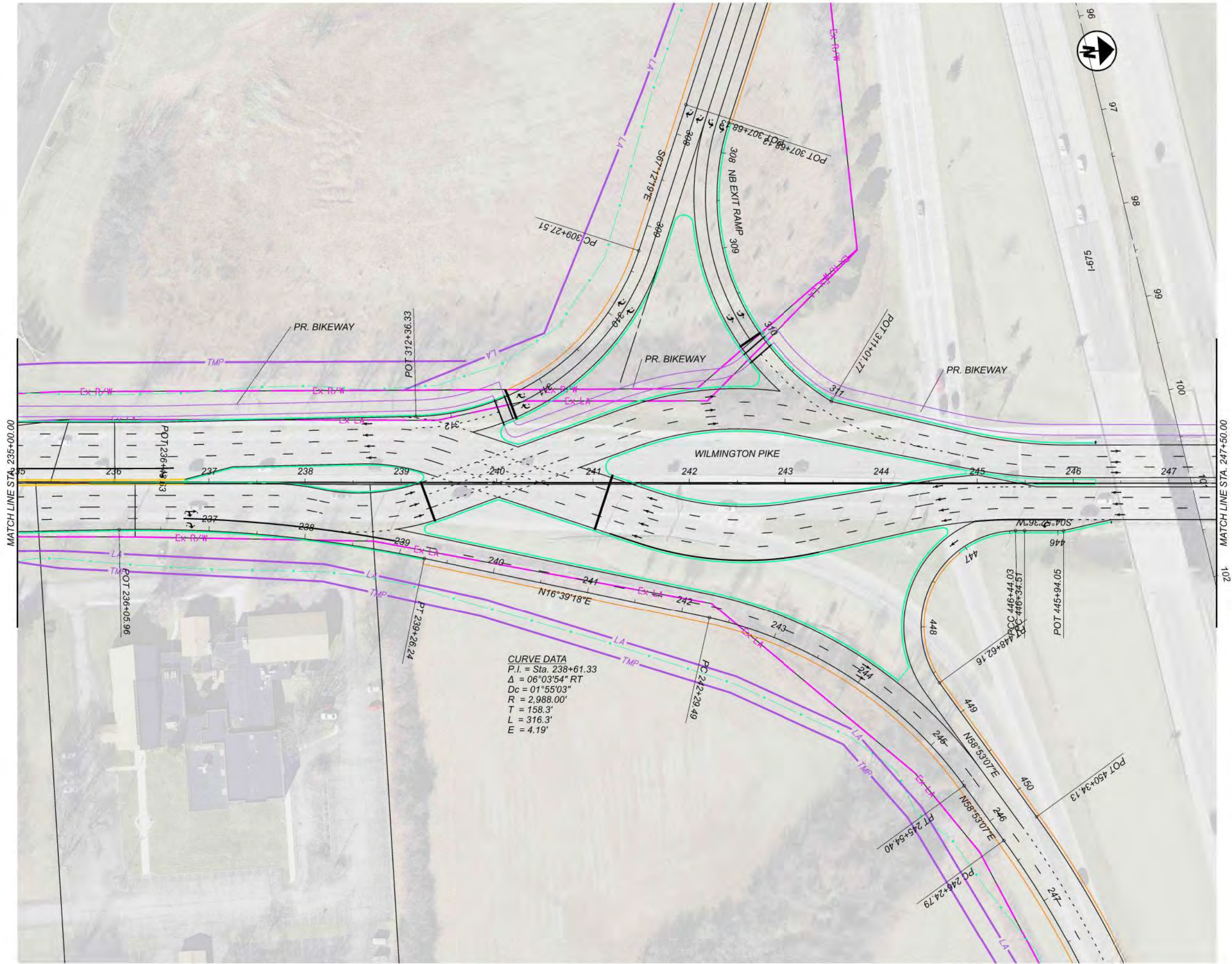


PLAN-WILMINGTON PK
ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE 03/24/23
PROJECT ID	115160
SHEET	TOTAL
17	59

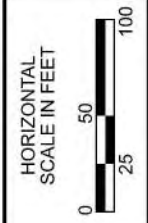
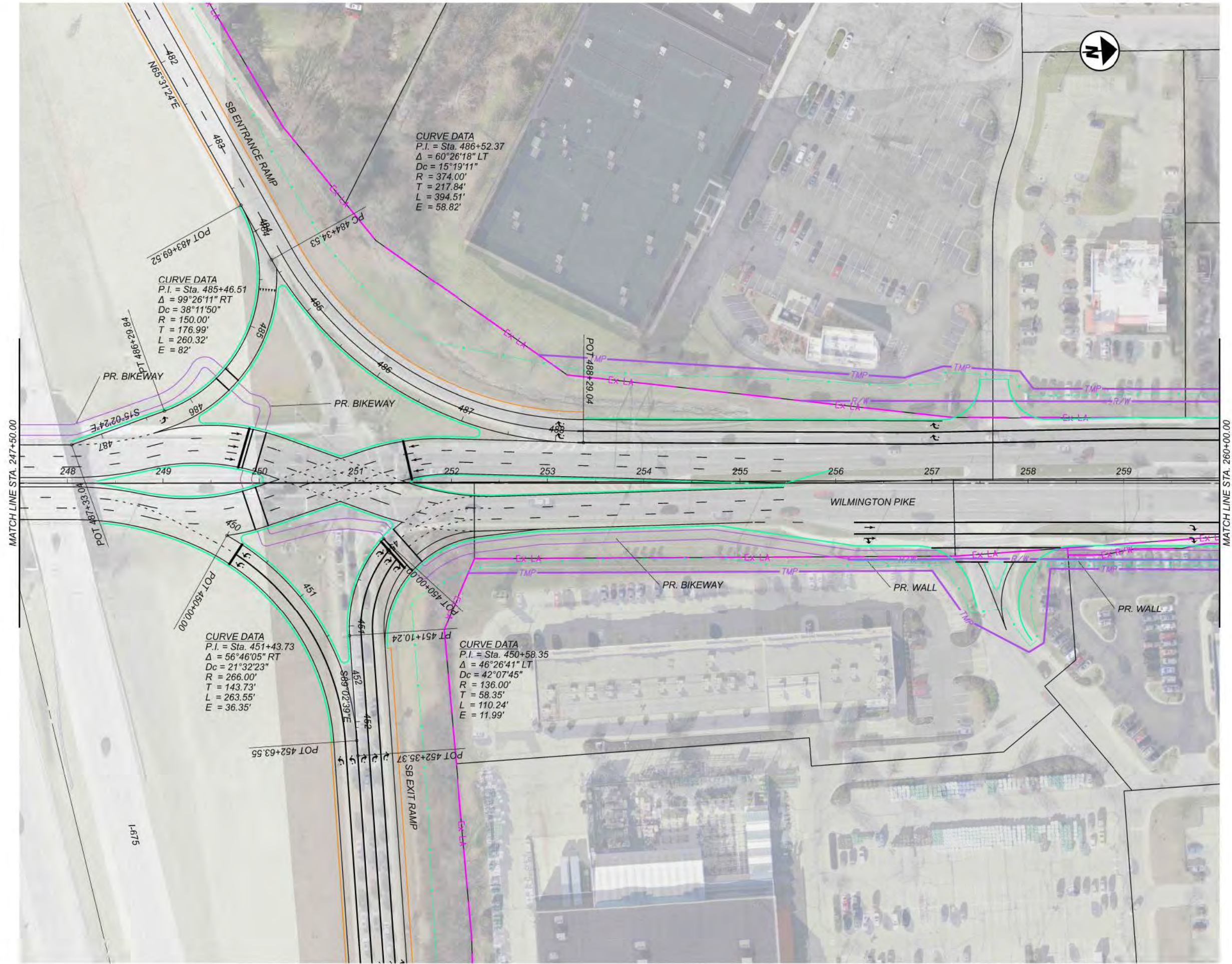


PLAN-WILMINGTON PK
ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE 03/24/23
PROJECT ID	115160
SHEET	TOTAL
18	59

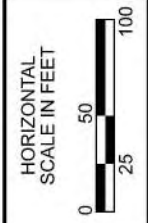
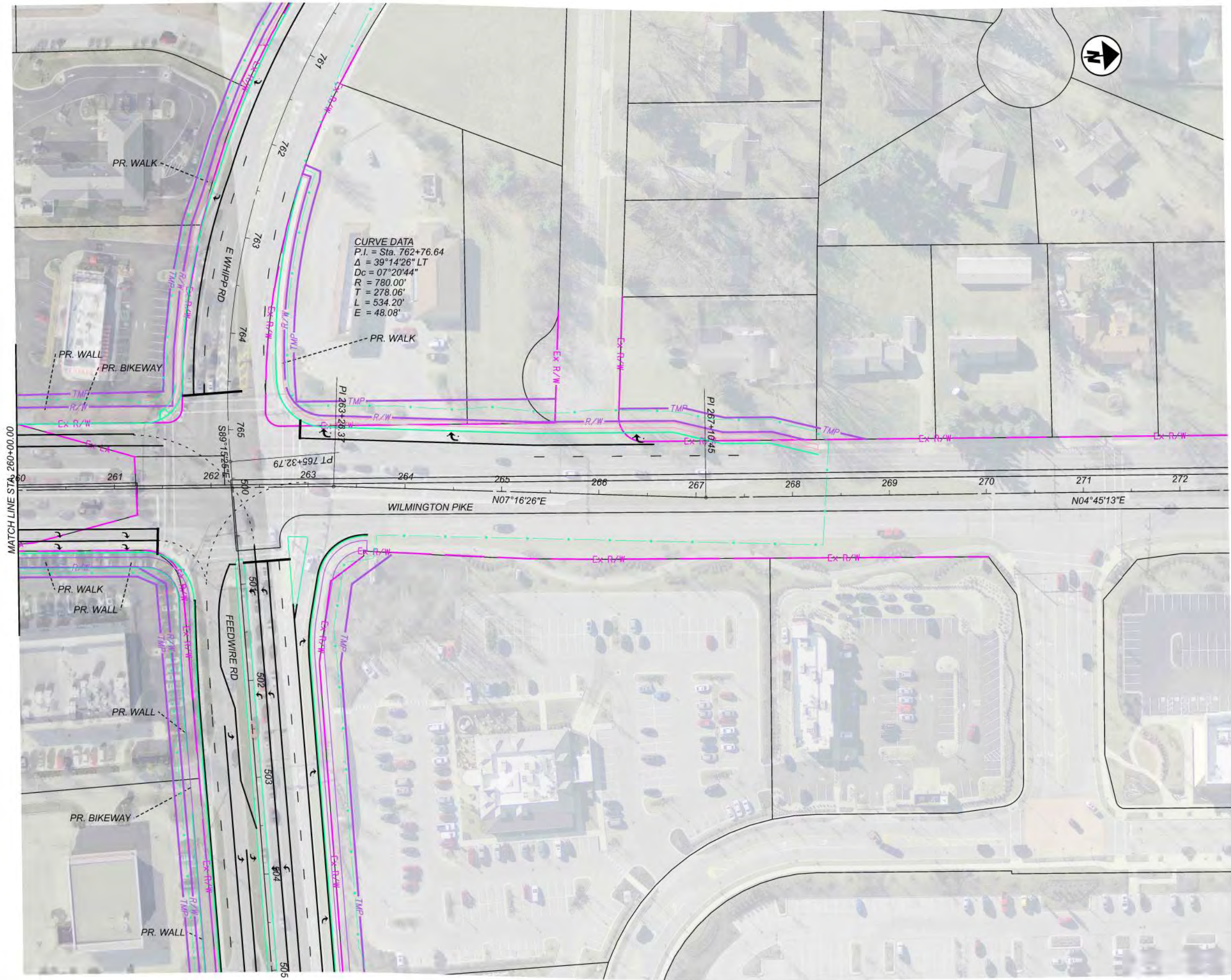


PLAN-WILMINGTON PK
ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE 03/24/23
PROJECT ID	115160
SHEET	TOTAL
19	59

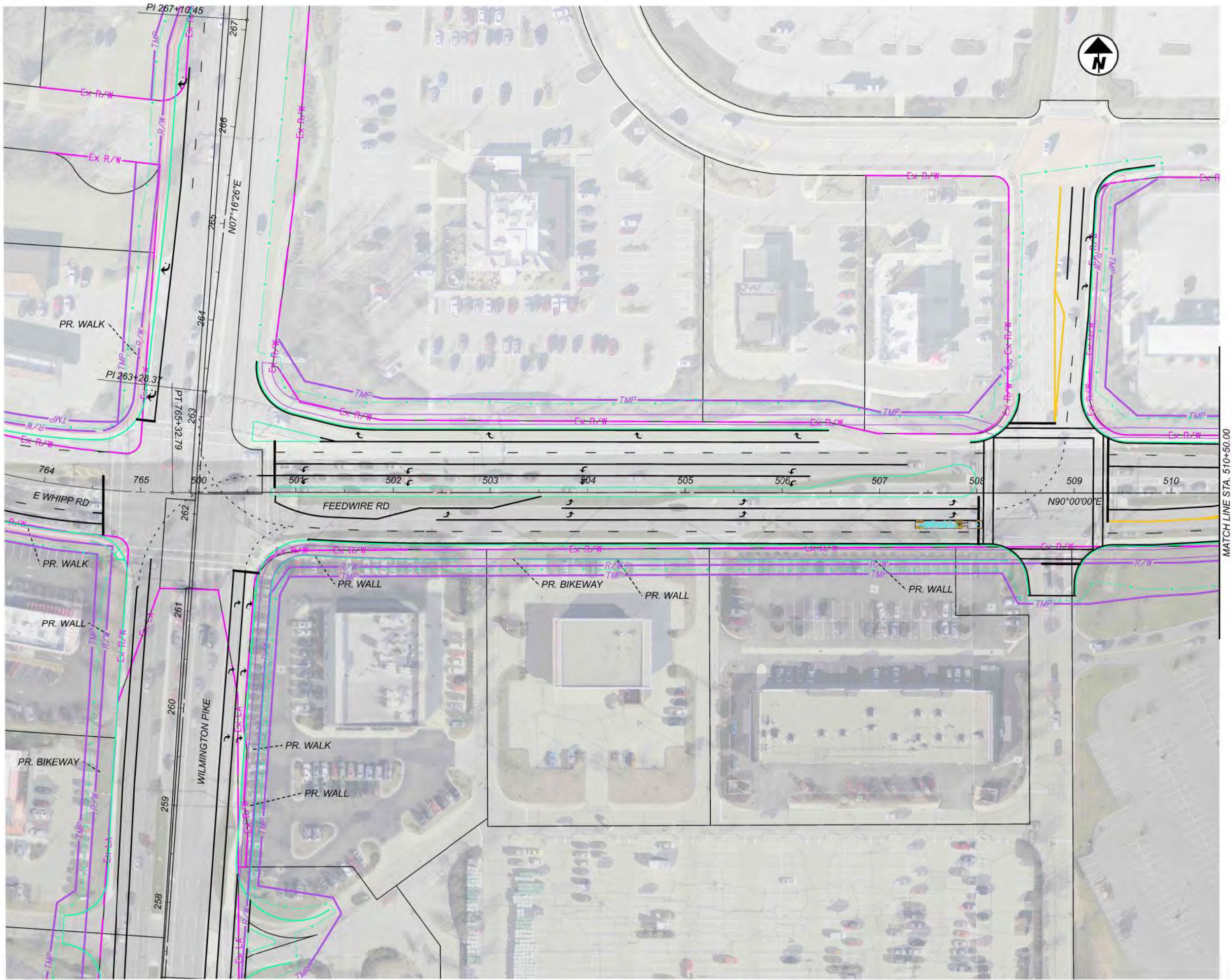


PLAN-WILMINGTON PK
ALTERNATIVE 1B

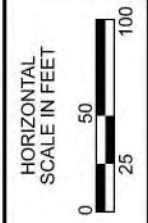
DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE
PROJECT ID	115160
SHEET	20
TOTAL	59



MATCH LINE STA. 510+50.00

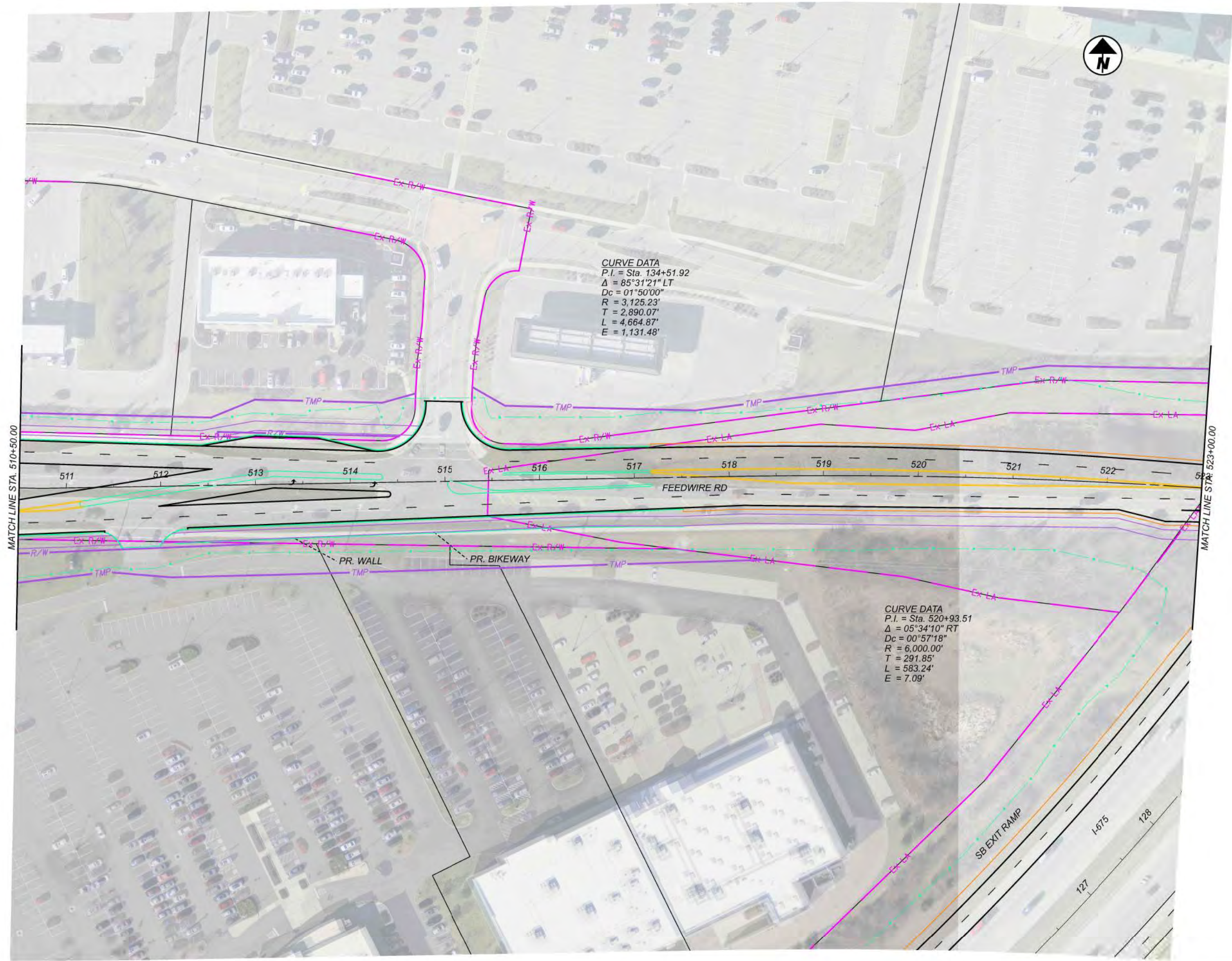


PLAN-FEEDWIRE RD.
ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE 03/24/23
PROJECT ID	115160
SHEET	TOTAL
21	59

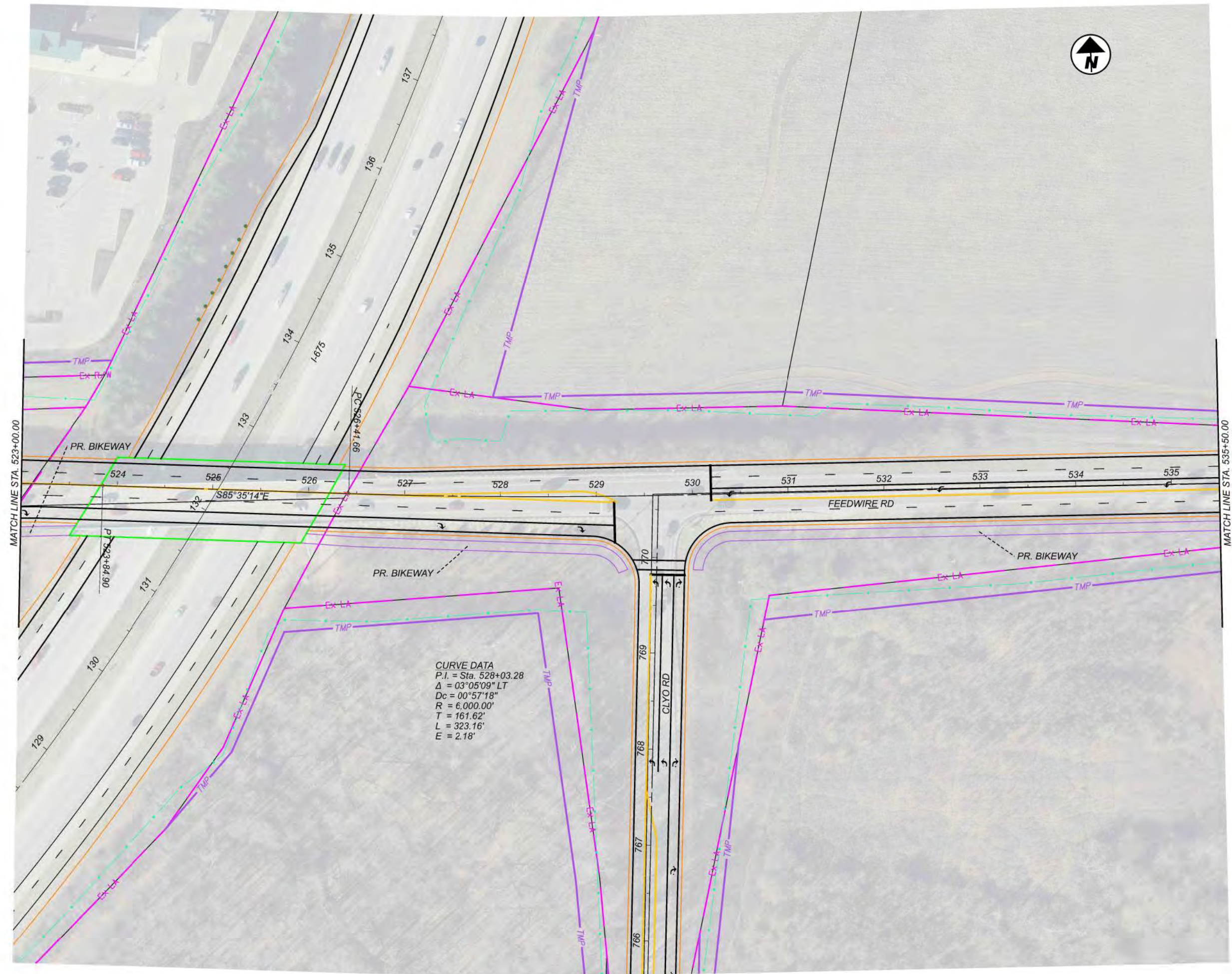


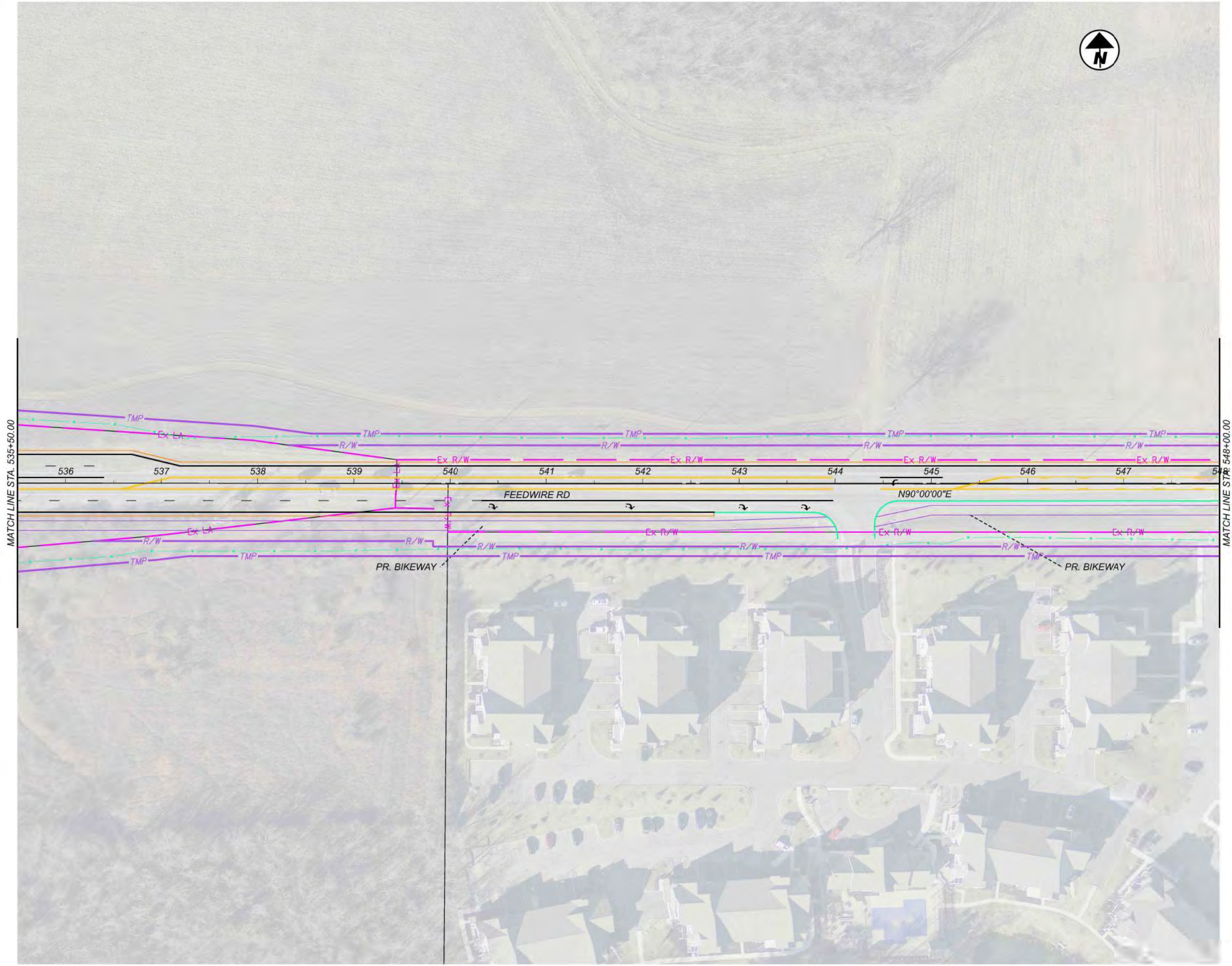
PLAN-FEEDWIRE RD.
ALTERNATIVE 1B

DESIGN AGENCY

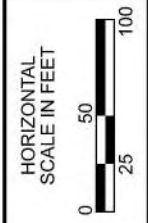


DESIGNER	BMG
REVIEWER	JRE
DATE	03/24/23
PROJECT ID	115160
SHEET	22
TOTAL	59





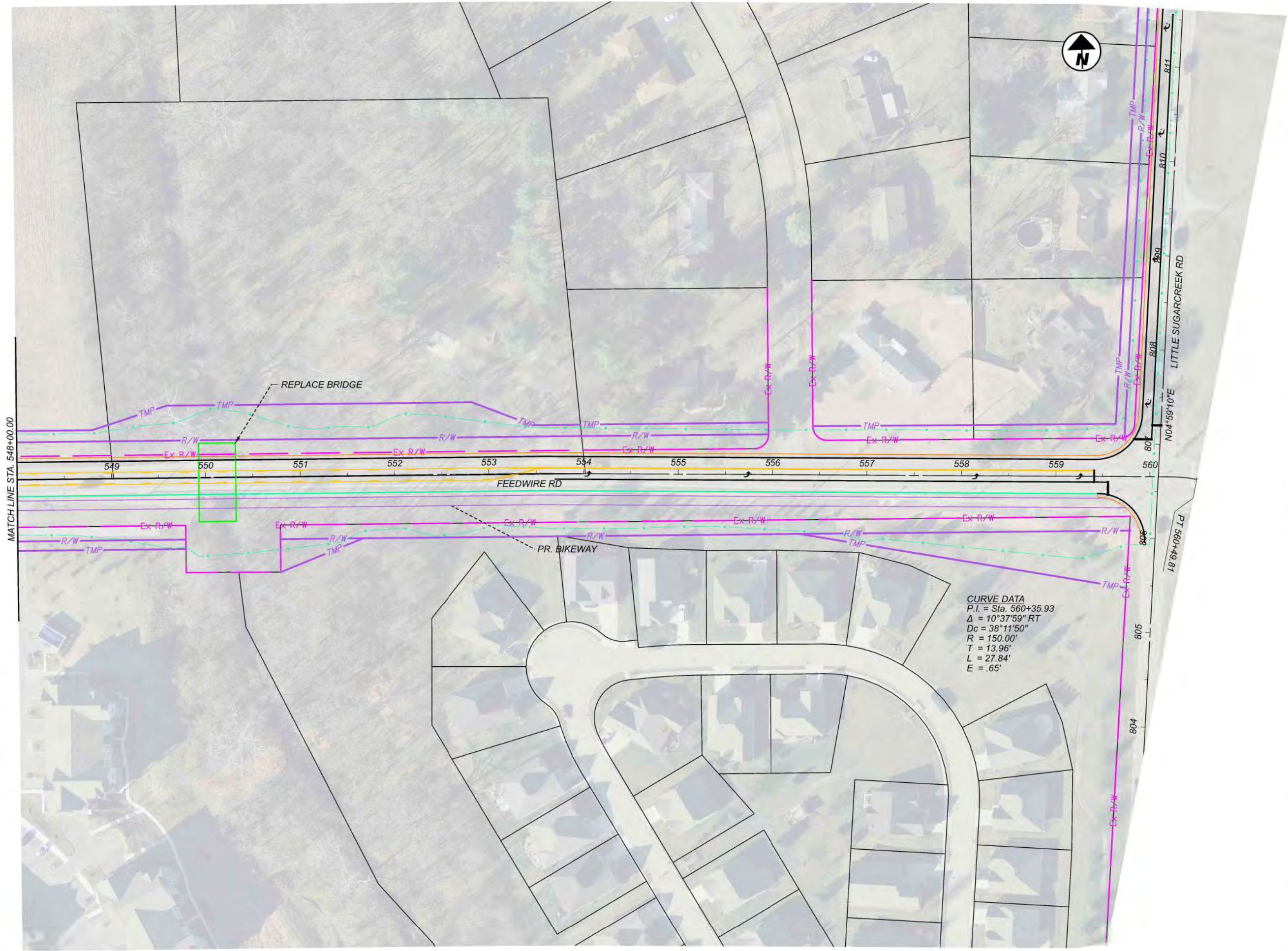
PLAN-FEEDWIRE RD.
ALTERNATIVE 1B



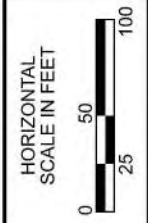
DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE 03/24/23
PROJECT ID	115160
SHEET	TOTAL
24	59



