Interchange Modification Report

Interstate 26 Exit 85 – SC 202

Newberry County, SC

Prepared For:

South Carolina Department of Transportation

Prepared By:

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EXECUTIVE SUMMARY

The South Carolina Department of Transportation (SCDOT) proposes multiple improvements to the I-26 corridor from mile marker 85 – SC 202 to mile marker 101 – Broad River Road (US 176) designed to increase capacity, upgrade interchanges to meet design requirements, and expand vertical clearance at overpass bridges. Specifically, SCDOT proposes widening I-26 from four to six lanes from Exit 85 – SC 202 to Exit 97 - Broad River Road (US 176) and from four to eight lanes from Exit 97 - Broad River Road (US 176) to Exit 101 - Broad River Road (US 176). Along the project area, interchanges at Exit 85 – SC 202, Exit 91 – Columbia Avenue (S-48), and Exit 97 - Broad River Road (US 176) will be improved to bring them to compliance with design requirements.

Throughout nearly all of the study area, I-26 currently provides two lanes in each direction. From Exit 82 southeastward, the two lane section is maintained, until it is widened from two to three lanes approaching Exit 101.

The proposed project has two primary purposes: increase roadway capacity to address the projected traffic volumes and improve geometric deficiencies along the mainline and at several interchanges and overpasses in this section of I-26 by bringing them to compliance with current state and federal design standards. The secondary purpose is to improve safety which will be enhanced by improving the geometric design of the facility.

This interchange modification report (IMR) presents information for the proposed interchange modifications at Exit 85 – SC 202 located in Newberry County, SC. Today, this interchange is a partial cloverleaf interchange. Both the eastbound and westbound off- and on-ramps are located on the north side of the interchange. There is also a closely spaced frontage road (Meadow Brook Road) near the intersection of SC 202 and the westbound ramps.

Information discussed in the report is derived from the following reports: *Interstate 26 Widening Traffic Analysis Report: I-26 Widening Project MM 85-MM 101, Accident Analysis Report: I-26 Widening Project MM 85-MM 101,* and *Interstate 26 Widening and Improvements Mile Marker 85-101 Environmental Assessment.*

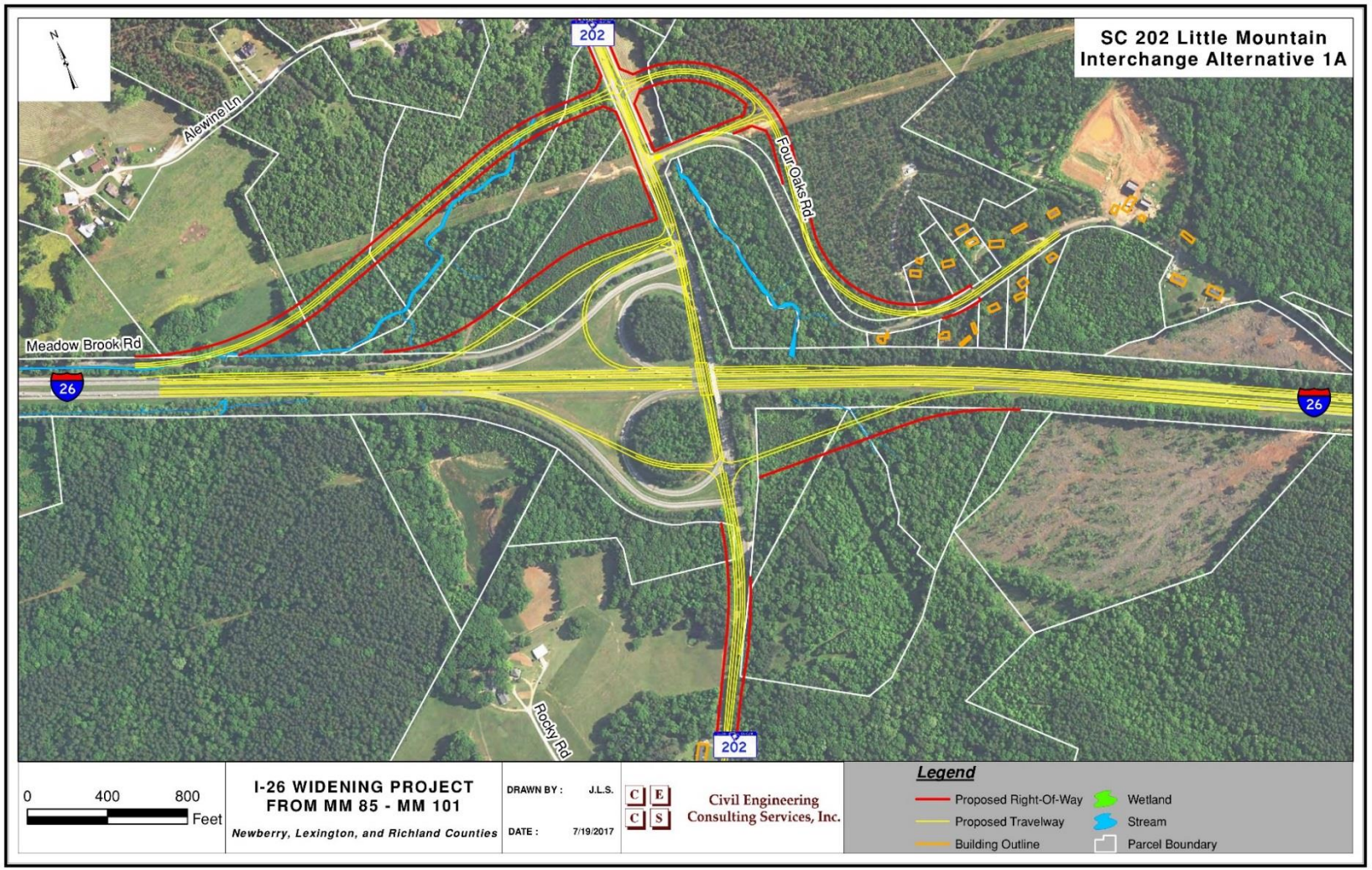
Five alternatives were developed for Exit 85. The five build alternatives at Exit 85 consist of:

- Alternative 1: Diamond Interchange – this concept would replace the existing interchange configuration with a diamond interchange. The eastbound and westbound off-ramp approaches to the ramp termini intersections would be controlled by STOP signs.
- Alternative 1A: Diamond Loop Interchange – this concept is similar to Alternative 1 but replaces the diamond ramp in the northeast quadrant with a loop ramp in the northwest quadrant.

- Alternative 2: Partial Cloverleaf (ParClo) Interchange – this concept would add a westbound off-ramp for traffic traveling to the north on SC 202, and eastbound on-ramp for traffic traveling from the south on SC 202 to the existing interchange configuration, along with adjustments to acceleration and deceleration lane lengths for the existing ramps. The eastbound and westbound off-ramp approaches to the ramp termini intersections would be controlled by STOP signs.
- Alternative 2A: ParClo Modified – this concept would be similar to Alternative 2 but would remove the ramp in the northeast quadrant and shift that movement to the loop ramp in the northwest quadrant.
- Alternative 3: Dual Roundabout (Bowtie) Interchange – this concept would eliminate the westbound loop off-ramp and eastbound loop on-ramp and provide for a diamond interchange with roundabouts instead of STOP sign controlled intersections at the ramp termini.

The Preferred Alternative that was selected for Exit 85 was Alternative 1A. Other elements of Alternative 1A include the relocation of Meadow Brook Road and 4 Oaks Road to provide further separation from the interchange ramps. Alternative 1a was selected as the Preferred Alternative because it meets the purpose and need, has the lowest overall construction cost, does not require any residential or commercial relocations, requires the lowest acreage of new right-of-way, and results in the lowest impact to streams making it the least environmentally damaging practicable alternative. Therefore, this alternative was selected as the Preferred Alternative. Alternative 1A is shown in Figure **E-1**.

Based on the traffic analysis of the Preferred Alternative 1A, no additional improvements are necessary.



Source: Figure 82, *Interstate 26 Widening Traffic Analysis Report*

Figure E-1. Preferred Alternative 1A

I. Introduction

I-26 is an east-west interstate highway that begins at the junction of U.S. Route 11W and U.S. Route 23 in Kingsport, Tennessee. From this origin, I-26 runs generally southeastward through Tennessee, North Carolina, and South Carolina, where it ends at U.S. Route 17 in Charleston, South Carolina.

Along its nearly 306 mile length, I-26 provides access to Johnson City, Tennessee; Asheville, North Carolina; and Spartanburg, Columbia and Charleston, South Carolina.

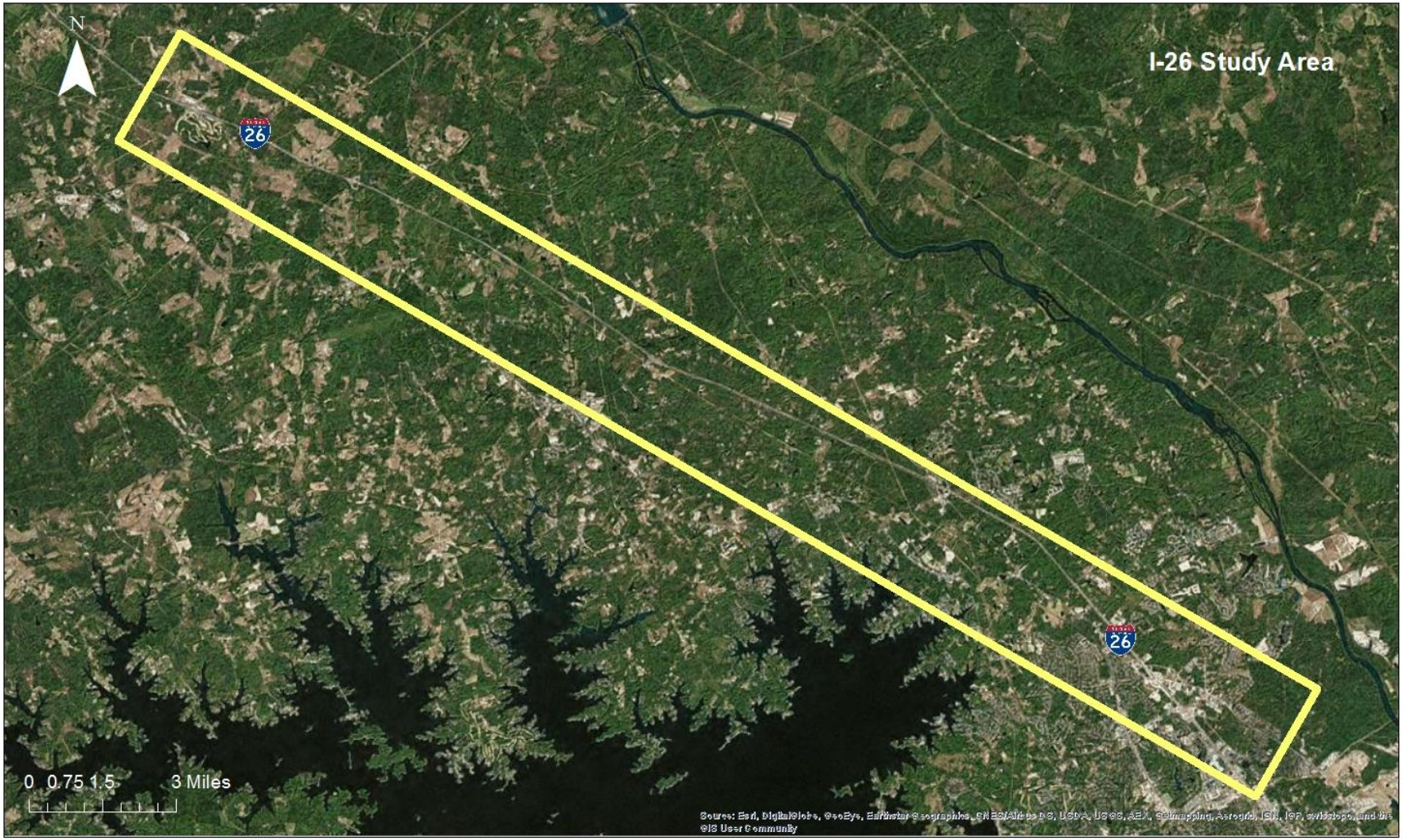
In South Carolina, I-26 covers about 221 miles, and provides connections to I-95 south of Providence, to I-77 south of Cayce, to I-20 west of Columbia, and to I-85 north-west of Spartanburg. The portion of I-26 under study in the *Interstate 26 Widening Traffic Analysis Report: I-26 Widening Project MM 85-MM 101* is located west of Columbia, generally between Exit 82 and Exit 102. Exit 85 is located on the west end of the study area.

