

Exhibit 5H: Passing Lane Location

Date: November 22, 2024
 Project: Wilmington-Peotone PEL Study
 Subject: Passing Lane Location Technical Memorandum

Introduction

Wilmington-Peotone Road is approximately 18 miles and extends east from IL Route 53 (IL 53) to Drecksler Road. The corridor experienced a high number of overturned crashes (18% of all crashes) during the study period from 2018 to 2022. Given how much of Wilmington-Peotone Road is a passing zone, overturns may be related to incorrect judgement of passing distance or passing speeds. Since the traffic volumes along the corridor are not high enough to warrant expansion to a four-lane highway, passing lanes were proposed as an alternative in the Planning and Environmental Linkage (PEL) Study to improve passing opportunities.

Passing lanes would provide a significant safety benefit in an area where unsafe passing frequently occurs by offering a safe space for vehicles to pass slower traffic. Passing lanes would also help break up platoons created by the wide range of vehicles on the road, which includes a significant number of trucks, large vehicles, and farm equipment.

This technical memorandum provides a summary of potential locations along Wilmington-Peotone Road identified for passing lanes and how they were determined. Additional analysis will be required to identify the best passing lane layout if passing lane improvements are selected for the next study phase.

Design Criteria

The Illinois Department of Transportation (IDOT) Bureau of Design and Environment (BDE) Manual was used to establish minimum design criteria for identifying potential locations for passing lanes along Wilmington-Peotone Road. Guidelines regarding passing lanes on rural two-lane highways as stated in the IDOT BDE manual are included in the below table.

Table 1: Design Criteria

| Design Element | Criteria | Source |
|--------------------------------|---------------|----------------|
| a. Passing Lane Widths | | |
| • Traveled Way | 12' | BDE 47-2.04(C) |
| • Shoulder | 4' | BDE 47-2.J |
| b. Passing Lane Taper | | |
| • Entrance | 25:1 taper | BDE 47-2.04(C) |
| • Exit | 50:1 taper | |
| c. Passing Lane Length | 0.5 - 1 miles | BDE 47-2.04(C) |
| d. Passing Lane spacing | 3-10 miles | BDE 47-2.04(C) |

Additional Design Considerations

Along with utilizing the minimum design criteria, the Study team evaluated additional elements of the Wilmington-Peotone Road corridor when identifying potential passing lane locations. Elements included the existing profile, intersections, right-of way (ROW) and property impacts, and the Wauponsee Glacial Trail.

A. Profile Deficiencies

Deficient profile elements were factored in when identifying potential passing lane locations along Wilmington-Peotone Road. An evaluation of the existing Wilmington-Peotone Road that identified substandard geometric elements was completed as part of this Study. Substandard vertical alignment

elements included maximum grade exceedance, minimum curve length and minimum stopping sight distance. Roadway segments that had no deficient profile elements were preferred areas for passing lanes, and segments that contained few profile deficiencies were also considered.

Roadway segments where the grade exceeded the maximum criteria were evaluated as potential locations. The intention was for the passing lane to function as a truck passing lane, providing a safe area to overtake slower-moving vehicles, particularly when traveling up a steep incline with a mix of large vehicles. For roadway segments with insufficient stopping sight distance along a vertical curve, passing lane locations were configured to position the exit taper beyond the deficient area in order to minimize safety risks during merging.

B. Intersections

The selection of appropriate passing lane locations considered the presence of major intersections and high-volume driveways in order to minimize the volume of turning movements on a road section where passing is encouraged.

I. Private Entrances

While none of the existing driveways along Wilmington-Peotone Road from IL 53 to Interstate 57 (I-57) are considered high-volume entrances, driveway locations were still reviewed when determining potential passing lane locations. Locations were selected to avoid including tapers that extend through existing driveway aprons.

II. Major and Minor Roads

Consideration was given to avoid placing passing lanes through major road intersections. One passing lane extends through a major intersection and would function as a combined through-right turn lane that continues through the intersection. Multiple passing lane locations extend through minor road intersections along the corridor.

C. Right-of-Way/Property Impacts

The addition of passing lanes would require widening Wilmington-Peotone Road to a three-lane road in select locations. Additional ROW may be required through locations to ensure adequate spacing for roadside improvements and to meet current Will County Division of Transportation (WCDOT) standards. WCDOT standards currently specify 60' ROW in each direction from the roadway centerline which was used as the minimum ROW extent for the purpose of this Study. The exact ROW needs will be determined in Phase I and will include drainage considerations as well as the widened pavement.

Avoiding displacements and excessive adverse effects were major factors when identifying potential locations. For the purpose of this study, buildings located within 10' of the 30' clear zone were considered a displacement. Passing lanes were not placed where buildings are located near the existing traveled way edge or where extending the ROW to 60' would place a property within Will County's ROW. While complete horizontal alignment changes were not investigated, minor alignment shifts were explored in locations where the placement of a passing lane would place the edge of pavement considerably closer to an existing property.

D. Wauponsee Glacial Trail

The Wauponsee Glacial Trail was accounted for when determining possible passing lane locations. The Wauponsee Glacial Trail is a north-south paved/crushed limestone linear trail that crosses Wilmington-Peotone Road just west of Symerton Road. Wilmington-Peotone Road is a two-lane cross section through the marked yield-controlled trail crossing and there is no multimodal access to the roadway directly from the trail. Passing lanes were not placed through the Wauponsee Glacial Trail crossing to avoid negatively impacting pedestrian safety by increasing the pavement width that pedestrians must cross on Wilmington-Peotone Road.

Conclusion

Potential passing lane locations were identified with the condition that they would be incorporated into the existing roadway, as each study alternative is evaluated separately as part of the PEL Study. No consideration was given to the potential for additional alternatives, such as widened cross section or profile improvements, when determining potential passing lane locations at this stage. Additional analysis is required to determine the location of passing lanes if the alternative is carried forward into the next study phase either independently or in conjunction with other alternatives.

Based on the design criteria and additional design elements of the corridor, six potential passing lane locations in the eastbound direction, and seven in the westbound direction. Four conceptual passing lane layouts were developed based on the identified eastbound and westbound passing lane locations and are included as **Exhibit A**. The Study team looked at providing 2 to 4 passing lanes in both directions between IL 53 and I-57.

Conceptual Layout #1



Conceptual Layout #2



Conceptual Layout #3

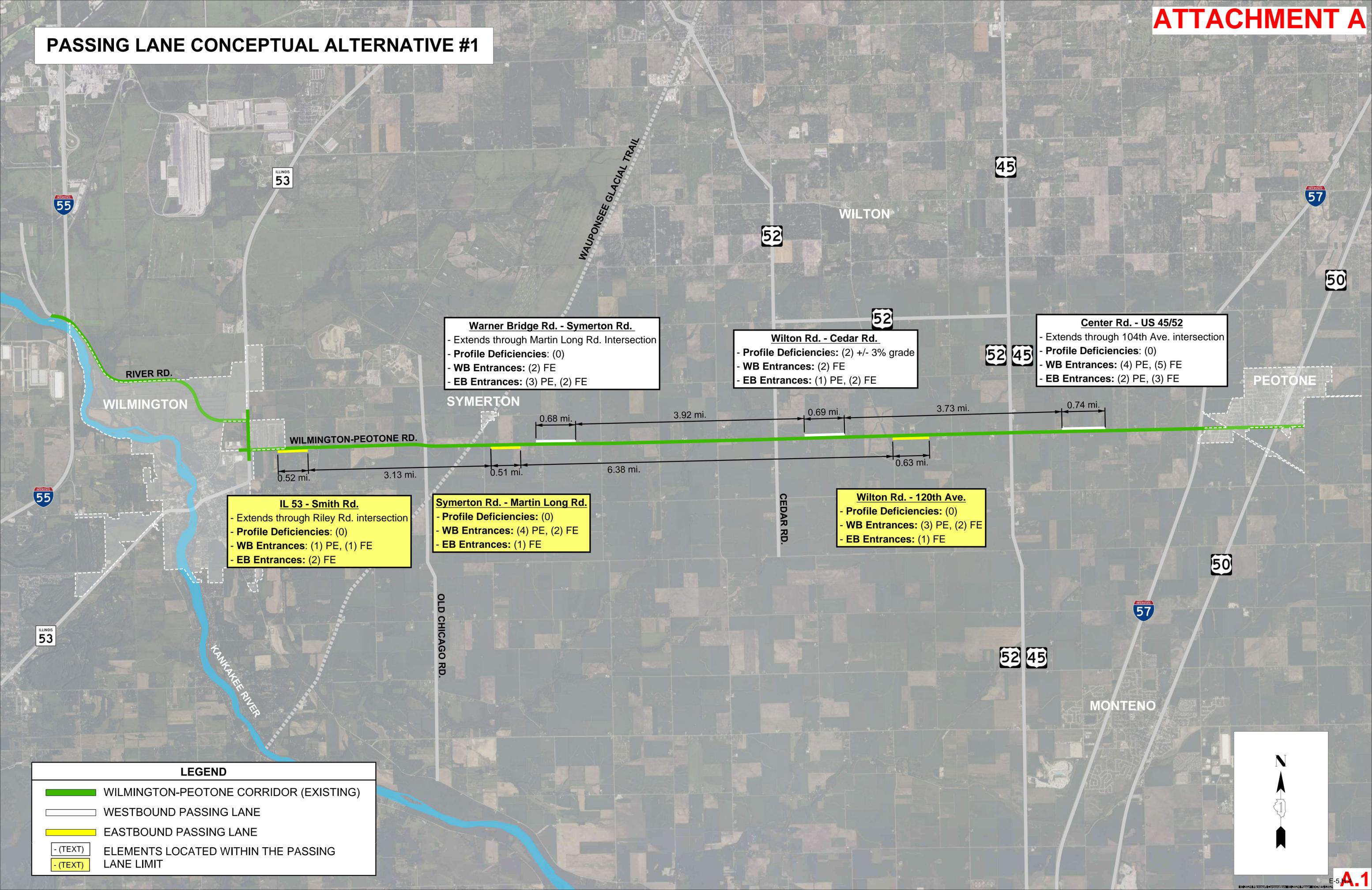


Conceptual Layout #4



While the conceptual passing lane layouts primarily show separated and adjoining passing lanes, the use of overlapping and side-by-side passing lanes are possible configurations that may be used. If the passing lane alternative is carried forward to the next study phase, additional analysis will be required to identify the exact location, length and configuration of proposed passing lanes.

PASSING LANE CONCEPTUAL ALTERNATIVE #1



Warner Bridge Rd. - Symerton Rd.
 - Extends through Martin Long Rd. Intersection
 - Profile Deficiencies: (0)
 - WB Entrances: (2) FE
 - EB Entrances: (3) PE, (2) FE

Wilton Rd. - Cedar Rd.
 - Profile Deficiencies: (2) +/- 3% grade
 - WB Entrances: (2) FE
 - EB Entrances: (1) PE, (2) FE

Center Rd. - US 45/52
 - Extends through 104th Ave. intersection
 - Profile Deficiencies: (0)
 - WB Entrances: (4) PE, (5) FE
 - EB Entrances: (2) PE, (3) FE

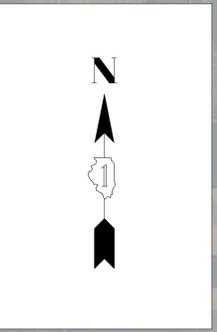
IL 53 - Smith Rd.
 - Extends through Riley Rd. intersection
 - Profile Deficiencies: (0)
 - WB Entrances: (1) PE, (1) FE
 - EB Entrances: (2) FE

Symerton Rd. - Martin Long Rd.
 - Profile Deficiencies: (0)
 - WB Entrances: (4) PE, (2) FE
 - EB Entrances: (1) FE

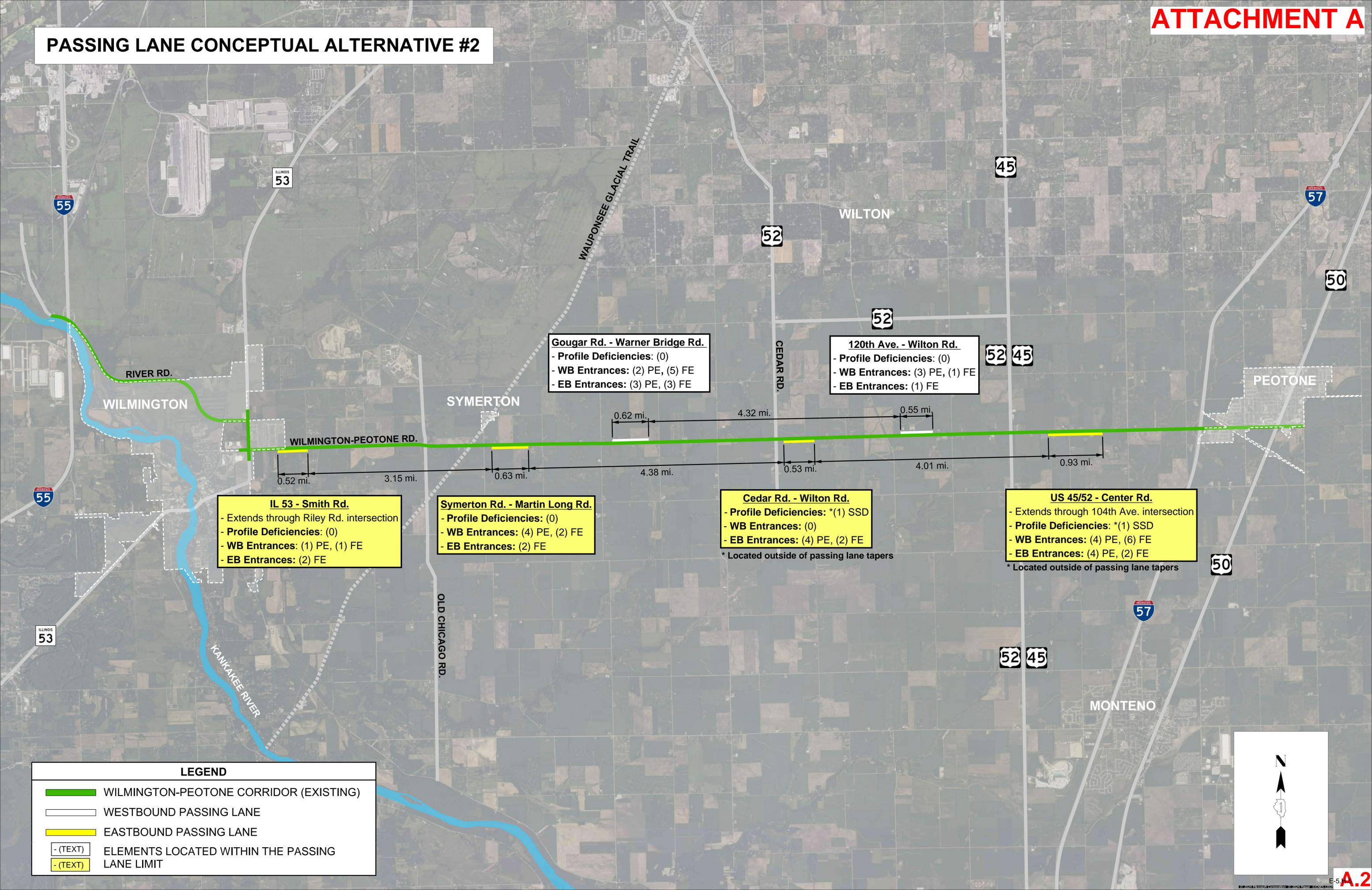
Wilton Rd. - 120th Ave.
 - Profile Deficiencies: (0)
 - WB Entrances: (3) PE, (2) FE
 - EB Entrances: (1) FE

LEGEND

- WILMINGTON-PEOTONE CORRIDOR (EXISTING)
- WESTBOUND PASSING LANE
- EASTBOUND PASSING LANE
- (TEXT) ELEMENTS LOCATED WITHIN THE PASSING LANE LIMIT
- (TEXT) ELEMENTS LOCATED WITHIN THE PASSING LANE LIMIT



PASSING LANE CONCEPTUAL ALTERNATIVE #2



Gougar Rd. - Warner Bridge Rd.
 - Profile Deficiencies: (0)
 - WB Entrances: (2) PE, (5) FE
 - EB Entrances: (3) PE, (3) FE

120th Ave. - Wilton Rd.
 - Profile Deficiencies: (0)
 - WB Entrances: (3) PE, (1) FE
 - EB Entrances: (1) FE

IL 53 - Smith Rd.
 - Extends through Riley Rd. intersection
 - Profile Deficiencies: (0)
 - WB Entrances: (1) PE, (1) FE
 - EB Entrances: (2) FE

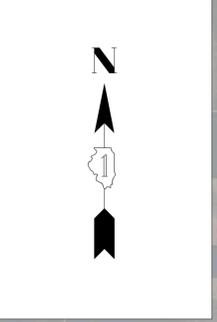
Symerton Rd. - Martin Long Rd.
 - Profile Deficiencies: (0)
 - WB Entrances: (4) PE, (2) FE
 - EB Entrances: (2) FE

Cedar Rd. - Wilton Rd.
 - Profile Deficiencies: *(1) SSD
 - WB Entrances: (0)
 - EB Entrances: (4) PE, (2) FE
 * Located outside of passing lane tapers

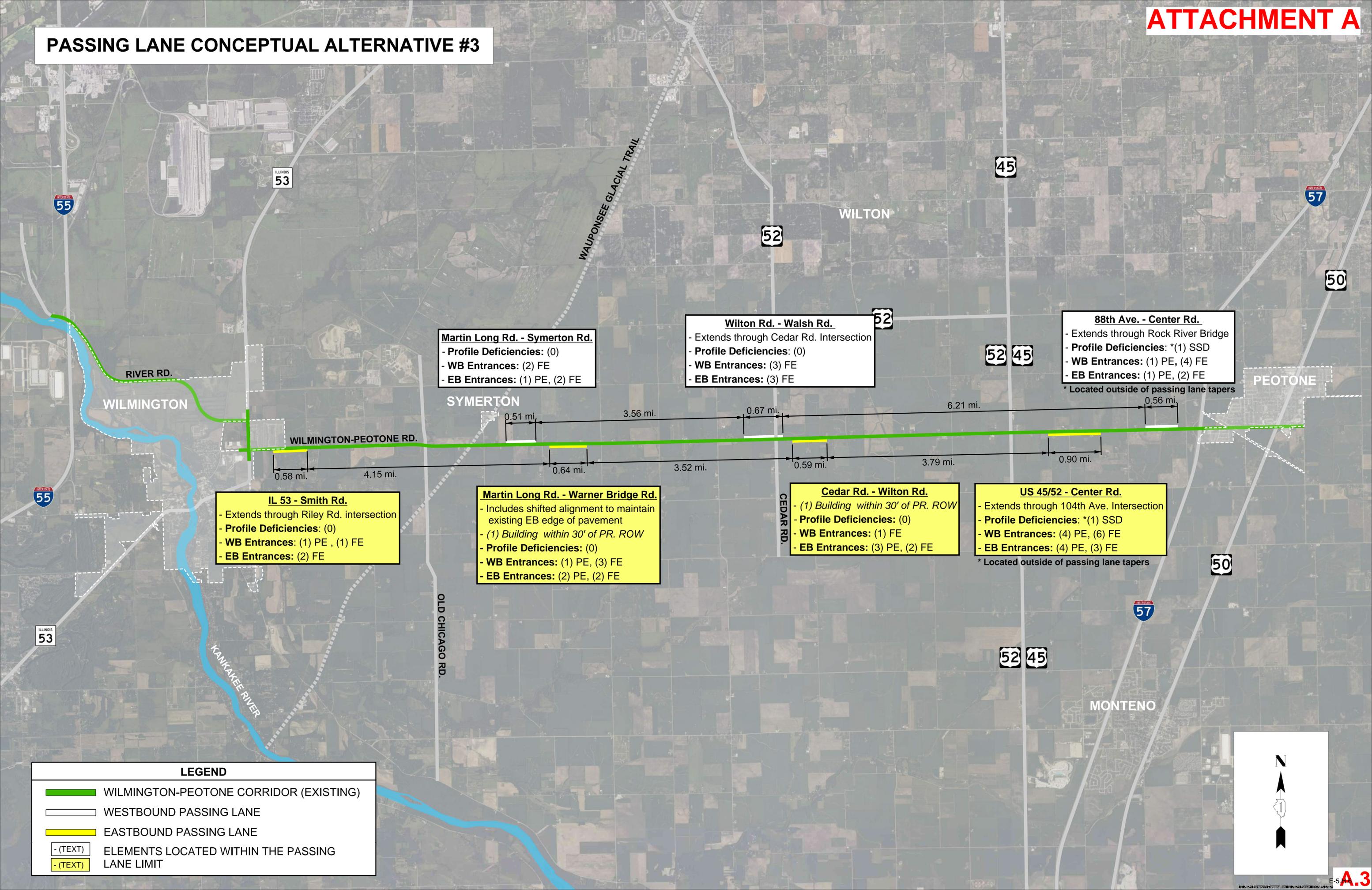
US 45/52 - Center Rd.
 - Extends through 104th Ave. intersection
 - Profile Deficiencies: *(1) SSD
 - WB Entrances: (4) PE, (6) FE
 - EB Entrances: (4) PE, (2) FE
 * Located outside of passing lane tapers

LEGEND

- WILMINGTON-PEOTONE CORRIDOR (EXISTING)
- WESTBOUND PASSING LANE
- EASTBOUND PASSING LANE
- (TEXT) ELEMENTS LOCATED WITHIN THE PASSING LANE LIMIT
- (TEXT) ELEMENTS LOCATED WITHIN THE PASSING LANE LIMIT



PASSING LANE CONCEPTUAL ALTERNATIVE #3



Martin Long Rd. - Symerton Rd.
 - Profile Deficiencies: (0)
 - WB Entrances: (2) FE
 - EB Entrances: (1) PE, (2) FE

Wilton Rd. - Walsh Rd.
 - Extends through Cedar Rd. Intersection
 - Profile Deficiencies: (0)
 - WB Entrances: (3) FE
 - EB Entrances: (3) FE

88th Ave. - Center Rd.
 - Extends through Rock River Bridge
 - Profile Deficiencies: *(1) SSD
 - WB Entrances: (1) PE, (4) FE
 - EB Entrances: (1) PE, (2) FE
 * Located outside of passing lane tapers

IL 53 - Smith Rd.
 - Extends through Riley Rd. intersection
 - Profile Deficiencies: (0)
 - WB Entrances: (1) PE, (1) FE
 - EB Entrances: (2) FE

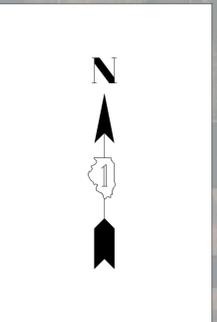
Martin Long Rd. - Warner Bridge Rd.
 - Includes shifted alignment to maintain existing EB edge of pavement
 - (1) Building within 30' of PR. ROW
 - Profile Deficiencies: (0)
 - WB Entrances: (1) PE, (3) FE
 - EB Entrances: (2) PE, (2) FE

Cedar Rd. - Wilton Rd.
 - (1) Building within 30' of PR. ROW
 - Profile Deficiencies: (0)
 - WB Entrances: (1) FE
 - EB Entrances: (3) PE, (2) FE

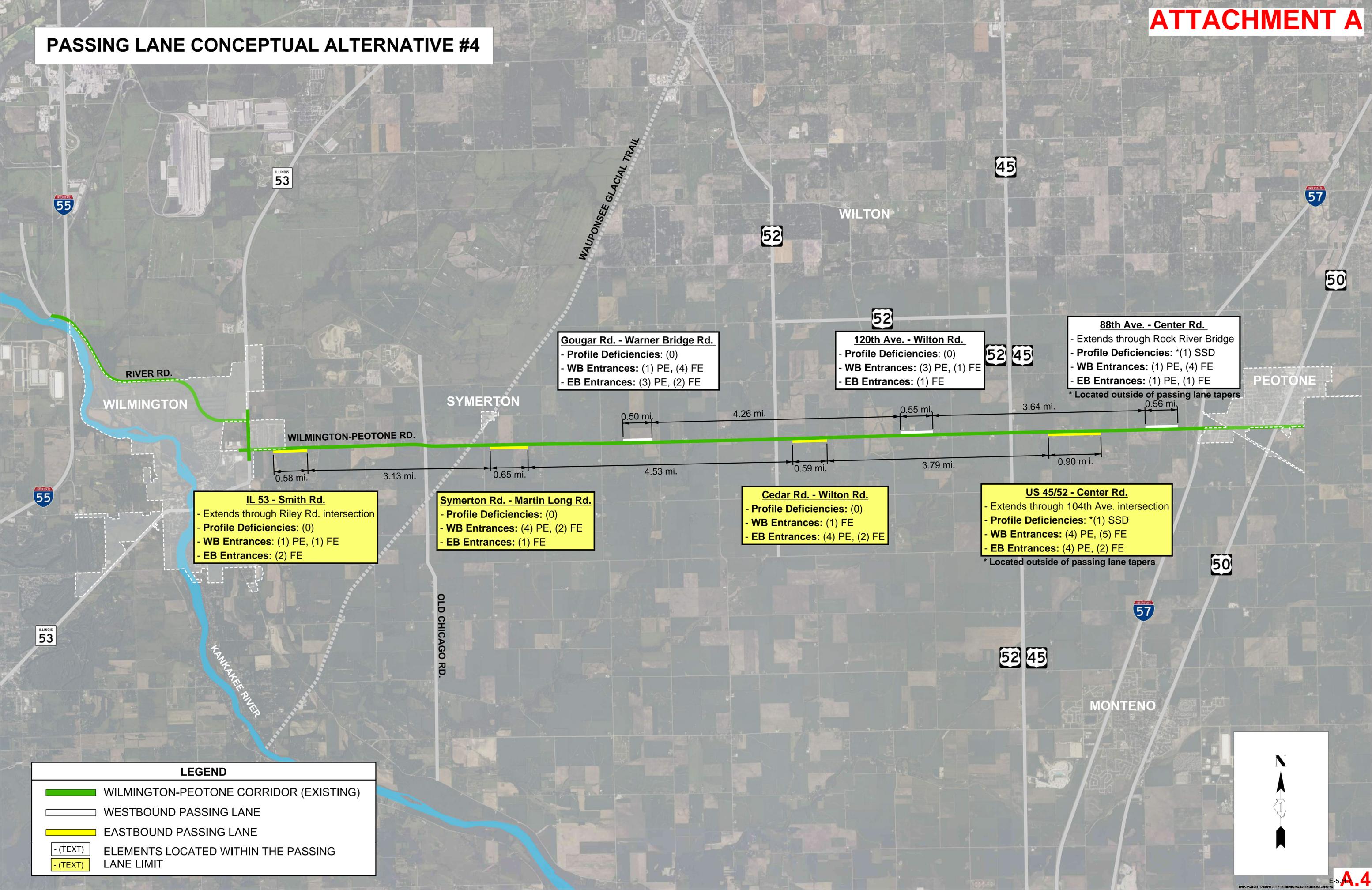
US 45/52 - Center Rd.
 - Extends through 104th Ave. Intersection
 - Profile Deficiencies: *(1) SSD
 - WB Entrances: (4) PE, (6) FE
 - EB Entrances: (4) PE, (3) FE
 * Located outside of passing lane tapers

LEGEND

- WILMINGTON-PEOTONE CORRIDOR (EXISTING)
- WESTBOUND PASSING LANE
- EASTBOUND PASSING LANE
- (TEXT) ELEMENTS LOCATED WITHIN THE PASSING LANE LIMIT
- (TEXT) ELEMENTS LOCATED WITHIN THE PASSING LANE LIMIT



PASSING LANE CONCEPTUAL ALTERNATIVE #4



IL 53 - Smith Rd.
 - Extends through Riley Rd. intersection
 - Profile Deficiencies: (0)
 - WB Entrances: (1) PE, (1) FE
 - EB Entrances: (2) FE

Symerton Rd. - Martin Long Rd.
 - Profile Deficiencies: (0)
 - WB Entrances: (4) PE, (2) FE
 - EB Entrances: (1) FE

Gougar Rd. - Warner Bridge Rd.
 - Profile Deficiencies: (0)
 - WB Entrances: (1) PE, (4) FE
 - EB Entrances: (3) PE, (2) FE

Cedar Rd. - Wilton Rd.
 - Profile Deficiencies: (0)
 - WB Entrances: (1) FE
 - EB Entrances: (4) PE, (2) FE

120th Ave. - Wilton Rd.
 - Profile Deficiencies: (0)
 - WB Entrances: (3) PE, (1) FE
 - EB Entrances: (1) FE

US 45/52 - Center Rd.
 - Extends through 104th Ave. intersection
 - Profile Deficiencies: *(1) SSD
 - WB Entrances: (4) PE, (5) FE
 - EB Entrances: (4) PE, (2) FE
 * Located outside of passing lane tapers

88th Ave. - Center Rd.
 - Extends through Rock River Bridge
 - Profile Deficiencies: *(1) SSD
 - WB Entrances: (1) PE, (4) FE
 - EB Entrances: (1) PE, (1) FE
 * Located outside of passing lane tapers

LEGEND

- WILMINGTON-PEOTONE CORRIDOR (EXISTING)
- WESTBOUND PASSING LANE
- EASTBOUND PASSING LANE
- (TEXT) ELEMENTS LOCATED WITHIN THE PASSING LANE LIMIT
- (TEXT) ELEMENTS LOCATED WITHIN THE PASSING LANE LIMIT

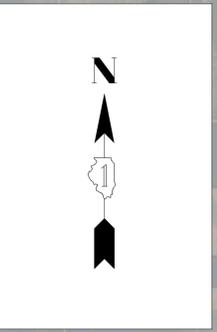


Exhibit 5I: Future Traffic Analysis



Wilmington-Peotone Planning and
Environmental Linkage (PEL) Study
Traffic Demand Modeling and Analysis
Technical Memorandum

Wilmington-Peotone Road
From I-55 to Drecksler Road
Section 23-00116-15-ES

Will County Division of Transportation
February 2025

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1. INTRODUCTION

The Will County Division of Transportation (WCDOT) is conducting a Planning Environmental Linkage (PEL) Study to determine improvements to the Wilmington-Peotone Corridor from I-55 to Drecksler Road. The purpose of this project is to improve safety, enhance mobility through providing an efficient east-west connection, and support current and future travel demand throughout the corridor.

The purpose of this memorandum is to document the future year traffic forecasting methodology, future year travel demand model assumptions, the forecasting results for interim year 2035 and horizon year 2050, summarize traffic signal warrant analysis, and document traffic operations results as it pertains to segments, intersections, and interchanges.

A. Project Corridor

Wilmington-Peotone project limits begin to the west at the interchange of I-55 and River Road. The project follows River Road 4 miles to the intersection with IL Route 53, follows IL Route 53 from River Road to Wilmington-Peotone Road, and continues along Wilmington-Peotone Road until it ends at Drecksler Road. The limits extend roughly 22 miles and will be referred to as the Wilmington-Peotone Corridor. The Location Map is included in Figure 1.

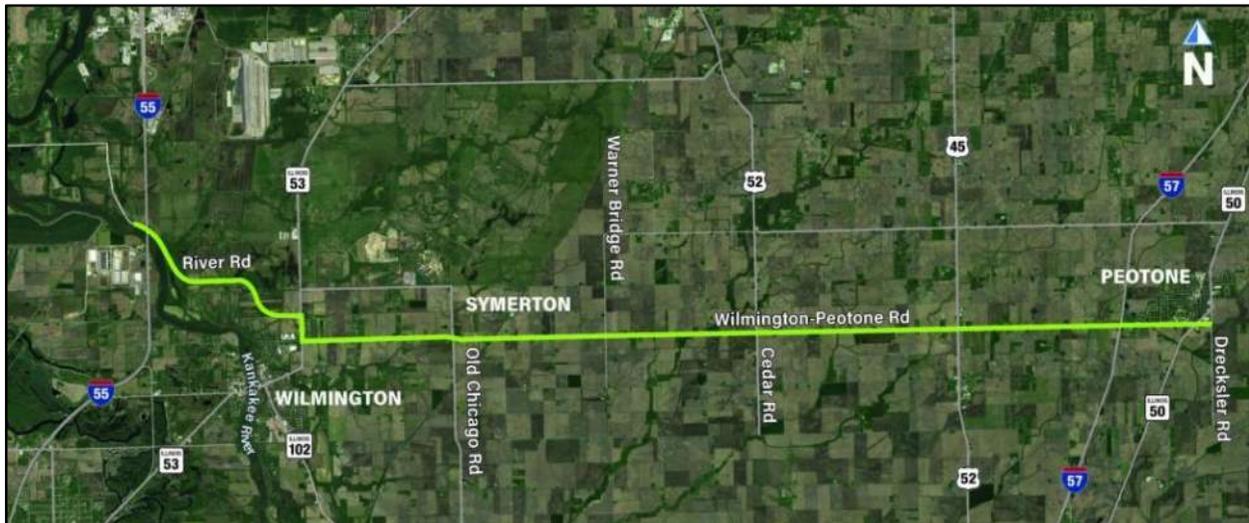


Figure 1: Wilmington-Peotone Corridor Location Map

B. Project Influence Area

For traffic analysis purposes, a project influence area is defined to include the area within the local highway network that potentially has the most significant impacts by the proposed project. The project influence area is defined to be large enough to capture traffic diversion due to route choice opportunities for trips that could benefit from an improved Wilmington-Peotone corridor. Figure 2 shows the project influence area. The project influence area is used as the subarea boundary for validating the CMAP Travel Demand Model (TDM's) performance compared with traffic counts, Streetlight data, and the Statewide Model.

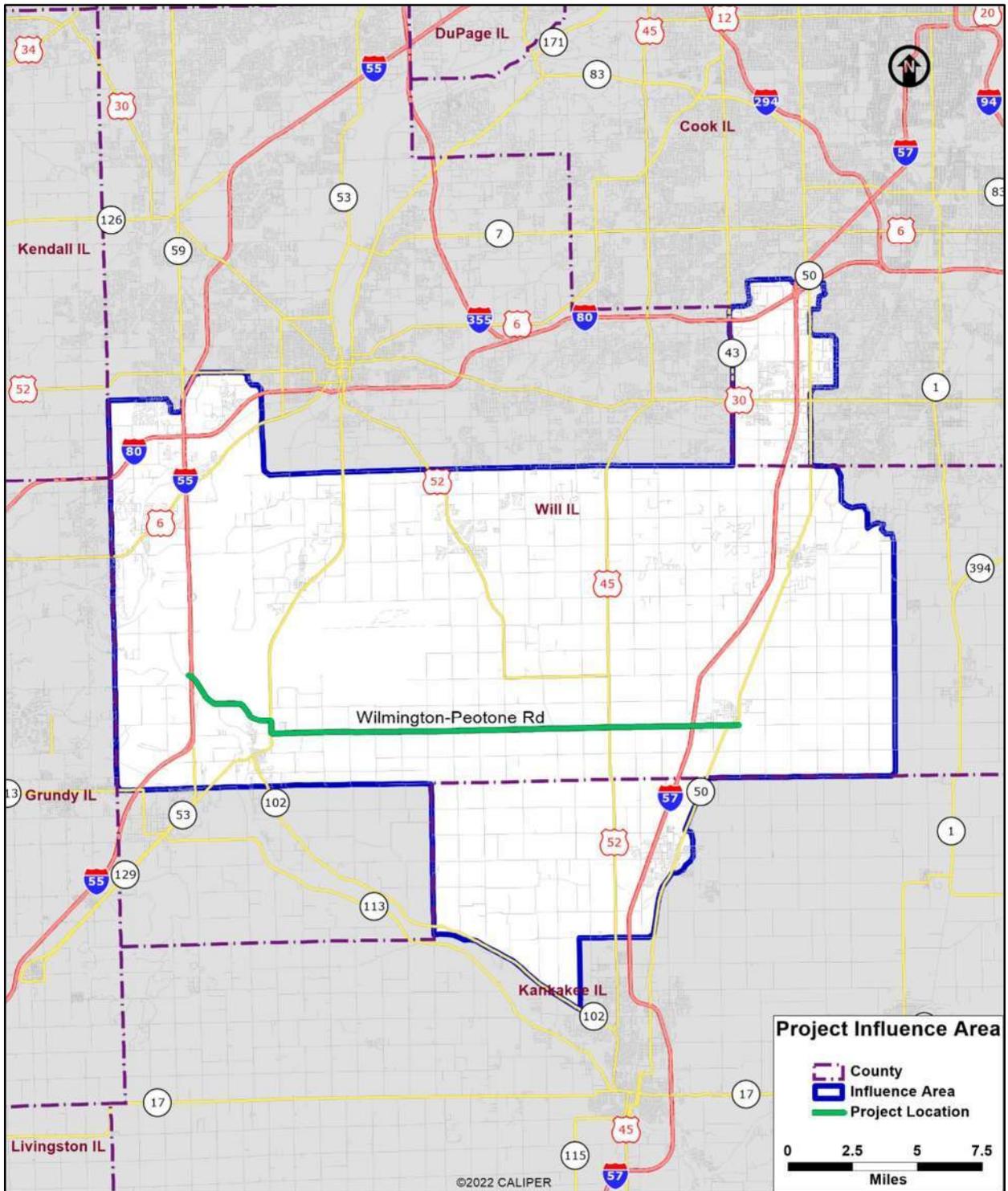


Figure 2: Project Influence Area (Subarea Boundary)

2. EXISTING TRAFFIC CONDITIONS

The project team collected 24-hour turning movement counts in August 2023 at eleven intersections within the corridor. The counts were classified by vehicle types and further aggregated into Auto, Single Unit (SU) trucks, and Combination Unit (CU) trucks. These counts were used to develop existing Average Daily Traffic (ADT) volumes along each segment of the project corridor, as shown in **Table 1** below.

Table 1: Existing (Year 2023) Traffic on Project Corridor Segments

| ID | Location Description | ADT | SU Trucks | SU Truck % | CU Trucks | CU Truck % | All Trucks (SU+CU) | All Truck % |
|----|--|--------|-----------|------------|-----------|------------|--------------------|-------------|
| 1 | River Rd (West of I-55) | 609 | 12 | 2.0% | 5 | 0.8% | 17 | 2.8% |
| 2 | River Rd (East of I-55) | 9,716 | 436 | 4.5% | 2,056 | 21.2% | 2,492 | 25.6% |
| 3 | River Rd (West of Hwy 53) | 7,350 | 380 | 5.2% | 2,109 | 28.7% | 2,489 | 33.9% |
| 4 | Hwy 53 | 11,895 | 387 | 3.3% | 1,880 | 15.8% | 2,267 | 19.1% |
| 5 | W Peotone Rd (East of Hwy 53) | 8,816 | 268 | 3.0% | 1,500 | 17.0% | 1,768 | 20.1% |
| 6 | W Peotone Rd (East of Indian Trail) | 8,201 | 315 | 3.8% | 1,453 | 17.7% | 1,768 | 21.6% |
| 7 | W Peotone Rd (East of Old Chicago Rd) | 6,992 | 294 | 4.2% | 1,670 | 23.9% | 1,964 | 28.1% |
| 8 | W Peotone Rd (West of Warner Bridge Rd) | 6,828 | 336 | 4.9% | 1,597 | 23.4% | 1,933 | 28.3% |
| 9 | W Wilmington-Peotone Rd (East of Warner Bridge Rd) | 6,807 | 333 | 4.9% | 1,596 | 23.4% | 1,929 | 28.3% |
| 10 | W Wilmington-Peotone Rd (West of Cedar Rd) | 7,662 | 305 | 4.0% | 1,654 | 21.6% | 1,959 | 25.6% |
| 11 | W Wilmington-Peotone Rd (East of Cedar Rd) | 6,821 | 280 | 4.1% | 1,731 | 25.4% | 2,011 | 29.5% |
| 12 | W Wilmington-Peotone Rd (West of Hwy 45) | 6,685 | 280 | 4.2% | 1,726 | 25.8% | 2,006 | 30.0% |
| 13 | W Wilmington-Peotone Rd (East of Hwy 45) | 5,344 | 227 | 4.2% | 1,437 | 26.9% | 1,664 | 31.1% |
| 14 | W Wilmington-Peotone Rd (West of I-57) | 7,189 | 290 | 4.0% | 1,576 | 21.9% | 1,866 | 26.0% |
| 15 | W Wilmington-Peotone Rd (East of I-57) | 8,804 | 263 | 3.0% | 1,043 | 11.8% | 1,306 | 14.8% |
| 16 | W Wilmington-Peotone Rd (West of Governors Hwy) | 6,486 | 242 | 3.7% | 980 | 15.1% | 1,222 | 18.8% |
| 17 | Tucker Rd (East of Governors Hwy) | 1,232 | 39 | 3.2% | 425 | 34.5% | 464 | 37.7% |

3. FUTURE YEAR TRAFFIC FORECASTING METHODOLOGY

To forecast future travel demand throughout the corridor, the analysis used Chicago Metropolitan Agency for Planning (CMAP)'s regional TDM as the primary tool to forecast automobile and truck traffic along the project corridor.

Forecasting the future year traffic with reasonable accuracy is of major importance to determine the deficiencies of the existing and proposed roadway network in future years. As a part of the Chicago Metropolitan Area, the travel behaviors of Will County residents are closely related to the rest of the region. Employees and customers of the existing and future commercial development in the study area are also closely coupled with the rest of the region. To more accurately forecast the future traffic in the Study Area, a methodology that accounts for regional conditions is warranted.

CMAP's regional TDM was used as the primary tool to forecast automobile and truck traffic along the project corridor for the design year 2035 and design horizon year 2050. The TDM provided baseline demographic and employment growth forecasts for this study. All future projects identified in CMAP's "ON TO 2050" Regional Transportation Plan (RTP) were included in the regional model.

Since the TDM is used primarily to forecast traffic volumes on arterial roadways at regional level, a subarea TDM calibration and validation process was used by the project team to validate the model performance and accuracy in the project study area. The validated sub-area model was then used in this study to forecast the future traffic volumes for the no-build and build conditions of the project corridor.

A. Base Year Travel Demand Model Calibration and Validation

As the first step of the traffic forecasting process, the base year (2019) TDM was calibrated and validated using 2023 traffic counts to ensure that the sub-area model would reproduce and represent the base year traffic conditions with reasonable accuracy. The **Existing Traffic Analysis - Travel Demand Model Base Year Validation Technical Memorandum** prepared for the county in February 2024 details the base year sub-area model calibration and validation process.

B. Future Year Demographic and Economic Forecasts

The project team used CMAP adopted regional growth projections in the TDM as the baseline demographic and employment growth forecasts. For the project study area and for Will County, growth forecasts are summarized in **Table 2** below.

Table 2: Baseline Demographic and Employment Growth in TDM

| Area | Type | Year 2019 | Year 2035 | % Growth 2019-2035 | Year 2050 | % Growth 2019-2050 |
|------------------------|------------------|-----------|-----------|--------------------|-----------|--------------------|
| Will County | Households | 242,701 | 313,225 | 29.1% | 354,689 | 46.1% |
| | Total Employment | 251,050 | 273,000 | 8.7% | 290,205 | 15.6% |
| Project Influence Area | Households | 53,879 | 67,534 | 25.3% | 81,232 | 50.8% |
| | Total Employment | 63,334 | 71,425 | 12.8% | 77,603 | 22.5% |

In addition, the project team gathered input from the Will County Division of Transportation and the Will County Center for Economic Development (CED) on committed or future anticipated development in the project vicinity. Nine development opportunities were identified by the County. Additional employment numbers were provided by the county or estimated by the project team based on the approximate square

footage of commercial development provided by the County. The additional employment was added to TDM's socioeconomic input data for 2035 and 2050 respectively, as shown in **Table 3**.

Table 3: Estimated Major Development in Project Vicinity

| ID | Development Name | Type | Full build-out Commercial Development (sq. ft.) | Employment Expected by 2035 | Employment Expected by 2050 |
|--------------|--|------------|---|-----------------------------|-----------------------------|
| 1 | Elion Logistics Park | Industrial | 10,809,600 | 5,310 | 5,310 |
| 2 | River Road at IL 53 | Industrial | 2,142,000 | 540 | 540 |
| 3 | Gotion (Battery Plant) - Phase I | Industrial | 10,400,000 | 2,600 | 2,600 |
| 4 | Gotion (Battery Plant) - Phase II | Industrial | 4,000,000 | 1,000 | 1,000 |
| 5 | Northwest Quadrant of I-57 Interchange | Industrial | 5,000,000 | 1,250 | 1,250 |
| 6 | Operating Engineers Union, Local 150 | Industrial | 8,568,000 | 2,140 | 2,140 |
| 7 | Northpoint Development | Industrial | 8,568,000 | 2,500 | 6,300 |
| 8 | Centerpoint | Industrial | 25,200,000 | 2,000 | 2,000 |
| 9 | BNSF | Industrial | 1,600,000 | 400 | 400 |
| Total | | | 76,287,600 | 17,740 | 21,540 |

Demographic and employment growth presented in this section were used for the no-build and build scenarios of this study.

C. ADT Forecast Methodology

Using the modified future year TDM input and the validated sub-area TDM, future year volumes for the analysis year 2035 and the horizon year 2050 were obtained. Annual growth rates for each corridor segments were calculated based on the ADT growth rate from base year 2019 to future year 2035 and 2050. These growth rates were applied to the existing traffic counts presented in Section 2 to project future year 2035 and 2050 ADTs for each corridor segment.

D. Turning Movement Forecast Methodology

The project team collected intersection turning movement counts for 11 intersections within the project corridor. Using the validated sub-area TDM, ADT for the base year 2019, the interim analysis year 2035, and the horizon year 2050 were obtained, and growth rates for each approach were calculated. These growth rates were applied to the existing 2023 traffic turning movement counts to establish the future year turning movement volumes for 2035 and 2050.

See Appendix A for turning movement volume exhibits.

4. FUTURE YEAR ADT FOR BASELINE (NO-BUILD) SCENARIO

The baseline or no-build scenario highway network assumes no capacity improvements to the Wilmington-Peotone corridor. All future capacity improvement projects identified in CMAP's "ON TO 2050" RTP were included in the TDM. **Table 4** shows the ADT forecasts for future year 2035 and 2050. **Table 5** shows the truck ADT forecasts and estimated percent of heavy vehicles in truck percentage.

Table 4: Estimated Average Daily Traffic (ADT) for Year 2035 and 2050

| ID | Location Description | Existing ADT | Model Estimated Annual Growth % (2019 - 2035) | ADT Forecast (2035) | Model Estimated Annual Growth % (2019 - 2050) | ADT Forecast (2050) |
|----|--|--------------|---|---------------------|---|---------------------|
| 1 | River Rd (West of I-55) | 609 | 1.4% | 770 | 1.3% | 900 |
| 2 | River Rd (East of I-55) | 9,716 | 1.0% | 11,430 | 1.0% | 13,070 |
| 3 | River Rd (West of Hwy 53) | 7,350 | 0.7% | 8,240 | 1.1% | 10,250 |
| 4 | Hwy 53 | 11,860 | 1.7% | 15,440 | 1.2% | 17,090 |
| 5 | W Peotone Rd (East of Hwy 53) | 8,816 | 2.0% | 12,150 | 1.6% | 14,220 |
| 6 | W Peotone Rd (East of Indian Trail Rd) | 8,201 | 2.0% | 11,260 | 1.6% | 13,220 |
| 7 | W Peotone Rd (East of Old Chicago Rd) | 6,992 | 2.1% | 9,680 | 1.7% | 11,640 |
| 8 | W Peotone Rd (West of Warner Bridge Rd) | 6,828 | 2.1% | 9,510 | 1.7% | 11,400 |
| 9 | W Wilmington-Peotone Rd (East of Warner Bridge Rd) | 6,807 | 2.0% | 9,390 | 1.6% | 11,240 |
| 10 | W Wilmington-Peotone Rd (West of Cedar Rd) | 7,662 | 1.4% | 9,600 | 1.3% | 11,460 |
| 11 | W Wilmington-Peotone Rd (East of Cedar Rd) | 6,821 | 1.6% | 8,820 | 1.2% | 9,920 |
| 12 | W Wilmington-Peotone Rd (West of Hwy 45) | 6,685 | 1.6% | 8,660 | 1.2% | 9,740 |
| 13 | W Wilmington-Peotone Rd (East of Hwy 45) | 5,344 | 1.7% | 7,000 | 1.3% | 8,070 |
| 14 | W Wilmington-Peotone Rd (West of I-57) | 7,189 | 1.6% | 9,300 | 1.3% | 10,690 |
| 15 | W Wilmington-Peotone Rd (East of I-57) | 8,804 | 0.9% | 10,210 | 1.0% | 12,070 |
| 16 | W Wilmington-Peotone Rd (West of Governors Hwy) | 6,482 | 0.6% | 7,170 | 1.1% | 9,120 |
| 17 | Tucker Rd (East of Governors Hwy) | 1,232 | 0.0% | 1,230 | 0.2% | 1,320 |

Table 5: Estimated Truck ADT and Truck Percentage for Year 2035 and 2050

| ID | Location Description | Existing Truck ADT | Existing Truck % | Forecast Truck ADT (2035) | Forecast Truck % (2035) | Forecast Truck ADT (2050) | Forecast Truck % (2050) |
|----|--|--------------------|------------------|---------------------------|-------------------------|---------------------------|-------------------------|
| 1 | River Rd (West of I-55) | 17 | 3% | 20 | 3% | 30 | 3% |
| 2 | River Rd (East of I-55) | 2,492 | 26% | 3,650 | 32% | 4,680 | 36% |
| 3 | River Rd (West of Hwy 53) | 2,489 | 34% | 3,650 | 44% | 4,670 | 46% |
| 4 | Hwy 53 | 2,267 | 19% | 3,530 | 23% | 4,520 | 26% |
| 5 | W Peotone Rd (East of Hwy 53) | 1,768 | 20% | 2,860 | 24% | 3,640 | 26% |
| 6 | W Peotone Rd (East of Indian Trail Rd) | 1,768 | 22% | 2,830 | 25% | 3,630 | 27% |
| 7 | W Peotone Rd (East of Old Chicago Rd) | 1,964 | 28% | 3,460 | 36% | 4,780 | 41% |
| 8 | W Peotone Rd (West of Warner Bridge Rd) | 1,933 | 28% | 3,420 | 36% | 4,720 | 41% |
| 9 | W Wilmington-Peotone Rd (East of Warner Bridge Rd) | 1,929 | 28% | 3,410 | 36% | 4,690 | 42% |
| 10 | W Wilmington-Peotone Rd (West of Cedar Rd) | 1,959 | 26% | 2,560 | 27% | 3,670 | 32% |
| 11 | W Wilmington-Peotone Rd (East of Cedar Rd) | 2,011 | 29% | 2,680 | 30% | 3,720 | 38% |
| 12 | W Wilmington-Peotone Rd (West of Hwy 45) | 2,006 | 30% | 2,840 | 33% | 3,920 | 40% |
| 13 | W Wilmington-Peotone Rd (East of Hwy 45) | 1,664 | 31% | 2,300 | 33% | 3,300 | 41% |
| 14 | W Wilmington-Peotone Rd (West of I-57) | 1,866 | 26% | 2,690 | 29% | 3,790 | 35% |
| 15 | W Wilmington-Peotone Rd (East of I-57) | 1,306 | 15% | 1,700 | 17% | 2,320 | 19% |
| 16 | W Wilmington-Peotone Rd (West of Governors Hwy) | 1,222 | 19% | 1,330 | 19% | 1,940 | 21% |
| 17 | Tucker Rd (East of Governors Hwy) | 464 | 38% | 460 | 37% | 480 | 36% |

5. TRAFFIC OPERATIONS ANALYSIS

Traffic analysis was conducted to evaluate traffic operations at intersections, segments, and interchanges. The purpose of the analyses was to evaluate alternative improvement scenarios.

A. Methodology

The traffic analysis for intersections was conducted using Synchro and SimTraffic software for morning and evening peak periods. The traffic analysis for roundabout intersection alternatives was conducted using Sidra software. Segment analysis was conducted using Highway Capacity Software (HCS). The analysis was conducted for existing, 2035, and 2050 traffic volumes

B. Segments

Realignment Alternatives

Three alignment alternatives were evaluated to determine differences in travel time compared to the existing condition. On the west side of the corridor, the existing River Road and West Peotone Road realignment (North Option) and grade-separated crossing Highway 53 (South Option) were evaluated. Connectivity enhancements between North River Road and Peotone Road were included within build conditions TDM analyses to account for trip diversion with resulting travel time improvements.

Network segment operations were analyzed for each alternative using SimTraffic, evaluating the total delay per vehicle across intersections impacted by or adjacent to each realignment. This analysis was done to evaluate potential interactions between intersections impacted by the realignment alternatives and to evaluate each alternative's overall performance. For each realignment alternative, no new additional traffic was assumed to enter the network. All existing traffic with turning movements impacted by the realignment design was reassigned to new turning movements within the network.

Realignment **North** of Wilmington-Peotone.

The intersections included in the network operations analysis are the I-55 Southbound and Northbound Ramps at River Road, IL 53 at River Road, and IL 53 at Kankakee River Drive/Peotone Road. The proposed turning movement volumes are derived from existing traffic volumes and approximate the distribution of turning movements based on their original traffic flow patterns at impacted intersections. For example, in the North realignment alternative, existing westbound Peotone Road traffic is now expected to travel along the proposed River Road alignment to IL 53 (orange line shown in Figure 3), where all proposed movements mimic the distribution of traffic at the existing IL 53 at Kankakee River Drive/Peotone Road intersection.



Figure 3: Realignment Alternative – North of Wilmington-Peotone Road

Realignment **South** of Wilmington-Peotone with railroad grade separation

The intersections included in the network operations analysis are the I-55 Southbound and Northbound Ramps at River Road, as well as the proposed signalized intersections created at IL 53 at Kankakee River Drive/Peotone Road (shifted south of the existing location) and River Road at the Waters Edge Estates entrance. A railroad bridge is included in this option to maintain freeflow traffic along Wilmington-Peotone Road.



Figure 4: Realignment Alternative – South of Wilmington-Peotone Road

Travel time results for each realignment compared to the no-build are presented in Table 6. Travel times are one consideration for carrying through a proposed alternative. Other considerations such as cost, land acquisition, and stakeholder coordination have been evaluated in the Concept Evaluation Technical Memorandum.

Table 6: Alternative Alignment Travel Time Results

| Segment Operations Results* | | |
|---|-------|-------|
| | AM | PM |
| No-Build | 282.4 | 536.7 |
| North Alignment | 255.7 | 292.1 |
| South Alignment | 193.8 | 238.3 |
| *Total Zone Performance: Total Delay/Vehicle (secs) | | |

Overall, both realignments performed better than the existing conditions. The realignment South of Wilmington-Peotone Road performed best with travel times reduced by 31% in the AM peak period and 55% in the PM peak period. See Appendix C for a full summary of results.

Realignment of IL 50

The third realignment option is located on the far east side of the corridor near IL 50 and Wilmington Road as depicted in Figure 5. At the existing IL 50 and Wilmington Road intersection, the west leg would be shortened to connect as far as Schroeder Avenue. Just west of West Street, Wilmington Road would shift south until intersecting with IL 50. The proposed alignment alternative crossing existing railroad tracks is assumed to be grade-separated. West Avenue would be extended south, intersecting with the proposed Wilmington Road alignment.



Figure 5: Realignment Alternative – Wilmington Road at IL 50

As part of this alternative, there is potential to extend the proposed Wilmington Road alignment further, through IL 50 and east to Drecklesler Road. Both the three-legged and four-legged intersection alternatives are compared to the no-build option, and presented in Table 7.