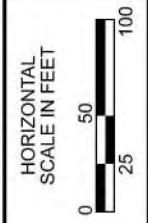
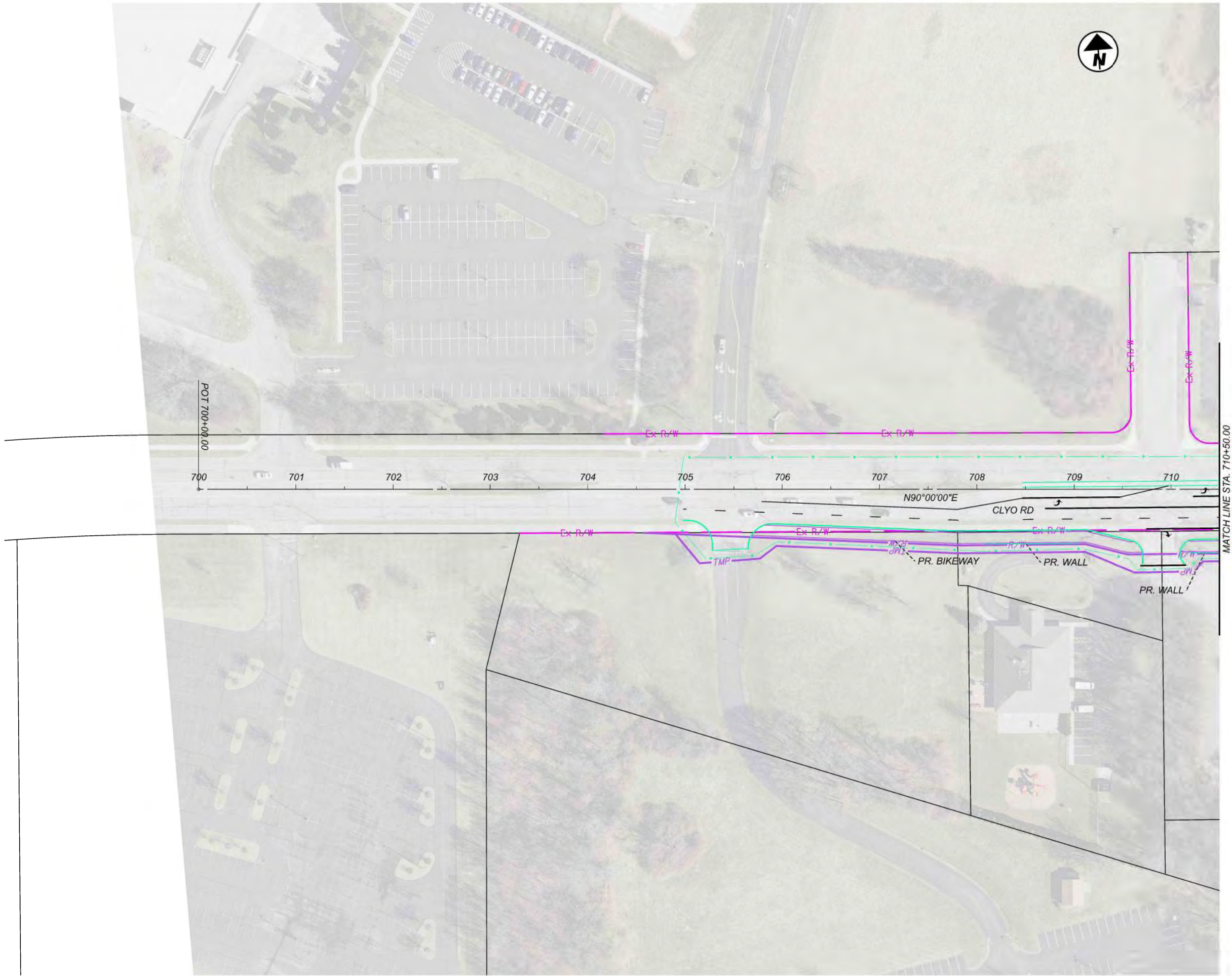
PLAN-FEEDWIRE RD.
ALTERNATIVE 1B



DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE 03/24/23
PROJECT ID	115160
SHEET	25
TOTAL	59

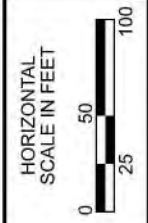
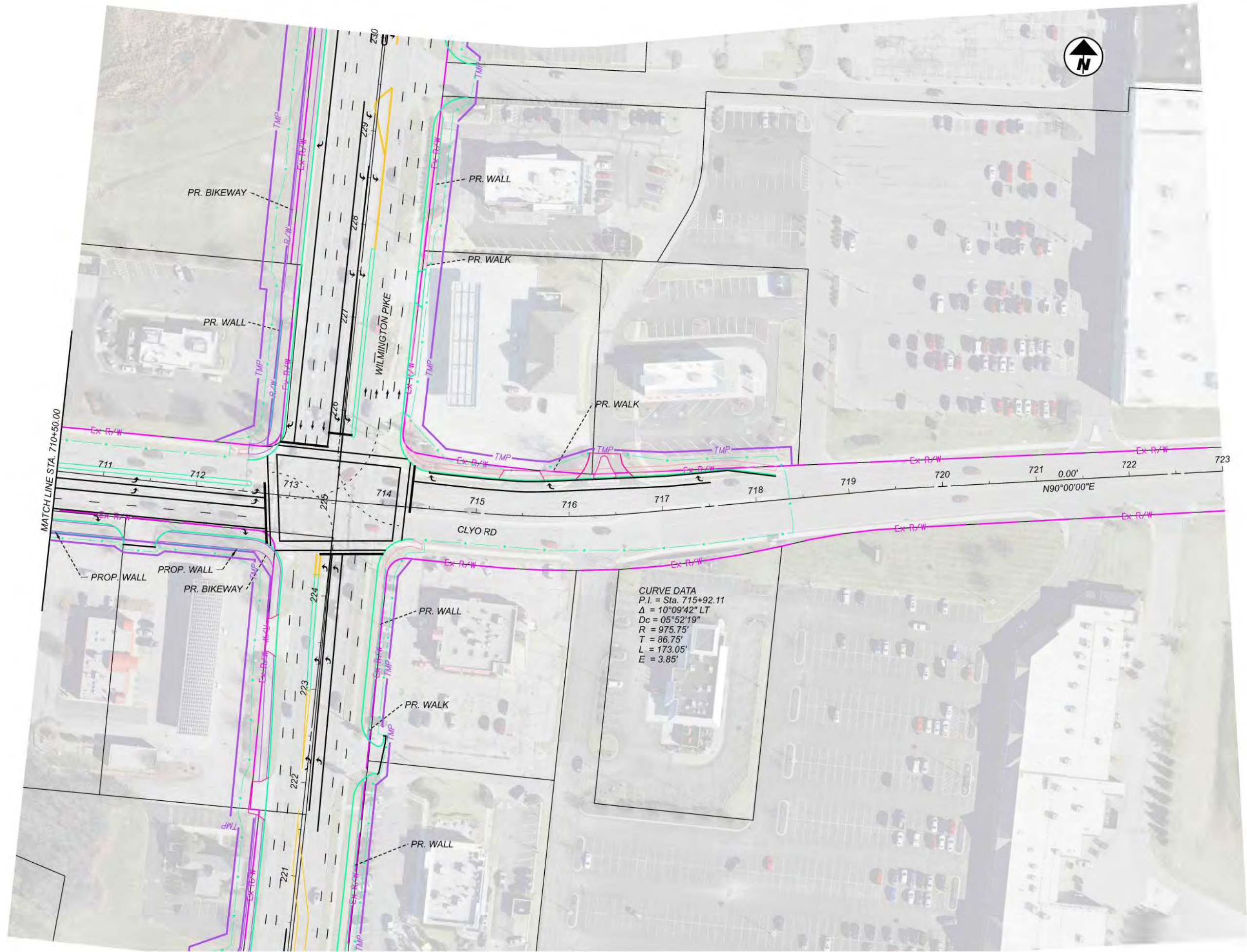


PLAN-CLYO RD.
ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE 03/24/23
PROJECT ID	115160
SHEET	26
TOTAL	59

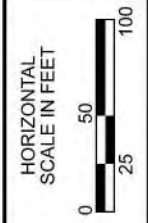
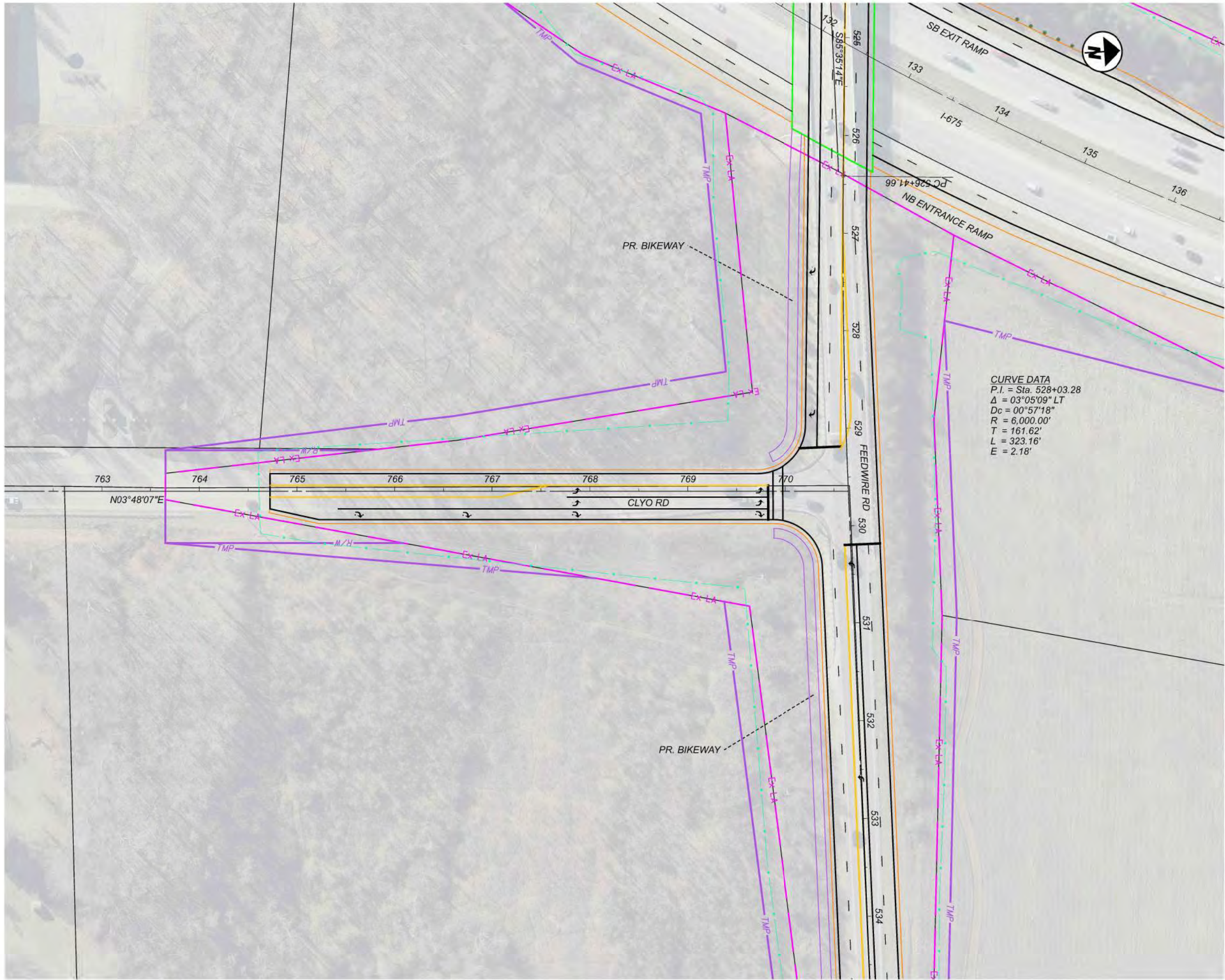


PLAN-CLYO RD.
ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE 03/24/23
PROJECT ID	115160
SHEET	TOTAL
27	59



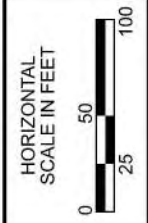
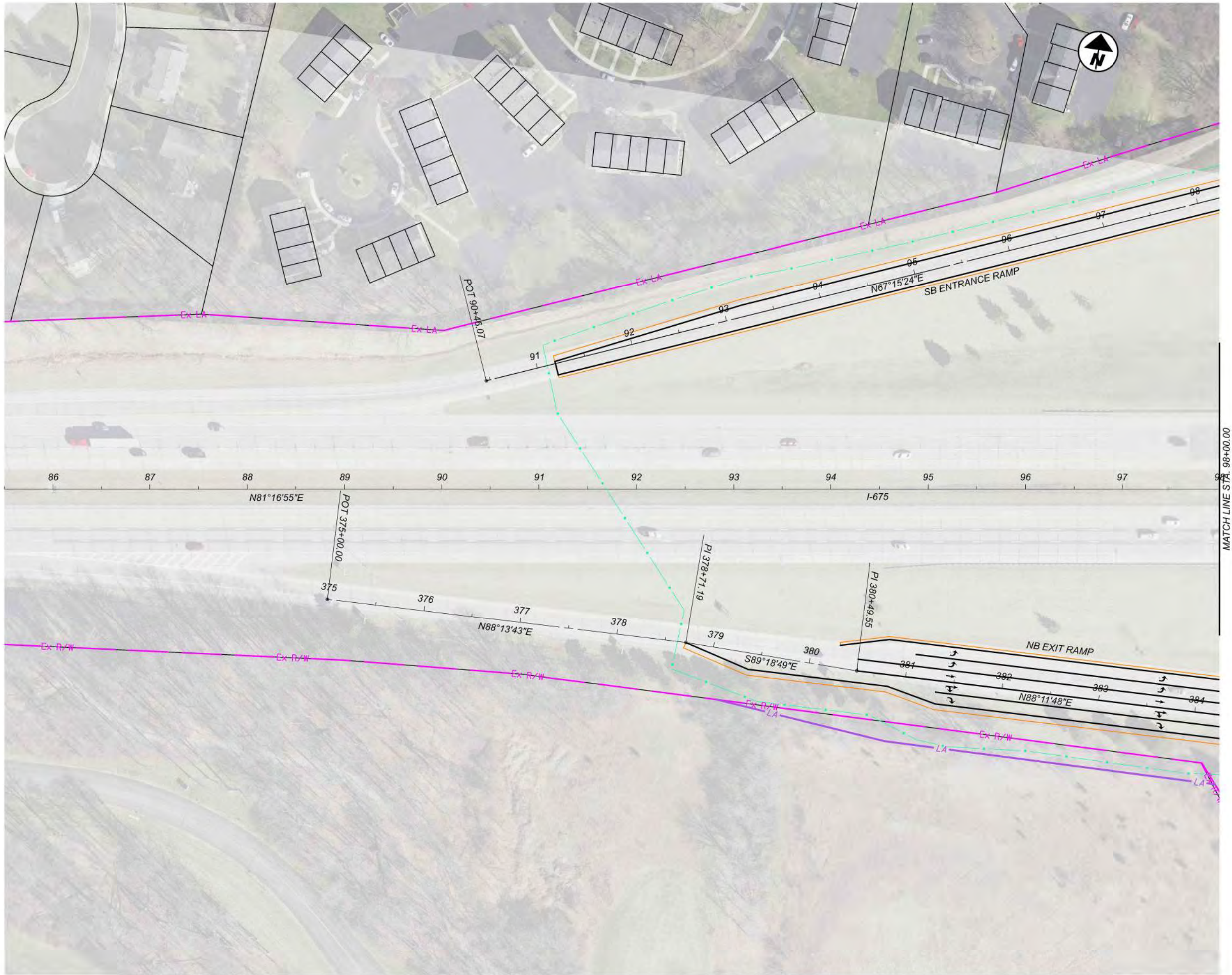
PLAN-CLYO RD.
ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER	BMG
REVIEWER	JRE
PROJECT ID	115160
SHEET	28
TOTAL	59

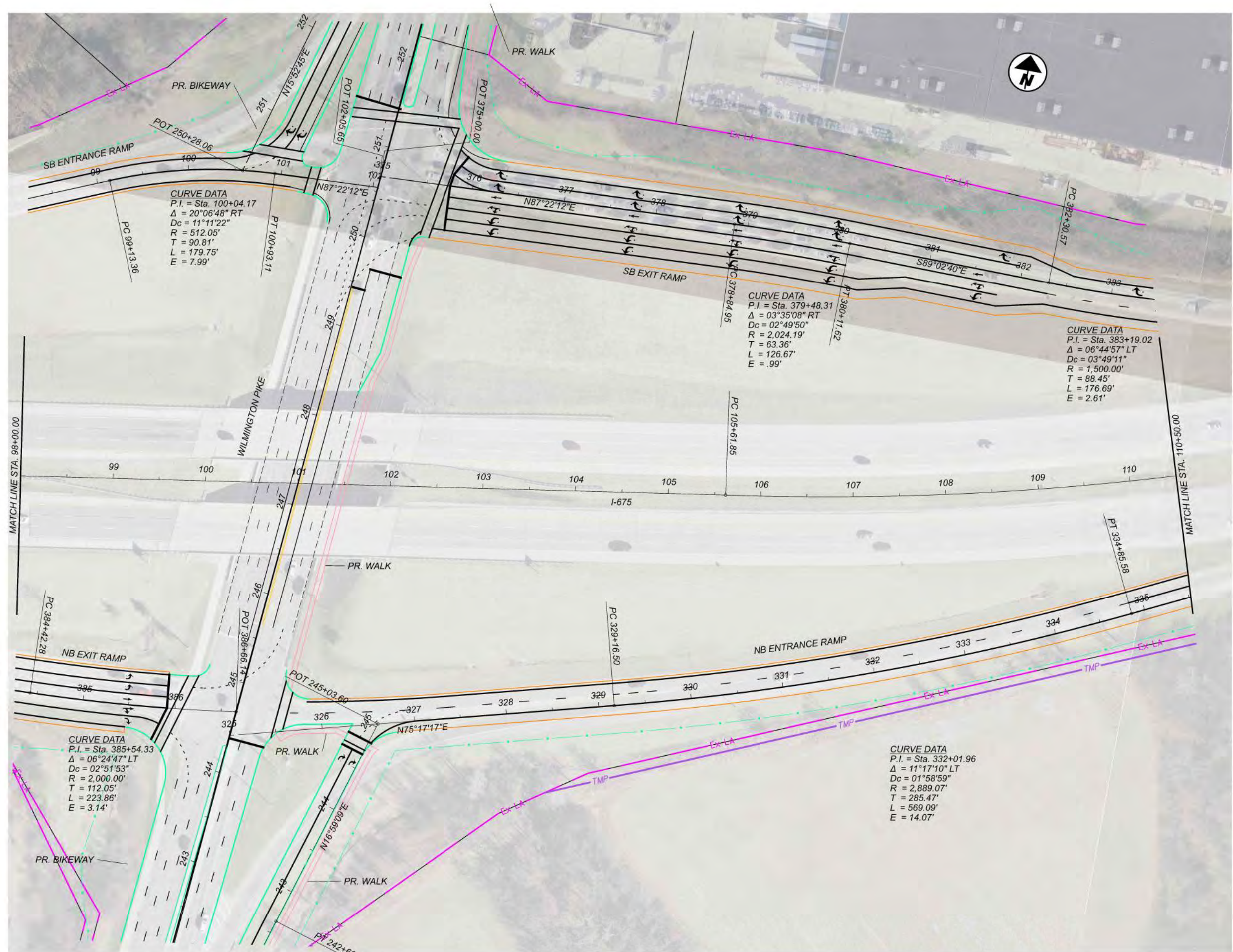




PLAN-I-675
ALTERNATIVE 2



DESIGNER	ARW
REVIEWER	JRE
PROJECT ID	115160
SHEET	30
TOTAL	59



PLAN-I-675
ALTERNATIVE 2

DESIGN AGENCY

DESIGNER

ARW

REVIEWER

JRE 03/24/23

PROJECT ID

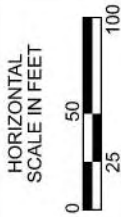
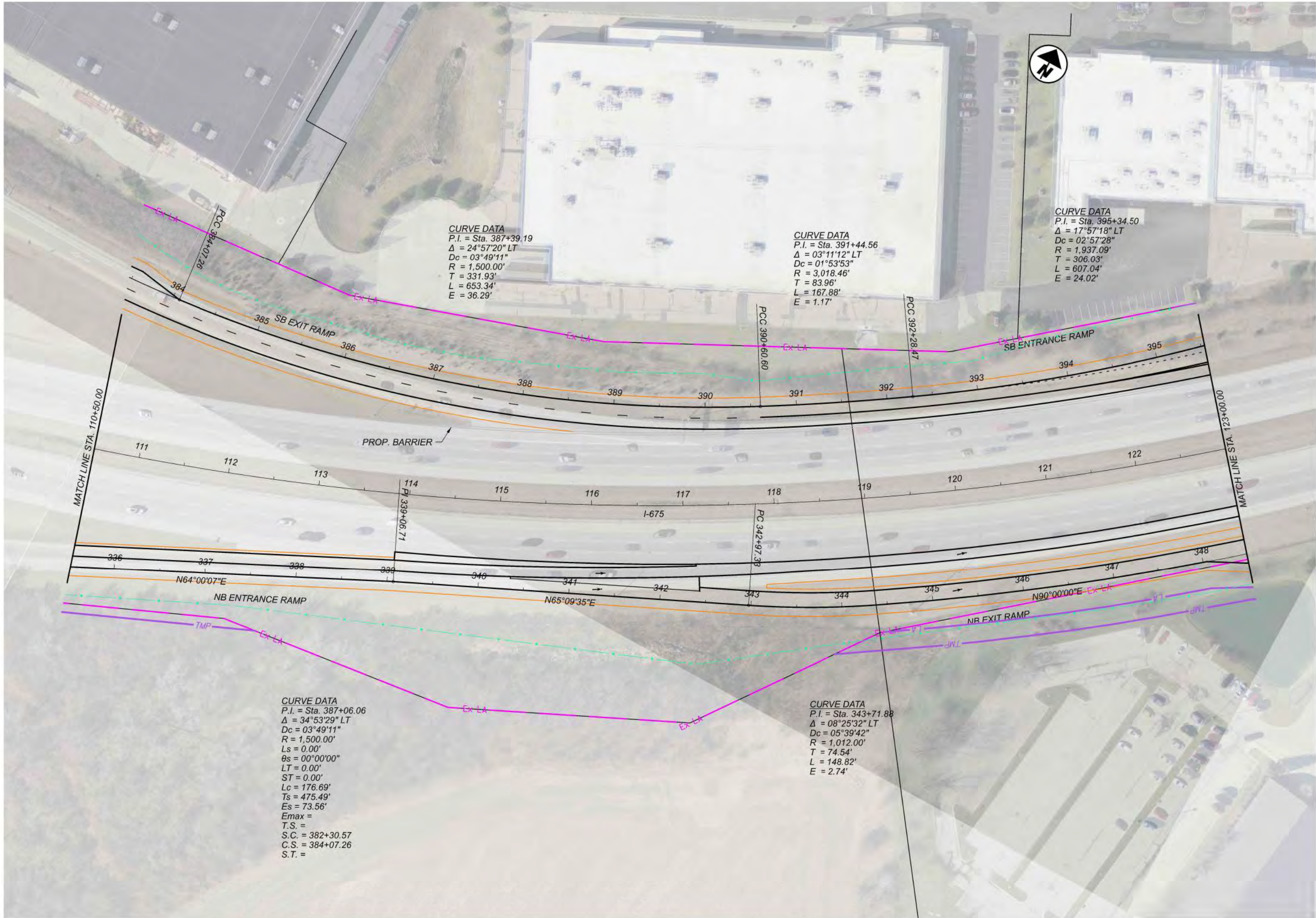
115160