In the vicinity of Exit 85, I-26 currently provides two lanes in each direction. The posted speed limit on I-26 in the vicinity of Exit 85 is 70 miles per hour.

In general, interstate routes can be characterized as having either level, rolling, or mountainous terrain. Consistent with the Mainline Study, the portion of I-26 adjacent to Exit 85 is characterized as having a rolling terrain.

Information discussed in the report is derived from the following projects reports: *Interstate 26 Widening Traffic Analysis Report: I-26 Widening Project MM 85-MM 101* (Mainline Study), *Accident Analysis Report: I-26 Widening Project MM 85-MM 101* (Accident Analysis), and *Interstate 26 Widening and Improvements Mile Marker 85-101 Environmental Assessment.*

The I-26 Mainline Study evaluated multiple improvements to the I-26 corridor designed to increase capacity, upgrade interchanges to meet design requirements, and expand vertical clearance at overpass bridges and/or replace them. The study considered widening I-26 from two to three lanes from approximately 1.6 miles west of Exit 85 to about 2,200 feet west of Exit 101 and examined modifications to interchanges at Exit 85 (SC 202), Exit 91 (S-32-48/Columbia Avenue) and Exit 97 (US 176/Broad River Road). To provide sufficient coverage to prepare interchange modification reports, the I-26 Mainline Study included the existing interchanges at Exits 82, 101 and 102. **Figure 1** depicts the study area for the overall I-26 Widening project.



Source: Figure 1, *Interstate 26 Widening Traffic Analysis Report*

Figure 1. Interstate 26 Widening Study Area

II. Exit 85 – SC 202

Exit 85 is a partial cloverleaf interchange with a loop on-ramp in the southwest quadrant and a loop off-ramp in the northwest quadrant. The existing configuration of the Exit 85 interchange is shown in **Figure 2**.

Existing Conditions

The westbound loop off-ramp is approximately 860 feet long with a 415 feet long parallel deceleration lane (with a parallel length of approximately 190 feet). The off-ramp has a 30 mph posted advisory speed limit, and widens from a single lane to provide a separate left turn lane and a separate right turn lane that are separated from each other by a grass island. The left turn lane provides approximately 40 feet of storage upstream of the stop line and is controlled by a STOP sign. The right turn lane provides approximately 110 feet of storage upstream of the stop line and is controlled by a yield sign.

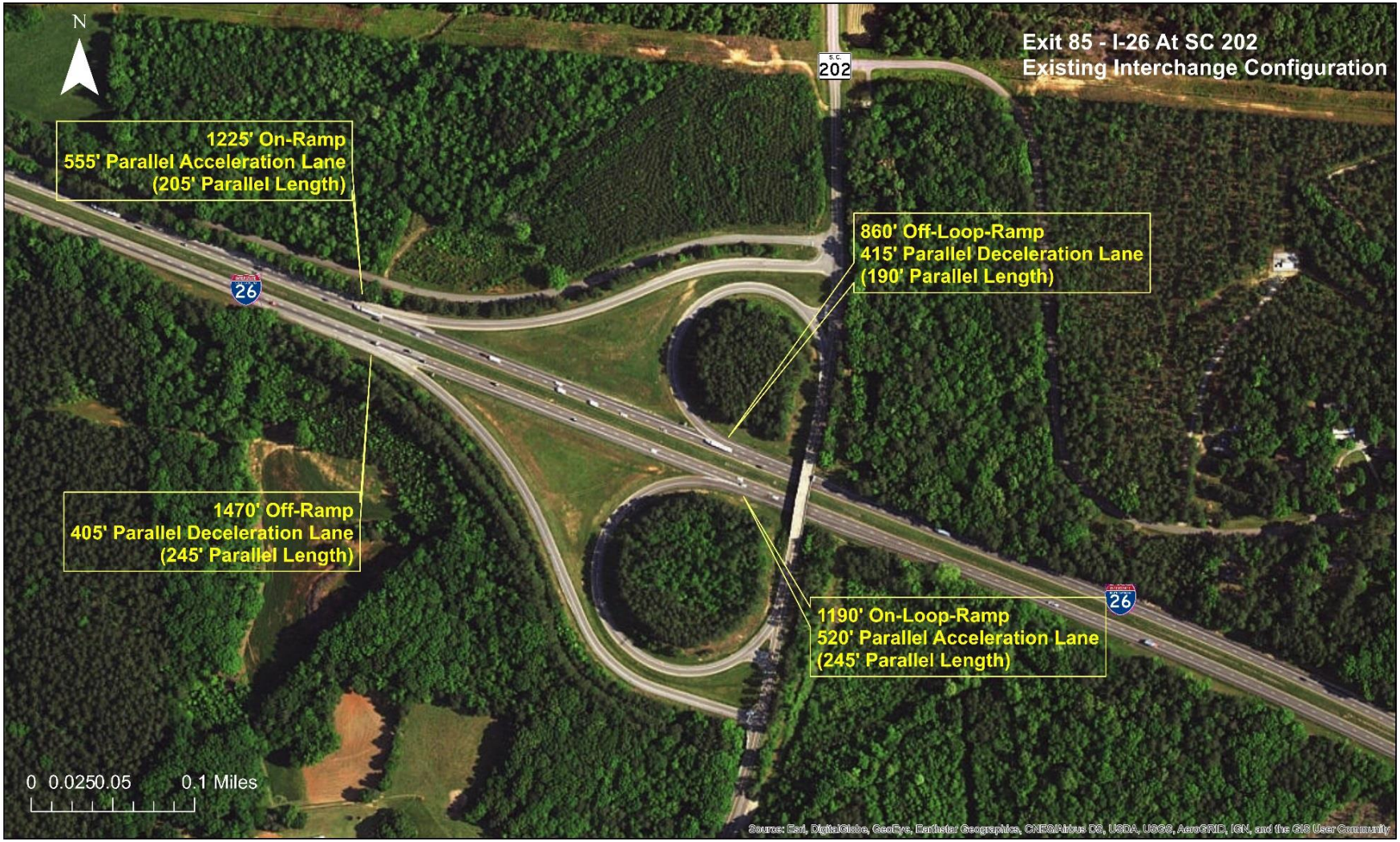
The westbound on-ramp is a single lane ramp approximately 1,225 feet long that merges into I-26 with a 555 feet long parallel acceleration lane (with a parallel length of approximately 205 feet). The ramp accepts the southbound right turn and the northbound left turn traffic from SC 202. No control is provided to either of these movements. The westbound on-ramp is adjacent to Meadow Brook Road, which is located to the north of the on-ramp and separated by approximately 45 feet.

The westbound loop off-ramp and on-ramp are separated by approximately 980 feet.

The eastbound off-ramp is approximately 1,470 feet long with a 405 feet long parallel deceleration lane (with a parallel length of approximately 245 feet). The off-ramp has a 40 mph posted advisory speed limit. The off-ramp remains a single lane until it intersects with SC 202. At the intersection traffic can make left or right turn. Both movements are controlled by the STOP signs.

The eastbound on-ramp is a single lane loop ramp approximately 1,190 feet long that merges into I-26 with a 520 feet long parallel acceleration lane (with a parallel length of approximately 245 feet). The ramp accepts the southbound right turn and the northbound left turn traffic from SC 202. Northbound left turning traffic and southbound right turning traffic are separated by a grass median; the northbound left turn traffic entering the on-ramp has to yield to the southbound right turn traffic.

The eastbound off-ramp and loop on-ramp are separated by approximately 1,050 feet.



Source: Figure 12, *Interstate 26 Widening Traffic Analysis Report*

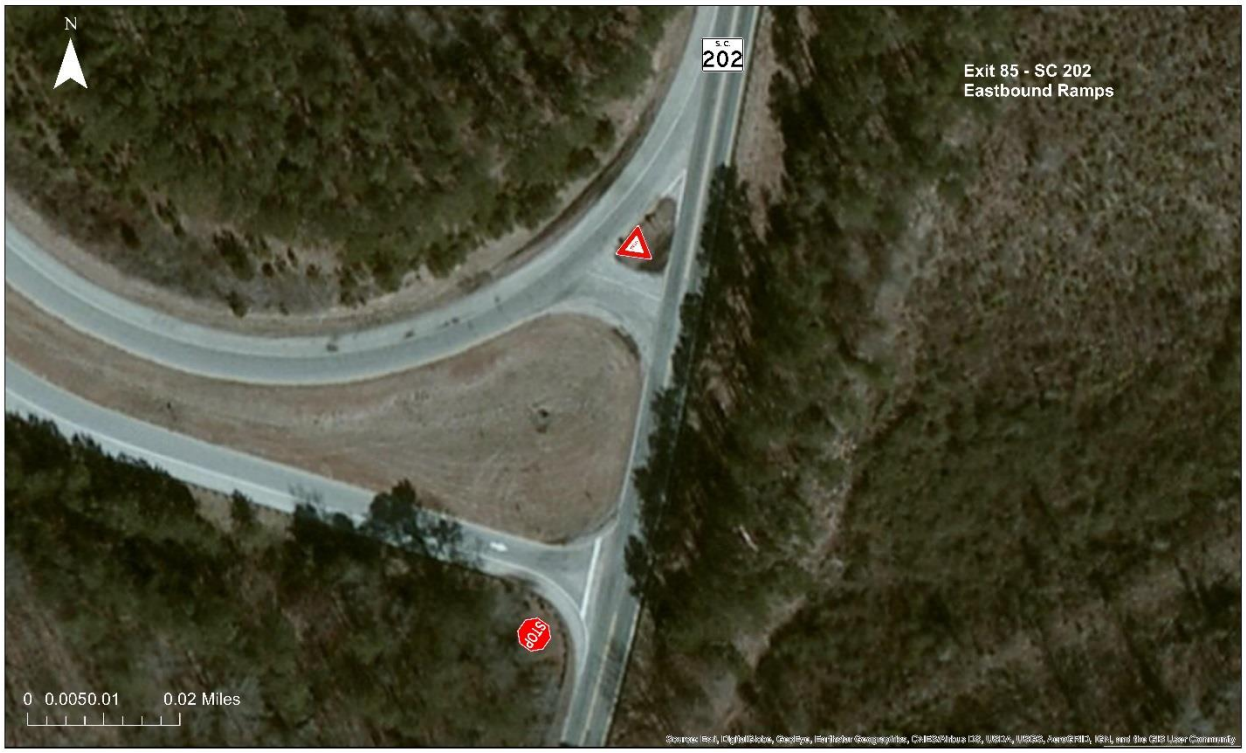
Figure 2. Existing Interchange

The exit is signed "SC 202" using the state route shields, along with the text "Pomaria" and "Little Mtn" in the westbound direction. In the eastbound direction, the SC 202 state route shield is shown along with the text "Little Mtn".