Table 7: IL 50 Alternative Alignment Travel Time Results

| Segment Operations Results* | | |
|---|------|-------|
| | AM | PM |
| No-Build | 85.4 | 316.2 |
| IL 50 – Three-Legged Intersection | 65.0 | 108.4 |
| IL 50 – Four-Legged Intersection | 45.3 | 90.3 |
| *Total Zone Performance: Total Delay/Vehicle (secs) | | |

The existing IL 50 at Wilmington Road intersection was included in the no-build scenario, while both the existing and newly proposed southern IL 50 at Wilmington Road intersections were included the network operations analysis. Similar to the alignment alternatives considered along Wilmington-Peotone Road

near IL 53 on the west side of the corridor, the proposed turning movement volumes and distribution of turning vehicles are based on the existing volumes and original traffic flow patterns at impacted intersections. For example, westbound traffic traveling along the proposed Wilmington Road alignment will be directed south toward the new intersection with IL 50, where turning movements will mirror those found at the existing westbound approach at IL 50 intersection.

In both the three-legged and four-legged realignment alternatives, the existing IL 50 intersection at Wilmington Road was changed from an all-way stop controlled intersection to a two-way stop controlled intersection along the east and west legs. The proposed southern intersection was set up as a one- or two-way stop controlled intersection, depending on the number of proposed intersection legs, with traffic able to travel freely along IL 50. Further evaluation of intersection stop controlled assumptions in future conditions requires further evaluation in future phases of the project.

The realignment alternative having a three-legged intersection with IL 50 performed better than the no-build conditions in both the AM and PM peak periods, with total delay per vehicle decreasing by 24% and 66%, respectively. The four-legged intersection realignment also performed better than the no-build conditions during both the AM and PM peak periods, with a reduction in total delay per vehicle of 47% and 71%, respectively. See Appendix C for a full summary of results.

Future Traffic Volumes for Realignment Scenarios

Future traffic volumes were developed using the Travel Demand Model (TDM) for the Realignment South of Wilmington-Peotone with railroad grade separation alternative. These volumes are a separate set of volumes from the No-Build future forecast information presented in Section 4. **Table 8** shows the ADT forecasts for future year 2050 build scenario. **Table 9** shows the truck ADT forecasts and estimated percent of heavy vehicles in truck percentage for year 2050 build scenario. Additional model runs for realignment north of Wilmington-Peotone Road and realignment of IL 50 would not result in significant differences in future traffic, therefore, separate model runs for these build scenarios were not developed.

Some of the results in Table 8 require additional explanation given that the 2050 volumes are based on the realignment scenario. The traffic on River Road (Segment ID 2), east of I-55 decreases in the Build Scenario as the model predicts more traffic will utilize Boathouse Road/Kankakee River Drive to access downtown Wilmington rather than utilizing Wilmington-Peotone Road. There is a significant increase on River Road, west of Highway 53 (Segment ID 3) because this route is more desirable with Wilmington-Peotone Road as a direct east-west route. Similarly, traffic decreases in the Build scenario for the segment of Highway 53 (Segment ID 4) as this section of roadway is no longer connected to Wilmington-Peotone Road. This pattern of 2050 Build volumes is carried through to Table 9 where truck traffic is expected to use the direct route along Wilmington-Peotone, showing a large increase in volume for Segment IDs 2 and 3. Also consistent is the significantly lower volume along Highway 53 (Segment ID 4) which is no longer part of the main Wilmington-Peotone corridor.

Table 8: Estimated Average Daily Traffic (ADT) for Year 2050 (No-Build and Build Scenarios)

| ID | Location Description | Existing ADT | Model Estimated Annual Growth % (2019 - 2050) | ADT Forecast (2050) | Model Estimated Annual Growth % (2019 - 2050) | ADT Forecast (2050) |
|----|--|--------------|---|---------------------|---|---------------------|
| | | | No-Build | No-Build | Build | Build |
| 1 | River Rd (West of I-55) | 609 | 1.3% | 900 | 2.3% | 890 |
| 2 | River Rd (East of I-55) | 9,716 | 1.0% | 13,070 | 1.8% | 12,850 |
| 3 | River Rd (West of Hwy 53) | 7,350 | 1.1% | 10,250 | 4.7% | 15,260 |
| 4 | Hwy 53 | 11,860 | 1.2% | 17,090 | -1.1% | 9,970 |
| 5 | W Peotone Rd (East of Hwy 53) | 8,816 | 1.6% | 14,220 | 2.7% | 13,470 |
| 6 | W Peotone Rd (East of Indian Trail Rd) | 8,201 | 1.6% | 13,220 | 3.0% | 13,190 |
| 7 | W Peotone Rd (East of Old Chicago Rd) | 6,992 | 1.7% | 11,640 | 3.3% | 11,670 |
| 8 | W Peotone Rd (West of Warner Bridge Rd) | 6,828 | 1.7% | 11,400 | 3.3% | 11,400 |
| 9 | W Wilmington-Peotone Rd (East of Warner Bridge Rd) | 6,807 | 1.6% | 11,240 | 3.2% | 11,220 |
| 10 | W Wilmington-Peotone Rd (West of Cedar Rd) | 7,662 | 1.3% | 11,460 | 2.5% | 11,430 |
| 11 | W Wilmington-Peotone Rd (East of Cedar Rd) | 6,821 | 1.2% | 9,920 | 2.3% | 9,850 |
| 12 | W Wilmington-Peotone Rd (West of Hwy 45) | 6,685 | 1.2% | 9,740 | 2.3% | 9,550 |
| 13 | W Wilmington-Peotone Rd (East of Hwy 45) | 5,344 | 1.3% | 8,070 | 2.5% | 7,870 |
| 14 | W Wilmington-Peotone Rd (West of I-57) | 7,189 | 1.3% | 10,690 | 2.3% | 10,420 |
| 15 | W Wilmington-Peotone Rd (East of I-57) | 8,804 | 1.0% | 12,070 | 1.8% | 11,750 |
| 16 | W Wilmington-Peotone Rd (West of Governors Hwy) | 6,482 | 1.1% | 9,120 | 2.0% | 8,860 |
| 17 | Tucker Rd (East of Governors Hwy) | 1,232 | 0.2% | 1,320 | 0.1% | 1,280 |

Table 9: Estimated Truck ADT and Truck Percentage for Year 2050 (No-Build and Build Scenarios)

| ID | Location Description | Existing Truck ADT | Existing Truck % | Forecast Truck ADT (2050) | Forecast Truck % (2050) | Forecast Truck ADT (2050) | Forecast Truck % (2050) |
|----|--|--------------------|------------------|---------------------------|-------------------------|---------------------------|-------------------------|
| | | | | No-build | No-build | Build | Build |
| 1 | River Rd (West of I-55) | 17 | 3% | 30 | 3% | 30 | 3% |
| 2 | River Rd (East of I-55) | 2,492 | 26% | 4,680 | 36% | 5,510 | 42% |
| 3 | River Rd (West of Hwy 53) | 2,489 | 34% | 4,670 | 46% | 5,500 | 54% |
| 4 | Hwy 53 | 2,267 | 19% | 4,520 | 26% | 370 | 2% |
| 5 | W Peotone Rd (East of Hwy 53) | 1,768 | 20% | 3,640 | 26% | 4,350 | 31% |
| 6 | W Peotone Rd (East of Indian Trail Rd) | 1,768 | 22% | 3,630 | 27% | 4,310 | 33% |
| 7 | W Peotone Rd (East of Old Chicago Rd) | 1,964 | 28% | 4,780 | 41% | 5,160 | 44% |
| 8 | W Peotone Rd (West of Warner Bridge Rd) | 1,933 | 28% | 4,720 | 41% | 5,100 | 45% |
| 9 | W Wilmington-Peotone Rd (East of Warner Bridge Rd) | 1,929 | 28% | 4,690 | 42% | 5,050 | 45% |
| 10 | W Wilmington-Peotone Rd (West of Cedar Rd) | 1,959 | 26% | 3,670 | 32% | 3,980 | 35% |
| 11 | W Wilmington-Peotone Rd (East of Cedar Rd) | 2,011 | 29% | 3,720 | 38% | 4,020 | 41% |
| 12 | W Wilmington-Peotone Rd (West of Hwy 45) | 2,006 | 30% | 3,920 | 40% | 4,220 | 43% |
| 13 | W Wilmington-Peotone Rd (East of Hwy 45) | 1,664 | 31% | 3,300 | 41% | 3,490 | 43% |
| 14 | W Wilmington-Peotone Rd (West of I-57) | 1,866 | 26% | 3,790 | 35% | 4,020 | 38% |
| 15 | W Wilmington-Peotone Rd (East of I-57) | 1,306 | 15% | 2,320 | 19% | 2,430 | 20% |
| 16 | W Wilmington-Peotone Rd (West of Governors Hwy) | 1,222 | 19% | 1,940 | 21% | 2,050 | 22% |
| 17 | Tucker Rd (East of Governors Hwy) | 464 | 38% | 480 | 36% | 480 | 36% |

Passing Lane Alternatives

Geometric analysis determined several concept level alternatives for passing lane segments along Wilmington-Peotone Road. Since the final layout of passing lanes will be determined in Phase I, if included as an alternative to be carried forward, two of the concepts were analyzed to ensure that similar traffic improvements are experienced with the different layout. Several metrics, including average speed, percent followers, travel times, follower density, and level of service (LOS) were analyzed using the HCS 7 Two Lane software program.

Concept 1 included three passing lane segments in the eastbound direction along Wilmington-Peotone Road, and three passing lane segments in the westbound direction. Concept 3 included four passing lane segments in the eastbound direction along Wilmington-Peotone Road, and three passing lane segments in the westbound direction. The existing conditions of the segment was evaluated and separated into three segments, including the portion before and after the proposed passing lane segment. Each passing lane analysis included the segments both immediately before and after the proposed passing lane location.

Table 10 summarized the results of both concepts showing slight improvements in travel time. In conjunction with safety analysis, passing lane concepts can continue to be evaluated in future phases of the project to determine optimal locations given all design factors contributing to this type of improvement.

Table 10: Passing Lane Analysis Results

| Concept | Direction | Segment | Location of Passing Lane | Passing Lane Length (mi) | Difference (Existing - Proposed) | | | |
|---------|-----------|---------|-----------------------------|--------------------------|----------------------------------|-------------------|---------------------------|-------------------|
| | | | | | Average Speed (mph) | Percent Followers | Segment Travel Time (min) | Followers Density |
| 1 | EB | 1 | IL 53 - Old Chicago | 0.52 | -2.0 | -4.7 | 0.01 | -0.2 |
| 1 | EB | 2 | Old Chicago - Warner Bridge | 0.51 | -1.2 | -2.9 | 0.01 | -0.1 |
| 1 | EB | 3 | Cedar - US 52 | 0.63 | -1.7 | -0.8 | 0.02 | 0.0 |
| 1 | WB | 1 | I-57 NB Ramps - US 52 | 0.74 | -1.4 | -1.1 | 0.02 | 0.0 |
| 1 | WB | 2 | US 52 - Cedar | 0.69 | -1.4 | -1.1 | 0.01 | 0.0 |
| 1 | WB | 3 | Warner Bridge - Old Chicago | 0.68 | -2.0 | -3.5 | 0.02 | -0.1 |
| 3 | EB | 1 | IL 53 - Old Chicago | 0.58 | -1.9 | -5.3 | 0.02 | -0.3 |
| 3 | EB | 2 | Old Chicago - Warner Bridge | 0.64 | -2.2 | -11.5 | 0.03 | -0.5 |
| 3 | EB | 3 | Cedar - US 52 | 0.59 | -1.7 | -0.3 | 0.02 | 0.0 |
| 3 | EB | 4 | US 52 - I-57 NB Ramps | 0.9 | -1.3 | -1.6 | 0.02 | 0.0 |
| 3 | WB | 1 | IL 53 - Old Chicago | 0.56 | -1.9 | -5.3 | 0.02 | -0.3 |
| 3 | WB | 2 | Old Chicago - Warner Bridge | 0.67 | -1.4 | -1.0 | 0.01 | 0.0 |
| 3 | WB | 3 | Cedar - US 52 | 0.51 | -2.0 | -3.5 | 0.02 | -0.1 |

Refer to the Appendix D for concept layouts and summary of results.

Additional Alternatives

The study team also considered several other alternatives including typical section improvements for wider shoulders and vertical profile improvements to improve sight distance. Detailed traffic analysis is not able to quantify changes in traffic operations for these alternatives, however, the alternatives were evaluated qualitatively for from a traffic operations perspective.

Providing a wider typical section that includes 12-foot through lanes and 10-foot shoulders allows disabled vehicles to pull over into the shoulder without restricting traffic flow. The existing conditions do not have a shoulder wide enough for disabled vehicles to pull over, therefore, causing safety concerns and slower traffic. For this reason, a wider typical section is an improvement in traffic operations compared to existing conditions.

The alternative for vertical profile improvements will flatten vertical curves in strategic locations which will allow better sight distance and a safer environment for passing zones. These changes will encourage more passing vehicles. Although specific analysis cannot quantify the change in travel time, traffic operations will improve as compared to the existing conditions due to changes in vertical curves.

C. Intersections

Consistent with the signal warrant analysis, traffic operations were evaluated for the same eleven intersections by providing level-of-service (LOS) results for each location along with two additional locations at the intersections of Indian Trail Road and Symerton Road along Wilmington-Peotone Road. When LOS reached LOS E or F, the following methodology for improving traffic operations was used.

Evaluation of Existing Conditions with Existing Traffic Volumes

1. Addition of turn lanes on Minor Legs
2. Addition of turn lanes on Mainline
3. Apply signals

Evaluation of Proposed Conditions with 2035 and 2050 Traffic Volumes

- a. Minor legs
 1. Add left turn lanes
 2. If no improvement in operations, then add right turn lane(s)
 3. If no improvement in operations, then add through lane(s)
- b. Mainline along Wilmington-Peotone Road
 1. Add left turn lane(s)
 2. If no improvement in operations, then add right turn lane(s)
 3. If no improvement in operations, then add through lane(s)
- c. Apply signal warrants for 2035 and/or 2050
 1. Begin with existing geometry
 2. Apply signals based on signal warrant analysis
 3. If LOS E or F, then add turn lanes as needed in the same manner listed previously
- d. Addressing safety concerns

1. Added turn lanes based on crash analysis
 - a. This occurred both at the intersection of Indian Trail Road and Symerton Road. Although traffic operations did not warrant, the addition of turn lanes on Wilmington-Peotone Road can address safety concerns related to passing vehicles and higher vehicle speeds

The analysis first evaluated the existing conditions to determine if any intersections are currently at operational capacity. The analysis then looked at 2035 traffic volumes under two scenarios:

- Apply 2035 traffic volumes to existing geometric conditions to determine locations where LOS failed
- Utilizing the process previously described in Evaluation of Proposed Conditions with 2035 and 2050 Traffic Volumes, apply 2035 traffic volumes with geometric and/or traffic signal improvements to improve LOS

The next step in the process was to evaluate intersections using 2050 traffic projections. This process included:

- Apply 2050 traffic volumes to existing geometric conditions to determine locations where LOS failed.
- Apply 2050 traffic volumes to the geometric and/or traffic signal improvements determined with the 2035 volumes to determine which improvements still operate effectively.
- For the locations that failed with 2050 traffic volumes and 2035 improvements, the same process previously described in Evaluation of Proposed Conditions with 2035 and 2050 Traffic Volumes was then applied to determine additional improvements needed to improve LOS.

The first round of results in Table 11 summarizes the addition of turn lanes only based on the procedure previously identified. The traffic operations still operate poorly without the addition of a traffic signal along with the specified turn lanes.

Table 11: Operational Results of Added Turn Lanes at Intersections

| Intersection | Existing Traffic Control | Peak Hour | 2050 TRAFFIC VOLUMES: NO IMPROVEMENTS | | | | | 2050 TRAFFIC VOLUMES: ADDED TURN LANES ONLY | | | | | Recommended Improvements |
|-----------------------------|--------------------------|-----------|---------------------------------------|--------|--------|--------|-------------------|---|--------|--------|--------|-------------------|-----------------------------|
| | | | EB LOS | WB LOS | NB LOS | SB LOS | Intersecti on LOS | EB LOS | WB LOS | NB LOS | SB LOS | Intersecti on LOS | |
| Old Chicago Rd & Peotone Rd | Two-way Stop Controlled | AM | * | * | E | E | * | * | * | D | D | * | EB right turn lane |
| | | PM | * | * | F | F | * | * | * | F | F | * | |
| Cedar Rd & Wilmington Rd | Two-way Stop Controlled | AM | * | * | D | C | * | * | * | C | C | * | EB/WB left turn lanes |
| | | PM | * | * | D | F | * | * | * | D | F | * | |
| US 52 & Wilmington Rd | All-way Stop Controlled | AM | F | E | F | F | F | E | E | E | E | E | NB/SB/EB/WB left turn lanes |
| | | PM | F | F | F | F | F | F | E | F | F | F | |
| IL 50 & Wilmington Rd | All-way Stop Controlled | AM | B | B | B | B | B | C | B | B | C | B | NB/SB left turn lanes |
| | | PM | C | B | C | B | C | C | C | C | E | D | |

The full results of the level-of-service analysis for existing conditions and future conditions with both 2035 and 2050 traffic projections can be found in Appendix E.

Signal Warrant Analysis

Wilmington-Peotone Road is classified as a Strategic Arterial Route (SRA). Signal warrants applied to SRAs are more stringent than for major or minor arterials according to IDOT criteria. This prioritizes efficient traffic movement and minimizes delays on these critical roadways. Other factors such as signal spacing and timing along with intersection geometry impact the need for a traffic signal. The intersections analyzed were chosen based on spacing requirements, need for improvement, and safety considerations. Intersections where signals are warranted is summarized in Table 12. Under existing conditions, signals are warranted at the US-52 intersection and at the southbound ramp terminal at the I-57 interchange.

The restrictions applied to signal warrants for SRAs along with a full summary of results can be found in Appendix B. Locations where signals are warranted were used to develop potential intersection alternatives.

Intersections were also evaluated without applying the SRA criteria resulting in two locations that do not warrant a signal when compared to SRA criteria: I-55 northbound ramp terminal and Old Chicago Road. However, given other factors such as crash history and safety concerns that signals are still recommended at these two locations.

Table 12: Traffic Signal Warrant Summary – SRA Criteria

| <u>Intersection</u> | | | <u>Signal Warrant Met?</u> |
|---------------------|---------------------|---------------------|----------------------------|
| <u>#</u> | <u>Major Street</u> | <u>Minor Street</u> | |
| 1 | I-55 SB Ramps | River Rd | Not met |
| 2 | I-55 NB Ramps | River Rd | Yes - 2035 |
| 5 | Peotone Rd | Old Chicago Rd | Yes - 2035 |
| 6 | Peotone Rd | Warner Bridge Rd | Not met |
| 7 | Wilmington Rd | Cedar Rd | Yes - 2035 |
| 8 | US 52 | Wilmington Rd | Yes - 2023 |
| 9 | Wilmington Rd | I-57 SB Ramps | Yes - 2023 |
| 10 | Wilmington Rd | I-57 NB Ramps | Yes - 2035 |
| 11 | IL 50 | Wilmington Rd | Yes - 2050 |

*Does not meet SRA criteria

Roundabouts

In addition to traffic signals, roundabouts were also considered at six locations where signals were warranted. The analysis utilized SIDRA software to determine LOS if roundabouts were implemented rather than traffic signals by applying existing traffic volumes along with future projected volumes for 2035 and 2050 time horizons. If a standard 4-leg roundabout with single leg approaches did not address the operational issues, then an additional lane was added where needed to meet an acceptable LOS. The summary of roundabout results can be in Appendix F.

D. Interchanges

Alternatives were considered at the I-55 interchange at River Road and the I-57 interchange at Wilmington Road. Each intersection of an interchange alternative was analyzed using Synchro, evaluating the level of service (LOS) results for each approach and the overall intersection. Both AM and PM peak hours were analyzed using projected 2050 traffic volumes.

Additionally, network segment operations were analyzed for each alternative using SimTraffic, evaluating the total delay per vehicle considering all intersections making up an interchange (such as both the northbound ramp intersection and southbound ramp intersection). This analysis was conducted to identify and evaluate any possible interactions, whether positive or negative, between interchange intersections and gain a sense for the interchange performance as a whole.

I-55 Interchange

Partial Cloverleaf at I-55

One alternative considered at I-55 and River Road was a Partial Cloverleaf interchange design. In this alternative, the existing ramp geometry is adjusted to improve curve radii and intersection angles. Despite the geometry changes, the improvements do not impact traffic capacity and therefore would not produce results different than those obtained using the existing geometry at the north- and southbound ramps at I-55 and River Road.



Figure 6: I-55 Interchange - Partial Cloverleaf Alternative

Trumpet at I-55

Due to the proposed Trumpet configuration at I-55 and River Road, all ramp traffic is limited to one intersection that serves both northbound and southbound traffic. Other factors such as safety improvements, cost, land acquisition, and stakeholder coordination are not discussed in this analysis.



Figure 7: I-55 Interchange – Trumpet Alternative

Each interchange alternative was analyzed for peak hour delay per vehicle and compared to the existing condition. The network results in Table 13 show that the Trumpet Alternative operates more effectively

than the no-build condition. There are no changes in operations for the partial cloverleaf as only minor geometric changes are proposed which do not have an impact on travel times.

Table 13: I-55 Interchange Travel Time Summary

| Segment Operations Results* | Peak Hour | |
|-----------------------------|-----------|------|
| | AM | PM |
| No Build | 76.4 | 73.3 |
| I-55 Partial Cloverleaf | 76.4 | 73.3 |
| I-55 Trumpet | 47.6 | 59.8 |

*Total Zone Performance: Total Delay/Vehicle (secs)

** All scenarios using 2050 projected traffic volumes

I-57 Interchange

Diamond at I-57

The diamond interchange design includes ramp locations matching existing conditions and geometry adjusted to improve intersection angles. Traffic capacity is not impacted due to the proposed improvements, and the approach is no different than analyzing the existing geometry.



Figure 8: I-57 Interchange – Diamond Alternative

Partial Cloverleaf at I-57

This alternative uses a loop ramp for the northbound I-57 entrance ramp, which improves sight angles and minimizes impacts to the bridge and detention point north of the interchange.



Figure 9: I-57 Interchange – Partial Cloverleaf Alternative

Diverging Diamond at I-57

In this alternative, vehicles cross to the other side of the road and back again at two signalized crossover intersections. Due to this configuration, all left turns occur without opposing oncoming traffic, improving safety and improving traffic flow. Due to limitations in HCS 7 methodology and the complexity in modeling a diverging diamond interchange, the Synchro analysis was used to obtain LOS and delay results and compare with other interchange alternatives.



Figure 10: I-57 Interchange –Diverging Diamond Alternative

From a traffic operations perspective, there is additional delay in the AM and PM peak hour for all alternatives. See Table 14 for a summary of the analysis for alternative comparison. Additional information and analysis for each interchange alternative can be found in Appendix G.

Table 14: I-57 Interchange Travel Time Summary

| Segment Operations Results* | Peak Hour | |
|--|-----------|-------|
| | AM | PM |
| No-Build | 21.5 | 39.4 |
| I-57 (existing layout, signalized) | 88.0 | 113.7 |
| I-57 Parclo (unsignalized) | 22.9 | 60.4 |
| I-57 Parclo (signalized) | 83.2 | 97.1 |
| I-57 DDI | 339.6 | 324.8 |
| <i>*Total Zone Performance: Total Delay/Vehicle (secs)</i> | | |

*** All scenarios using 2050 projected traffic volumes*

6. CONCLUSION

The traffic analysis began with validating the existing traffic volumes, including freight volume, then estimating future traffic demand for all vehicle types. The modeling methodology utilized CMAP's regional travel model and the On To 2050 comprehensive regional plan as a basis, however, recognizing that traffic analysis zones were too large geographically to properly account for local movements and known future developments within the project study area. Stakeholder coordination validated how the corridor is currently utilized and confirmed more accurate localized future growth rates compared to the CMAP data.

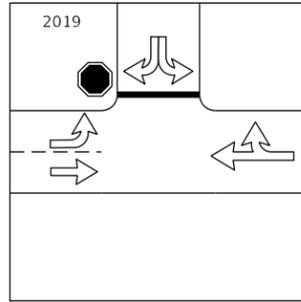
A variety of alternatives were evaluated with the future traffic projections based on growth scenarios for years 2035 and 2050. Different alternatives were evaluated for alignments, intersections, and interchanges. The alignment alternatives indicated where travel times could be reduced. Intersection alternatives including a combination of additional turn lanes, implementation of a traffic signal, or construction of a roundabout were evaluated to improve level-of-service. The interchanges at I-55 and I-57 were also evaluated to improve operations. Each alternative will be further evaluated based on other defined project criteria as outlined in the PEL report. The Preferred alternatives will be evaluated during future Phase I studies.

Appendix A

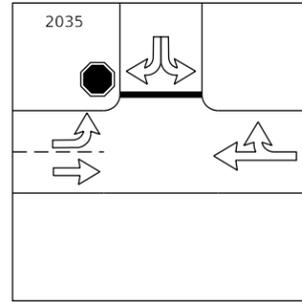
Intersection Turning Movement Volumes



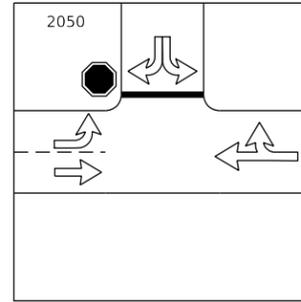
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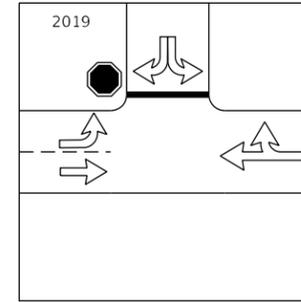


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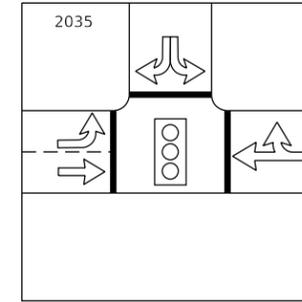


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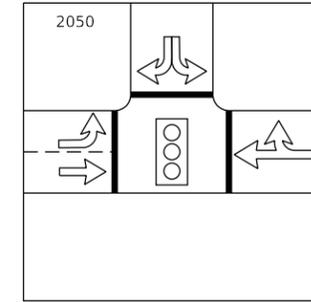
RIVER RD & I-55 NB RAMP



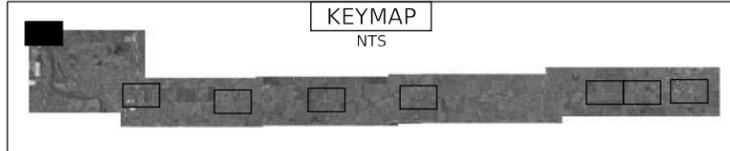
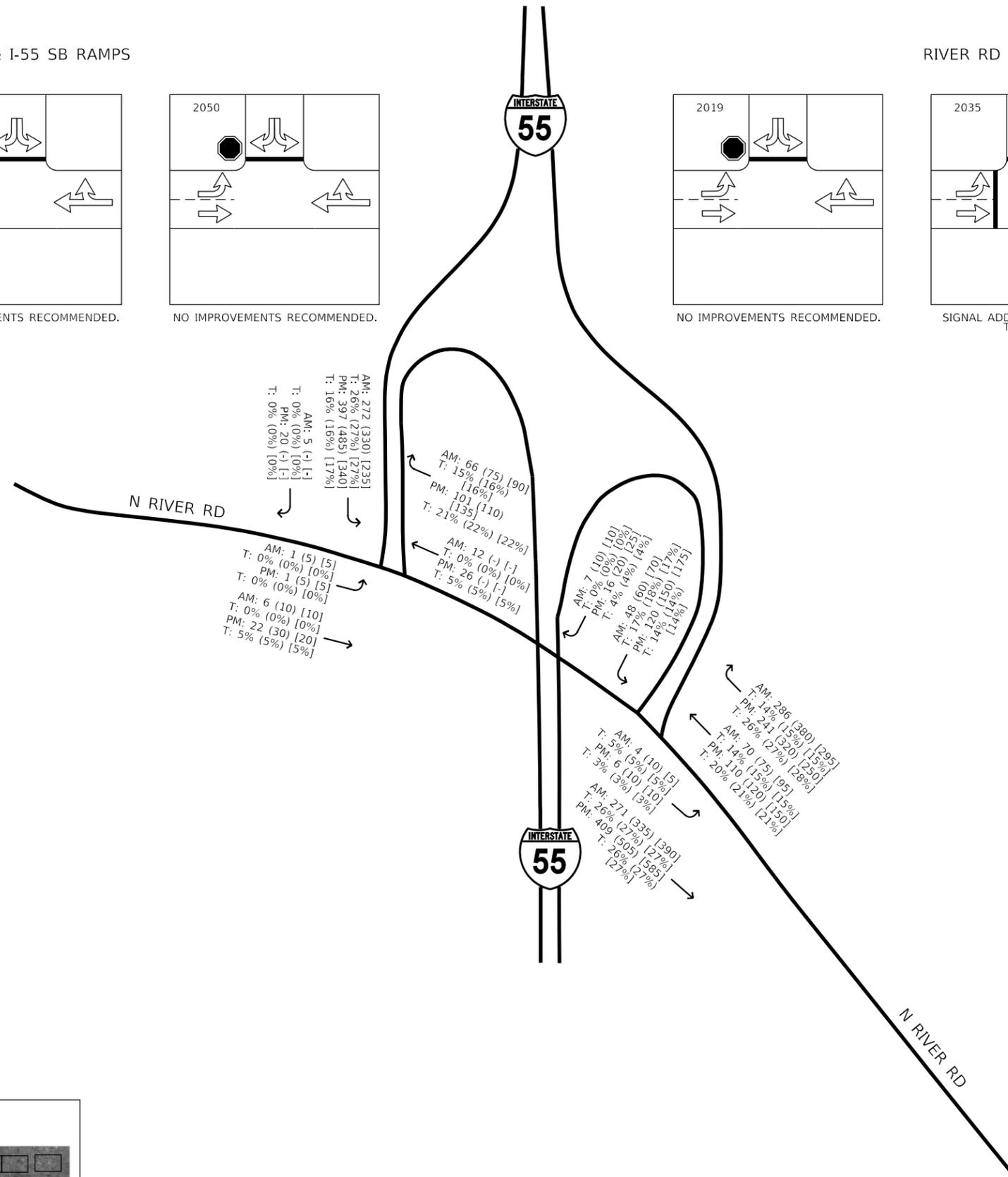
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SIGNAL ADDED. LANE GEOMETRY TO REMAIN.



NO ADDITIONAL IMPROVEMENTS RECOMMENDED.



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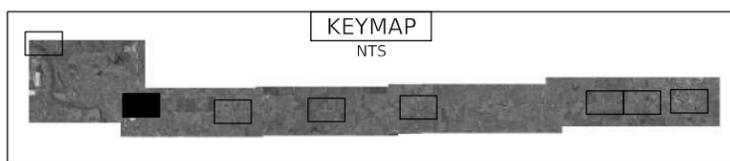
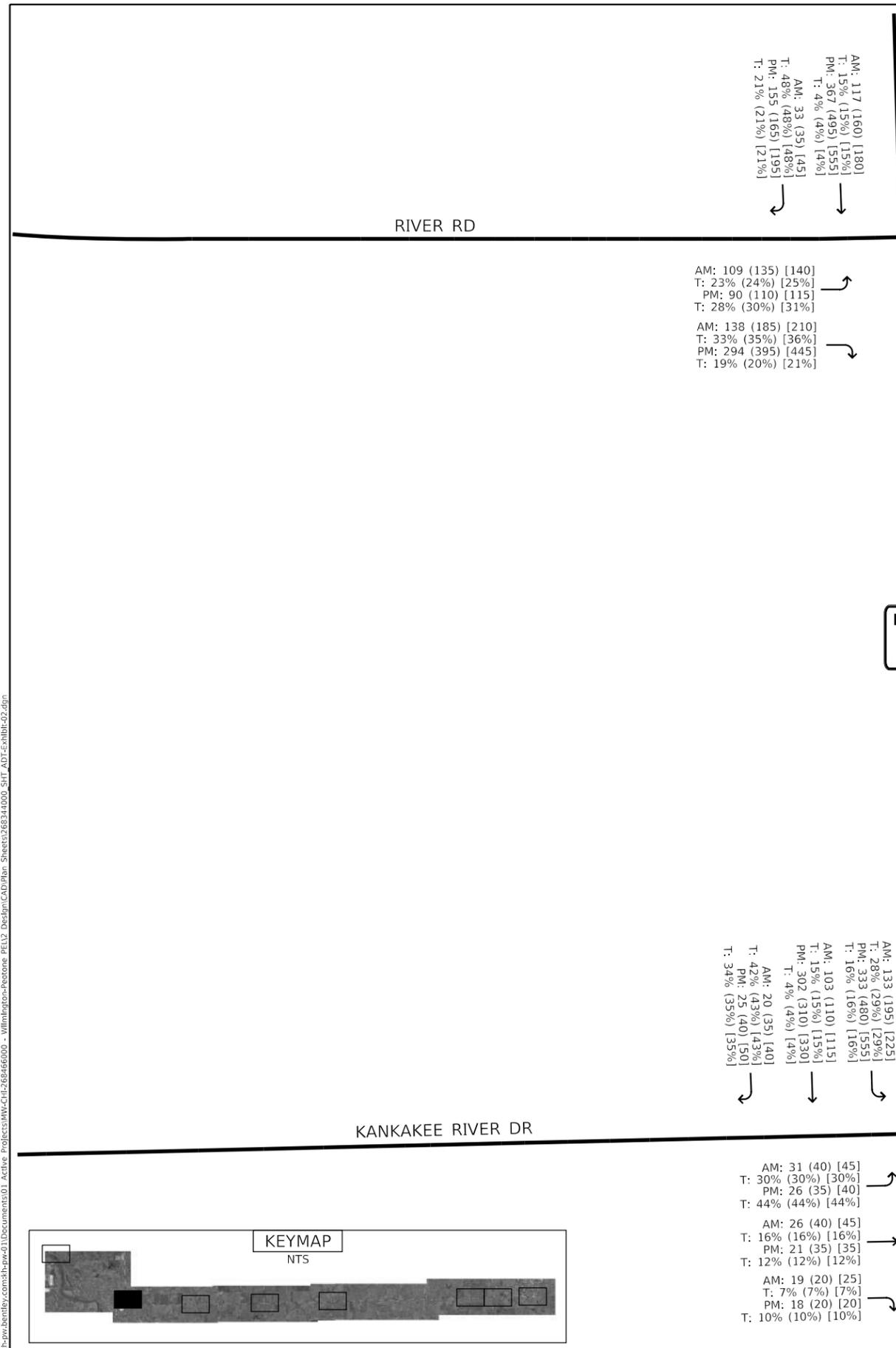
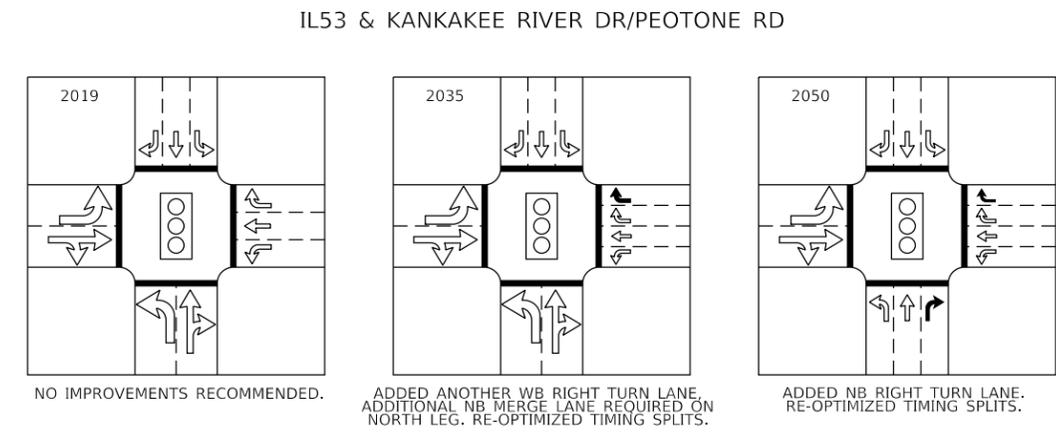
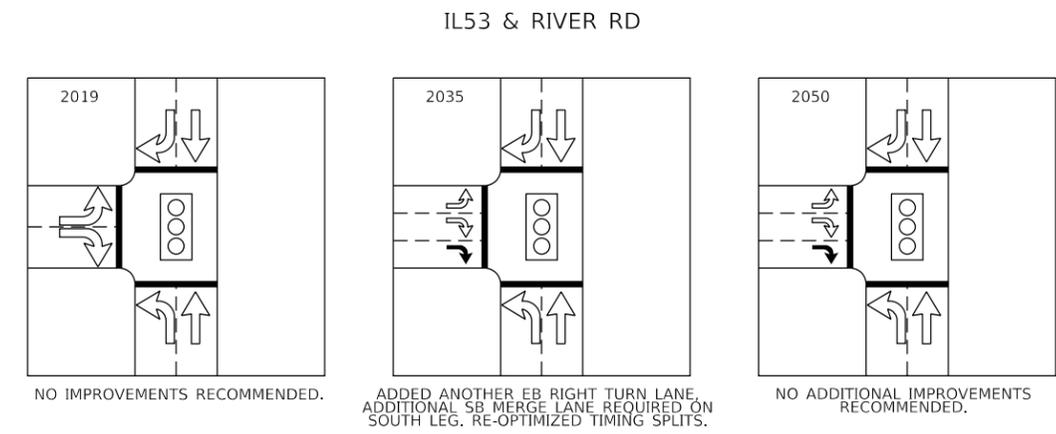
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**WILL COUNTY
DIVISION OF TRANSPORTATION**

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I-55 & RIVER RD**

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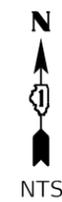
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**WILL COUNTY
DIVISION OF TRANSPORTATION**

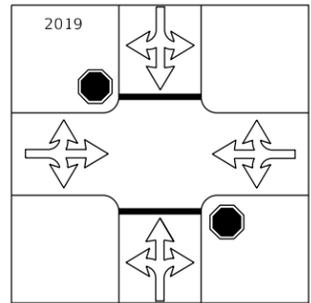
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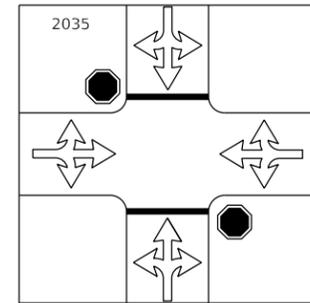
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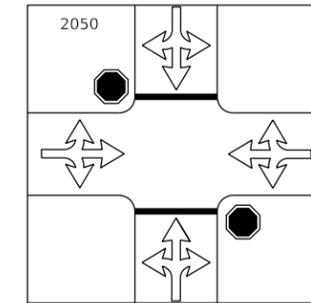
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NO IMPROVEMENTS RECOMMENDED.



NO IMPROVEMENTS RECOMMENDED.



NO IMPROVEMENTS RECOMMENDED.

WARNER BRIDGE RD

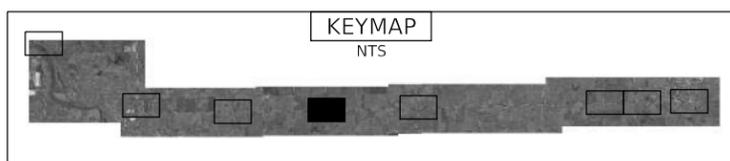
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WILMINGTON RD

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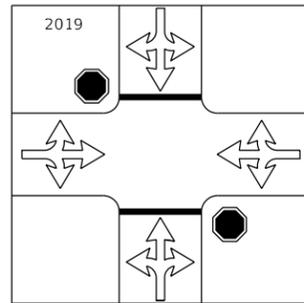
WILL COUNTY
 DIVISION OF TRANSPORTATION

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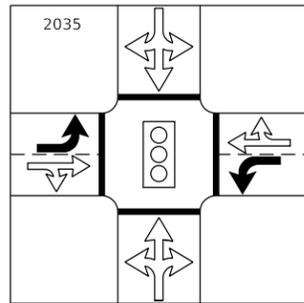
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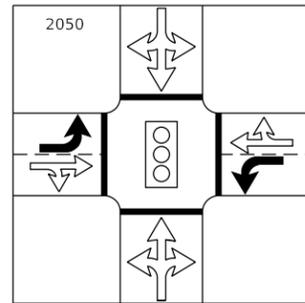
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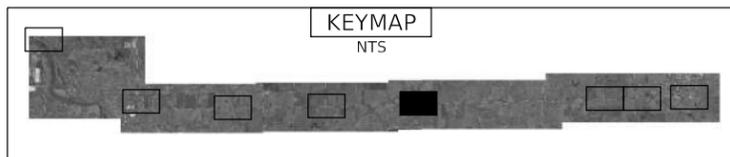
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**WILL COUNTY
DIVISION OF TRANSPORTATION**

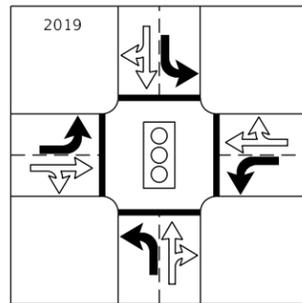
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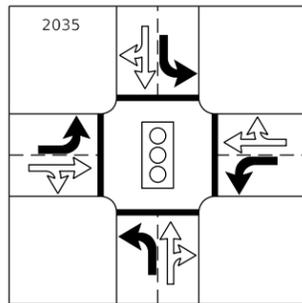
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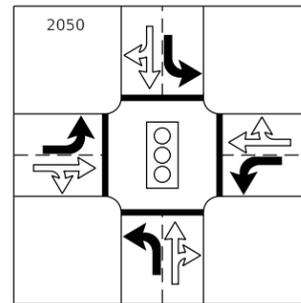
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2019
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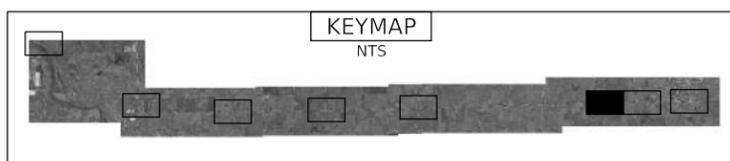


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WILMINGTON RD



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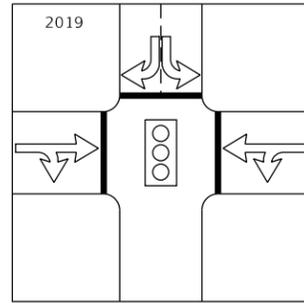
**WILL COUNTY
DIVISION OF TRANSPORTATION**

**ADT EXHIBIT
WILMINGTON RD & US-52/45**

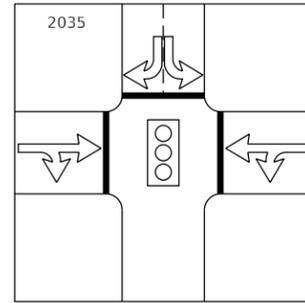
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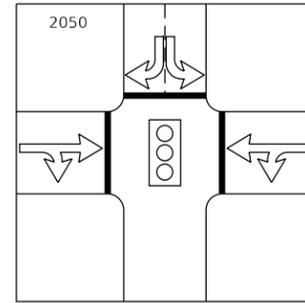
I-57 SB RAMPS & WILMINGTON RD



2019
SIGNAL ADDED. LANE GEOMETRY TO REMAIN THE SAME.

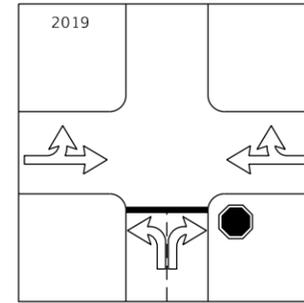


2035
RE-OPTIMIZED TIMING SPLITS.

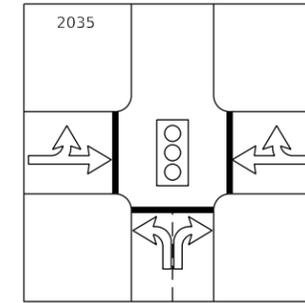


2050
NO ADDITIONAL IMPROVEMENTS RECOMMENDED.

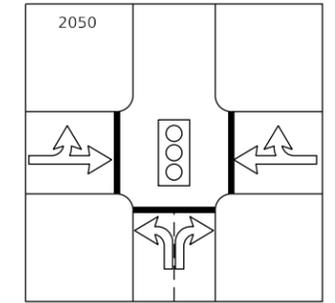
I-57 NB RAMPS & WILMINGTON RD



2019
NO IMPROVEMENTS RECOMMENDED.



2035
SIGNAL ADDED. LANE GEOMETRY TO REMAIN.



2050
NO ADDITIONAL IMPROVEMENTS RECOMMENDED.



AM: 73 (90) [110]
T: 33% (33%) [33%]
PM: 67 (75) [90]
T: 17% (17%) [17%]
AM: - (-) [-]
T: 0% (0%) [0%]
PM: - (-) [-]
T: 0% (0%) [0%]
AM: 46 (65) [80]
T: 19% (19%) [19%]
PM: 127 (170) [215]
T: 6% (6%) [6%]

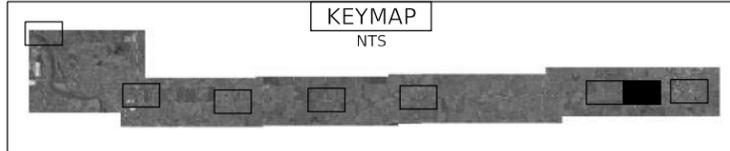
AM: 203 (245) [295]
T: 17% (17%) [18%]
PM: 146 (180) [215]
T: 24% (24%) [25%]
AM: 82 (90) [100]
T: 9% (9%) [9%]
PM: 131 (145) [160]
T: 7% (7%) [7%]

AM: 131 (115) [110]
T: 7% (7%) [7%]
PM: 79 (70) [70]
T: 15% (15%) [15%]
AM: 220 (270) [305]
T: 14% (14%) [14%]
PM: 222 (275) [305]
T: 13% (13%) [13%]

AM: 145 (195) [245]
T: 19% (19%) [20%]
PM: 352 (470) [590]
T: 17% (17%) [18%]
AM: 51 (60) [65]
T: 34% (34%) [35%]
PM: 70 (80) [85]
T: 16% (16%) [17%]

AM: 55 (50) [50]
T: 20% (20%) [20%]
PM: 180 (155) [150]
T: 19% (19%) [19%]
AM: 130 (135) [155]
T: 19% (19%) [19%]
PM: 295 (305) [355]
T: 12% (12%) [12%]

AM: 75 (95) [105]
T: 16% (16%) [16%]
PM: 58 (75) [80]
T: 29% (30%) [30%]
AM: - (-) [-]
T: 0% (0%) [0%]
PM: - (-) [-]
T: 0% (0%) [0%]
AM: 83 (85) [100]
T: 10% (10%) [10%]
PM: 94 (100) [115]
T: 7% (7%) [7%]



| LEGEND | | | | |
|--------|------------------------|--|--|--|
| XX | 2019 PEAK HOUR TRAFFIC | | | |
| (XX) | 2035 PEAK HOUR TRAFFIC | | | |
| [XX] | 2050 PEAK HOUR TRAFFIC | | | |
| AM | A.M. PEAK HOUR | | | |
| PM | P.M. PEAK HOUR | | | |
| T | PERCENT TRUCKS | | | |

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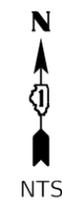


| | | |
|------------------------------|------------|-----------|
| USER NAME = daniel.carberry | DESIGNED - | REVISED - |
| PLOT SCALE = 400,0000' / in. | DRAWN - | REVISED - |
| PLOT DATE = 7/23/2024 | CHECKED - | REVISED - |
| | DATE - | REVISED - |

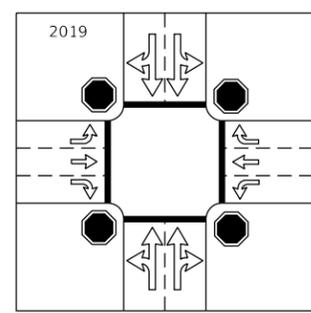
WILL COUNTY
DIVISION OF TRANSPORTATION

| | | | |
|---------------------------------|---------|-------------|--------------|
| ADT EXHIBIT | | | |
| I-57 & WILMINGTON RD | | | |
| SCALE: NTS | SHEET 7 | OF 8 SHEETS | STA. TO STA. |

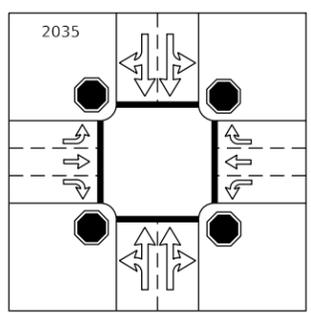
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|---------------------------|----------------|--------|--------------|-----------|
| F.A.U. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 2262 | 21-00540-00-5P | WILL | 8 | 7 |
| CONTRACT NO. | | | | |
| ILLINOIS FED. AID PROJECT | | | | |



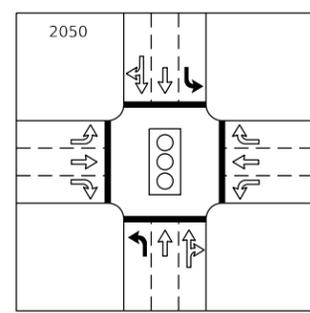
IL50 & WILMINGTON RD



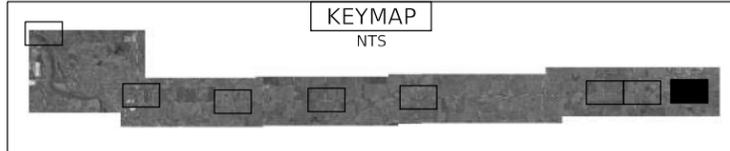
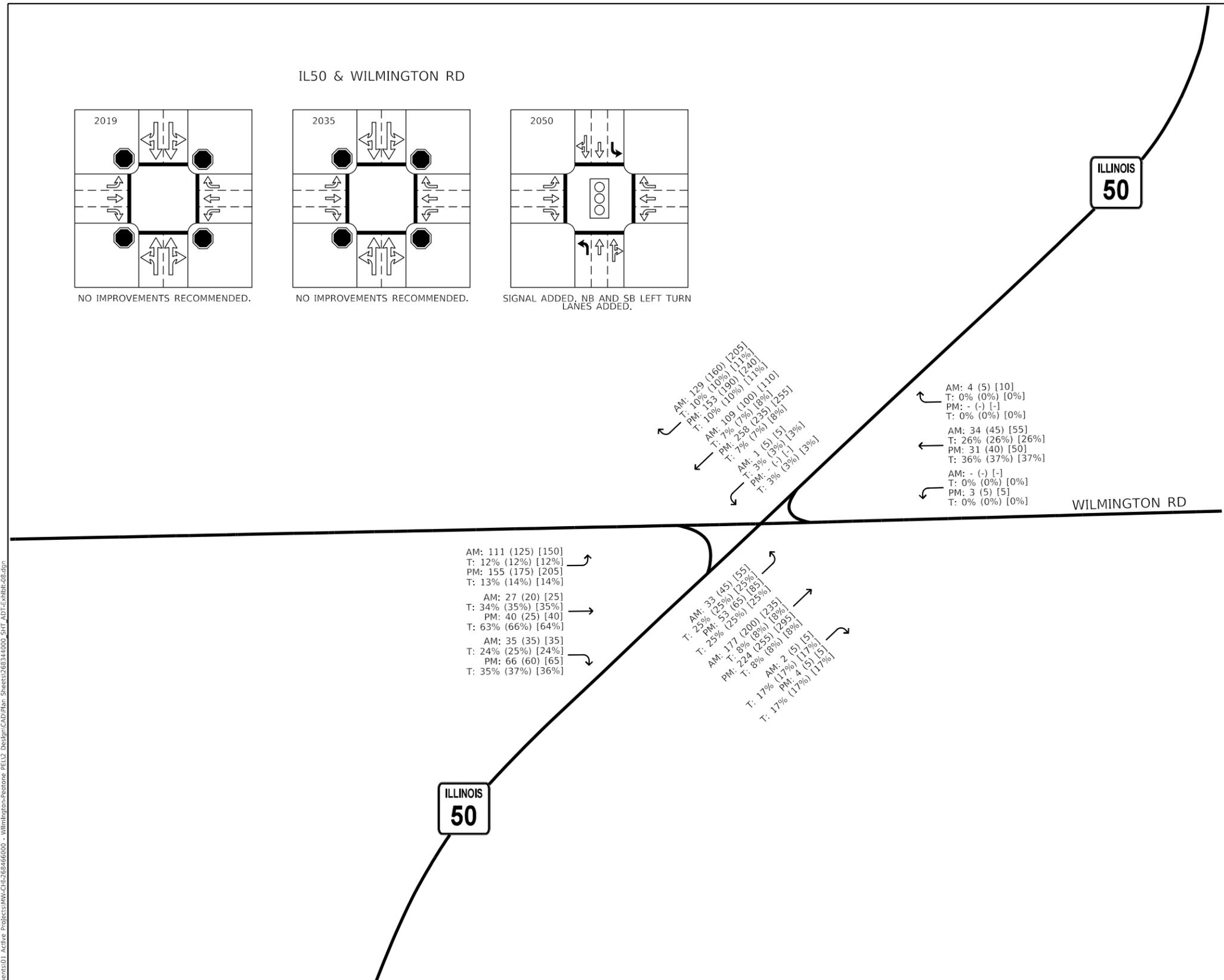
NO IMPROVEMENTS RECOMMENDED.



NO IMPROVEMENTS RECOMMENDED.



SIGNAL ADDED, NB AND SB LEFT TURN LANES ADDED.