SHEET

31

TOTAL

59

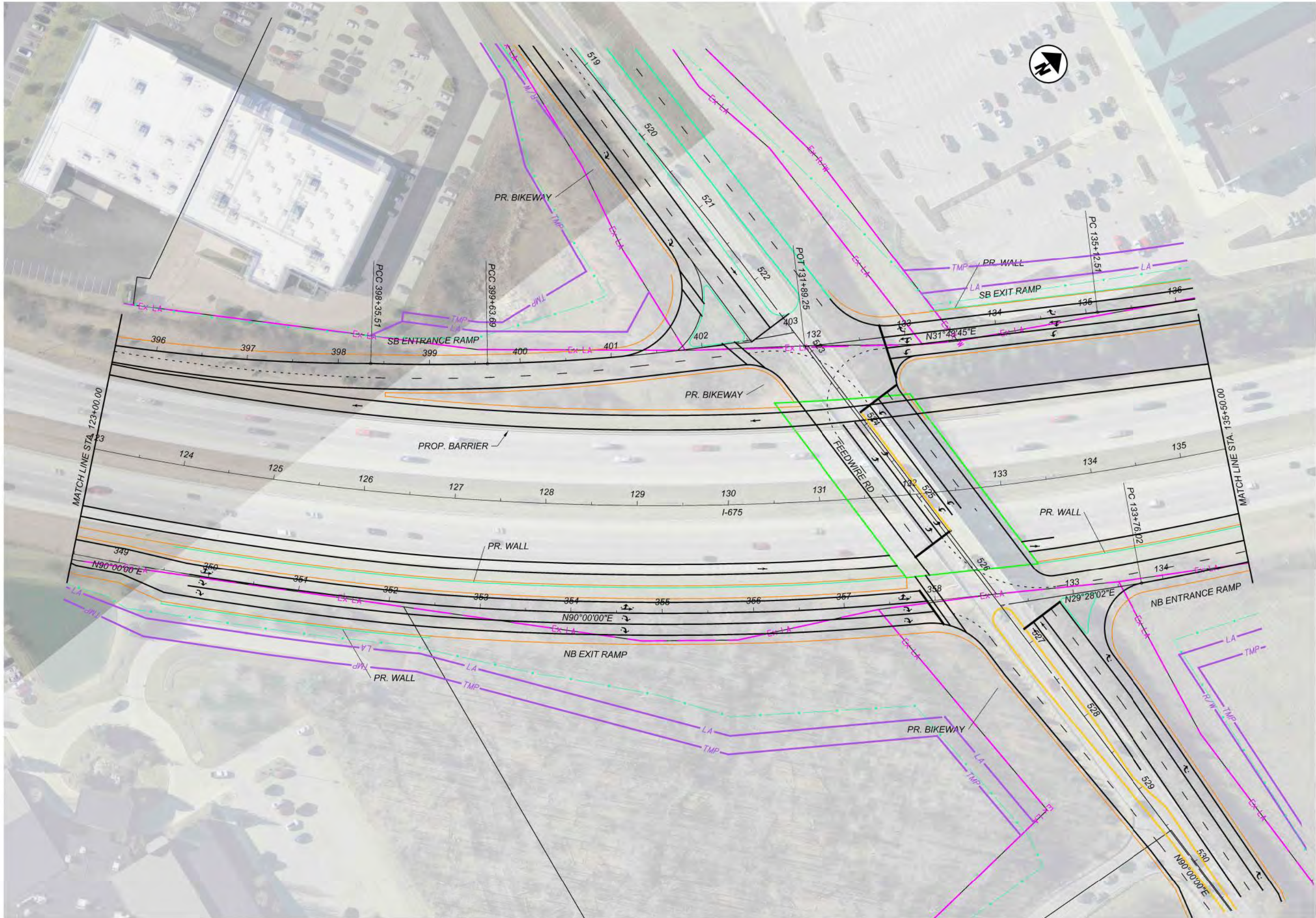


PLAN-I-675
ALTERNATIVE 2

DESIGN AGENCY



DESIGNER	ARW
REVIEWER	JRE
DATE	03/24/23
PROJECT ID	115160
SHEET	32
TOTAL	59



PLAN-I-675
ALTERNATIVE 2

DESIGN AGENCY

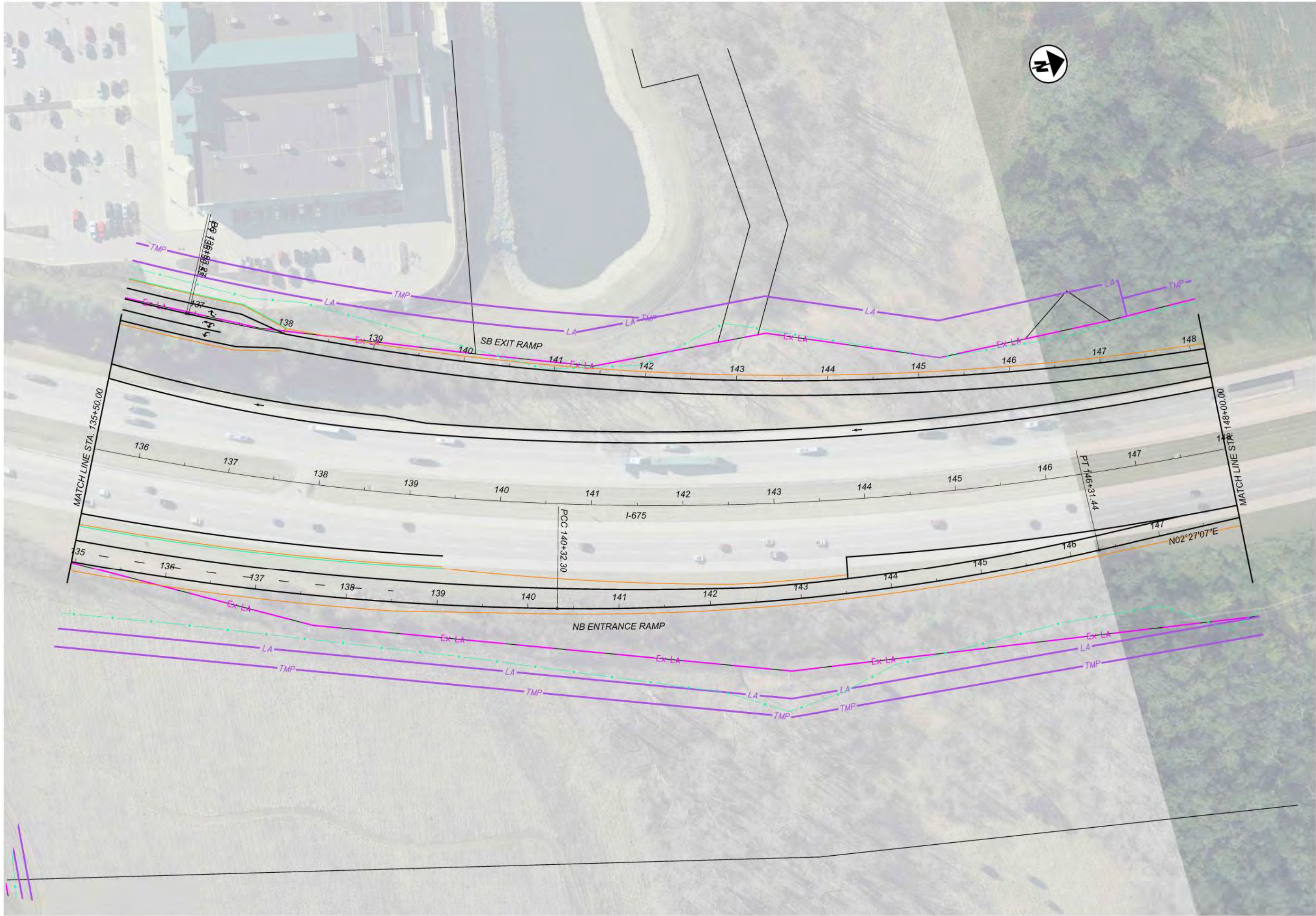


DESIGNER
ARW

REVIEWER
JRE 03/24/23

PROJECT ID
115160

SHEET TOTAL
33 59



PLAN-I-675
ALTERNATIVE 2

DESIGN AGENCY



DESIGNER

ARW

REVIEWER

JRE 03/24/23

PROJECT ID

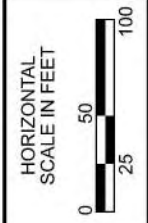
115160

SHEET

34

TOTAL

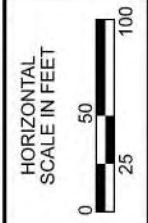
59



PLAN-I-675
ALTERNATIVE 2

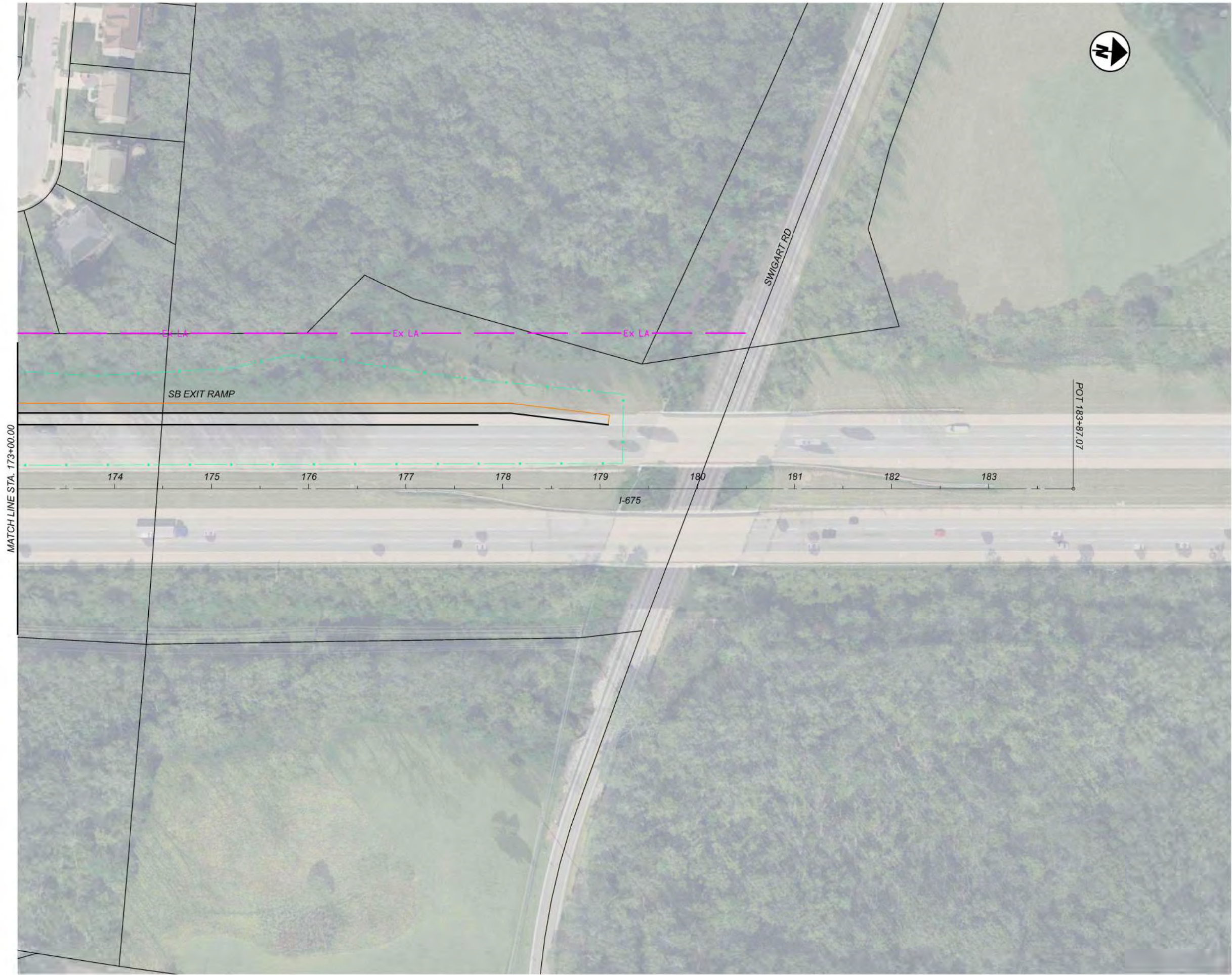


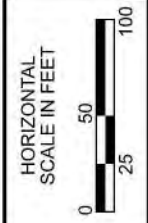
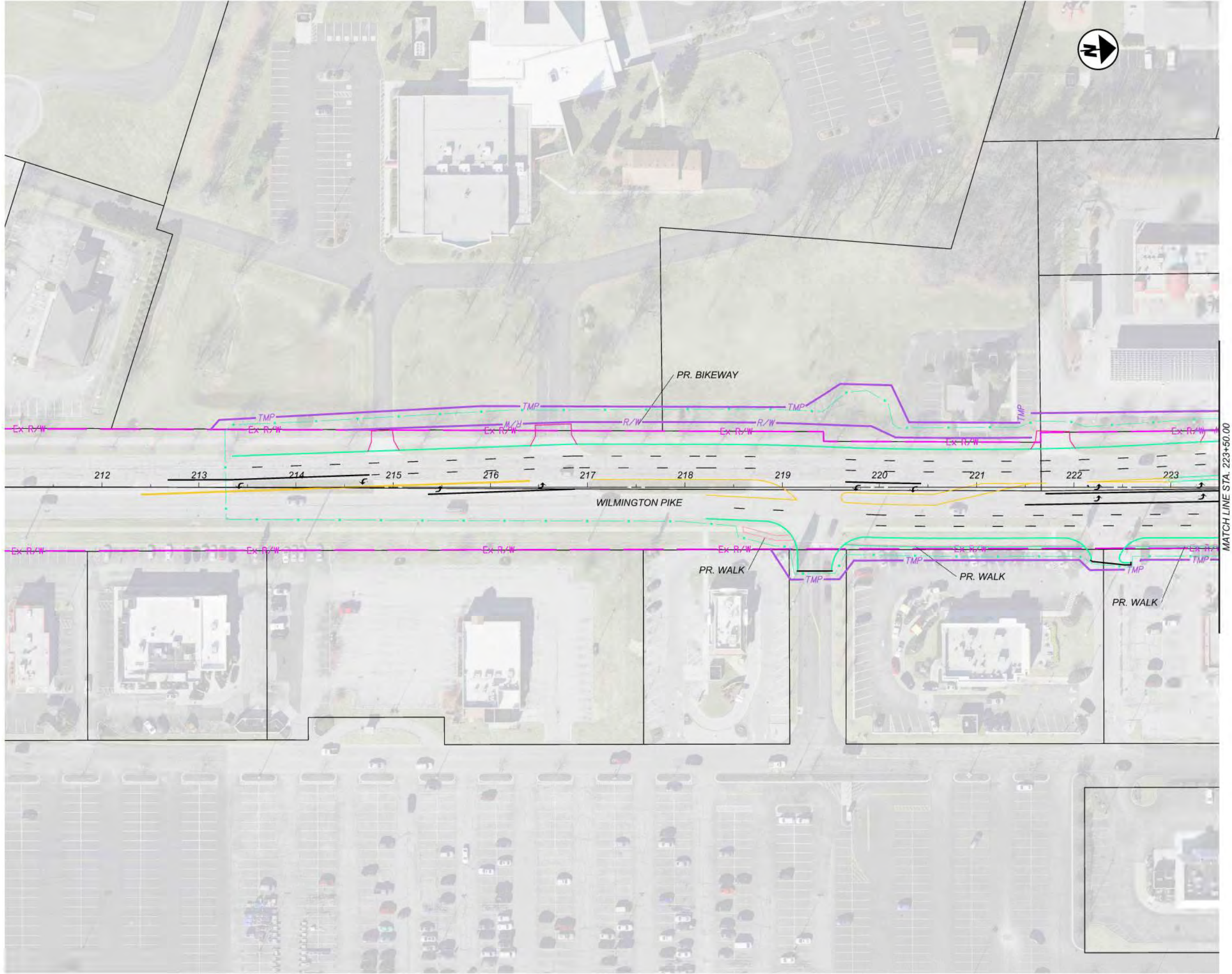
DESIGNER	ARW
REVIEWER	JRE
PROJECT ID	115160
SHEET	35
TOTAL	59



PLAN-I-675
ALTERNATIVE 2

DESIGN AGENCY	
	
DESIGNER	
ARW	
REVIEWER	
JRE 03/24/23	
PROJECT ID	
115160	
SHEET	TOTAL
36	59



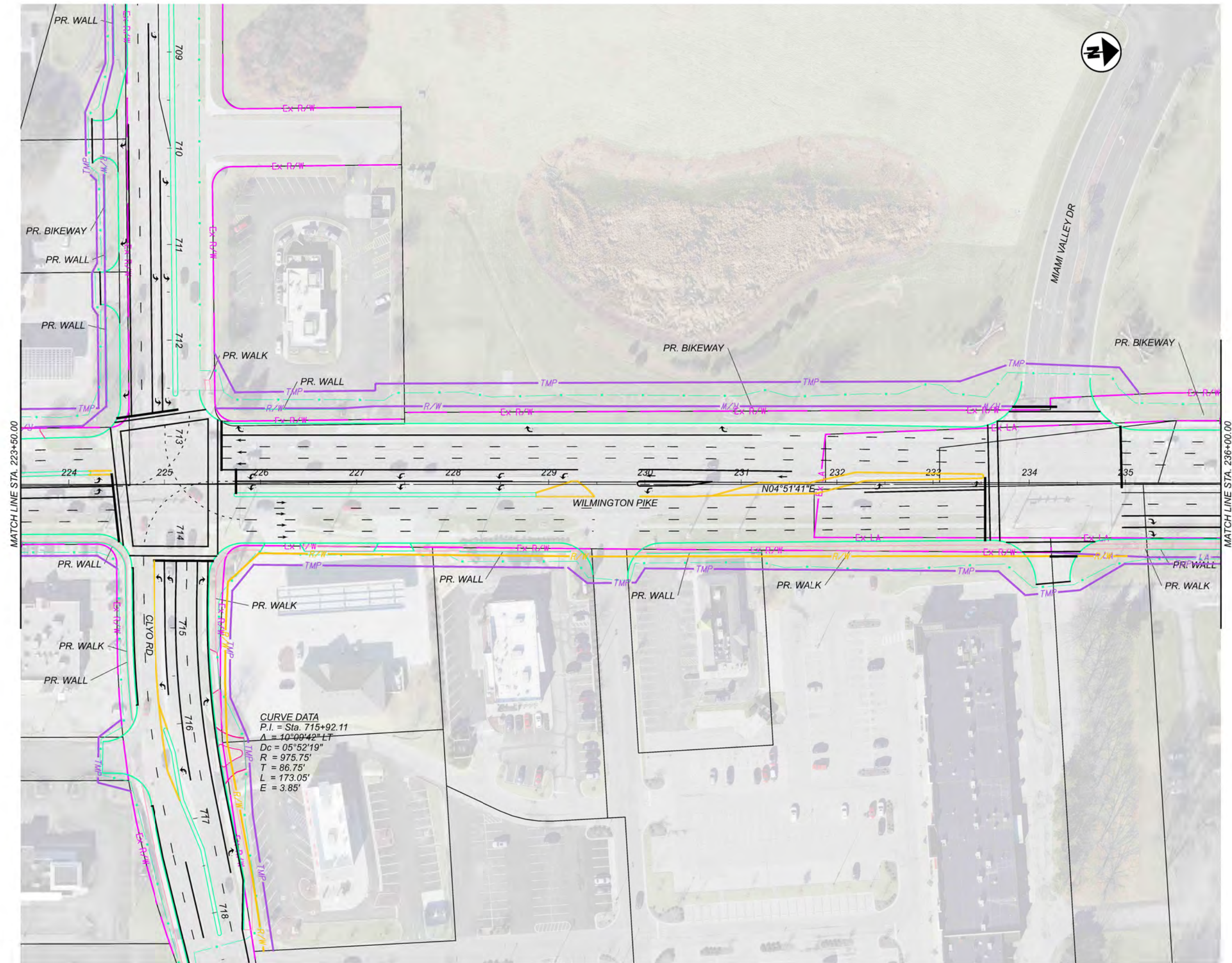


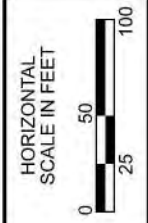
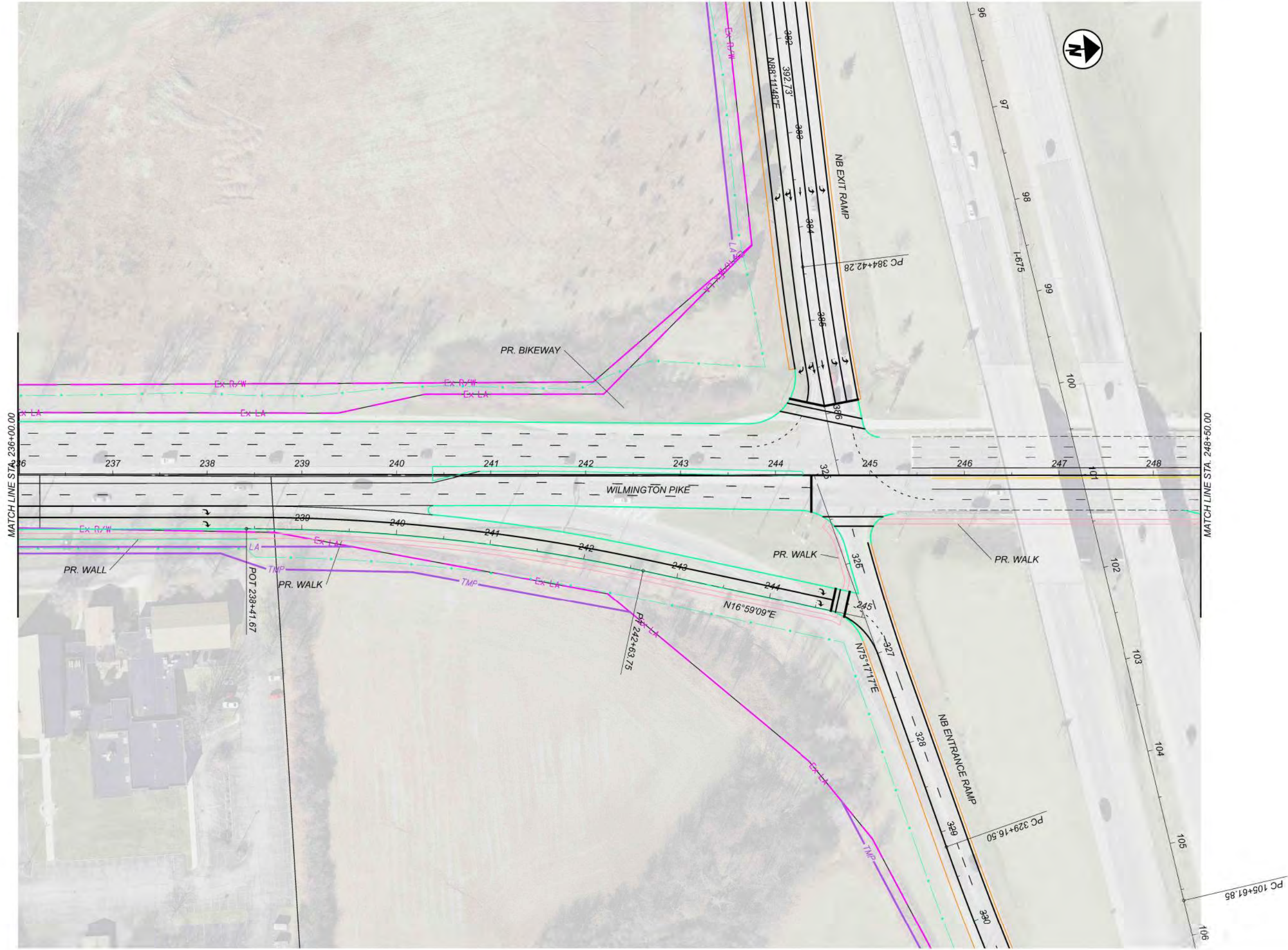
PLAN-WILMINGTON PK
ALTERNATIVE 2

DESIGN AGENCY



DESIGNER	ARW
REVIEWER	JRE
PROJECT ID	115160
SHEET	38
TOTAL	59



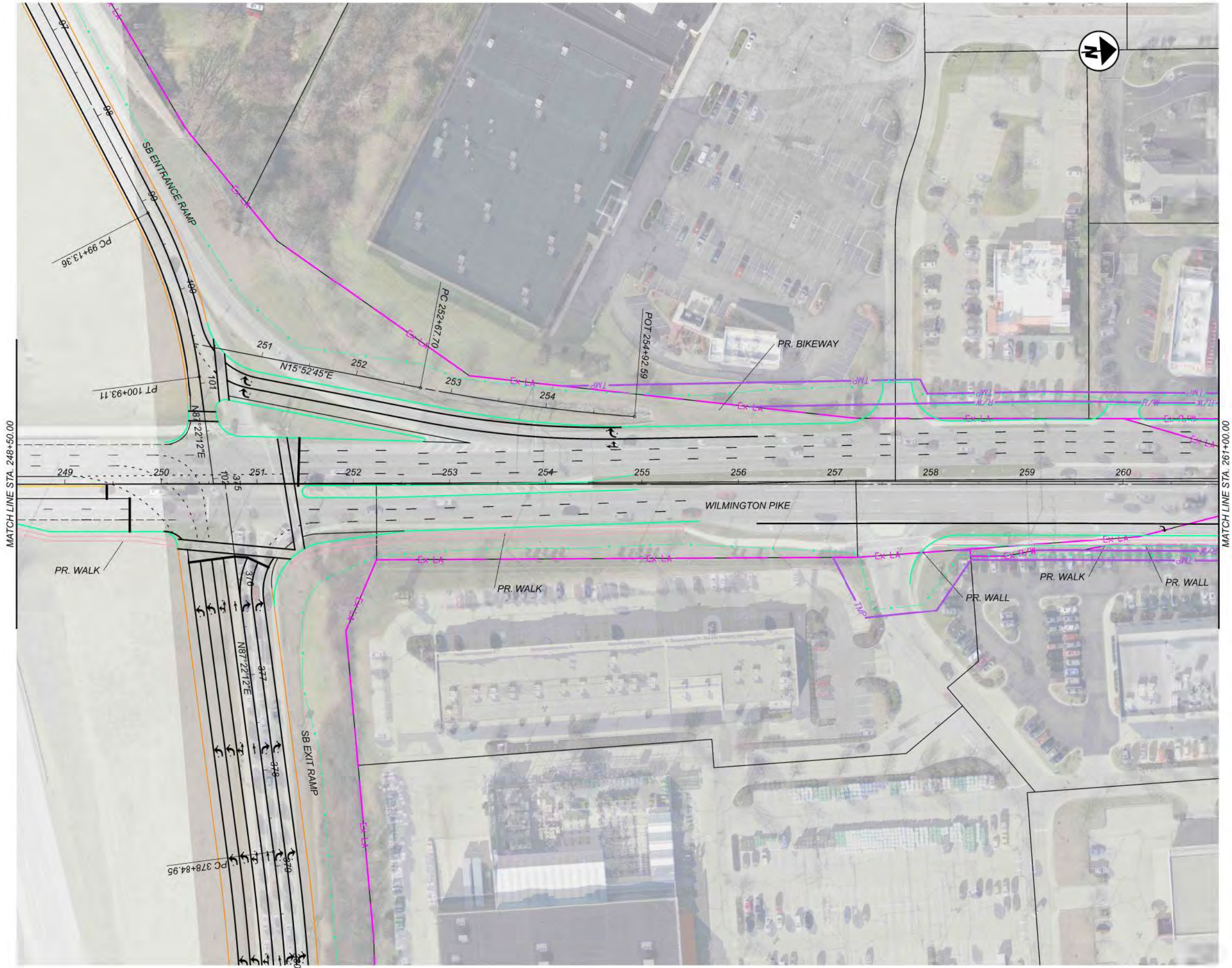


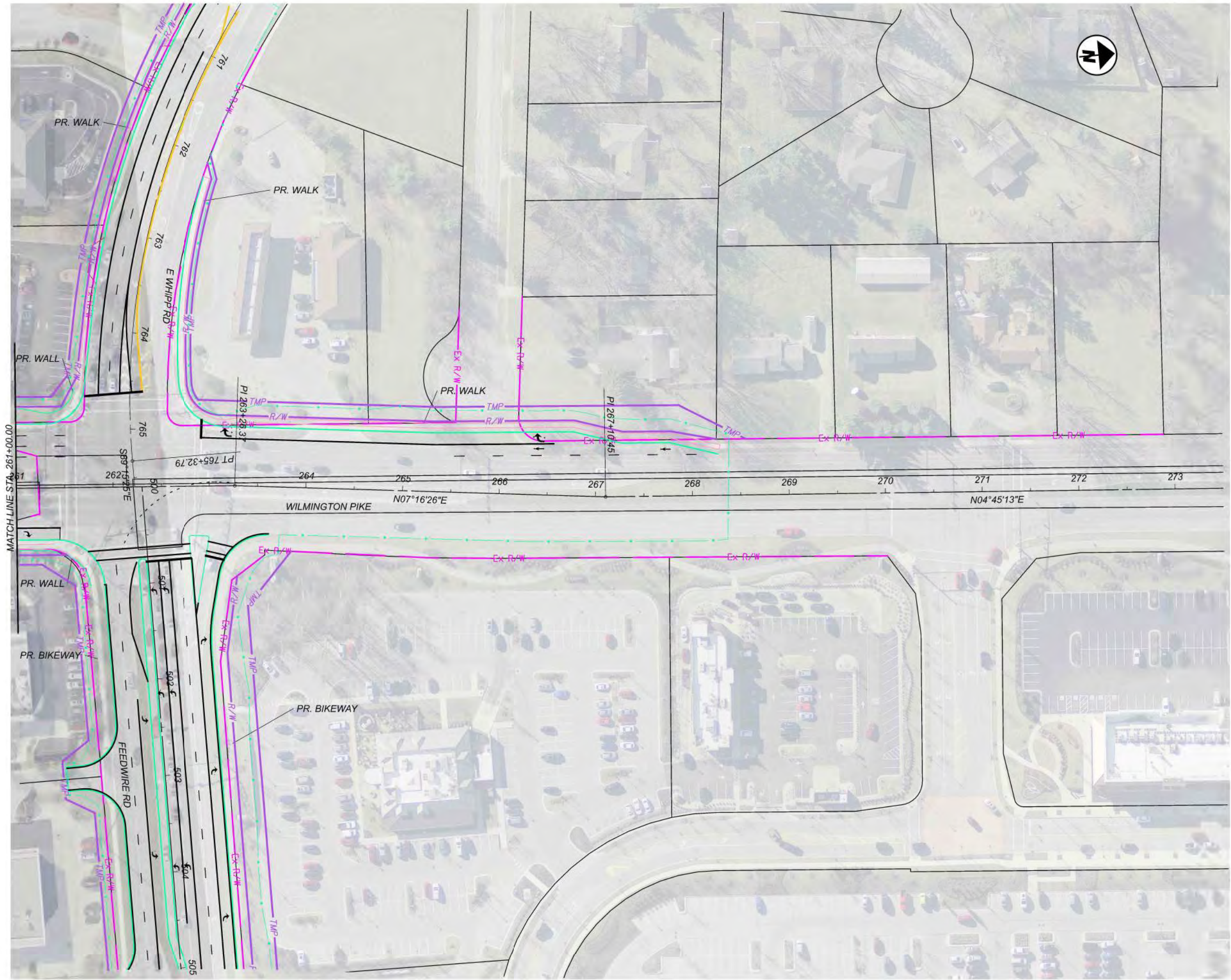
PLAN-WILMINGTON PK
ALTERNATIVE 2

DESIGN AGENCY

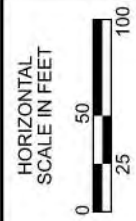


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REVIEWER	JRE
PROJECT ID	115160
SHEET	40
TOTAL	59