The section of I-26 in the vicinity of Exit 85 currently consists of a four-lane interstate with a grassed median for most of its length. The existing right-of-way is approximately 50 feet to either side of the center line (100 feet total).

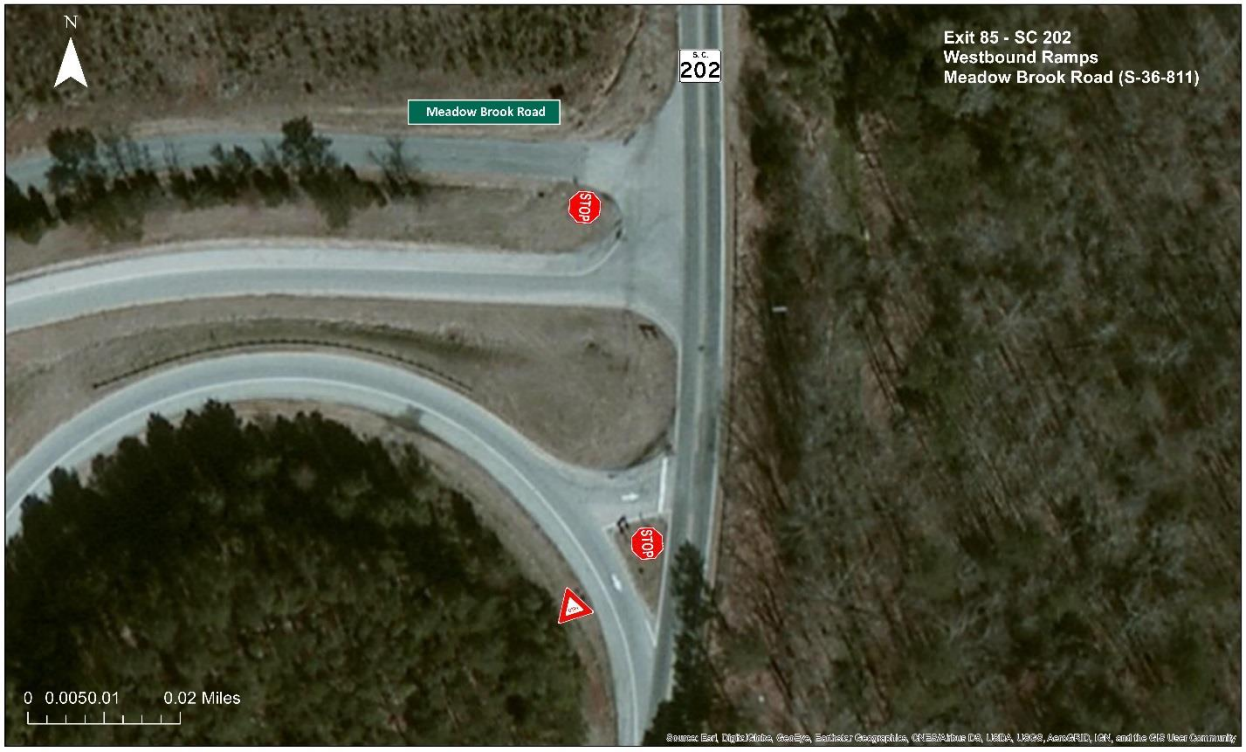
SC 202 is a two lane roadway with a posted 45 mph speed limit in the vicinity of the interchange. The SC 202 bridge crossing I-26 is two lanes wide. No dedicated turn lanes are provided for northbound left turn traffic from SC 202 merging into the eastbound loop on-ramp. However, there is a small island at the point of its merging with southbound right turn traffic from SC 202. Left turn traffic onto the eastbound loop on-ramp has to yield to southbound right turn traffic.

At the westbound on-ramp intersection, no vehicle storage turn lanes are provided for northbound left turn traffic or the southbound right turn traffic from SC 202. However, there is a wider section of pavement between the westbound on-ramp and Meadow Brook Road that could be used as a southbound right turn lane onto the ramp. The eastbound ramp intersection is shown in **Figure 3**. The westbound ramp intersection is shown in **Figure 4**.



Source: Figure 13, *Interstate 26 Widening Traffic Analysis Report*

Figure 3. Exit 85: SC 202 at Eastbound Ramps



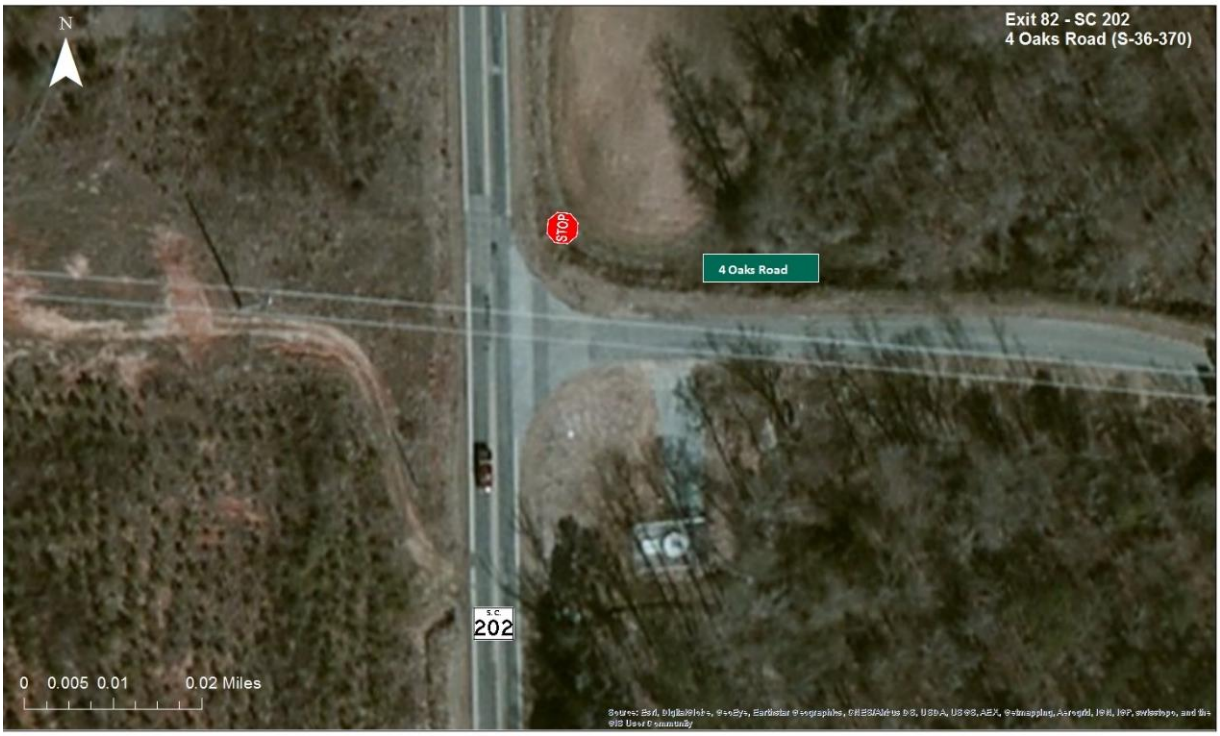
Source: Figure 14, *Interstate 26 Widening Traffic Analysis Report*

Figure 4. Exit 85: SC 202 at Westbound Ramps

Two intersections are located in the vicinity of the interchange. The intersection of SC 202 with Meadow Brook Road (S-36-811) is located about 60 feet north of the westbound on-ramp. The intersection of 4 Oaks Road (S-36-370) is located approximately 520 feet north of the westbound on-ramp.

Meadow Brook Road is a local undivided road without a posted speed limit. Meadow Brook Road is located approximately 60 feet north of the westbound on-ramp intersection, and runs westward and dead-ends in about 1.64 miles. At its intersection with SC 202, the eastbound approach of Meadow Brook Road is controlled by a STOP sign. The existing configuration of the SC 202 intersection with Meadow Brook Road is shown in **Figure 4**.

4 Oaks Road is a local undivided road without a posted speed limit (although at the curves on the roadway, there are posted advisory speed limit signs of 25 and 30 mph). 4 Oaks Road is located approximately 520 feet north of the westbound on-ramp intersection, and runs eastward and dead-ends in 1.51 miles. At its intersection with SC 202, the westbound approach of 4 Oaks Road is controlled by a STOP sign. The existing configuration of SC 202 intersection with 4 Oaks Road is shown in **Figure 5**.



Source: Figure 15, *Interstate 26 Widening Traffic Analysis Report*

Figure 5. Exit 85: SC 202 at 4 Oaks Road

Purpose and Need

The proposed project has two primary purposes: increase roadway capacity to address the projected increased traffic volumes and improve geometric deficiencies along the mainline and at several interchanges and overpasses in this section of I-26 by bringing them into compliance with current state and federal design standards. The secondary purpose is to improve safety, which will be enhanced by improving the geometric design of the facility.

The needs for this project were identified through a comprehensive review of previous studies along with the analysis of current data compiled for this study. This includes information in the I-26 Widening Traffic Analysis Report and the I-26 Accident Analysis Report, as well as information collected through meetings with SCDOT; federal, state and local agencies; project stakeholders, and the public.

Conceptual Design

The SC 202 interchange is expected to be modified as part of the I-26 Widening project. Analyses evaluating 2040 Build conditions for the intersections within the Exit 85 interchange area were initially performed for three alternatives. After the initial analysis, two additional alternatives were developed.

Three alternatives were initially developed for Exit 85.

- Alternative 1 replaces the existing Exit 85 interchange with a full diamond interchange. All intersections would remain STOP-controlled under the 2040 Build conditions. The conceptual design of Alternative 1 is shown in **Figure 6**.
- Alternative 2 replaces the existing Exit 85 interchange with a partial cloverleaf interchange. This alternative would shift two left turn movements to right turn movements, potentially increasing the safety of the ramp termini. The conceptual design of Alternative 2 is shown in **Figure 7**.
- Alternative 3 replaces the existing Exit 85 interchange with a diamond interchange with roundabouts at the ramp termini intersections. The conceptual design of Alternative 3 is shown in **Figure 8**.