LEGEND

| | |
|------|------------------------|
| XX | 2019 PEAK HOUR TRAFFIC |
| (XX) | 2035 PEAK HOUR TRAFFIC |
| [XX] | 2050 PEAK HOUR TRAFFIC |
| AM | A.M. PEAK HOUR |
| PM | P.M. PEAK HOUR |
| T | PERCENT TRUCKS |

MODEL: Default
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| | | |
|------------------------------|------------|-----------|
| USER NAME = daniel.carberry | DESIGNED - | REVISED - |
| PLOT SCALE = 400,0000' / in. | DRAWN - | REVISED - |
| PLOT DATE = 7/23/2024 | CHECKED - | REVISED - |
| | DATE - | REVISED - |

**WILL COUNTY
DIVISION OF TRANSPORTATION**

**ADT EXHIBIT
WILMINGTON RD & IL-50**

SCALE: NTS SHEET 8 OF 8 SHEETS STA. TO STA.

| F.A.U. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---------------------------|----------------|--------|--------------|-----------|
| 2262 | 21-00540-00-5P | WILL | 8 | 8 |
| CONTRACT NO. | | | | |
| ILLINOIS FED. AID PROJECT | | | | |

Appendix B

Signal Warrant Analysis Summary

RESTRICTIONS for STRATEGIC REGIONAL ARTERIAL ROUTES

- MUTCD 2009 Traffic Signal Warrants #1 (Condition A/B only - Combination of Warrants), #2, and #3 will be deleted for Strategic Regional Arterial (SRA) routes.
 - Warrant 1 (Condition A/B-Combination of Warrants) allows a traffic signal where Warrant 1 (Condition A) and Warrant 1 (Condition B) have at least 80 percent of the stated major and minor street values for the same eight hours of a typical day.
 - Warrant 2 allows a traffic signal where the four-hour vehicular volume requirements are met.
 - Warrant 3 allows a traffic signal where the peak hour volume requirement is met.
- The 70 percent factor (70% columns in Table 4C-1 of 2009 MUTCD) shall not be applied for locations where vehicle speed limits or 85th-percentile speeds exceed 40 mph or for intersections that lie within an isolated community along an SRA route.
- The minimum minor street volumes for Warrant #1 (Condition B only) shall be increased from 75 vehicles per hour to 100 for a single-lane minor approach and from 100 vehicles per hour to 150 for a two or more lane minor approach along an SRA route. The corresponding 80% volumes for Warrant #7 are also increased accordingly, from 60 to 80 vehicles per hour for a single-lane minor approach and from 80 to 120 vehicles per hour for a two or more lane minor approach along an SRA route.
- New signal installations along SRA routes shall be spaced no less than approximately one-half mile apart on rural SRA routes, no less than approximately one-quarter mile apart (1,320 feet) on suburban SRA routes, and no less than approximately 1,000 feet apart on urban SRA routes. These spacing may be reduced to no less than 1000 feet on urban and suburban SRA routes and no less than one-quarter mile on rural SRA routes where it can be shown that it will not adversely affect signal progression. However, at no time should the spacing be less than 1,000 feet on urban and suburban SRA routes or one-quarter mile on rural SRA routes.

| Year | Intersection | | | Warrant 1 - 8-hour Volume | | | Warrant 2 | Warrant 3 - Peak Hour | | Warrant 4 | Warrant 5 | Warrant 6 | Warrant 7 | Warrant 8 | Warrant 9 | |
|------|--------------|---------------|------------------|---------------------------|----------|----------|---------------|-----------------------|----------|---------------------|-----------------|---------------------|------------------|-----------------|----------------|-----|
| | # | Major Street | Minor Street | 1A | 1B | 1A & 1B | 4-hour Volume | 3A | 3B | Pedestrian Crossing | School Crossing | Coordinated Signals | Crash Experience | Roadway Network | Grade Crossing | |
| 2023 | 1 | I-55 SB Ramps | River Rd | No | No | No | No | No | No | N/A | N/A | N/A | N/A | N/A | N/A | |
| | 2 | I-55 NB Ramps | River Rd | No | No | No | No | No | No | N/A | N/A | N/A | N/A | N/A | N/A | |
| | 5 | Peotone Rd | Old Chicago Rd | No | No | No | No | No | No | N/A | N/A | N/A | N/A | N/A | N/A | |
| | 6 | Peotone Rd | Warner Bridge Rd | No | No | No | No | No | No | N/A | N/A | N/A | N/A | N/A | N/A | |
| | 7 | Wilmington Rd | Cedar Rd | No | No | No | No | No | No | N/A | N/A | N/A | N/A | N/A | N/A | |
| | 8 | US 52 | Wilmington Rd | Yes | No | Yes | Yes | No | Yes | N/A | N/A | N/A | N/A | N/A | N/A | |
| | 9 | Wilmington Rd | I-57 SB Ramps | Yes | No | Yes | Yes | No | Yes | N/A | N/A | N/A | N/A | N/A | N/A | |
| | 10 | Wilmington Rd | I-57 NB Ramps | No | No | No | No | No | No | N/A | N/A | N/A | N/A | N/A | N/A | |
| | 11 | IL 50 | Wilmington Rd | No | No | No | No | No | No | N/A | N/A | N/A | N/A | N/A | N/A | |
| | 2035 | 1 | I-55 SB Ramps | River Rd | No | No | No | No | No | No | N/A | N/A | N/A | N/A | N/A | N/A |
| | | 2 | I-55 NB Ramps | River Rd | No | No | No | No | No | Yes | N/A | N/A | N/A | N/A | N/A | N/A |
| 5 | | Peotone Rd | Old Chicago Rd | No | No | No | Yes | No | No | N/A | N/A | N/A | N/A | N/A | N/A | |
| 6 | | Peotone Rd | Warner Bridge Rd | No | No | No | No | No | No | N/A | N/A | N/A | N/A | N/A | N/A | |
| 7 | | Wilmington Rd | Cedar Rd | No | Yes | No | Yes | No | Yes | N/A | N/A | N/A | N/A | N/A | N/A | |
| 8 | | US 52 | Wilmington Rd | Met 2023 | | Met 2023 | Met 2023 | | Met 2023 | N/A | N/A | N/A | N/A | N/A | N/A | |
| 9 | | Wilmington Rd | I-57 SB Ramps | Met 2023 | | Met 2023 | Met 2023 | | Met 2023 | N/A | N/A | N/A | N/A | N/A | N/A | |
| 10 | | Wilmington Rd | I-57 NB Ramps | Yes | Yes | Yes | Yes | No | Yes | N/A | N/A | N/A | N/A | N/A | N/A | |
| 11 | | IL 50 | Wilmington Rd | No | No | No | No | No | No | N/A | N/A | N/A | N/A | N/A | N/A | |
| 2050 | | 1 | I-55 SB Ramps | River Rd | No | No | No | No | No | No | N/A | N/A | N/A | N/A | N/A | N/A |
| | | 2 | I-55 NB Ramps | River Rd | | | | | | Met 2035 | N/A | N/A | N/A | N/A | N/A | N/A |
| | 5 | Peotone Rd | Old Chicago Rd | | | | Met 2035 | | | N/A | N/A | N/A | N/A | N/A | N/A | |
| | 6 | Peotone Rd | Warner Bridge Rd | No | No | No | No | No | No | N/A | N/A | N/A | N/A | N/A | N/A | |
| | 7 | Wilmington Rd | Cedar Rd | | Met 2035 | | Met 2035 | | Met 2035 | N/A | N/A | N/A | N/A | N/A | N/A | |
| | 8 | US 52 | Wilmington Rd | Met 2023 | | Met 2023 | Met 2023 | | Met 2023 | N/A | N/A | N/A | N/A | N/A | N/A | |
| | 9 | Wilmington Rd | I-57 SB Ramps | Met 2023 | | Met 2023 | Met 2023 | | Met 2023 | N/A | N/A | N/A | N/A | N/A | N/A | |
| | 10 | Wilmington Rd | I-57 NB Ramps | Met 2035 | | Met 2035 | Met 2035 | | Met 2035 | N/A | N/A | N/A | N/A | N/A | N/A | |
| | 11 | IL 50 | Wilmington Rd | No | No | No | No | No | Yes | N/A | N/A | N/A | N/A | N/A | N/A | |

HCS7 Warrants Report

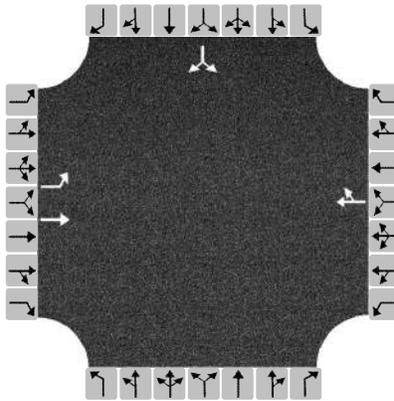
Project Information

| | | | |
|---------------------|--------------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Existing - River-I-55 SB Ramps | | |

General

| | | | |
|---------------------------|-------------|------------------------------------|-----|
| Major Street Direction | North-South | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Divided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 40 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|----|---|-----------|----|----|------------|---|---|------------|----|----|
| Movement | L | T | R | L | T | R | L | T | R | L | T | R |
| Number of Lanes, N | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Usage | L | T | | | TR | | | | | | LR | |
| Vehicle Volumes Averages (veh/h) | 2 | 13 | 0 | 0 | 15 | 63 | 0 | 0 | 0 | 274 | 0 | 11 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 20 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|---------|--------------|--------------|--------------|--------|--------|----------|----------|----------|----------|---------|----------|----------|----------|----------|
| 07 - 08 | 277 | 78 | 361 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 08 - 09 | 234 | 70 | 320 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 09 - 10 | 281 | 63 | 351 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 10 - 11 | 225 | 81 | 321 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 11 - 12 | 240 | 71 | 321 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 12 - 13 | 233 | 55 | 299 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 13 - 14 | 251 | 58 | 325 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 14 - 15 | 279 | 70 | 361 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 15 - 16 | 339 | 129 | 495 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 16 - 17 | 417 | 127 | 567 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 17 - 18 | 379 | 87 | 491 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 18 - 19 | 279 | 65 | 362 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| Total | 3434 | 954 | 4574 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--

B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--

56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)

Warrant 2: Four-Hour Vehicular Volume

Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)

Warrant 3: Peak Hour

A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--

B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)

Warrant 4: Pedestrian Volume

A. Four Hour Volumes --or--

B. One-Hour Volumes

Warrant 5: School Crossing

Gaps Same Period --and--

Student Volumes

Nearest Traffic Control Signal (optional)

Warrant 6: Coordinated Signal System

Degree of Platooning (Predominant direction or both directions)

Warrant 7: Crash Experience

A. Adequate trials of alternatives, observance and enforcement failed --and--

B. Reported crashes susceptible to correction by signal (12-month period) --and--

C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied

Warrant 8: Roadway Network

A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--

B. Weekend Volume (Five hours total)

Warrant 9: Grade Crossing

A. Grade Crossing within 140 ft --and--

B. Peak-Hour Vehicular Volumes

HCS7 Warrants Report

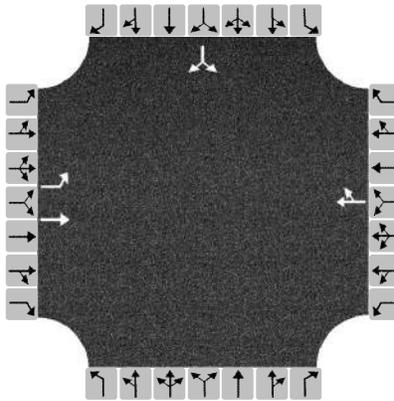
Project Information

| | | | |
|---------------------|--------------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Existing - River-I-55 NB Ramps | | |

General

| | | | |
|---------------------------|-----------|------------------------------------|-----|
| Major Street Direction | East-West | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Divided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 55 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|-----|---|-----------|----|-----|------------|---|---|------------|----|---|
| Movement | L | T | R | L | T | R | L | T | R | L | T | R |
| Number of Lanes, N | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Usage | L | T | | | TR | | | | | | LR | |
| Vehicle Volumes Averages (veh/h) | 7 | 277 | 0 | 0 | 72 | 190 | 0 | 0 | 0 | 76 | 0 | 8 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 21 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|---------|--------------|--------------|--------------|--------|--------|----------|----------|----------|----------|---------|----------|----------|----------|----------|
| 07 - 08 | 645 | 55 | 700 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 08 - 09 | 562 | 51 | 613 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 09 - 10 | 542 | 57 | 599 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 10 - 11 | 475 | 44 | 519 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 11 - 12 | 449 | 66 | 515 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 12 - 13 | 451 | 60 | 511 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 13 - 14 | 433 | 72 | 505 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 14 - 15 | 433 | 93 | 526 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 15 - 16 | 513 | 172 | 685 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | No | No | No |
| 16 - 17 | 692 | 202 | 894 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No |
| 17 - 18 | 772 | 77 | 849 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 18 - 19 | 609 | 69 | 678 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| Total | 6576 | 1018 | 7594 | 0 | 0 | 2 | 3 | 3 | 7 | 2 | 0 | 0 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--

B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--

56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)

Warrant 2: Four-Hour Vehicular Volume

Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)

Warrant 3: Peak Hour

A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--

B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)

Warrant 4: Pedestrian Volume

A. Four Hour Volumes --or--

B. One-Hour Volumes

Warrant 5: School Crossing

Gaps Same Period --and--

Student Volumes

Nearest Traffic Control Signal (optional)

Warrant 6: Coordinated Signal System

Degree of Platooning (Predominant direction or both directions)

Warrant 7: Crash Experience

A. Adequate trials of alternatives, observance and enforcement failed --and--

B. Reported crashes susceptible to correction by signal (12-month period) --and--

C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied

Warrant 8: Roadway Network

A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--

B. Weekend Volume (Five hours total)

Warrant 9: Grade Crossing

A. Grade Crossing within 140 ft --and--

B. Peak-Hour Vehicular Volumes

HCS7 Warrants Report

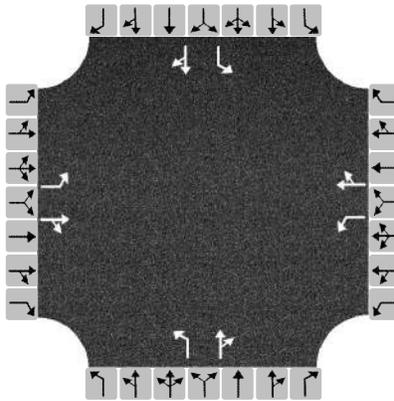
Project Information

| | | | |
|---------------------|--------------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Existing - Peotone-Old Chicago | | |

General

| | | | |
|---------------------------|-----------|------------------------------------|-----|
| Major Street Direction | East-West | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Undivided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 55 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|-----|----|-----------|-----|----|------------|----|---|------------|----|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Movement | L | T | R | L | T | R | L | T | R | L | T | R |
| Number of Lanes, N | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| Lane Usage | L | TR | | L | TR | | L | TR | | L | TR | |
| Vehicle Volumes Averages (veh/h) | 0 | 217 | 68 | 6 | 181 | 22 | 48 | 11 | 6 | 23 | 9 | 1 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 19 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|--------------|--------------|--------------|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 07 - 08 | 483 | 146 | 639 | 0 | 0 | Yes | Yes | No |
| 08 - 09 | 439 | 101 | 559 | 0 | 0 | No |
| 09 - 10 | 411 | 52 | 479 | 0 | 0 | No |
| 10 - 11 | 416 | 58 | 496 | 0 | 0 | No |
| 11 - 12 | 352 | 35 | 415 | 0 | 0 | No |
| 12 - 13 | 443 | 34 | 502 | 0 | 0 | No |
| 13 - 14 | 414 | 31 | 473 | 0 | 0 | No |
| 14 - 15 | 476 | 65 | 565 | 0 | 0 | No |
| 15 - 16 | 608 | 55 | 706 | 0 | 0 | No |
| 16 - 17 | 735 | 116 | 917 | 0 | 0 | No | Yes | Yes | Yes | No | No | No | No | No |
| 17 - 18 | 634 | 75 | 760 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 18 - 19 | 562 | 78 | 663 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| Total | 5973 | 846 | 7174 | 0 | 0 | 1 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--

B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--

56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)

Warrant 2: Four-Hour Vehicular Volume

Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)

Warrant 3: Peak Hour

A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--

B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)

Warrant 4: Pedestrian Volume

A. Four Hour Volumes --or--

B. One-Hour Volumes

Warrant 5: School Crossing

Gaps Same Period --and--

Student Volumes

Nearest Traffic Control Signal (optional)

Warrant 6: Coordinated Signal System

Degree of Platooning (Predominant direction or both directions)

Warrant 7: Crash Experience

A. Adequate trials of alternatives, observance and enforcement failed --and--

B. Reported crashes susceptible to correction by signal (12-month period) --and--

C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied

Warrant 8: Roadway Network

A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--

B. Weekend Volume (Five hours total)

Warrant 9: Grade Crossing

A. Grade Crossing within 140 ft --and--

B. Peak-Hour Vehicular Volumes

HCS7 Warrants Report

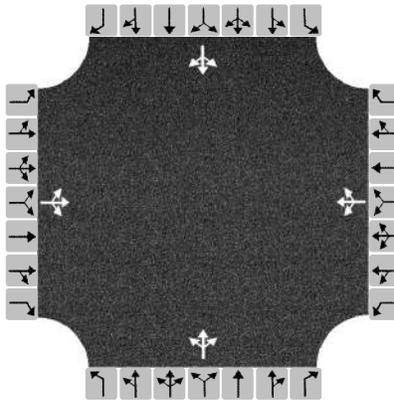
Project Information

| | | | |
|---------------------|----------------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Existing - Peotone-Warner Bridge | | |

General

| | | | |
|---------------------------|-----------|------------------------------------|-----|
| Major Street Direction | East-West | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Undivided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 55 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|-----|---|-----------|-----|---|------------|-----|---|------------|-----|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Movement | | | | | | | | | | | | |
| Number of Lanes, N | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Lane Usage | | LTR | | | LTR | | | LTR | | | LTR | |
| Vehicle Volumes Averages (veh/h) | 0 | 238 | 2 | 1 | 202 | 0 | 2 | 0 | 1 | 0 | 0 | 0 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 23 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|---------|--------------|--------------|--------------|--------|--------|----------|----------|----------|----------|---------|----------|----------|----------|----------|
| 07 - 08 | 434 | 2 | 438 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 08 - 09 | 406 | 3 | 409 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 09 - 10 | 367 | 9 | 376 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 10 - 11 | 370 | 10 | 382 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 11 - 12 | 342 | 1 | 343 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 12 - 13 | 397 | 6 | 404 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 13 - 14 | 384 | 5 | 391 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 14 - 15 | 432 | 3 | 436 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 15 - 16 | 548 | 7 | 557 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 16 - 17 | 674 | 3 | 677 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 17 - 18 | 533 | 5 | 539 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 18 - 19 | 451 | 4 | 455 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| Total | 5338 | 58 | 5407 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--

B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--

56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)

Warrant 2: Four-Hour Vehicular Volume

Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)

Warrant 3: Peak Hour

A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--

B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)

Warrant 4: Pedestrian Volume

A. Four Hour Volumes --or--

B. One-Hour Volumes

Warrant 5: School Crossing

Gaps Same Period --and--

Student Volumes

Nearest Traffic Control Signal (optional)

Warrant 6: Coordinated Signal System

Degree of Platooning (Predominant direction or both directions)

Warrant 7: Crash Experience

A. Adequate trials of alternatives, observance and enforcement failed --and--

B. Reported crashes susceptible to correction by signal (12-month period) --and--

C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied

Warrant 8: Roadway Network

A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--

B. Weekend Volume (Five hours total)

Warrant 9: Grade Crossing

A. Grade Crossing within 140 ft --and--

B. Peak-Hour Vehicular Volumes

HCS7 Warrants Report

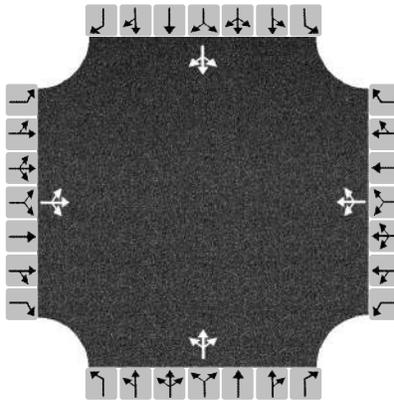
Project Information

| | | | |
|---------------------|-----------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Existing - Wilmington-Cedar | | |

General

| | | | |
|---------------------------|-----------|------------------------------------|-----|
| Major Street Direction | East-West | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Undivided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 55 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|-----|---|-----------|-----|----|------------|-----|---|------------|-----|----|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Movement | | | | | | | | | | | | |
| Number of Lanes, N | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Lane Usage | | LTR | | | LTR | | | LTR | | | LTR | |
| Vehicle Volumes Averages (veh/h) | 48 | 217 | 0 | 1 | 184 | 18 | 0 | 2 | 1 | 23 | 2 | 48 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 21 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|--------------|--------------|--------------|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 07 - 08 | 455 | 33 | 491 | 0 | 0 | No |
| 08 - 09 | 447 | 72 | 524 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 09 - 10 | 417 | 59 | 481 | 0 | 0 | No |
| 10 - 11 | 400 | 46 | 450 | 0 | 0 | No |
| 11 - 12 | 365 | 51 | 419 | 0 | 0 | No |
| 12 - 13 | 454 | 46 | 501 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 13 - 14 | 393 | 68 | 466 | 0 | 0 | No |
| 14 - 15 | 470 | 53 | 528 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 15 - 16 | 578 | 77 | 660 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 16 - 17 | 702 | 113 | 817 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No |
| 17 - 18 | 518 | 141 | 661 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | No | No | No |
| 18 - 19 | 437 | 130 | 576 | 0 | 0 | Yes | Yes | No | Yes | No | No | No | No | No |
| Total | 5636 | 889 | 6574 | 0 | 0 | 3 | 3 | 2 | 7 | 2 | 0 | 0 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--

B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--

56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)

Warrant 2: Four-Hour Vehicular Volume

Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)

Warrant 3: Peak Hour

A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--

B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)

Warrant 4: Pedestrian Volume

A. Four Hour Volumes --or--

B. One-Hour Volumes

Warrant 5: School Crossing

Gaps Same Period --and--

Student Volumes

Nearest Traffic Control Signal (optional)

Warrant 6: Coordinated Signal System

Degree of Platooning (Predominant direction or both directions)

Warrant 7: Crash Experience

A. Adequate trials of alternatives, observance and enforcement failed --and--

B. Reported crashes susceptible to correction by signal (12-month period) --and--

C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied

Warrant 8: Roadway Network

A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--

B. Weekend Volume (Five hours total)

Warrant 9: Grade Crossing

A. Grade Crossing within 140 ft --and--

B. Peak-Hour Vehicular Volumes

HCS7 Warrants Report

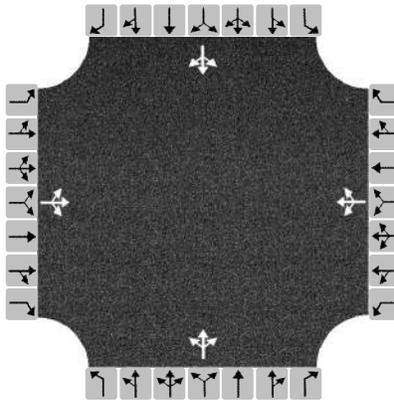
Project Information

| | | | |
|---------------------|-----------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Existing - Wilmington-US 52 | | |

General

| | | | |
|---------------------------|-------------|------------------------------------|-----|
| Major Street Direction | North-South | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Undivided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 55 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|-----|----|-----------|-----|----|------------|-----|---|------------|-----|----|
| Movement | L | T | R | L | T | R | L | T | R | L | T | R |
| Number of Lanes, N | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Lane Usage | | LTR | | | LTR | | | LTR | | | LTR | |
| Vehicle Volumes Averages (veh/h) | 19 | 154 | 58 | 9 | 140 | 19 | 44 | 192 | 7 | 18 | 202 | 15 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 16 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|--------------|--------------|--------------|--------------|----------|----------|-----------|-----------|----------|----------|-----------|----------|----------|----------|----------|
| 07 - 08 | 469 | 193 | 837 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | No | No | No |
| 08 - 09 | 523 | 206 | 895 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | No | No | No |
| 09 - 10 | 402 | 186 | 753 | 0 | 0 | Yes | Yes | No | No | Yes | No | No | No | No |
| 10 - 11 | 396 | 166 | 720 | 0 | 0 | Yes | Yes | No | No | Yes | No | No | No | No |
| 11 - 12 | 386 | 162 | 707 | 0 | 0 | Yes | Yes | No | No | No | No | No | No | No |
| 12 - 13 | 418 | 235 | 825 | 0 | 0 | Yes | Yes | No | No | Yes | No | No | No | No |
| 13 - 14 | 442 | 216 | 808 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | No | No | No |
| 14 - 15 | 447 | 247 | 853 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | Yes | No | No |
| 15 - 16 | 493 | 312 | 986 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | Yes | No | No |
| 16 - 17 | 592 | 400 | 1159 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | Yes | No | No |
| 17 - 18 | 649 | 259 | 1102 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | Yes | No | No |
| 18 - 19 | 569 | 215 | 965 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | Yes | No | No |
| Total | 5786 | 2797 | 10610 | 0 | 0 | 12 | 12 | 3 | 8 | 11 | 0 | 5 | 0 | 0 |

Warrants

| | |
|--|---|
| <i>Warrant 1: Eight-Hour Vehicular Volume</i> | ✓ |
| A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or-- | ✓ |
| B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or-- | |
| 56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach) | ✓ |
| <i>Warrant 2: Four-Hour Vehicular Volume</i> | ✓ |
| Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach) | ✓ |
| <i>Warrant 3: Peak Hour</i> | ✓ |
| A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or-- | |
| B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach) | ✓ |
| <i>Warrant 4: Pedestrian Volume</i> | |
| A. Four Hour Volumes --or-- | |
| B. One-Hour Volumes | |
| <i>Warrant 5: School Crossing</i> | |
| Gaps Same Period --and-- | |
| Student Volumes | |
| Nearest Traffic Control Signal (optional) | |
| <i>Warrant 6: Coordinated Signal System</i> | |
| Degree of Platooning (Predominant direction or both directions) | |
| <i>Warrant 7: Crash Experience</i> | |
| A. Adequate trials of alternatives, observance and enforcement failed --and-- | |
| B. Reported crashes susceptible to correction by signal (12-month period) --and-- | |
| C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied | ✓ |
| <i>Warrant 8: Roadway Network</i> | |
| A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or-- | |
| B. Weekend Volume (Five hours total) | |
| <i>Warrant 9: Grade Crossing</i> | |
| A. Grade Crossing within 140 ft --and-- | |
| B. Peak-Hour Vehicular Volumes | |

HCS7 Warrants Report

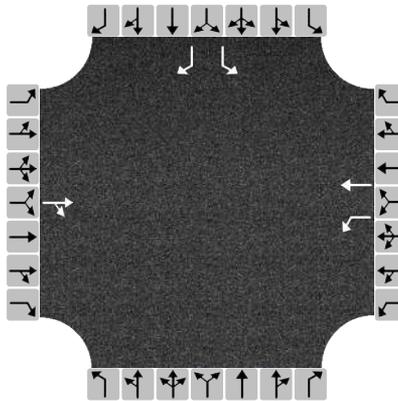
Project Information

| | | | |
|---------------------|-------------------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Existing - Wilmington-I-57 SB Ramps | | |

General

| | | | |
|---------------------------|-----------|------------------------------------|-----|
| Major Street Direction | East-West | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Undivided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 45 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|-----|----|-----------|-----|----|------------|-----|---|------------|---|----|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Movement | | | | | | | | | | | | |
| Number of Lanes, N | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Lane Usage | | TR | | L | T | | | | | L | | R |
| Vehicle Volumes Averages (veh/h) | 19 | 190 | 50 | 91 | 162 | 19 | 40 | 173 | 7 | 85 | 0 | 67 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 16 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|---------|--------------|--------------|--------------|--------|--------|----------|----------|----------|----------|---------|----------|----------|----------|----------|
| 07 - 08 | 512 | 114 | 626 | 0 | 0 | No | Yes | No | Yes | No | No | No | No | No |
| 08 - 09 | 564 | 300 | 983 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | No | No | No |
| 09 - 10 | 452 | 230 | 826 | 0 | 0 | Yes | Yes | No | No | No | No | No | No | No |
| 10 - 11 | 444 | 200 | 792 | 0 | 0 | Yes | Yes | No | No | No | No | No | No | No |
| 11 - 12 | 476 | 198 | 790 | 0 | 0 | Yes | Yes | No | No | No | No | No | No | No |
| 12 - 13 | 495 | 223 | 859 | 0 | 0 | Yes | Yes | No | No | No | No | No | No | No |
| 13 - 14 | 469 | 238 | 842 | 0 | 0 | Yes | Yes | No | No | No | No | No | No | No |
| 14 - 15 | 456 | 233 | 851 | 0 | 0 | Yes | Yes | No | No | No | No | No | No | No |
| 15 - 16 | 592 | 229 | 1010 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | No | No | No |
| 16 - 17 | 709 | 282 | 1175 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | Yes | No | No |
| 17 - 18 | 703 | 259 | 1188 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | Yes | No | No |
| 18 - 19 | 539 | 257 | 959 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | No | No | No |
| Total | 6411 | 2763 | 10901 | 0 | 0 | 11 | 12 | 2 | 6 | 5 | 0 | 2 | 0 | 0 |

Warrants

| | |
|--|---|
| Warrant 1: Eight-Hour Vehicular Volume | ✓ |
| A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or-- | ✓ |
| B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or-- | |
| 56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach) | |
| Warrant 2: Four-Hour Vehicular Volume | ✓ |
| Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach) | ✓ |
| Warrant 3: Peak Hour | ✓ |
| A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or-- | |
| B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach) | ✓ |
| Warrant 4: Pedestrian Volume | |
| A. Four Hour Volumes --or-- | |
| B. One-Hour Volumes | |
| Warrant 5: School Crossing | |
| Gaps Same Period --and-- | |
| Student Volumes | |
| Nearest Traffic Control Signal (optional) | |
| Warrant 6: Coordinated Signal System | |
| Degree of Platooning (Predominant direction or both directions) | |
| Warrant 7: Crash Experience | |
| A. Adequate trials of alternatives, observance and enforcement failed --and-- | |
| B. Reported crashes susceptible to correction by signal (12-month period) --and-- | |
| C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied | ✓ |
| Warrant 8: Roadway Network | |
| A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or-- | |
| B. Weekend Volume (Five hours total) | |
| Warrant 9: Grade Crossing | |
| A. Grade Crossing within 140 ft --and-- | |
| B. Peak-Hour Vehicular Volumes | |

HCS7 Warrants Report

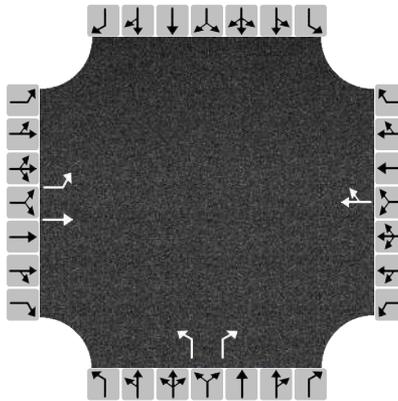
Project Information

| | | | |
|---------------------|-------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Existing Wilmington-I57 | | |

General

| | | | |
|---------------------------|-----------|------------------------------------|----|
| Major Street Direction | East-West | Population < 10,000 | No |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Undivided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 45 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|-----|---|-----------|-----|----|------------|---|----|------------|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Movement | | | | | | | | | | | | |
| Number of Lanes, N | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Lane Usage | L | T | | | TR | | L | | R | | | |
| Vehicle Volumes Averages (veh/h) | 81 | 190 | 0 | 0 | 199 | 86 | 53 | 1 | 80 | 0 | 0 | 0 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 14 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|---------|--------------|--------------|--------------|--------|--------|----------|----------|----------|----------|---------|----------|----------|----------|----------|
| 07 - 08 | 528 | 128 | 656 | 0 | 0 | No | Yes | No | Yes | No | No | No | No | No |
| 08 - 09 | 568 | 174 | 742 | 0 | 0 | Yes | Yes | No | Yes | No | No | No | No | No |
| 09 - 10 | 467 | 136 | 603 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 10 - 11 | 484 | 123 | 607 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 11 - 12 | 499 | 86 | 585 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 12 - 13 | 474 | 118 | 592 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 13 - 14 | 505 | 114 | 619 | 0 | 0 | No | Yes | No | Yes | No | No | No | No | No |
| 14 - 15 | 478 | 115 | 593 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 15 - 16 | 598 | 142 | 740 | 0 | 0 | Yes | Yes | No | Yes | No | No | No | No | No |
| 16 - 17 | 706 | 183 | 889 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No |
| 17 - 18 | 781 | 152 | 933 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No |
| 18 - 19 | 595 | 148 | 743 | 0 | 0 | Yes | Yes | No | Yes | No | No | No | No | No |
| Total | 6683 | 1619 | 8302 | 0 | 0 | 5 | 11 | 2 | 7 | 2 | 0 | 0 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--

B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--

56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)

Warrant 2: Four-Hour Vehicular Volume

Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)

Warrant 3: Peak Hour

A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--

B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)

Warrant 4: Pedestrian Volume

A. Four Hour Volumes --or--

B. One-Hour Volumes

Warrant 5: School Crossing

Gaps Same Period --and--

Student Volumes

Nearest Traffic Control Signal (optional)

Warrant 6: Coordinated Signal System

Degree of Platooning (Predominant direction or both directions)

Warrant 7: Crash Experience

A. Adequate trials of alternatives, observance and enforcement failed --and--

B. Reported crashes susceptible to correction by signal (12-month period) --and--

C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied



Warrant 8: Roadway Network

A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--

B. Weekend Volume (Five hours total)

Warrant 9: Grade Crossing

A. Grade Crossing within 140 ft --and--

B. Peak-Hour Vehicular Volumes

HCS7 Warrants Report

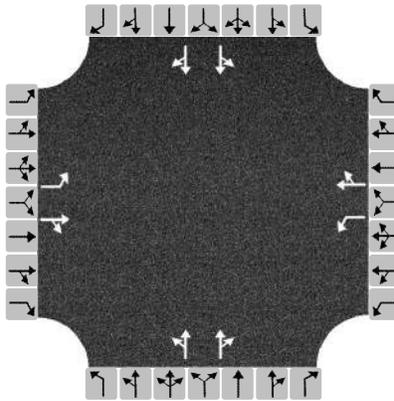
Project Information

| | | | |
|---------------------|--------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Existing_Wilmington-IL50 | | |

General

| | | | |
|---------------------------|-------------|------------------------------------|----|
| Major Street Direction | North-South | Population < 10,000 | No |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Undivided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 40 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 3250 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|----|----|-----------|----|---|------------|-----|---|------------|-----|-----|
| Movement | L | T | R | L | T | R | L | T | R | L | T | R |
| Number of Lanes, N | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 |
| Lane Usage | L | TR | | L | TR | | | LTR | | | LTR | |
| Vehicle Volumes Averages (veh/h) | 117 | 35 | 58 | 2 | 36 | 1 | 49 | 175 | 1 | 2 | 180 | 121 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 10 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (100%) | 1A (80%) | 1B (100%) | 1B (80%) | 2 (100%) | 3A (100%) | 3B (100%) | 4A (100%) | 4B (100%) |
|--------------|--------------|--------------|--------------|----------|----------|-----------|----------|-----------|----------|----------|-----------|-----------|-----------|-----------|
| 07 - 08 | 488 | 184 | 703 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 08 - 09 | 469 | 154 | 661 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 09 - 10 | 404 | 186 | 637 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 10 - 11 | 412 | 166 | 637 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 11 - 12 | 473 | 160 | 679 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 12 - 13 | 474 | 199 | 727 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 13 - 14 | 539 | 208 | 783 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 14 - 15 | 495 | 240 | 763 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 15 - 16 | 608 | 237 | 879 | 0 | 0 | Yes | Yes | No | No | No | No | No | No | No |
| 16 - 17 | 727 | 287 | 1049 | 0 | 0 | Yes | Yes | No | Yes | No | No | No | No | No |
| 17 - 18 | 749 | 293 | 1092 | 0 | 0 | Yes | Yes | No | Yes | No | No | No | No | No |
| 18 - 19 | 533 | 219 | 778 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| Total | 6371 | 2533 | 9388 | 0 | 0 | 3 | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--

B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--

80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)

Warrant 2: Four-Hour Vehicular Volume

Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)

Warrant 3: Peak Hour

A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--

B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)

Warrant 4: Pedestrian Volume

A. Four Hour Volumes --or--

B. One-Hour Volumes

Warrant 5: School Crossing

Gaps Same Period --and--

Student Volumes

Nearest Traffic Control Signal (optional)



Warrant 6: Coordinated Signal System

Degree of Platooning (Predominant direction or both directions)

Warrant 7: Crash Experience

A. Adequate trials of alternatives, observance and enforcement failed --and--

B. Reported crashes susceptible to correction by signal (12-month period) --and--

C. 80% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied

Warrant 8: Roadway Network

A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--

B. Weekend Volume (Five hours total)

Warrant 9: Grade Crossing

A. Grade Crossing within 140 ft --and--

B. Peak-Hour Vehicular Volumes

HCS7 Warrants Report

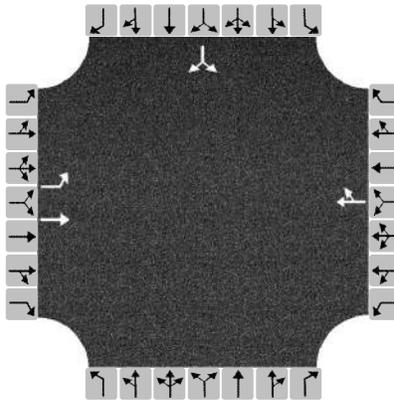
Project Information

| | | | |
|---------------------|----------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | 2035 - River-I-55 SB Ramps | | |

General

| | | | |
|---------------------------|-------------|------------------------------------|-----|
| Major Street Direction | North-South | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Divided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 40 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|----|---|-----------|----|----|------------|---|---|------------|----|----|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Movement | | | | | | | | | | | | |
| Number of Lanes, N | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Usage | L | T | | | TR | | | | | | LR | |
| Vehicle Volumes Averages (veh/h) | 2 | 14 | 0 | 0 | 18 | 77 | 0 | 0 | 0 | 291 | 0 | 12 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 20 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|---------|--------------|--------------|--------------|--------|--------|----------|----------|----------|----------|---------|----------|----------|----------|----------|
| 07 - 08 | 293 | 95 | 394 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 08 - 09 | 248 | 84 | 349 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 09 - 10 | 298 | 76 | 381 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 10 - 11 | 238 | 98 | 352 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 11 - 12 | 255 | 86 | 351 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 12 - 13 | 247 | 67 | 326 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 13 - 14 | 266 | 70 | 353 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 14 - 15 | 296 | 84 | 393 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 15 - 16 | 360 | 156 | 544 | 0 | 0 | Yes | Yes | No | No | No | No | No | No | No |
| 16 - 17 | 442 | 153 | 619 | 0 | 0 | Yes | Yes | No | Yes | No | No | No | No | No |
| 17 - 18 | 402 | 105 | 533 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 18 - 19 | 296 | 79 | 394 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| Total | 3641 | 1153 | 4989 | 0 | 0 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--

B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--

56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)

Warrant 2: Four-Hour Vehicular Volume

Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)

Warrant 3: Peak Hour

A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--

B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)

Warrant 4: Pedestrian Volume

A. Four Hour Volumes --or--

B. One-Hour Volumes

Warrant 5: School Crossing

Gaps Same Period --and--

Student Volumes

Nearest Traffic Control Signal (optional)

Warrant 6: Coordinated Signal System

Degree of Platooning (Predominant direction or both directions)

Warrant 7: Crash Experience

A. Adequate trials of alternatives, observance and enforcement failed --and--

B. Reported crashes susceptible to correction by signal (12-month period) --and--

C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied

Warrant 8: Roadway Network

A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--

B. Weekend Volume (Five hours total)

Warrant 9: Grade Crossing

A. Grade Crossing within 140 ft --and--

B. Peak-Hour Vehicular Volumes

HCS7 Warrants Report

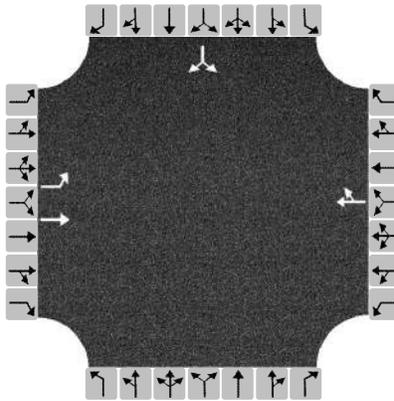
Project Information

| | | | |
|---------------------|----------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | 2035 - River-I-55 NB Ramps | | |

General

| | | | |
|---------------------------|-----------|------------------------------------|-----|
| Major Street Direction | East-West | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Divided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 55 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|-----|---|-----------|----|-----|------------|---|---|------------|----|----|
| Movement | L | T | R | L | T | R | L | T | R | L | T | R |
| Number of Lanes, N | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Usage | L | T | | | TR | | | | | | LR | |
| Vehicle Volumes Averages (veh/h) | 7 | 294 | 0 | 0 | 88 | 234 | 0 | 0 | 0 | 101 | 0 | 11 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 21 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|---------|--------------|--------------|--------------|--------|--------|----------|----------|----------|----------|---------|----------|----------|----------|----------|
| 07 - 08 | 750 | 74 | 824 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 08 - 09 | 649 | 68 | 717 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 09 - 10 | 623 | 76 | 699 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 10 - 11 | 548 | 58 | 606 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 11 - 12 | 510 | 87 | 597 | 0 | 0 | No | Yes | No | Yes | No | No | No | No | No |
| 12 - 13 | 511 | 80 | 591 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 13 - 14 | 493 | 96 | 589 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 14 - 15 | 486 | 124 | 610 | 0 | 0 | Yes | Yes | No | No | No | No | No | No | No |
| 15 - 16 | 580 | 229 | 809 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | No | No | No |
| 16 - 17 | 781 | 269 | 1050 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | Yes | No | No |
| 17 - 18 | 878 | 103 | 981 | 0 | 0 | No | Yes | Yes | Yes | Yes | No | No | No | No |
| 18 - 19 | 694 | 92 | 786 | 0 | 0 | No | Yes | Yes | Yes | No | No | No | No | No |
| Total | 7503 | 1356 | 8859 | 0 | 0 | 3 | 7 | 5 | 10 | 3 | 0 | 1 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

| | |
|--|--|
| A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or-- | |
| B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or-- | |
| 56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach) | |

Warrant 2: Four-Hour Vehicular Volume

| | |
|--|--|
| Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach) | |
|--|--|

Warrant 3: Peak Hour

| | |
|---|---|
| A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or-- | ✓ |
| B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach) | ✓ |

Warrant 4: Pedestrian Volume

| | |
|-----------------------------|--|
| A. Four Hour Volumes --or-- | |
| B. One-Hour Volumes | |

Warrant 5: School Crossing

| | |
|---|--|
| Gaps Same Period --and-- | |
| Student Volumes | |
| Nearest Traffic Control Signal (optional) | |

Warrant 6: Coordinated Signal System

| | |
|---|--|
| Degree of Platooning (Predominant direction or both directions) | |
|---|--|

Warrant 7: Crash Experience

| | |
|---|---|
| A. Adequate trials of alternatives, observance and enforcement failed --and-- | |
| B. Reported crashes susceptible to correction by signal (12-month period) --and-- | |
| C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied | ✓ |

Warrant 8: Roadway Network

| | |
|--|--|
| A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or-- | |
| B. Weekend Volume (Five hours total) | |

Warrant 9: Grade Crossing

| | |
|---|--|
| A. Grade Crossing within 140 ft --and-- | |
| B. Peak-Hour Vehicular Volumes | |

HCS7 Warrants Report

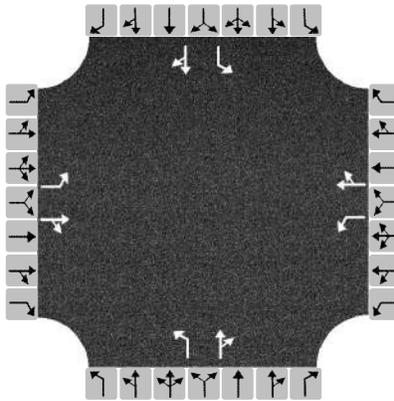
Project Information

| | | | |
|---------------------|---------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | 2035- Peotone-Old Chicago | | |

General

| | | | |
|---------------------------|-----------|------------------------------------|-----|
| Major Street Direction | East-West | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Undivided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 55 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|-----|----|-----------|-----|----|------------|----|----|------------|----|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Movement | L | T | R | L | T | R | L | T | R | L | T | R |
| Number of Lanes, N | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| Lane Usage | L | TR | | L | TR | | L | TR | | L | TR | |
| Vehicle Volumes Averages (veh/h) | 1 | 287 | 90 | 9 | 256 | 32 | 79 | 18 | 10 | 23 | 9 | 1 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 19 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|--------------|--------------|--------------|--------------|----------|----------|----------|----------|----------|-----------|----------|----------|----------|----------|----------|
| 07 - 08 | 660 | 239 | 909 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No |
| 08 - 09 | 598 | 166 | 783 | 0 | 0 | Yes | Yes | No | Yes | No | No | No | No | No |
| 09 - 10 | 561 | 86 | 663 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 10 - 11 | 569 | 95 | 686 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 11 - 12 | 479 | 57 | 564 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 12 - 13 | 604 | 56 | 685 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 13 - 14 | 561 | 50 | 639 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 14 - 15 | 644 | 107 | 775 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 15 - 16 | 822 | 91 | 956 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 16 - 17 | 990 | 113 | 1211 | 0 | 0 | No | Yes | Yes | Yes | Yes | No | No | No | No |
| 17 - 18 | 860 | 123 | 1034 | 0 | 0 | No | Yes | Yes | Yes | Yes | No | No | No | No |
| 18 - 19 | 764 | 127 | 914 | 0 | 0 | No | Yes | Yes | Yes | Yes | No | No | No | No |
| Total | 8112 | 1310 | 9819 | 0 | 0 | 2 | 5 | 6 | 10 | 4 | 0 | 0 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

| | |
|--|--|
| A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or-- | |
| B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or-- | |
| 56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach) | |

Warrant 2: Four-Hour Vehicular Volume

| | |
|--|---|
| Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach) | ✓ |
|--|---|

Warrant 3: Peak Hour

| | |
|---|--|
| A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or-- | |
| B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach) | |

Warrant 4: Pedestrian Volume

| | |
|-----------------------------|--|
| A. Four Hour Volumes --or-- | |
| B. One-Hour Volumes | |

Warrant 5: School Crossing

| | |
|---|--|
| Gaps Same Period --and-- | |
| Student Volumes | |
| Nearest Traffic Control Signal (optional) | |

Warrant 6: Coordinated Signal System

| | |
|---|--|
| Degree of Platooning (Predominant direction or both directions) | |
|---|--|

Warrant 7: Crash Experience

| | |
|---|---|
| A. Adequate trials of alternatives, observance and enforcement failed --and-- | |
| B. Reported crashes susceptible to correction by signal (12-month period) --and-- | |
| C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied | ✓ |

Warrant 8: Roadway Network

| | |
|--|--|
| A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or-- | |
| B. Weekend Volume (Five hours total) | |

Warrant 9: Grade Crossing

| | |
|---|--|
| A. Grade Crossing within 140 ft --and-- | |
| B. Peak-Hour Vehicular Volumes | |

HCS7 Warrants Report

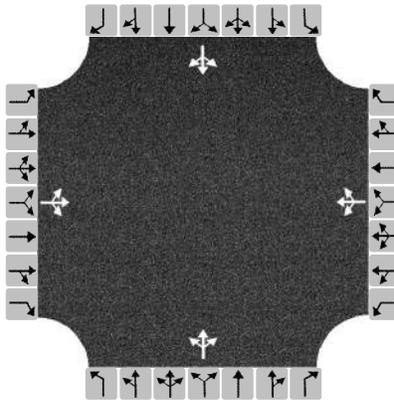
Project Information

| | | | |
|---------------------|------------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | 2035 - Peotone-Warner Bridge | | |

General

| | | | |
|---------------------------|-----------|------------------------------------|-----|
| Major Street Direction | East-West | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Undivided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 55 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|-----|---|-----------|-----|---|------------|-----|---|------------|-----|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Movement | | | | | | | | | | | | |
| Number of Lanes, N | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Lane Usage | | LTR | | | LTR | | | LTR | | | LTR | |
| Vehicle Volumes Averages (veh/h) | 0 | 322 | 2 | 1 | 285 | 1 | 3 | 0 | 2 | 0 | 0 | 0 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 23 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|---------|--------------|--------------|--------------|--------|--------|----------|----------|----------|----------|---------|----------|----------|----------|----------|
| 07 - 08 | 603 | 2 | 606 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 08 - 09 | 562 | 4 | 566 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 09 - 10 | 509 | 12 | 521 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 10 - 11 | 512 | 14 | 528 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 11 - 12 | 473 | 1 | 474 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 12 - 13 | 547 | 8 | 556 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 13 - 14 | 530 | 7 | 539 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 14 - 15 | 596 | 4 | 601 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 15 - 16 | 736 | 10 | 748 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 16 - 17 | 925 | 4 | 929 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 17 - 18 | 738 | 3 | 742 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 18 - 19 | 625 | 6 | 631 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| Total | 7356 | 75 | 7441 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--

B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--

56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)

Warrant 2: Four-Hour Vehicular Volume

Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)

Warrant 3: Peak Hour

A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--

B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)

Warrant 4: Pedestrian Volume

A. Four Hour Volumes --or--

B. One-Hour Volumes

Warrant 5: School Crossing

Gaps Same Period --and--

Student Volumes

Nearest Traffic Control Signal (optional)

Warrant 6: Coordinated Signal System

Degree of Platooning (Predominant direction or both directions)

Warrant 7: Crash Experience

A. Adequate trials of alternatives, observance and enforcement failed --and--

B. Reported crashes susceptible to correction by signal (12-month period) --and--

C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied

Warrant 8: Roadway Network

A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--

B. Weekend Volume (Five hours total)

Warrant 9: Grade Crossing

A. Grade Crossing within 140 ft --and--

B. Peak-Hour Vehicular Volumes

HCS7 Warrants Report

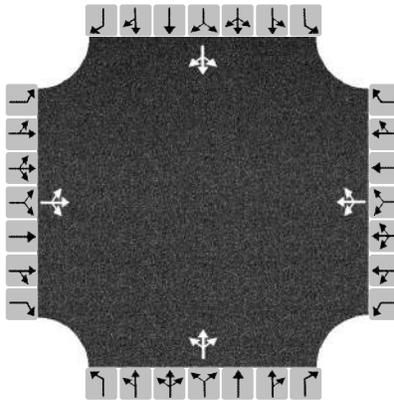
Project Information

| | | | |
|---------------------|-------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | 2035 - Wilmington-Cedar | | |

General

| | | | |
|---------------------------|-----------|------------------------------------|-----|
| Major Street Direction | East-West | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Undivided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 55 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|-----|---|-----------|-----|----|------------|-----|---|------------|-----|----|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Movement | | | | | | | | | | | | |
| Number of Lanes, N | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Lane Usage | | LTR | | | LTR | | | LTR | | | LTR | |
| Vehicle Volumes Averages (veh/h) | 58 | 265 | 0 | 1 | 244 | 24 | 1 | 2 | 1 | 34 | 3 | 72 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 21 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|---------|--------------|--------------|--------------|--------|--------|----------|----------|----------|----------|---------|----------|----------|----------|----------|
| 07 - 08 | 576 | 48 | 628 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 08 - 09 | 567 | 107 | 680 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No |
| 09 - 10 | 532 | 87 | 625 | 0 | 0 | No | Yes | Yes | Yes | No | No | No | No | No |
| 10 - 11 | 511 | 68 | 584 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 11 - 12 | 463 | 75 | 541 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 12 - 13 | 575 | 68 | 644 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 13 - 14 | 497 | 101 | 605 | 0 | 0 | No | Yes | No | Yes | No | No | No | No | No |
| 14 - 15 | 593 | 78 | 678 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 15 - 16 | 730 | 113 | 850 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No |
| 16 - 17 | 880 | 167 | 1049 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | Yes | No | No |
| 17 - 18 | 659 | 209 | 870 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | Yes | No | No |
| 18 - 19 | 556 | 193 | 762 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No |
| Total | 7139 | 1314 | 8516 | 0 | 0 | 5 | 7 | 8 | 12 | 5 | 0 | 2 | 0 | 0 |

Warrants

| | |
|--|---|
| <i>Warrant 1: Eight-Hour Vehicular Volume</i> | ✓ |
| A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or-- | |
| B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or-- | ✓ |
| 56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach) | |
| <i>Warrant 2: Four-Hour Vehicular Volume</i> | ✓ |
| Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach) | ✓ |
| <i>Warrant 3: Peak Hour</i> | ✓ |
| A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or-- | |
| B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach) | ✓ |
| <i>Warrant 4: Pedestrian Volume</i> | |
| A. Four Hour Volumes --or-- | |
| B. One-Hour Volumes | |
| <i>Warrant 5: School Crossing</i> | |
| Gaps Same Period --and-- | |
| Student Volumes | |
| Nearest Traffic Control Signal (optional) | |
| <i>Warrant 6: Coordinated Signal System</i> | |
| Degree of Platooning (Predominant direction or both directions) | |
| <i>Warrant 7: Crash Experience</i> | |
| A. Adequate trials of alternatives, observance and enforcement failed --and-- | |
| B. Reported crashes susceptible to correction by signal (12-month period) --and-- | |
| C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied | ✓ |
| <i>Warrant 8: Roadway Network</i> | |
| A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or-- | |
| B. Weekend Volume (Five hours total) | |
| <i>Warrant 9: Grade Crossing</i> | |
| A. Grade Crossing within 140 ft --and-- | |
| B. Peak-Hour Vehicular Volumes | |

HCS7 Warrants Report

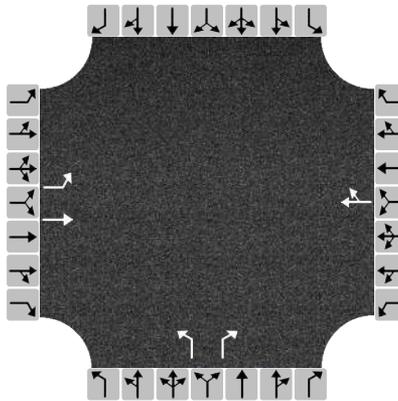
Project Information

| | | | |
|---------------------|------------------------------|----------------------|-----------|
| Analyst | | Date | 7/15/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | 2035 Wilmington-I57 NB Ramps | | |

General

| | | | |
|---------------------------|-----------|------------------------------------|----|
| Major Street Direction | East-West | Population < 10,000 | No |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Undivided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 45 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|-----|---|-----------|-----|-----|------------|---|-----|------------|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Movement | | | | | | | | | | | | |
| Number of Lanes, N | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Lane Usage | L | T | | | TR | | L | | R | | | |
| Vehicle Volumes Averages (veh/h) | 98 | 232 | 0 | 0 | 264 | 114 | 71 | 1 | 111 | 0 | 0 | 0 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 14 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|---------|--------------|--------------|--------------|--------|--------|----------|----------|----------|----------|---------|----------|----------|----------|----------|
| 07 - 08 | 683 | 174 | 857 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No |
| 08 - 09 | 733 | 236 | 969 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No |
| 09 - 10 | 601 | 214 | 815 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | No | No | No |
| 10 - 11 | 621 | 166 | 787 | 0 | 0 | Yes | Yes | No | Yes | No | No | No | No | No |
| 11 - 12 | 640 | 114 | 754 | 0 | 0 | No | Yes | Yes | Yes | No | No | No | No | No |
| 12 - 13 | 605 | 160 | 765 | 0 | 0 | Yes | Yes | No | Yes | No | No | No | No | No |
| 13 - 14 | 644 | 155 | 799 | 0 | 0 | Yes | Yes | Yes | Yes | No | No | No | No | No |
| 14 - 15 | 608 | 156 | 764 | 0 | 0 | Yes | Yes | No | Yes | No | No | No | No | No |
| 15 - 16 | 756 | 192 | 948 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No |
| 16 - 17 | 893 | 249 | 1142 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | Yes | No | No |
| 17 - 18 | 989 | 206 | 1195 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | Yes | No | No |
| 18 - 19 | 758 | 201 | 959 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No |
| Total | 8531 | 2223 | 10754 | 0 | 0 | 11 | 12 | 8 | 12 | 7 | 0 | 2 | 0 | 0 |

Warrants

| | |
|--|---|
| Warrant 1: Eight-Hour Vehicular Volume | ✓ |
| A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or-- | ✓ |
| B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or-- | ✓ |
| 56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach) | ✓ |
| Warrant 2: Four-Hour Vehicular Volume | ✓ |
| Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach) | ✓ |
| Warrant 3: Peak Hour | ✓ |
| A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or-- | |
| B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach) | ✓ |
| Warrant 4: Pedestrian Volume | |
| A. Four Hour Volumes --or-- | |
| B. One-Hour Volumes | |
| Warrant 5: School Crossing | |
| Gaps Same Period --and-- | |
| Student Volumes | |
| Nearest Traffic Control Signal (optional) | |
| Warrant 6: Coordinated Signal System | |
| Degree of Platooning (Predominant direction or both directions) | |
| Warrant 7: Crash Experience | |
| A. Adequate trials of alternatives, observance and enforcement failed --and-- | |
| B. Reported crashes susceptible to correction by signal (12-month period) --and-- | |
| C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied | ✓ |
| Warrant 8: Roadway Network | |
| A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or-- | |
| B. Weekend Volume (Five hours total) | |
| Warrant 9: Grade Crossing | |
| A. Grade Crossing within 140 ft --and-- | |
| B. Peak-Hour Vehicular Volumes | |