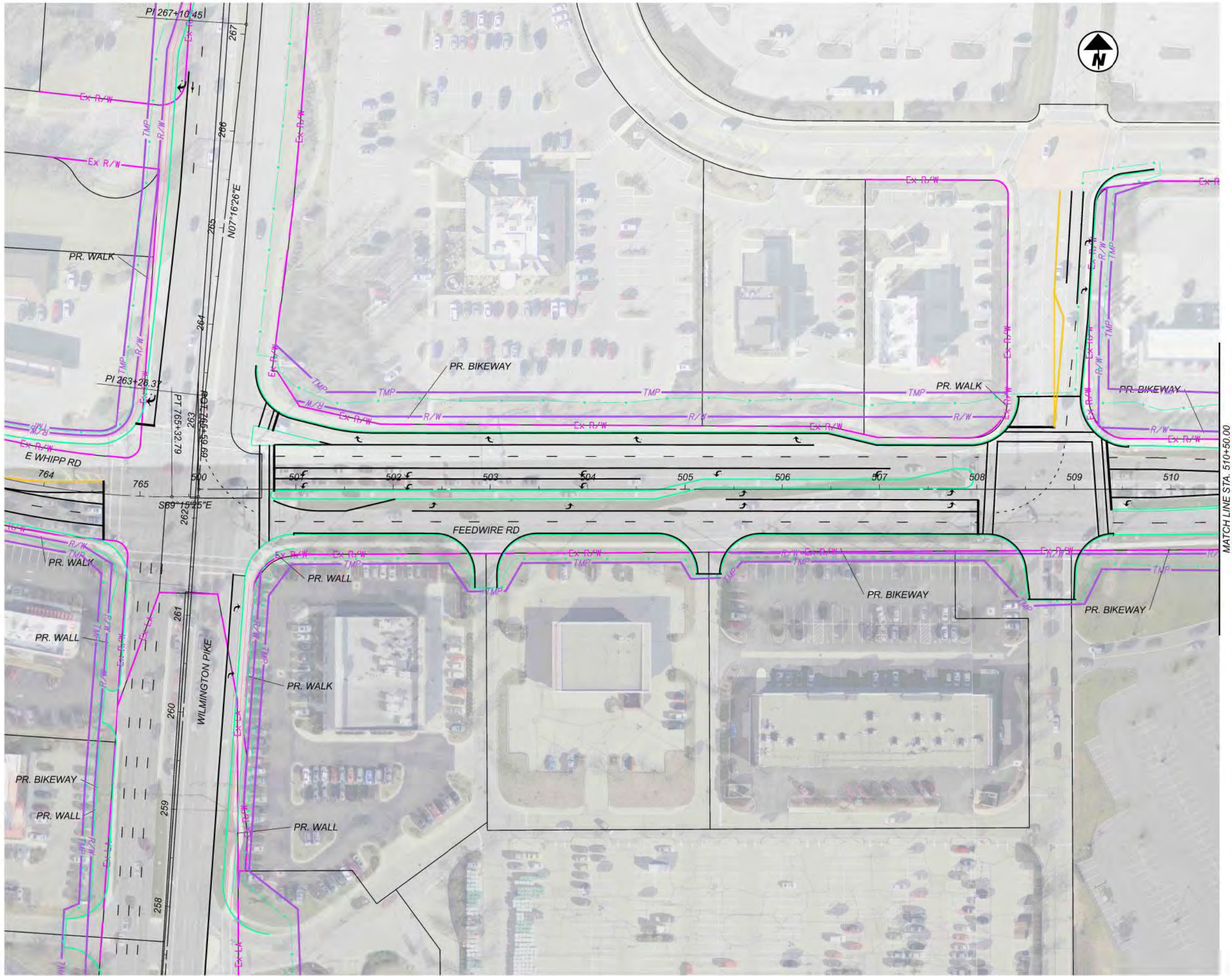
PLAN-WILMINGTON PK
ALTERNATIVE 2



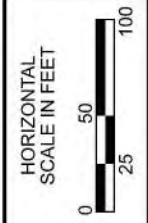
DESIGN AGENCY



DESIGNER	ARW
REVIEWER	JRE 03/24/23
PROJECT ID	115160
SHEET	TOTAL
42	59



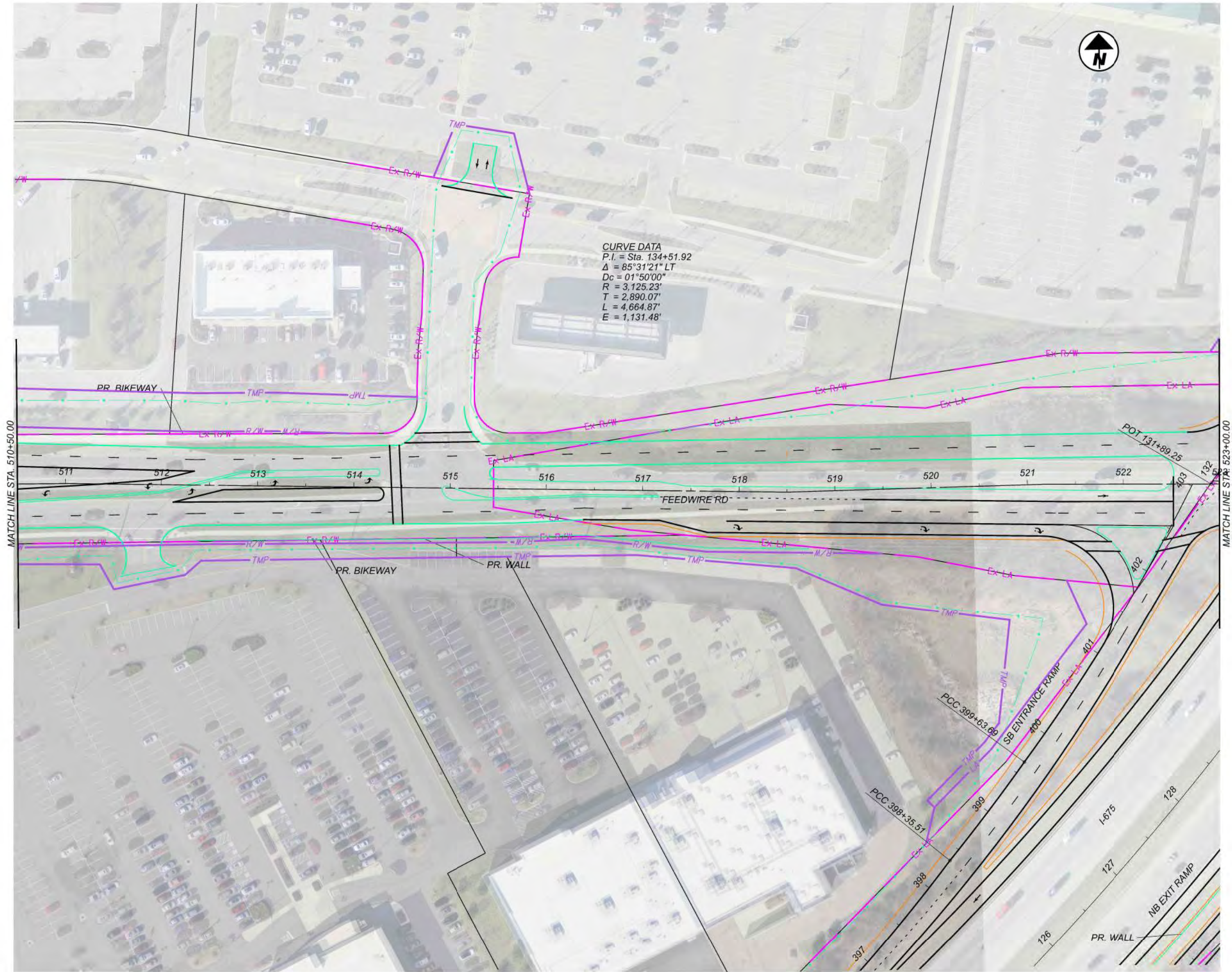
PLAN-FEEDWIRE RD.
ALTERNATIVE 2



DESIGN AGENCY



DESIGNER	ARW
REVIEWER	JRE
PROJECT ID	115160
SHEET	43
TOTAL	59



PLAN-FEEDWIRE RD.
ALTERNATIVE 2

DESIGN AGENCY

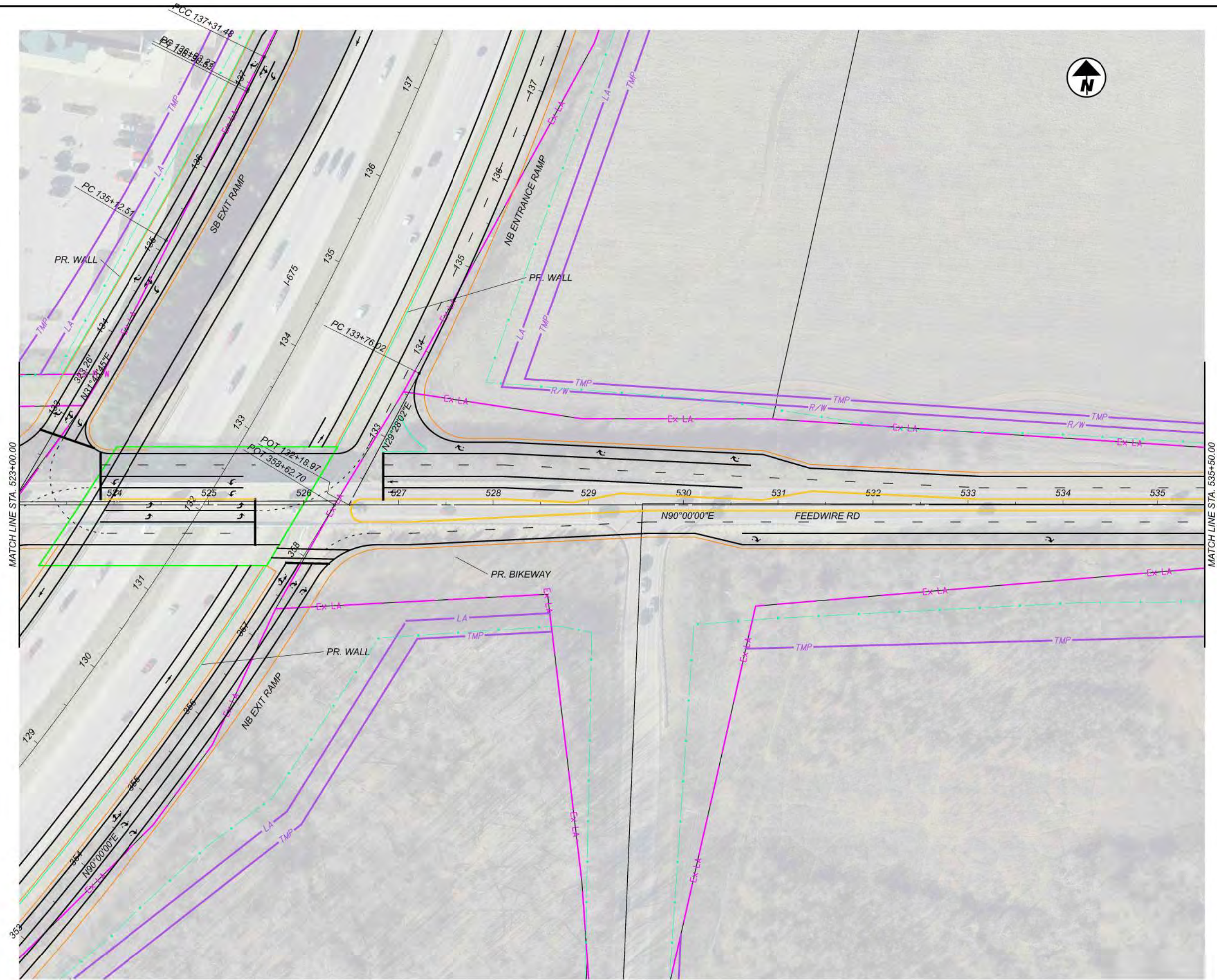


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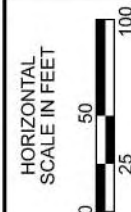
REVIEWER
JRE 03/24/23

PROJECT ID
115160

SHEET	TOTAL
44	59



PLAN-FEEDWIRE RD.
ALTERNATIVE 2



DESIGN AGENCY



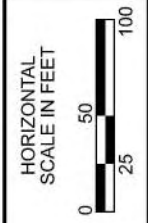
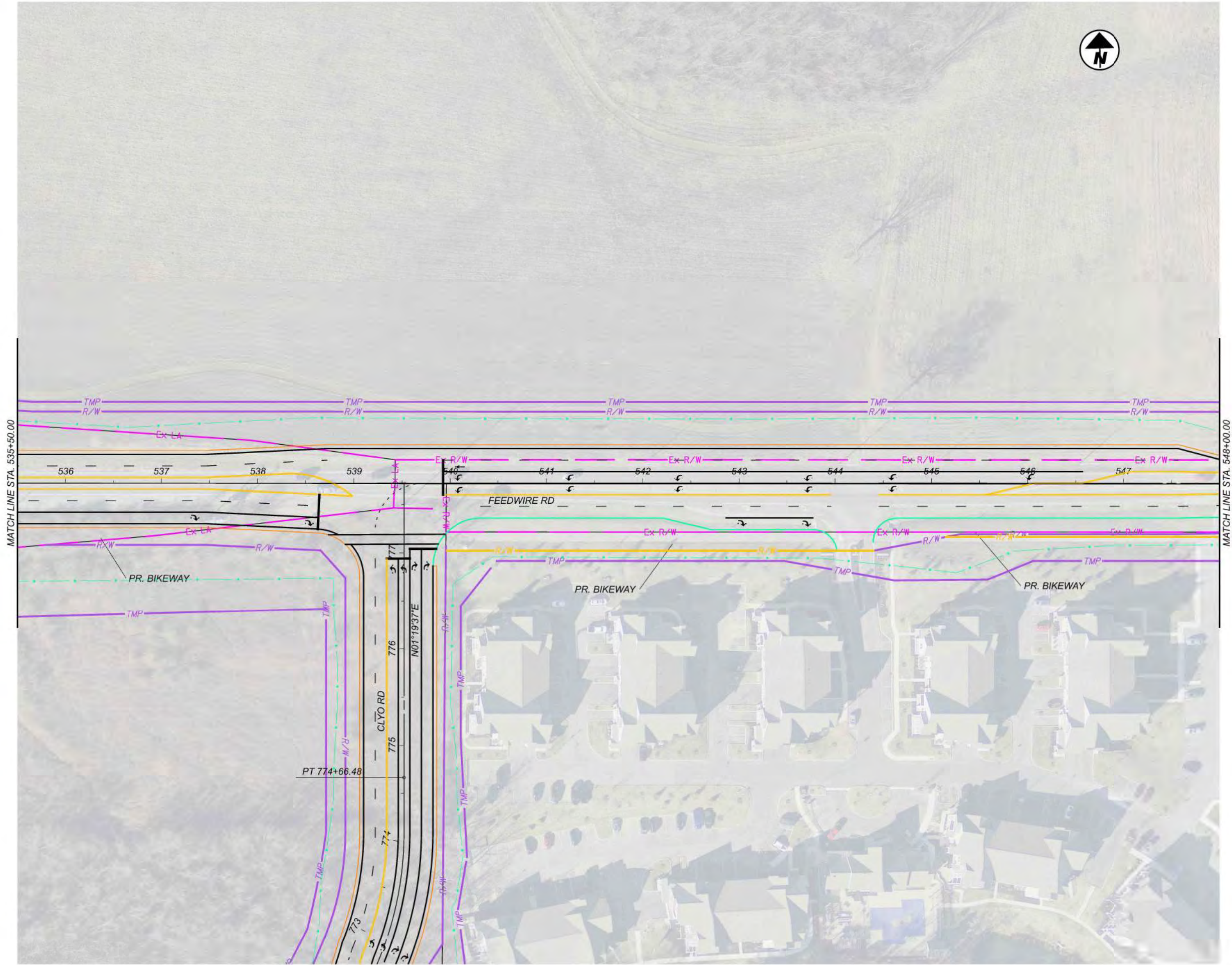
DESIGNER
ARW

REVIEWER
JRE 03/24/23

PROJECT ID
115160

SHEET
45

TOTAL
59

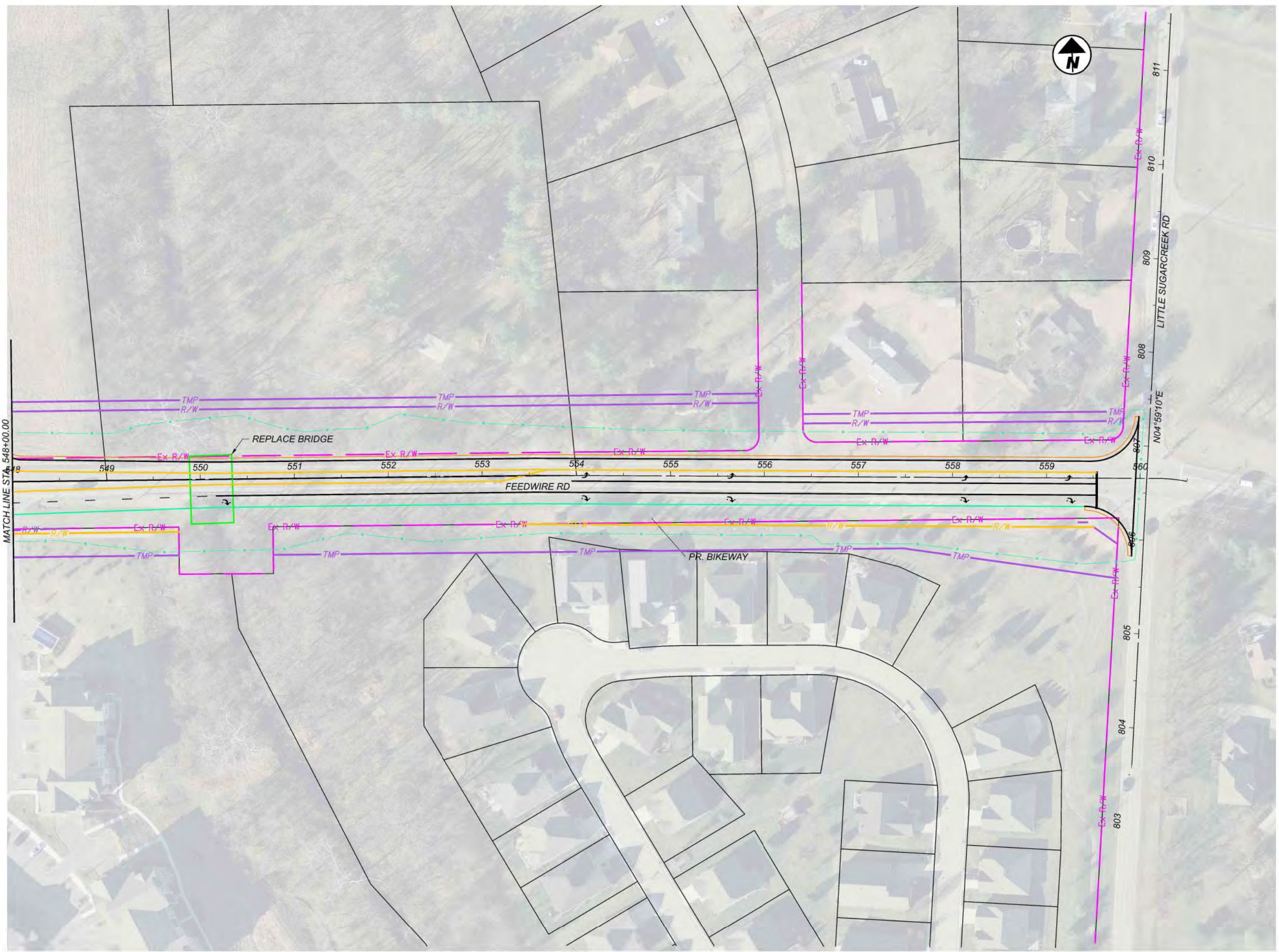


PLAN-FEEDWIRE RD.
ALTERNATIVE 2

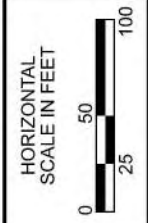
DESIGN AGENCY



DESIGNER	ARW
REVIEWER	JRE 03/24/23
PROJECT ID	115160
SHEET	TOTAL
46	59



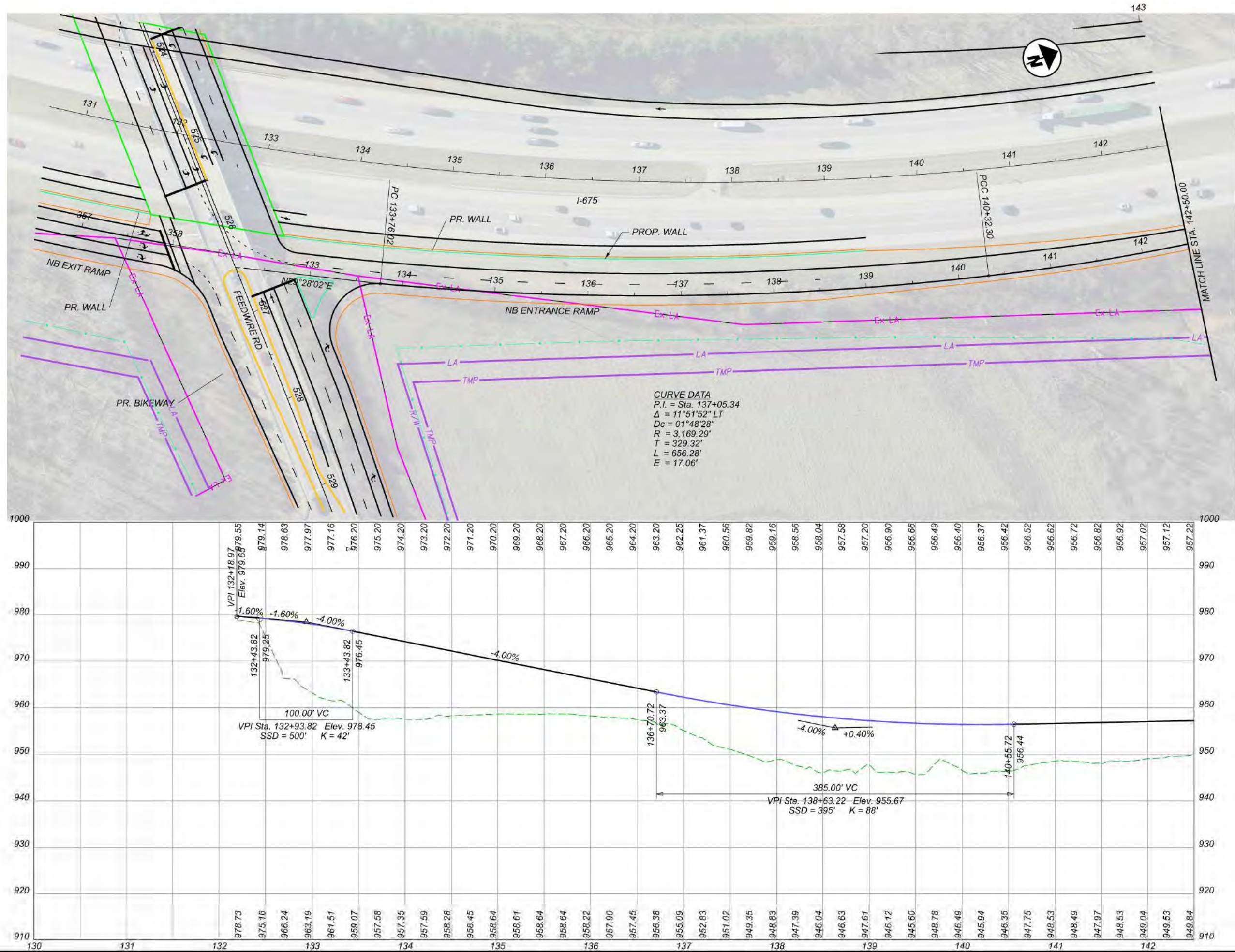
PLAN-FEEDWIRE RD.
ALTERNATIVE 2



DESIGN AGENCY



DESIGNER	ARW
REVIEWER	JRE
DATE	03/24/23
PROJECT ID	115160
SHEET	47
TOTAL	59



PLAN AND PROFILE-NB ENTRANCE RAMP
ALTERNATIVE 2



DESIGN AGENCY



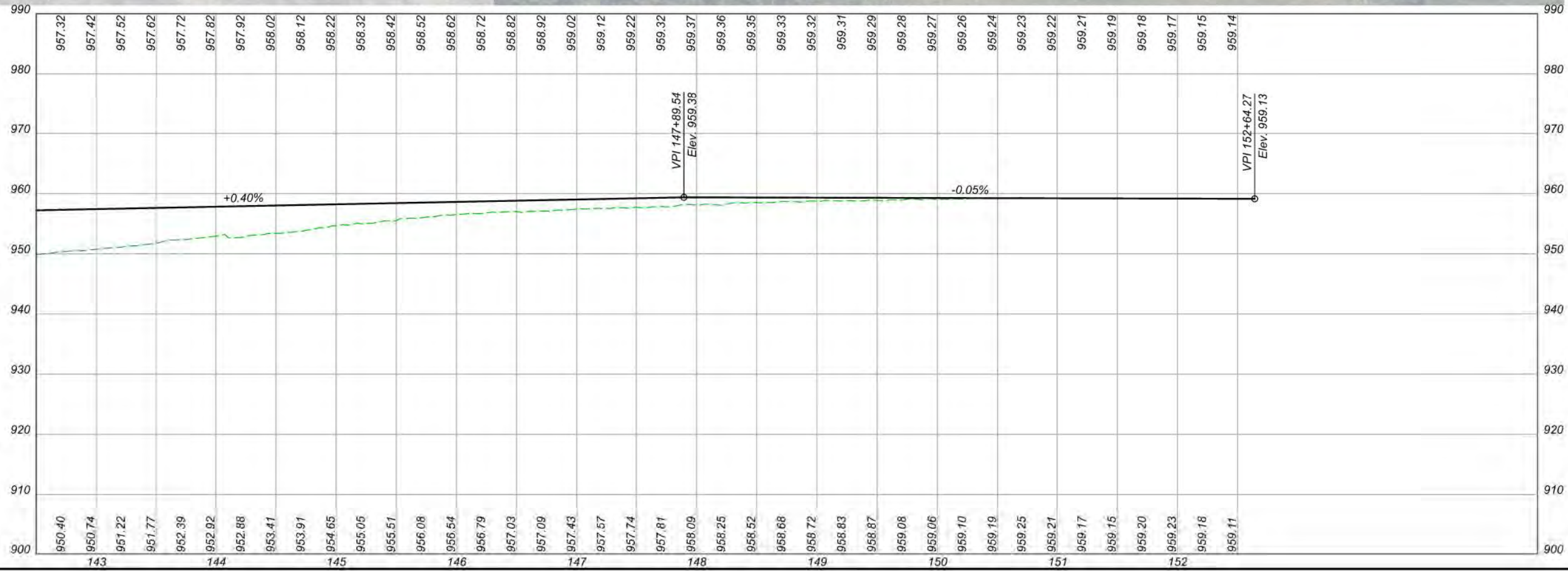
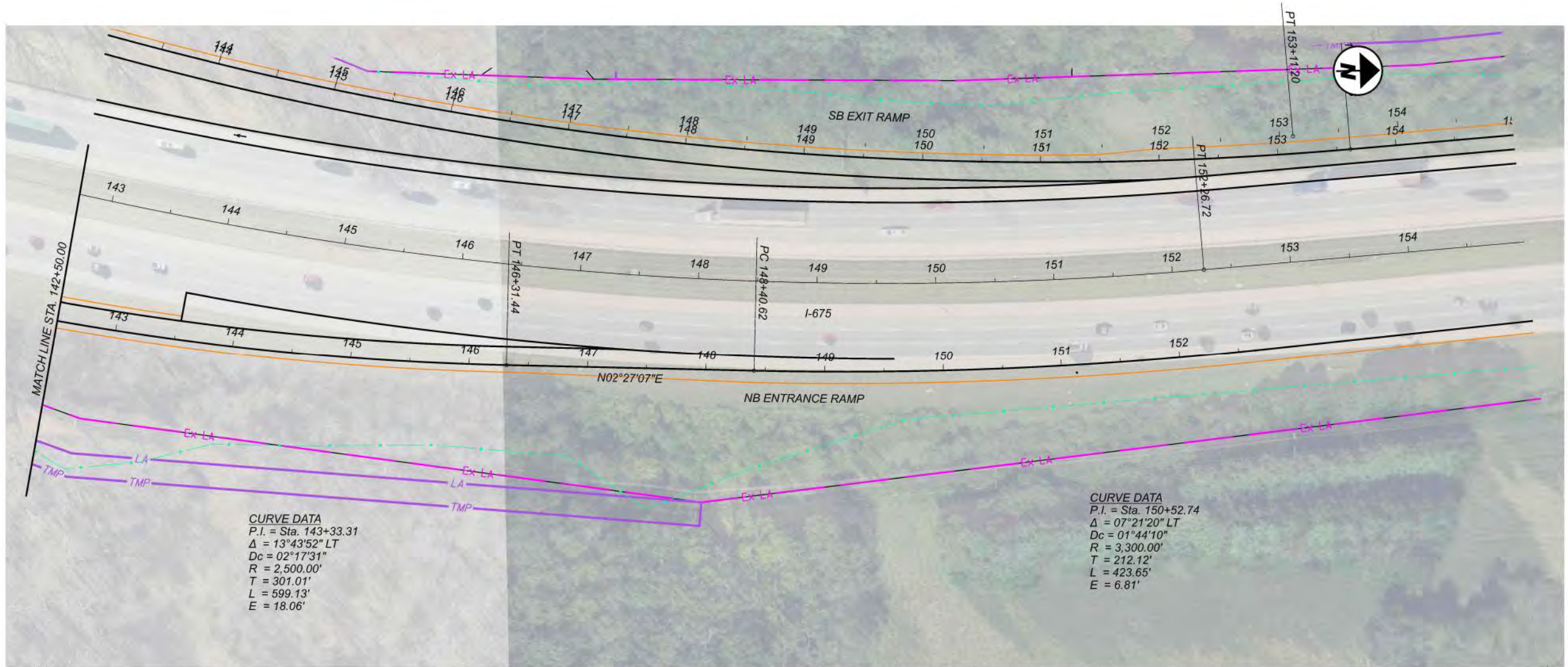
DESIGNER
ARW

REVIEWER
JRE 03/24/23

PROJECT ID
115160

SHEET
48

TOTAL
59



PLAN AND PROFILE-NB ENTRANCE RAMP
ALTERNATIVE 2

DESIGN AGENCY

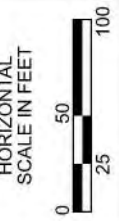
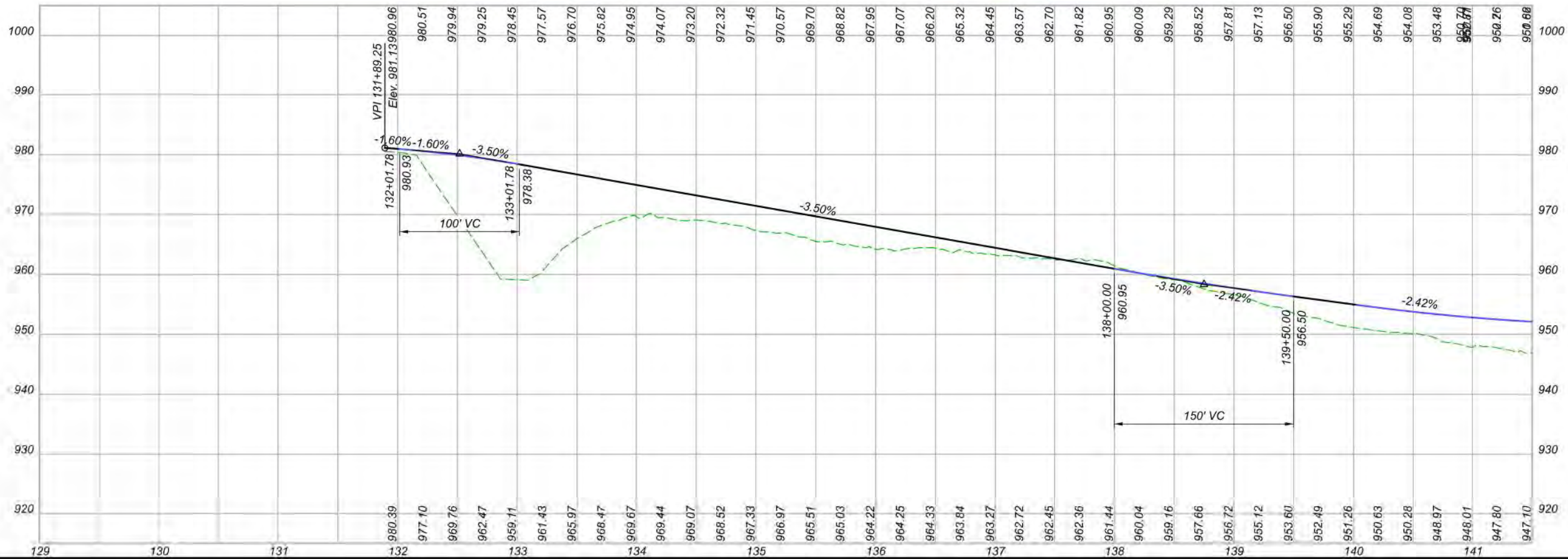


DESIGNER
ARW

REVIEWER
JRE 03/24/23

PROJECT ID
115160

SHEET TOTAL
49 59



PLAN AND PROFILE-SB EXIT RAMP
ALTERNATIVE 2

DESIGN AGENCY



DESIGNER

ARW

REVIEWER

JRE 03/24/23

PROJECT ID

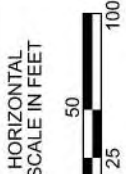
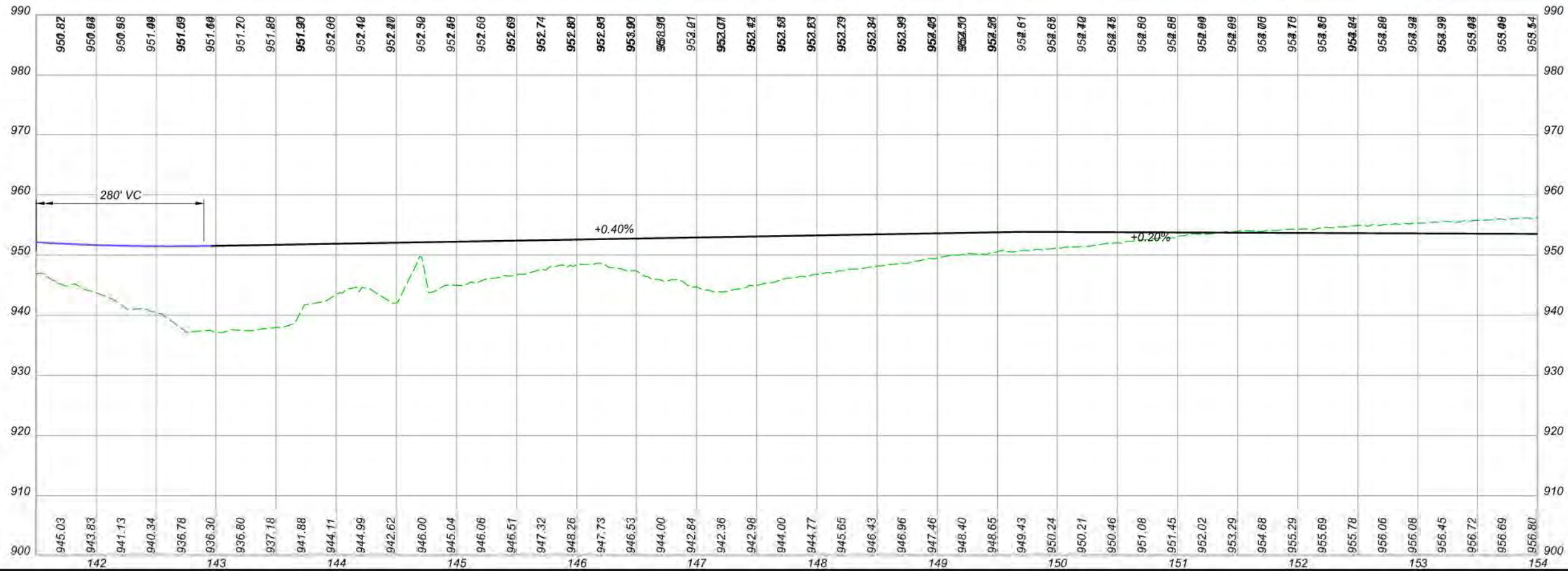
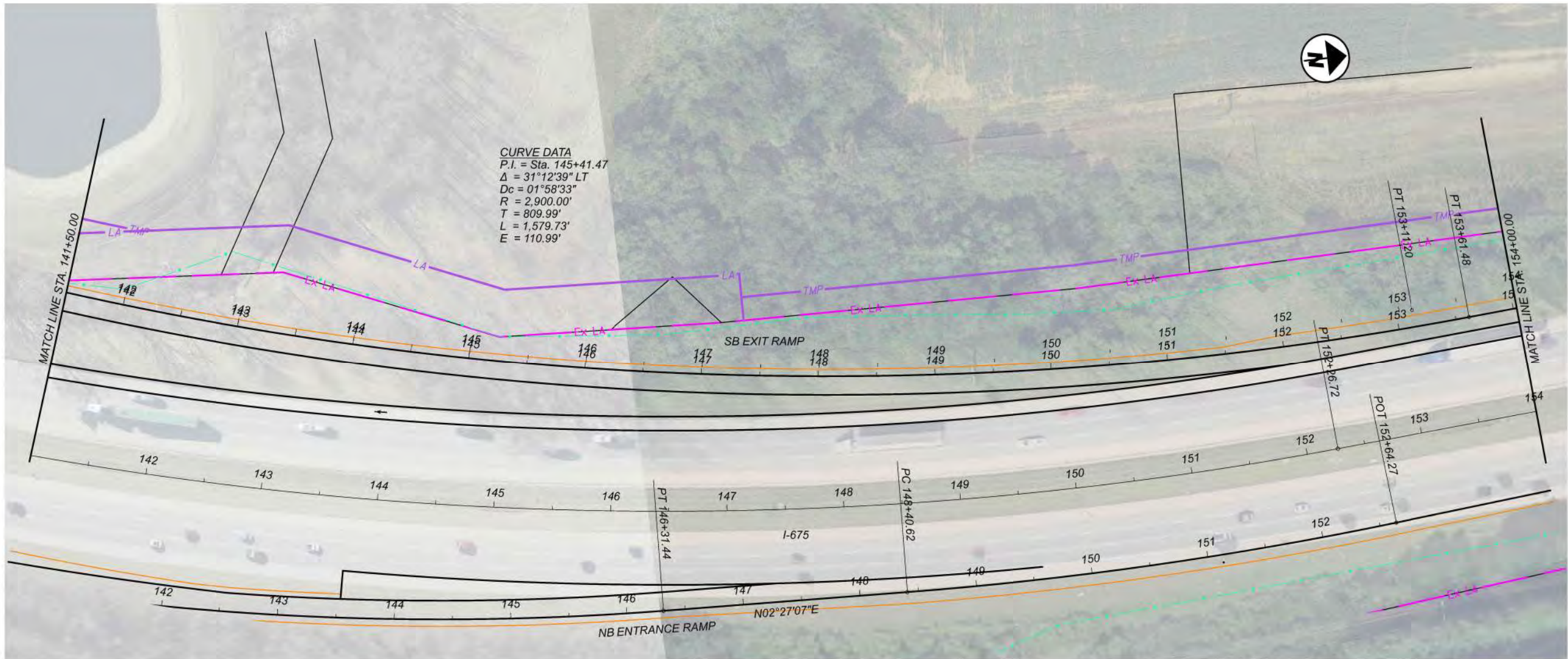
115160