As part of the refinement of the original alternatives, Alternative 1A and Alternative 2A were developed.

- In Alternative 1A, the westbound off-ramp in Alternative 1 has been replaced with a westbound loop off-ramp in order to minimize impacts to natural features. The conceptual design of Alternative 1A is shown in **Figure 9**.
- In Alternative 2A, the westbound off-ramp for traffic traveling to the north on SC 202 in Alternative 2 is eliminated. Instead of a westbound directional loop off-ramp for traffic traveling to the south on SC 202, a loop off-ramp that combines both movements to SC 202 is provided. The conceptual design for Alternative 2A is shown in **Figure 10**.

Each Alternative included relocating Meadow Brook Road to increase its distance from the westbound ramp intersection, and most of the alternatives included relocating 4 Oaks Road.

Alternative 1a was selected as the Preferred Alternative because it meets the purpose and need, has the lowest overall construction cost, does not require any residential or commercial relocations, requires the lowest acreage of new right-of-way, and results in the lowest impact to streams making it the least environmentally damaging practicable alternative.

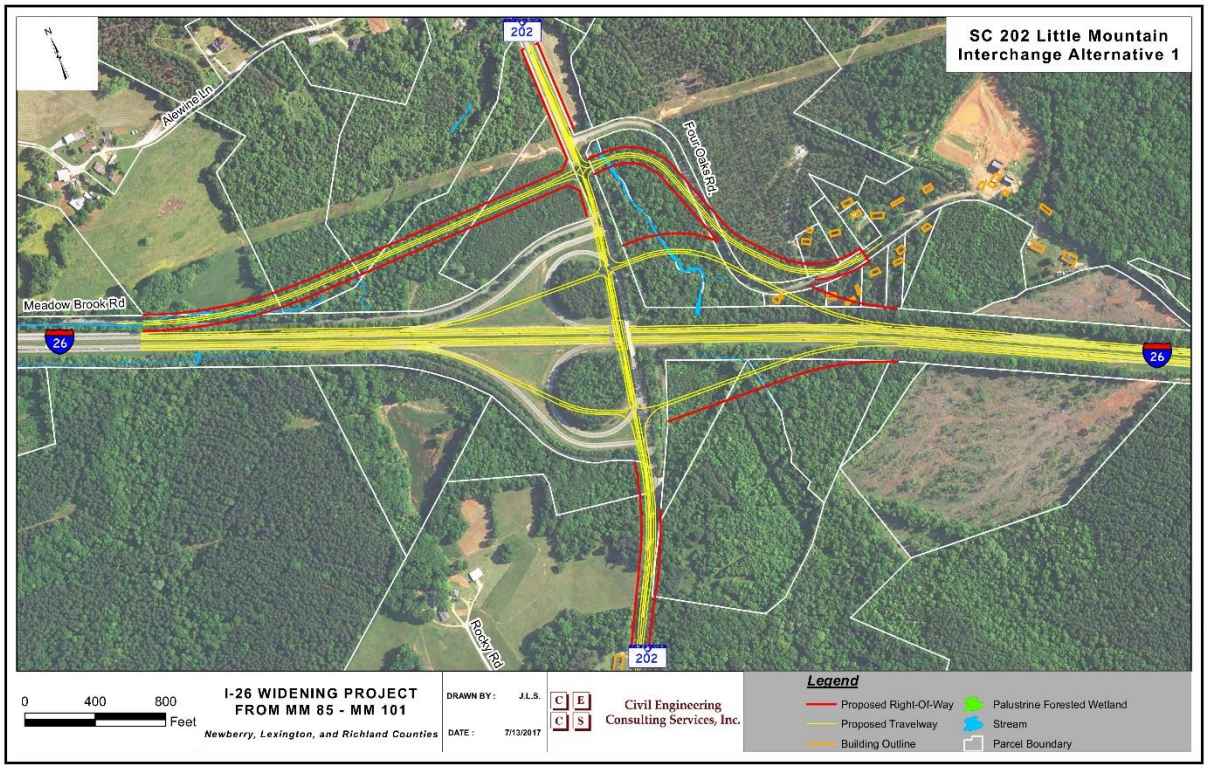


Figure 6. Improvement Alternative 1 Diamond

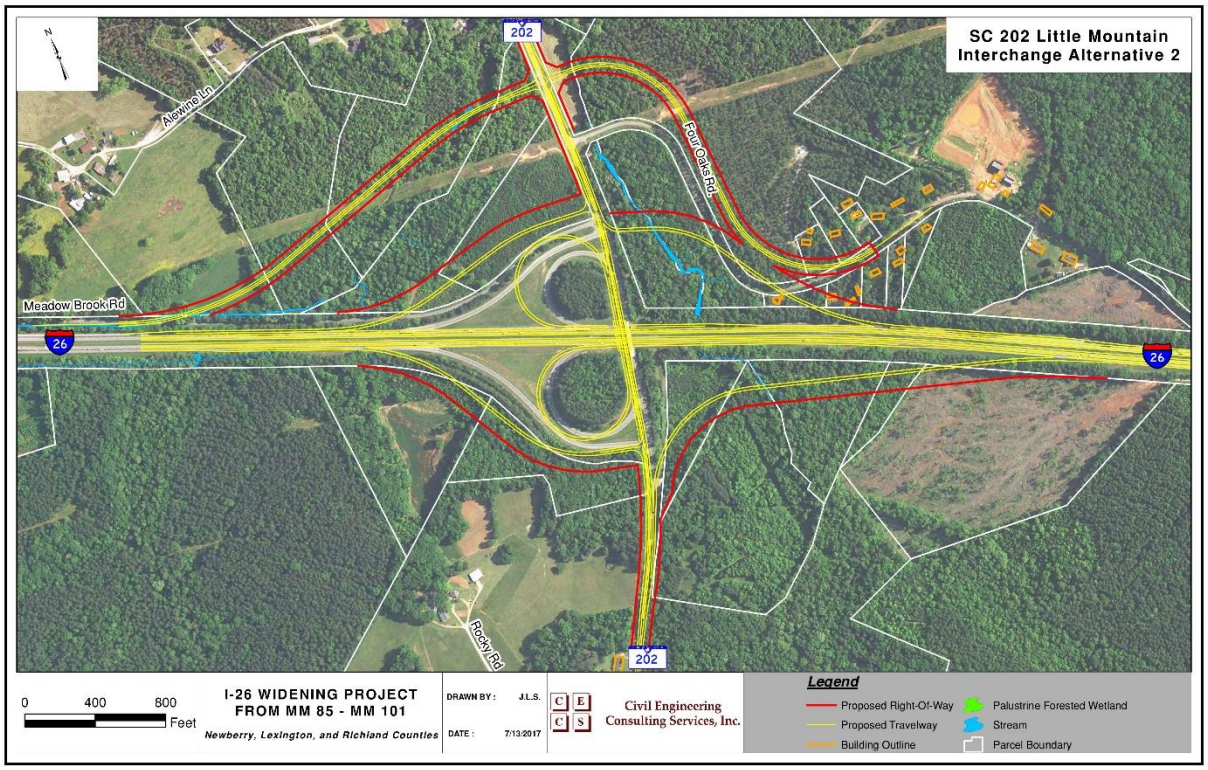


Figure 7. Improvement Alternative 2 Partial Cloverleaf

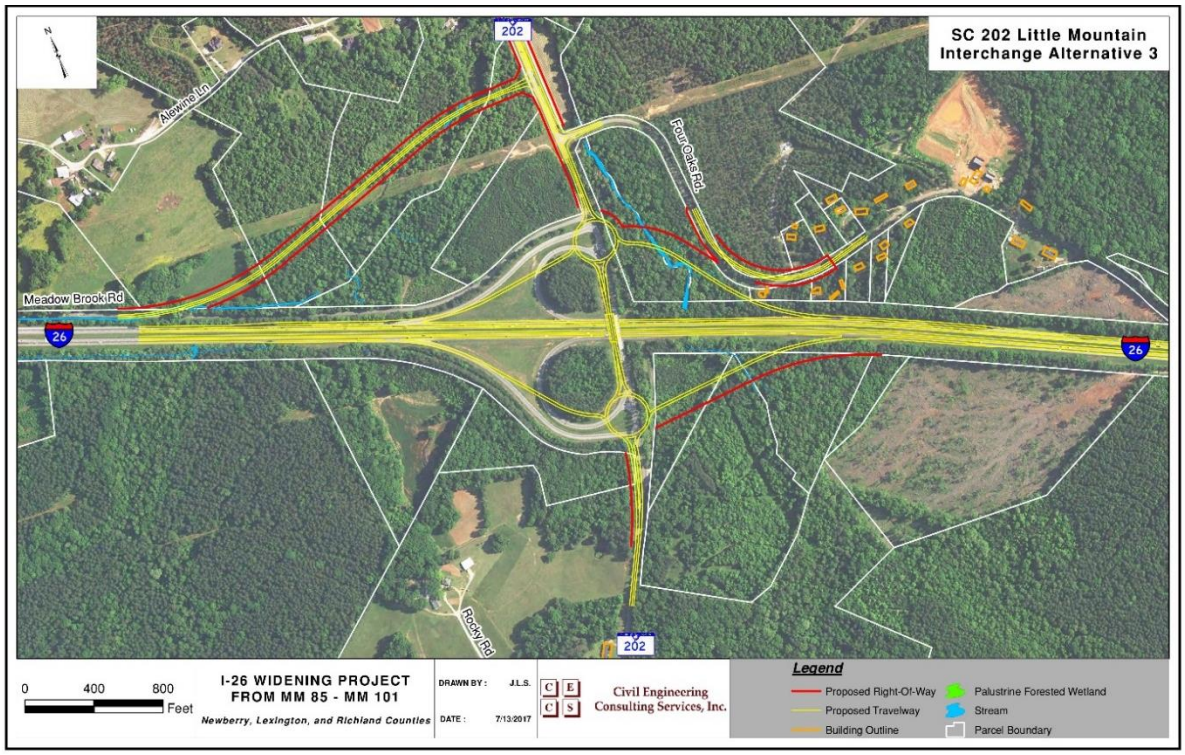


Figure 8. Improvement Alternative 3 Bowtie

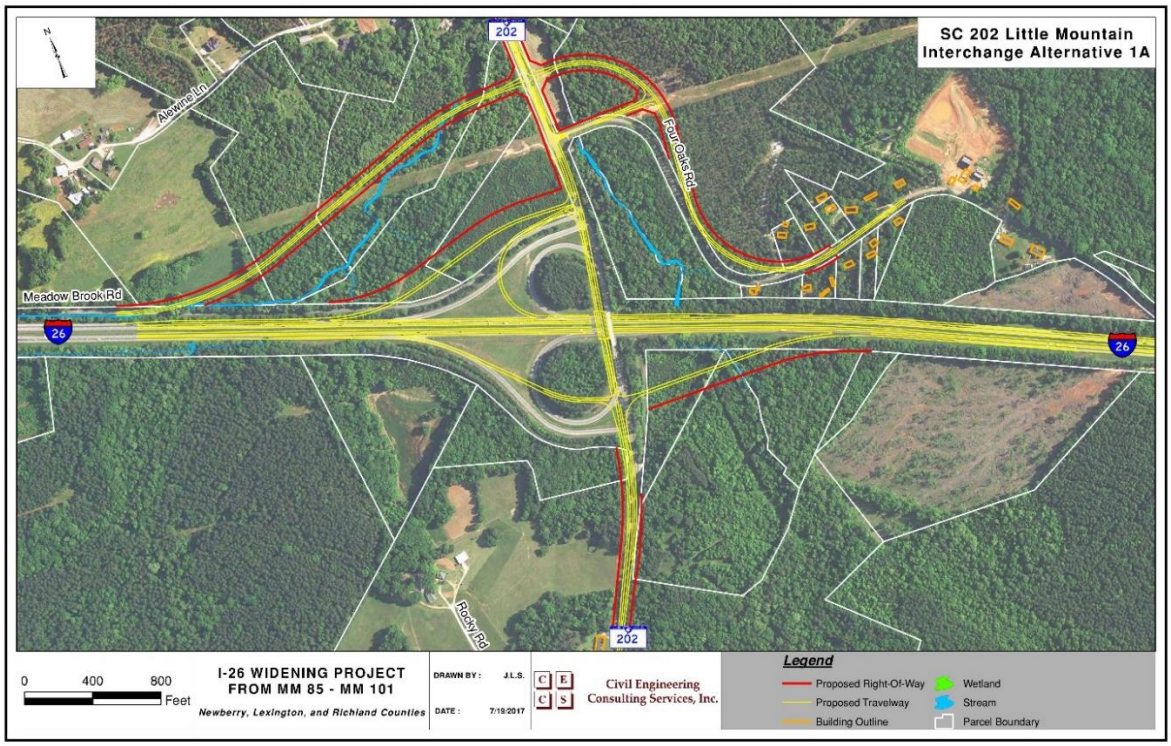


Figure 9. Improvement Alternative 1A Diamond Loop

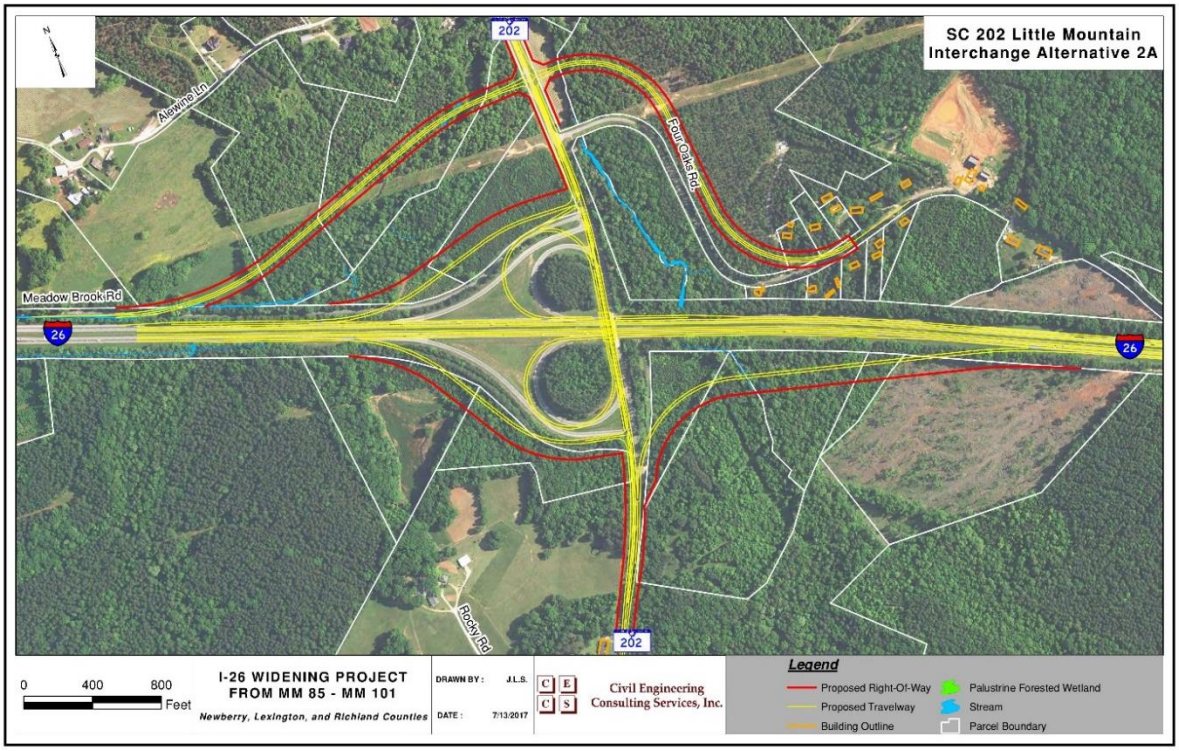


Figure 10. Improvement Alternative 2A Partial Cloverleaf Modified

Intersection Modification Report Applicant

The interchange policy is administered by the Federal Highway Administration (FHWA). Therefore, FHWA is required to approve all new access or changes in access points pursuant to this policy.

As the owner and operator of the Interstate System, SCDOT is responsible for submitting a formal request to the FHWA in the form of an IMR that documents the analysis, the rationale for the proposed change in access, and the recommended action.

SCDOT is the sponsoring agency for the I-26 Widening project. The contact information for the I-26 Exit 85 IMR study is provided below:

Michael L. Hood, P.E., DBIA
Assistant Program Manager, Design-Build Group
SC Department of Transportation
955 Park St., Columbia, SC 29201

III. Study Area

In South Carolina, I-26 covers about 221 miles, and provides connections to I-95 south of Providence, to I-77 south of Cayce, to I-20 west of Columbia, and to I-85 north-west of Spartanburg. Within the study area shown on **Figure 1**, I-26 crosses portions of Newberry, Lexington and Richland Counties.

Demographics

According to the 2010 Census, Newberry County has approximately 37,500 residents, Lexington County has approximately 262,500 residents and Richland County has approximately 384,500. The counties have seen a steady increase in population since the 1950's. Between 2000 and 2010, Newberry county saw a 3.7% increase in population, Lexington County saw a 17.7% increase in population and Richland County saw a 16.6% increase in population.

According to the South Carolina Revenue and Fiscal Affairs Office, Newberry County is expected to continue to see gradual population growth between 2010 and 2030,[1] while Lexington County is expected to see more significant population growth by 2030. The same source estimates Richland County's population will continue to grow but possibly at a slower rate than from 2000 to 2010. **Table *1*** presents population growth and projections for the three counties.

Table 1: Population Growth in the I-26 PSA

County	2000 Population	2010 Population	2030 Population	2000 – 2010 % Growth	2010 – 2030 % Growth
Newberry	36,108	37,508	39,800	3.7%	5.6%
Lexington	216,014	262,391	333,200	17.7%	21.3%
Richland	320,677	384,504	456,000	16.6%	15.7%

Source: http://www.sccommunityprofiles.org/census/proj_c2010.html

[1] S.C. Revenue and Fiscal Affairs Office, *County Population Projections 2000-2030*, http://www.sccommunityprofiles.org/census/proj_c2010.html

Land Use

The I-26 Widening project corridor is located primarily within unincorporated areas of Newberry, Lexington, and Richland counties, but includes small portions of the towns of Irmo and Chapin. Existing land uses are primarily forested land and commercial businesses with areas of rural residential and light industrial operations. The closest incorporated municipalities are the City of Columbia to the southeast; the town of Irmo to the southwest; the Town of Chapin to the southwest; the Town of Little Mountain to the south and the Town of Newberry to the northwest.