HCS7 Warrants Report

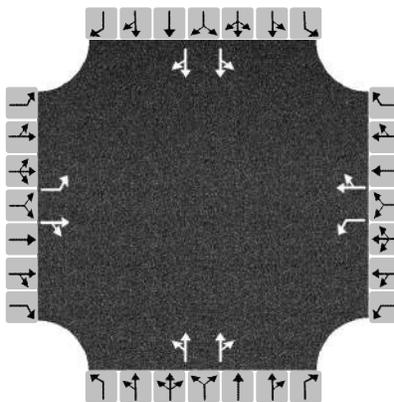
Project Information

| | | | |
|---------------------|----------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | 2035_Wilmington-IL50 | | |

General

| | | | |
|---------------------------|-------------|------------------------------------|----|
| Major Street Direction | North-South | Population < 10,000 | No |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Undivided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 40 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 3250 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|----|----|-----------|----|---|------------|-----|---|------------|-----|-----|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Movement | | | | | | | | | | | | |
| Number of Lanes, N | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 |
| Lane Usage | L | TR | | L | TR | | | LTR | | | LTR | |
| Vehicle Volumes Averages (veh/h) | 142 | 43 | 70 | 1 | 23 | 0 | 44 | 157 | 1 | 2 | 202 | 135 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 10 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (100%) | 1A (80%) | 1B (100%) | 1B (80%) | 2 (100%) | 3A (100%) | 3B (100%) | 4A (100%) | 4B (100%) |
|---------|--------------|--------------|--------------|--------|--------|-----------|----------|-----------|----------|----------|-----------|-----------|-----------|-----------|
| 07 - 08 | 494 | 225 | 738 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 08 - 09 | 481 | 188 | 693 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 09 - 10 | 413 | 226 | 669 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 10 - 11 | 424 | 202 | 662 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 11 - 12 | 485 | 195 | 709 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 12 - 13 | 484 | 242 | 760 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 13 - 14 | 549 | 254 | 826 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 14 - 15 | 509 | 293 | 820 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 15 - 16 | 619 | 289 | 929 | 0 | 0 | Yes | Yes | No | No | No | No | No | No | No |
| 16 - 17 | 754 | 350 | 1126 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | No | No | No |
| 17 - 18 | 772 | 358 | 1161 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | No | No | No |
| 18 - 19 | 551 | 267 | 834 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| Total | 6535 | 3089 | 9927 | 0 | 0 | 3 | 10 | 0 | 2 | 2 | 0 | 0 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--

B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--

80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)

Warrant 2: Four-Hour Vehicular Volume

Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)

Warrant 3: Peak Hour

A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--

B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)

Warrant 4: Pedestrian Volume

A. Four Hour Volumes --or--

B. One-Hour Volumes

Warrant 5: School Crossing

Gaps Same Period --and--

Student Volumes

Nearest Traffic Control Signal (optional)



Warrant 6: Coordinated Signal System

Degree of Platooning (Predominant direction or both directions)

Warrant 7: Crash Experience

A. Adequate trials of alternatives, observance and enforcement failed --and--

B. Reported crashes susceptible to correction by signal (12-month period) --and--

C. 80% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied



Warrant 8: Roadway Network

A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--

B. Weekend Volume (Five hours total)

Warrant 9: Grade Crossing

A. Grade Crossing within 140 ft --and--

B. Peak-Hour Vehicular Volumes

HCS7 Warrants Report

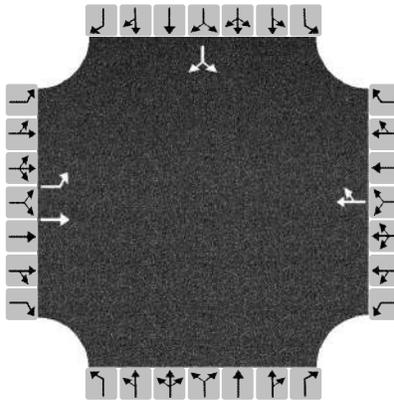
Project Information

| | | | |
|---------------------|----------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | 2050 - River-I-55 SB Ramps | | |

General

| | | | |
|---------------------------|-------------|------------------------------------|-----|
| Major Street Direction | North-South | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Divided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 40 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|----|---|-----------|----|----|------------|---|---|------------|----|----|
| Movement | L | T | R | L | T | R | L | T | R | L | T | R |
| Number of Lanes, N | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Usage | L | T | | | TR | | | | | | LR | |
| Vehicle Volumes Averages (veh/h) | 3 | 17 | 0 | 0 | 13 | 54 | 0 | 0 | 0 | 365 | 0 | 15 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 20 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|---------|--------------|--------------|--------------|--------|--------|----------|----------|----------|----------|---------|----------|----------|----------|----------|
| 07 - 08 | 369 | 66 | 443 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 08 - 09 | 311 | 59 | 392 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 09 - 10 | 373 | 54 | 436 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 10 - 11 | 300 | 69 | 389 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 11 - 12 | 320 | 61 | 395 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 12 - 13 | 310 | 47 | 371 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 13 - 14 | 334 | 49 | 405 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 14 - 15 | 371 | 60 | 447 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 15 - 16 | 451 | 110 | 597 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 16 - 17 | 555 | 108 | 693 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 17 - 18 | 504 | 74 | 612 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 18 - 19 | 371 | 55 | 450 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| Total | 4569 | 812 | 5630 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--

B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--

56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)

Warrant 2: Four-Hour Vehicular Volume

Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)

Warrant 3: Peak Hour

A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--

B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)

Warrant 4: Pedestrian Volume

A. Four Hour Volumes --or--

B. One-Hour Volumes

Warrant 5: School Crossing

Gaps Same Period --and--

Student Volumes

Nearest Traffic Control Signal (optional)

Warrant 6: Coordinated Signal System

Degree of Platooning (Predominant direction or both directions)

Warrant 7: Crash Experience

A. Adequate trials of alternatives, observance and enforcement failed --and--

B. Reported crashes susceptible to correction by signal (12-month period) --and--

C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied

Warrant 8: Roadway Network

A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--

B. Weekend Volume (Five hours total)

Warrant 9: Grade Crossing

A. Grade Crossing within 140 ft --and--

B. Peak-Hour Vehicular Volumes

HCS7 Warrants Report

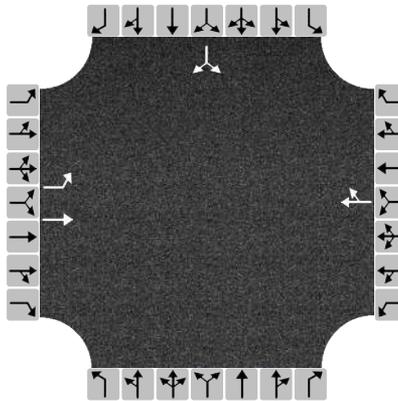
Project Information

| | | | |
|---------------------|----------------------------|----------------------|-----------|
| Analyst | | Date | 8/20/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | 2050 - River-I-55 NB Ramps | | |

General

| | | | |
|---------------------------|-----------|------------------------------------|-----|
| Major Street Direction | East-West | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Divided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 55 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|-----|---|-----------|-----|-----|------------|---|---|------------|----|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Movement | | | | | | | | | | | | |
| Number of Lanes, N | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Usage | L | T | | | TR | | | | | | LR | |
| Vehicle Volumes Averages (veh/h) | 9 | 369 | 0 | 0 | 103 | 272 | 0 | 0 | 0 | 77 | 0 | 8 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 21 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|---------|--------------|--------------|--------------|--------|--------|----------|----------|----------|----------|---------|----------|----------|----------|----------|
| 07 - 08 | 897 | 56 | 953 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 08 - 09 | 779 | 52 | 831 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 09 - 10 | 750 | 58 | 808 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 10 - 11 | 657 | 45 | 702 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 11 - 12 | 618 | 67 | 685 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 12 - 13 | 620 | 61 | 681 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 13 - 14 | 596 | 73 | 669 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 14 - 15 | 592 | 95 | 687 | 0 | 0 | No | Yes | No | Yes | No | No | No | No | No |
| 15 - 16 | 704 | 175 | 879 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No |
| 16 - 17 | 948 | 206 | 1154 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | Yes | No | No |
| 17 - 18 | 1063 | 78 | 1141 | 0 | 0 | No | No | Yes | Yes | Yes | No | No | No | No |
| 18 - 19 | 838 | 70 | 908 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| Total | 9062 | 1036 | 10098 | 0 | 0 | 2 | 3 | 6 | 12 | 3 | 0 | 1 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

- A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--
- B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--
- 56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)

Warrant 2: Four-Hour Vehicular Volume

- Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)

Warrant 3: Peak Hour

- A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--
- B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)



Warrant 4: Pedestrian Volume

- A. Four Hour Volumes --or--
- B. One-Hour Volumes

Warrant 5: School Crossing

- Gaps Same Period --and--
- Student Volumes
- Nearest Traffic Control Signal (optional)

Warrant 6: Coordinated Signal System

- Degree of Platooning (Predominant direction or both directions)

Warrant 7: Crash Experience

- A. Adequate trials of alternatives, observance and enforcement failed --and--
- B. Reported crashes susceptible to correction by signal (12-month period) --and--
- C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied



Warrant 8: Roadway Network

- A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--
- B. Weekend Volume (Five hours total)

Warrant 9: Grade Crossing

- A. Grade Crossing within 140 ft --and--
- B. Peak-Hour Vehicular Volumes

HCS7 Warrants Report

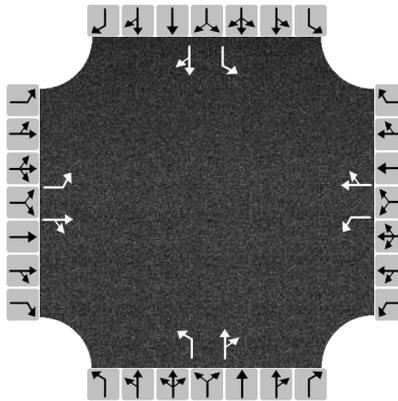
Project Information

| | | | |
|---------------------|---------------------------|----------------------|-----------|
| Analyst | | Date | 8/20/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | 2050- Peotone-Old Chicago | | |

General

| | | | |
|---------------------------|-----------|------------------------------------|-----|
| Major Street Direction | East-West | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Undivided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 55 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|-----|-----|-----------|-----|----|------------|----|----|------------|----|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Movement | | | | | | | | | | | | |
| Number of Lanes, N | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| Lane Usage | L | TR | | L | TR | | L | TR | | L | TR | |
| Vehicle Volumes Averages (veh/h) | 1 | 339 | 106 | 10 | 301 | 38 | 78 | 18 | 10 | 38 | 15 | 1 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 19 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|---------|--------------|--------------|--------------|--------|--------|----------|----------|----------|----------|---------|----------|----------|----------|----------|
| 07 - 08 | 779 | 237 | 1033 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | Yes | No | No |
| 08 - 09 | 707 | 164 | 903 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No |
| 09 - 10 | 663 | 85 | 774 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 10 - 11 | 671 | 95 | 803 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 11 - 12 | 564 | 56 | 666 | 0 | 0 | No | No | No | Yes | No | No | No | No | No |
| 12 - 13 | 712 | 55 | 809 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 13 - 14 | 664 | 50 | 761 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 14 - 15 | 761 | 106 | 907 | 0 | 0 | No | No | Yes | Yes | No | No | No | No | No |
| 15 - 16 | 970 | 90 | 1132 | 0 | 0 | No | No | Yes | Yes | Yes | No | No | No | No |
| 16 - 17 | 1169 | 192 | 1468 | 0 | 0 | Yes | Yes | Yes | Yes | Yes | No | Yes | No | No |
| 17 - 18 | 1014 | 122 | 1222 | 0 | 0 | No | Yes | Yes | Yes | Yes | No | No | No | No |
| 18 - 19 | 900 | 127 | 1066 | 0 | 0 | No | Yes | Yes | Yes | Yes | No | No | No | No |
| Total | 9574 | 1379 | 11544 | 0 | 0 | 3 | 5 | 9 | 10 | 6 | 0 | 2 | 0 | 0 |

Warrants

| | |
|--|---|
| Warrant 1: Eight-Hour Vehicular Volume | ✓ |
| A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or-- | |
| B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or-- | ✓ |
| 56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach) | |
| Warrant 2: Four-Hour Vehicular Volume | ✓ |
| Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach) | ✓ |
| Warrant 3: Peak Hour | ✓ |
| A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or-- | |
| B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach) | ✓ |
| Warrant 4: Pedestrian Volume | |
| A. Four Hour Volumes --or-- | |
| B. One-Hour Volumes | |
| Warrant 5: School Crossing | |
| Gaps Same Period --and-- | |
| Student Volumes | |
| Nearest Traffic Control Signal (optional) | |
| Warrant 6: Coordinated Signal System | |
| Degree of Platooning (Predominant direction or both directions) | |
| Warrant 7: Crash Experience | |
| A. Adequate trials of alternatives, observance and enforcement failed --and-- | |
| B. Reported crashes susceptible to correction by signal (12-month period) --and-- | |
| C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied | ✓ |
| Warrant 8: Roadway Network | |
| A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or-- | |
| B. Weekend Volume (Five hours total) | |
| Warrant 9: Grade Crossing | |
| A. Grade Crossing within 140 ft --and-- | |
| B. Peak-Hour Vehicular Volumes | |

HCS7 Warrants Report

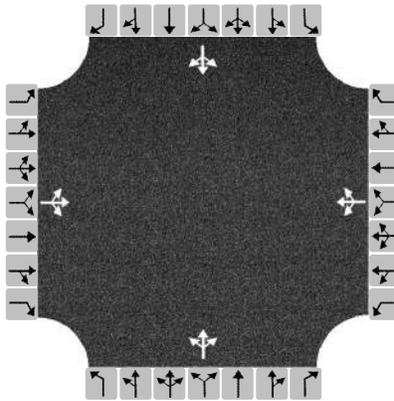
Project Information

| | | | |
|---------------------|------------------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | 2050 - Peotone-Warner Bridge | | |

General

| | | | |
|---------------------------|-----------|------------------------------------|-----|
| Major Street Direction | East-West | Population < 10,000 | Yes |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Undivided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 55 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 0 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|-----|---|-----------|-----|---|------------|-----|---|------------|-----|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Movement | | | | | | | | | | | | |
| Number of Lanes, N | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Lane Usage | | LTR | | | LTR | | | LTR | | | LTR | |
| Vehicle Volumes Averages (veh/h) | 0 | 395 | 3 | 1 | 336 | 1 | 4 | 0 | 3 | 0 | 0 | 0 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 23 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) | 4A (70%) | 4B (70%) |
|---------|--------------|--------------|--------------|--------|--------|----------|----------|----------|----------|---------|----------|----------|----------|----------|
| 07 - 08 | 720 | 4 | 726 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 08 - 09 | 674 | 5 | 679 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 09 - 10 | 610 | 15 | 625 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 10 - 11 | 615 | 16 | 633 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 11 - 12 | 567 | 2 | 569 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 12 - 13 | 661 | 10 | 672 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 13 - 14 | 637 | 8 | 647 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 14 - 15 | 718 | 5 | 724 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 15 - 16 | 911 | 11 | 924 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 16 - 17 | 1120 | 5 | 1125 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 17 - 18 | 884 | 5 | 891 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 18 - 19 | 749 | 6 | 755 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| Total | 8866 | 92 | 8970 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--

B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--

56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)

Warrant 2: Four-Hour Vehicular Volume

Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)

Warrant 3: Peak Hour

A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--

B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)

Warrant 4: Pedestrian Volume

A. Four Hour Volumes --or--

B. One-Hour Volumes

Warrant 5: School Crossing

Gaps Same Period --and--

Student Volumes

Nearest Traffic Control Signal (optional)

Warrant 6: Coordinated Signal System

Degree of Platooning (Predominant direction or both directions)

Warrant 7: Crash Experience

A. Adequate trials of alternatives, observance and enforcement failed --and--

B. Reported crashes susceptible to correction by signal (12-month period) --and--

C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied

Warrant 8: Roadway Network

A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--

B. Weekend Volume (Five hours total)

Warrant 9: Grade Crossing

A. Grade Crossing within 140 ft --and--

B. Peak-Hour Vehicular Volumes

HCS7 Warrants Report

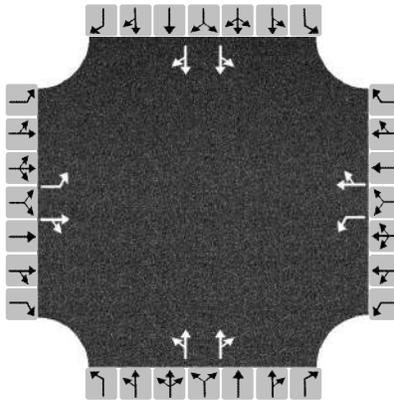
Project Information

| | | | |
|---------------------|----------------------|----------------------|-----------|
| Analyst | | Date | 6/18/2024 |
| Agency | | Analysis Year | 2024 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | 2050_Wilmington-IL50 | | |

General

| | | | |
|---------------------------|-------------|------------------------------------|----|
| Major Street Direction | North-South | Population < 10,000 | No |
| Starting Time Interval | 6 | Coordinated Signal System | No |
| Median Type | Undivided | Crashes (crashes/year) | 0 |
| Major Street Speed (mi/h) | 40 | Adequate Trials of Crash Exp. Alt. | No |
| Nearest Signal (ft) | 3250 | | |

Geometry and Traffic



| Approach | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|----------------------------------|-----------|----|----|-----------|----|---|------------|-----|---|------------|-----|-----|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Movement | | | | | | | | | | | | |
| Number of Lanes, N | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 |
| Lane Usage | L | TR | | L | TR | | | LTR | | | LTR | |
| Vehicle Volumes Averages (veh/h) | 183 | 55 | 90 | 2 | 32 | 1 | 48 | 171 | 1 | 3 | 236 | 158 |
| Pedestrian Averages (peds/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Gap Averages (gaps/h) | 0 | | | 0 | | | 0 | | | 0 | | |
| Delay (s/veh) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Delay (veh-hrs) | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |

School Crossing and Roadway Network

| | | | |
|------------------------------------|---|--------------------------|----|
| Number of Students in Highest Hour | 0 | Two or More Major Routes | No |
| Number of Adequate Gaps in Period | 0 | Weekend Counts | No |
| Number of Minutes in Period | 0 | 5-year Growth Factor (%) | 0 |

Railroad Crossing

| | | | |
|---------------------------------|---------|----------------------------|----|
| Grade Crossing Approach | None | Rail Traffic (trains/day) | 0 |
| Highest Volume Hour with Trains | Unknown | High Occupancy Buses (%) | 0 |
| Distance to Stop Line (ft) | | Tractor-Trailer Trucks (%) | 10 |

HCS7 Warrants Report

Volume Summary

| Hour | Major Volume | Minor Volume | Total Volume | Peds/h | Gaps/h | 1A (100%) | 1A (80%) | 1B (100%) | 1B (80%) | 2 (100%) | 3A (100%) | 3B (100%) | 4A (100%) | 4B (100%) |
|--------------|--------------|--------------|--------------|----------|----------|-----------|-----------|-----------|----------|----------|-----------|-----------|-----------|-----------|
| 07 - 08 | 561 | 287 | 876 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 08 - 09 | 549 | 240 | 823 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 09 - 10 | 470 | 291 | 803 | 0 | 0 | No | No | No | No | No | No | No | No | No |
| 10 - 11 | 483 | 259 | 795 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 11 - 12 | 554 | 250 | 845 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 12 - 13 | 551 | 310 | 909 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 13 - 14 | 626 | 325 | 983 | 0 | 0 | Yes | Yes | No | No | No | No | No | No | No |
| 14 - 15 | 578 | 375 | 978 | 0 | 0 | No | Yes | No | No | No | No | No | No | No |
| 15 - 16 | 705 | 370 | 1105 | 0 | 0 | Yes | Yes | No | No | Yes | No | No | No | No |
| 16 - 17 | 861 | 448 | 1340 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | Yes | No | No |
| 17 - 18 | 880 | 457 | 1382 | 0 | 0 | Yes | Yes | No | Yes | Yes | No | Yes | No | No |
| 18 - 19 | 629 | 341 | 994 | 0 | 0 | Yes | Yes | No | No | No | No | No | No | No |
| Total | 7447 | 3953 | 11833 | 0 | 0 | 5 | 11 | 0 | 2 | 3 | 0 | 2 | 0 | 0 |

Warrants

Warrant 1: Eight-Hour Vehicular Volume

| | |
|--|--|
| A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or-- | |
| B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or-- | |
| 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach) | |

Warrant 2: Four-Hour Vehicular Volume

| | |
|--|--|
| Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach) | |
|--|--|

Warrant 3: Peak Hour

| | |
|---|---|
| A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or-- | ✓ |
| B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach) | ✓ |

Warrant 4: Pedestrian Volume

| | |
|-----------------------------|--|
| A. Four Hour Volumes --or-- | |
| B. One-Hour Volumes | |

Warrant 5: School Crossing

| | |
|---|---|
| Gaps Same Period --and-- | |
| Student Volumes | |
| Nearest Traffic Control Signal (optional) | ✓ |

Warrant 6: Coordinated Signal System

| | |
|---|--|
| Degree of Platooning (Predominant direction or both directions) | |
|---|--|

Warrant 7: Crash Experience

| | |
|---|---|
| A. Adequate trials of alternatives, observance and enforcement failed --and-- | |
| B. Reported crashes susceptible to correction by signal (12-month period) --and-- | |
| C. 80% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied | ✓ |

Warrant 8: Roadway Network

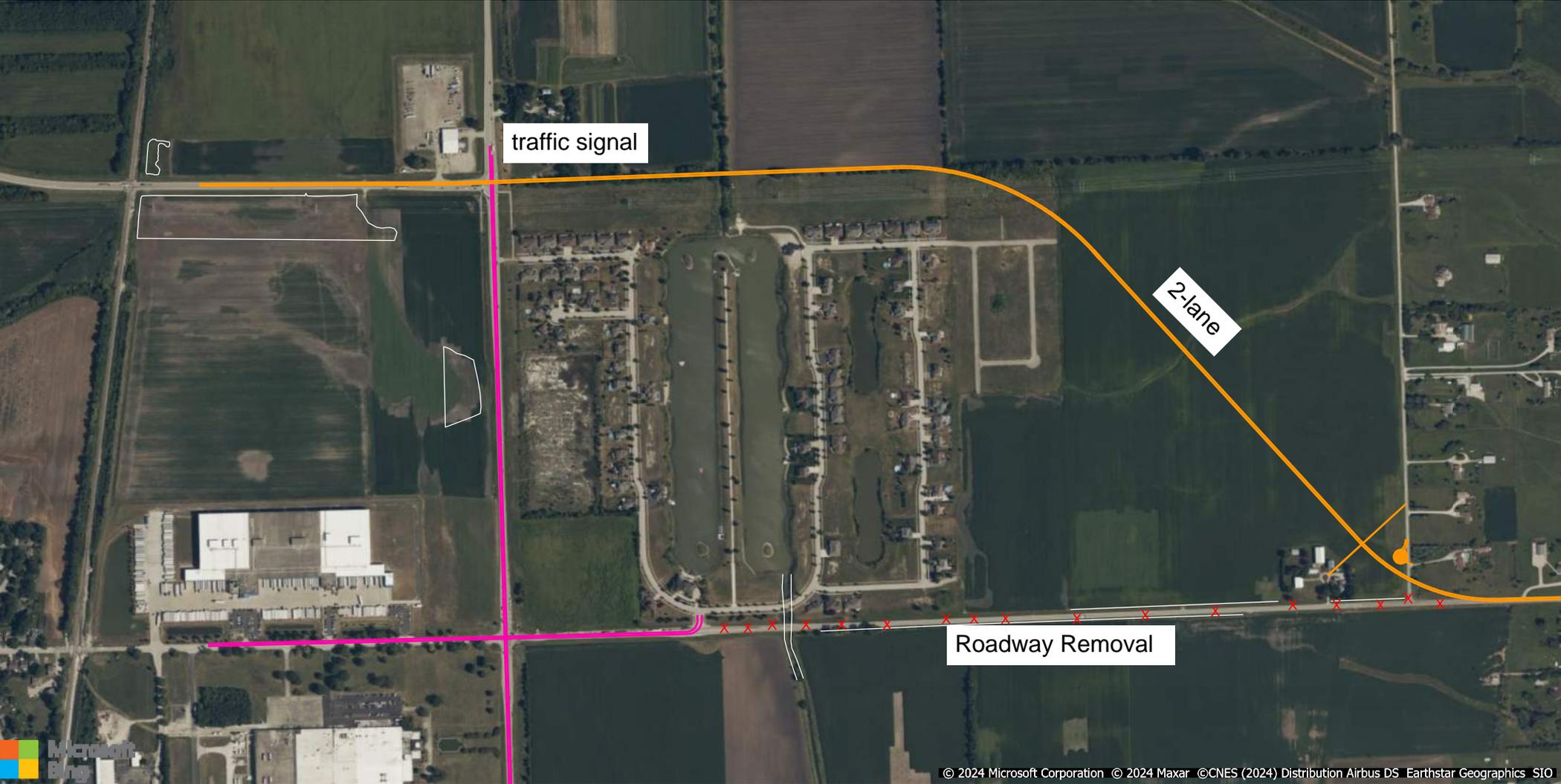
| | |
|--|--|
| A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or-- | |
| B. Weekend Volume (Five hours total) | |

Warrant 9: Grade Crossing

| | |
|---|--|
| A. Grade Crossing within 140 ft --and-- | |
| B. Peak-Hour Vehicular Volumes | |

Appendix C

Alignment Alternatives: Operational Summary & Reports



traffic signal

2-lane

Roadway Removal



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100: River Rd & I-55 SB Ramps Performance by approach

| Approach | EB | WB | SB | All |
|--------------------|-----|-----|-----|-----|
| Denied Del/Veh (s) | 1.2 | 0.0 | 0.3 | 0.2 |
| Total Del/Veh (s) | 0.8 | 2.6 | 6.0 | 4.7 |

200: River Rd & I-55 NB Ramps Performance by approach

| Approach | SB | SE | NW | All |
|--------------------|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.2 | 0.1 | 0.1 | 0.1 |
| Total Del/Veh (s) | 8.8 | 1.5 | 4.3 | 3.6 |

300: IL 53 & River Rd Performance by approach

| Approach | EB | WB | NB | SB | All |
|--------------------|------|------|------|------|------|
| Denied Del/Veh (s) | 0.0 | 0.2 | 0.8 | 2.6 | 0.7 |
| Total Del/Veh (s) | 26.3 | 28.2 | 22.9 | 17.1 | 24.2 |

400: IL 53 & Kankakee River Dr/Peotone Rd Performance by approach

| Approach | EB | WB | NB | SB | All |
|--------------------|------|------|-----|-----|------|
| Denied Del/Veh (s) | 2.4 | 1.0 | 0.6 | 0.1 | 0.7 |
| Total Del/Veh (s) | 36.4 | 45.4 | 6.2 | 5.7 | 10.7 |

Total Zone Performance

| | | | | | |
|--------------------|--|--|-------|--|--|
| Denied Del/Veh (s) | | | 1.3 | | |
| Total Del/Veh (s) | | | 255.7 | | |

100: River Rd & I-55 SB Ramps Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 4.5 | 0.1 | 0.0 | 0.0 | 0.3 | 0.2 | 0.2 |
| Total Del/Veh (s) | 0.3 | 0.9 | 2.4 | 2.6 | 6.0 | 3.0 | 4.7 |

200: River Rd & I-55 NB Ramps Performance by movement

| Movement | SBL | SBR | SEL | SET | NWT | NWR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.2 | 0.1 | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 |
| Total Del/Veh (s) | 9.4 | 4.0 | 6.9 | 1.5 | 5.8 | 3.6 | 3.6 |

300: IL 53 & River Rd Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.3 | 0.1 | 0.3 | 1.3 | 0.4 | 1.2 | 3.4 | 0.5 | 3.2 |
| Total Del/Veh (s) | 34.5 | 25.0 | 18.3 | 32.8 | 32.5 | 21.9 | 21.3 | 29.4 | 11.5 | 20.2 | 18.3 | 6.3 |

300: IL 53 & River Rd Performance by movement

| Movement | All |
|--------------------|------|
| Denied Del/Veh (s) | 0.7 |
| Total Del/Veh (s) | 24.2 |

400: IL 53 & Kankakee River Dr/Peotone Rd Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 3.1 | 0.3 | 0.3 | 3.6 | 0.2 | 0.1 | 2.7 | 0.4 | 0.5 | 0.0 | 0.0 | 0.2 |
| Total Del/Veh (s) | 36.6 | 30.3 | 34.3 | 33.4 | 54.8 | 39.0 | 7.2 | 6.2 | 4.4 | 7.8 | 6.5 | 3.2 |

400: IL 53 & Kankakee River Dr/Peotone Rd Performance by movement

| Movement | All |
|--------------------|------|
| Denied Del/Veh (s) | 0.7 |
| Total Del/Veh (s) | 10.7 |

Total Zone Performance

| | |
|--------------------|-------|
| Denied Del/Veh (s) | 1.3 |
| Total Del/Veh (s) | 255.7 |

Queuing and Blocking Report
 AM Peak Hour

09/10/2024

Intersection: 100: River Rd & I-55 SB Ramps

| Movement | EB | SB |
|-----------------------|-----|-----|
| Directions Served | L | LR |
| Maximum Queue (ft) | 5 | 125 |
| Average Queue (ft) | 0 | 63 |
| 95th Queue (ft) | 4 | 97 |
| Link Distance (ft) | | 480 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | 125 | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 200: River Rd & I-55 NB Ramps

| Movement | SB | SE | NW |
|-----------------------|-----|-----|------|
| Directions Served | LR | L | TR |
| Maximum Queue (ft) | 90 | 26 | 4 |
| Average Queue (ft) | 41 | 2 | 0 |
| 95th Queue (ft) | 76 | 14 | 3 |
| Link Distance (ft) | 666 | | 1347 |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (ft) | | 480 | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

Intersection: 300: IL 53 & River Rd

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|
| Directions Served | L | T | R | L | T | R | L | T | R | L | T | R |
| Maximum Queue (ft) | 184 | 234 | 158 | 201 | 241 | 179 | 213 | 324 | 127 | 158 | 120 | 68 |
| Average Queue (ft) | 94 | 99 | 49 | 69 | 86 | 80 | 94 | 149 | 41 | 66 | 27 | 14 |
| 95th Queue (ft) | 165 | 192 | 113 | 146 | 187 | 159 | 183 | 266 | 95 | 133 | 76 | 46 |
| Link Distance (ft) | | 2271 | | | 2576 | | | 2574 | | | 1686 | |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 240 | | 240 | 265 | | 265 | 240 | | 240 | 240 | | 240 |
| Storage Blk Time (%) | | 0 | | | 0 | | 0 | 2 | | 0 | | |
| Queuing Penalty (veh) | | 1 | | | 1 | | 0 | 9 | | 0 | | |

Queuing and Blocking Report
 AM Peak Hour

09/10/2024

Intersection: 400: IL 53 & Kankakee River Dr/Peotone Rd

| Movement | EB | EB | WB | WB | NB | NB | SB | SB | SB |
|-----------------------|-----|------|-----|------|-----|------|-----|------|-----|
| Directions Served | L | TR | L | TR | L | TR | L | T | R |
| Maximum Queue (ft) | 239 | 69 | 38 | 57 | 53 | 182 | 26 | 122 | 72 |
| Average Queue (ft) | 72 | 18 | 3 | 12 | 10 | 61 | 3 | 30 | 8 |
| 95th Queue (ft) | 162 | 49 | 21 | 39 | 33 | 138 | 16 | 86 | 40 |
| Link Distance (ft) | | 1468 | | 1092 | | 1987 | | 2574 | |
| Upstream Blk Time (%) | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | |
| Storage Bay Dist (ft) | 245 | | 245 | | 280 | | 310 | | 310 |
| Storage Blk Time (%) | 0 | | | | | | | | |
| Queuing Penalty (veh) | 0 | | | | | | | | |

Zone Summary

Zone wide Queuing Penalty: 11

100: River Rd & I-55 SB Ramps Performance by approach

| Approach | EB | WB | SB | All |
|--------------------|-----|-----|-----|-----|
| Denied Del/Veh (s) | 1.0 | 0.0 | 0.4 | 0.3 |
| Total Del/Veh (s) | 1.1 | 2.8 | 7.0 | 5.3 |

200: River Rd & I-55 NB Ramps Performance by approach

| Approach | SB | SE | NW | All |
|--------------------|------|-----|-----|------|
| Denied Del/Veh (s) | 0.3 | 0.2 | 0.0 | 0.1 |
| Total Del/Veh (s) | 70.3 | 2.2 | 4.7 | 14.2 |

300: IL 53 & River Rd Performance by approach

| Approach | EB | WB | NB | SB | All |
|--------------------|------|------|------|------|------|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.7 | 2.6 | 0.9 |
| Total Del/Veh (s) | 26.5 | 28.3 | 34.7 | 36.1 | 31.8 |

400: IL 53 & Kankakee River Dr/Peotone Rd Performance by approach

| Approach | EB | WB | NB | SB | All |
|--------------------|------|------|-----|-----|------|
| Denied Del/Veh (s) | 2.6 | 1.5 | 0.5 | 0.0 | 0.5 |
| Total Del/Veh (s) | 39.5 | 51.7 | 6.7 | 8.5 | 11.0 |

Total Zone Performance

| | | | | | |
|--------------------|--|--|-------|--|--|
| Denied Del/Veh (s) | | | 1.4 | | |
| Total Del/Veh (s) | | | 292.1 | | |

100: River Rd & I-55 SB Ramps Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 4.1 | 0.1 | 0.0 | 0.0 | 0.4 | 0.2 | 0.3 |
| Total Del/Veh (s) | 1.0 | 1.2 | 2.5 | 2.9 | 7.0 | 3.0 | 5.3 |

200: River Rd & I-55 NB Ramps Performance by movement

| Movement | SBL | SBR | SEL | SET | NWT | NWR | All |
|--------------------|------|------|-----|-----|-----|-----|------|
| Denied Del/Veh (s) | 0.3 | 0.4 | 0.0 | 0.2 | 0.0 | 0.0 | 0.1 |
| Total Del/Veh (s) | 69.9 | 72.9 | 4.4 | 2.2 | 6.3 | 3.5 | 14.2 |

300: IL 53 & River Rd Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.2 | 0.8 | 3.0 | 1.4 | 3.0 |
| Total Del/Veh (s) | 29.1 | 29.5 | 16.8 | 40.0 | 24.6 | 19.5 | 29.0 | 50.4 | 22.1 | 49.8 | 36.6 | 9.5 |

300: IL 53 & River Rd Performance by movement

| Movement | All |
|--------------------|------|
| Denied Del/Veh (s) | 0.9 |
| Total Del/Veh (s) | 31.8 |

400: IL 53 & Kankakee River Dr/Peotone Rd Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 3.3 | 0.4 | 0.4 | 4.2 | 0.2 | 0.1 | 2.8 | 0.5 | 0.7 | 0.9 | 0.0 | 0.1 |
| Total Del/Veh (s) | 40.2 | 41.3 | 35.6 | 54.9 | 48.1 | 52.9 | 11.5 | 6.5 | 5.6 | 9.2 | 9.4 | 3.5 |

400: IL 53 & Kankakee River Dr/Peotone Rd Performance by movement

| Movement | All |
|--------------------|------|
| Denied Del/Veh (s) | 0.5 |
| Total Del/Veh (s) | 11.0 |

Total Zone Performance

| | |
|--------------------|-------|
| Denied Del/Veh (s) | 1.4 |
| Total Del/Veh (s) | 292.1 |

Queuing and Blocking Report
PM Peak Hour

09/10/2024

Intersection: 100: River Rd & I-55 SB Ramps

| Movement | EB | SB |
|-----------------------|-----|-----|
| Directions Served | L | LR |
| Maximum Queue (ft) | 20 | 141 |
| Average Queue (ft) | 1 | 71 |
| 95th Queue (ft) | 7 | 112 |
| Link Distance (ft) | | 480 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | 125 | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 200: River Rd & I-55 NB Ramps

| Movement | SB | SE |
|-----------------------|-----|-----|
| Directions Served | LR | L |
| Maximum Queue (ft) | 599 | 30 |
| Average Queue (ft) | 172 | 4 |
| 95th Queue (ft) | 452 | 20 |
| Link Distance (ft) | 666 | |
| Upstream Blk Time (%) | 0 | |
| Queuing Penalty (veh) | 0 | |
| Storage Bay Dist (ft) | | 480 |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 300: IL 53 & River Rd

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|
| Directions Served | L | T | R | L | T | R | L | T | R | L | T | R |
| Maximum Queue (ft) | 309 | 382 | 259 | 166 | 209 | 220 | 252 | 330 | 255 | 445 | 438 | 219 |
| Average Queue (ft) | 83 | 174 | 73 | 88 | 63 | 67 | 111 | 178 | 101 | 231 | 129 | 56 |
| 95th Queue (ft) | 202 | 336 | 169 | 151 | 155 | 148 | 208 | 292 | 201 | 414 | 312 | 146 |
| Link Distance (ft) | | 2271 | | | 2576 | | | 2574 | | | 1686 | |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 240 | | 240 | 265 | | 265 | 240 | | 240 | 240 | | 240 |
| Storage Blk Time (%) | 0 | 6 | 0 | | 0 | 0 | 1 | 4 | 1 | 16 | 1 | |
| Queuing Penalty (veh) | 0 | 19 | 0 | | 1 | 0 | 3 | 21 | 5 | 61 | 3 | |

Queuing and Blocking Report
 PM Peak Hour

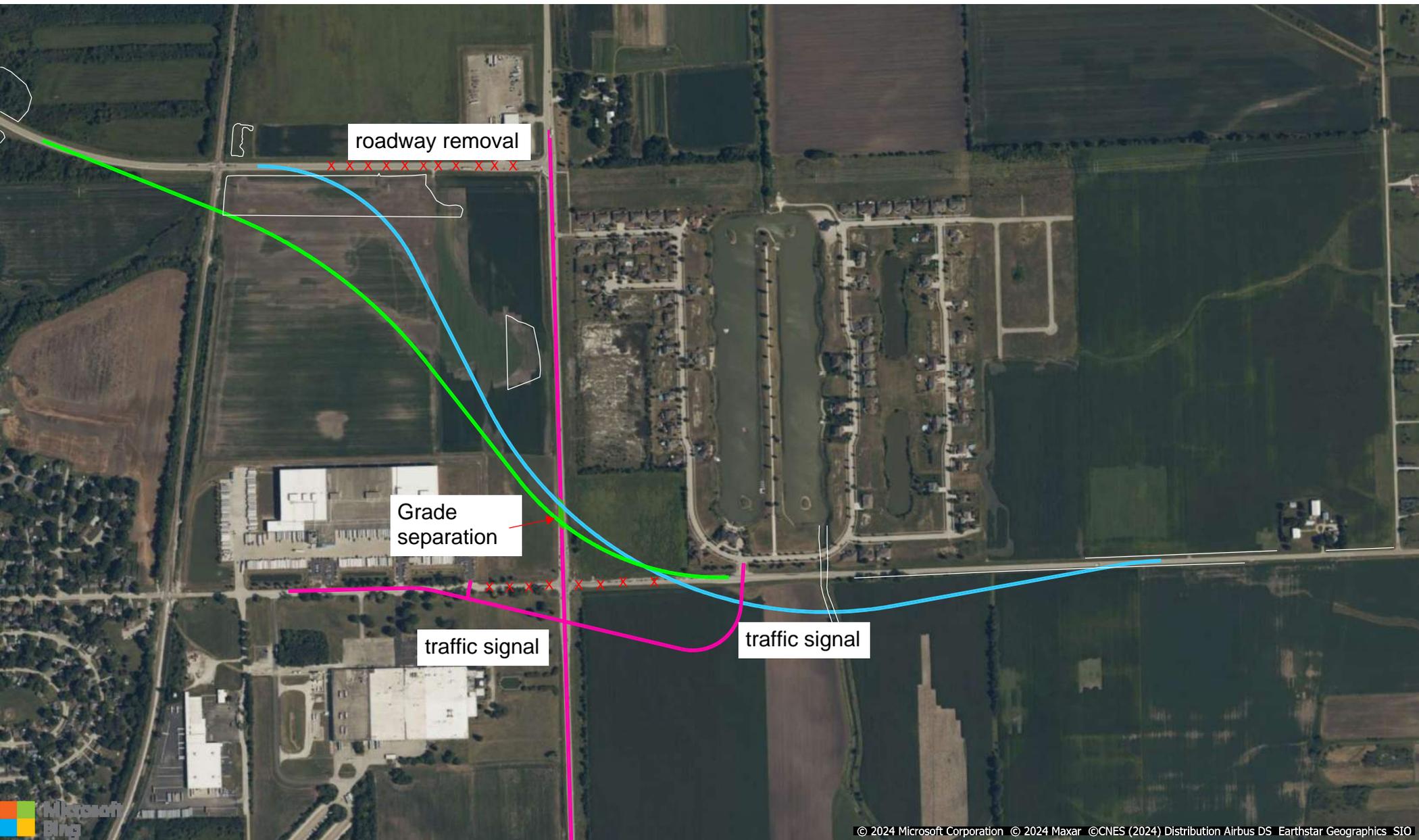
09/10/2024

Intersection: 400: IL 53 & Kankakee River Dr/Peotone Rd

| Movement | EB | EB | WB | WB | NB | NB | SB | SB | SB |
|-----------------------|-----|------|-----|------|-----|------|-----|------|-----|
| Directions Served | L | TR | L | TR | L | TR | L | T | R |
| Maximum Queue (ft) | 214 | 68 | 30 | 52 | 50 | 210 | 26 | 254 | 58 |
| Average Queue (ft) | 84 | 19 | 6 | 11 | 9 | 74 | 1 | 74 | 7 |
| 95th Queue (ft) | 176 | 54 | 24 | 37 | 36 | 160 | 10 | 176 | 32 |
| Link Distance (ft) | | 1468 | | 1092 | | 1987 | | 2574 | |
| Upstream Blk Time (%) | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | |
| Storage Bay Dist (ft) | 245 | | 245 | | 280 | | 310 | | 310 |
| Storage Blk Time (%) | 0 | | | | | 0 | | 0 | |
| Queuing Penalty (veh) | 0 | | | | | 0 | | 0 | |

Zone Summary

Zone wide Queuing Penalty: 114



roadway removal

Grade separation

traffic signal

traffic signal



100: River Rd & I-55 SB Ramps Performance by approach

| Approach | EB | WB | SB | All |
|--------------------|-----|-----|-----|-----|
| Denied Del/Veh (s) | 1.6 | 0.0 | 0.3 | 0.3 |
| Total Del/Veh (s) | 0.9 | 2.5 | 6.4 | 4.9 |

200: River Rd & I-55 NB Ramps Performance by approach

| Approach | SB | SE | NW | All |
|--------------------|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.1 | 0.1 | 0.1 | 0.1 |
| Total Del/Veh (s) | 8.5 | 1.6 | 4.2 | 3.4 |

310: IL 53 & Kankakee River Dr Performance by approach

| Approach | EB | WB | NB | SB | All |
|--------------------|------|------|------|------|------|
| Denied Del/Veh (s) | 0.0 | 0.4 | 2.2 | 0.0 | 0.8 |
| Total Del/Veh (s) | 29.6 | 19.0 | 15.0 | 18.6 | 18.4 |

320: Kankakee River Dr/Slalom Ln & River Rd/Peotone Rd Performance by approach

| Approach | EB | WB | NB | SB | All |
|--------------------|------|------|------|------|------|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| Total Del/Veh (s) | 17.7 | 15.0 | 11.2 | 40.7 | 14.4 |

Total Zone Performance

| | | | | | |
|--------------------|--|--|-------|--|--|
| Denied Del/Veh (s) | | | 1.4 | | |
| Total Del/Veh (s) | | | 193.8 | | |

100: River Rd & I-55 SB Ramps Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 3.9 | 0.1 | 0.0 | 0.0 | 0.3 | 0.1 | 0.3 |
| Total Del/Veh (s) | 0.8 | 0.9 | 2.2 | 2.5 | 6.4 | 3.6 | 4.9 |

200: River Rd & I-55 NB Ramps Performance by movement

| Movement | SBL | SBR | SEL | SET | NWT | NWR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Total Del/Veh (s) | 9.2 | 4.3 | 5.0 | 1.5 | 6.9 | 3.3 | 3.4 |

310: IL 53 & Kankakee River Dr Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------|------|------|------|------|------|------|------|------|------|------|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.5 | 3.3 | 0.8 | 3.1 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 25.0 | 32.8 | 30.2 | 28.7 | 14.0 | 16.0 | 15.0 | 21.8 | 10.3 | 24.4 | 9.6 | 9.2 |

310: IL 53 & Kankakee River Dr Performance by movement

| Movement | All |
|--------------------|------|
| Denied Del/Veh (s) | 0.8 |
| Total Del/Veh (s) | 18.4 |

320: Kankakee River Dr/Slalom Ln & River Rd/Peotone Rd Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------|------|------|------|------|-----|-----|------|-----|-----|------|------|------|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 |
| Total Del/Veh (s) | 14.4 | 19.1 | 16.5 | 18.4 | 8.2 | 8.5 | 20.5 | 3.1 | 8.0 | 43.4 | 44.8 | 36.2 |

320: Kankakee River Dr/Slalom Ln & River Rd/Peotone Rd Performance by movement

| Movement | All |
|--------------------|------|
| Denied Del/Veh (s) | 0.0 |
| Total Del/Veh (s) | 14.4 |

Total Zone Performance

| | |
|--------------------|-------|
| Denied Del/Veh (s) | 1.4 |
| Total Del/Veh (s) | 193.8 |

Queuing and Blocking Report

AM Peak Hour

09/10/2024

Intersection: 100: River Rd & I-55 SB Ramps

| Movement | EB | SB |
|-----------------------|-----|-----|
| Directions Served | L | LR |
| Maximum Queue (ft) | 10 | 140 |
| Average Queue (ft) | 1 | 64 |
| 95th Queue (ft) | 7 | 105 |
| Link Distance (ft) | | 480 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | 125 | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 200: River Rd & I-55 NB Ramps

| Movement | SB | SE |
|-----------------------|-----|-----|
| Directions Served | LR | L |
| Maximum Queue (ft) | 96 | 27 |
| Average Queue (ft) | 40 | 3 |
| 95th Queue (ft) | 74 | 15 |
| Link Distance (ft) | 666 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | 480 |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Queuing and Blocking Report
 AM Peak Hour

09/10/2024

Intersection: 310: IL 53 & Kankakee River Dr

| Movement | EB | EB | WB | WB | WB | NB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|-----|-----|------|-----|-----|------|-----|-----|-----|-----|------|
| Directions Served | L | TR | L | T | R | L | T | R | R | L | L | T |
| Maximum Queue (ft) | 123 | 152 | 202 | 175 | 233 | 65 | 156 | 112 | 127 | 177 | 174 | 122 |
| Average Queue (ft) | 31 | 42 | 75 | 36 | 107 | 9 | 65 | 37 | 43 | 73 | 83 | 36 |
| 95th Queue (ft) | 84 | 111 | 142 | 110 | 201 | 33 | 126 | 86 | 93 | 143 | 147 | 91 |
| Link Distance (ft) | | 759 | | 1304 | | | 1565 | | | | | 2878 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 145 | | 145 | | 145 | 240 | | 240 | 240 | 240 | 240 | |
| Storage Blk Time (%) | 0 | 1 | 2 | 0 | 4 | | | | | | | 0 |
| Queuing Penalty (veh) | 0 | 0 | 9 | 2 | 8 | | | | | | | 0 |

Intersection: 310: IL 53 & Kankakee River Dr

| Movement | SB |
|-----------------------|-----|
| Directions Served | R |
| Maximum Queue (ft) | 102 |
| Average Queue (ft) | 19 |
| 95th Queue (ft) | 64 |
| Link Distance (ft) | |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | 240 |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

Intersection: 320: Kankakee River Dr/Slalom Ln & River Rd/Peotone Rd

| Movement | EB | EB | EB | WB | WB | NB | NB | NB | NB | SB |
|-----------------------|-----|------|-----|-----|------|-----|------|------|-----|-----|
| Directions Served | L | T | R | L | TR | L | T | R | R | LTR |
| Maximum Queue (ft) | 29 | 239 | 271 | 249 | 103 | 200 | 39 | 152 | 112 | 48 |
| Average Queue (ft) | 3 | 77 | 91 | 104 | 23 | 88 | 3 | 71 | 27 | 12 |
| 95th Queue (ft) | 16 | 168 | 203 | 205 | 71 | 160 | 20 | 132 | 74 | 39 |
| Link Distance (ft) | | 5163 | | | 1509 | | 1304 | 1304 | | 488 |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (ft) | 240 | | 240 | 265 | | 145 | | | 145 | |
| Storage Blk Time (%) | | 0 | 0 | 0 | | 2 | | 0 | 0 | |
| Queuing Penalty (veh) | | 0 | 1 | 1 | | 0 | | 1 | 0 | |

Zone Summary

Zone wide Queuing Penalty: 23

100: River Rd & I-55 SB Ramps Performance by approach

| Approach | EB | WB | SB | All |
|--------------------|-----|-----|-----|-----|
| Denied Del/Veh (s) | 1.4 | 0.0 | 0.3 | 0.2 |
| Total Del/Veh (s) | 1.0 | 2.4 | 6.0 | 4.4 |

200: River Rd & I-55 NB Ramps Performance by approach

| Approach | SB | SE | NW | All |
|--------------------|------|-----|-----|------|
| Denied Del/Veh (s) | 0.5 | 0.2 | 0.1 | 0.2 |
| Total Del/Veh (s) | 62.8 | 2.3 | 4.7 | 13.0 |

310: IL 53 & Kankakee River Dr Performance by approach

| Approach | EB | WB | NB | SB | All |
|--------------------|------|------|------|------|------|
| Denied Del/Veh (s) | 0.0 | 0.4 | 2.4 | 0.0 | 0.6 |
| Total Del/Veh (s) | 38.3 | 26.3 | 23.0 | 32.6 | 29.1 |

320: Kankakee River Dr/Slalom Ln & River Rd/Peotone Rd Performance by approach

| Approach | EB | WB | NB | SB | All |
|--------------------|------|------|------|------|------|
| Denied Del/Veh (s) | 0.0 | 0.4 | 0.2 | 0.1 | 0.2 |
| Total Del/Veh (s) | 39.6 | 27.8 | 21.6 | 50.6 | 28.6 |

Total Zone Performance

| | | | | | |
|--------------------|--|--|-------|--|--|
| Denied Del/Veh (s) | | | 1.5 | | |
| Total Del/Veh (s) | | | 238.3 | | |

100: River Rd & I-55 SB Ramps Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 4.2 | 0.1 | 0.0 | 0.0 | 0.3 | 0.7 | 0.2 |
| Total Del/Veh (s) | 0.6 | 1.2 | 2.3 | 2.5 | 6.0 | 4.2 | 4.4 |

200: River Rd & I-55 NB Ramps Performance by movement

| Movement | SBL | SBR | SEL | SET | NWT | NWR | All |
|--------------------|------|------|-----|-----|-----|-----|------|
| Denied Del/Veh (s) | 0.4 | 1.0 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 |
| Total Del/Veh (s) | 62.9 | 59.8 | 7.3 | 2.2 | 6.0 | 3.8 | 13.0 |

310: IL 53 & Kankakee River Dr Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.5 | 0.1 | 0.4 | 3.1 | 0.9 | 3.1 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 26.6 | 47.5 | 40.8 | 40.3 | 17.0 | 13.3 | 49.8 | 36.0 | 15.4 | 39.1 | 19.2 | 14.7 |

310: IL 53 & Kankakee River Dr Performance by movement

| Movement | All |
|--------------------|------|
| Denied Del/Veh (s) | 0.6 |
| Total Del/Veh (s) | 29.1 |

320: Kankakee River Dr/Slalom Ln & River Rd/Peotone Rd Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------|------|------|------|------|-----|-----|------|-----|------|------|------|------|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.4 | 0.0 | 0.2 | 0.2 | 0.1 | 0.1 |
| Total Del/Veh (s) | 22.1 | 28.2 | 57.5 | 46.6 | 6.5 | 9.0 | 32.9 | 3.0 | 18.8 | 48.3 | 49.9 | 53.2 |

320: Kankakee River Dr/Slalom Ln & River Rd/Peotone Rd Performance by movement

| Movement | All |
|--------------------|------|
| Denied Del/Veh (s) | 0.2 |
| Total Del/Veh (s) | 28.6 |

Total Zone Performance

| | |
|--------------------|-------|
| Denied Del/Veh (s) | 1.5 |
| Total Del/Veh (s) | 238.3 |

Queuing and Blocking Report
 PM Peak Hour

09/10/2024

Intersection: 100: River Rd & I-55 SB Ramps

| Movement | EB | SB |
|-----------------------|-----|-----|
| Directions Served | L | LR |
| Maximum Queue (ft) | 10 | 104 |
| Average Queue (ft) | 0 | 57 |
| 95th Queue (ft) | 4 | 89 |
| Link Distance (ft) | | 480 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | 125 | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 200: River Rd & I-55 NB Ramps

| Movement | SB | SE | NW |
|-----------------------|-----|-----|------|
| Directions Served | LR | L | TR |
| Maximum Queue (ft) | 511 | 33 | 14 |
| Average Queue (ft) | 157 | 5 | 1 |
| 95th Queue (ft) | 439 | 22 | 10 |
| Link Distance (ft) | 666 | | 1347 |
| Upstream Blk Time (%) | 3 | | |
| Queuing Penalty (veh) | 0 | | |
| Storage Bay Dist (ft) | | 480 | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

Queuing and Blocking Report
PM Peak Hour

09/10/2024

Intersection: 310: IL 53 & Kankakee River Dr

| Movement | EB | EB | WB | WB | WB | NB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|-----|-----|------|-----|-----|------|-----|-----|-----|-----|------|
| Directions Served | L | TR | L | T | R | L | T | R | R | L | L | T |
| Maximum Queue (ft) | 112 | 127 | 283 | 254 | 256 | 66 | 189 | 163 | 154 | 346 | 419 | 494 |
| Average Queue (ft) | 31 | 38 | 145 | 47 | 85 | 10 | 89 | 61 | 73 | 211 | 228 | 132 |
| 95th Queue (ft) | 80 | 90 | 252 | 157 | 199 | 40 | 164 | 126 | 133 | 341 | 376 | 336 |
| Link Distance (ft) | | 759 | | 1304 | | | 1565 | | | | | 2878 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 145 | | 145 | | 145 | 240 | | 240 | 240 | 240 | 240 | |
| Storage Blk Time (%) | 0 | 0 | 15 | 0 | 3 | | 0 | | | 4 | 7 | 1 |
| Queuing Penalty (veh) | 0 | 0 | 47 | 0 | 12 | | 0 | | | 17 | 30 | 12 |