SHEET

50

TOTAL

59



PLAN AND PROFILE-SB EXIT RAMP
ALTERNATIVE 2

DESIGN AGENCY



DESIGNER

ARW

REVIEWER

JRE 03/24/23

PROJECT ID

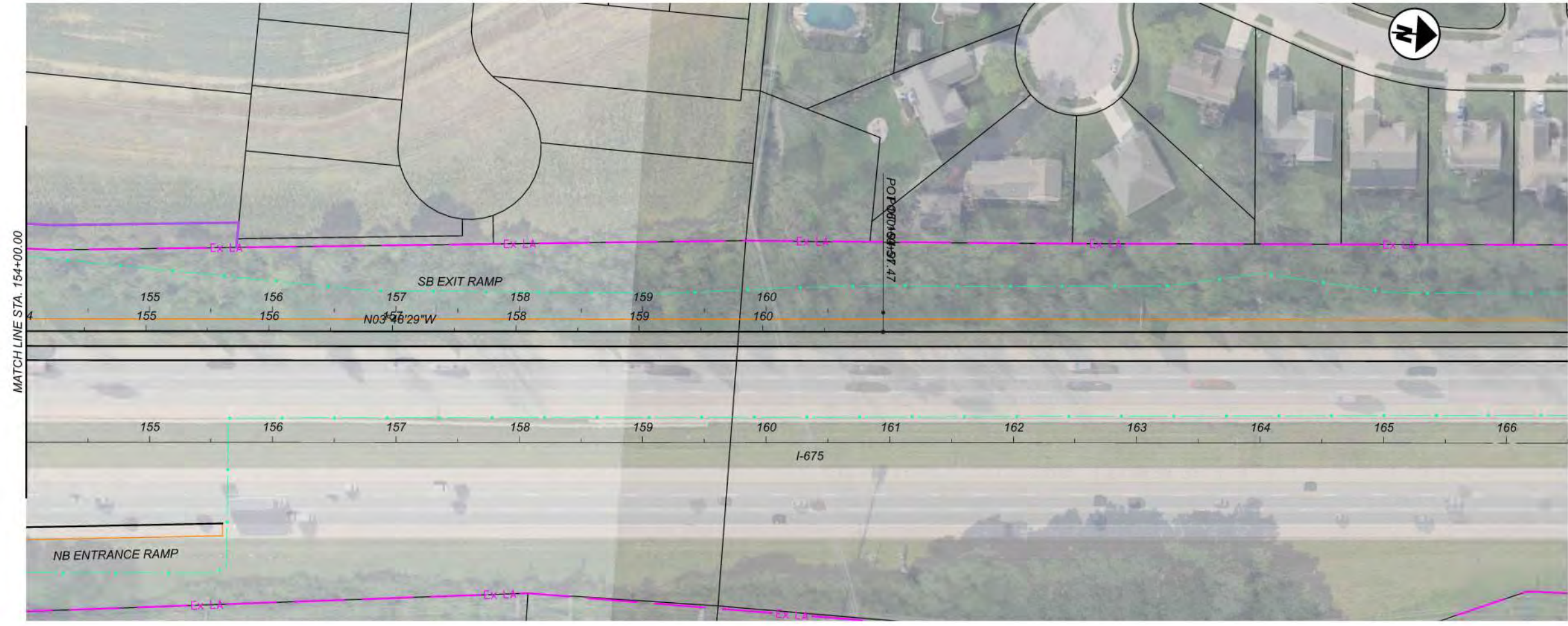
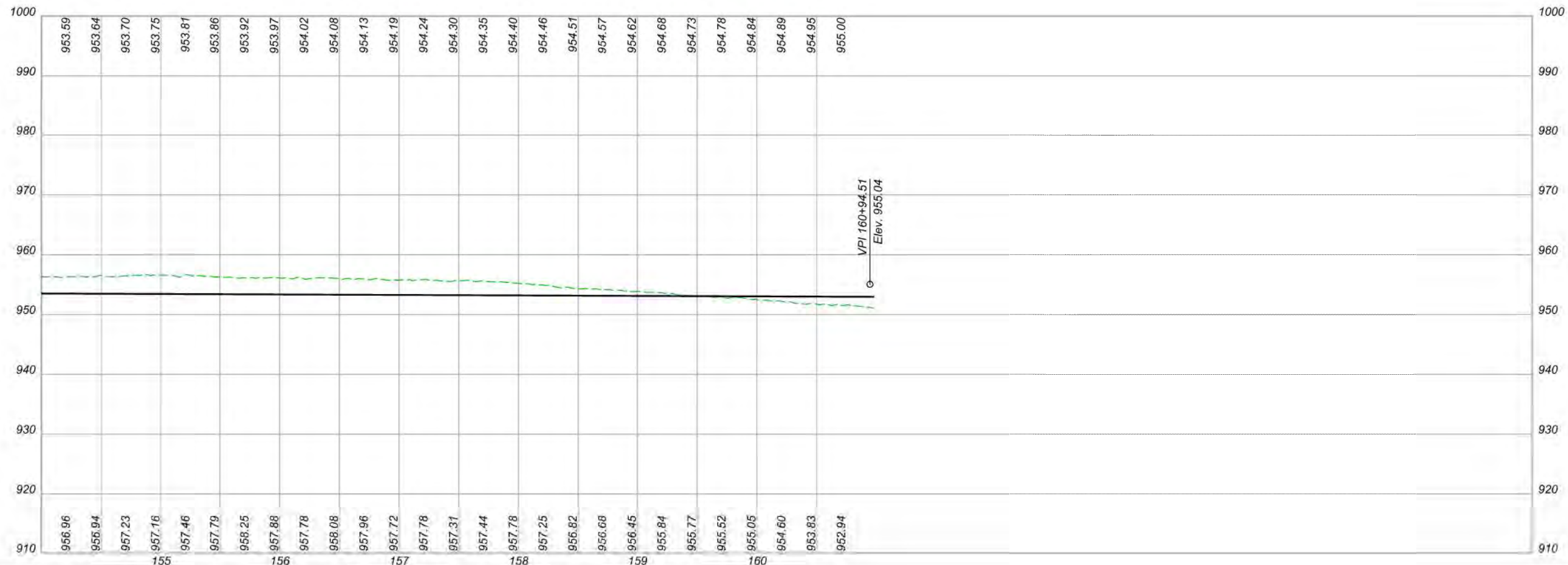
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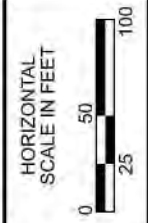
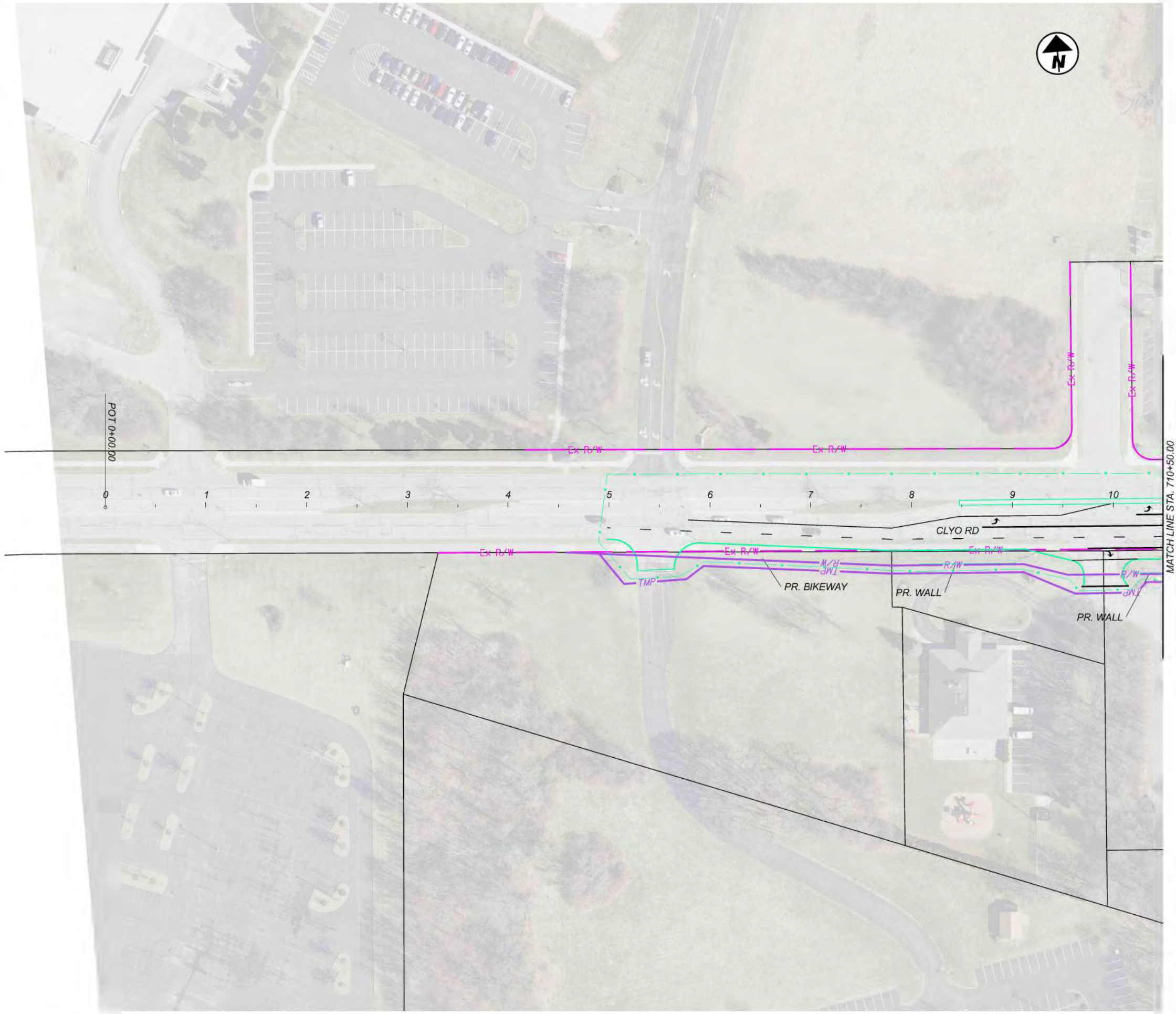
SHEET

51

TOTAL

59



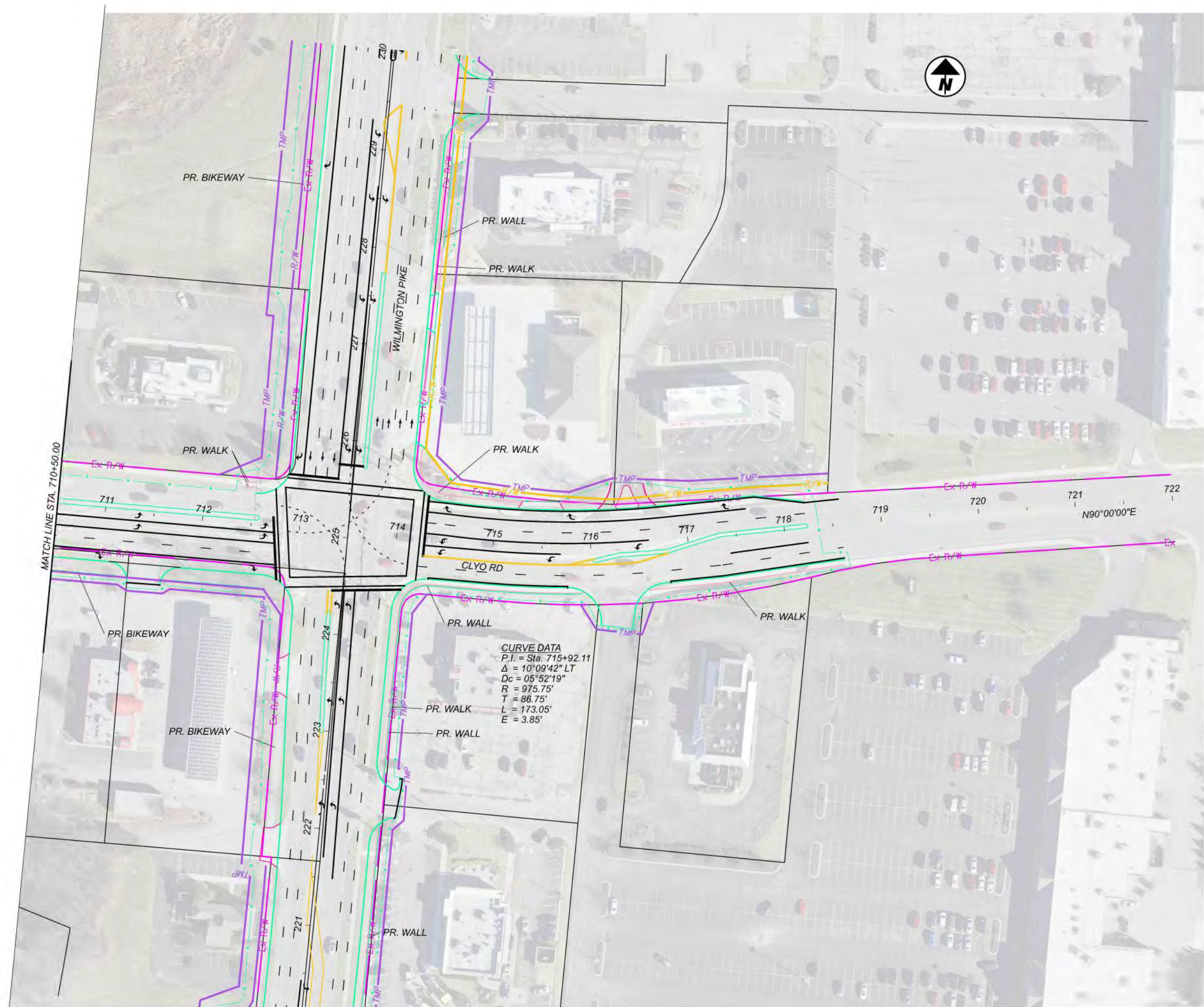


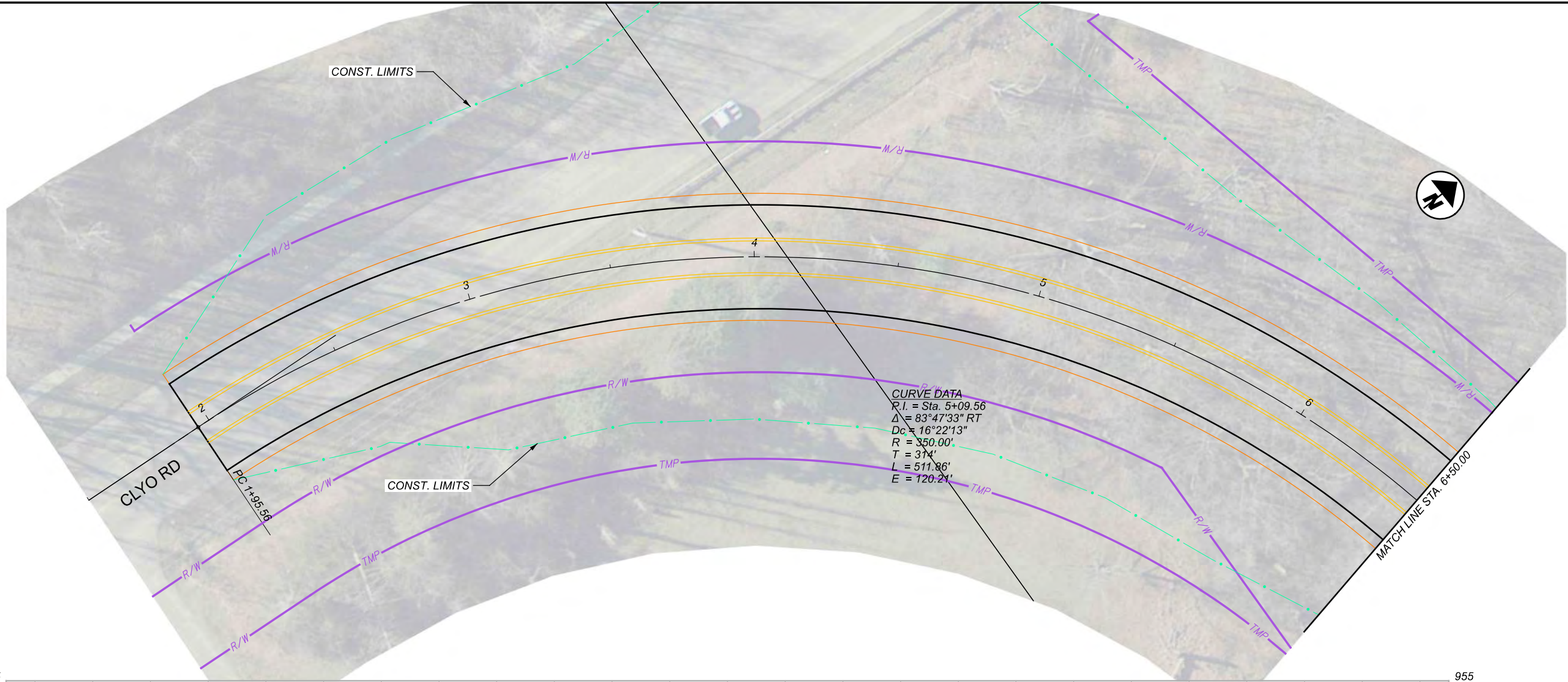
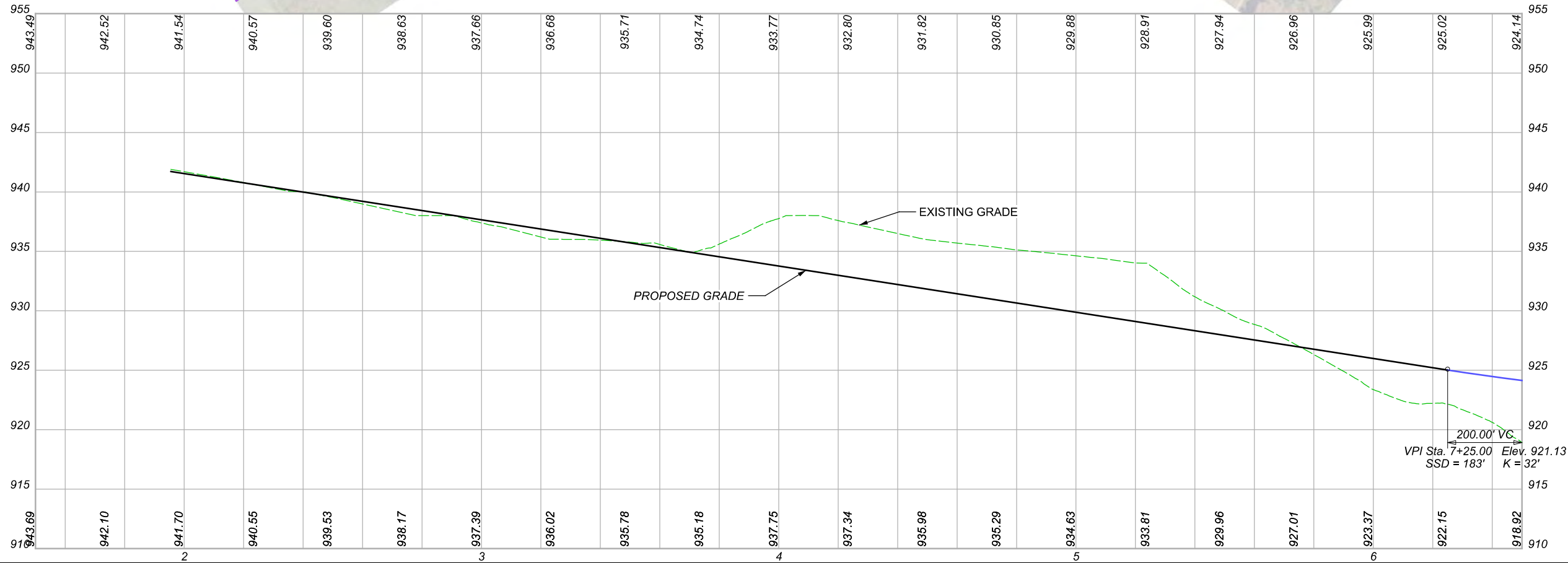
PLAN-CLYO RD.
ALTERNATIVE 2

DESIGN AGENCY



DESIGNER	ARW
REVIEWER	AJS 03/24/23
PROJECT ID	115160
SHEET	53
TOTAL	161





PLAN AND PROFILE-CLYO ROAD-CLYO RD.
ALTERNATIVE 2

DESIGN AGENCY



DESIGNER

ARW

REVIEWER

JRE 03/24/23

PROJECT ID

115160

SHEET

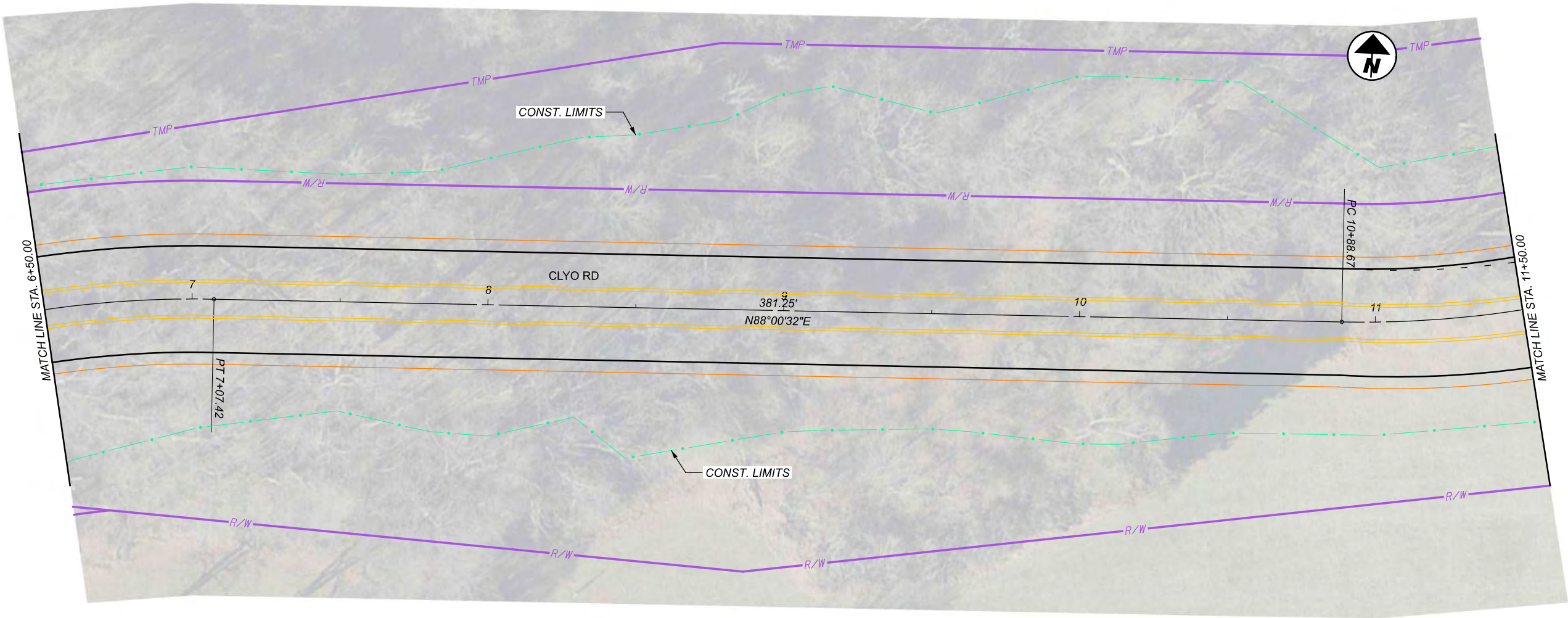
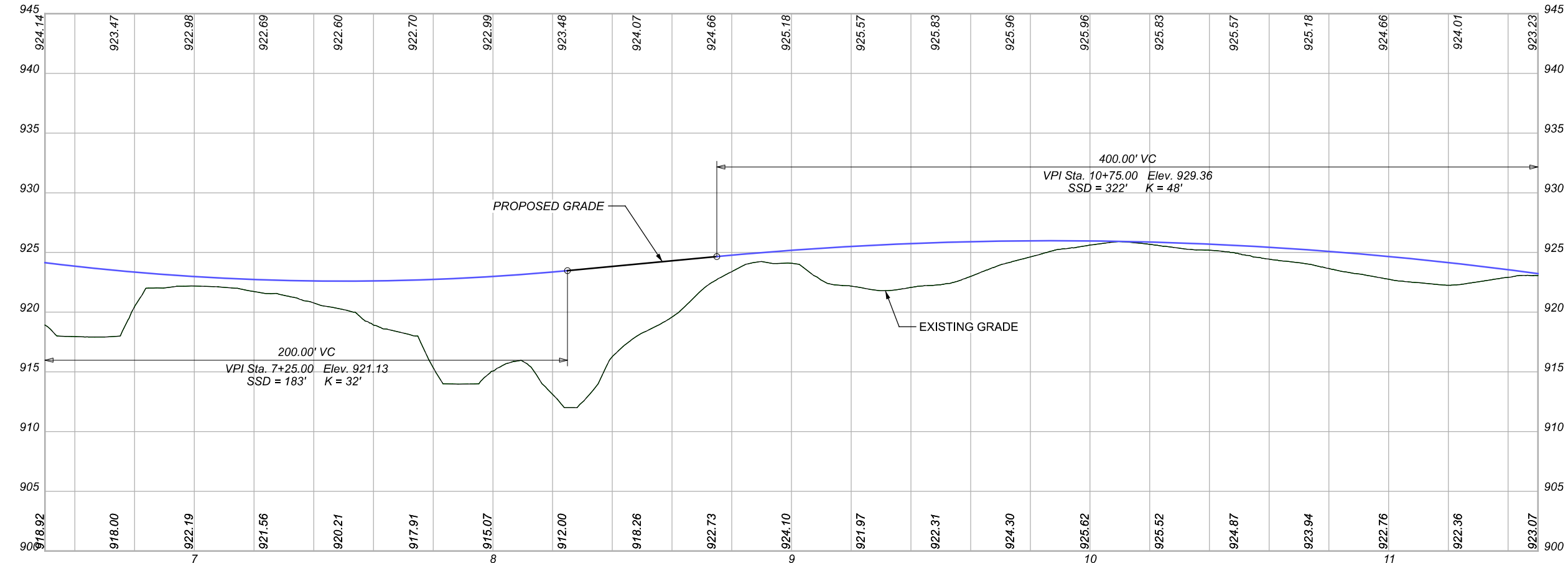
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TOTAL