Along the mainline of I-26, land uses consist mainly of forested land but become increasingly mixed with commercial and residential properties moving from west to east towards Columbia. An industrial park (Chapin Business and Technology Park) and a planned residential/ commercial neighborhood is located southwest of Exit 91. The industrial park has infrastructure and zoning in place but no buildings as of yet. The adjacent residential/ commercial area is in the planning stages.

Property in the study area surrounding Exit 85 – SC 202 is largely undeveloped. Land use appears to be forested and cleared land with no commercial businesses and low density residential parcels further from the interchange. There is potential for increased development at the interchange due to the presence of developable land at each interchange. The interchange improvements would provide interstate access consistent with current design standards that could be attractive for future development.

With anticipated population growth and the corridor's proximity to Columbia, residential, commercial and industrial development are expected to continue within the project study area, for the No-Build and the Preferred Alternative.

Along the mainline of I-26 in the project study area, the land use consists mainly of forested land with areas of commercial, residential, and light industrial uses. The proposed widening of the mainline is not expected to change land uses along the mainline of the interstate.

Transportation System

The Project study area roadway transportation system is part of the I-26 Widening study depicted in **Figure 1**. This region of Lexington, Newberry and Richland counties is accessed via I-26, which is an east-west freeway connecting Columbia with its suburbs in northwest direction.

For this IMR, a focused roadway system was evaluated. It consisted of I-26 mainline with its merge and diverge areas and the Exit 85 - SC 202 interchange. Specifically, I-26 westbound and eastbound mainline segments at Exit 85 – SC 202 were evaluated for traffic conditions during

different hours of the day. This study area is a subset of the broader study area that was analyzed during the Interstate 26 Widening Traffic Analysis Report.

IV. Methodology

Scenarios Analyzed

In March 2017 STV Incorporated prepared the I-26 Widening Traffic Analysis Report that included the following scenarios:

- Existing Conditions
- 2040 No-Build Conditions
- 2040 Build Conditions

Analyses were performed for existing conditions (existing traffic, intersection traffic control and geometry), 2040 No-Build conditions (2040 traffic, and existing intersection traffic control and geometry) and 2040 Build conditions (2040 traffic and modified intersection traffic control and geometry reflecting the reasonable interchange improvement alternative). The Exit 85 alternatives were compared against one another to determine which best met the purpose and need with the least impacts.

The 2040 No-Build Alternative for the Exit 85 interchange represents the existing interchange configuration, intersection traffic control and geometric conditions with no changes to those conditions. Many of the impacts associated with the construction of the interchanges would not occur, but the interchanges would continue to be out of conformance with current state and federal design standards. This would not satisfy the purpose and need for the project.

There were three initial Reasonable Alternatives developed for Exit 85. These alternatives share many common features. They all would meet the purpose and need for the project by bringing the interchange into compliance with current state and federal design requirements. As part of a refinement of the design alternatives, two additional Reasonable Alternatives were developed. These alternatives were revisions to Alternatives 1 and 2 which removed the impacts in the northeast quadrant of the interchange. The safety at the interchange will be improved by providing on and off ramps that separate the interstate traffic from local traffic, and which will be long enough to allow traffic to merge onto the interstate and to store traffic that is exiting the interstate during peak hours. Alternative 1A was recommended as the Preferred Alternative for Exit 85. Alternative 1A combined features of Alternative 1 and Alternative 2. Therefore, the other alternatives were not carried forward in this document and Alternative 1A was analyzed for the 2040 Build Conditions for Exit 85.