Intersection: 310: IL 53 & Kankakee River Dr

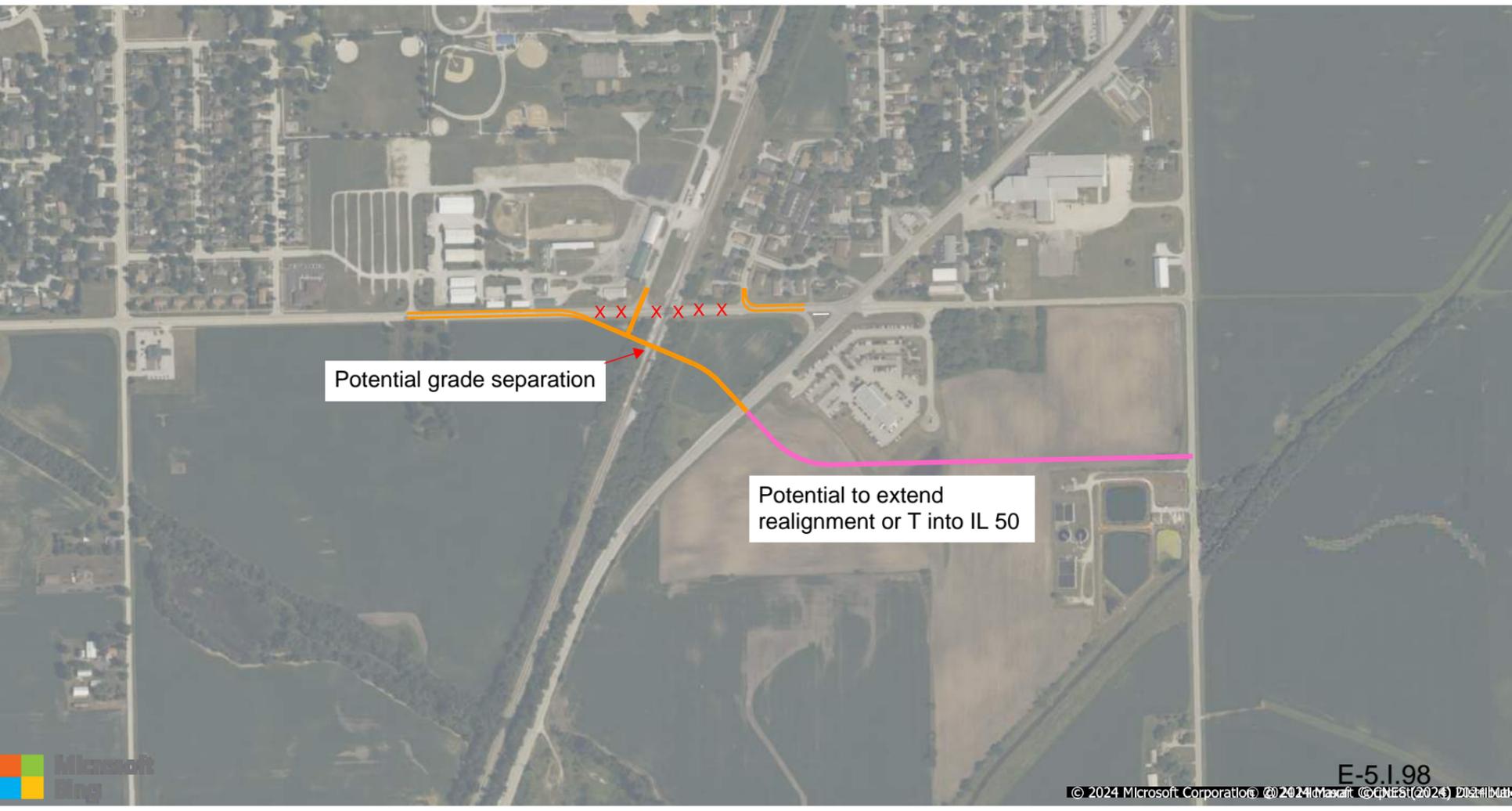
| Movement | SB |
|-----------------------|-----|
| Directions Served | R |
| Maximum Queue (ft) | 116 |
| Average Queue (ft) | 29 |
| 95th Queue (ft) | 82 |
| Link Distance (ft) | |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | 240 |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

Intersection: 320: Kankakee River Dr/Slalom Ln & River Rd/Peotone Rd

| Movement | EB | EB | EB | WB | WB | NB | NB | NB | NB | SB |
|-----------------------|-----|------|-----|-----|------|-----|------|------|-----|-----|
| Directions Served | L | T | R | L | TR | L | T | R | R | LTR |
| Maximum Queue (ft) | 35 | 578 | 432 | 453 | 305 | 316 | 315 | 346 | 320 | 65 |
| Average Queue (ft) | 4 | 223 | 226 | 179 | 49 | 198 | 28 | 172 | 103 | 17 |
| 95th Queue (ft) | 21 | 457 | 407 | 362 | 195 | 318 | 183 | 295 | 225 | 50 |
| Link Distance (ft) | | 5163 | | | 1509 | | 1304 | 1304 | | 488 |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (ft) | 240 | | 240 | 265 | | 145 | | | 145 | |
| Storage Blk Time (%) | | 6 | 12 | 9 | | 21 | | 13 | 1 | |
| Queuing Penalty (veh) | | 16 | 34 | 8 | | 1 | | 61 | 5 | |

Zone Summary

Zone wide Queuing Penalty: 242



Potential grade separation

Potential to extend realignment or T into IL 50

SimTraffic Performance Report
AM Peak Hour - IL 50 Realignment (Intersection)

01/07/2025

1090: IL 50 & Wilmington Rd Performance by approach

| Approach | SE | NW | NE | SW | All |
|--------------------|------|------|-----|-----|-----|
| Denied Del/Veh (s) | 0.3 | 0.1 | 0.1 | 0.0 | 0.1 |
| Total Del/Veh (s) | 10.5 | 12.7 | 2.6 | 1.3 | 5.0 |

1100: IL 50 & Tucker Rd Performance by approach

| Approach | EB | WB | NE | SW | All |
|--------------------|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 |
| Total Del/Veh (s) | 5.6 | 3.7 | 0.5 | 0.3 | 0.7 |

Total Zone Performance

| | |
|--------------------|------|
| Denied Del/Veh (s) | 0.2 |
| Total Del/Veh (s) | 45.3 |

1090: IL 50 & Wilmington Rd Performance by approach

| Approach | EB | NE | SW | All |
|--------------------|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.1 | 0.2 | 0.0 | 0.1 |
| Total Del/Veh (s) | 7.0 | 1.9 | 1.2 | 3.0 |

1100: IL 50 & Tucker Rd Performance by approach

| Approach | EB | WB | NE | SW | All |
|--------------------|-----|------|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 3.3 | 0.0 | 0.1 | 0.3 |
| Total Del/Veh (s) | 2.2 | 11.5 | 0.8 | 0.4 | 1.4 |

Total Zone Performance

| | |
|--------------------|------|
| Denied Del/Veh (s) | 0.4 |
| Total Del/Veh (s) | 65.0 |

1090: IL 50 & Wilmington Rd Performance by approach

| Approach | SE | NW | NE | SW | All |
|--------------------|------|------|-----|-----|------|
| Denied Del/Veh (s) | 0.3 | 0.1 | 0.1 | 0.0 | 0.1 |
| Total Del/Veh (s) | 28.6 | 20.0 | 2.9 | 1.1 | 10.1 |

1100: IL 50 & Tucker Rd Performance by approach

| Approach | EB | WB | NE | SW | All |
|--------------------|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 2.2 | 0.0 | 0.1 | 0.1 |
| Total Del/Veh (s) | 9.2 | 8.6 | 1.1 | 0.2 | 0.9 |

Total Zone Performance

| | |
|--------------------|------|
| Denied Del/Veh (s) | 0.3 |
| Total Del/Veh (s) | 90.3 |

1090: IL 50 & Wilmington Rd Performance by approach

| Approach | EB | NE | SW | All |
|--------------------|------|-----|-----|-----|
| Denied Del/Veh (s) | 0.2 | 0.1 | 0.0 | 0.1 |
| Total Del/Veh (s) | 21.1 | 1.5 | 1.5 | 6.4 |

1100: IL 50 & Tucker Rd Performance by approach

| Approach | EB | WB | NE | SW | All |
|--------------------|------|------|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 4.1 | 0.0 | 0.1 | 0.2 |
| Total Del/Veh (s) | 11.0 | 16.1 | 0.7 | 0.3 | 1.6 |

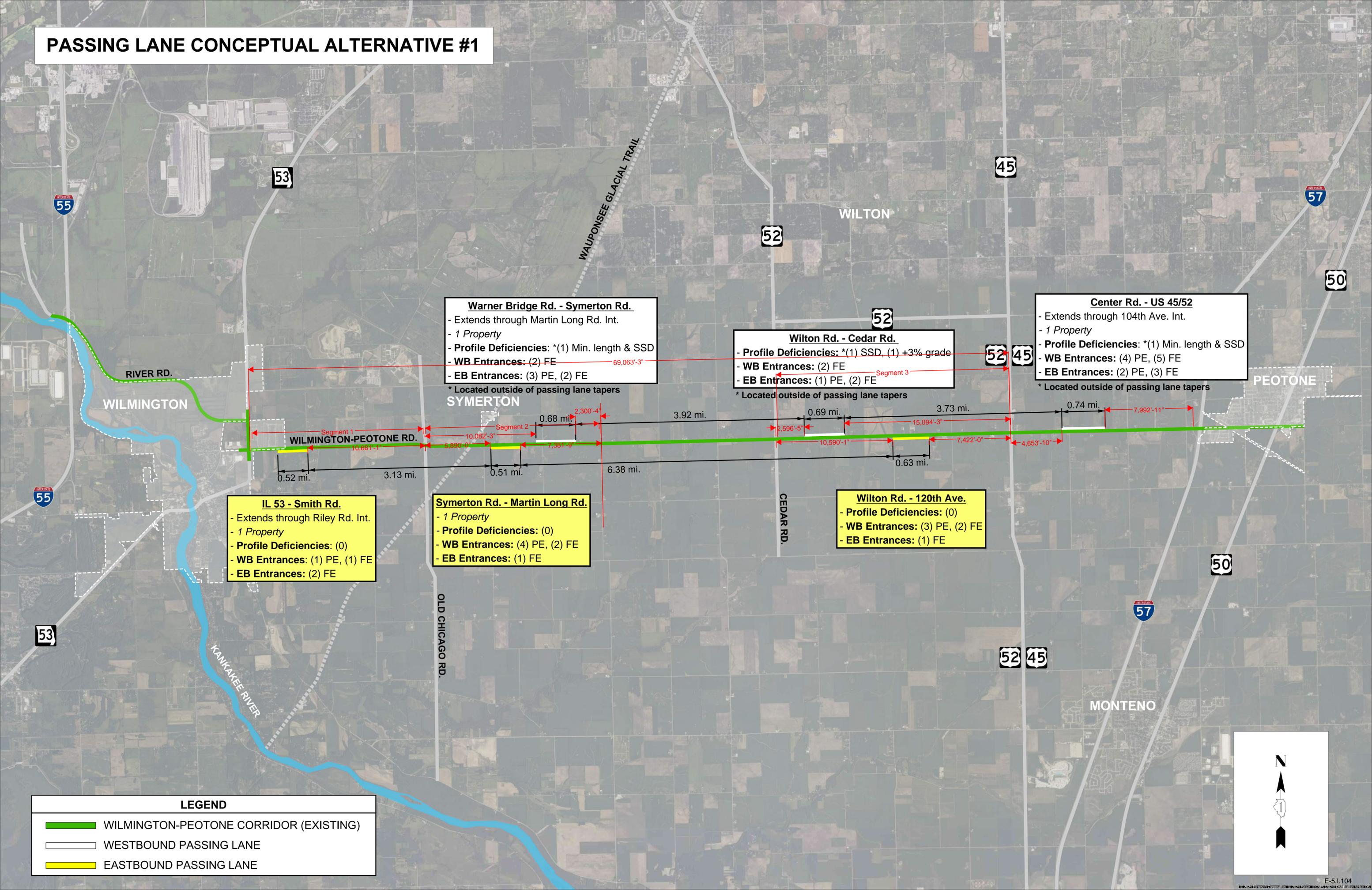
Total Zone Performance

| | |
|--------------------|-------|
| Denied Del/Veh (s) | 0.4 |
| Total Del/Veh (s) | 108.4 |

Appendix D

Passing Lane Alternatives: Operational Summary & Reports

PASSING LANE CONCEPTUAL ALTERNATIVE #1



Warner Bridge Rd. - Symerton Rd.
 - Extends through Martin Long Rd. Int.
 - 1 Property
 - Profile Deficiencies: *(1) Min. length & SSD
 - WB Entrances: (2) FE
 - EB Entrances: (3) PE, (2) FE
 * Located outside of passing lane tapers

Wilton Rd. - Cedar Rd.
 - Profile Deficiencies: *(1) SSD, (1) +3% grade
 - WB Entrances: (2) FE
 - EB Entrances: (1) PE, (2) FE
 * Located outside of passing lane tapers

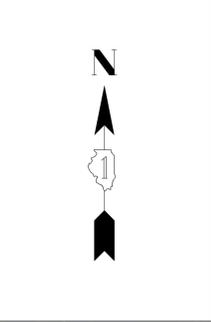
Center Rd. - US 45/52
 - Extends through 104th Ave. Int.
 - 1 Property
 - Profile Deficiencies: *(1) Min. length & SSD
 - WB Entrances: (4) PE, (5) FE
 - EB Entrances: (2) PE, (3) FE
 * Located outside of passing lane tapers

IL 53 - Smith Rd.
 - Extends through Riley Rd. Int.
 - 1 Property
 - Profile Deficiencies: (0)
 - WB Entrances: (1) PE, (1) FE
 - EB Entrances: (2) FE

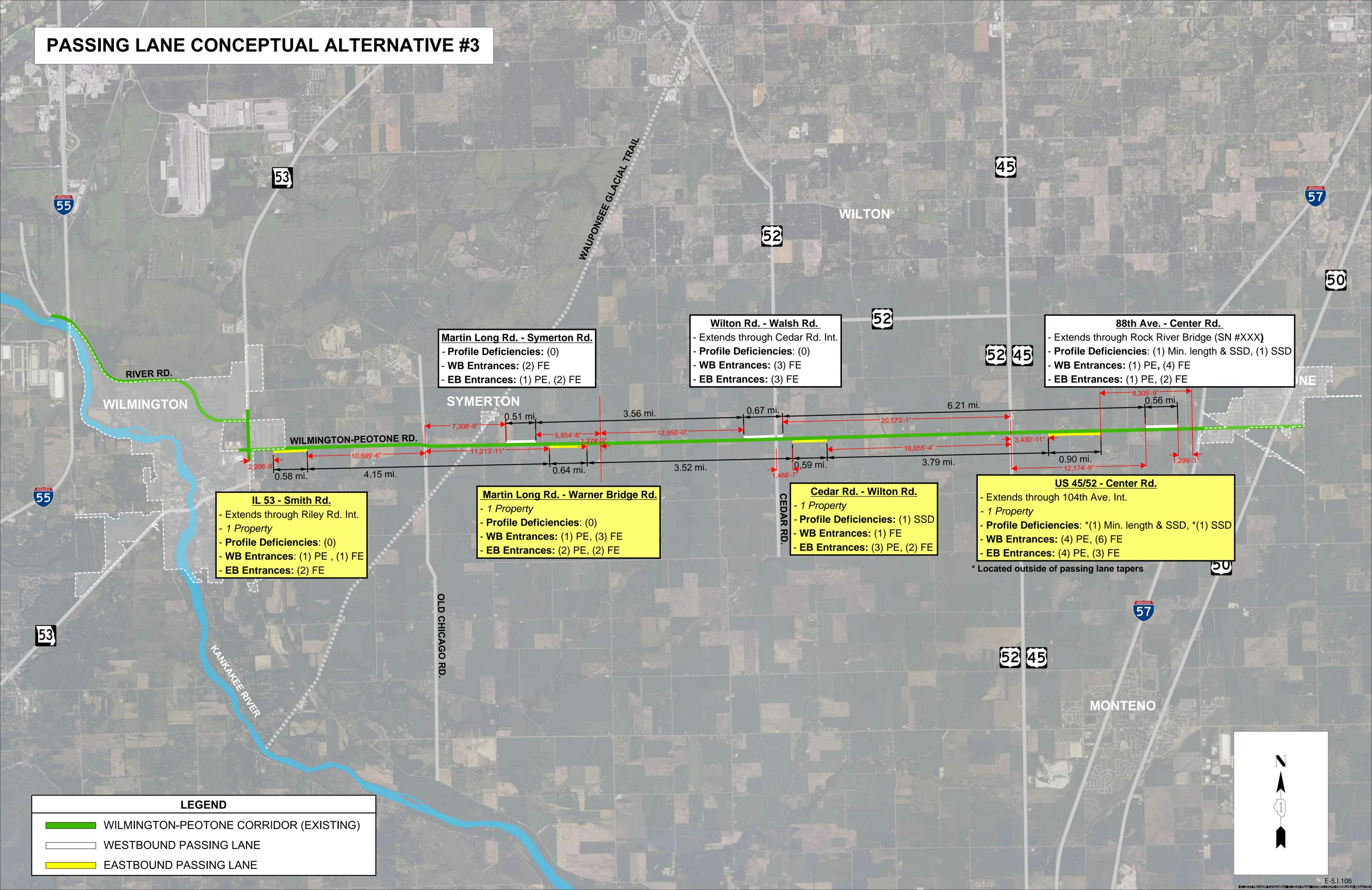
Symerton Rd. - Martin Long Rd.
 - 1 Property
 - Profile Deficiencies: (0)
 - WB Entrances: (4) PE, (2) FE
 - EB Entrances: (1) FE

Wilton Rd. - 120th Ave.
 - Profile Deficiencies: (0)
 - WB Entrances: (3) PE, (2) FE
 - EB Entrances: (1) FE

| LEGEND | |
|--------|--|
| | WILMINGTON-PEOTONE CORRIDOR (EXISTING) |
| | WESTBOUND PASSING LANE |
| | EASTBOUND PASSING LANE |



PASSING LANE CONCEPTUAL ALTERNATIVE #3



Martin Long Rd. - Symerton Rd.
 - Profile Deficiencies: (0)
 - WB Entrances: (2) FE
 - EB Entrances: (1) PE, (2) FE

Wilton Rd. - Walsh Rd.
 - Extends through Cedar Rd. Int.
 - Profile Deficiencies: (0)
 - WB Entrances: (3) FE
 - EB Entrances: (3) FE

88th Ave. - Center Rd.
 - Extends through Rock River Bridge (SN #XXX)
 - Profile Deficiencies: (1) Min. length & SSD, (1) SSD
 - WB Entrances: (1) PE, (4) FE
 - EB Entrances: (1) PE, (2) FE

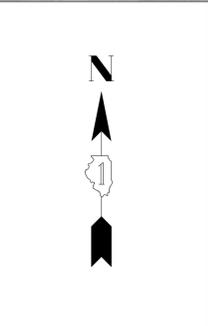
IL 53 - Smith Rd.
 - Extends through Riley Rd. Int.
 - 1 Property
 - Profile Deficiencies: (0)
 - WB Entrances: (1) PE, (1) FE
 - EB Entrances: (2) FE

Martin Long Rd. - Warner Bridge Rd.
 - 1 Property
 - Profile Deficiencies: (0)
 - WB Entrances: (1) PE, (3) FE
 - EB Entrances: (2) PE, (2) FE

Cedar Rd. - Wilton Rd.
 - 1 Property
 - Profile Deficiencies: (1) SSD
 - WB Entrances: (1) FE
 - EB Entrances: (3) PE, (2) FE

US 45/52 - Center Rd.
 - Extends through 104th Ave. Int.
 - 1 Property
 - Profile Deficiencies: *(1) Min. length & SSD, *(1) SSD
 - WB Entrances: (4) PE, (6) FE
 - EB Entrances: (4) PE, (3) FE
 * Located outside of passing lane tapers

| LEGEND | |
|--------|--|
| | WILMINGTON-PEOTONE CORRIDOR (EXISTING) |
| | WESTBOUND PASSING LANE |
| | EASTBOUND PASSING LANE |



| Concept | Direction | Segment | Location of Passing Lane | Passing Lane Length (mi) | Existing | | | | | Proposed | | | | | Difference (Existing - Proposed) | | | |
|---------|-----------|---------|-----------------------------|--------------------------|---------------------|-------------------|---------------------------|-------------------|-------------|---------------------|-------------------|---------------------------|-------------------|-------------|----------------------------------|-------------------|---------------------------|-------------------|
| | | | | | Average Speed (mph) | Percent Followers | Segment Travel Time (min) | Followers Density | Vehicle LOS | Average Speed (mph) | Percent Followers | Segment Travel Time (min) | Followers Density | Vehicle LOS | Average Speed (mph) | Percent Followers | Segment Travel Time (min) | Followers Density |
| 1 | EB | 1 | IL 53 - Old Chicago | 0.52 | 59.3 | 46.1 | 0.53 | 2.9 | B | 57.3 | 41.4 | 0.54 | 2.7 | B | -2.0 | -4.7 | 0.01 | -0.2 |
| 1 | EB | 2 | Old Chicago - Warner Bridge | 0.51 | 59.0 | 37.0 | 0.52 | 1.8 | A | 57.8 | 34.1 | 0.53 | 1.7 | A | -1.2 | -2.9 | 0.01 | -0.1 |
| 1 | EB | 3 | Cedar - US 52 | 0.63 | 60.1 | 34.9 | 0.63 | 1.6 | A | 58.4 | 34.1 | 0.65 | 1.6 | A | -1.7 | -0.8 | 0.02 | 0.0 |
| 1 | WB | 1 | I-57 NB Ramps - US 52 | 0.74 | 60.5 | 29.4 | 0.73 | 1.0 | A | 59.1 | 28.3 | 0.75 | 1.0 | A | -1.4 | -1.1 | 0.02 | 0.0 |
| 1 | WB | 2 | US 52 - Cedar | 0.69 | 60.3 | 31.3 | 0.69 | 1.2 | A | 58.9 | 30.2 | 0.70 | 1.2 | A | -1.4 | -1.1 | 0.01 | 0.0 |
| 1 | WB | 3 | Warner Bridge - Old Chicago | 0.68 | 59.7 | 36.9 | 0.51 | 1.8 | A | 57.7 | 33.4 | 0.53 | 1.7 | A | -2.0 | -3.5 | 0.02 | -0.1 |
| 3 | EB | 1 | IL 53 - Old Chicago | 0.58 | 59.3 | 45.8 | 0.59 | 2.9 | B | 57.4 | 40.5 | 0.61 | 2.6 | B | -1.9 | -5.3 | 0.02 | -0.3 |
| 3 | EB | 2 | Old Chicago - Warner Bridge | 0.64 | 59.0 | 36.5 | 0.65 | 1.8 | A | 56.8 | 25.0 | 0.68 | 1.3 | A | -2.2 | -11.5 | 0.03 | -0.5 |
| 3 | EB | 3 | Cedar - US 52 | 0.59 | 60.1 | 35.0 | 0.59 | 1.6 | A | 58.4 | 34.7 | 0.61 | 1.6 | A | -1.7 | -0.3 | 0.02 | 0.0 |
| 3 | EB | 4 | US 52 - I-57 NB Ramps | 0.9 | 60.4 | 31.0 | 0.89 | 1.2 | A | 59.1 | 29.4 | 0.91 | 1.2 | A | -1.3 | -1.6 | 0.02 | 0.0 |
| 3 | WB | 1 | IL 53 - Old Chicago | 0.56 | 59.3 | 45.8 | 0.59 | 2.9 | B | 57.4 | 40.5 | 0.61 | 2.6 | B | -1.9 | -5.3 | 0.02 | -0.3 |
| 3 | WB | 2 | Old Chicago - Warner Bridge | 0.67 | 60.3 | 31.5 | 0.67 | 1.2 | A | 58.9 | 30.5 | 0.68 | 1.2 | A | -1.4 | -1.0 | 0.01 | 0.0 |
| 3 | WB | 3 | Cedar - US 52 | 0.51 | 59.7 | 36.9 | 0.51 | 1.8 | A | 57.7 | 33.4 | 0.53 | 1.7 | A | -2.0 | -3.5 | 0.02 | -0.1 |

HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 1 - EB - Segment 1 - Existing | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|------|
| Segment Type | Passing Constrained | Length, ft | 2600 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.22 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.5 |
| Speed Slope Coefficient | 3.86266 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.32359 | PF Power Coefficient | 0.76184 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 2.9 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2600 | - | - | 59.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.3 | Percent Followers, % | 46.3 |
| Segment Travel Time, minutes | 0.50 | Followers Density, followers/mi/ln | 2.9 |
| Vehicle LOS | B | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|------|
| Segment Type | Passing Constrained | Length, ft | 2745 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.22 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.5 |
| Speed Slope Coefficient | 3.86465 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.31949 | PF Power Coefficient | 0.76302 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 2.9 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2745 | - | - | 59.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.3 | Percent Followers, % | 46.1 |
| Segment Travel Time, minutes | 0.53 | Followers Density, followers/mi/ln | 2.9 |
| Vehicle LOS | B | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|-------|
| Segment Type | Passing Constrained | Length, ft | 10680 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.22 |

Intermediate Results

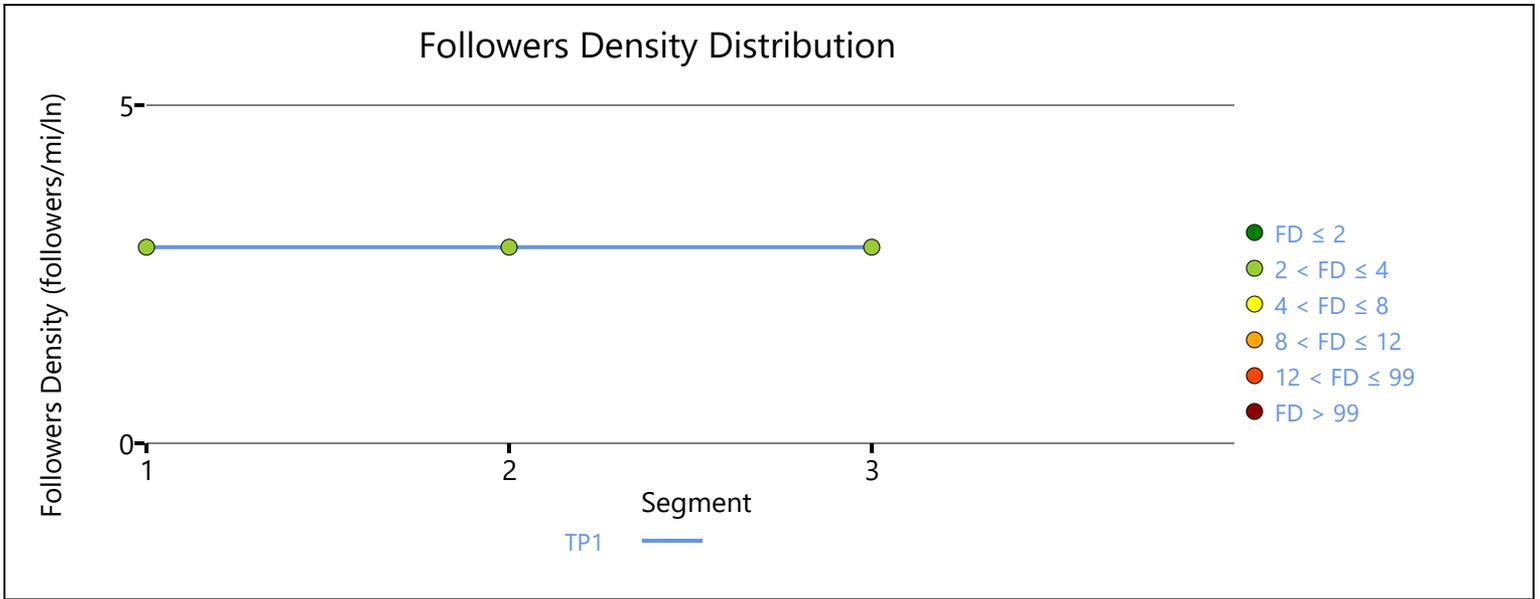
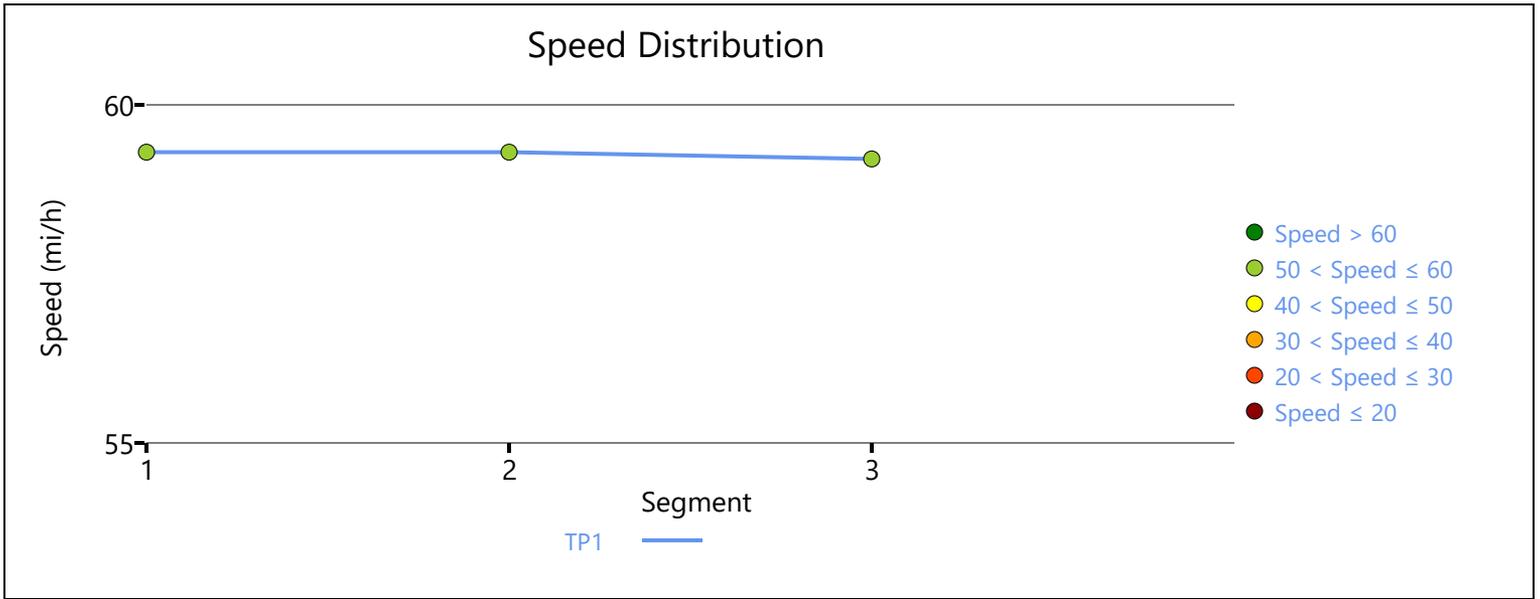
| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.5 |
| Speed Slope Coefficient | 3.93680 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.28940 | PF Power Coefficient | 0.74051 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 2.9 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 10680 | - | - | 59.2 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|-----------|
| Average Speed, mi/h | 59.2 | Percent Followers, % | 46.1 |
| Segment Travel Time, minutes | 2.05 | Followers Density, followers/mi/ln | 2.9 |
| Vehicle LOS | B | | E-5.I.108 |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 1 - EB - Segment 1 - Proposed | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|------|
| Segment Type | Passing Constrained | Length, ft | 2600 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.22 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.5 |
| Speed Slope Coefficient | 3.86266 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.32359 | PF Power Coefficient | 0.76184 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 2.9 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2600 | - | - | 59.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.3 | Percent Followers, % | 46.3 |
| Segment Travel Time, minutes | 0.50 | Followers Density, followers/mi/ln | 2.9 |
| Vehicle LOS | B | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------|------------------------------|------|
| Segment Type | Passing Lanes | Length, ft | 2745 |
| Lane Width, ft | 12 | Shoulder Width, ft | 4 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1100 | Demand/Capacity (D/C) | 0.34 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.1 |
| Speed Slope Coefficient | 9.17568 | Speed Power Coefficient | 0.91676 |
| PF Slope Coefficient | -1.11137 | PF Power Coefficient | 0.73708 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 2.7 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2745 | - | - | 57.3 |

Passing Lane Results

| | Faster Lane | Slower Lane |
|---|-------------|-------------|
| Flow Rate, veh/h | 216 | 154 |
| Percentage of Heavy Vehicles (HV%), % | 14.44 | 66.60 |
| Initial Average Speed (S _{int}), mi/h | 59.7 | 58.5 |
| Average Speed at Midpoint (S _{PLmid}), mi/h | 61.9 | 56.3 |
| Percent Followers at Midpoint (PF _{PLmid}), % | 31.5 | 20.2 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 57.3 | Percent Followers, % | 41.4 |
| Segment Travel Time, minutes | 0.54 | Followers Density, followers/mi/ln | 2.7 |
| Vehicle LOS | B | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|-------|
| Segment Type | Passing Constrained | Length, ft | 16526 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

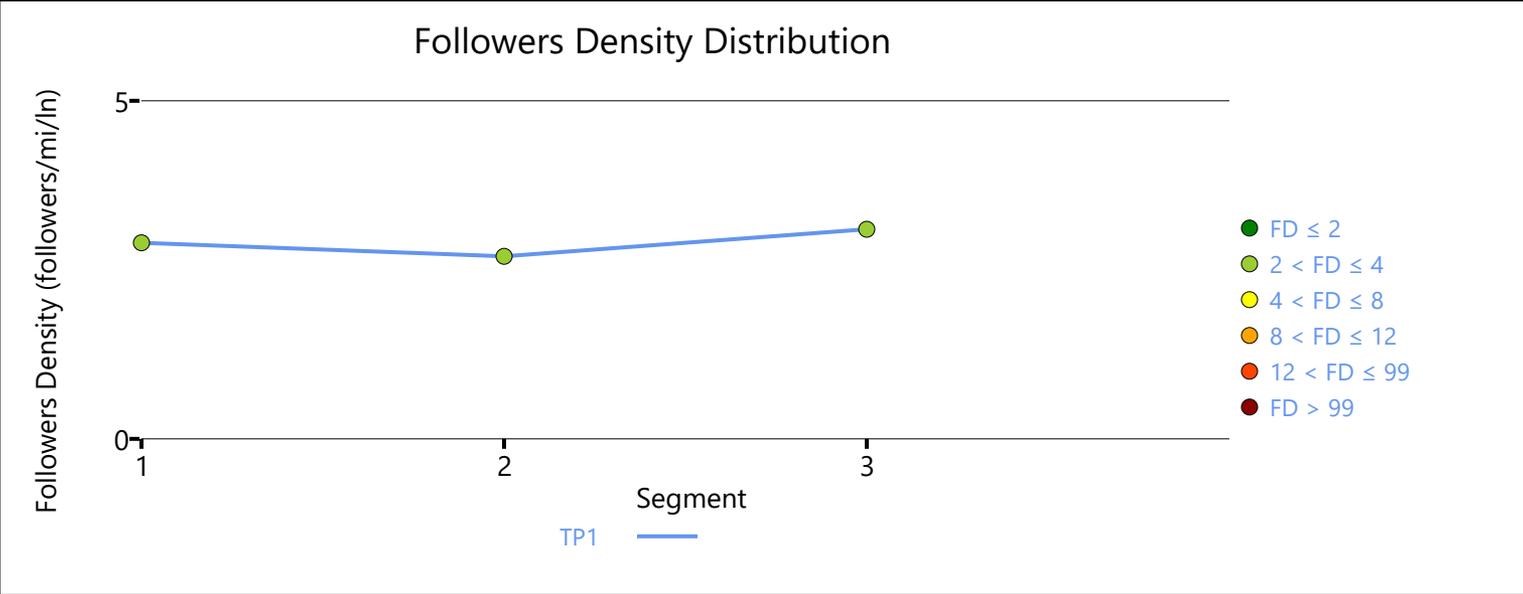
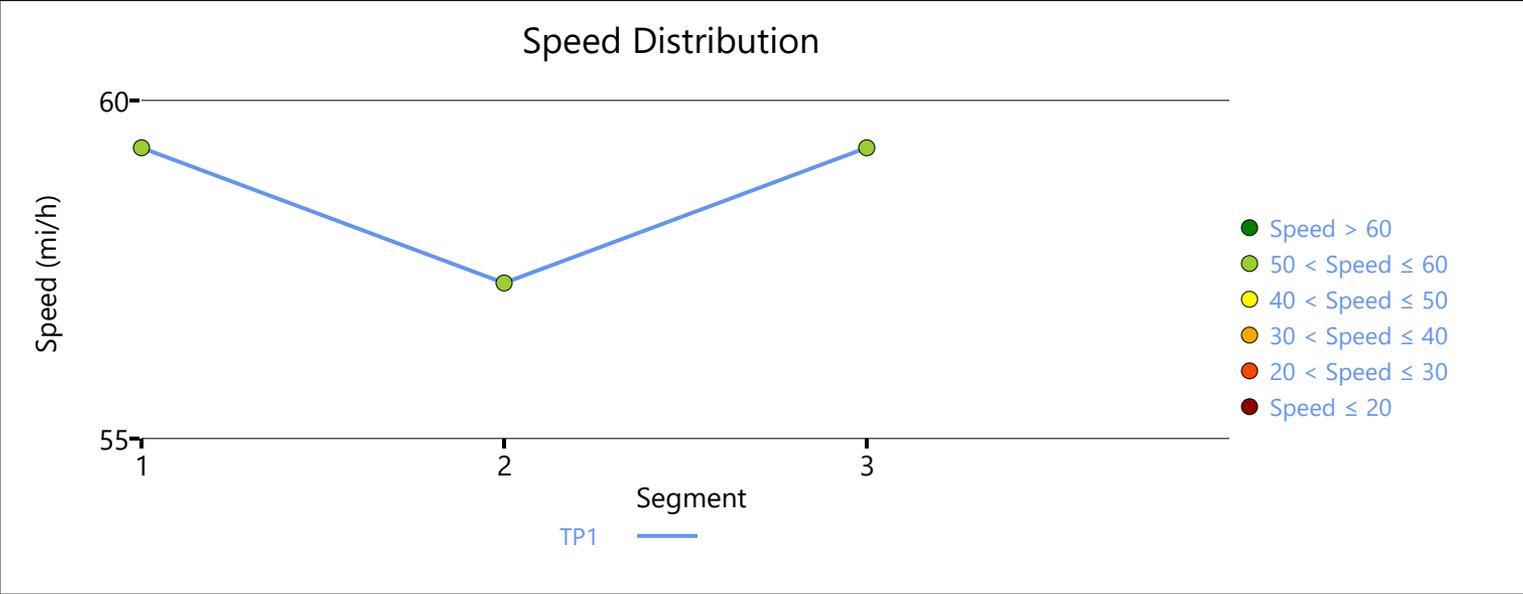
| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.22 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.5 |
| Speed Slope Coefficient | 3.96868 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.34909 | PF Power Coefficient | 0.68975 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 3.1 |
| %Improved % Followers | 11.3 | % Improved Avg Speed | 0.2 |

| Subsegment Data | | | | | |
|-----------------|--------------|------------|------------|-------------------|---------------------|
| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
| 1 | Tangent | 16526 | - | - | 59.2 |

| Vehicle Results | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.3 | Percent Followers, % | 49.3 |
| Segment Travel Time, minutes | 3.16 | Followers Density, followers/mi/ln | 2.7 |
| Vehicle LOS | B | | |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 1 - EB - Segment 2 - Existing | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 5890 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 289 | Opposing Demand Flow Rate, veh/h | 287 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 66.40 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.5 |
| Speed Slope Coefficient | 3.61866 | Speed Power Coefficient | 0.51790 |
| PF Slope Coefficient | -1.21654 | PF Power Coefficient | 0.81421 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.8 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 5890 | - | - | 59.0 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.0 | Percent Followers, % | 35.8 |
| Segment Travel Time, minutes | 1.14 | Followers Density, followers/mi/ln | 1.8 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 2693 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|-----|
| Directional Demand Flow Rate, veh/h | 289 | Opposing Demand Flow Rate, veh/h | 287 |
|-------------------------------------|-----|----------------------------------|-----|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 66.40 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.5 |
| Speed Slope Coefficient | 3.58347 | Speed Power Coefficient | 0.51790 |
| PF Slope Coefficient | -1.25813 | PF Power Coefficient | 0.80708 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.8 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2693 | - | - | 59.0 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.0 | Percent Followers, % | 37.0 |
| Segment Travel Time, minutes | 0.52 | Followers Density, followers/mi/ln | 1.8 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 7380 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 289 | Opposing Demand Flow Rate, veh/h | 287 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 66.40 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

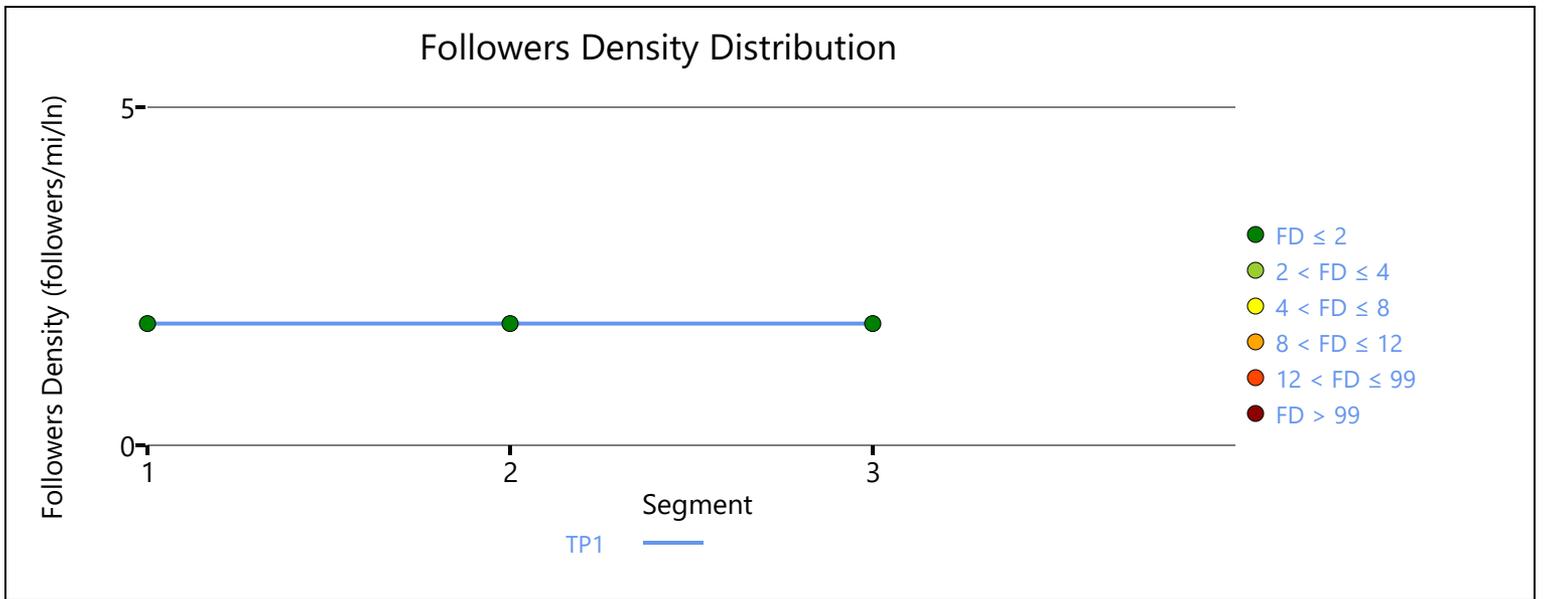
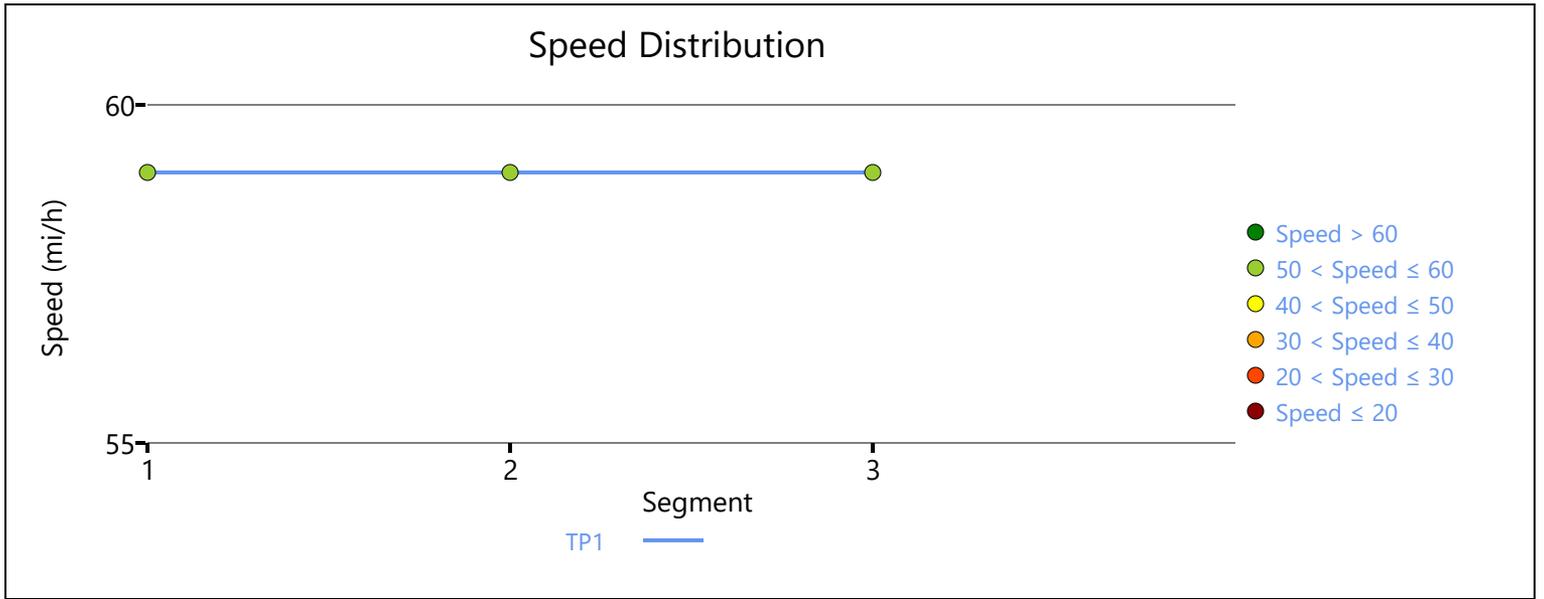
| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.5 |
| Speed Slope Coefficient | 3.63163 | Speed Power Coefficient | 0.51790 |
| PF Slope Coefficient | -1.21408 | PF Power Coefficient | 0.80866 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.8 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 7380 | - | - | 59.0 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|-----------|
| Average Speed, mi/h | 59.0 | Percent Followers, % | 35.9 |
| Segment Travel Time, minutes | 1.42 | Followers Density, followers/mi/ln | 1.8 |
| Vehicle LOS | A | | E-5.I.114 |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 1 - EB - Segment 2 - Proposed | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|------|
| Segment Type | Passing Constrained | Length, ft | 5890 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 289 | Opposing Demand Flow Rate, veh/h | - |
| Peak Hour Factor | 0.94 | Total Trucks, % | 42.30 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.3 |
| Speed Slope Coefficient | 3.88795 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.27812 | PF Power Coefficient | 0.76887 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.9 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 5890 | - | - | 59.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.3 | Percent Followers, % | 38.9 |
| Segment Travel Time, minutes | 1.13 | Followers Density, followers/mi/ln | 1.9 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------|------------------------------|------|
| Segment Type | Passing Lanes | Length, ft | 2693 |
| Lane Width, ft | 12 | Shoulder Width, ft | 4 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 289 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 42.30 |
| Segment Capacity, veh/h | 1100 | Demand/Capacity (D/C) | 0.26 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 59.9 |
| Speed Slope Coefficient | 9.92987 | Speed Power Coefficient | 0.94040 |
| PF Slope Coefficient | -1.00343 | PF Power Coefficient | 0.70834 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.7 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2693 | - | - | 57.8 |

Passing Lane Results

| | Faster Lane | Slower Lane |
|---|-------------|-------------|
| Flow Rate, veh/h | 174 | 116 |
| Percentage of Heavy Vehicles (HV%), % | 16.92 | 80.45 |
| Initial Average Speed (S _{int}), mi/h | 60.0 | 58.5 |
| Average Speed at Midpoint (S _{PLmid}), mi/h | 62.2 | 56.2 |
| Percent Followers at Midpoint (PF _{PLmid}), % | 28.6 | 15.8 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 57.8 | Percent Followers, % | 34.1 |
| Segment Travel Time, minutes | 0.53 | Followers Density, followers/mi/ln | 1.7 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 7380 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

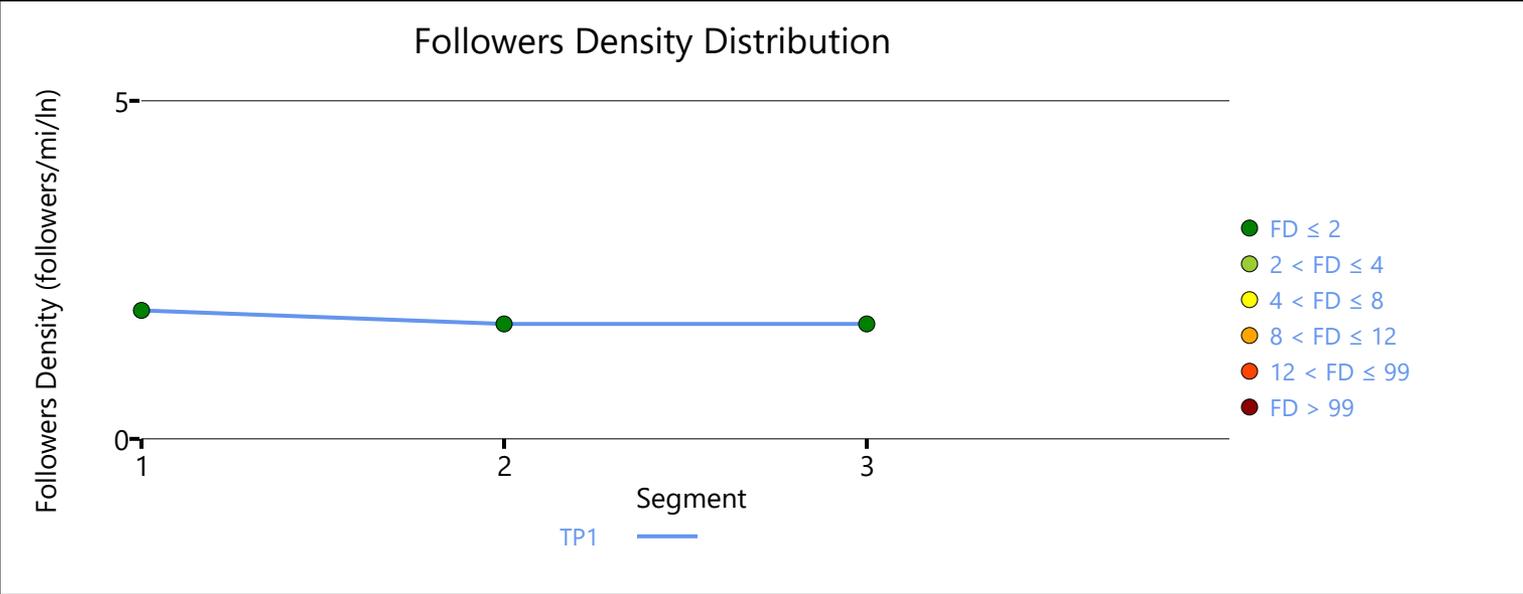
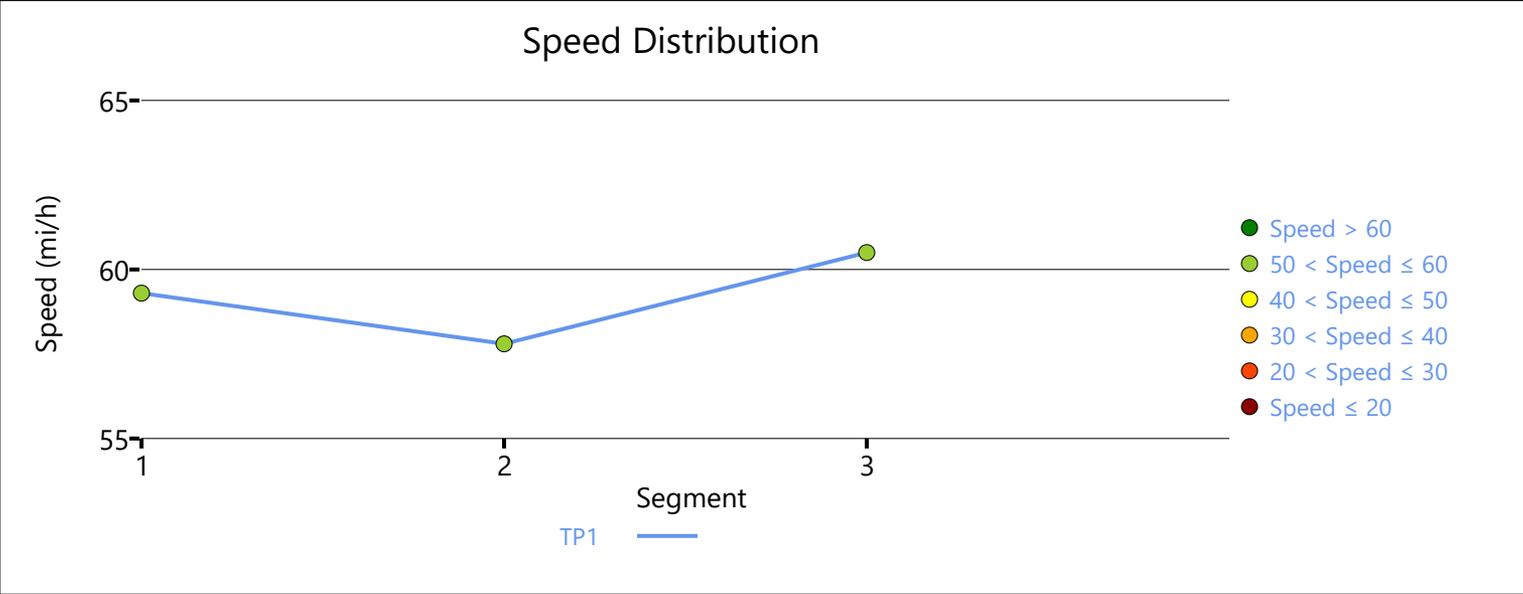
| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 289 | Opposing Demand Flow Rate, veh/h | 287 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 42.30 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.3 |
| Speed Slope Coefficient | 3.67513 | Speed Power Coefficient | 0.51790 |
| PF Slope Coefficient | -1.21255 | PF Power Coefficient | 0.80727 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 1.7 |
| %Improved % Followers | 17.0 | % Improved Avg Speed | 1.3 |

| Subsegment Data | | | | | |
|-----------------|--------------|------------|------------|-------------------|---------------------|
| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
| 1 | Tangent | 7380 | - | - | 59.7 |

| Vehicle Results | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.5 | Percent Followers, % | 36.0 |
| Segment Travel Time, minutes | 1.39 | Followers Density, followers/mi/ln | 1.4 |
| Vehicle LOS | A | | |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 1 - EB - Segment 3 - Existing | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|-------|
| Segment Type | Passing Zone | Length, ft | 10590 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 273 | Opposing Demand Flow Rate, veh/h | 231 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 33.60 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.16 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.69652 | Speed Power Coefficient | 0.53102 |
| PF Slope Coefficient | -1.21429 | PF Power Coefficient | 0.78870 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.6 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 10590 | - | - | 60.1 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.1 | Percent Followers, % | 35.4 |
| Segment Travel Time, minutes | 2.00 | Followers Density, followers/mi/ln | 1.6 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 3326 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|-----|
| Directional Demand Flow Rate, veh/h | 273 | Opposing Demand Flow Rate, veh/h | 231 |
|-------------------------------------|-----|----------------------------------|-----|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 33.60 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.16 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.63266 | Speed Power Coefficient | 0.53102 |
| PF Slope Coefficient | -1.23039 | PF Power Coefficient | 0.81332 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.6 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3326 | - | - | 60.1 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.1 | Percent Followers, % | 34.9 |
| Segment Travel Time, minutes | 0.63 | Followers Density, followers/mi/ln | 1.6 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 7420 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 273 | Opposing Demand Flow Rate, veh/h | 231 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 33.60 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.16 |