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HORIZONTAL
SCALE IN FEET

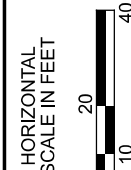


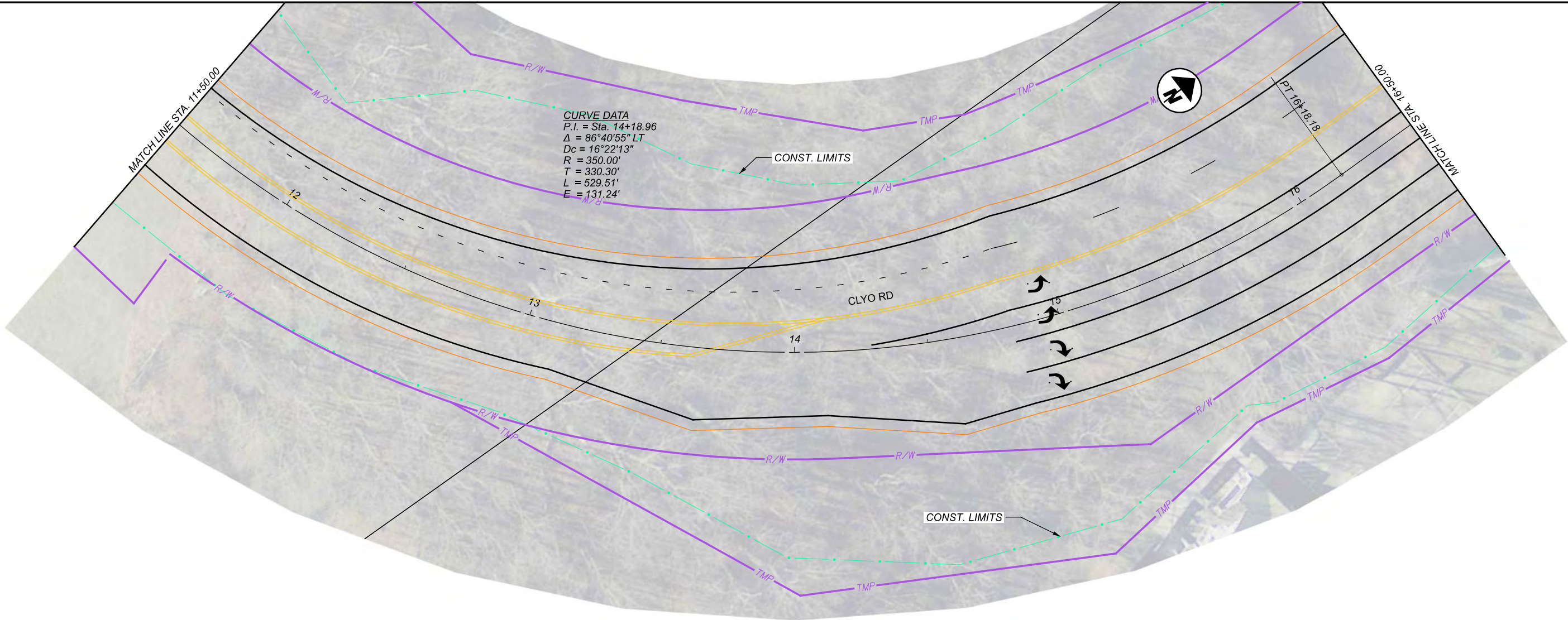
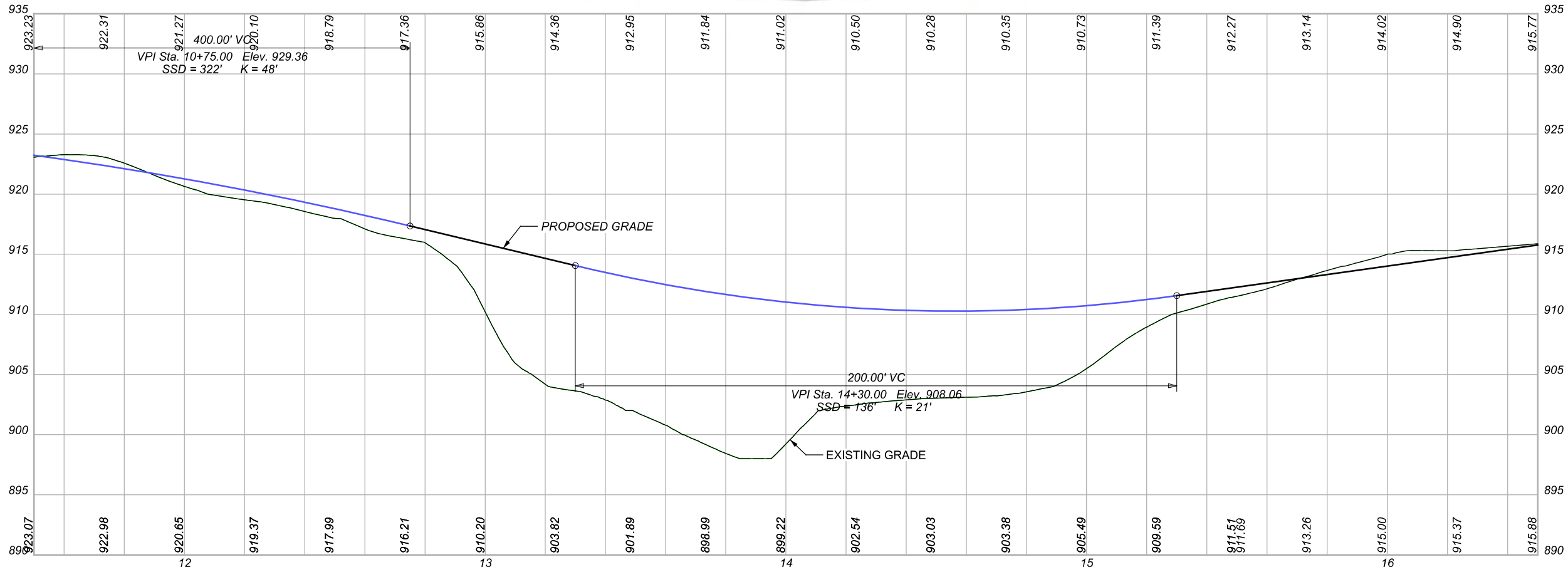


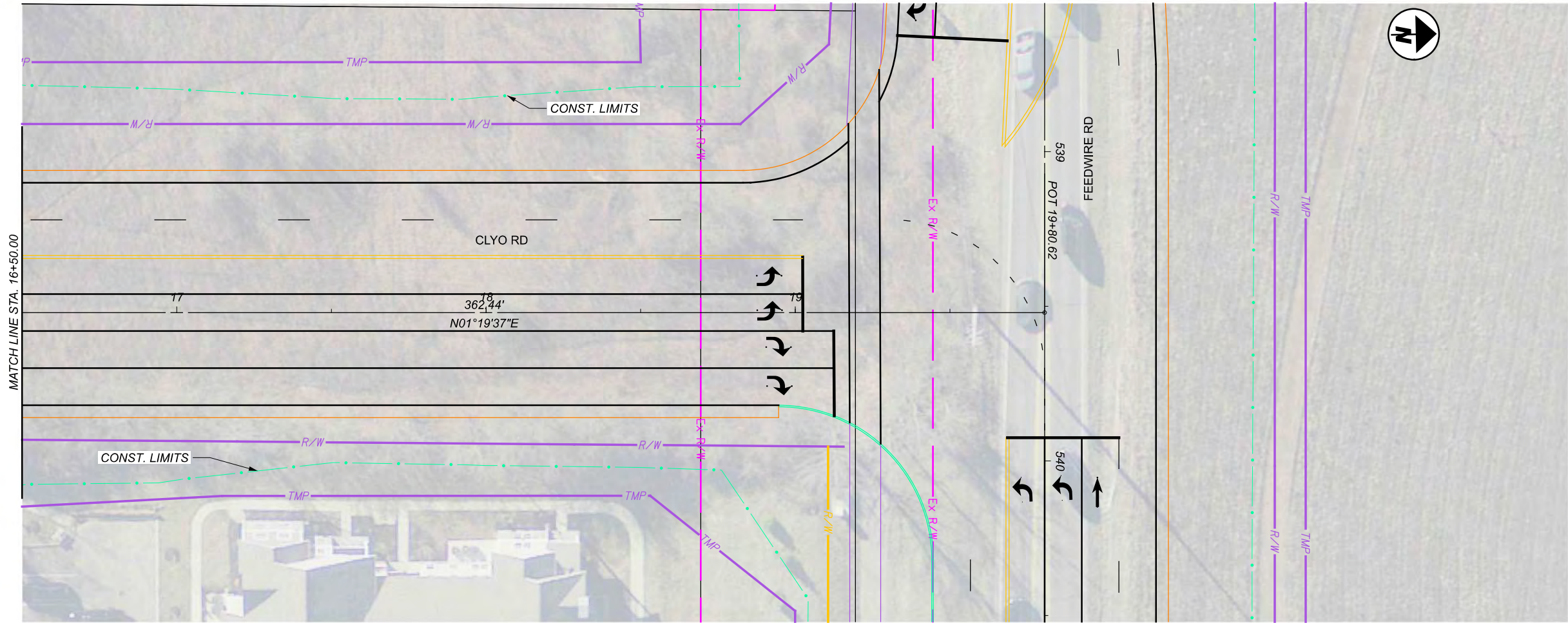
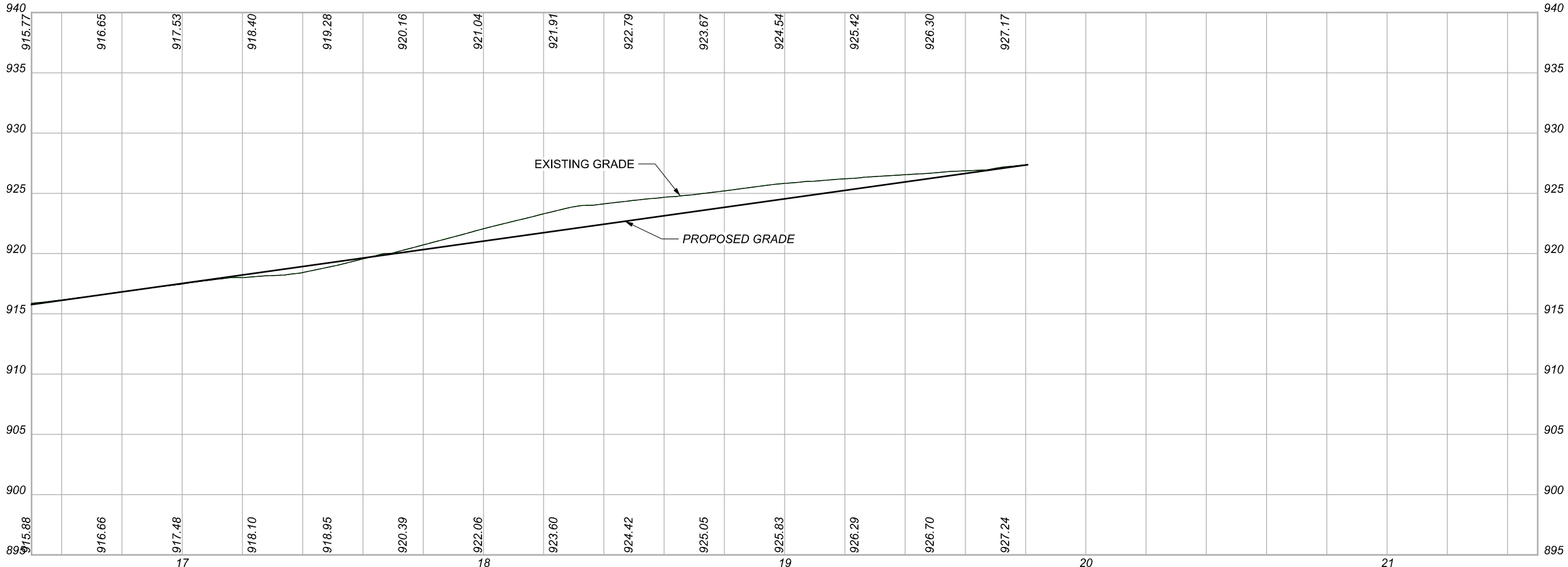
PLAN AND PROFILE-CLYO ROAD-CLYO RD.
ALTERNATIVE 2



DESIGNER	ARW
REVIEWER	JRE 03/24/23
PROJECT ID	115160
SHEET	TOTAL
56	59







DESIGN AGENCY

DESIGNER
ARW

REVIEWER
JRE 03/24/23

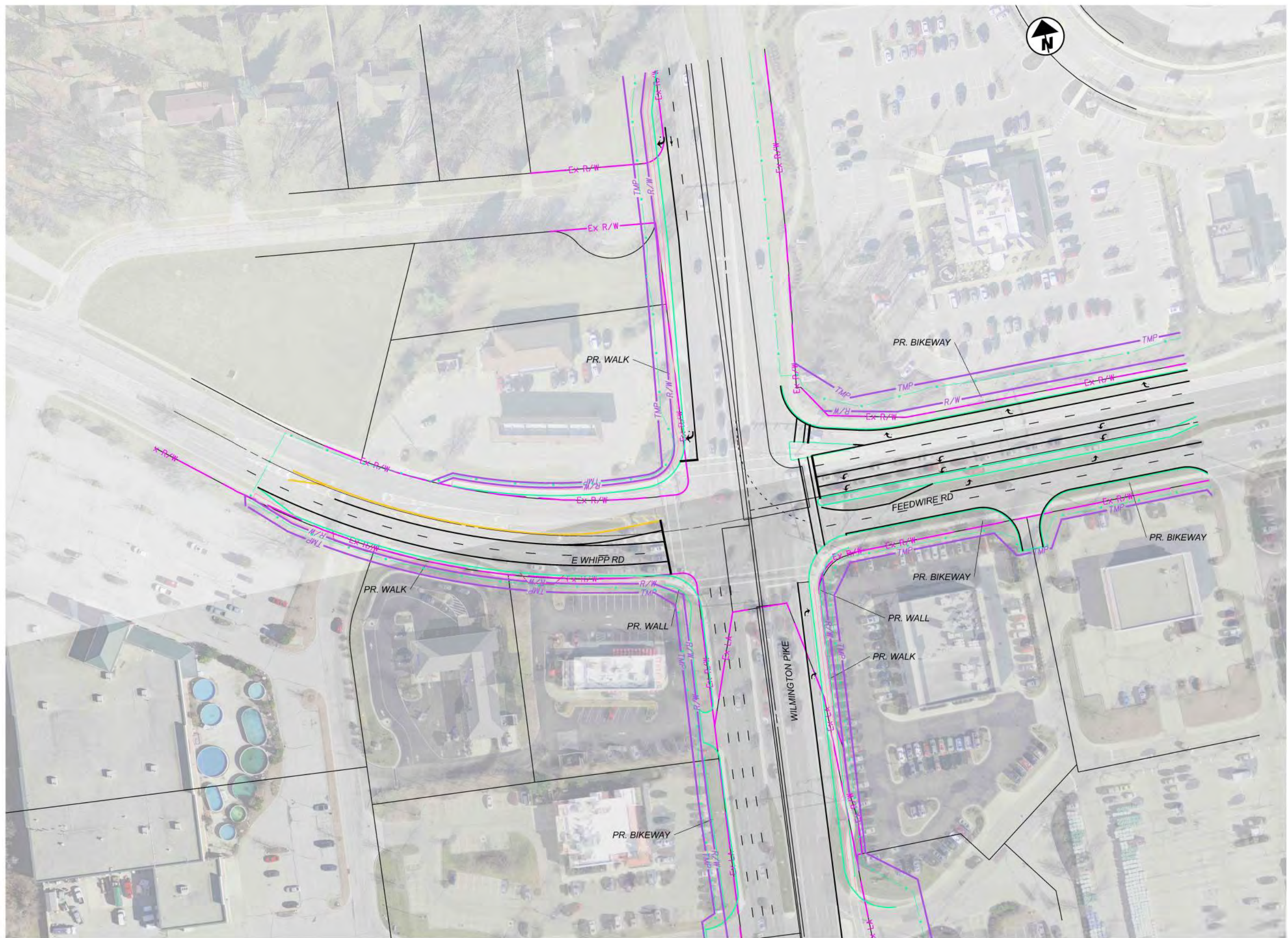
PROJECT ID
115160

SHEET
58

TOTAL
59

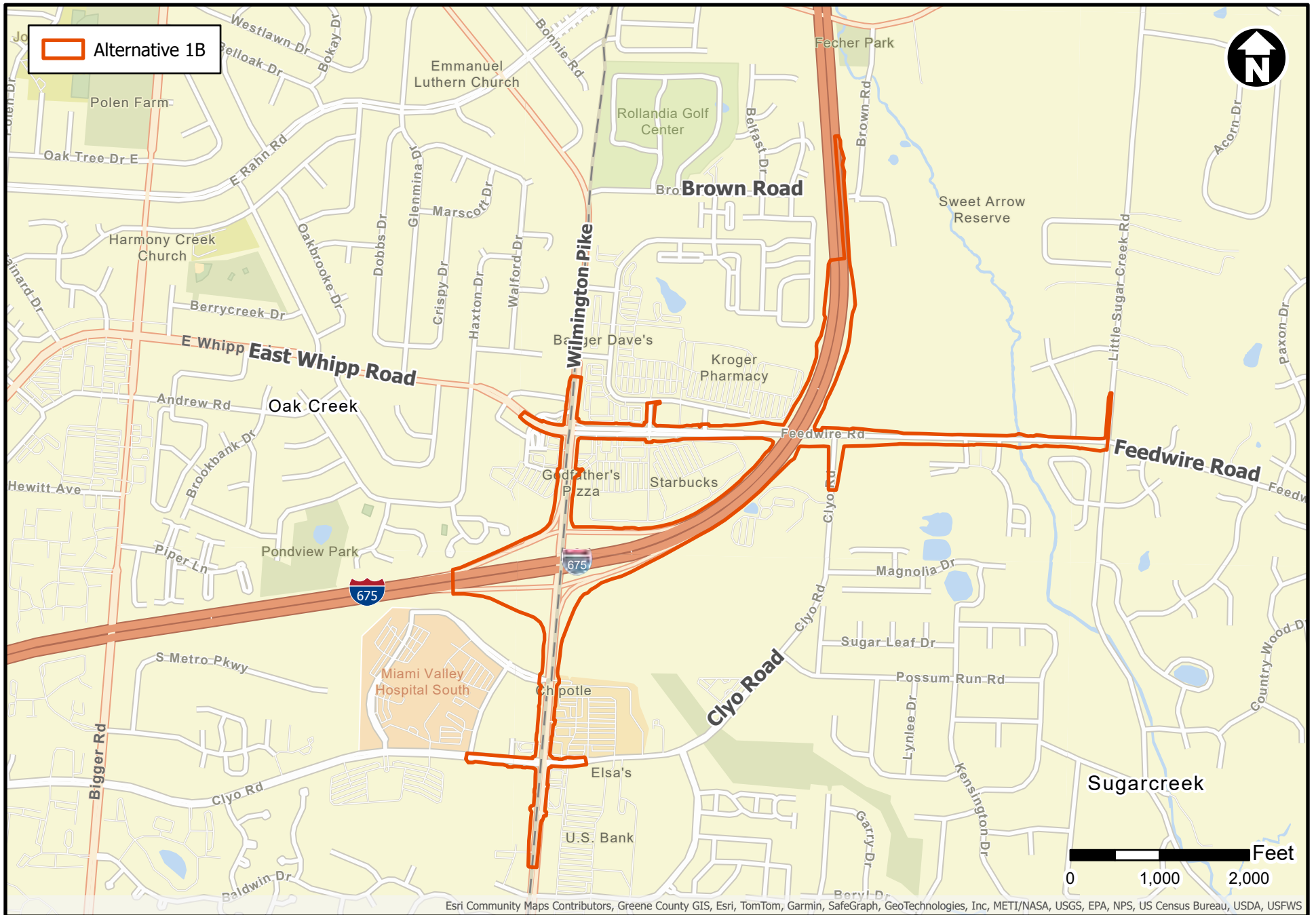
PLAN AND PROFILE-CLYO ROAD-CLYO RD
ALTERNATIVE 2

HORIZONTAL
SCALE IN FEET
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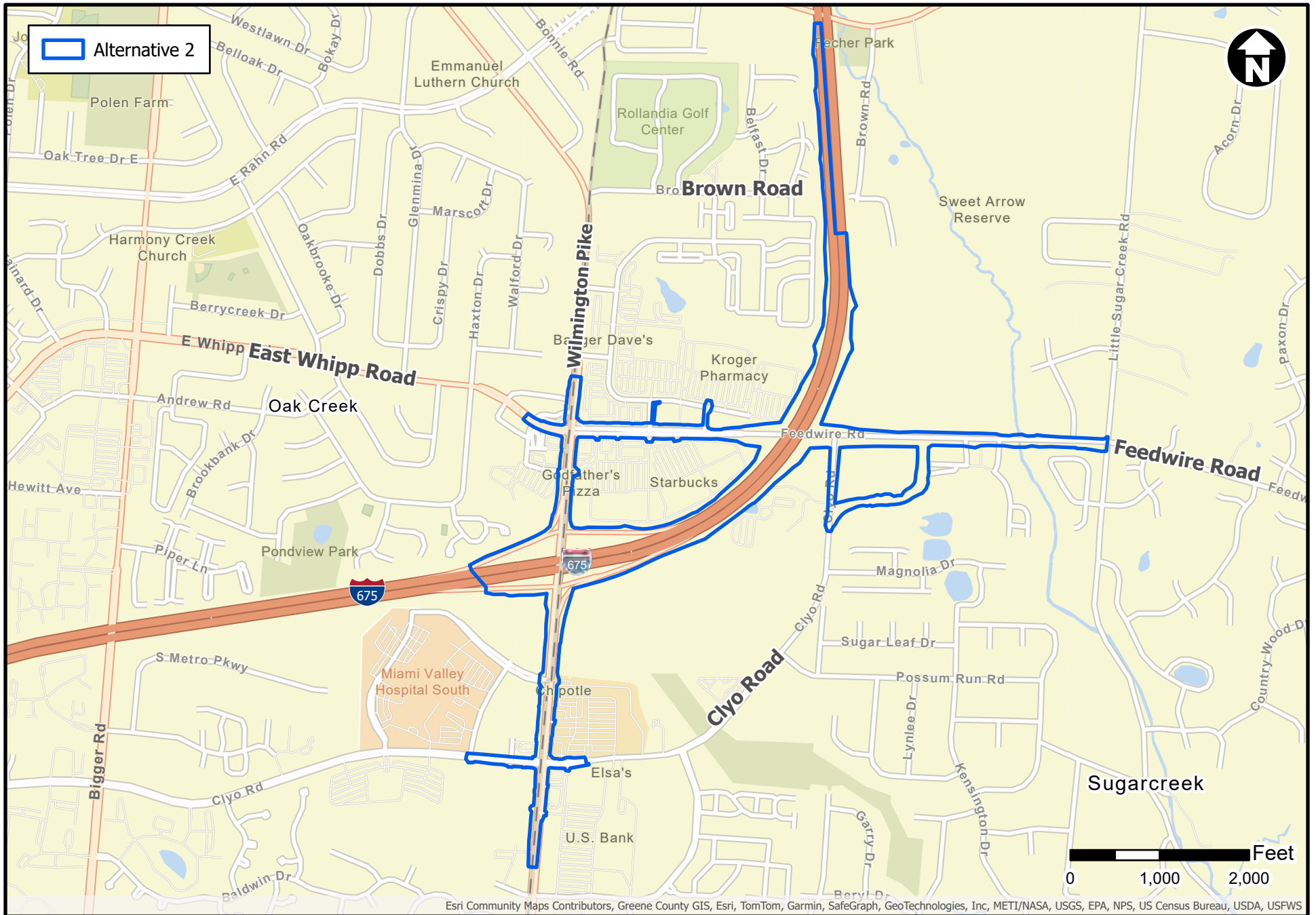


APPENDIX C:
Environmental Resources

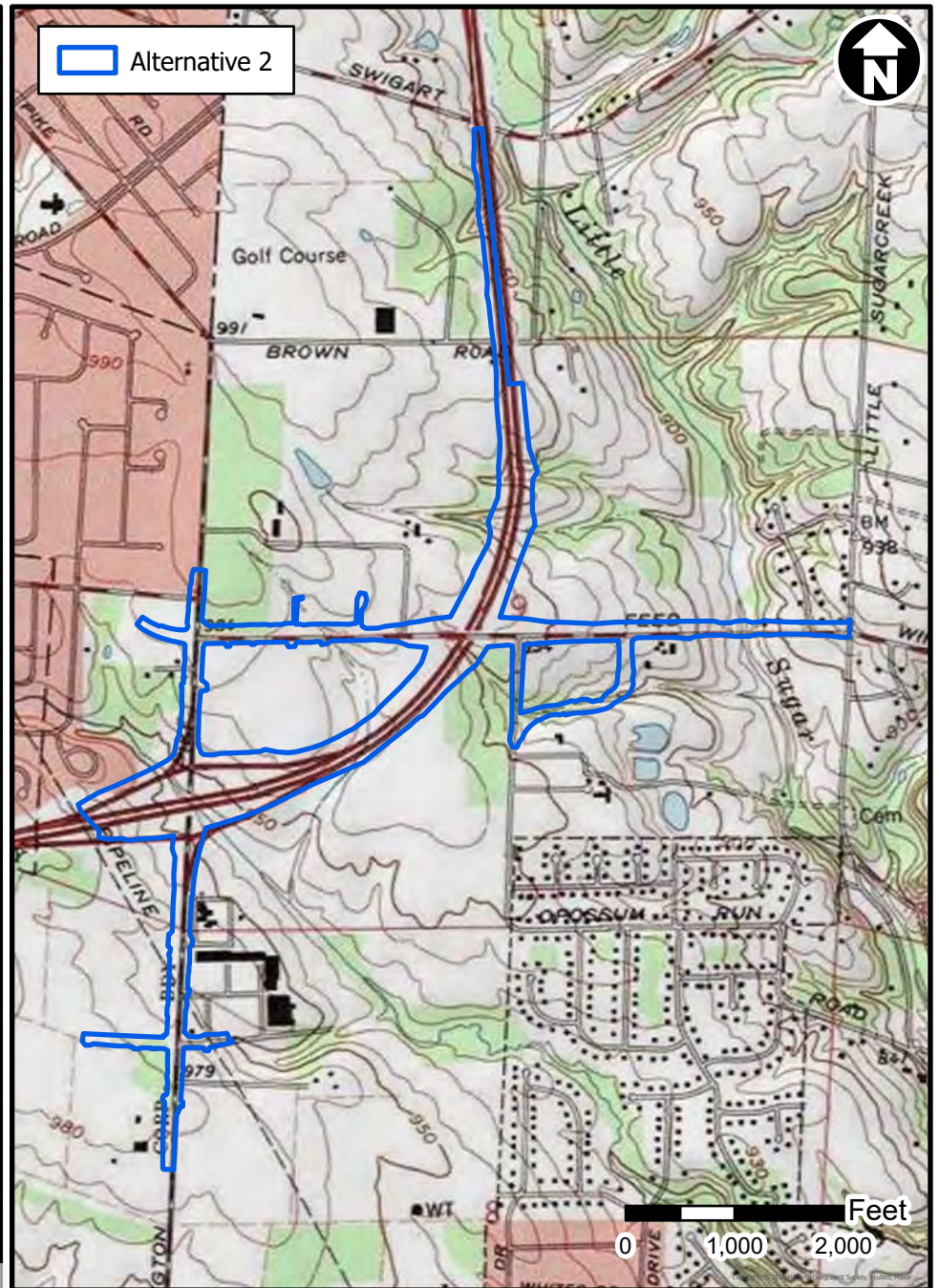
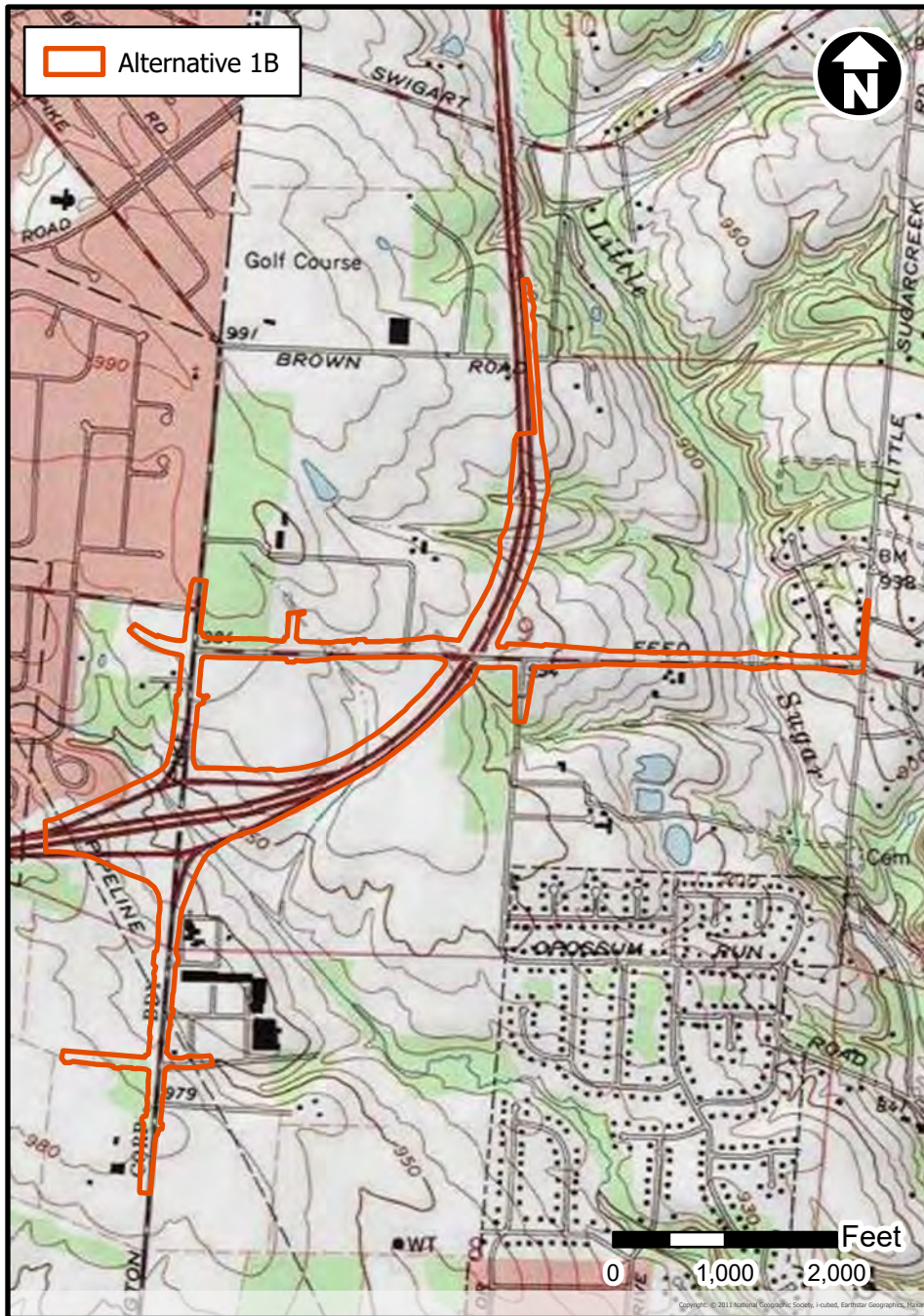