The interchanges adjacent to Exit 85 are Exit 82 and Exit 91. Exit 82 – SC 773 is located approximately 3.15 miles northwest of Exit 85. Exit 91 – Columbia Avenue is to the southeast of Exit 85 and is located approximately 5.85 miles away. The interaction of the modifications proposed at Exit 85 with the adjacent interchanges at Exits 82 and 91 were initially analyzed as part of the I-26 Widening Traffic Analysis Report.

By replacing the substandard ramps and modifying the existing interchange to meet current design standards, the proposed modified interchange with SC 202 is anticipated to contribute to an improvement in traffic safety and provide space for the construction of an additional travel lane in each direction along I-26. The proposed improvements should mitigate the existing factors identified in the Accident Analysis as contributing to a high occurrence of rear-end collisions in the area, including short ramps and merge/diverge areas as well as a narrow clear zone at and adjacent to the overpass for SC 202.

The Preferred Alternative of the interchange design also provides space for the construction of an additional travel lane in each direction along I-26. Altogether, these design provisions would enhance the operational efficiency and safety of the corridor, thereby increasing capacity and improving levels of service in the long term.

Traffic Forecasts

A proposed average annual growth rate was estimated based on a comparison of the historic AADT growth rates (for 1996 and 2015) and the South Carolina Statewide Model (SCSWM) average annual growth rates for each of the segments. These proposed growth rates were applied to all mainline, ramp and arterial turning movement volumes within the study area to generate the design year peak hour volumes for use in the alternatives analysis. In setting the growth rate, an annual percentage that is comparable to, but higher than the observed growth rates, is often desirable, so a conservative analysis of future traffic conditions may be attained.

Many of the segments in the study area had estimated growth rates exceeding 1.00 percent per year based on the statewide model. Historic data of all segments exceeded 2.00 percent per year. Given the long term historic growth in the corridor, the growth rate falls in a range from 1.5 percent (based on the model assignments) to 2.5 percent per year (based on the long term growth rate from 1996 – 2015). Based on discussions with SCDOT it was determined that a growth rate of 2.0 percent would be used from US 176 (Broad River Road) to the east of SC 202, and a growth rate of 2.5 percent would be used from SC 202 to the west.

Traffic Analysis

A series of capacity analyses were performed based on the methodologies and guidelines contained in the Transportation Research Board's publication ***HCM 2010 Highway Capacity***

Manual (HCM). Various analysis and simulation software packages based on the HCM were used in performing the analyses. These included:

- McTrans' *HCS 2010* (Version 6.3)
  - Freeway Segments
  - Ramp Merge/Diverge Areas
  - Weaving Segments
- Trafficware's *Synchro* (Version 9.1.910.24)
  - Unsignalized Intersections
  - Signalized Intersections
- Caliper's *TransModeler* (Version 4.0 Build 6020)
  - Network Simulation
  - Freeway Segments
  - Ramp Merge/Diverge Areas

The analysis methodologies contained in the HCM for the various facility types and users describe the operational conditions in terms of a Level of Service (LOS). The HCM defines LOS as

"…a quality measure describing operations conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience. Six LOS are defined for each type of facility that has analysis procedures available. Letters designate each level, from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each level of service represents a range of operating conditions and the driver's perception of those conditions. Safety is not included in the measures that establish service levels."

The following discussions and tables describe the HCM LOS criteria for freeway segments, ramp merge/diverge segments, weaving segments, and unsignalized intersections.

Freeway Segments

The HCM characterizes the capacity of a basic freeway segment *"…by three performance measures: density in passenger cars per mile per lane (pc/mi/ln), space mean speed in miles per hour (mi/h), and the ratio of demand flow rate to capacity (v/c). Each of these measures is an indication of how well traffic is being accommodated by the basic freeway segment."*

Table 2 shows the HCM LOS criteria for basic freeway segments. LOS F occurs when either the segment density exceeds 45 pc/mi/ln or when the segment v/c ratio exceeds 1.0 (regardless of the segment density).

Table 2. Freeway Segment LOS Criteria

Basic Freeway Segments	
LOS	Density (pc/mi/ln)
A	< 11
B	> 11-18
C	> 18-26
D	> 26-35
E	> 35-45
F	> 45 v/c > 1.0

Source: Table 12 – *Interstate 26 Widening Traffic Analysis Report*

Weaving Segments

Weaving segments occur where two or more streams of traffic traveling in the same direction are able to cross each other without traffic control devices. This typically occurs where a merge segment is followed by a diverge segment within a relative short distance (usually less than 2,800 feet). The LOS of a weaving segment is also related to the density of the segment. Regardless of the density, the weaving segment is considered to operate at LOS F when the v/c exceeds 1.0. **Table 3** shows the HCM LOS criteria for Freeway Weaving Segments.

Table 3. Weaving Segment LOS Criteria

Freeway Weaving Segments	
LOS	Density (pc/mi/ln)
A	< 10
B	> 10-20
C	> 20-28
D	> 28-35
E	> 35
F	v/c > 1.0

Source: Table 13 – *Interstate 26 Widening Traffic Analysis Report*

Ramp Merge and Diverge Areas

Ramp-freeway junctions occur when merging maneuvers occur (on-ramps) or when diverging maneuvers occur (off-ramps). The operation of these merge and diverge areas are affected by a number of factors, including the operation of the adjacent freeway segment and the proximity and flow on adjacent ramps. Typically, the influence area of the ramps is 1,500 feet upstream of a diverge point and downstream from a merge point. As with freeway segments and weaving segments, the LOS of a merge or diverge area is related to the density of the segment. Regardless of the density, the merge or diverge areas are considered to operate at LOS F when the freeway demand exceeds the capacity of the upstream freeway segment (at diverge areas) or the

downstream freeway segment (at merge areas), as well as when the ramp demand exceeds the ramp capacity. **Table 4** shows the HCM LOS criteria for Ramp Merge and Diverge areas.

Table 4. Merge/Diverge LOS Criteria

Ramp Merge and Diverge Areas	
LOS	Density (pc/mi/ln)
A	< 10
B	> 10-20
C	> 20-28
D	> 28-35
E	> 35
F	v/c > 1.0

Source: Table 14 – *Interstate 26 Widening Traffic Analysis Report*

Unsignalized Intersections

The LOS for unsignalized intersections is based on the average control delay per vehicle. Since major street traffic is seldom controlled by STOP signs (except at intersections with ALL-WAY STOP control or in special circumstances), major street traffic generally will experience virtually no delay. Most of the delay will be encountered by traffic on approaches controlled by STOP signs. Under certain conditions, delay will also be encountered by left turning traffic on the major street waiting for appropriate sized gaps in the opposing traffic flow to complete their turn. Therefore, the delay experienced by STOP controlled movements and major street left turns, rather than the entire average intersection delay, are used to identify the critical LOS at these intersections. **Table 5** shows the HCM LOS criteria for unsignalized intersections.

Table 5. Unsignalized Intersection LOS Criteria

Unsignalized Intersections	
LOS	Control Delay (sec/vehicle)
A	< 10
B	> 10-15
C	> 15-25
D	> 25-35
E	> 35-50
F	> 50

Source: Table 15 – *Interstate 26 Widening Traffic Analysis Report*

V. Traffic Volumes

The traffic volumes used in the analysis for Exit 85 consisted of Existing (2016) conditions, and Future (2040) No-Build and Build conditions.

Existing 2016 Traffic Volumes

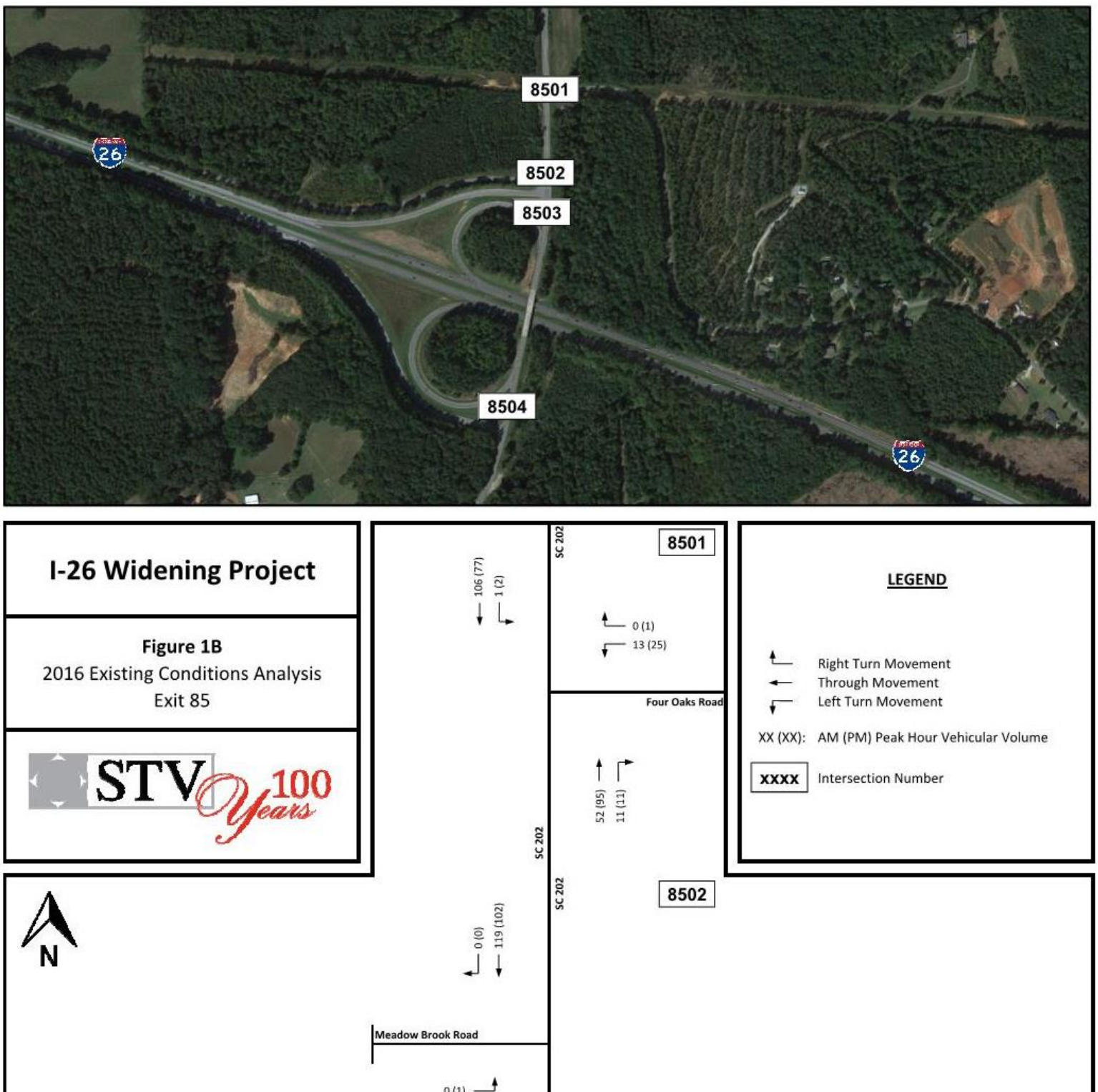
Turning movement traffic count data were obtained for a number of ramp termini and other adjacent intersections within the Exit 85 interchange area from 7:00 to 9:00 AM and from 4:00 to 6:00 PM on Tuesday, August 23, 2016. The turning movement count data, which are provided in **Appendix A**, included:

- SC 202 & S-36-811 (Meadow Brook Road)
- SC 202 & S-36-370 (Four Oaks Road)

Turning movement counts conducted for 12 hours between 7:00 AM and 7:00 PM on Tuesday, August 23, 2016 at the following locations:

- SC 202 & I-26 westbound ramps
- SC 202 & I-26 eastbound ramps

The turning movement traffic count data were evaluated and reviewed. The morning and afternoon peak hour volumes at each of the ramp termini and the adjacent intersections at each interchange were identified and were balanced between intersections. The balanced morning and afternoon peak hour volumes for the interchange are shown in **Figure 11**.