Intermediate Results

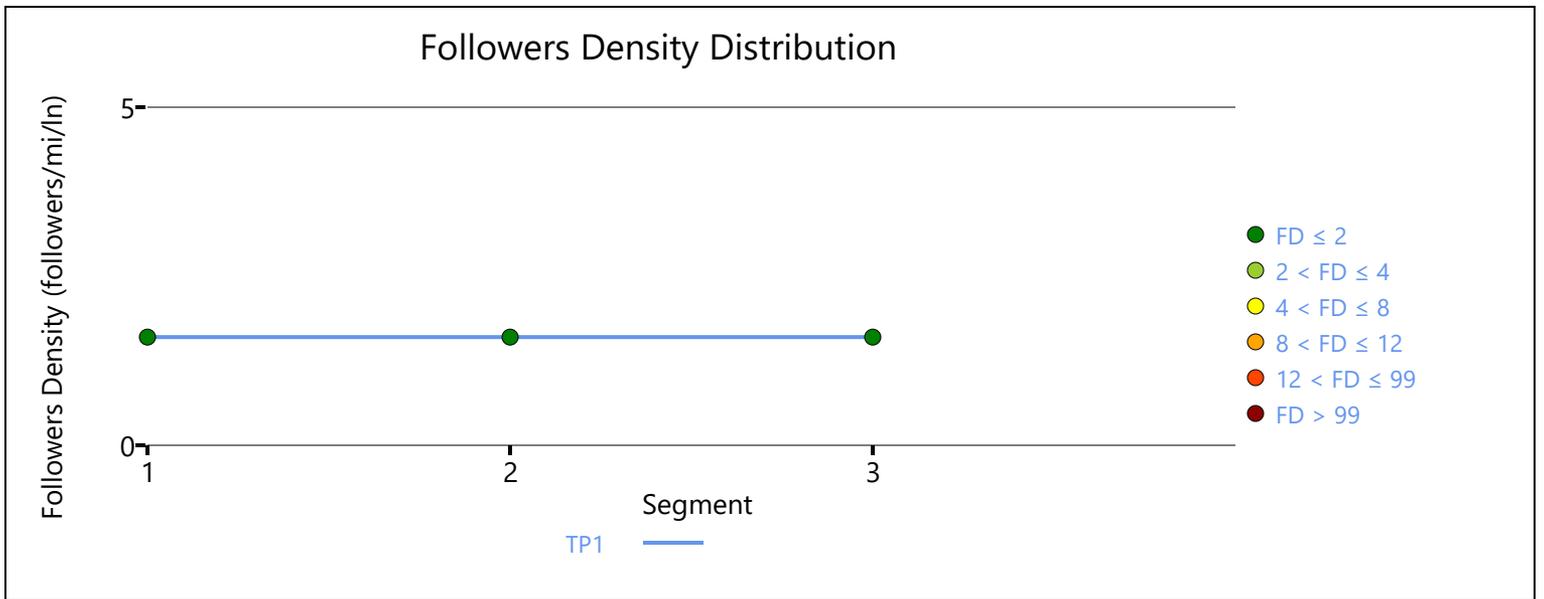
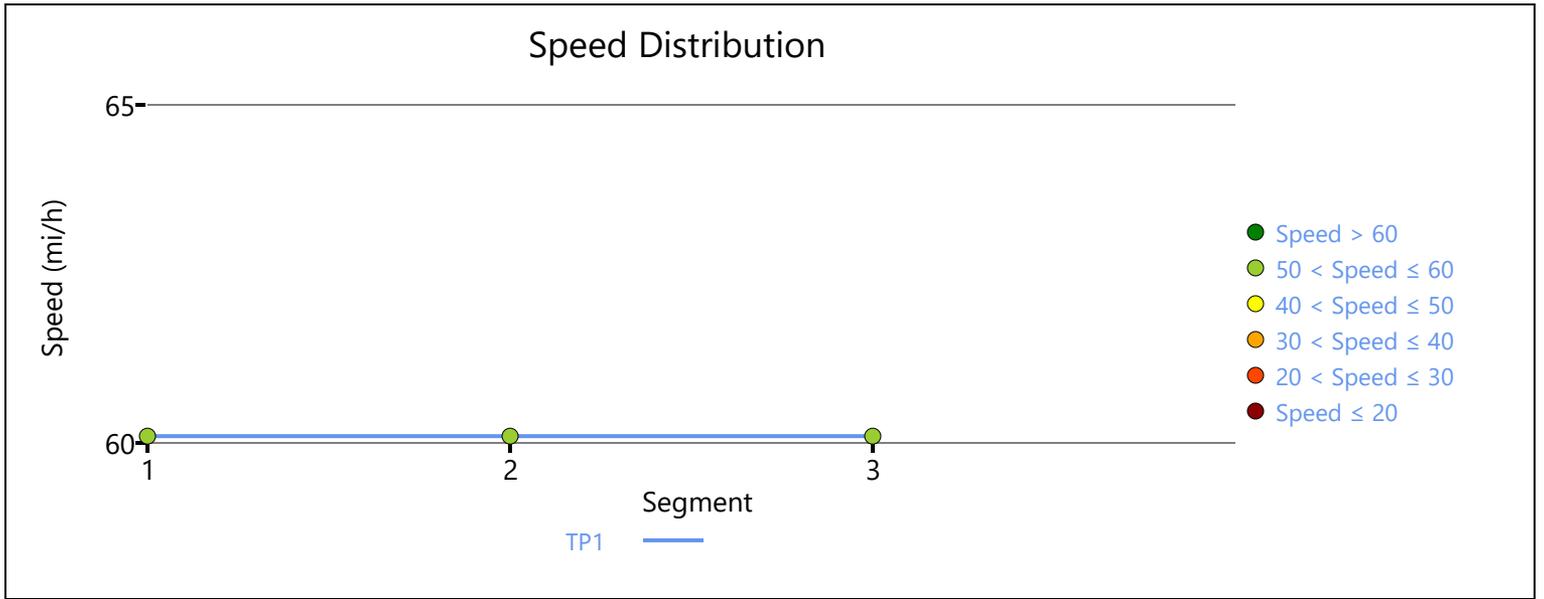
| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.67298 | Speed Power Coefficient | 0.53102 |
| PF Slope Coefficient | -1.20119 | PF Power Coefficient | 0.81047 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.6 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 7420 | - | - | 60.1 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|-----------|
| Average Speed, mi/h | 60.1 | Percent Followers, % | 34.3 |
| Segment Travel Time, minutes | 1.40 | Followers Density, followers/mi/ln | 1.6 |
| Vehicle LOS | A | | E-5.I.120 |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 1 - EB - Segment 3 - Proposed | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|-------|
| Segment Type | Passing Zone | Length, ft | 10590 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 273 | Opposing Demand Flow Rate, veh/h | 231 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 33.60 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.16 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.69652 | Speed Power Coefficient | 0.53102 |
| PF Slope Coefficient | -1.21429 | PF Power Coefficient | 0.78870 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 1.6 |
| %Improved % Followers | 5.3 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 10590 | - | - | 60.1 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.1 | Percent Followers, % | 35.4 |
| Segment Travel Time, minutes | 2.00 | Followers Density, followers/mi/ln | 1.6 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------|------------------------------|------|
| Segment Type | Passing Lanes | Length, ft | 3326 |
| Lane Width, ft | 12 | Shoulder Width, ft | 4 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 273 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 33.60 |
| Segment Capacity, veh/h | 1100 | Demand/Capacity (D/C) | 0.25 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.2 |
| Speed Slope Coefficient | 8.89986 | Speed Power Coefficient | 0.93154 |
| PF Slope Coefficient | -1.11927 | PF Power Coefficient | 0.76110 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.6 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3326 | - | - | 58.4 |

Passing Lane Results

| | Faster Lane | Slower Lane |
|---|-------------|-------------|
| Flow Rate, veh/h | 167 | 106 |
| Percentage of Heavy Vehicles (HV%), % | 13.44 | 65.46 |
| Initial Average Speed (S _{int}), mi/h | 60.2 | 59.1 |
| Average Speed at Midpoint (S _{PLmid}), mi/h | 62.3 | 57.0 |
| Percent Followers at Midpoint (PF _{PLmid}), % | 25.5 | 14.8 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 58.4 | Percent Followers, % | 34.1 |
| Segment Travel Time, minutes | 0.65 | Followers Density, followers/mi/ln | 1.6 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 7420 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

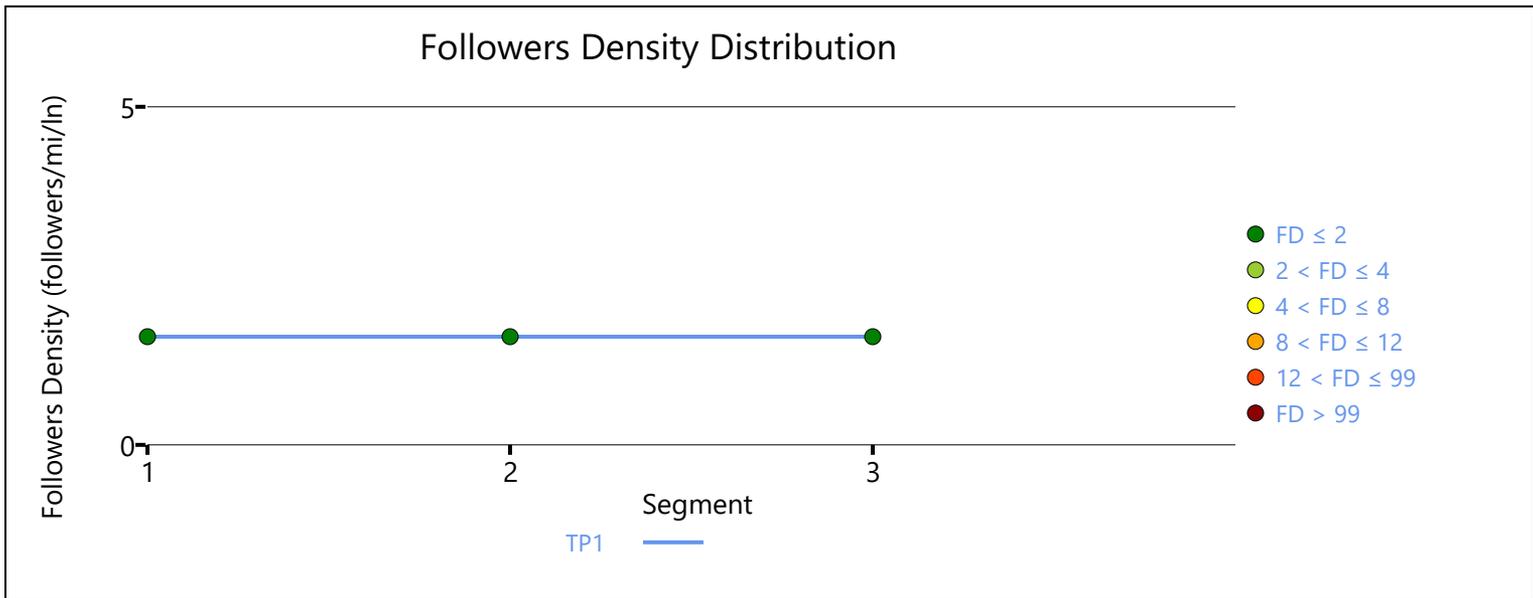
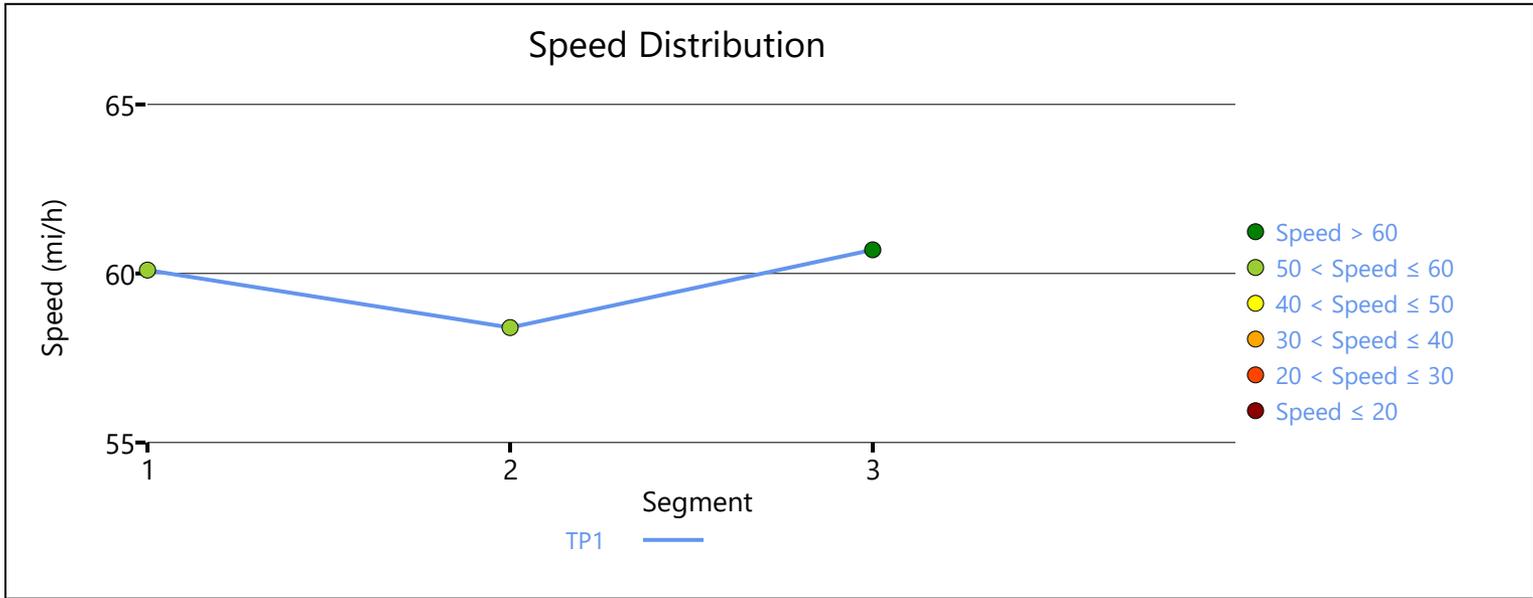
| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 273 | Opposing Demand Flow Rate, veh/h | 231 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 33.60 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.16 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.67298 | Speed Power Coefficient | 0.53102 |
| PF Slope Coefficient | -1.20119 | PF Power Coefficient | 0.81047 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 1.6 |
| %Improved % Followers | 17.0 | % Improved Avg Speed | 1.0 |

| Subsegment Data | | | | | |
|-----------------|--------------|------------|------------|-------------------|---------------------|
| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
| 1 | Tangent | 7420 | - | - | 60.1 |

| Vehicle Results | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.7 | Percent Followers, % | 34.3 |
| Segment Travel Time, minutes | 1.39 | Followers Density, followers/mi/ln | 1.3 |
| Vehicle LOS | A | | |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 1 - WB - Segment 1 - Existing | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 8000 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 215 | Opposing Demand Flow Rate, veh/h | 236 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.60 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.13 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.68126 | Speed Power Coefficient | 0.52969 |
| PF Slope Coefficient | -1.20307 | PF Power Coefficient | 0.80687 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.0 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 8000 | - | - | 60.4 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.4 | Percent Followers, % | 29.4 |
| Segment Travel Time, minutes | 1.50 | Followers Density, followers/mi/ln | 1.0 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 3907 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|-----|
| Directional Demand Flow Rate, veh/h | 215 | Opposing Demand Flow Rate, veh/h | 236 |
|-------------------------------------|-----|----------------------------------|-----|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.60 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.13 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.64312 | Speed Power Coefficient | 0.52969 |
| PF Slope Coefficient | -1.22180 | PF Power Coefficient | 0.81541 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.0 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3907 | - | - | 60.5 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.5 | Percent Followers, % | 29.4 |
| Segment Travel Time, minutes | 0.73 | Followers Density, followers/mi/ln | 1.0 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 4650 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 215 | Opposing Demand Flow Rate, veh/h | 236 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.60 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.13 |

Intermediate Results

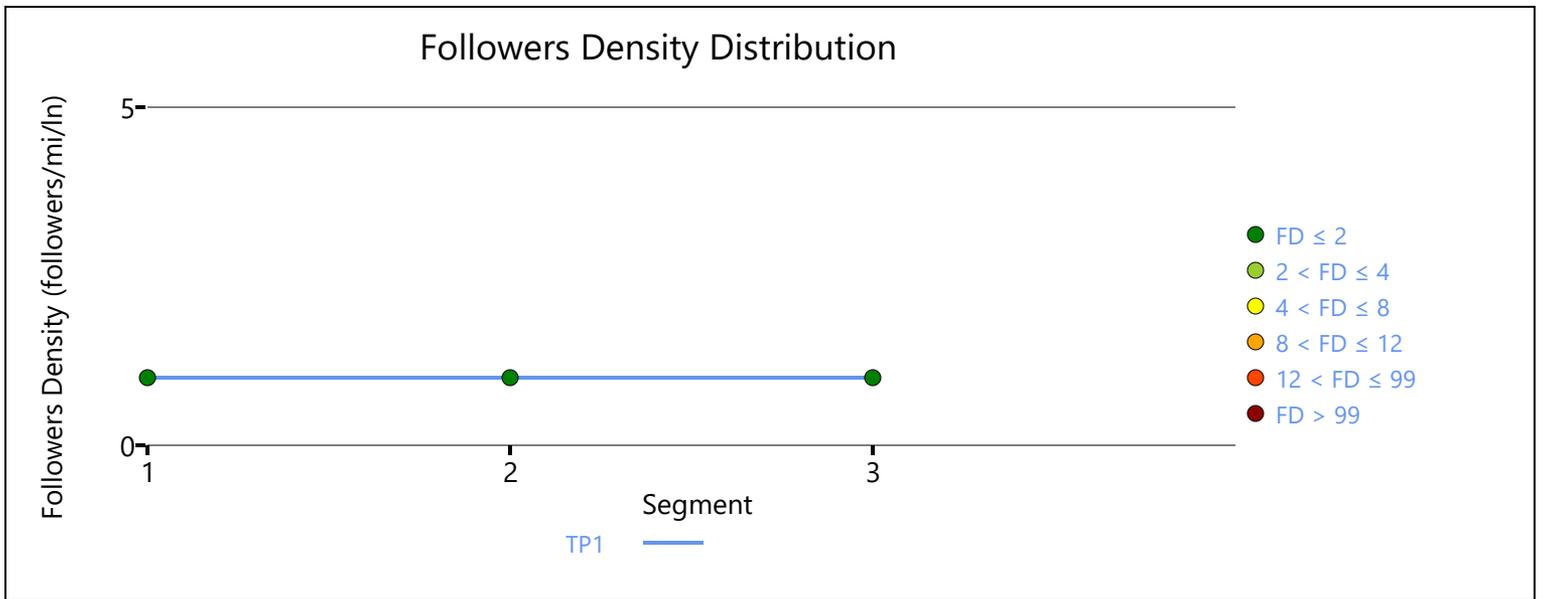
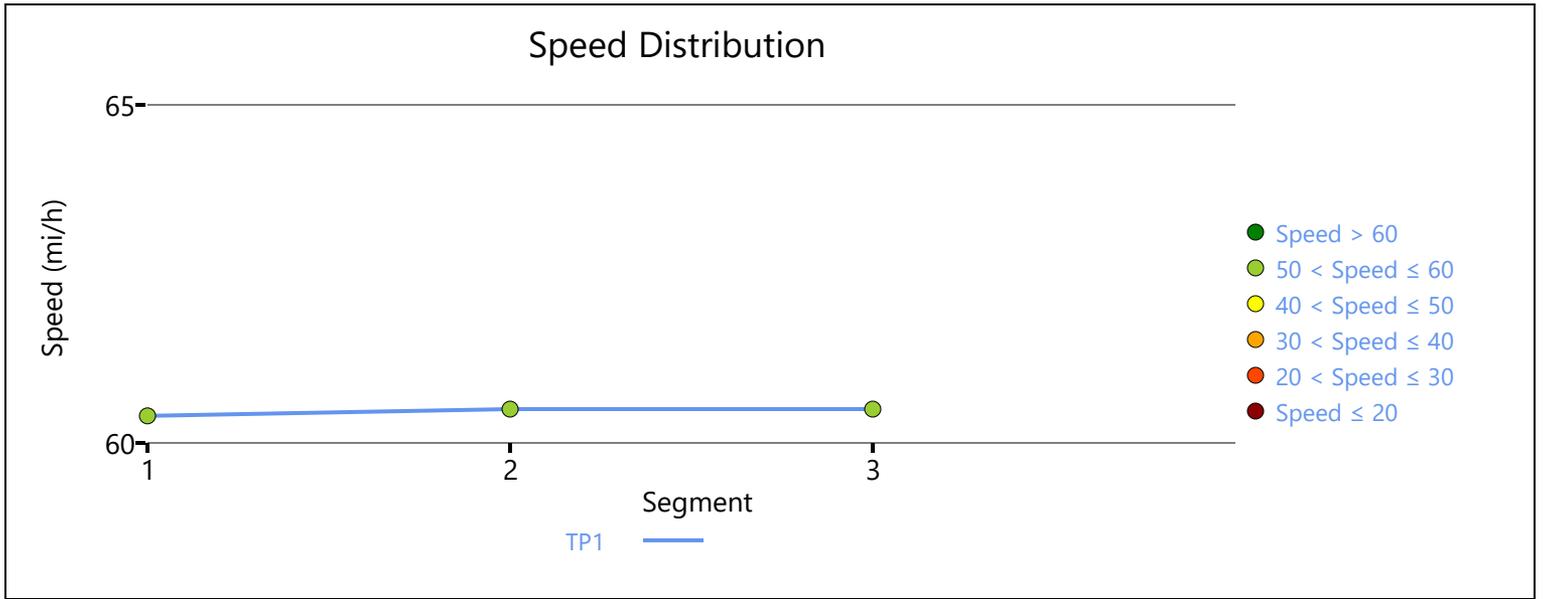
| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.65117 | Speed Power Coefficient | 0.52969 |
| PF Slope Coefficient | -1.21294 | PF Power Coefficient | 0.81683 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.0 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 4650 | - | - | 60.5 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|-----------|
| Average Speed, mi/h | 60.5 | Percent Followers, % | 29.2 |
| Segment Travel Time, minutes | 0.87 | Followers Density, followers/mi/ln | 1.0 |
| Vehicle LOS | A | | E-5.I.126 |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 1 - WB - Segment 1 - Proposed | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 8000 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 215 | Opposing Demand Flow Rate, veh/h | 236 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.60 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.13 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.68126 | Speed Power Coefficient | 0.52969 |
| PF Slope Coefficient | -1.20307 | PF Power Coefficient | 0.80687 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.0 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 8000 | - | - | 60.4 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.4 | Percent Followers, % | 29.4 |
| Segment Travel Time, minutes | 1.50 | Followers Density, followers/mi/ln | 1.0 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------|------------------------------|------|
| Segment Type | Passing Lanes | Length, ft | 3907 |
| Lane Width, ft | 12 | Shoulder Width, ft | 4 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 215 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.60 |
| Segment Capacity, veh/h | 1100 | Demand/Capacity (D/C) | 0.20 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.2 |
| Speed Slope Coefficient | 8.80714 | Speed Power Coefficient | 0.95341 |
| PF Slope Coefficient | -1.10492 | PF Power Coefficient | 0.77957 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.0 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3907 | - | - | 59.1 |

Passing Lane Results

| | Faster Lane | Slower Lane |
|---|-------------|-------------|
| Flow Rate, veh/h | 136 | 79 |
| Percentage of Heavy Vehicles (HV%), % | 13.04 | 66.07 |
| Initial Average Speed (S _{int}), mi/h | 60.5 | 59.1 |
| Average Speed at Midpoint (S _{PLmid}), mi/h | 62.6 | 57.0 |
| Percent Followers at Midpoint (PF _{PLmid}), % | 21.0 | 10.9 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.1 | Percent Followers, % | 28.3 |
| Segment Travel Time, minutes | 0.75 | Followers Density, followers/mi/ln | 1.0 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 4650 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

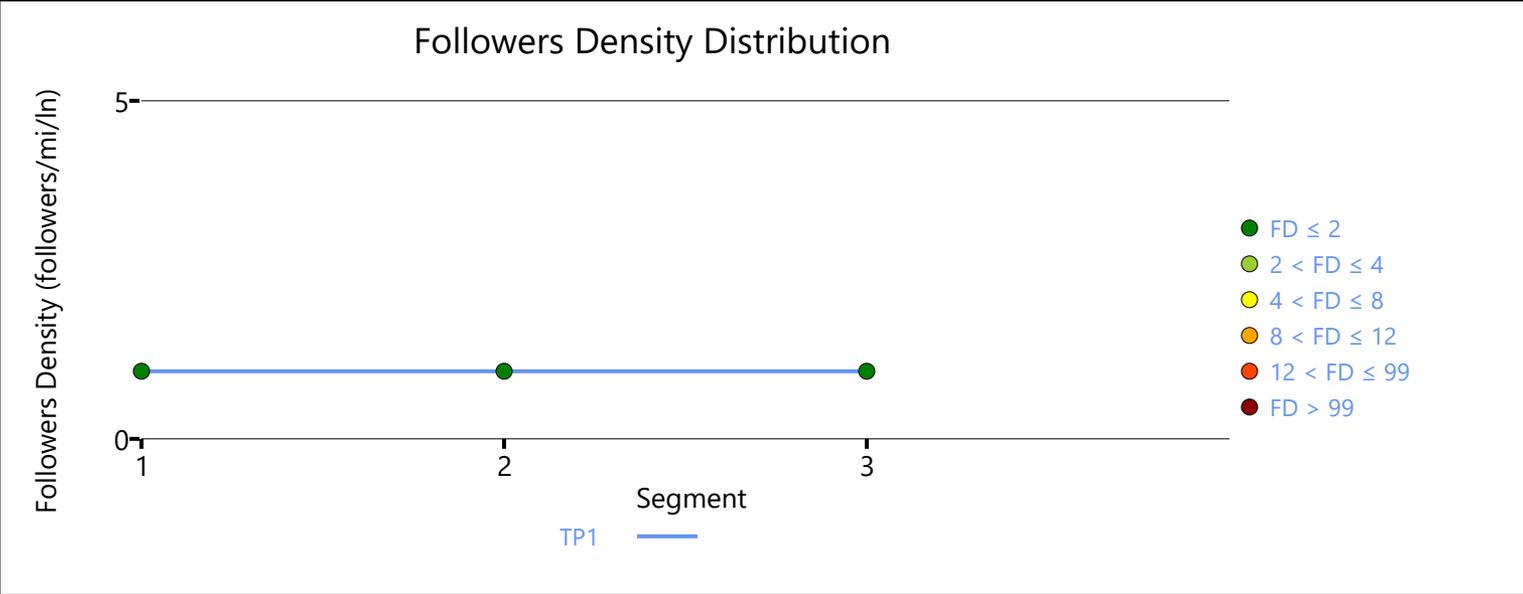
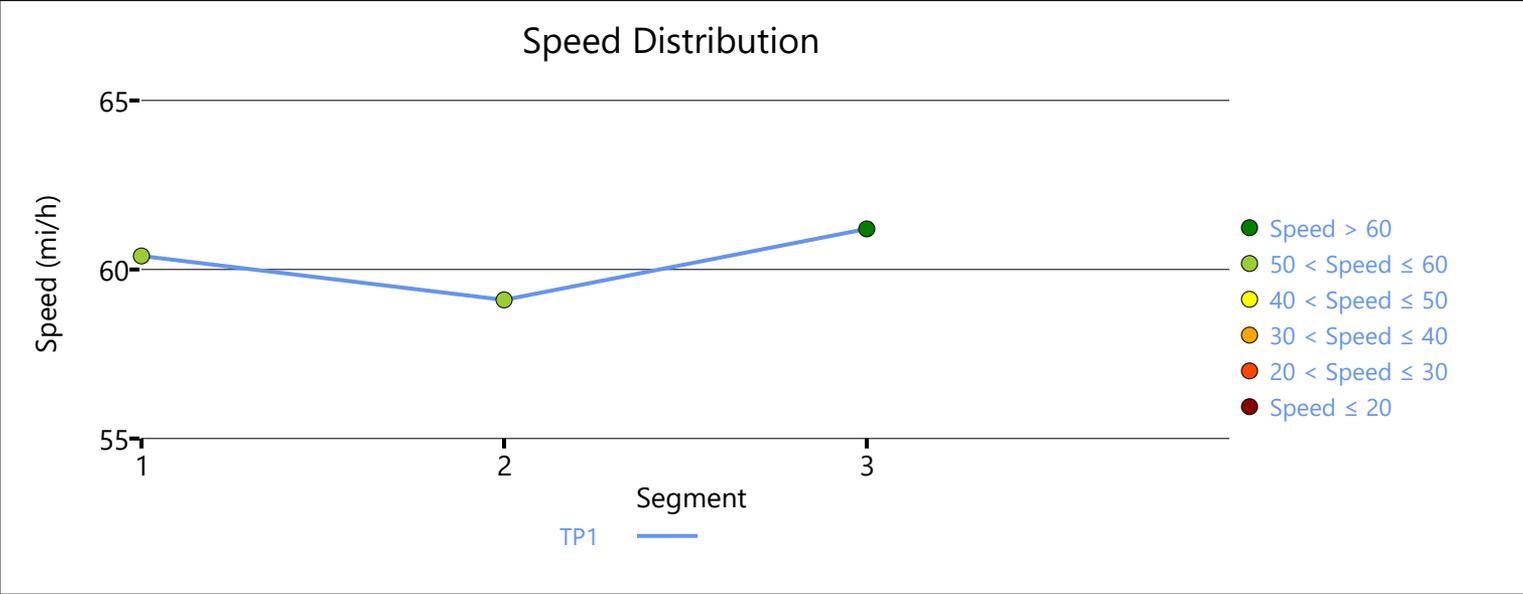
| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 215 | Opposing Demand Flow Rate, veh/h | 236 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.60 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.13 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.65117 | Speed Power Coefficient | 0.52969 |
| PF Slope Coefficient | -1.21294 | PF Power Coefficient | 0.81683 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 1.0 |
| %Improved % Followers | 19.6 | % Improved Avg Speed | 1.2 |

| Subsegment Data | | | | | |
|-----------------|--------------|------------|------------|-------------------|---------------------|
| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
| 1 | Tangent | 4650 | - | - | 60.5 |

| Vehicle Results | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 61.2 | Percent Followers, % | 29.2 |
| Segment Travel Time, minutes | 0.86 | Followers Density, followers/mi/ln | 0.8 |
| Vehicle LOS | A | | |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 1 - WB - Segment 2 - Existing | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|-------|
| Segment Type | Passing Zone | Length, ft | 15100 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 231 | Opposing Demand Flow Rate, veh/h | 273 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.80 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.14 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.71186 | Speed Power Coefficient | 0.52092 |
| PF Slope Coefficient | -1.22264 | PF Power Coefficient | 0.78572 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 8000 | - | - | 60.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.3 | Percent Followers, % | 32.1 |
| Segment Travel Time, minutes | 2.84 | Followers Density, followers/mi/ln | 1.2 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 3643 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|-----|
| Directional Demand Flow Rate, veh/h | 231 | Opposing Demand Flow Rate, veh/h | 273 |
|-------------------------------------|-----|----------------------------------|-----|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.80 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.14 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.65181 | Speed Power Coefficient | 0.52092 |
| PF Slope Coefficient | -1.23326 | PF Power Coefficient | 0.81194 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3643 | - | - | 60.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.3 | Percent Followers, % | 31.3 |
| Segment Travel Time, minutes | 0.69 | Followers Density, followers/mi/ln | 1.2 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 2600 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 231 | Opposing Demand Flow Rate, veh/h | 273 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.80 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.14 |

Intermediate Results

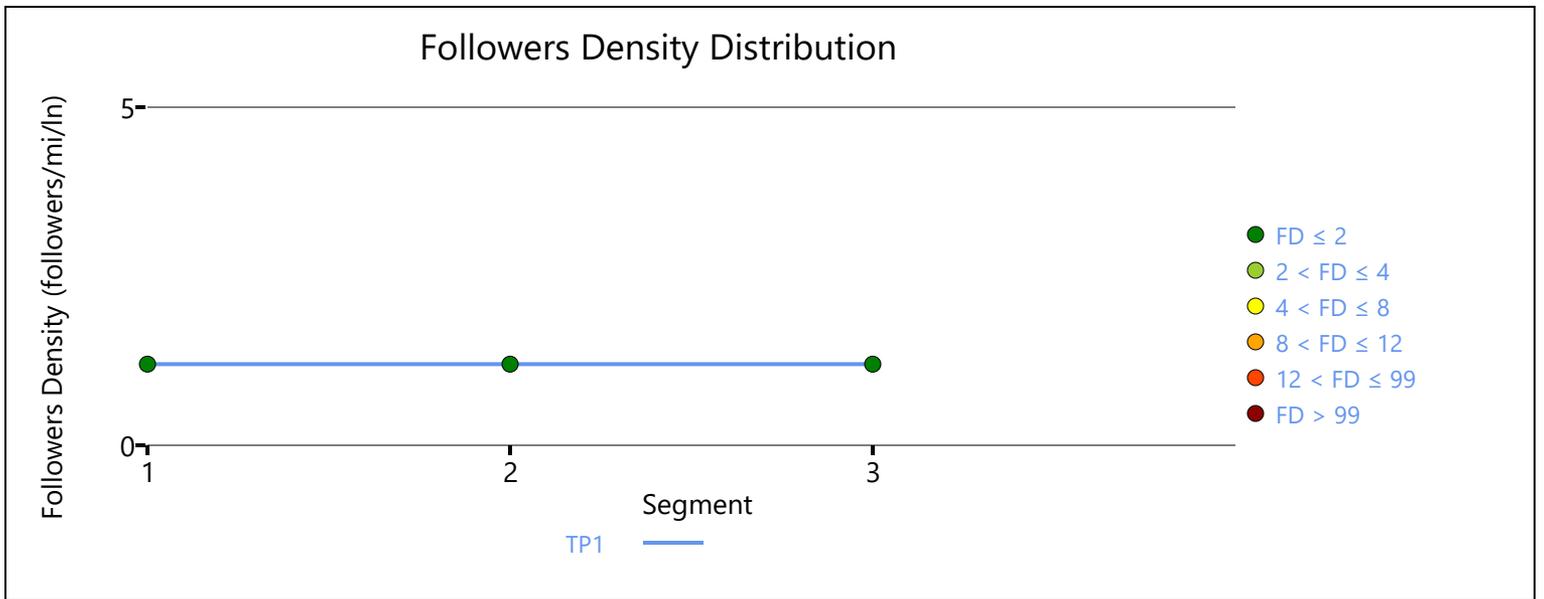
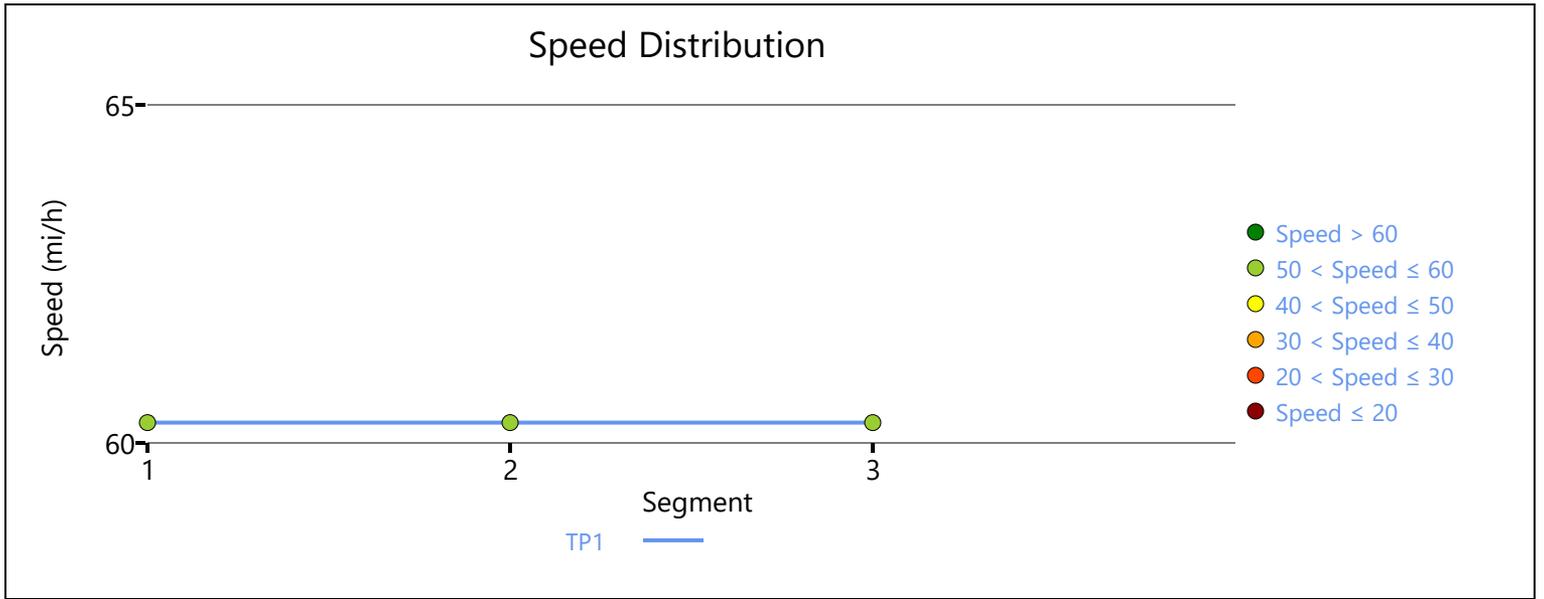
| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.63855 | Speed Power Coefficient | 0.52092 |
| PF Slope Coefficient | -1.25573 | PF Power Coefficient | 0.80507 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 4650 | - | - | 60.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|-----------|
| Average Speed, mi/h | 60.3 | Percent Followers, % | 32.0 |
| Segment Travel Time, minutes | 0.49 | Followers Density, followers/mi/ln | 1.2 |
| Vehicle LOS | A | | E-5.I.132 |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 1 - WB - Segment 2 - Existing | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|-------|
| Segment Type | Passing Zone | Length, ft | 15100 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 231 | Opposing Demand Flow Rate, veh/h | 273 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.80 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.14 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.71186 | Speed Power Coefficient | 0.52092 |
| PF Slope Coefficient | -1.22264 | PF Power Coefficient | 0.78572 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 15100 | - | - | 60.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.3 | Percent Followers, % | 32.1 |
| Segment Travel Time, minutes | 2.84 | Followers Density, followers/mi/ln | 1.2 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------|------------------------------|------|
| Segment Type | Passing Lanes | Length, ft | 3643 |
| Lane Width, ft | 12 | Shoulder Width, ft | 4 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 231 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.80 |
| Segment Capacity, veh/h | 1100 | Demand/Capacity (D/C) | 0.21 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.2 |
| Speed Slope Coefficient | 8.81822 | Speed Power Coefficient | 0.94249 |
| PF Slope Coefficient | -1.11556 | PF Power Coefficient | 0.77182 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3643 | - | - | 58.9 |

Passing Lane Results

| | Faster Lane | Slower Lane |
|--|-------------|-------------|
| Flow Rate, veh/h | 144 | 86 |
| Percentage of Heavy Vehicles (HV%), % | 13.12 | 65.72 |
| Initial Average Speed (Sint), mi/h | 60.4 | 59.1 |
| Average Speed at Midpoint (SPLmid), mi/h | 62.5 | 57.0 |
| Percent Followers at Midpoint (PFPLmid), % | 22.5 | 12.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 58.9 | Percent Followers, % | 30.2 |
| Segment Travel Time, minutes | 0.70 | Followers Density, followers/mi/ln | 1.2 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 2600 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

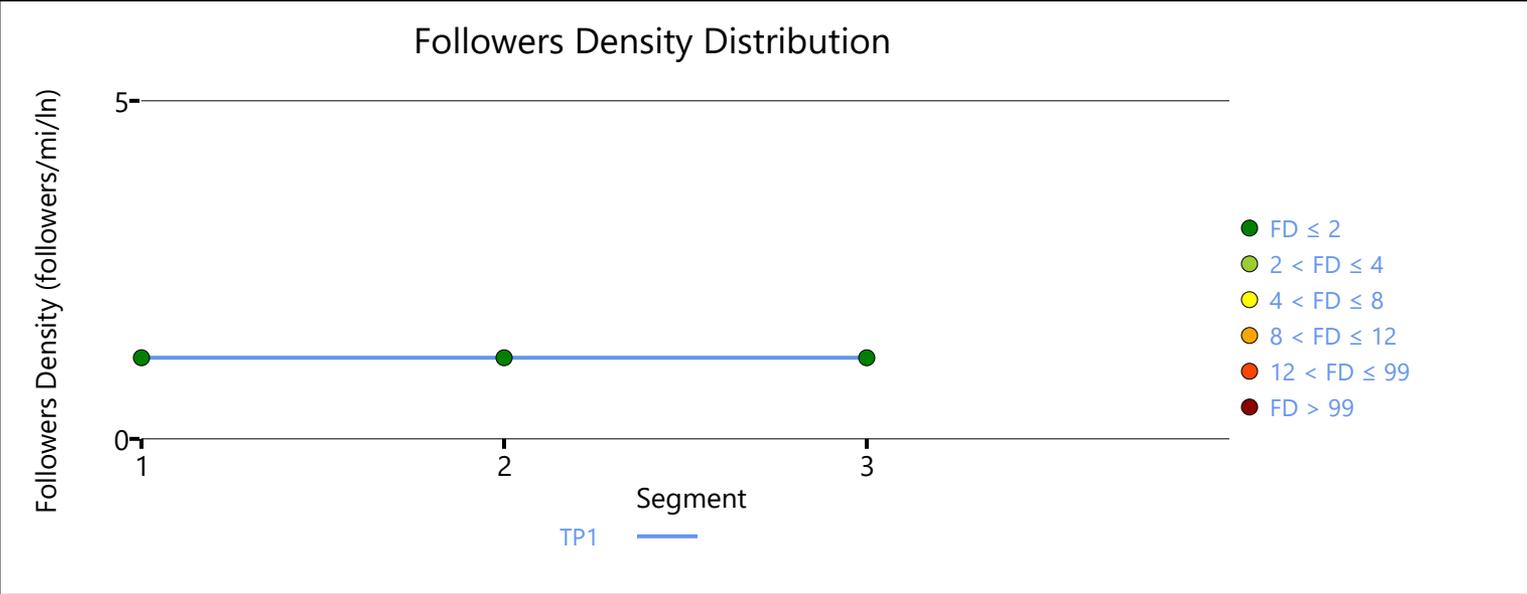
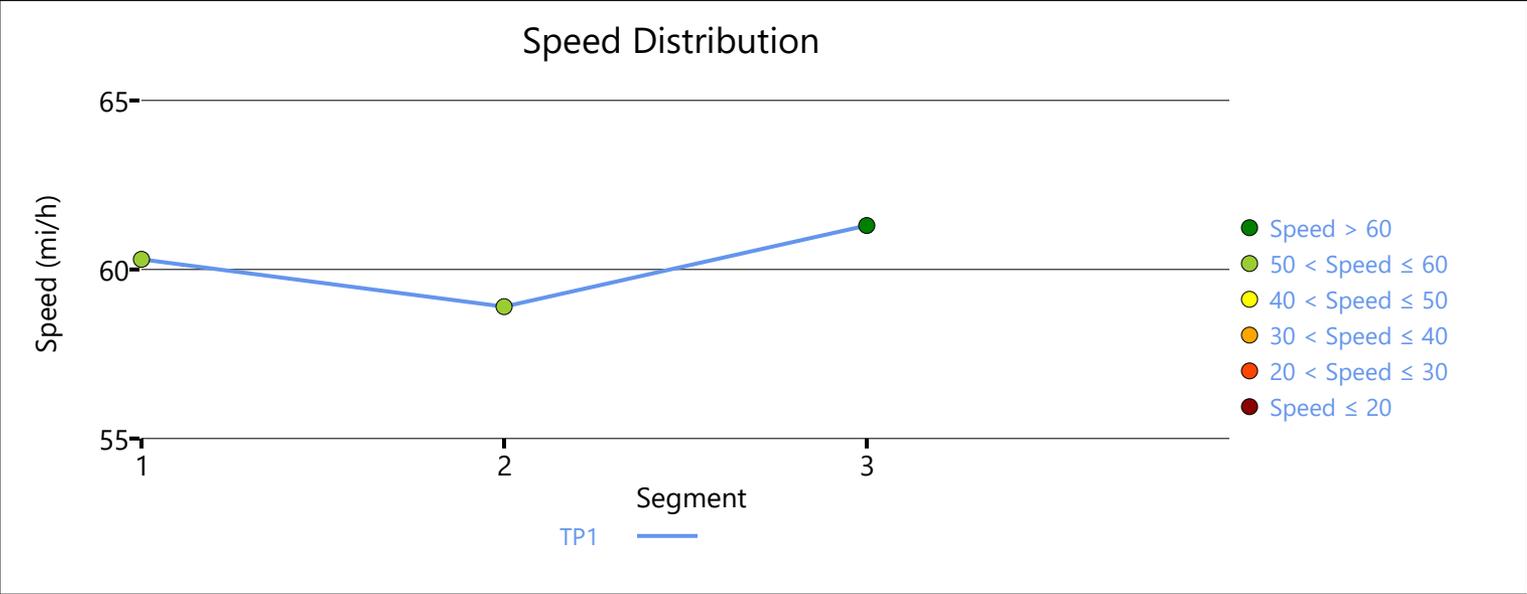
| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 231 | Opposing Demand Flow Rate, veh/h | 273 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.80 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.14 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.63855 | Speed Power Coefficient | 0.52092 |
| PF Slope Coefficient | -1.25573 | PF Power Coefficient | 0.80507 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 22.1 | % Improved Avg Speed | 1.6 |

| Subsegment Data | | | | | |
|-----------------|--------------|------------|------------|-------------------|---------------------|
| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
| 1 | Tangent | 2600 | - | - | 60.3 |

| Vehicle Results | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 61.3 | Percent Followers, % | 32.0 |
| Segment Travel Time, minutes | 0.48 | Followers Density, followers/mi/ln | 0.9 |
| Vehicle LOS | A | | |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 1 - WB - Segment 3 - Existing | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 2300 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 287 | Opposing Demand Flow Rate, veh/h | 289 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 44.30 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.2 |
| Speed Slope Coefficient | 3.61843 | Speed Power Coefficient | 0.51744 |
| PF Slope Coefficient | -1.26855 | PF Power Coefficient | 0.80167 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.8 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2300 | - | - | 59.7 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.7 | Percent Followers, % | 37.3 |
| Segment Travel Time, minutes | 0.44 | Followers Density, followers/mi/ln | 1.8 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 2693 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|-----|
| Directional Demand Flow Rate, veh/h | 287 | Opposing Demand Flow Rate, veh/h | 289 |
|-------------------------------------|-----|----------------------------------|-----|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 44.30 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.2 |
| Speed Slope Coefficient | 3.62400 | Speed Power Coefficient | 0.51744 |
| PF Slope Coefficient | -1.25703 | PF Power Coefficient | 0.80564 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.8 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2693 | - | - | 59.7 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.7 | Percent Followers, % | 36.9 |
| Segment Travel Time, minutes | 0.51 | Followers Density, followers/mi/ln | 1.8 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 5900 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 287 | Opposing Demand Flow Rate, veh/h | 289 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 44.30 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

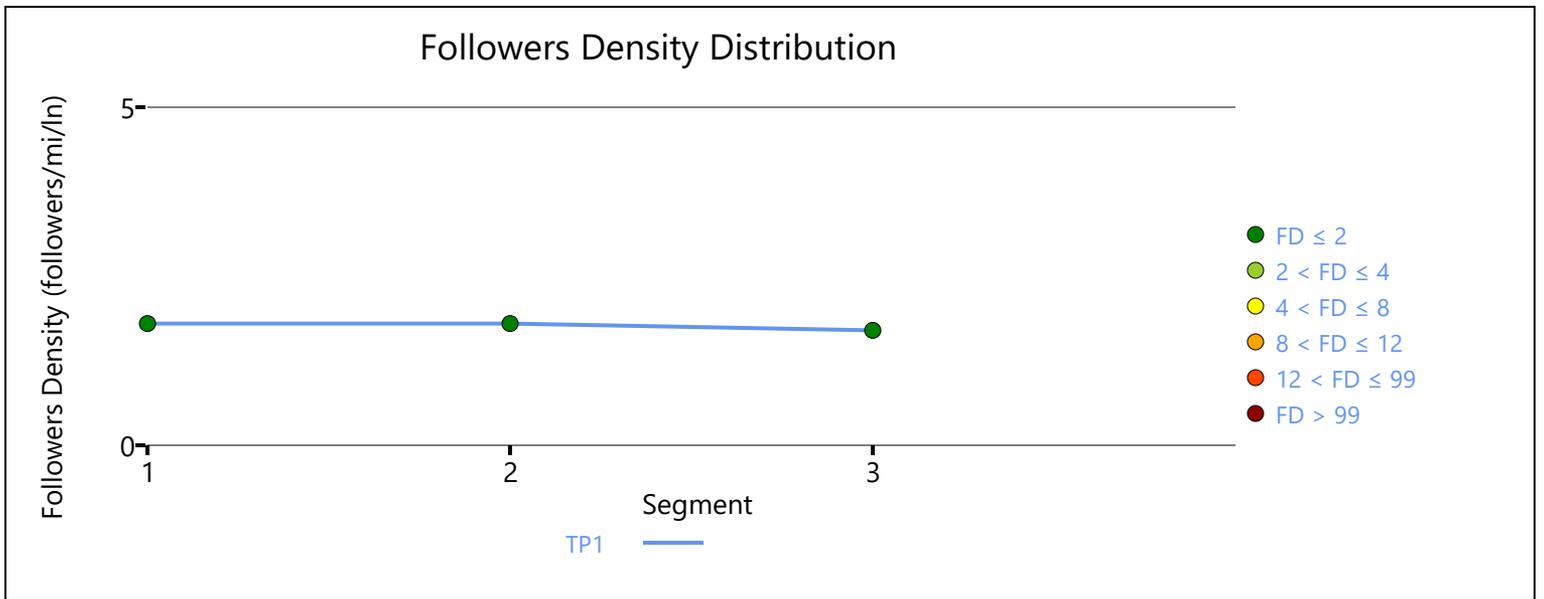
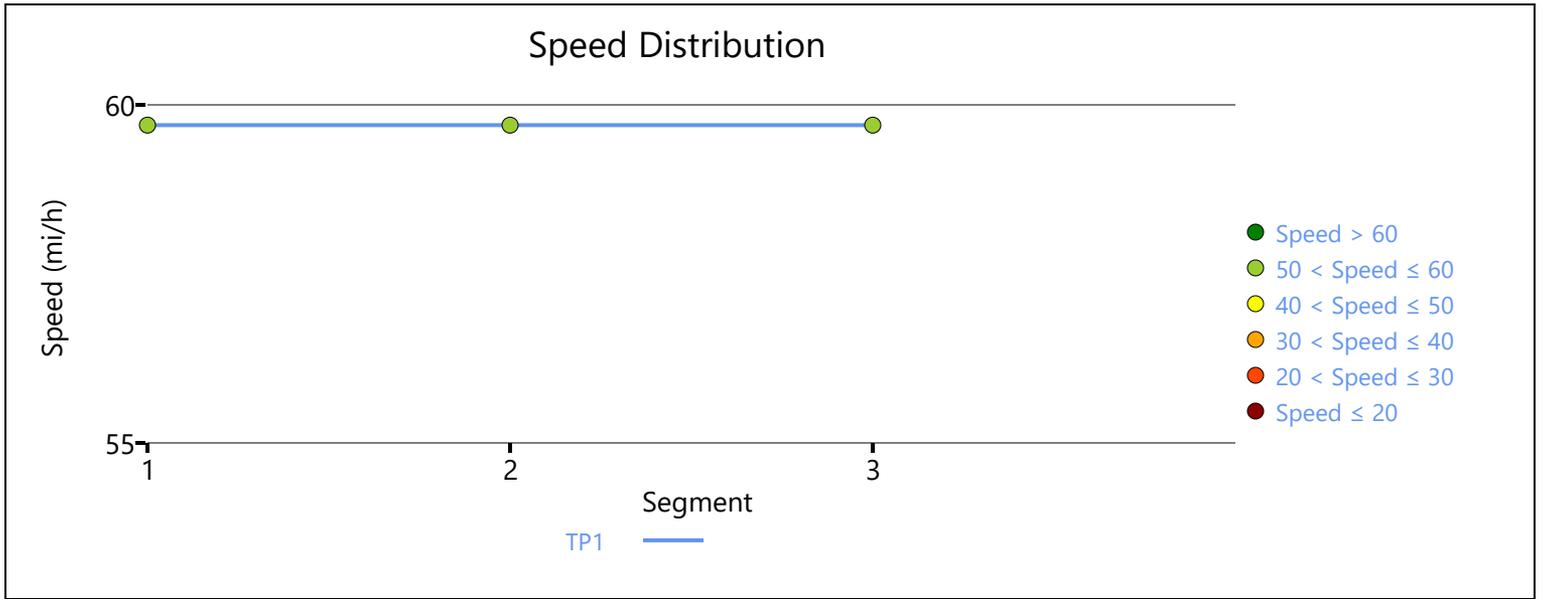
| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.2 |
| Speed Slope Coefficient | 3.65929 | Speed Power Coefficient | 0.51744 |
| PF Slope Coefficient | -1.21546 | PF Power Coefficient | 0.81277 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.7 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 5900 | - | - | 59.7 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|-----------|
| Average Speed, mi/h | 59.7 | Percent Followers, % | 35.7 |
| Segment Travel Time, minutes | 1.12 | Followers Density, followers/mi/ln | 1.7 |
| Vehicle LOS | A | | E-5.I.138 |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 1 - WB - Segment 3 - Proposed | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 2300 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 287 | Opposing Demand Flow Rate, veh/h | 289 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 44.30 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.2 |
| Speed Slope Coefficient | 3.61843 | Speed Power Coefficient | 0.51744 |
| PF Slope Coefficient | -1.26855 | PF Power Coefficient | 0.80167 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.8 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2300 | - | - | 59.7 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.7 | Percent Followers, % | 37.3 |
| Segment Travel Time, minutes | 0.44 | Followers Density, followers/mi/ln | 1.8 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------|------------------------------|------|
| Segment Type | Passing Lanes | Length, ft | 2693 |
| Lane Width, ft | 12 | Shoulder Width, ft | 4 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 287 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 44.30 |
| Segment Capacity, veh/h | 1100 | Demand/Capacity (D/C) | 0.26 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 59.8 |
| Speed Slope Coefficient | 10.17400 | Speed Power Coefficient | 0.94872 |
| PF Slope Coefficient | -0.96929 | PF Power Coefficient | 0.69770 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 1.7 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2693 | - | - | 57.7 |