MOT/GRE-675/WILMINGTON PIKE PID 115160
Alternative 1B Location Map



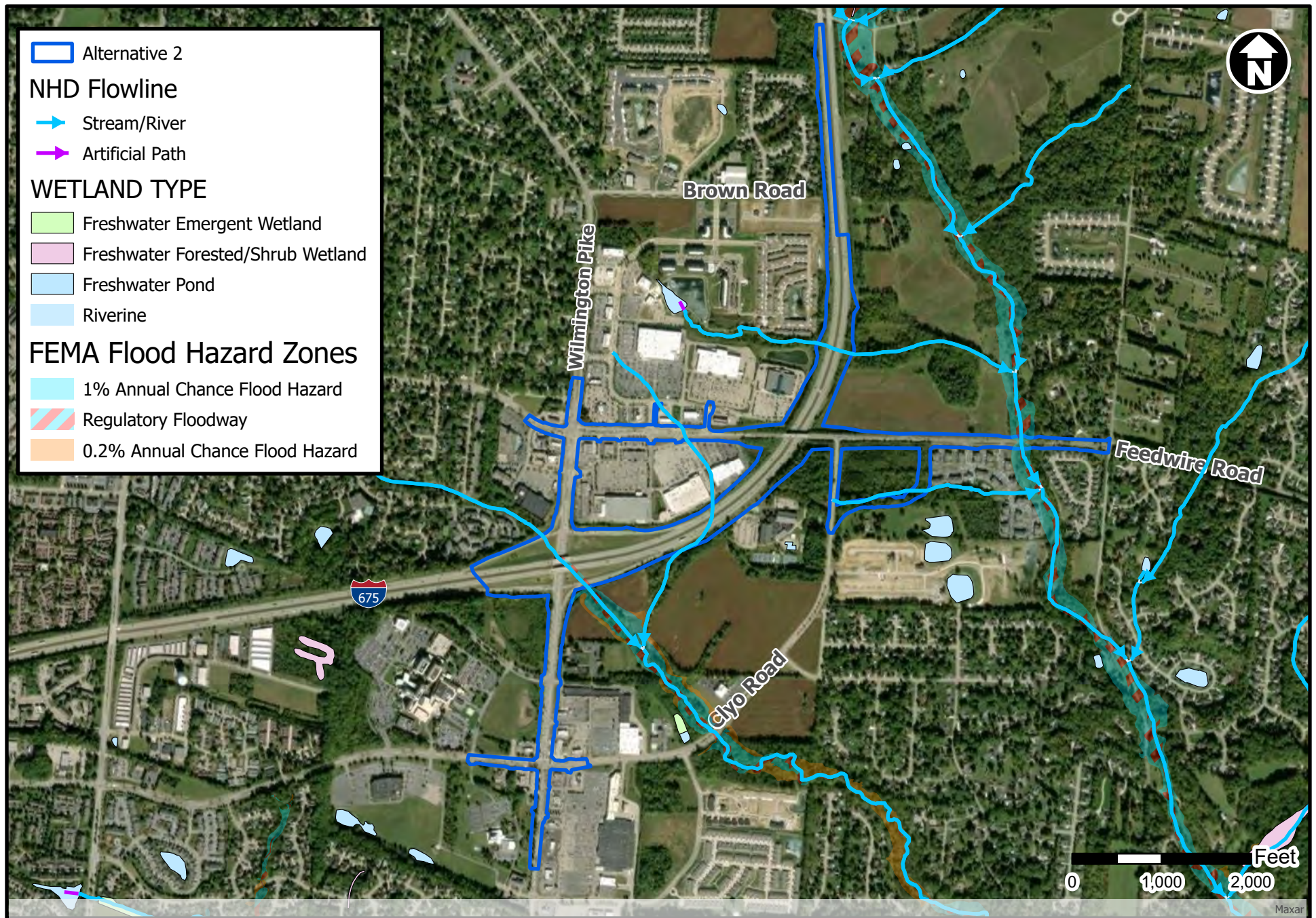
MOT/GRE-675/WILMINGTON PIKE PID 115160 Alternative 2 Location Map



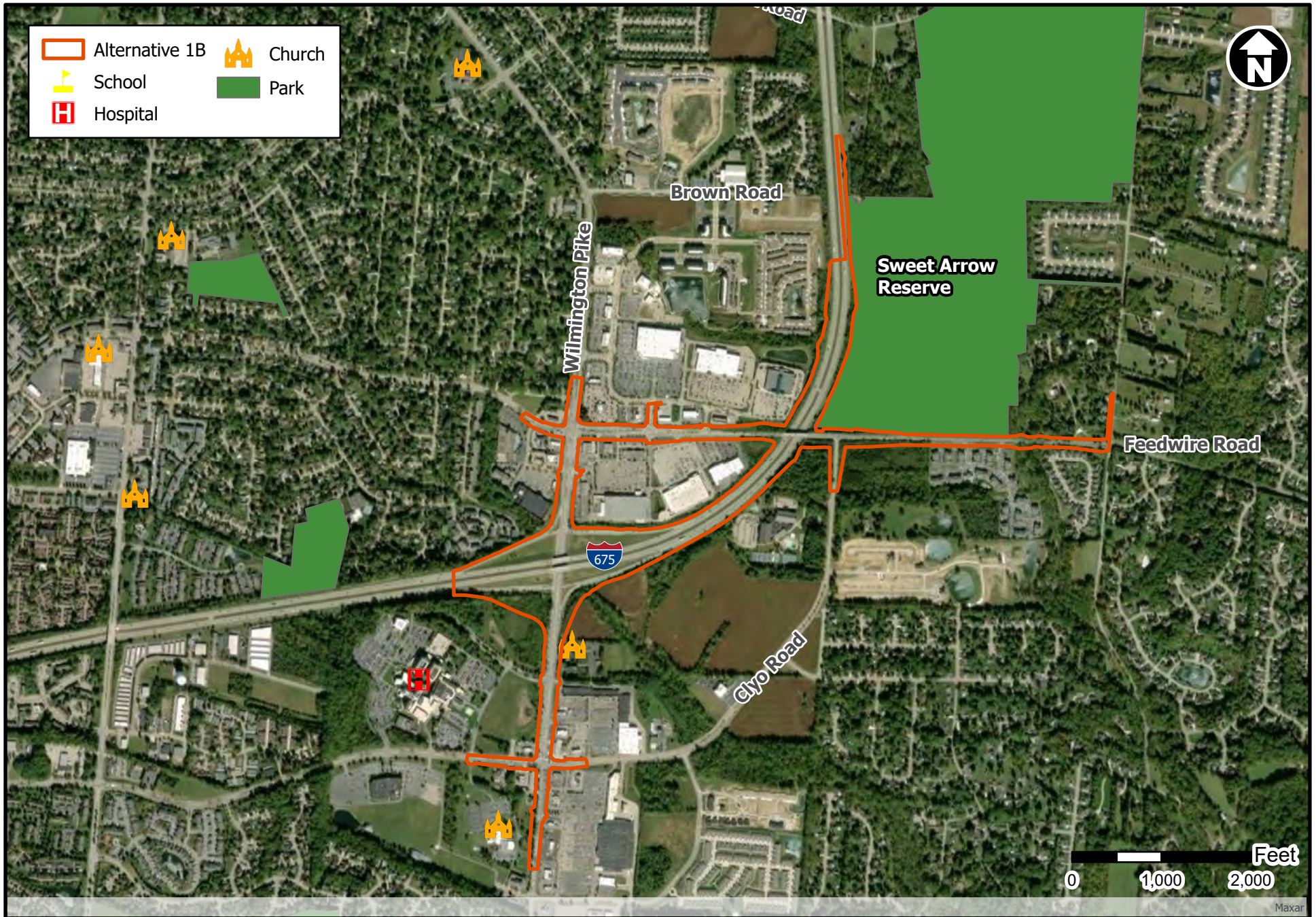
MOT/GRE-I-675/WILMINGTON PIKE PID 115160
Alternatives 1B and 2 USGS Topographic Map



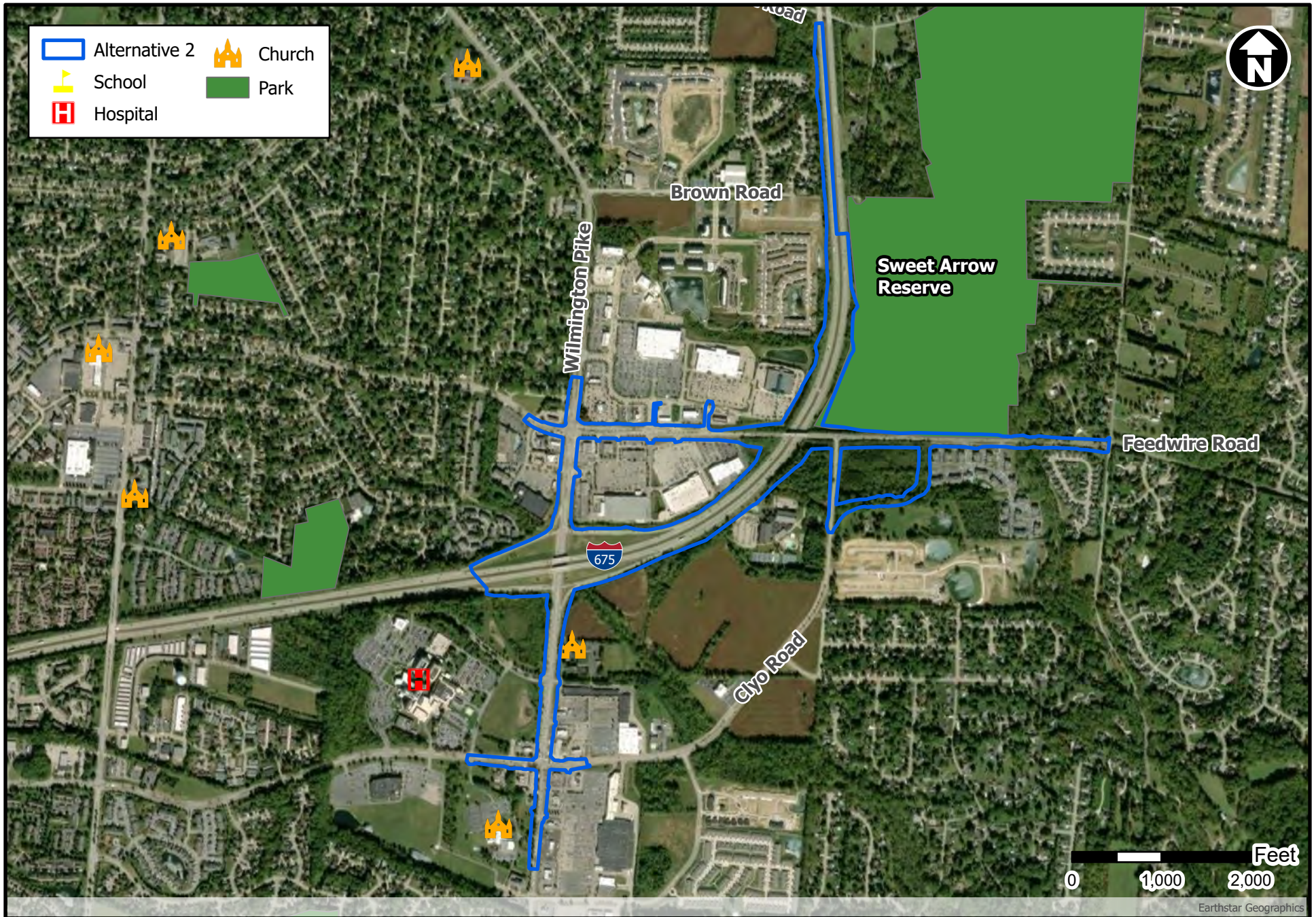
MOT/GRE-I-675/WILMINGTON PIKE PID 115160 **Water Resources Map - Alternative 1B**



MOT/GRE-I-675/WILMINGTON PIKE PID 115160
Water Resources Map - Alternative 2



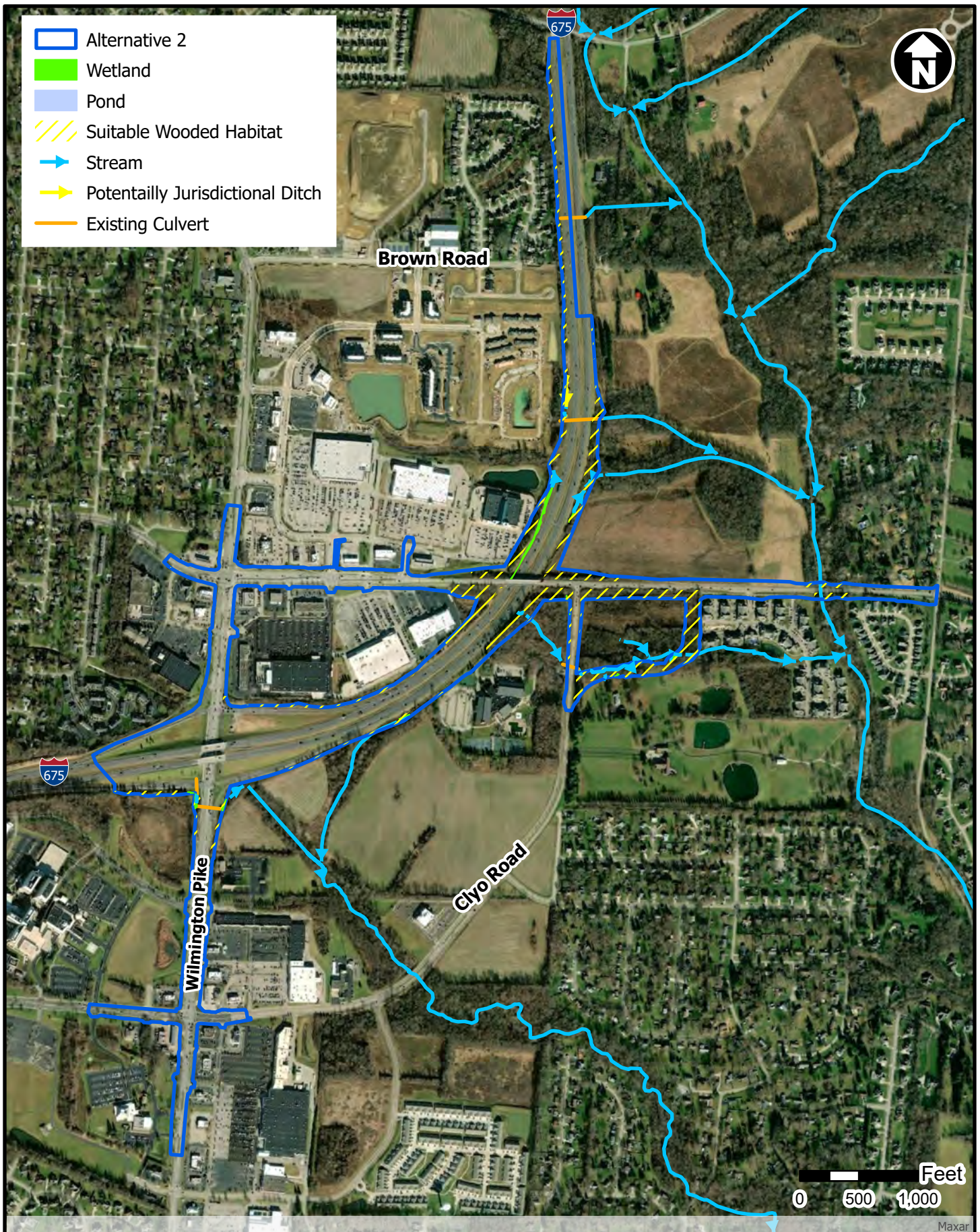
MOT/GRE-I-675/WILMINGTON PIKE PID 115160
Infrastructure Map - Alternative 1B



MOT/GRE-I-675/WILMINGTON PIKE PID 115160
Infrastructure Map - Alternative 2



MOT/GRE-I-675 & Wilmington Pike (PID 115160)
Ecological Resource Impacts Map - Alternative 1B



MOT/GRE-I-675 & Wilmington Pike (PID 115160)
Ecological Resource Impacts Map - Alternative 2



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ohio Ecological Services Field Office

4625 Morse Road, Suite 104

Columbus, OH 43230-8355

Phone: (614) 416-8993 Fax: (614) 416-8994



In Reply Refer To:

06/03/2024 21:22:56 UTC

Project Code: 2024-0098890

Project Name: MOT/GRE-I-675 and Wilmington Pike (PID 115160)

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Ohio Ecological Services Field Office

4625 Morse Road, Suite 104

Columbus, OH 43230-8355

(614) 416-8993

PROJECT SUMMARY

Project Code: 2024-0098890
Project Name: MOT/GRE-I-675 and Wilmington Pike (PID 115160)
Project Type: Road/Hwy - Maintenance/Modification
Project Description: Ohio Department of Transportation (ODOT), along with the Montgomery County Transportation Improvement District (MCTID), Sugarcreek Township, the Greene County Engineer's Office, and the City of Centerville have are studying alternatives for a project to make improvements to the I-675 and Wilmington Pike interchange. The project is necessary to reduce congestion and improve safety in the I-675 and Wilmington Pike interchange area.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.6674872,-84.10771618771511,14z>



Counties: Greene and Montgomery counties, Ohio

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none">▪ This species only needs to be considered if the project includes wind turbine operations. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Ohio Department of Transportation

Name: Madalyn Hatch

Address: 1404 Race St Suite 200

City: Cincinnati

State: OH

Zip: 45202

Email: mhatch@cmtengr.com

Phone: 2175721163



Ohio Department of Natural Resources

MIKE DeWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Jeff Johnson, Chief
Division of Natural Areas & Preserves
2045 Morse Rd, Building H
Columbus, Ohio 43229

July 9, 2024

Stephanie Spence
Crawford, Murphy, & Tilly, Inc.
1404 Race St, Suite 200
Cincinnati, OH 45202

Re: OR24_099

Dear Stephanie,

After reviewing the Natural Heritage Database, I find we have no records of rare or endangered species in the MOT/GRE-I-675 & Wilmington Pike (PID 115160) project area, including a one-mile radius, in Sugar Creek and Washington Townships, Greene and Montgomery Counties, Ohio.

Records searched date from 1980. Features searched include locations of rare and endangered plants and animals determined to be of value to the conservation of their species, high quality plant communities, animal breeding assemblages, and outstanding geological features. Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area.

This letter only represents a review of rare species and natural features data within the Ohio Natural Heritage Database. It does not fulfill coordination under the National Environmental Policy Act (NEPA) or the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S. C. 661 et seq.) and does not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Please contact me by email or voicemail at 614-265-6818 if I can be of further assistance.

Sincerely,

A handwritten signature in black ink, appearing to read "Kendra Millam". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Kendra Millam
Ohio Natural Heritage Program

APPENDIX D:
Project Cost Estimates



MOT/GRE I-675/Wilmington Pike					Phase 1		Phase 2		Phase 3		Phase 4		Phase 5		TOTAL	
ALTERNATIVE 1B																
PRELIMINARY CONSTRUCTION COST ESTIMATE																
LINE NO.	ODOT ITEM	DESCRIPTION	UNIT	UNIT COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	TOTAL COST
Roadway																
1	201	Clearing and Grubbing	LS			\$ 70,000		\$ 100,000		\$ 125,000		\$ 125,000		\$ 50,000		\$ 470,000
2	202	Guardrail removed	FT	\$ 3.50	200	\$ 700	2000	\$ 7,000	1500	\$ 5,250	360	\$ 1,260	350	\$ 1,225	4410	\$ 15,435
3	202	Pavement removed	SY	\$ 12.50	800	\$ 10,000	9900	\$ 123,750	8200	\$ 102,500	2300	\$ 28,750	16250	\$ 203,125	37450	\$ 468,125
4	203	Excavation	CY	\$ 20.00	6200	\$ 124,000	8320	\$ 166,400	2600	\$ 52,000	8684	\$ 173,680	8400	\$ 168,000	34204	\$ 684,080
5	203	Embankment	CY	\$ 18.00	2050	\$ 36,900	10010	\$ 180,180	975	\$ 17,550	3244	\$ 58,391	11000	\$ 198,000	27279	\$ 491,021
6	204	Subgrade compaction	SY	\$ 2.50	6300	\$ 15,750	21500	\$ 53,750	20000	\$ 50,000	24000	\$ 60,000	18200	\$ 45,500	90000	\$ 225,000
7	206	Cement Stabilized Subgrade 12 Inches Deep	SY	\$ 5.00	6500	\$ 32,500	21500	\$ 107,500	20000	\$ 100,000	53967	\$ 269,836	18200	\$ 91,000	120167	\$ 600,836
8	605	6" Shallow Pipe Underdrains	FT	\$ 12.00	4030	\$ 48,360	300	\$ 3,600	10000	\$ 120,000	38000	\$ 456,000	3240	\$ 38,880	55570	\$ 666,840
9	606	Guardrail, Type MGS	FT	\$ 20.00		\$ -	2000	\$ 40,000	4000	\$ 80,000		\$ -		\$ -	6000	\$ 120,000
10	608	4" Concrete Walk	SF	\$ 9.00	20200	\$ 181,800		\$ -		\$ -		\$ -	1450	\$ 13,050	21650	\$ 194,850
11	609	Curb, Type 6	FT	\$ 30.00	4030	\$ 120,900		\$ -		\$ -	2660	\$ 79,800		\$ -	6690	\$ 200,700
12	609	Combination Curb and Gutter, Type 2	FT	\$ 35.00		\$ -	300	\$ 10,500		\$ -		\$ -	3250	\$ 113,750	3550	\$ 124,250
13	622	Concrete Barrier, Single Slope, Type B	FT	\$ 120.00		\$ -		\$ -	300	\$ 36,000		\$ -		\$ -	300	\$ 36,000
Erosion Control																
14	832	Storm Water Pollution Prevention Plan	LS			\$ 5,000		\$ 5,000		\$ 5,000		\$ 5,000		\$ 5,000		\$ 25,000
15	832	Erosion Control	EA	\$ 1.00		\$ 50,000		\$ 75,000		\$ 50,000		\$ 50,000		\$ 30,000		\$ 255,000
Drainage																
16	611	18" conduit, Type B	FT	\$ 150.00	2500	\$ 375,000	500	\$ 75,000	300	\$ 45,000	500	\$ 75,000	3000	\$ 450,000	6800	\$ 1,020,000
17	611	Catch basin, No. 3	EA	\$ 4,800.00	15	\$ 72,000		\$ -	6	\$ 28,800		\$ -	10	\$ 48,000	31	\$ 148,800
18	611	Catch Basin, No. 2-2B	EA	\$ 3,500.00	10	\$ 35,000	6	\$ 21,000	10	\$ 35,000		\$ -	4	\$ 14,000	30	\$ 105,000
19	611	Manhole, No. 3	EA	\$ 6,000.00	8	\$ 48,000	2	\$ 12,000		\$ -		\$ -	7	\$ 42,000	17	\$ 102,000
20	611	Inlet, No 3 For Single Slope Barrier, Type B	EA	\$ 12,000.00				\$ -	2	\$ 24,000		\$ -		\$ -	2	\$ 24,000
Pavement																
21	301	Asphalt concrete base, PG64-22	CY	\$ 210.00	1452	\$ 305,012	6632	\$ 1,392,679	1396	\$ 293,155	15699	\$ 3,296,754	4045	\$ 849,363	29224	\$ 6,136,963
22	304	Aggregate base	CY	\$ 75.00	1263	\$ 94,713	3739	\$ 280,419	1262	\$ 94,669	8994	\$ 674,580	3064	\$ 229,802	18322	\$ 1,374,184
23	442	Asphalt Concrete Surface Course, 12.5mm, Type A, (446)	CY	\$ 310.00	1299	\$ 402,795	1307	\$ 405,137	1300	\$ 402,881	4302	\$ 1,333,722	1434	\$ 444,441	9642	\$ 2,988,976

MOT/GRE I-675/Wilmington Pike					Phase 1		Phase 2		Phase 3		Phase 4		Phase 5		TOTAL	
ALTERNATIVE 1B																
PRELIMINARY CONSTRUCTION COST ESTIMATE																
LINE NO.	ODOT ITEM	DESCRIPTION	UNIT	UNIT COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	TOTAL COST
24	442	Asphalt Concrete Intermediate Course, 19MM, (448)	CY	\$ 290.00	1299	\$ 376,808	1307	\$ 378,999	1300	\$ 376,889	4302	\$ 1,247,675	1434	\$ 415,767	9642	\$ 2,796,138
25	452	8" Non-Reinforced Concrete Pavement (Drive Work)	SY	\$ 100.00	200	\$ 20,000	250	\$ 25,000		\$ -	500	\$ 50,000	130	\$ 13,000	1080	\$ 108,000
26	SPEC	Shared Used Path	SY	\$ 100.00	2865	\$ 286,500	2800	\$ 280,000		\$ -	3355	\$ 335,500	2850	\$ 285,000	11870	\$ 1,187,000
Lighting																
27	SPEC	Lighting Work	LS					\$ 150,000		\$ -		\$ 250,000				\$ 400,000
Traffic Control																
28	SPEC	Pavement Markings and Ground Mounted Signing	LS			\$ 50,000		\$ 60,000		\$ 50,000		\$ 40,000		\$ 30,000		\$ 230,000
	SPEC	Signal Work	EA	\$ 300,000.00	1	\$ 300,000	2	\$ 600,000		\$ -	4	\$ 1,200,000	1	\$ 300,000		\$ 2,400,000
29	SPEC	Major Overhead Sign Work	LS			\$ 180,000		\$ 160,000				\$ 160,000				\$ 500,000
Retaining Walls																
30	SPEC	Retaining Wall	SF	\$ 110.00	400	\$ 44,000	1200	\$ 132,000	1700	\$ 187,000	1200	\$ 132,000	2850	\$ 313,500	7350	\$ 808,500
Bridge Work																
31	SPEC	Bridge Feedwire Rd Over I-675	LS					\$ 6,400,000		\$ -						\$ 6,400,000
32	SPEC	Bridge Feedwire Over Little Sugar Creek	LS													
33	SPEC	Bridge I-675 Over Wilmington Road	LS													
34	SPEC	Bridge Removal	LS					\$ 300,000								\$ 300,000
35	SPEC	Work Associated With Existing 96" Twin Culvert	LS													
			CONSTRUCTION COST			\$ 3,300,000		\$ 11,600,000		\$ 2,300,000		\$ 10,200,000		\$ 4,400,000		\$ 31,800,000
		MAINTENANCE OF TRAFFIC				\$ 165,000		\$ 580,000		\$ 115,000		\$ 510,000		\$ 220,000		\$ 1,590,000
		ENVIRONMENTAL MITIGATION								\$ 225,000						\$ 225,000
		UTILITY RELOCATIONS				\$ 75,000		\$ 50,000				\$ 425,000		\$ 125,000		\$ 675,000
		BASE CONSTRUCTION COST				\$ 3,540,000		\$ 12,230,000		\$ 2,640,000		\$ 11,135,000		\$ 4,745,000		\$ 34,290,000
		CONTINGENCY 45.7% (25% Design + 20.7% Inflation)				\$ 1,617,780		\$ 5,589,110		\$ 1,206,480		\$ 5,088,695		\$ 2,168,465		\$ 15,670,530
		TOTAL CONSTRUCTION COST				\$ 5,157,780		\$ 17,819,110		\$ 3,846,480		\$ 16,223,695		\$ 6,913,465		\$ 49,960,530
		PRELIMINARY ENGINEERING (20%)				\$ 1,031,556		\$ 3,563,822		\$ 769,296		\$ 3,244,739		\$ 1,382,693		\$ 9,992,106
		RIGHT OF WAY				\$ 1,660,000		\$ 630,000				\$ 5,530,000		\$ 1,120,000		\$ 8,940,000
		CONSTRUCTION ENGINEERING (7%)				\$ 361,045		\$ 1,247,338		\$ 269,254		\$ 1,135,659		\$ 483,943		\$ 3,497,237
				TOTAL		\$ 8,210,381		\$ 23,260,270		\$ 4,885,030		\$ 26,134,093		\$ 9,900,101		\$ 72,389,873

MOT/GRE I-675/Wilmington Pike					Phase 1		Phase 2		Phase 3		Phase 4		Phase 5		Phase 6		TOTAL	
ALTERNATIVE 2																		
PRELIMINARY CONSTRUCTION COST ESTIMATE																		
LINE NO.	ODOT ITEM	DESCRIPTION	UNIT	UNIT COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	TOTAL COST
Roadway																		
1	201	Clearing and Grubbing	LS			\$ 100,000		\$ 100,000		\$ 100,000		\$ 50,000		\$ 40,000		\$ 75,000		\$ 465,000
2	202	Guardrail removed	FT	\$ 3.50	4000	\$ 14,000	200	\$ 700	2500	\$ 8,750		\$ -	200	\$ 700	360	\$ 1,260	7260	\$ 25,410
3	202	Pavement removed	SY	\$ 12.50	8400	\$ 105,000	4700	\$ 58,750	10200	\$ 127,500	1850	\$ 23,125	800	\$ 10,000	2300	\$ 28,750	28250	\$ 353,125
4	203	Excavation	CY	\$ 20.00	18200	\$ 364,000	12800	\$ 256,000	11300	\$ 226,000	12600	\$ 252,000	12400	\$ 248,000	15400	\$ 308,000	82700	\$ 1,654,000
5	203	Embankment	CY	\$ 18.00	26200	\$ 471,600	8500	\$ 153,000	56300	\$ 1,013,400	6200	\$ 111,600	8400	\$ 151,200	20100	\$ 361,800	125700	\$ 2,262,600
6	204	Subgrade compaction	SY	\$ 2.50	24500	\$ 61,250	10400	\$ 26,000	41500	\$ 103,750	25200	\$ 63,000	6300	\$ 15,750	24000	\$ 60,000	131900	\$ 329,750
7	206	Cement Stabilized Subgrade 12 Inches Deep	SY	\$ 5.00	23500	\$ 117,500	10400	\$ 52,000	39461	\$ 197,305	24000	\$ 120,000	6500	\$ 32,500	50698	\$ 253,490	154559	\$ 772,795
7	605	6" Shallow Pipe Underdrains	FT	\$ 12.00	15000	\$ 180,000	3500	\$ 42,000	10000	\$ 120,000	4500	\$ 54,000	4030	\$ 48,360	38000	\$ 456,000	75030	\$ 900,360
8	606	Guardrail, Type MGS	FT	\$ 20.00	7500	\$ 150,000	1000	\$ 20,000	2700	\$ 54,000	1000	\$ 20,000		\$ -	1000	\$ 20,000	13200	\$ 264,000
9	608	4" Concrete Walk	SF	\$ 9.00		\$ -		\$ -		\$ -	3600	\$ 32,400	20200	\$ 181,800		\$ -	23800	\$ 214,200
10	609	Curb, Type 6	FT	\$ 30.00		\$ -		\$ -	1200	\$ 36,000	8520	\$ 255,600	4030	\$ 120,900	2660	\$ 79,800	16410	\$ 492,300
11	609	Combination Curb and Gutter, Type 2	FT	\$ 35.00				\$ -			2900	\$ 101,500		\$ -		\$ -	2900	\$ 101,500
12	622	Concrete Barrier, Single Slope, Type B	FT	\$ 120.00	2100	\$ 252,000		\$ -	4650	\$ 558,000	1000	\$ 120,000		\$ -		\$ -	7750	\$ 930,000
Erosion Control																		
13	832	Storm Water Pollution Prevention Plan	LS			\$ 8,000		\$ 5,000		\$ 5,000		\$ 5,000		\$ 5,000		\$ 5,000		\$ 33,000
14	832	Erosion Control	EA	\$ 1.00		\$ 75,000		\$ 75,000		\$ 100,000		\$ 50,000		\$ 50,000		\$ 50,000		\$ 400,000
Drainage																		
15	611	18" conduit, Type B	FT	\$ 150.00	1200	\$ 180,000	800	\$ 120,000	4000	\$ 600,000	1200	\$ 180,000	3000	\$ 450,000	3000	\$ 450,000	13200	\$ 1,980,000
16	611	Catch basin, No. 3	EA	\$ 4,800.00		\$ -		\$ -	6	\$ 28,800	12	\$ 57,600	15	\$ 72,000	16	\$ 76,800	49	\$ 235,200
17	611	Catch Basin, No. 2-2B	EA	\$ 3,500.00	10	\$ 35,000	8	\$ 28,000		\$ -	6	\$ 21,000	10	\$ 35,000	6	\$ 21,000	40	\$ 140,000
18	611	Manhole, No. 3	EA	\$ 6,000.00	6	\$ 36,000	2	\$ 12,000			6	\$ 36,000	8	\$ 48,000	10	\$ 60,000	32	\$ 192,000
19	611	Inlet, No 3 For Single Slope Barrier, Type B	EA	\$ 12,000.00	8	\$ 96,000			16	\$ 192,000						\$ -	24	\$ 288,000
Pavement																		
20	301	Asphalt concrete base, PG64-22	CY	\$ 210.00	5224	\$ 1,097,040	2300	\$ 482,974	8445	\$ 1,773,450	3652	\$ 766,920	1919	\$ 403,088	18652	\$ 3,916,920	40192	\$ 8,440,392
21	304	Aggregate base	CY	\$ 75.00	4231	\$ 317,361	1874	\$ 140,549	3658	\$ 274,350	2236	\$ 167,700	1202	\$ 90,150	16226	\$ 1,216,950	29427	\$ 2,207,060
22	442	Asphalt Concrete Surface Course, 12.5mm, Type A, (446)	CY	\$ 310.00	1012	\$ 313,588	431	\$ 133,680	1728	\$ 535,535	1049	\$ 325,311	1300	\$ 402,881	8982	\$ 2,784,388	14501	\$ 4,495,383
23	442	Asphalt Concrete Intermediate Course, 19MM, (448)	CY	\$ 290.00	1012	\$ 293,356	431	\$ 125,056	1728	\$ 500,984	1049	\$ 304,323	1300	\$ 376,889	8982	\$ 2,604,750	14501	\$ 4,205,358
24	452	8" Non-Reinforced Concrete Pavement (Drive Work)	SY	\$ 100.00	200	\$ 20,000	100	\$ 10,000					200	\$ 20,000	500	\$ 50,000	1000	\$ 100,000
25	SPEC	Shared Used Path	SY	\$ 100.00		\$ -		\$ -	2050	\$ 205,000	3910	\$ 391,000	2865	\$ 286,500	1300	\$ 130,000	10125	\$ 1,012,500
Lighting																		
26	SPEC	Lighting Work	LS			\$ 150,000				\$ 200,000		\$ 50,000				\$ 200,000		\$ 600,000