Source: Figure 58, *Interstate 26 Widening Traffic Analysis Report*
Figure 11. Existing Peak Hour Turning Movement Volumes

2040 Traffic Volumes

Turning movement volumes for the 2040 design year at Exit 85 were derived by applying the 2.5 percent annual growth rate to the existing turning movement volumes at the various intersections. The 2040 estimated peak hour turning movement volumes shown on the existing (No-Build) network are presented in **Figure 12** and on the Preferred Alternative 1A in **Figure 13**.

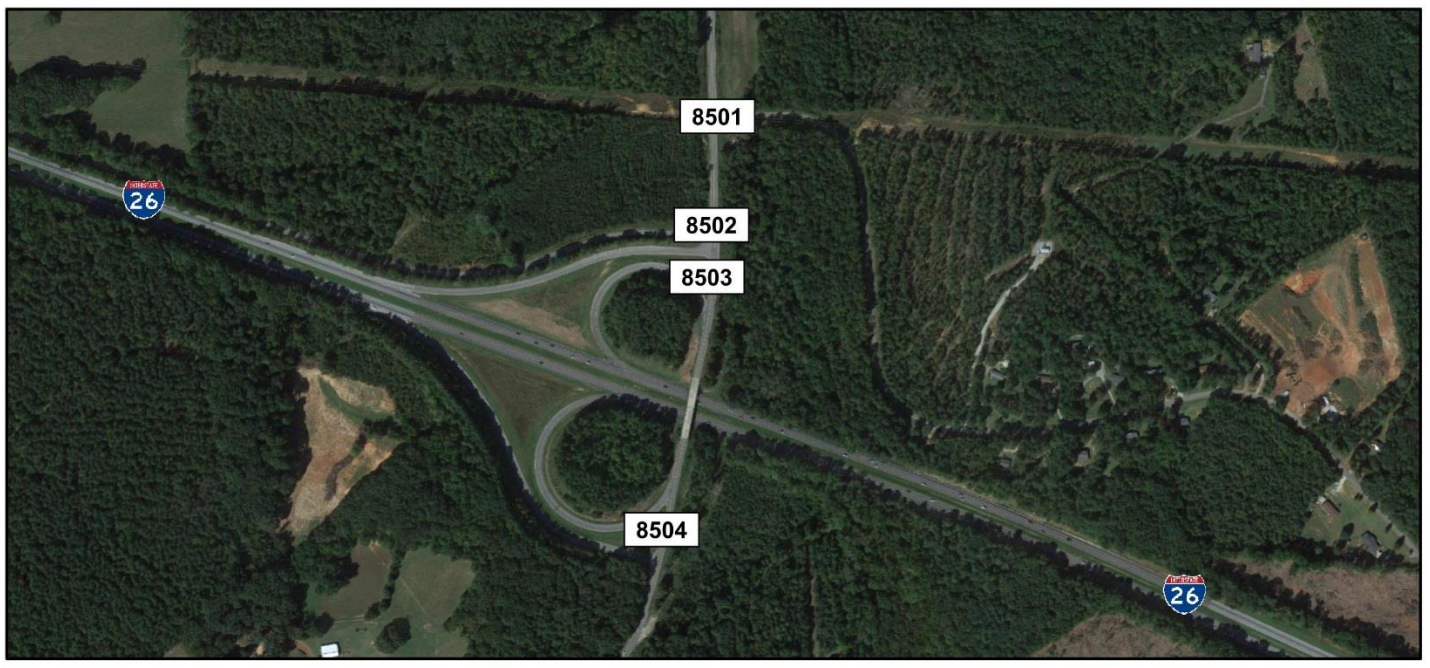
VI. Traffic Operations

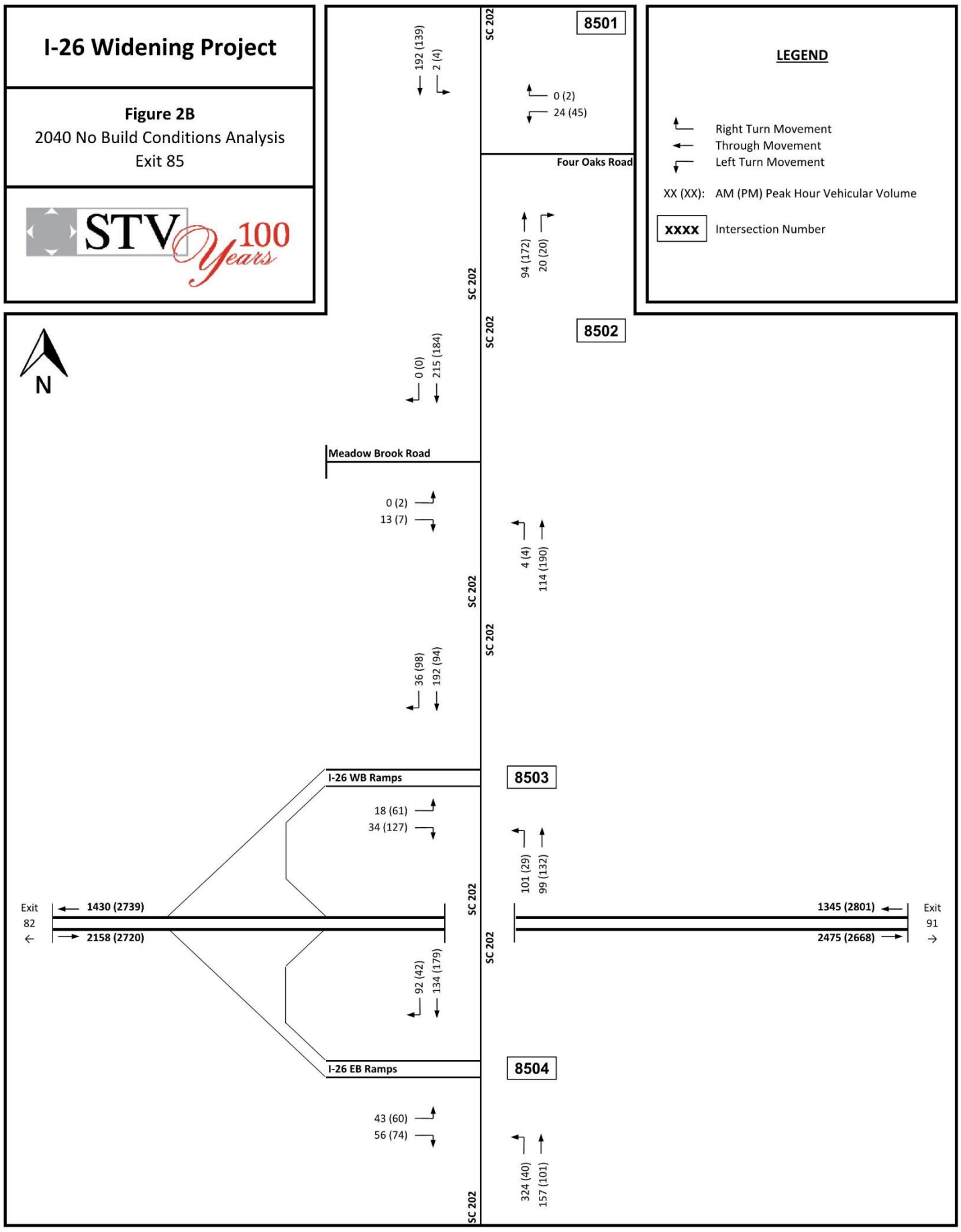
Freeway and Ramp Merge/Diverge Segment Analysis

The analysis of basic freeway segments within the study area were performed for existing conditions, future (2040) No-Build conditions and future (2040) Build conditions. The following criteria were identified through discussions with SCDOT and used for various inputs within the freeway segment analysis:

- The 10th highest hour volumes based on the P-0112 ATR count station data for the eastbound AM design hour, and the P-0015 ATR count station data for the eastbound PM and westbound AM and PM design hours, balanced through the system, were used for the freeway segment mainline volumes.
- To develop future (2040) traffic volumes, a growth rate of 2.0 percent was applied to existing volumes from US 176 (Broad River Road) to the east of SC 202, and a growth rate of 2.5 percent was applied to existing volumes from SC 202 to the west.
- A peak hour factor of 0.90 was used for freeway segments and ramp areas.
- Mainline vehicle classification counts were completed in both directions east of Exit 101 and west of Exit 85. The highest observed peak hour truck percentages at the vehicle classification counts for all of the segments in each direction/peak hour were used. The highest observed truck percentages all ended up being the truck percentages observed west of Exit 85. The proportion of trucks and buses traveling on the freeway segments and ramp movements, based on SCDOT data, is:
    - Eastbound AM – 16%
    - Eastbound PM – 14%
    - Westbound AM – 23%
    - Westbound PM – 13%
- Based on the grades through the study area, the terrain was selected as “Rolling” instead of “Level” or “Mountainous”.
- Free-flow speed was set at the posted speed limit along the segment.