Passing Lane Results

| | Faster Lane | Slower Lane |
|--|-------------|-------------|
| Flow Rate, veh/h | 172 | 115 |
| Percentage of Heavy Vehicles (HV%), % | 17.72 | 84.07 |
| Initial Average Speed (Sint), mi/h | 59.9 | 58.4 |
| Average Speed at Midpoint (SPLmid), mi/h | 62.3 | 56.1 |
| Percent Followers at Midpoint (PFPLmid), % | 28.1 | 15.0 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 57.7 | Percent Followers, % | 33.4 |
| Segment Travel Time, minutes | 0.53 | Followers Density, followers/mi/ln | 1.7 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 5900 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

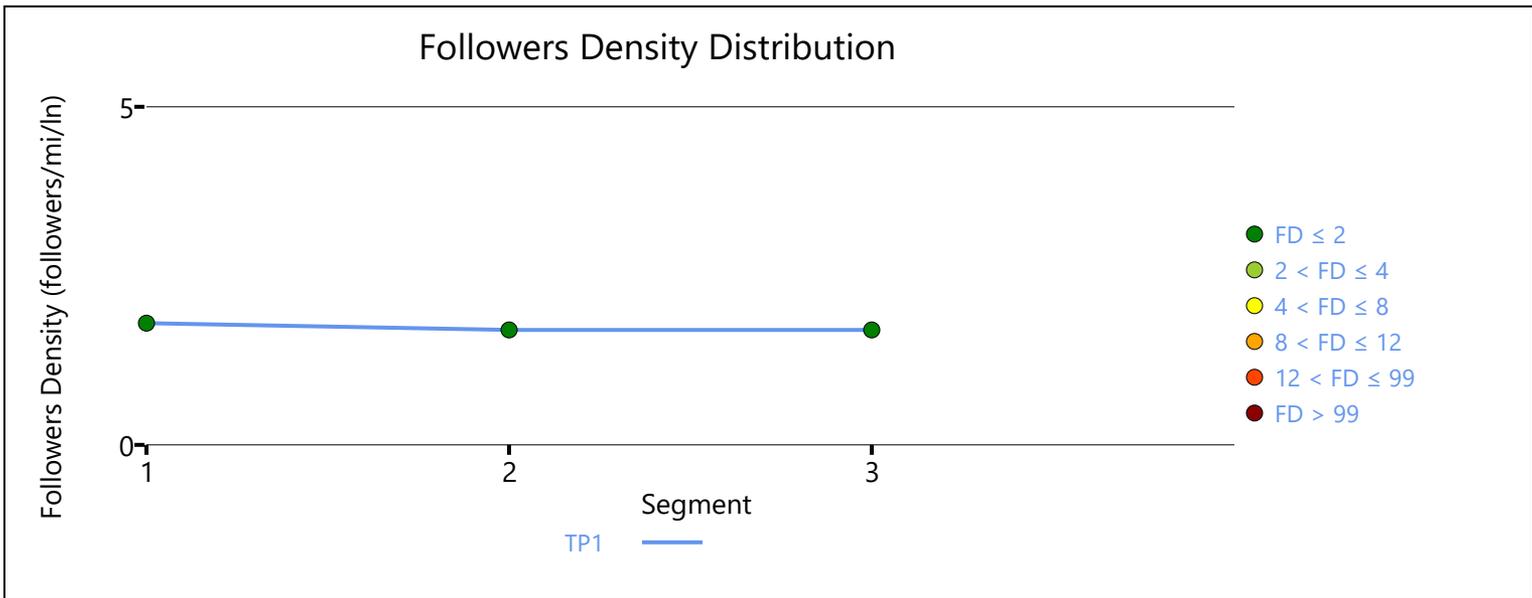
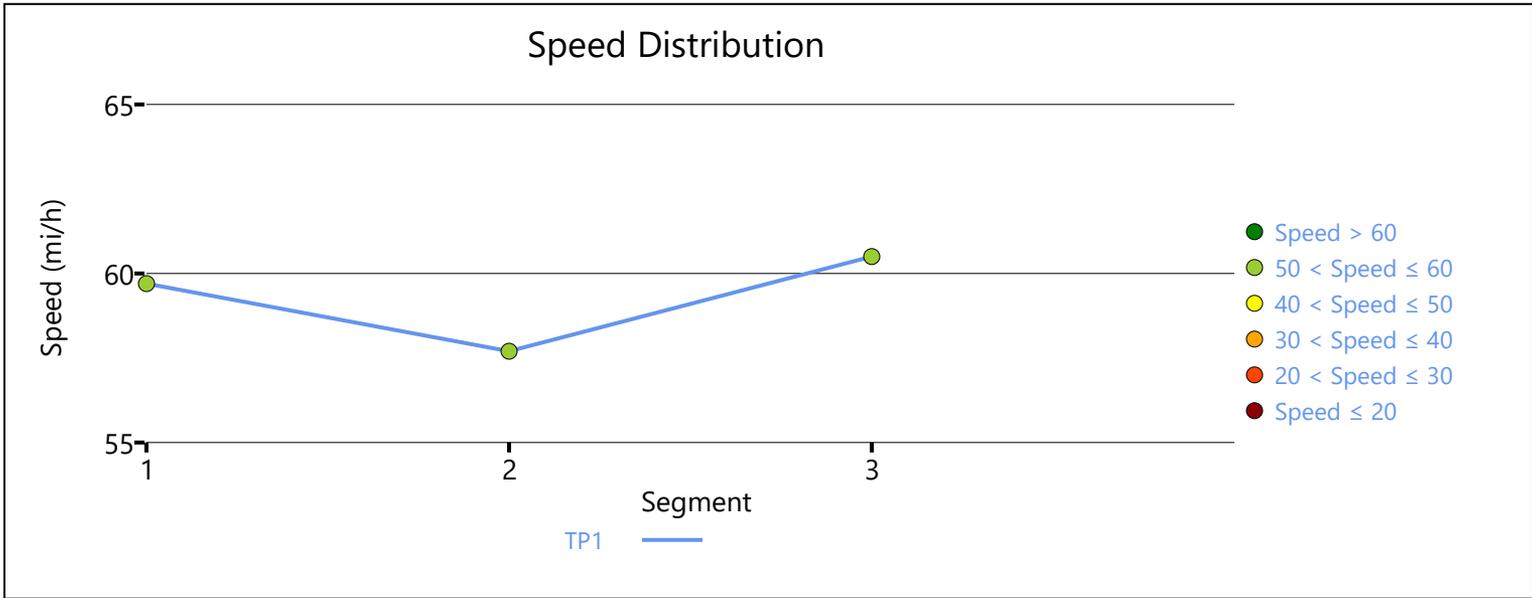
| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 287 | Opposing Demand Flow Rate, veh/h | 289 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 44.30 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.2 |
| Speed Slope Coefficient | 3.65929 | Speed Power Coefficient | 0.51744 |
| PF Slope Coefficient | -1.21546 | PF Power Coefficient | 0.81277 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 1.7 |
| %Improved % Followers | 18.2 | % Improved Avg Speed | 1.4 |

| Subsegment Data | | | | | |
|-----------------|--------------|------------|------------|-------------------|---------------------|
| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
| 1 | Tangent | 5900 | - | - | 59.7 |

| Vehicle Results | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.5 | Percent Followers, % | 35.7 |
| Segment Travel Time, minutes | 1.11 | Followers Density, followers/mi/ln | 1.4 |
| Vehicle LOS | A | | |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 3 - EB - Segment 1 - Existing | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|------|
| Segment Type | Passing Constrained | Length, ft | 2200 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.22 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.5 |
| Speed Slope Coefficient | 3.85688 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.33664 | PF Power Coefficient | 0.75791 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 2.9 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2200 | - | - | 59.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.3 | Percent Followers, % | 46.7 |
| Segment Travel Time, minutes | 0.42 | Followers Density, followers/mi/ln | 2.9 |
| Vehicle LOS | B | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|------|
| Segment Type | Passing Constrained | Length, ft | 3062 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.22 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.5 |
| Speed Slope Coefficient | 3.86882 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.31150 | PF Power Coefficient | 0.76520 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 2.9 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3062 | - | - | 59.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.3 | Percent Followers, % | 45.8 |
| Segment Travel Time, minutes | 0.59 | Followers Density, followers/mi/ln | 2.9 |
| Vehicle LOS | B | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|-------|
| Segment Type | Passing Constrained | Length, ft | 10680 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.22 |

Intermediate Results

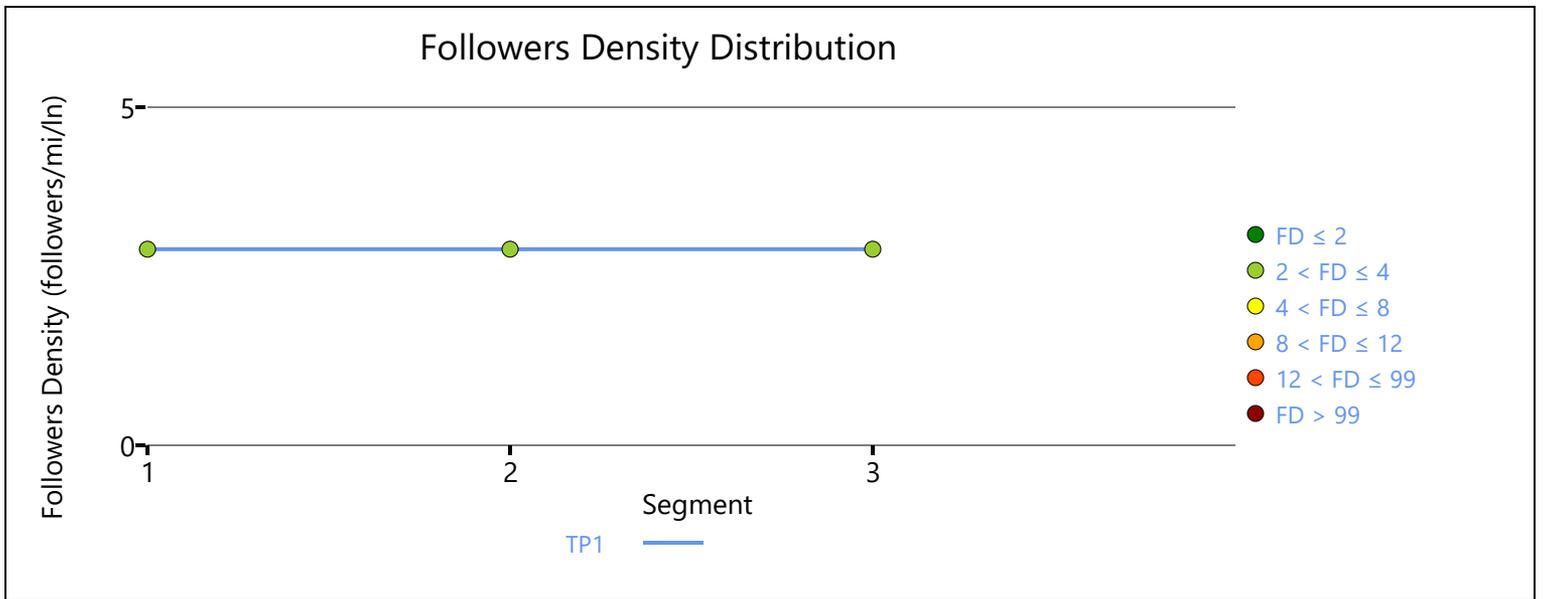
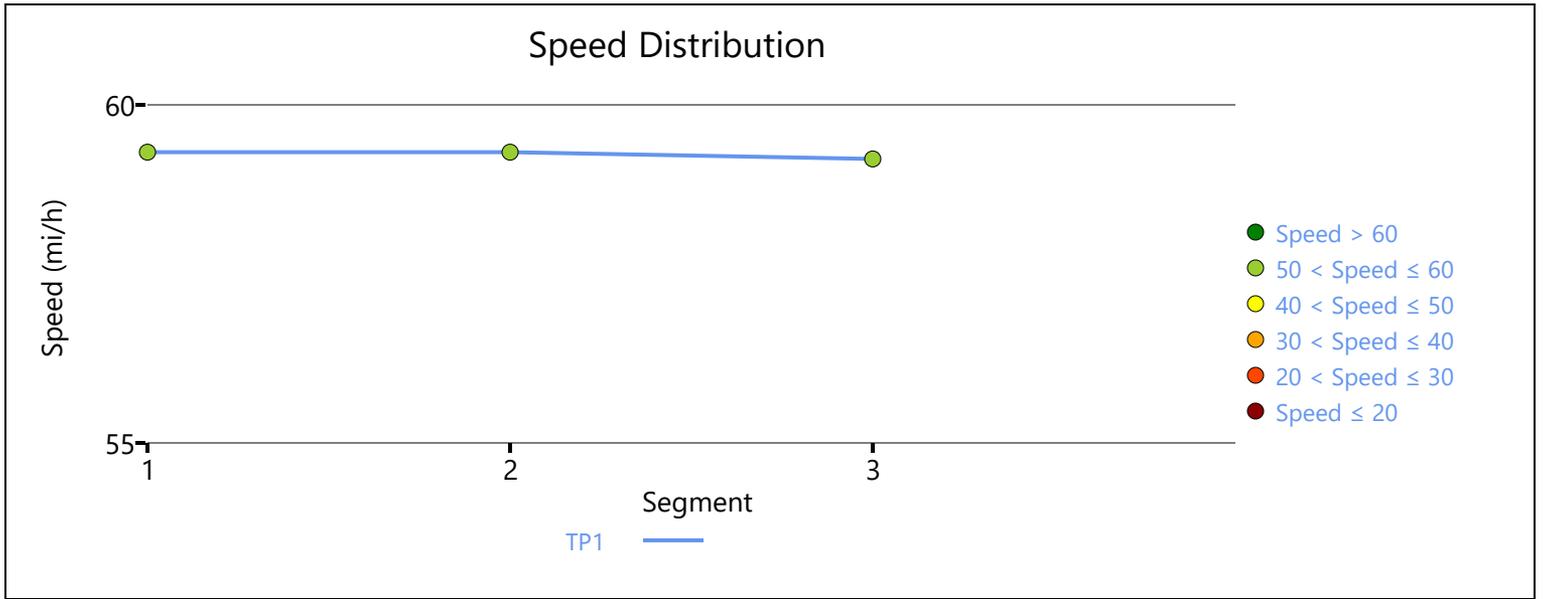
| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.5 |
| Speed Slope Coefficient | 3.93680 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.28940 | PF Power Coefficient | 0.74051 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 2.9 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 10680 | - | - | 59.2 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.2 | Percent Followers, % | 46.1 |
| Segment Travel Time, minutes | 2.05 | Followers Density, followers/mi/ln | 2.9 |
| Vehicle LOS | B | | |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 3 - EB - Segment 1 - Proposed | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|------|
| Segment Type | Passing Constrained | Length, ft | 2200 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.22 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.5 |
| Speed Slope Coefficient | 3.85688 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.33664 | PF Power Coefficient | 0.75791 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 2.9 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2200 | - | - | 59.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.3 | Percent Followers, % | 46.7 |
| Segment Travel Time, minutes | 0.42 | Followers Density, followers/mi/ln | 2.9 |
| Vehicle LOS | B | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------|------------------------------|------|
| Segment Type | Passing Lanes | Length, ft | 3062 |
| Lane Width, ft | 12 | Shoulder Width, ft | 4 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1100 | Demand/Capacity (D/C) | 0.34 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.1 |
| Speed Slope Coefficient | 9.19170 | Speed Power Coefficient | 0.92981 |
| PF Slope Coefficient | -1.08946 | PF Power Coefficient | 0.74630 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 2.6 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3062 | - | - | 57.4 |

Passing Lane Results

| | Faster Lane | Slower Lane |
|---|-------------|-------------|
| Flow Rate, veh/h | 216 | 154 |
| Percentage of Heavy Vehicles (HV%), % | 14.44 | 66.60 |
| Initial Average Speed (S _{int}), mi/h | 59.8 | 58.5 |
| Average Speed at Midpoint (S _{PLmid}), mi/h | 61.9 | 56.3 |
| Percent Followers at Midpoint (PF _{PLmid}), % | 30.6 | 18.9 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 57.4 | Percent Followers, % | 40.5 |
| Segment Travel Time, minutes | 0.61 | Followers Density, followers/mi/ln | 2.6 |
| Vehicle LOS | B | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|-------|
| Segment Type | Passing Constrained | Length, ft | 10680 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

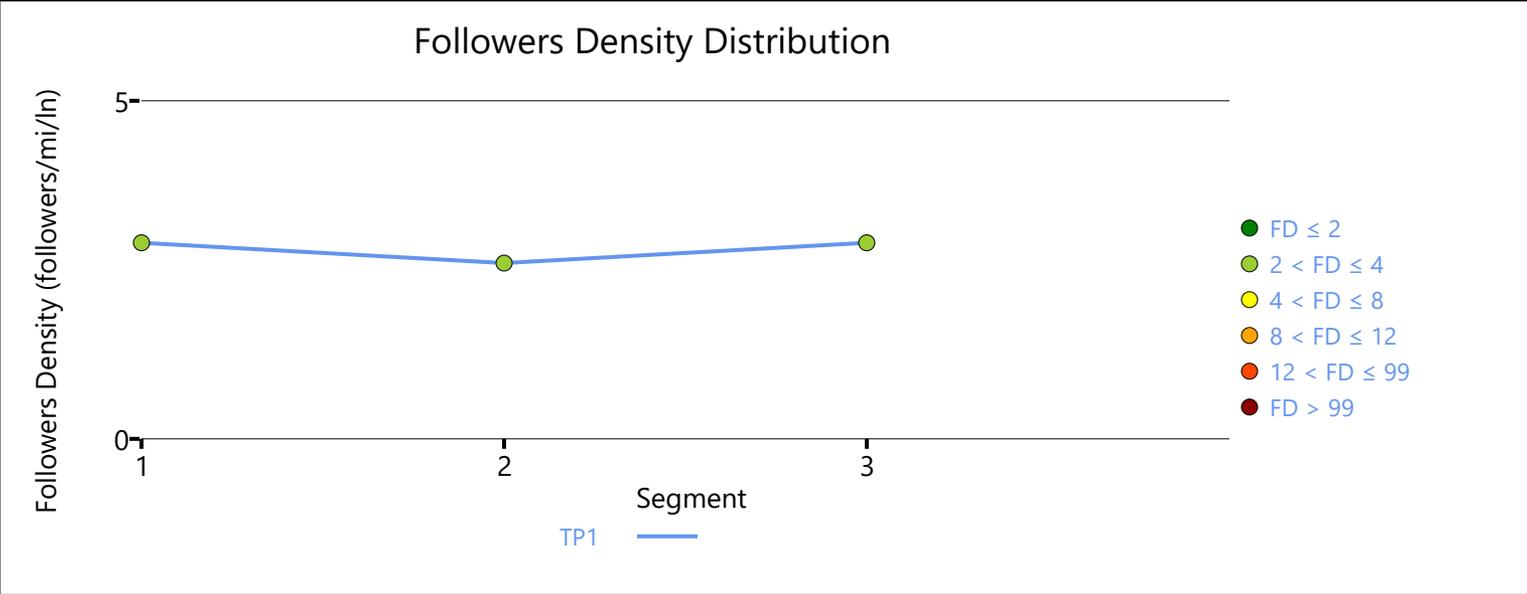
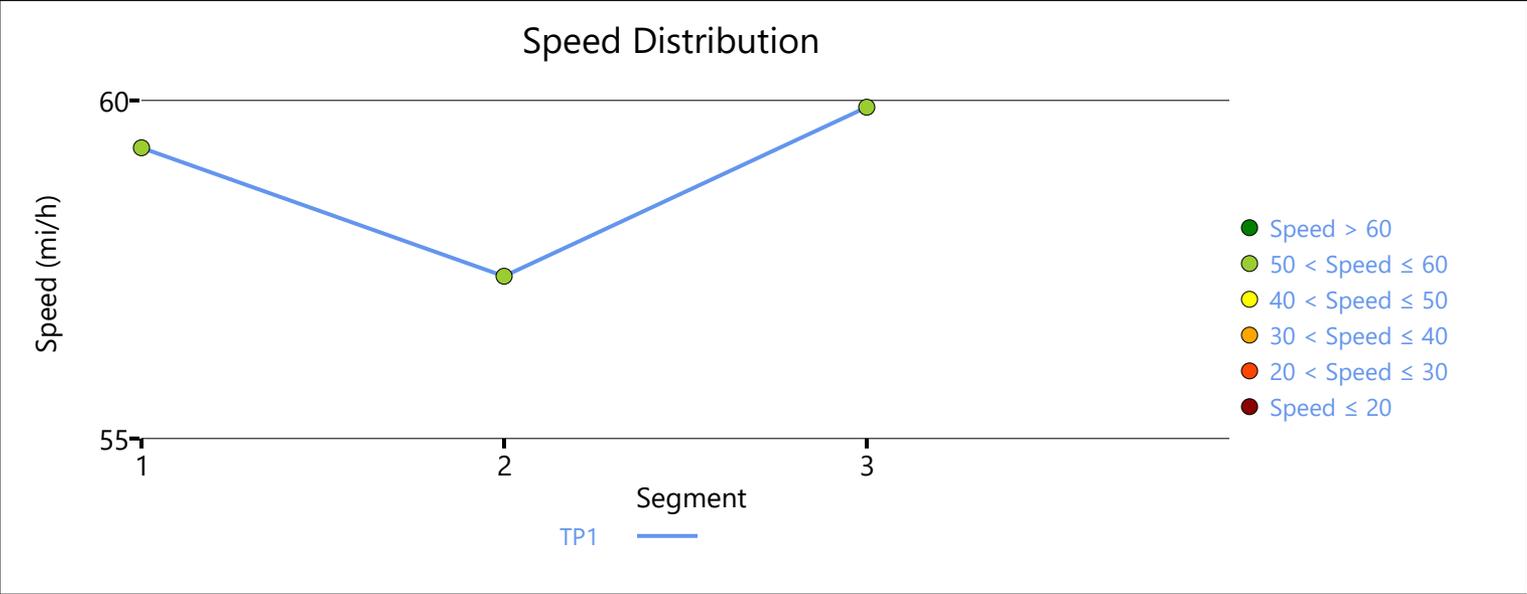
| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.22 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.5 |
| Speed Slope Coefficient | 3.93680 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.28940 | PF Power Coefficient | 0.74051 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 2.9 |
| %Improved % Followers | 14.7 | % Improved Avg Speed | 1.2 |

| Subsegment Data | | | | | |
|-----------------|--------------|------------|------------|-------------------|---------------------|
| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
| 1 | Tangent | 10680 | - | - | 59.2 |

| Vehicle Results | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.9 | Percent Followers, % | 46.1 |
| Segment Travel Time, minutes | 2.03 | Followers Density, followers/mi/ln | 2.4 |
| Vehicle LOS | B | | |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 3 - EB - Segment 2 - Existing | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|-------|
| Segment Type | Passing Zone | Length, ft | 11210 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 289 | Opposing Demand Flow Rate, veh/h | 287 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 66.40 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.5 |
| Speed Slope Coefficient | 3.65550 | Speed Power Coefficient | 0.51790 |
| PF Slope Coefficient | -1.22731 | PF Power Coefficient | 0.78677 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.8 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 5890 | - | - | 58.9 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 58.9 | Percent Followers, % | 37.0 |
| Segment Travel Time, minutes | 2.16 | Followers Density, followers/mi/ln | 1.8 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 3380 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|-----|
| Directional Demand Flow Rate, veh/h | 289 | Opposing Demand Flow Rate, veh/h | 287 |
|-------------------------------------|-----|----------------------------------|-----|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 66.40 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.5 |
| Speed Slope Coefficient | 3.59231 | Speed Power Coefficient | 0.51790 |
| PF Slope Coefficient | -1.24272 | PF Power Coefficient | 0.81183 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.8 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2693 | - | - | 59.0 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.0 | Percent Followers, % | 36.5 |
| Segment Travel Time, minutes | 0.65 | Followers Density, followers/mi/ln | 1.8 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 1280 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 289 | Opposing Demand Flow Rate, veh/h | 287 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 66.40 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

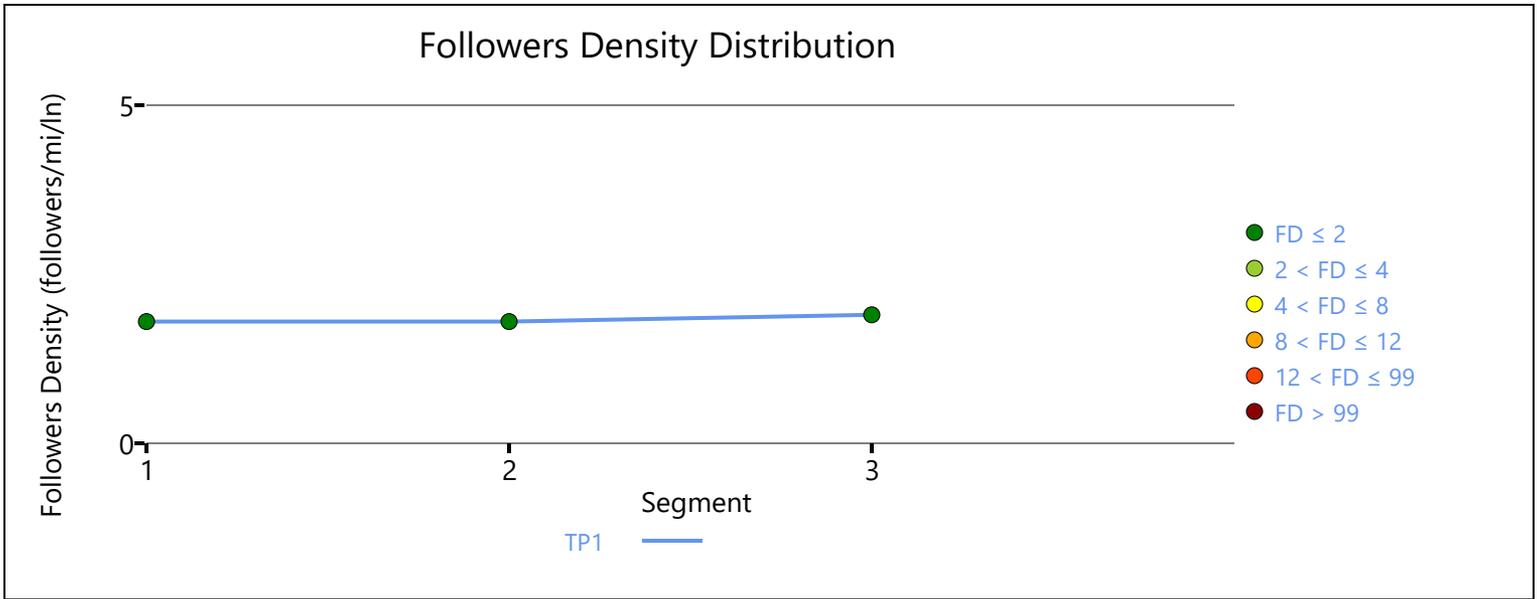
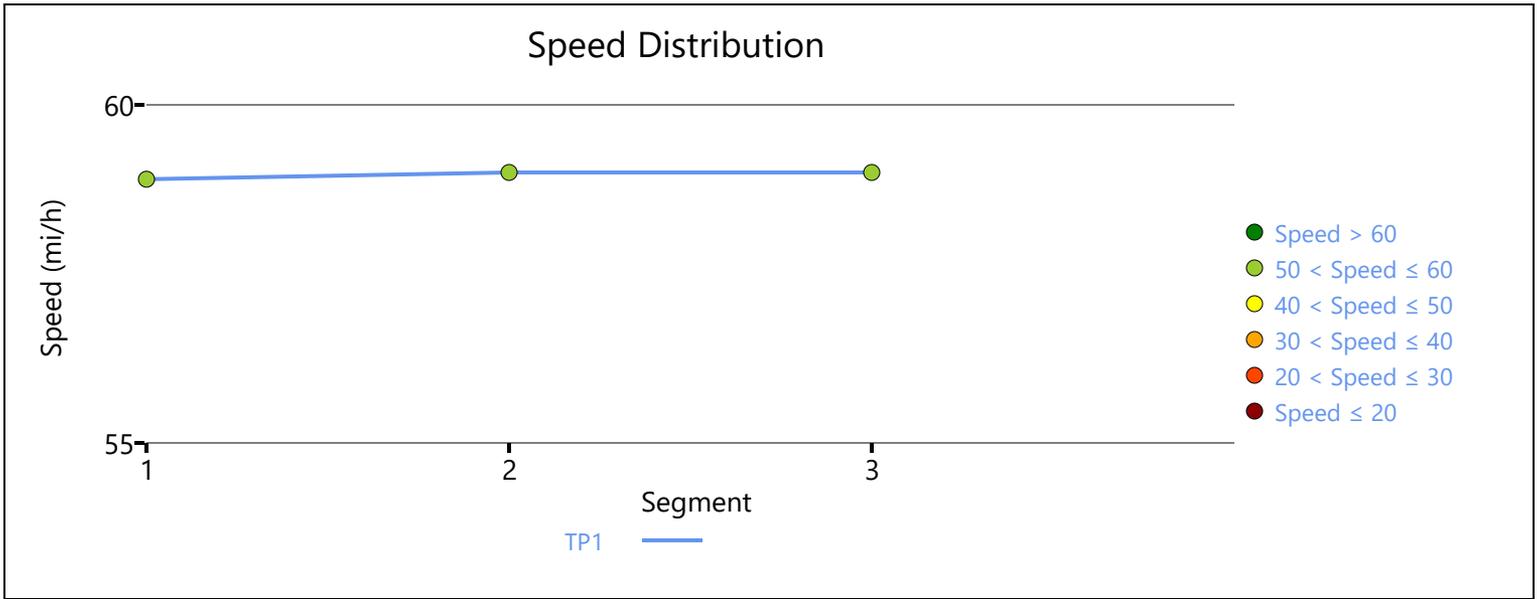
| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.5 |
| Speed Slope Coefficient | 3.56143 | Speed Power Coefficient | 0.51790 |
| PF Slope Coefficient | -1.31239 | PF Power Coefficient | 0.78733 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.9 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 7380 | - | - | 59.0 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|-----------|
| Average Speed, mi/h | 59.0 | Percent Followers, % | 39.0 |
| Segment Travel Time, minutes | 0.25 | Followers Density, followers/mi/ln | 1.9 |
| Vehicle LOS | A | | E-5.I.150 |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 3 - EB - Segment 2 - Proposed | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|-------|
| Segment Type | Passing Zone | Length, ft | 11210 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 289 | Opposing Demand Flow Rate, veh/h | 287 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 66.40 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.5 |
| Speed Slope Coefficient | 3.65550 | Speed Power Coefficient | 0.51790 |
| PF Slope Coefficient | -1.22731 | PF Power Coefficient | 0.78677 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.8 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 11210 | - | - | 58.9 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 58.9 | Percent Followers, % | 37.0 |
| Segment Travel Time, minutes | 2.16 | Followers Density, followers/mi/ln | 1.8 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------|------------------------------|------|
| Segment Type | Passing Lanes | Length, ft | 3380 |
| Lane Width, ft | 12 | Shoulder Width, ft | 4 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 289 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 66.40 |
| Segment Capacity, veh/h | 1100 | Demand/Capacity (D/C) | 0.26 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 59.1 |
| Speed Slope Coefficient | 12.90637 | Speed Power Coefficient | 1.05238 |
| PF Slope Coefficient | -0.60894 | PF Power Coefficient | 0.60408 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.3 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3380 | - | - | 56.8 |

Passing Lane Results

| | Faster Lane | Slower Lane |
|--|-------------|-------------|
| Flow Rate, veh/h | 168 | 122 |
| Percentage of Heavy Vehicles (HV%), % | 26.56 | 121.32 |
| Initial Average Speed (Sint), mi/h | 59.7 | 57.1 |
| Average Speed at Midpoint (SPLmid), mi/h | 62.5 | 54.4 |
| Percent Followers at Midpoint (PFPLmid), % | 27.2 | - |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 56.8 | Percent Followers, % | 25.0 |
| Segment Travel Time, minutes | 0.68 | Followers Density, followers/mi/ln | 1.3 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 1280 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

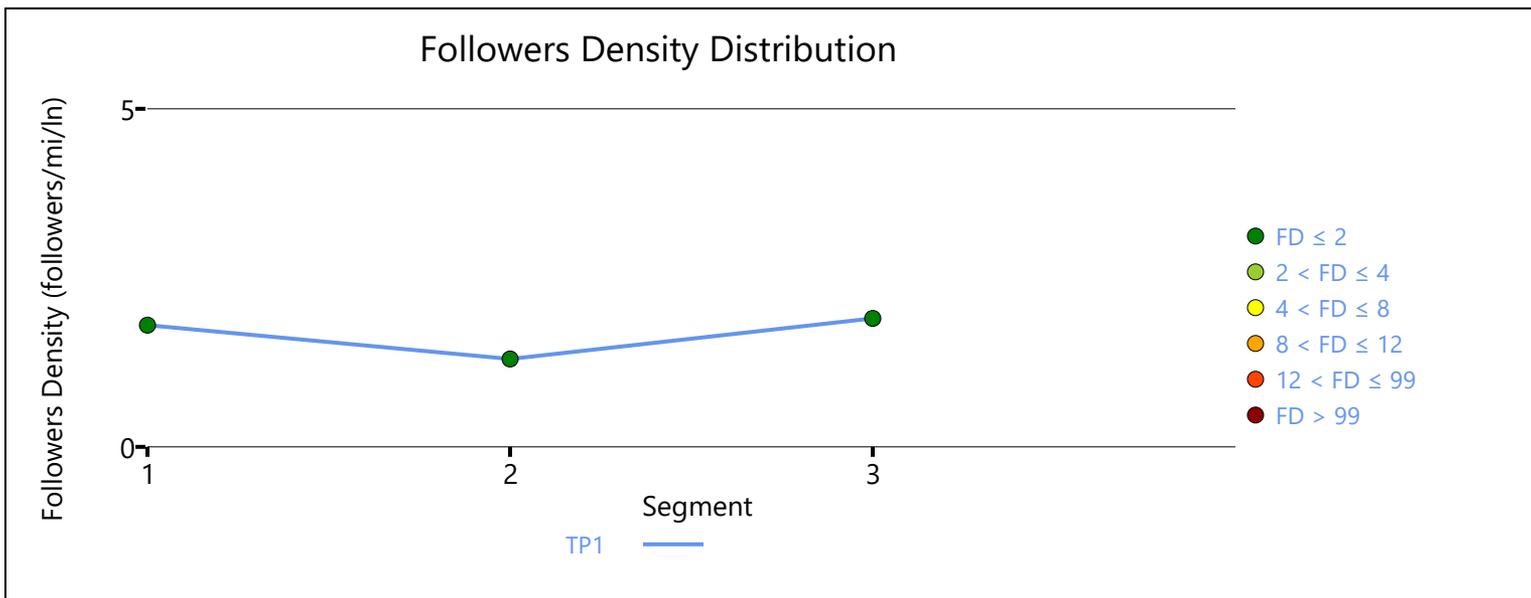
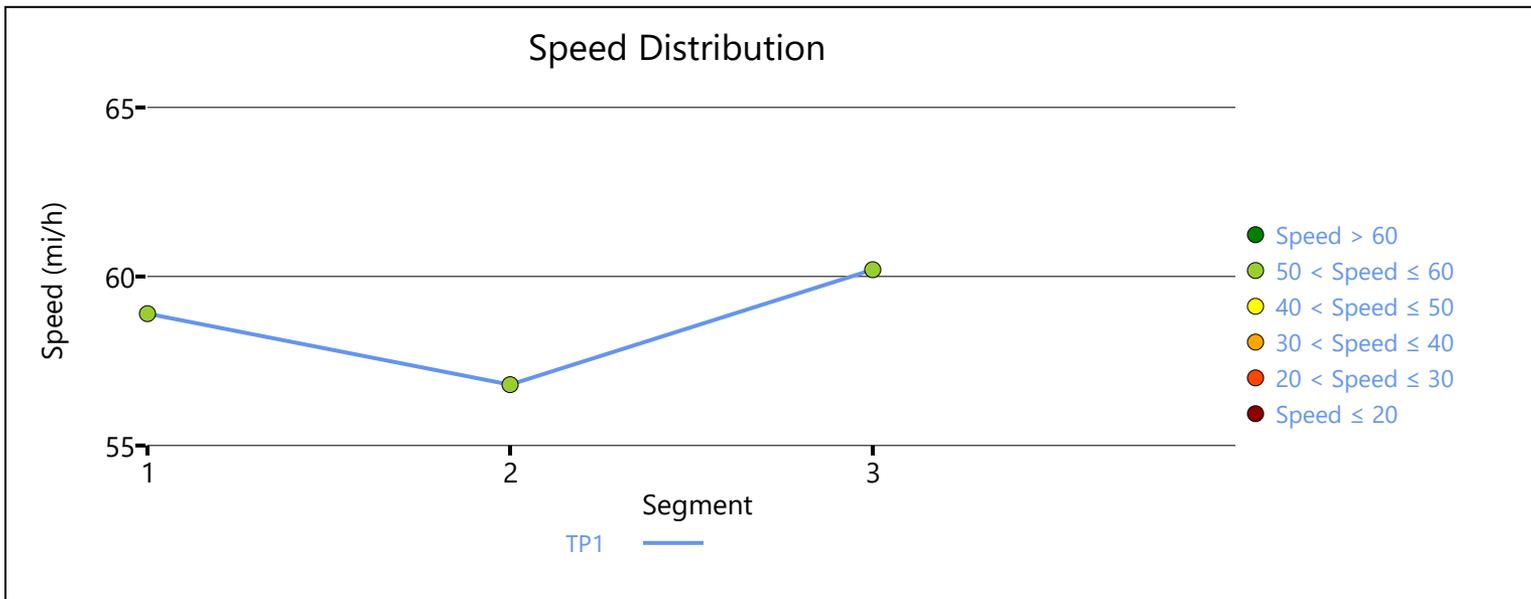
| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 289 | Opposing Demand Flow Rate, veh/h | 287 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 66.40 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.5 |
| Speed Slope Coefficient | 3.56143 | Speed Power Coefficient | 0.51790 |
| PF Slope Coefficient | -1.31239 | PF Power Coefficient | 0.78733 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 1.9 |
| %Improved % Followers | 24.3 | % Improved Avg Speed | 2.0 |

| Subsegment Data | | | | | |
|-----------------|--------------|------------|------------|-------------------|---------------------|
| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
| 1 | Tangent | 1280 | - | - | 59.0 |

| Vehicle Results | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.2 | Percent Followers, % | 39.0 |
| Segment Travel Time, minutes | 0.24 | Followers Density, followers/mi/ln | 1.4 |
| Vehicle LOS | A | | |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 3 - EB - Segment 3 - Existing | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 1470 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 273 | Opposing Demand Flow Rate, veh/h | 231 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 33.60 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.16 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.60529 | Speed Power Coefficient | 0.53102 |
| PF Slope Coefficient | -1.28986 | PF Power Coefficient | 0.79182 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.7 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 10590 | - | - | 60.2 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.2 | Percent Followers, % | 37.0 |
| Segment Travel Time, minutes | 0.28 | Followers Density, followers/mi/ln | 1.7 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 3115 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|-----|
| Directional Demand Flow Rate, veh/h | 273 | Opposing Demand Flow Rate, veh/h | 231 |
|-------------------------------------|-----|----------------------------------|-----|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 33.60 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.16 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.63003 | Speed Power Coefficient | 0.53102 |
| PF Slope Coefficient | -1.23464 | PF Power Coefficient | 0.81203 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.6 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3326 | - | - | 60.1 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.1 | Percent Followers, % | 35.0 |
| Segment Travel Time, minutes | 0.59 | Followers Density, followers/mi/ln | 1.6 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|-------|
| Segment Type | Passing Zone | Length, ft | 16650 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 273 | Opposing Demand Flow Rate, veh/h | 231 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 33.60 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.16 |

Intermediate Results

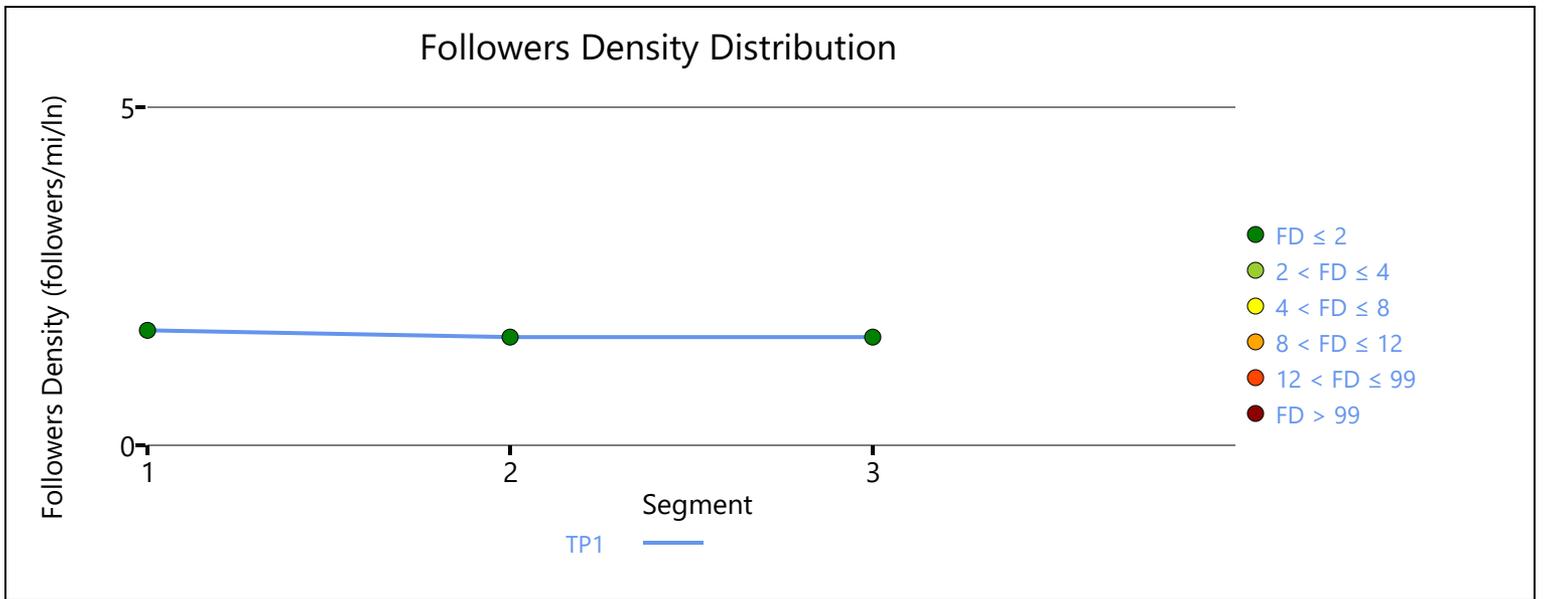
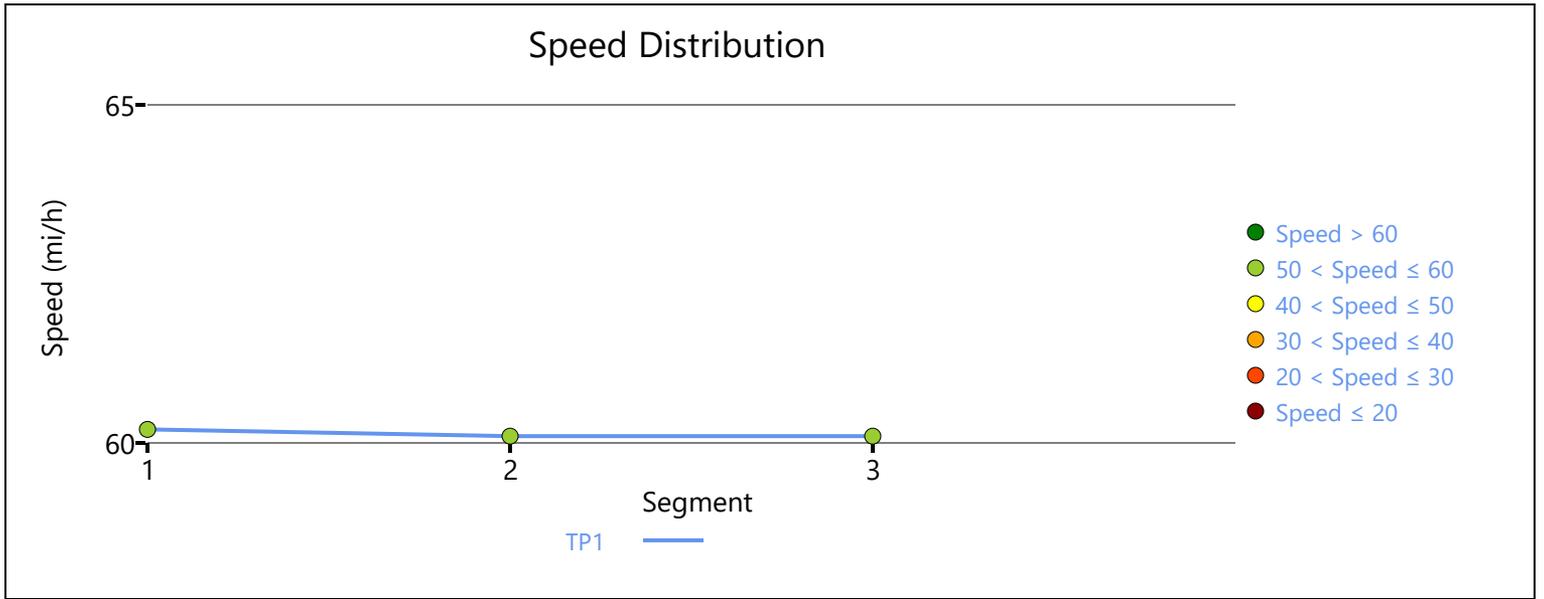
| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.69652 | Speed Power Coefficient | 0.53102 |
| PF Slope Coefficient | -1.21429 | PF Power Coefficient | 0.78870 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.6 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 7420 | - | - | 60.1 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|-----------|
| Average Speed, mi/h | 60.1 | Percent Followers, % | 35.4 |
| Segment Travel Time, minutes | 3.15 | Followers Density, followers/mi/ln | 1.6 |
| Vehicle LOS | A | | E-5.I.156 |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 3 - EB - Segment 3 - Proposed | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 1470 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 273 | Opposing Demand Flow Rate, veh/h | 231 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 33.60 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.16 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.60529 | Speed Power Coefficient | 0.53102 |
| PF Slope Coefficient | -1.28986 | PF Power Coefficient | 0.79182 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.7 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 10590 | - | - | 60.2 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.2 | Percent Followers, % | 37.0 |
| Segment Travel Time, minutes | 0.28 | Followers Density, followers/mi/ln | 1.7 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------|------------------------------|------|
| Segment Type | Passing Lanes | Length, ft | 3115 |
| Lane Width, ft | 12 | Shoulder Width, ft | 4 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 273 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 33.60 |
| Segment Capacity, veh/h | 1100 | Demand/Capacity (D/C) | 0.25 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.2 |
| Speed Slope Coefficient | 8.88921 | Speed Power Coefficient | 0.92243 |
| PF Slope Coefficient | -1.13281 | PF Power Coefficient | 0.75515 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.6 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3115 | - | - | 58.4 |

Passing Lane Results

| | Faster Lane | Slower Lane |
|---|-------------|-------------|
| Flow Rate, veh/h | 167 | 106 |
| Percentage of Heavy Vehicles (HV%), % | 13.44 | 65.46 |
| Initial Average Speed (S _{int}), mi/h | 60.2 | 59.1 |
| Average Speed at Midpoint (S _{PLmid}), mi/h | 62.3 | 57.0 |
| Percent Followers at Midpoint (PF _{PLmid}), % | 26.0 | 15.5 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 58.4 | Percent Followers, % | 34.7 |
| Segment Travel Time, minutes | 0.61 | Followers Density, followers/mi/ln | 1.6 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|-------|
| Segment Type | Passing Zone | Length, ft | 16650 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

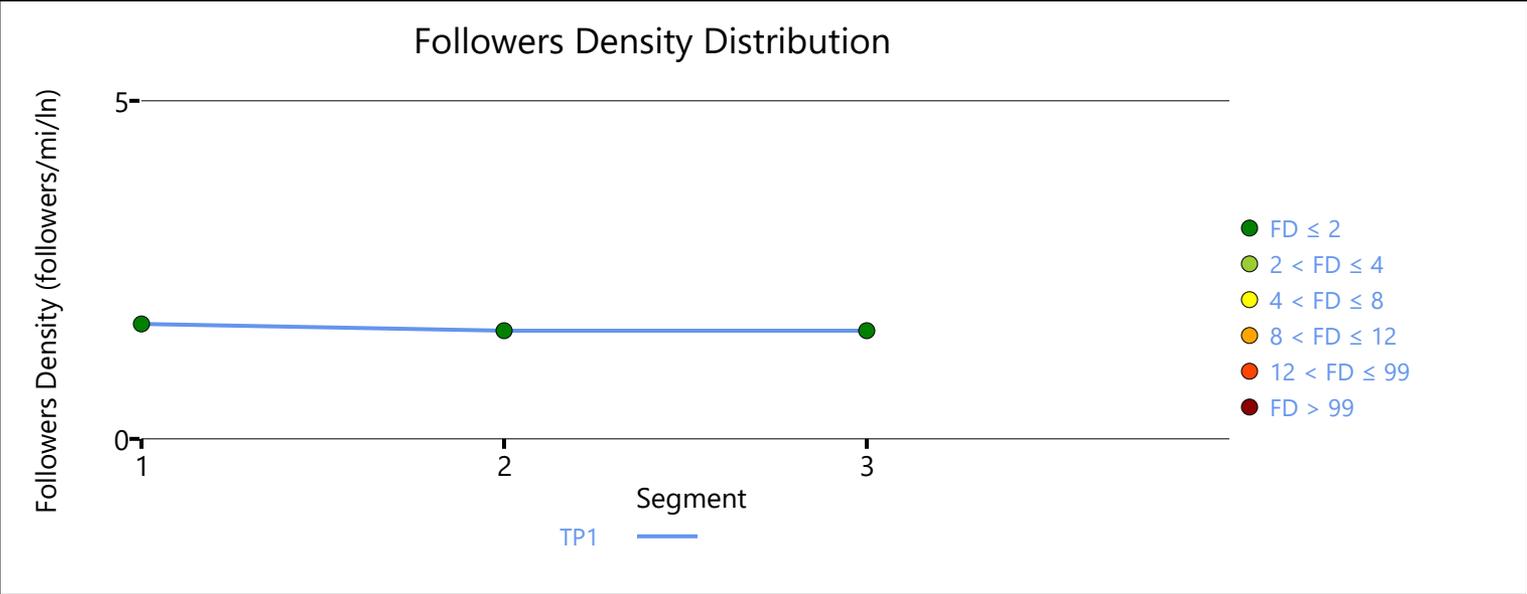
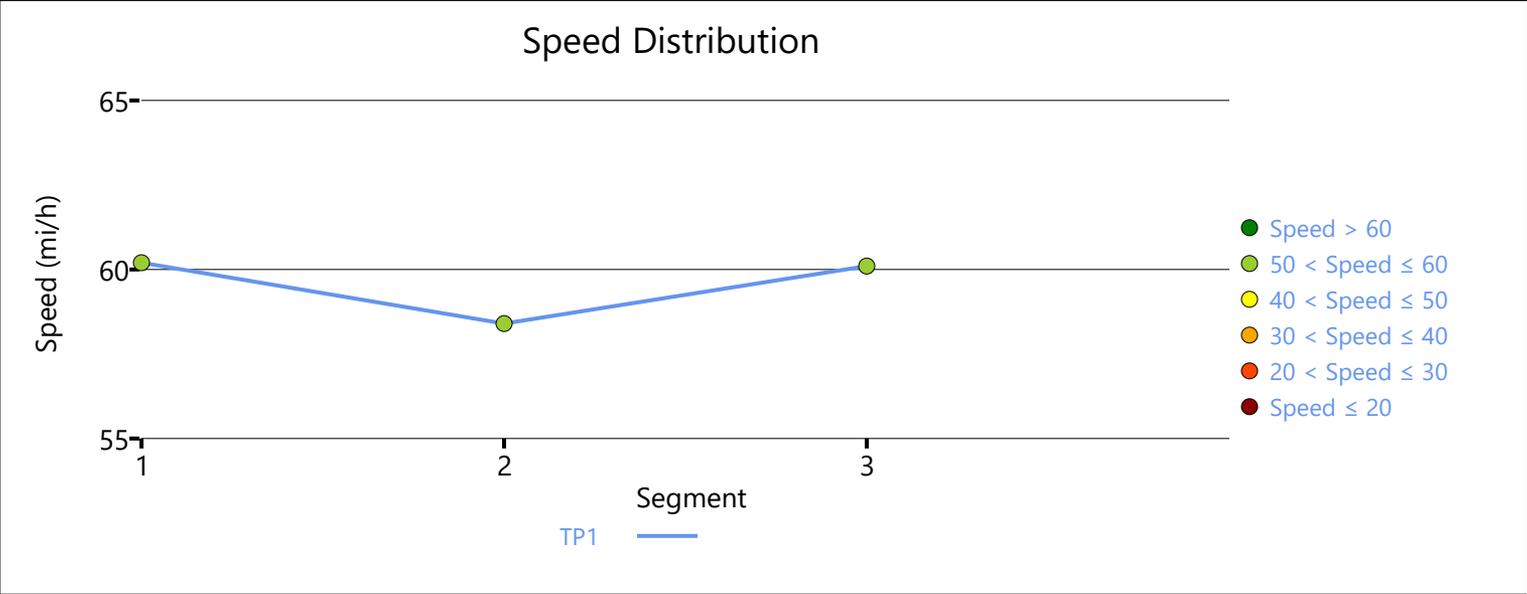
| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 273 | Opposing Demand Flow Rate, veh/h | 231 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 33.60 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.16 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.69652 | Speed Power Coefficient | 0.53102 |
| PF Slope Coefficient | -1.21429 | PF Power Coefficient | 0.78870 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 1.6 |
| %Improved % Followers | 11.6 | % Improved Avg Speed | 0.0 |

| Subsegment Data | | | | | |
|-----------------|--------------|------------|------------|-------------------|---------------------|
| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
| 1 | Tangent | 7420 | - | - | 60.1 |

| Vehicle Results | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.1 | Percent Followers, % | 35.4 |
| Segment Travel Time, minutes | 3.15 | Followers Density, followers/mi/ln | 1.4 |
| Vehicle LOS | A | | |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 3 - EB - Segment 4 - Existing | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 3430 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 236 | Opposing Demand Flow Rate, veh/h | 215 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 30.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.14 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.7 |
| Speed Slope Coefficient | 3.63471 | Speed Power Coefficient | 0.53517 |
| PF Slope Coefficient | -1.22468 | PF Power Coefficient | 0.81482 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3430 | - | - | 60.4 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.4 | Percent Followers, % | 31.5 |
| Segment Travel Time, minutes | 0.64 | Followers Density, followers/mi/ln | 1.2 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 4752 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|-----|
| Directional Demand Flow Rate, veh/h | 236 | Opposing Demand Flow Rate, veh/h | 215 |
|-------------------------------------|-----|----------------------------------|-----|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 30.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.14 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.7 |
| Speed Slope Coefficient | 3.64939 | Speed Power Coefficient | 0.53517 |
| PF Slope Coefficient | -1.20722 | PF Power Coefficient | 0.81832 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 4752 | - | - | 60.4 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.4 | Percent Followers, % | 31.0 |
| Segment Travel Time, minutes | 0.89 | Followers Density, followers/mi/ln | 1.2 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 8300 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 236 | Opposing Demand Flow Rate, veh/h | 215 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 30.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.14 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.7 |
| Speed Slope Coefficient | 3.68078 | Speed Power Coefficient | 0.53517 |
| PF Slope Coefficient | -1.19912 | PF Power Coefficient | 0.80652 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