MOT/GRE I-675/Wilmington Pike					Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	TOTAL							
ALTERNATIVE 2																		
PRELIMINARY CONSTRUCTION COST ESTIMATE																		
LINE NO.	ODOT ITEM	DESCRIPTION	UNIT	UNIT COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	COST	ESTIMATED QUANTITY	TOTAL COST
Traffic Control																		
27	SPEC	Pavement Markings and Ground Mounted Signing	LS			\$ 75,000		\$ 40,000		\$ 75,000		\$ 50,000		\$ 50,000		\$ 40,000		\$ 330,000
28	SPEC	Signal Work	EA	\$ 300,000.00		\$ -	1	\$ 300,000	2	\$ 600,000	1	\$ 300,000	1	\$ 300,000	4	\$ 1,200,000	9	\$ 2,700,000
29	SPEC	Major Overhead Sign Work	LS			\$ 375,000				\$ 250,000		\$ 375,000		\$ 180,000		\$ 160,000		\$ 1,340,000
Retaining Walls																		
30	SPEC	Retaining Wall	SF	\$ 110.00		\$ -	1400	\$ 154,000	2108	\$ 231,880	1500	\$ 165,000	8000	\$ 880,000	8000	\$ 880,000	21008	\$ 2,310,880
Bridge Work																		
31	SPEC	Bridge Feedwire Rd Over I-675	LS							\$ 10,000,000								\$ 10,000,000
32	SPEC	Bridge Feedwire Over Little Sugar Creek	LS															\$ -
33	SPEC	Bridge Removal	LS							\$ 300,000								\$ 300,000
34	SPEC	Work Associated With Existing 96" Twin Culvert	LS															\$ -
			CONSTRUCTION COST			\$ 4,900,000		\$ 2,400,000		\$ 18,500,000		\$ 4,500,000		\$ 4,500,000		\$ 15,500,000		\$ 50,300,000
		MAINTENANCE OF TRAFFIC				\$ 245,000		\$ 120,000		\$ 925,000		\$ 225,000		\$ 225,000		\$ 775,000		\$ 2,515,000
		ENVIRONMENTAL MITIGATION						\$ 450,000										\$ 450,000
		UTILITY RELOCATIONS						\$ 25,000		\$ 25,000		\$ 50,000		\$ 75,000		\$ 75,000		\$ 250,000
		BASE CONSTRUCTION COST				\$ 5,145,000		\$ 2,995,000		\$ 19,450,000		\$ 4,775,000		\$ 4,800,000		\$ 16,350,000		\$ 53,515,000
		CONTINGENCY 45.7% (25% Design + 20.7% Inflation)				\$ 2,351,265		\$ 1,368,715		\$ 8,888,650		\$ 2,182,175		\$ 2,193,600		\$ 7,471,950		\$ 24,456,355
		TOTAL CONSTRUCTION COST				\$ 7,496,265		\$ 4,363,715		\$ 28,338,650		\$ 6,957,175		\$ 6,993,600		\$ 23,821,950		\$ 77,971,355
		PRELIMINARY ENGINEERING (20%)				\$ 1,499,250		\$ 872,743		\$ 5,667,730		\$ 1,391,435		\$ 1,398,720		\$ 4,764,390		\$ 15,594,271
		RIGHT OF WAY				\$ -		\$ 1,150,000		\$ 2,530,000		\$ 980,000		\$ 1,370,000		\$ 1,410,000		\$ 7,440,000
		CONSTRUCTION ENGINEERING (7%)				\$ 524,739		\$ 305,460		\$ 1,983,706		\$ 487,002		\$ 489,552		\$ 1,667,537		\$ 5,457,995
				TOTAL		\$ 9,520,254		\$ 6,691,918		\$ 38,520,086		\$ 9,815,612		\$ 10,251,872		\$ 31,663,877		\$ 106,463,621

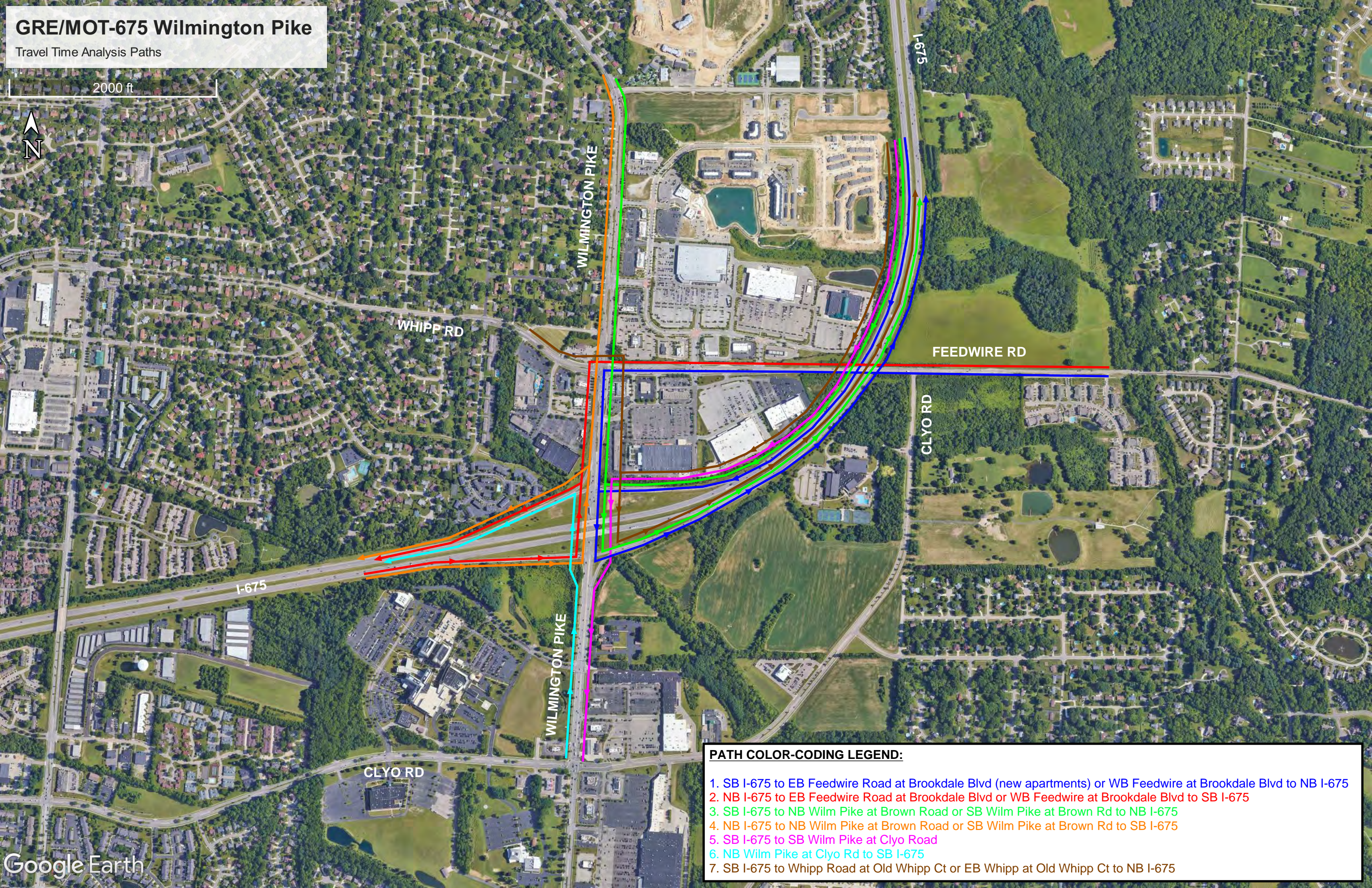
APPENDIX E:
Travel Time Analysis



GRE/MOT-675 Wilmington Pike

Travel Time Analysis Paths

2000 ft



PATH COLOR-CODING LEGEND:

1. SB I-675 to EB Feedwire Road at Brookdale Blvd (new apartments) or WB Feedwire at Brookdale Blvd to NB I-675
2. NB I-675 to EB Feedwire Road at Brookdale Blvd or WB Feedwire at Brookdale Blvd to SB I-675
3. SB I-675 to NB Wilm Pike at Brown Road or SB Wilm Pike at Brown Rd to NB I-675
4. NB I-675 to NB Wilm Pike at Brown Road or SB Wilm Pike at Brown Rd to SB I-675
5. SB I-675 to SB Wilm Pike at Clyo Road
6. NB Wilm Pike at Clyo Rd to SB I-675
7. SB I-675 to Whipp Road at Old Whipp Ct or EB Whipp at Old Whipp Ct to NB I-675

Route Descriptions

- Route #1 originates from a point on SB I-675 that is 5,000 feet upstream of the ramp intersection at Wilmington Pike travelling to Brookdale Boulevard (new apartments) on Feedwire Road. The 5,000-foot distance is used to include queueing and non-queueing subsegments on SB I-675. Vehicles for Alternative 2 would use the I-675 ramps at Feedwire Rd instead of the Wilmington Pike ramps for this route.
- The opposite direction of Route #1 ends at the physical gore of the NB I-675 entrance ramp for Alternative 2, which is assumed to be the same point along NB I-675 for all alternatives.
- Route #2 originates from a point on NB I-675 that is 2,000 feet upstream of the ramp intersection at Wilmington Pike travelling to Brookdale Blvd on Feedwire Road. The 2,000-foot distance is used to include queueing and non-queueing subsegments on SB I-675. Vehicles for Alternative 2 would use the collector-distributor roadway (C-D Road) to access Feedwire Rd instead of using Wilmington Pike. The opposite direction of Route #2 ends at the physical gore of the SB I-675 entrance ramp, which are the same for all alternatives.
- Route #3 originates from a point on SB I-675 that is 5,000 feet upstream of the ramp intersection at Wilmington Pike travelling to the Wilmington Pike at Brown Road intersection. Due to having similar shortest paths, two routes are analyzed for Alternative 2:
 - One that uses the I-675 ramps at Feedwire Road (less distance, more signals)
 - A second that uses the ramps at Wilmington Pike (more distance, less signals due to the C-D road).
- The opposite direction of Route #3 ends at the physical gore of the NB I-675 entrance ramp for Alternative 2, which is assumed to be the same point along NB I-675 for all alternatives.
- Route #4 originates from a point on NB I-675 that is 2,000 feet upstream of the ramp intersection at Wilmington Pike travelling to the Wilmington Pike at Brown Road intersection. Shortest paths are the same for all alternatives.
- Route #5 (one direction) originates from a point on SB I-675 5,000 feet upstream of the ramp intersection at Wilmington Pike travelling to the Wilmington Pike at Clyo Road intersection. Vehicles for Alternative 2 would use the C-D Road under Feedwire Road to access Wilmington Pike. No return trip is analyzed for this route.
- Route #6 (one direction) originates from the Wilmington Pike at Clyo Road intersection and ends at the physical gore of the SB I-675 entrance ramp. Shortest paths are the same for all alternatives. No return trip is analyzed for this route.
- Route #7 originates from a point on SB I-675 that is 5,000 feet upstream of the ramp intersection at Wilmington Pike travelling to the Whipp Road at Old Whipp Court intersection. Due to having similar shortest paths, two routes are analyzed for Alternative 2 similar to the paths described for Route #3.
- The opposite direction of Route #7 ends at the physical gore of the NB I-675 entrance ramp for Alternative 2, which is assumed to be the same point along NB I-675 for all alternatives

ROUTE #1

Segment	SB I-675 to EB Feedwire Road at Brookdale Blvd (new apartments)			WB Feedwire at Brookdale Blvd to NB I-675		
	Travel Time (sec)			Travel Time (sec)		
	No Build	Alt 1B	Alt 2	No Build	Alt 1B	Alt 2
SB 675 Off Ramp (5000' from WilmPike) at Feedwire Rd			83.40			
SB 675 Off Ramp or CD Rd (5000' from WilmPike) at WilmPike	416.00	116.33				
NB 675 Entrance Ramp				56.20	56.20	20.41
Wilm Pike b/w ramps				94.83	87.16	
Wilm Pike b/w SB 675 and Feedwire	53.06	60.70		18.71	18.71	
Feedwire b/w Wilm Pike and Charles	48.23	46.36		44.43	45.16	
Feedwire b/w Charles and Cloy Rd	231.29	53.16		74.22	68.84	
Feedwire b/w ramps			14.09			
Feedwire b/w NB CD to Cloy Rd			41.13			43.19
Feedwire b/w Cloy Rd and Driveway	31.17	23.30	9.97	22.57	23.56	6.67
Total Travel Time (sec)	779.75	299.85	148.58	310.96	299.63	70.27
Total Travel Time (min)	13.00	5.00	2.48	5.18	4.99	1.17

ROUTE #2

Segment	NB I-675 to EB Feedwire Road at Brookdale Blvd			WB Feedwire at Brookdale Blvd to SB I-675		
	Travel Time (sec)			Travel Time (sec)		
	No Build	Alt 1B	Alt 2	No Build	Alt 1B	Alt 2
NB 675 Off Ramp (2000' from WilmPike) at WilmPike	267.34	48.17	64.36			
Wilm Pike b/w ramps	161.53	112.97				
SB 675 Entrance Ramp				21.77	21.77	21.77
Wilm Pike b/w SB 675 and Feedwire	53.06	60.70		18.71	18.71	
Feedwire b/w Wilm Pike and Charles	48.23	46.36		44.43	45.16	
Feedwire b/w Charles and Cloy Rd	231.29	53.16		74.22	68.84	
NB CD Road			46.91			
SB CD Road						83.74
Feedwire b/w ramps						6.77
Feedwire b/w NB CD to Cloy Rd			41.13			43.19
Feedwire b/w Cloy Rd and Driveway	31.17	23.30	9.97	22.57	23.56	6.67
Total Travel Time (sec)	792.62	344.66	162.36	181.70	178.03	162.15
Total Travel Time (min)	13.21	5.74	2.71	3.03	2.97	2.70

ROUTE #3

Segment	SB I-675 to NB Wilm Pike at Brown Road				SB Wilm Pike at Brown Rd to NB I-675			
	Travel Time (sec)				Travel Time (sec)			
	No Build	Alt 1B	Alt 2 (via Wilm Pike)	Alt 2 (via Feedwire)	No Build	Alt 1B	Alt 2 (via Wilm Pike)	Alt 2 (via Feedwire)
SB 675 Off Ramp (5000' from WilmPike) at Feedwire Rd				83.40				
SB 675 Off Ramp or CD Rd (5000' from WilmPike) at WilmPike	416.00	116.33	104.15					
NB 675 Entrance Ramp					56.20	56.20	61.22	20.41
Wilm Pike b/w ramps					94.83	87.16	16.39	
Wilm Pike b/w SB 675 and Feedwire	53.06	60.70	55.91		227.04	66.59	73.25	
Wilm Pike b/w Feedwire and Brown Rd	65.89	73.53	69.98	69.98	91.95	100.50	83.35	83.35
NB CD Road							46.91	
Feedwire b/w ramps								14.09
Feedwire b/w SB ramp and Charles				48.86				48.86
Feedwire b/w Charles and Wilm Pike				49.73				49.73
Total Travel Time (sec)	534.95	250.56	230.04	251.97	470.02	310.45	281.12	216.44
Total Travel Time (min)	8.92	4.18	3.83	4.20	7.83	5.17	4.69	3.61

ROUTE #4

Segment	NB I-675 to NB Wilm Pike at Brown Road			SB Wilm Pike at Brown Rd to SB I-675		
	Travel Time (sec)			Travel Time (sec)		
	No Build	Alt 1B	Alt 2	No Build	Alt 1B	Alt 2
NB 675 Off Ramp (2000' from WilmPike) at WilmPike	267.34	48.17	64.36			
Wilm Pike b/w ramps	161.53	112.97	17.73			
Wilm Pike b/w SB 675 and Feedwire	53.06	60.70	55.91	227.04	66.59	73.25
Wilm Pike b/w Feedwire and Brown Rd	65.89	73.53	69.98	91.95	100.50	83.35
SB 675 Entrance Ramp				21.77	21.77	21.77
Total Travel Time (sec)	547.82	295.37	207.98	340.76	188.86	178.37
Total Travel Time (min)	9.13	4.92	3.47	5.68	3.15	2.97

ROUTE #5

Segment	SB I-675 to SB Wilm Pike at Clyo Road		
	Travel Time (sec)		
	No Build	Alt 1B	Alt 2
SB 675 Off Ramp or CD Rd (5000' from WilmPike) at WilmPike	416.00	116.33	104.15
Wilm Pike b/w ramps	94.83	87.16	16.39
WilmPike b/w Miami Valley to NB ramp	33.66	34.56	33.78
WilmPike b/w Clyo to Miami Valley	92.70	91.27	94.07
Total Travel Time (sec)	637.19	329.32	248.39
Total Travel Time (min)	10.62	5.49	4.14

ROUTE #6

Segment	NB Wilm Pike at Clyo Rd to SB I-675		
	Travel Time (sec)		
	No Build	Alt 1B	Alt 2
WilmPike b/w Clyo to Miami Valley	29.09	32.50	28.03
WilmPike b/w Miami Valley to NB ramp	229.94	63.91	65.52
Wilm Pike b/w ramps	161.53	112.97	17.73
SB 675 Entrance Ramp	21.77	21.77	21.77
Total Travel Time (sec)	442.33	231.15	133.05
Total Travel Time (min)	7.37	3.85	2.22

ROUTE #7

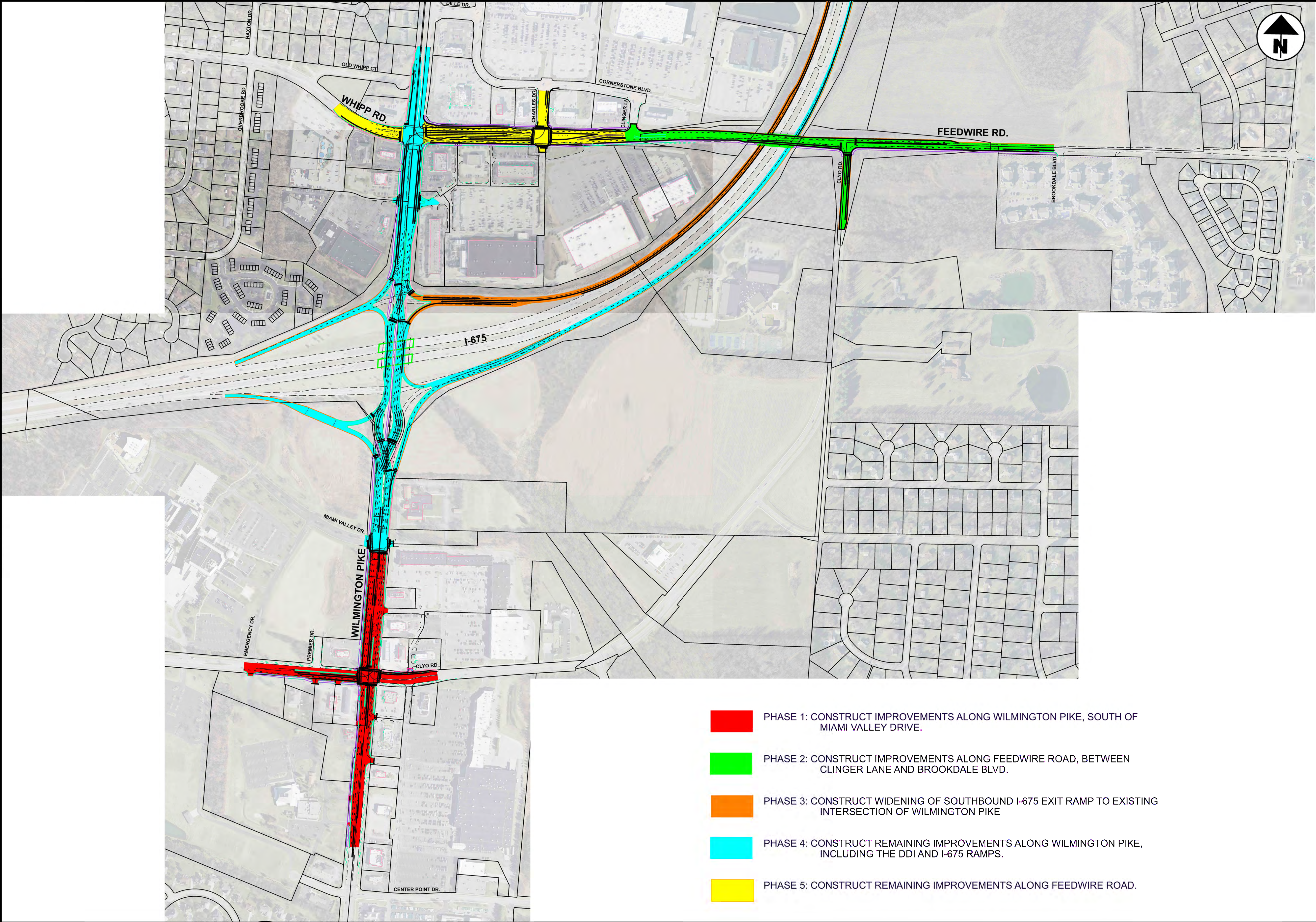
Segment	SB I-675 to Whipp Road at Old Whipp Ct				EB Whipp at Old Whipp Ct to NB I-675			
	Travel Time (sec)				Travel Time (sec)			
	No Build	Alt 1B	Alt 2 (via Wilm Pike)	Alt 2 (via Feedwire)	No Build	Alt 1B	Alt 2 (via Wilm Pike)	Alt 2 (via Feedwire)
SB 675 Off Ramp (5000' from WilmPike) at Feedwire Rd				83.40				
Feedwire b/w ramps								14.09
Feedwire b/w SB ramp and Charles				48.86				48.86
Feedwire b/w Charles and Wilm Pike				49.73				49.73
SB 675 Off Ramp or CD Rd (5000' from WilmPike) at WilmPike	416.00	116.33	104.15					
NB 675 Entrance Ramp					56.20	56.20	61.22	20.41
SB CD Road								
NB CD Road							46.91	
Wilm Pike b/w ramps					94.83	87.16	16.39	
Wilm Pike b/w SB 675 (or CD Rd) and Feedwire	53.06	60.70	55.91		227.04	66.59	73.25	
Feedwire b/w Wilm Pike and Morris Driveway	6.41	6.41	6.41	6.41	6.41	6.41	6.41	6.41
Total Travel Time (sec)	475.47	183.45	166.47	188.40	384.48	216.36	204.19	139.50
Total Travel Time (min)	7.92	3.06	2.77	3.14	6.41	3.61	3.40	2.33

APPENDIX F: Implementation Phasing Mapping



I-675 WILMINGTON INTERCHANGE

MODEL: Roll Plot PAPER SIZE: 34x22 (in.) DATE: 8/20/2024 TIME: 1:42:33 PM USER: asack
C:\Montgomery City TID\0117953A\00 - I-675 Wilmington Interchange\115160400-Engineering\Roadway\Sheets\Public Meeting Exhibits\115160_BP001B-Roll Plot - 8-20-24.dgn



- PHASE 1: CONSTRUCT IMPROVEMENTS ALONG WILMINGTON PIKE, SOUTH OF MIAMI VALLEY DRIVE.
- PHASE 2: CONSTRUCT IMPROVEMENTS ALONG FEEDWIRE ROAD, BETWEEN CLINGER LANE AND BROOKDALE BLVD.
- PHASE 3: CONSTRUCT WIDENING OF SOUTHBOUND I-675 EXIT RAMP TO EXISTING INTERSECTION OF WILMINGTON PIKE
- PHASE 4: CONSTRUCT REMAINING IMPROVEMENTS ALONG WILMINGTON PIKE, INCLUDING THE DDI AND I-675 RAMPS.
- PHASE 5: CONSTRUCT REMAINING IMPROVEMENTS ALONG FEEDWIRE ROAD.

IMPLEMENTATION PHASING MAP
ALTERNATIVE 1B

DESIGN AGENCY



DESIGNER

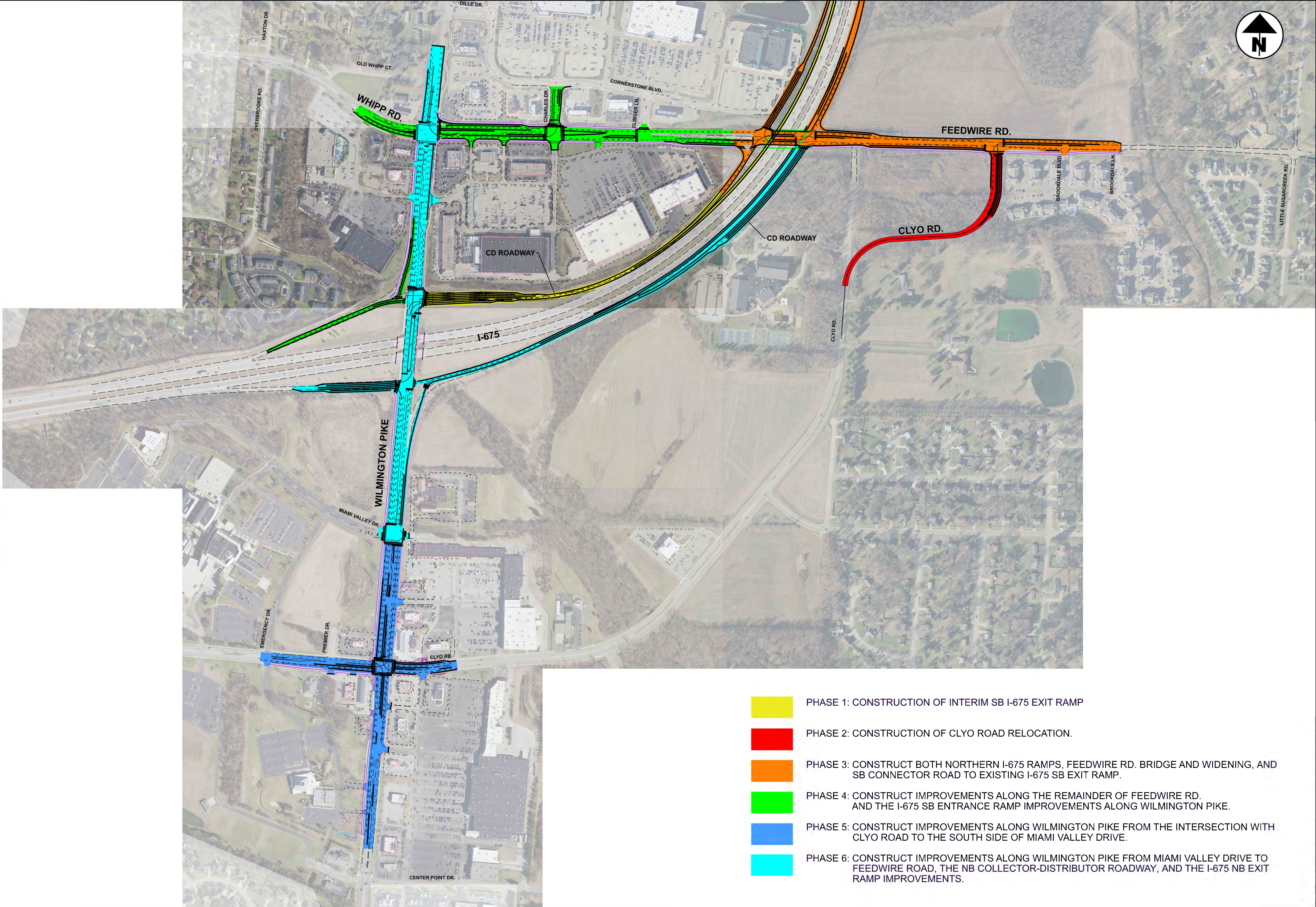
REVIEWER
8/20/2024

PROJECT ID
115160

SHEET TOTAL

I-675 WILMINGTON INTERCHANGE

MODEL: Roll plot PAPER SIZE: 34x22 (in.) DATE: 8/27/2024 TIME: 11:47:16 AM USER: asack
C:\Montgomery City TID\0117953A\00 - I-675 Wilmington Interchange\115160400-Engineering\Roadway\Sheets\Public Meeting Exhibits\115160_BP002-2 Roll Plot.dgn



- PHASE 1: CONSTRUCTION OF INTERIM SB I-675 EXIT RAMP
- PHASE 2: CONSTRUCTION OF CLYO ROAD RELOCATION.
- PHASE 3: CONSTRUCT BOTH NORTHERN I-675 RAMPS, FEEDWIRE RD. BRIDGE AND WIDENING, AND SB CONNECTOR ROAD TO EXISTING I-675 SB EXIT RAMP.
- PHASE 4: CONSTRUCT IMPROVEMENTS ALONG THE REMAINDER OF FEEDWIRE RD. AND THE I-675 SB ENTRANCE RAMP IMPROVEMENTS ALONG WILMINGTON PIKE.
- PHASE 5: CONSTRUCT IMPROVEMENTS ALONG WILMINGTON PIKE FROM THE INTERSECTION WITH CLYO ROAD TO THE SOUTH SIDE OF MIAMI VALLEY DRIVE.
- PHASE 6: CONSTRUCT IMPROVEMENTS ALONG WILMINGTON PIKE FROM MIAMI VALLEY DRIVE TO FEEDWIRE ROAD, THE NB COLLECTOR-DISTRIBUTOR ROADWAY, AND THE I-675 NB EXIT RAMP IMPROVEMENTS.

IMPLEMENTATION PHASING MAP
ALTERNATIVE 2

DESIGN AGENCY



DESIGNER

REVIEWER
6/10/2024

PROJECT ID
115160

SHEET TOTAL