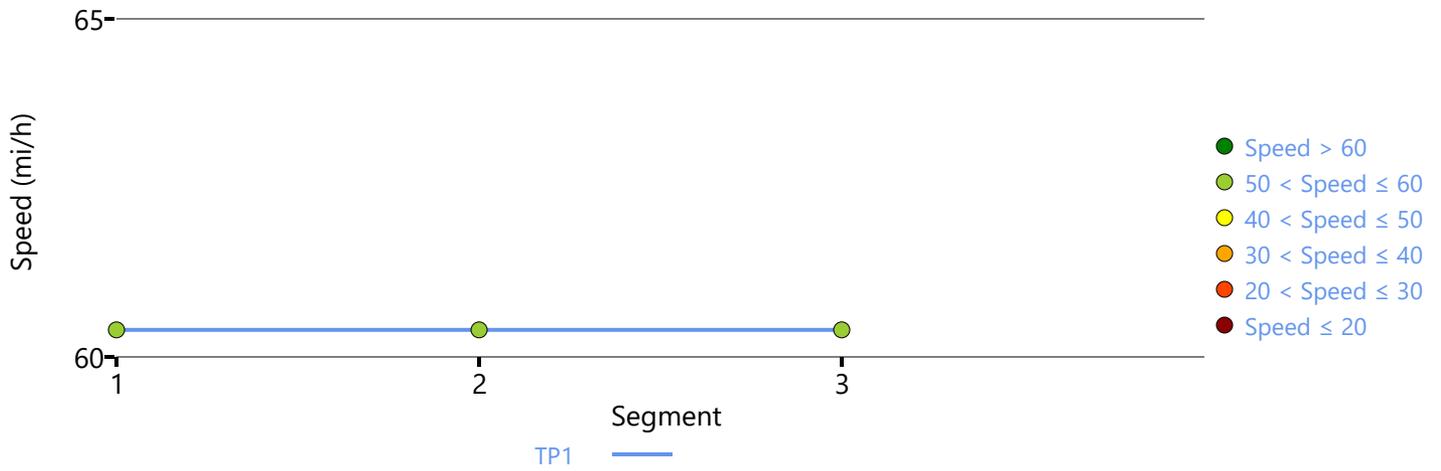
Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 8300 | - | - | 60.4 |

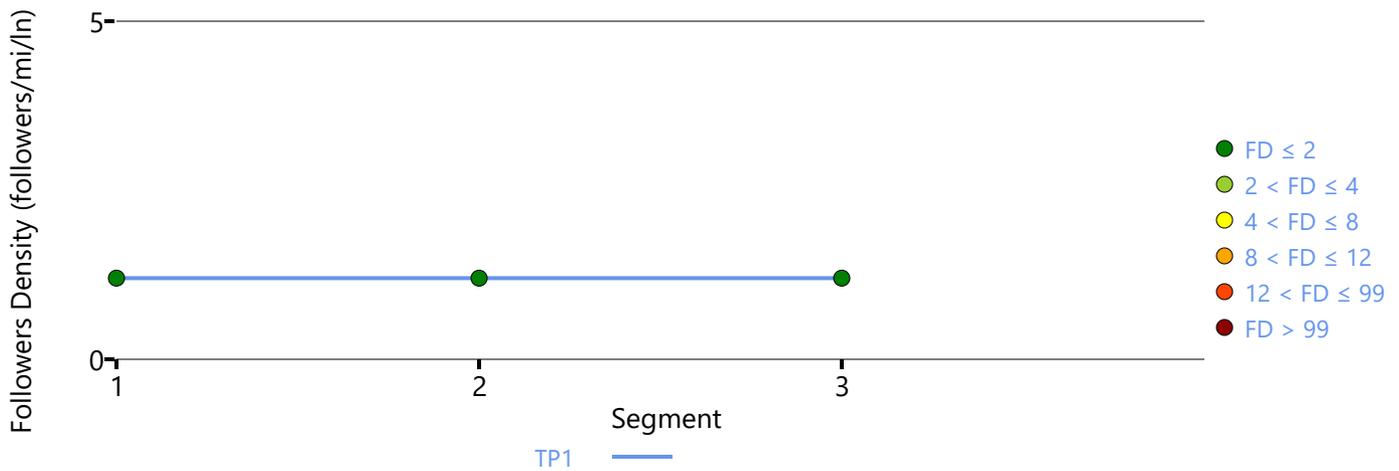
Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|-----------|
| Average Speed, mi/h | 60.4 | Percent Followers, % | 31.2 |
| Segment Travel Time, minutes | 1.56 | Followers Density, followers/mi/ln | 1.2 |
| Vehicle LOS | A | | E-5.I.162 |

Speed Distribution



Followers Density Distribution



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 3 - EB - Segment 4 - Proposed | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 3430 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 236 | Opposing Demand Flow Rate, veh/h | 215 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 30.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.14 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.7 |
| Speed Slope Coefficient | 3.63471 | Speed Power Coefficient | 0.53517 |
| PF Slope Coefficient | -1.22468 | PF Power Coefficient | 0.81482 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3430 | - | - | 60.4 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.4 | Percent Followers, % | 31.5 |
| Segment Travel Time, minutes | 0.64 | Followers Density, followers/mi/ln | 1.2 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------|------------------------------|------|
| Segment Type | Passing Lanes | Length, ft | 4752 |
| Lane Width, ft | 12 | Shoulder Width, ft | 4 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 236 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 30.10 |
| Segment Capacity, veh/h | 1100 | Demand/Capacity (D/C) | 0.21 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.3 |
| Speed Slope Coefficient | 8.54466 | Speed Power Coefficient | 0.98423 |
| PF Slope Coefficient | -1.11156 | PF Power Coefficient | 0.80520 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 4752 | - | - | 59.1 |

Passing Lane Results

| | Faster Lane | Slower Lane |
|---|-------------|-------------|
| Flow Rate, veh/h | 148 | 88 |
| Percentage of Heavy Vehicles (HV%), % | 12.04 | 60.34 |
| Initial Average Speed (S _{int}), mi/h | 60.5 | 59.3 |
| Average Speed at Midpoint (S _{PLmid}), mi/h | 62.6 | 57.3 |
| Percent Followers at Midpoint (PF _{PLmid}), % | 21.2 | 10.6 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.1 | Percent Followers, % | 29.4 |
| Segment Travel Time, minutes | 0.91 | Followers Density, followers/mi/ln | 1.2 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 8300 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

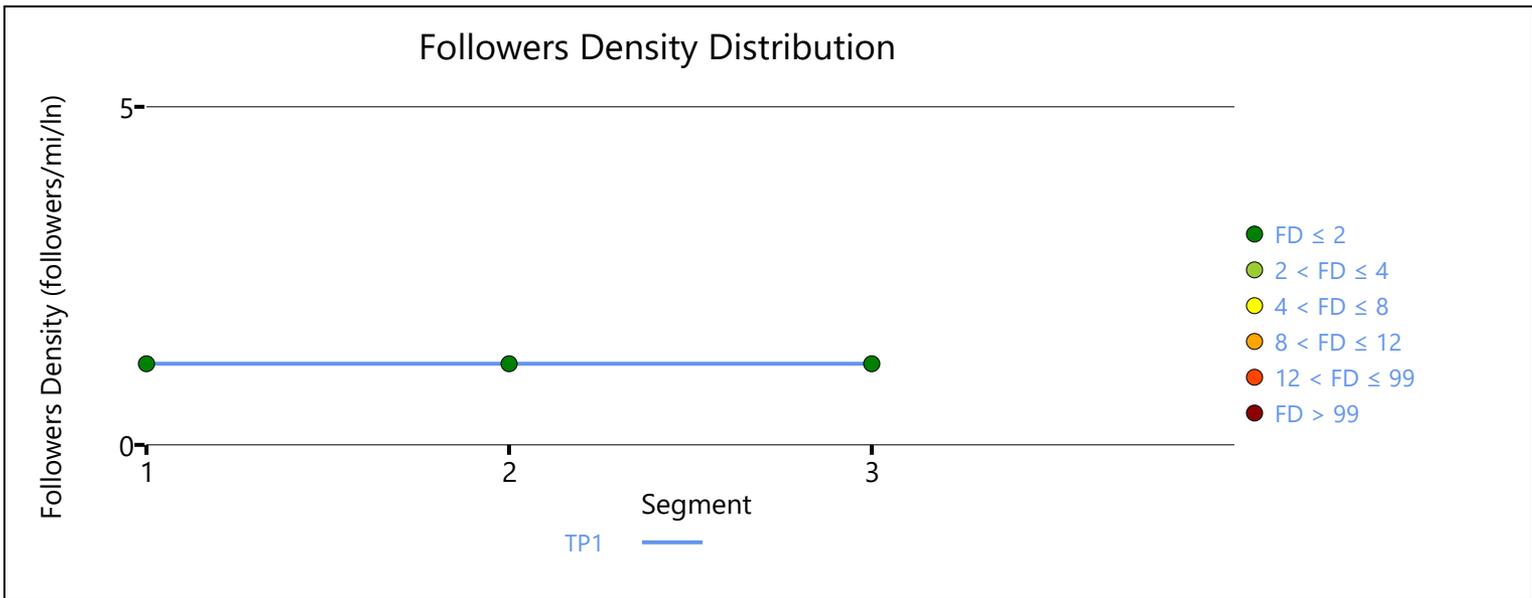
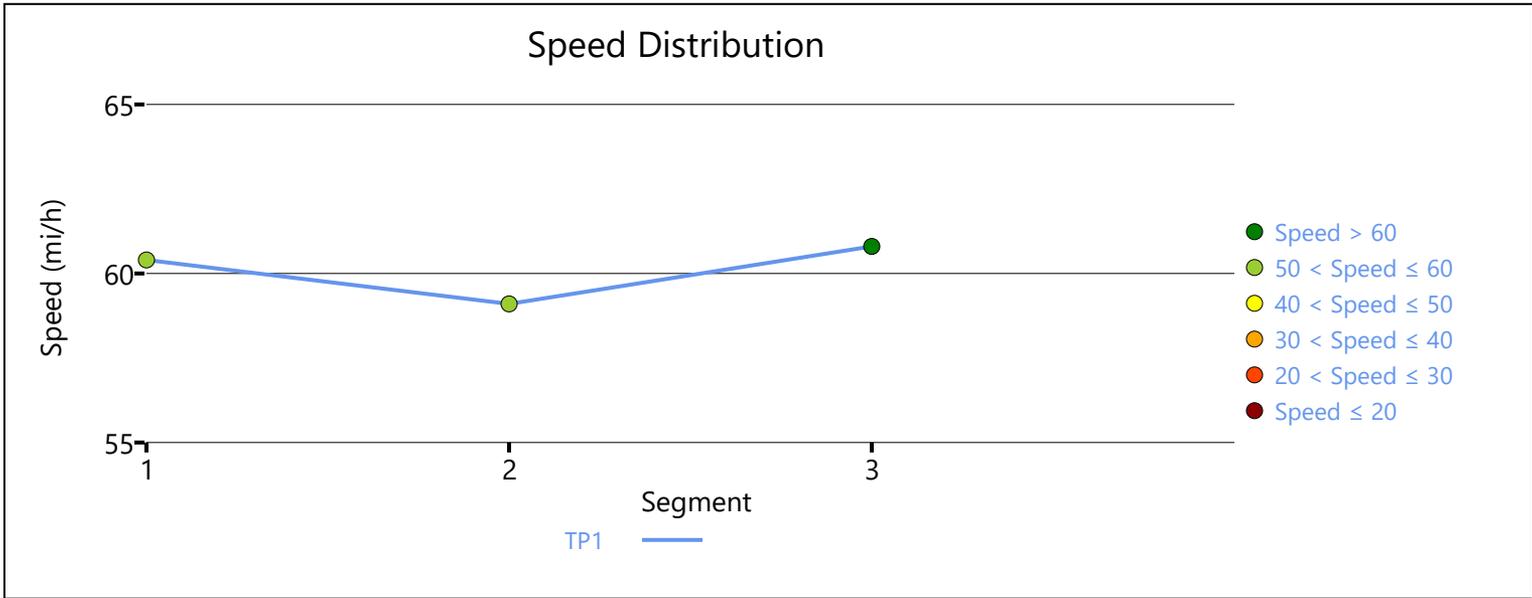
| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 236 | Opposing Demand Flow Rate, veh/h | 215 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 30.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.14 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.7 |
| Speed Slope Coefficient | 3.68078 | Speed Power Coefficient | 0.53517 |
| PF Slope Coefficient | -1.19912 | PF Power Coefficient | 0.80652 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 16.5 | % Improved Avg Speed | 0.7 |

| Subsegment Data | | | | | |
|-----------------|--------------|------------|------------|-------------------|---------------------|
| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
| 1 | Tangent | 8300 | - | - | 60.4 |

| Vehicle Results | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.8 | Percent Followers, % | 31.2 |
| Segment Travel Time, minutes | 1.55 | Followers Density, followers/mi/ln | 1.0 |
| Vehicle LOS | A | | |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 3 - EB - Segment 1 - Existing | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|------|
| Segment Type | Passing Constrained | Length, ft | 2200 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.22 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.5 |
| Speed Slope Coefficient | 3.85688 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.33664 | PF Power Coefficient | 0.75791 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 2.9 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2600 | - | - | 59.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.3 | Percent Followers, % | 46.7 |
| Segment Travel Time, minutes | 0.42 | Followers Density, followers/mi/ln | 2.9 |
| Vehicle LOS | B | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|------|
| Segment Type | Passing Constrained | Length, ft | 3062 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.22 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.5 |
| Speed Slope Coefficient | 3.86882 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.31150 | PF Power Coefficient | 0.76520 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 2.9 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2745 | - | - | 59.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.3 | Percent Followers, % | 45.8 |
| Segment Travel Time, minutes | 0.59 | Followers Density, followers/mi/ln | 2.9 |
| Vehicle LOS | B | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|-------|
| Segment Type | Passing Constrained | Length, ft | 10680 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.22 |

Intermediate Results

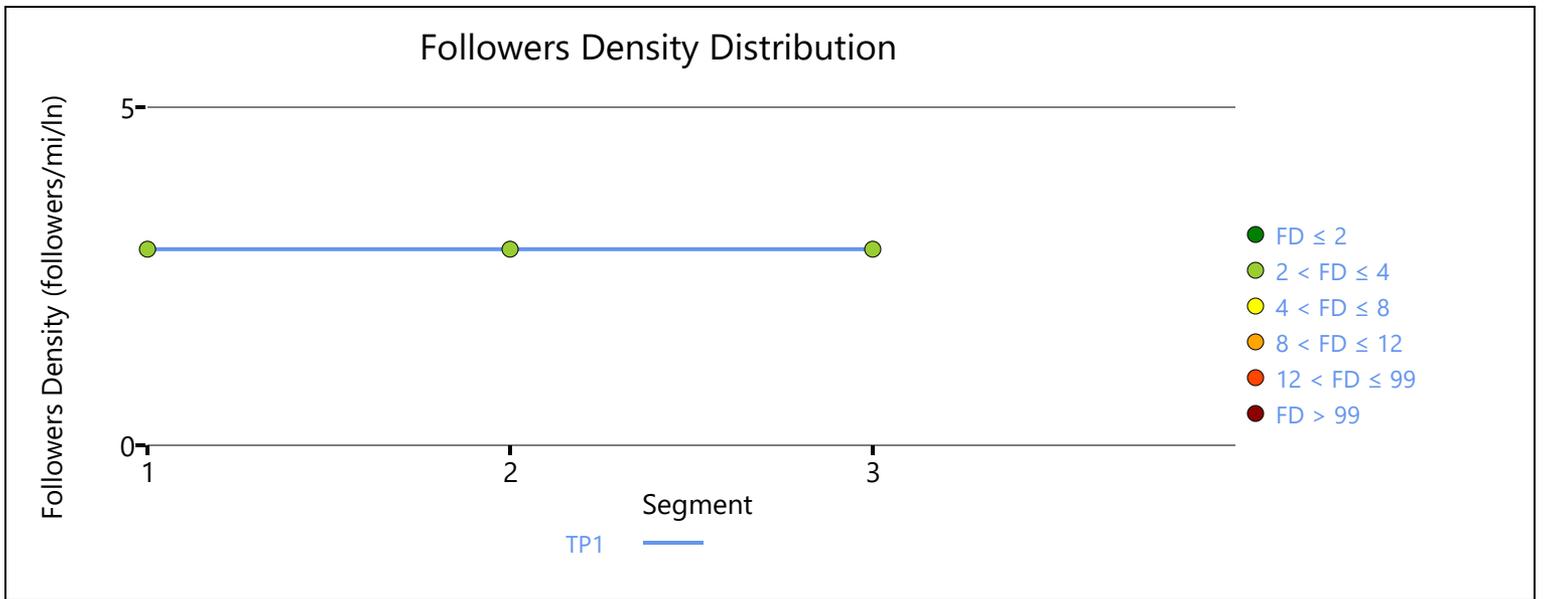
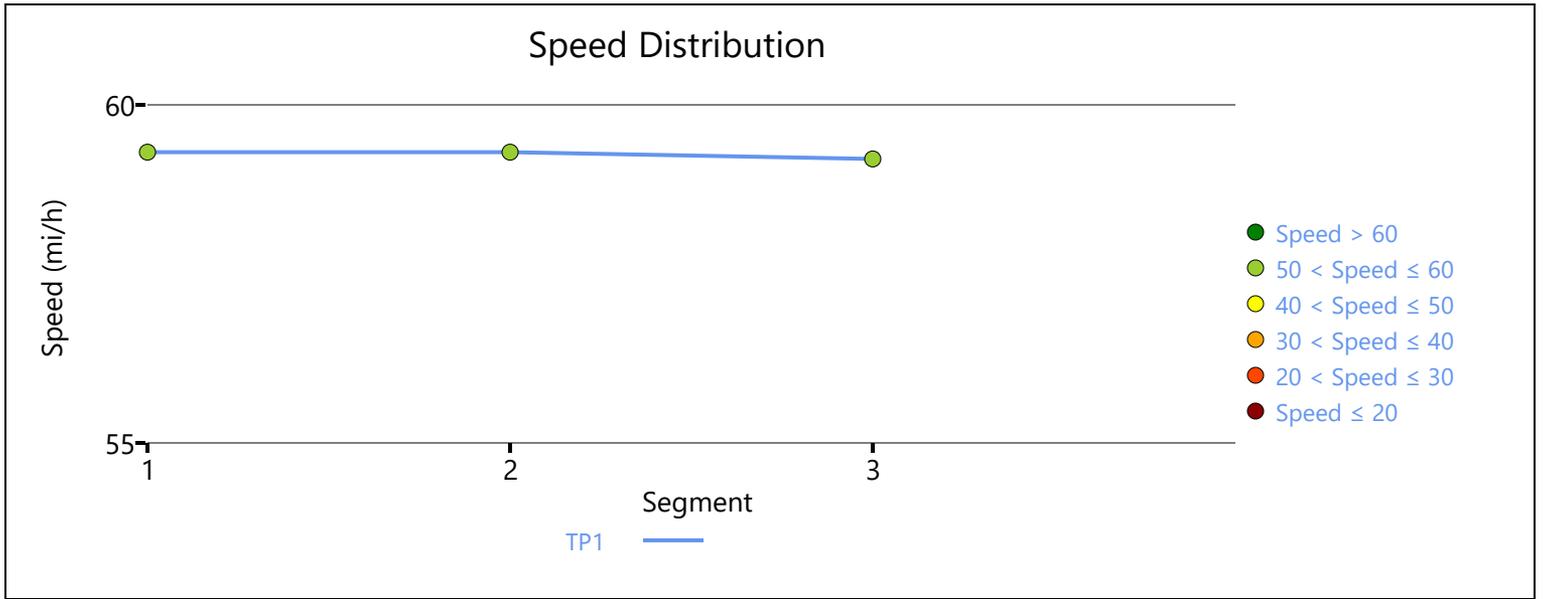
| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.5 |
| Speed Slope Coefficient | 3.93680 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.28940 | PF Power Coefficient | 0.74051 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 2.9 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 10680 | - | - | 59.2 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|-----------|
| Average Speed, mi/h | 59.2 | Percent Followers, % | 46.1 |
| Segment Travel Time, minutes | 2.05 | Followers Density, followers/mi/ln | 2.9 |
| Vehicle LOS | B | | E-5.I.168 |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 3 - EB - Segment 1 - Proposed | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|------|
| Segment Type | Passing Constrained | Length, ft | 2200 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.22 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.5 |
| Speed Slope Coefficient | 3.85688 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.33664 | PF Power Coefficient | 0.75791 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 2.9 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2200 | - | - | 59.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.3 | Percent Followers, % | 46.7 |
| Segment Travel Time, minutes | 0.42 | Followers Density, followers/mi/ln | 2.9 |
| Vehicle LOS | B | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------|------------------------------|------|
| Segment Type | Passing Lanes | Length, ft | 3062 |
| Lane Width, ft | 12 | Shoulder Width, ft | 4 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1100 | Demand/Capacity (D/C) | 0.34 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.1 |
| Speed Slope Coefficient | 9.19170 | Speed Power Coefficient | 0.92981 |
| PF Slope Coefficient | -1.08946 | PF Power Coefficient | 0.74630 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 2.6 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3062 | - | - | 57.4 |

Passing Lane Results

| | Faster Lane | Slower Lane |
|---|-------------|-------------|
| Flow Rate, veh/h | 216 | 154 |
| Percentage of Heavy Vehicles (HV%), % | 14.44 | 66.60 |
| Initial Average Speed (S _{int}), mi/h | 59.8 | 58.5 |
| Average Speed at Midpoint (S _{PLmid}), mi/h | 61.9 | 56.3 |
| Percent Followers at Midpoint (PF _{PLmid}), % | 30.6 | 18.9 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 57.4 | Percent Followers, % | 40.5 |
| Segment Travel Time, minutes | 0.61 | Followers Density, followers/mi/ln | 2.6 |
| Vehicle LOS | B | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|---------------------|------------------------------|-------|
| Segment Type | Passing Constrained | Length, ft | 10680 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

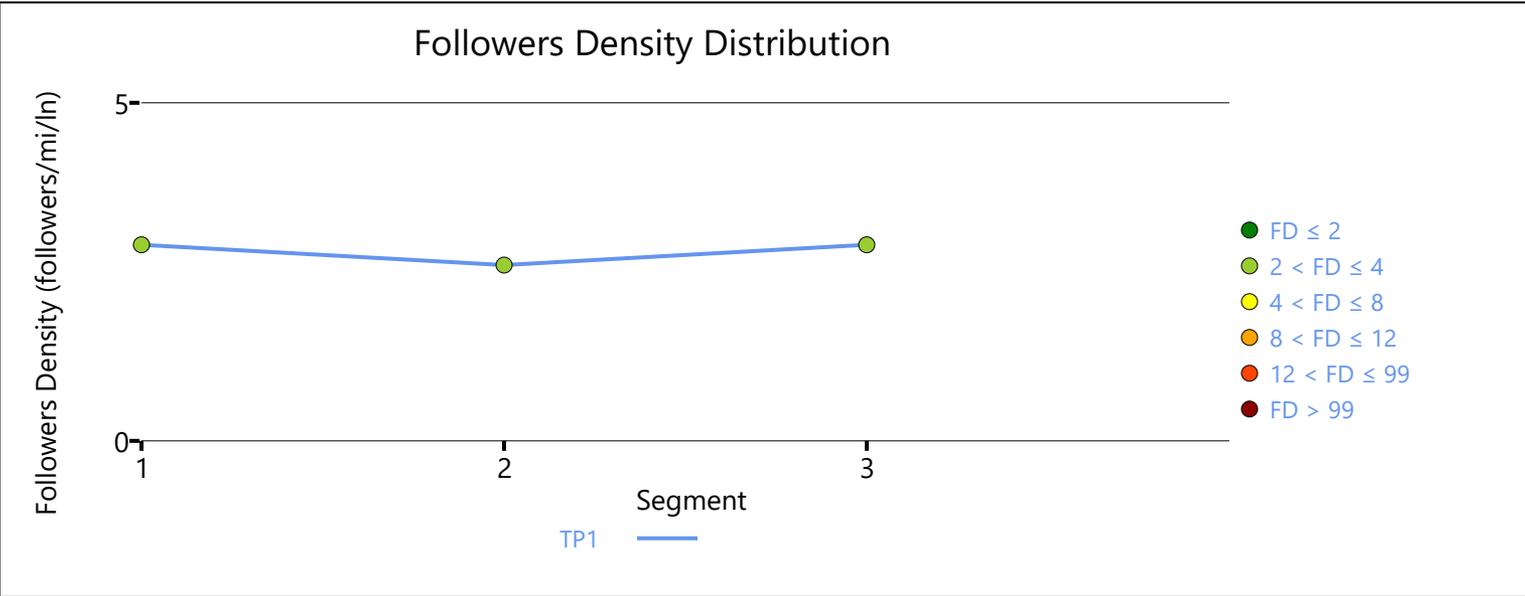
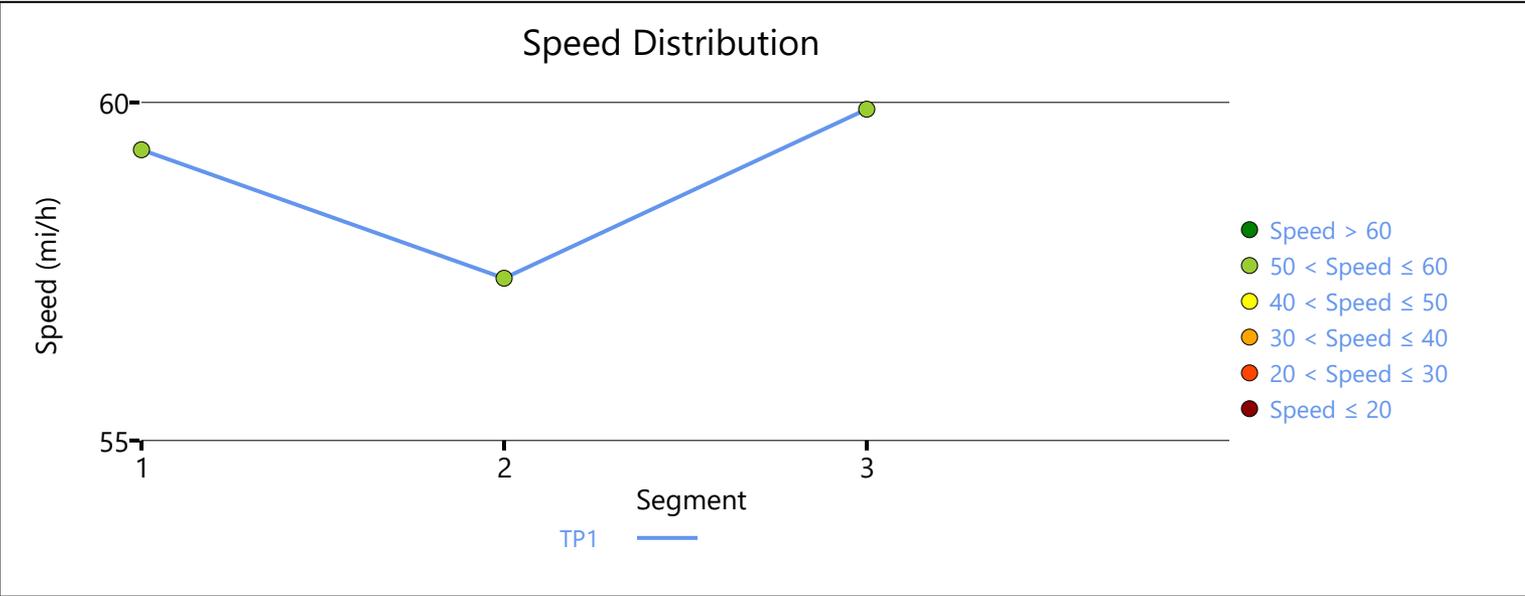
| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 370 | Opposing Demand Flow Rate, veh/h | - |
| Peak Hour Factor | 0.94 | Total Trucks, % | 36.10 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.22 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.5 |
| Speed Slope Coefficient | 3.93680 | Speed Power Coefficient | 0.41674 |
| PF Slope Coefficient | -1.28940 | PF Power Coefficient | 0.74051 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 2.9 |
| %Improved % Followers | 14.7 | % Improved Avg Speed | 1.2 |

| Subsegment Data | | | | | |
|-----------------|--------------|------------|------------|-------------------|---------------------|
| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
| 1 | Tangent | 10680 | - | - | 59.2 |

| Vehicle Results | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.9 | Percent Followers, % | 46.1 |
| Segment Travel Time, minutes | 2.03 | Followers Density, followers/mi/ln | 2.4 |
| Vehicle LOS | B | | |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 3 - WB - Segment 2 - Existing | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|-------|
| Segment Type | Passing Zone | Length, ft | 20575 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 231 | Opposing Demand Flow Rate, veh/h | 307 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.80 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.14 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.72222 | Speed Power Coefficient | 0.51367 |
| PF Slope Coefficient | -1.22859 | PF Power Coefficient | 0.78357 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 8000 | - | - | 60.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.3 | Percent Followers, % | 32.3 |
| Segment Travel Time, minutes | 3.88 | Followers Density, followers/mi/ln | 1.2 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 3538 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|-----|
| Directional Demand Flow Rate, veh/h | 231 | Opposing Demand Flow Rate, veh/h | 307 |
|-------------------------------------|-----|----------------------------------|-----|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.80 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.14 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.66093 | Speed Power Coefficient | 0.51367 |
| PF Slope Coefficient | -1.24110 | PF Power Coefficient | 0.80938 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3907 | - | - | 60.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.3 | Percent Followers, % | 31.5 |
| Segment Travel Time, minutes | 0.67 | Followers Density, followers/mi/ln | 1.2 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|-------|
| Segment Type | Passing Zone | Length, ft | 12950 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 231 | Opposing Demand Flow Rate, veh/h | 307 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.80 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.14 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.72222 | Speed Power Coefficient | 0.51367 |
| PF Slope Coefficient | -1.22859 | PF Power Coefficient | 0.78357 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

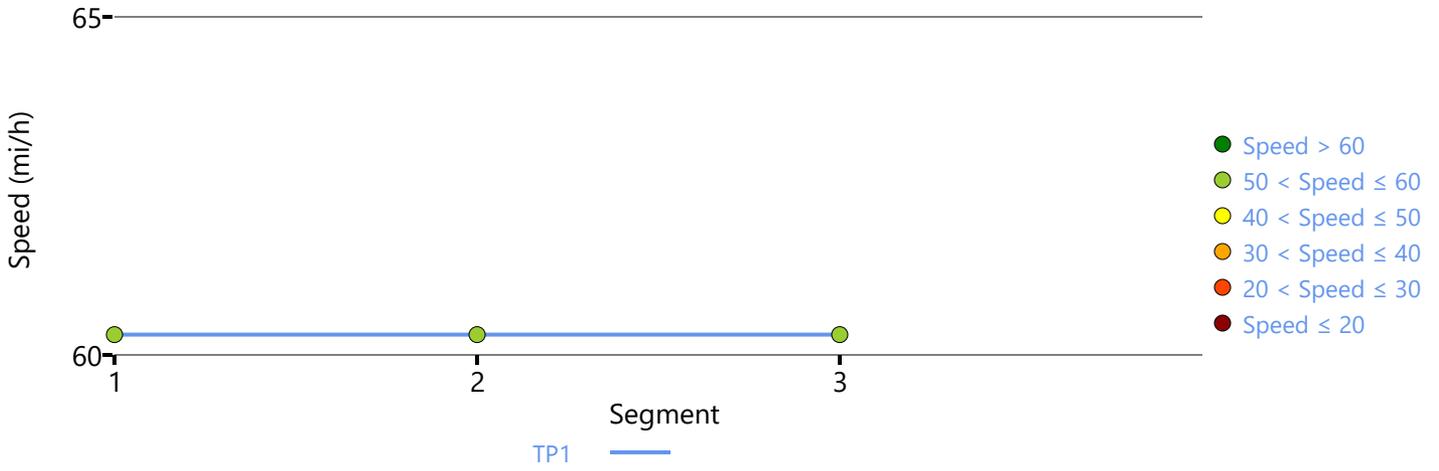
Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 4650 | - | - | 60.3 |

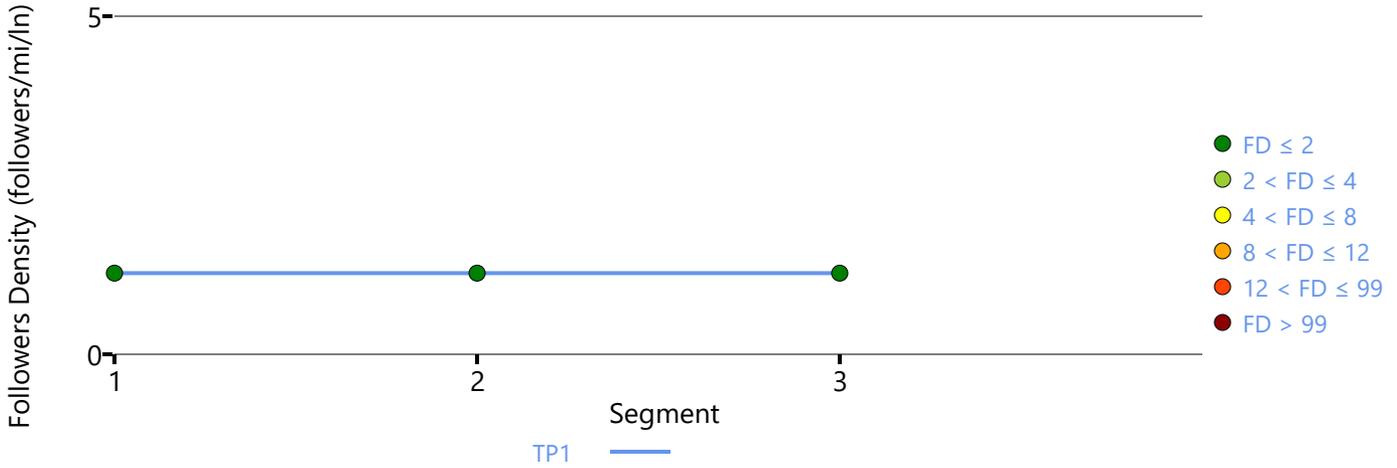
Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|-----------|
| Average Speed, mi/h | 60.3 | Percent Followers, % | 32.3 |
| Segment Travel Time, minutes | 2.44 | Followers Density, followers/mi/ln | 1.2 |
| Vehicle LOS | A | | E-5.I.174 |

Speed Distribution



Followers Density Distribution



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 3 - WB - Segment 2 - Proposed | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|-------|
| Segment Type | Passing Zone | Length, ft | 20575 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 231 | Opposing Demand Flow Rate, veh/h | 307 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.80 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.14 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.72222 | Speed Power Coefficient | 0.51367 |
| PF Slope Coefficient | -1.22859 | PF Power Coefficient | 0.78357 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 20575 | - | - | 60.3 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.3 | Percent Followers, % | 32.3 |
| Segment Travel Time, minutes | 3.88 | Followers Density, followers/mi/ln | 1.2 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------|------------------------------|------|
| Segment Type | Passing Lanes | Length, ft | 3538 |
| Lane Width, ft | 12 | Shoulder Width, ft | 4 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 231 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.80 |
| Segment Capacity, veh/h | 1100 | Demand/Capacity (D/C) | 0.21 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 60.2 |
| Speed Slope Coefficient | 8.81292 | Speed Power Coefficient | 0.93789 |
| PF Slope Coefficient | -1.12160 | PF Power Coefficient | 0.76887 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 3538 | - | - | 58.9 |

Passing Lane Results

| | Faster Lane | Slower Lane |
|---|-------------|-------------|
| Flow Rate, veh/h | 144 | 86 |
| Percentage of Heavy Vehicles (HV%), % | 13.12 | 65.72 |
| Initial Average Speed (S _{int}), mi/h | 60.4 | 59.1 |
| Average Speed at Midpoint (S _{PLmid}), mi/h | 62.5 | 57.0 |
| Percent Followers at Midpoint (PF _{PLmid}), % | 22.7 | 12.6 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 58.9 | Percent Followers, % | 30.5 |
| Segment Travel Time, minutes | 0.68 | Followers Density, followers/mi/ln | 1.2 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|-------|
| Segment Type | Passing Zone | Length, ft | 12950 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

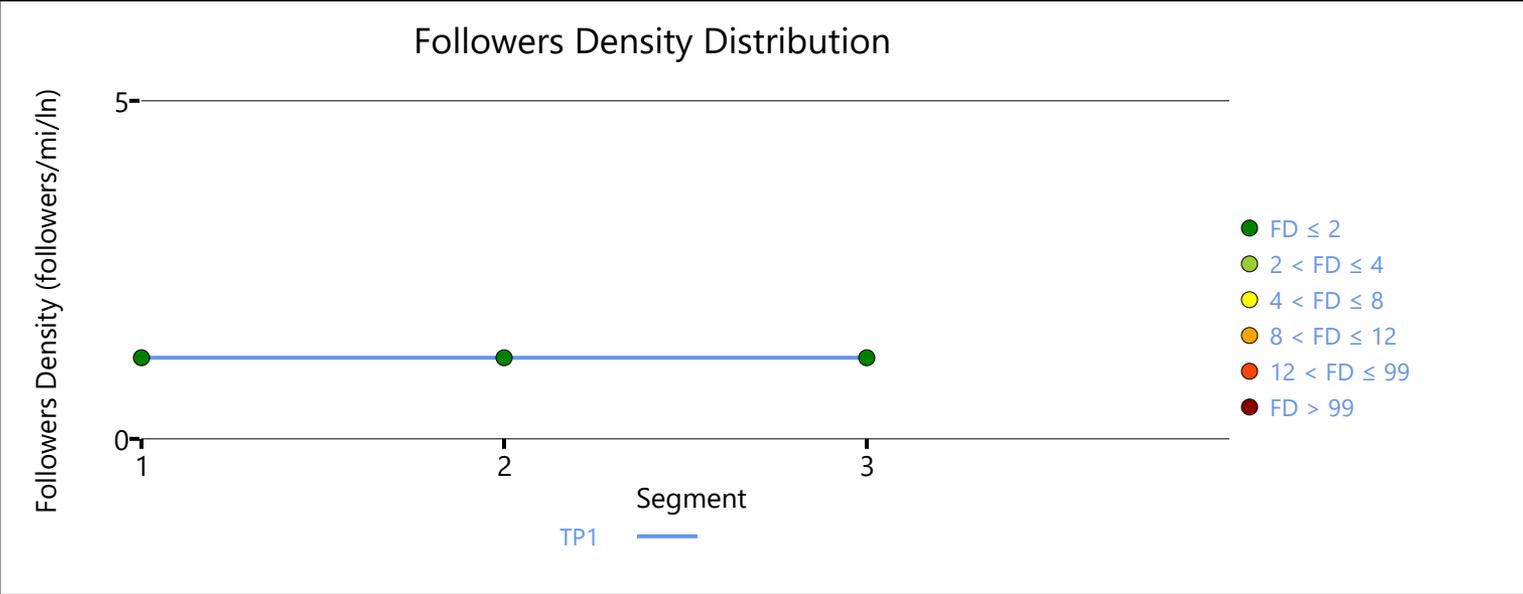
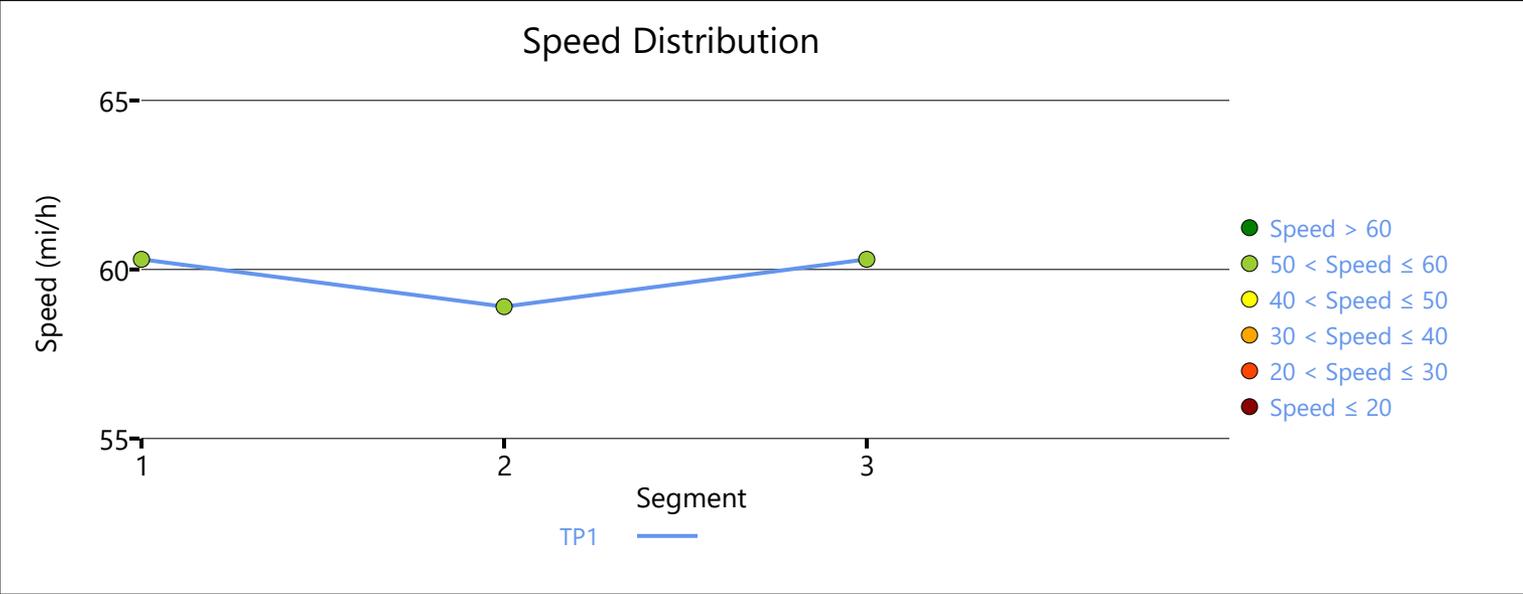
| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 231 | Opposing Demand Flow Rate, veh/h | 307 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 32.80 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.14 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.6 |
| Speed Slope Coefficient | 3.72222 | Speed Power Coefficient | 0.51367 |
| PF Slope Coefficient | -1.22859 | PF Power Coefficient | 0.78357 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 1.2 |
| %Improved % Followers | 13.6 | % Improved Avg Speed | 0.1 |

| Subsegment Data | | | | | |
|-----------------|--------------|------------|------------|-------------------|---------------------|
| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
| 1 | Tangent | 12950 | - | - | 60.3 |

| Vehicle Results | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.3 | Percent Followers, % | 32.3 |
| Segment Travel Time, minutes | 2.44 | Followers Density, followers/mi/ln | 1.1 |
| Vehicle LOS | A | | |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 3 - WB - Segment 3 - Existing | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 5855 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 287 | Opposing Demand Flow Rate, veh/h | 289 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 44.30 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.2 |
| Speed Slope Coefficient | 3.65887 | Speed Power Coefficient | 0.51744 |
| PF Slope Coefficient | -1.21565 | PF Power Coefficient | 0.81288 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.7 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 5855 | - | - | 59.7 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.7 | Percent Followers, % | 35.7 |
| Segment Travel Time, minutes | 1.11 | Followers Density, followers/mi/ln | 1.7 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 2693 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|-----|
| Directional Demand Flow Rate, veh/h | 287 | Opposing Demand Flow Rate, veh/h | 289 |
|-------------------------------------|-----|----------------------------------|-----|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 44.30 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.2 |
| Speed Slope Coefficient | 3.62400 | Speed Power Coefficient | 0.51744 |
| PF Slope Coefficient | -1.25703 | PF Power Coefficient | 0.80564 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.8 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2693 | - | - | 59.7 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.7 | Percent Followers, % | 36.9 |
| Segment Travel Time, minutes | 0.51 | Followers Density, followers/mi/ln | 1.8 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 7310 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 287 | Opposing Demand Flow Rate, veh/h | 289 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 44.30 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

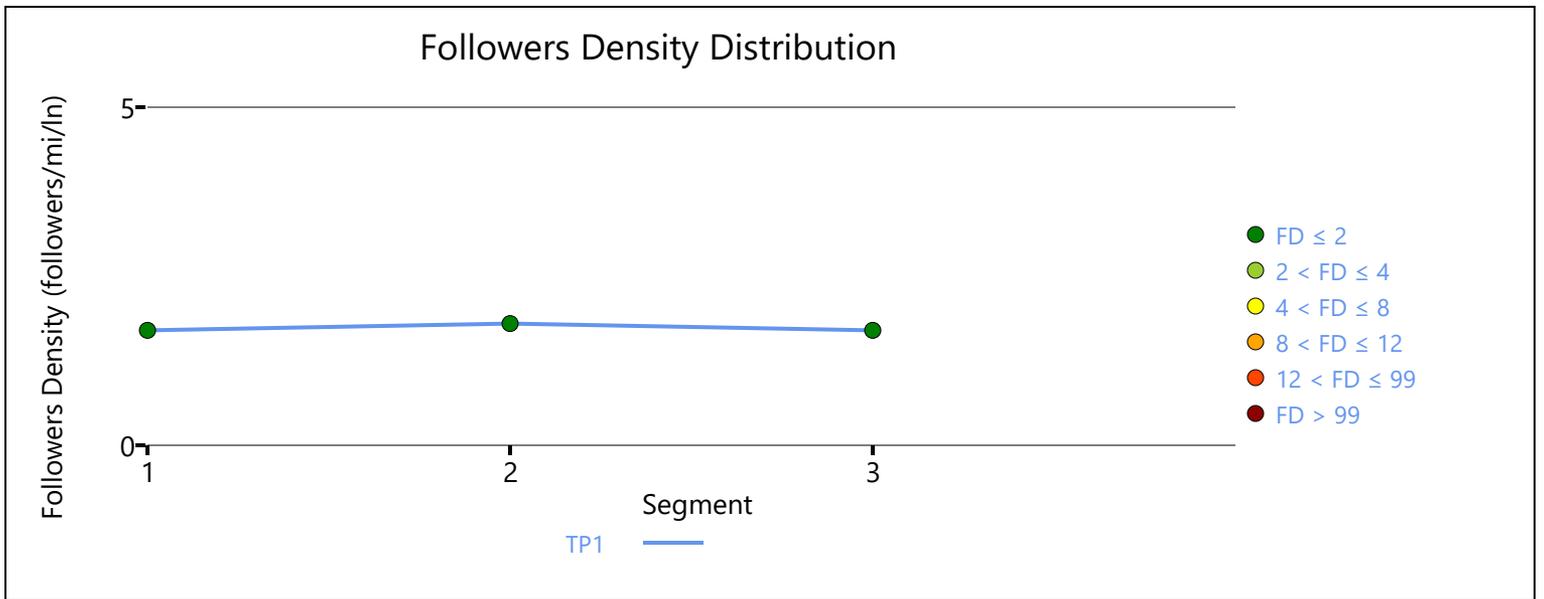
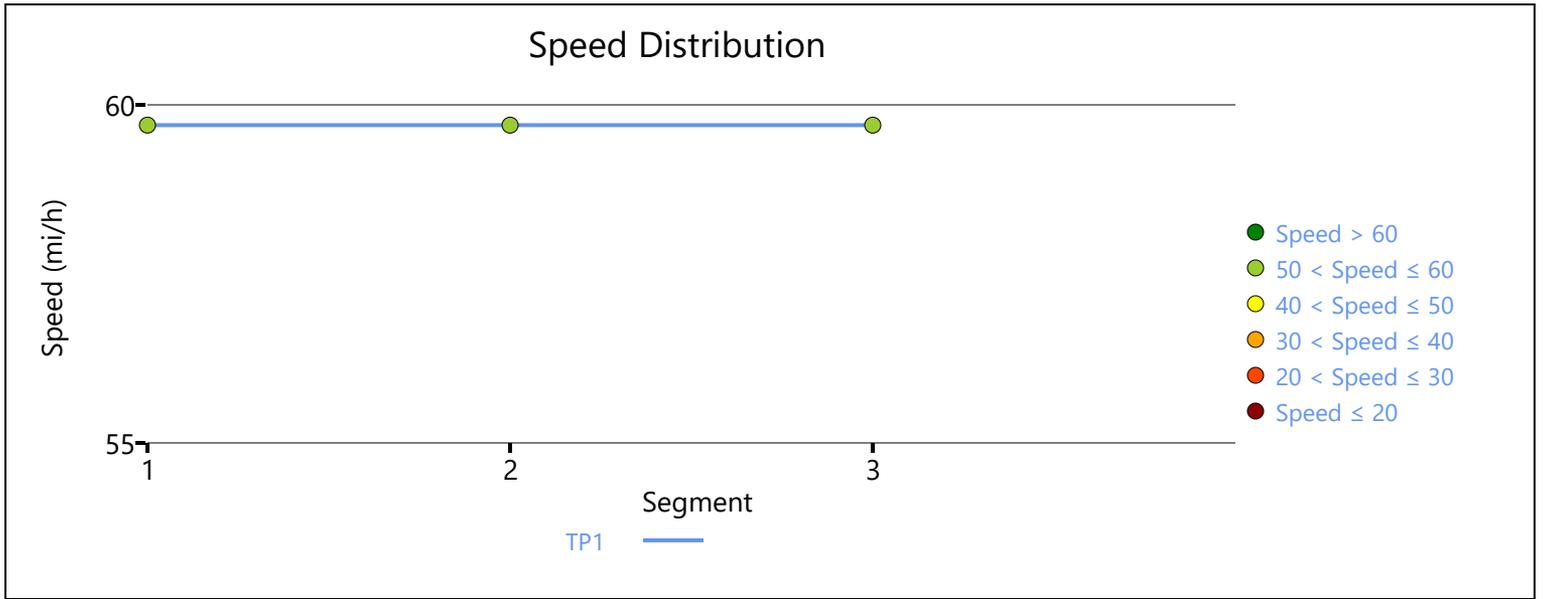
| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.2 |
| Speed Slope Coefficient | 3.67159 | Speed Power Coefficient | 0.51744 |
| PF Slope Coefficient | -1.21302 | PF Power Coefficient | 0.80760 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.7 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 7310 | - | - | 59.7 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|-----------|
| Average Speed, mi/h | 59.7 | Percent Followers, % | 35.8 |
| Segment Travel Time, minutes | 1.39 | Followers Density, followers/mi/ln | 1.7 |
| Vehicle LOS | A | | E-5.I.180 |



HCS7 Two-Lane Highway Report

Project Information

| | | | |
|---------------------|---------------------------------------|----------------------|-------------------------|
| Analyst | Kimley-Horn | Date | 9/26/2024 |
| Agency | | Analysis Year | 2050 |
| Jurisdiction | | Time Period Analyzed | |
| Project Description | Concept 3 - WB - Segment 3 - Proposed | Unit | United States Customary |

Segment 1

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 5855 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 287 | Opposing Demand Flow Rate, veh/h | 289 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 44.30 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.2 |
| Speed Slope Coefficient | 3.65887 | Speed Power Coefficient | 0.51744 |
| PF Slope Coefficient | -1.21565 | PF Power Coefficient | 0.81288 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.7 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 5855 | - | - | 59.7 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 59.7 | Percent Followers, % | 35.7 |
| Segment Travel Time, minutes | 1.11 | Followers Density, followers/mi/ln | 1.7 |
| Vehicle LOS | A | | |

Segment 2

Vehicle Inputs

| | | | |
|-------------------|---------------|------------------------------|------|
| Segment Type | Passing Lanes | Length, ft | 2693 |
| Lane Width, ft | 12 | Shoulder Width, ft | 4 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|-----|----------------------------------|---|
| Directional Demand Flow Rate, veh/h | 287 | Opposing Demand Flow Rate, veh/h | - |
|-------------------------------------|-----|----------------------------------|---|

| | | | |
|-------------------------|------|-----------------------|-------|
| Peak Hour Factor | 0.94 | Total Trucks, % | 44.30 |
| Segment Capacity, veh/h | 1100 | Demand/Capacity (D/C) | 0.26 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 59.8 |
| Speed Slope Coefficient | 10.17400 | Speed Power Coefficient | 0.94872 |
| PF Slope Coefficient | -0.96929 | PF Power Coefficient | 0.69770 |
| In Passing Lane Effective Length? | No | Total Segment Density, veh/mi/ln | 1.7 |
| %Improved % Followers | 0.0 | % Improved Avg Speed | 0.0 |

Subsegment Data

| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
|---|--------------|------------|------------|-------------------|---------------------|
| 1 | Tangent | 2693 | - | - | 57.7 |

Passing Lane Results

| | Faster Lane | Slower Lane |
|--|-------------|-------------|
| Flow Rate, veh/h | 172 | 115 |
| Percentage of Heavy Vehicles (HV%), % | 17.72 | 84.07 |
| Initial Average Speed (Sint), mi/h | 59.9 | 58.4 |
| Average Speed at Midpoint (SPLmid), mi/h | 62.3 | 56.1 |
| Percent Followers at Midpoint (PFPLmid), % | 28.1 | 15.0 |

Vehicle Results

| | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 57.7 | Percent Followers, % | 33.4 |
| Segment Travel Time, minutes | 0.53 | Followers Density, followers/mi/ln | 1.7 |
| Vehicle LOS | A | | |

Segment 3

Vehicle Inputs

| | | | |
|-------------------|--------------|------------------------------|------|
| Segment Type | Passing Zone | Length, ft | 7310 |
| Lane Width, ft | 12 | Shoulder Width, ft | 6 |
| Speed Limit, mi/h | 55 | Access Point Density, pts/mi | 0.0 |

Demand and Capacity

| | | | |
|-------------------------------------|------|----------------------------------|-------|
| Directional Demand Flow Rate, veh/h | 287 | Opposing Demand Flow Rate, veh/h | 289 |
| Peak Hour Factor | 0.94 | Total Trucks, % | 44.30 |
| Segment Capacity, veh/h | 1700 | Demand/Capacity (D/C) | 0.17 |

Intermediate Results

| | | | |
|-----------------------------------|----------|----------------------------------|---------|
| Segment Vertical Class | 1 | Free-Flow Speed, mi/h | 61.2 |
| Speed Slope Coefficient | 3.67159 | Speed Power Coefficient | 0.51744 |
| PF Slope Coefficient | -1.21302 | PF Power Coefficient | 0.80760 |
| In Passing Lane Effective Length? | Yes | Total Segment Density, veh/mi/ln | 1.7 |
| %Improved % Followers | 16.7 | % Improved Avg Speed | 1.0 |

| Subsegment Data | | | | | |
|-----------------|--------------|------------|------------|-------------------|---------------------|
| # | Segment Type | Length, ft | Radius, ft | Superelevation, % | Average Speed, mi/h |
| 1 | Tangent | 7310 | - | - | 59.7 |

| Vehicle Results | | | |
|------------------------------|------|------------------------------------|------|
| Average Speed, mi/h | 60.3 | Percent Followers, % | 35.8 |
| Segment Travel Time, minutes | 1.38 | Followers Density, followers/mi/ln | 1.4 |
| Vehicle LOS | A | | |