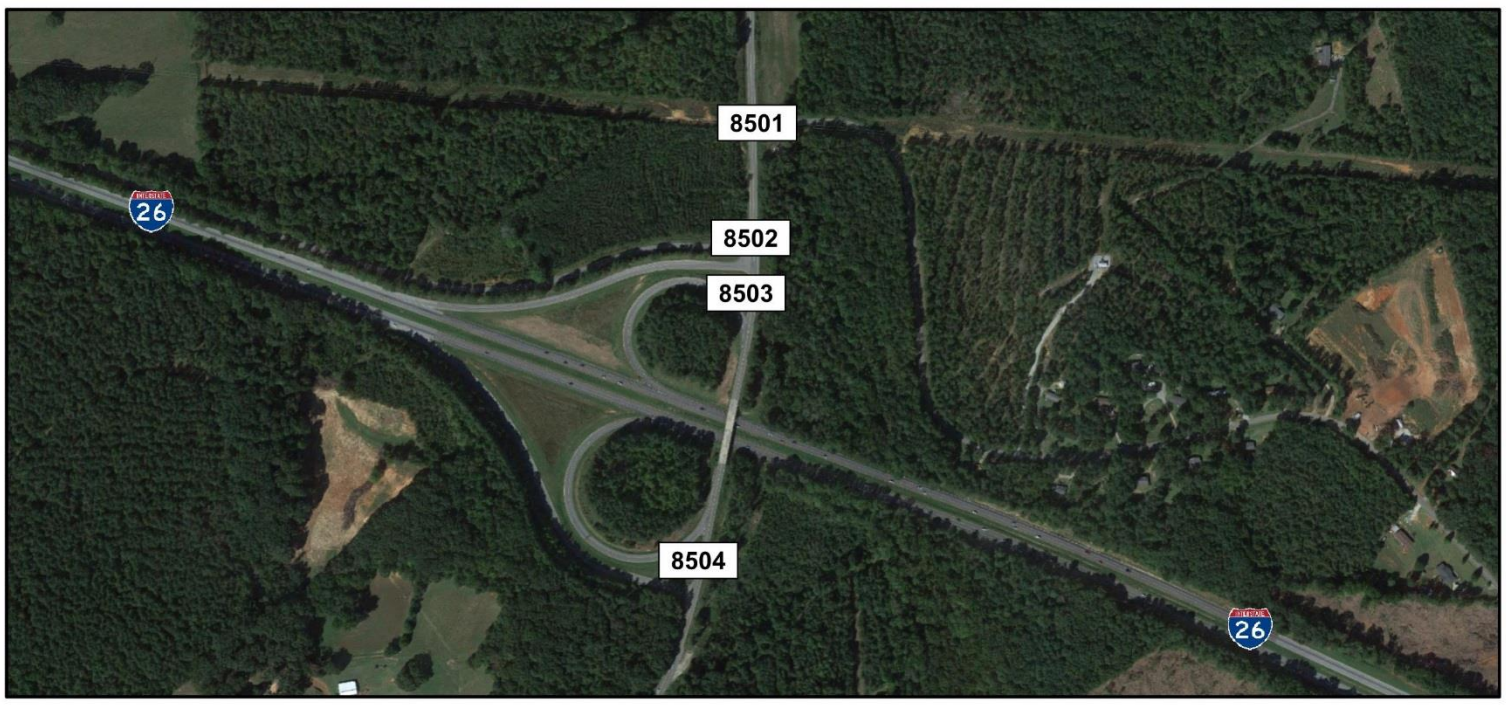
The existing conditions and 2040 No-Build conditions analyses were performed using the existing number of freeway lanes present on the segments within the study area. The 2040 Build conditions analyses were performed assuming I-26 would provide three lanes in each direction. The Basic Freeway Segment Analysis outputs are provided in **Appendix B** and a summary of results is shown in **Table 6.** The results of the ramp merge and diverge analyses for Exit 85 are shown in **Table 7** and **Table 8,** respectively.

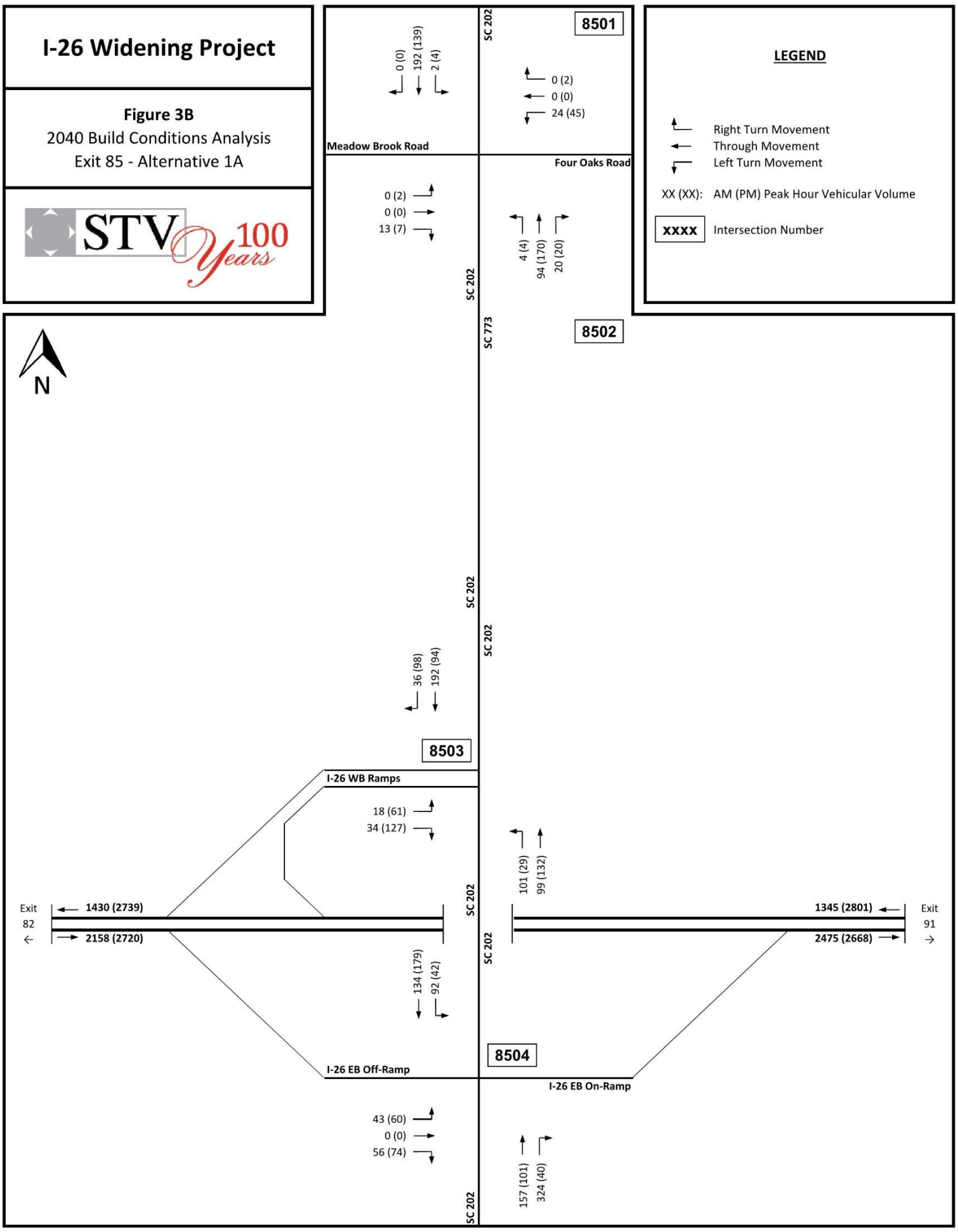




Source: Figure 64, *Interstate 26 Widening Traffic Analysis Report*

Figure 12. 2040 Estimated Peak Hour Turning Movement Volumes





Source: Figure 89, *Interstate 26 Widening Traffic Analysis Report*

Figure 13. 2040 Estimated Peak Hour Turning Movement Volumes Preferred Alternative 1A

Table 6 - Freeway Segment Capacity Analysis Results

Basic Freeway Segment Analysis Results																	
Direction	Segment	Existing # of lanes	Future # of lanes	AM Peak Hour						PM Peak Hour					
				2016 Existing		2040 No-Build		2040 Build		2016 Existing		2040 No-Build		2040 Build	
				LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density
WB	Exit 91-85	2	3	B	12.0	B	14.4	A	9.6	C	19.1	D	27.7	B	17.3
WB	Exit 85-82	2	2	B	12.5	B	15.3	B[1]	15.3	C	18.8	D	26.9	D[1]	26.9
EB	Exit 82-85	2	2	B	12.9	C	22.1	C[1]	22.1	C	19.2	D	27.5	D[1]	27.5
EB	Exit 85-91	2	3	B	14.7	D	26.2	B	16.6	C	18.9	D	26.8	B	16.9

[1] - 2040 No-Build results used as no widening in the future

Table 7 - Ramp Merge Capacity Analysis Results

Freeway Merge Analysis Results													
Direction	Merge Location	AM Peak Hour						PM Peak Hour					
		2016 Existing		2040 No-Build		2040 Build		2016 Existing		2040 No-Build		2040 Build	
		LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density
WB	Exit 85	B	15.6	B	18.7	B	12.5	C	22.5	D	29.8	B	19.1
EB	Exit 85 Loop	B	17.9	D	28.8	B	19.5	C	23.0	D	30.1	B	19.1

Table 8 - Ramp Diverge Capacity Analysis Results

Freeway Diverge Analysis Results													
Direction	Diverge Location	AM Peak Hour						PM Peak Hour					
		2016 Existing		2040 No-Build		2040 Build		2016 Existing		2040 No-Build		2040 Build	
		LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density
WB	Exit 85	B	14.9	B	17.8	B	13.0	C	23.5	D	31.8	C	21.8
EB	Exit 85	B	16.2	C	26.8	C	20.5	B	23.7	D	31.7	C	23.5

The analysis results for the freeway segments in the westbound and in the eastbound direction between Exit 82 and Exit 91 for the 2016 Existing Conditions that are summarized in **Table 6**, indicate the following:

- During the morning peak hour, the freeway segments operate at LOS B;
- During the afternoon peak hour, the freeway segments operate at LOS C.

With traffic volumes projected to increase in the vicinity of Exit 85 at an annual rate of between 2.0 and 2.5 percent per year, and if I-26 is not widened, the increased traffic volumes traveling on the existing interstate capacity will result in increased density and reductions of freeway segment LOS.

- During the 2040 No-Build morning peak hour, the eastbound segment between Exit 85 and 91 is expected to operate at LOS D. The remaining segments will operate at LOS C or better;
- During the 2040 No-Build afternoon peak hour, all of the freeway segments are expected to operate at LOS D.

The additional capacity provided by the construction of an additional, third lane on I-26 through the Exit 85 area will result in generally comparable LOS in the morning and afternoon peak hours compared to the Existing Conditions, and improved LOS over the 2040 No-Build condition. The 2040 Build analysis results indicate that:

- During the morning peak hour, all freeway segments operate at LOS C or better;
- During the afternoon peak hour, the two lane freeway segments west of Exit 85 operate at LOS D. The three lane freeway segments east of Exit 85 operate at LOS B.

The Ramp Merge Analyses outputs are provided in **Appendix C** and the summary results are shown in **Table 7**. The analysis results for the ramp merge areas, indicate the following:

Using the design hour volumes for the morning and afternoon peak hours, the analysis results for the 2016 Existing Conditions indicate that:

- During the morning peak hour, the Exit 85 merge areas operate at LOS B;
- During the afternoon peak hour, the Exit 85 merge areas operate at LOS C.

With traffic volumes projected to increase on the merge areas at Exit 85 at an annual rate of between 2.0 and 2.5 percent per year and if I-26 is not widened, the increased traffic volumes traveling on the existing merge ramps capacity will result in increased density and will reduce the LOS of the merge areas.

- During the morning peak hour, the Exit 85 merge areas operate at LOS D or better;
- During the afternoon peak hour, the Exit 85 merge areas operate at LOS D.

The additional capacity provided by the construction of a third lane in each direction along I-26 in the westbound and eastbound directions from Exit 82 to Exit 91 will lower densities in the ramp diverge areas, thus, it will result in comparable LOS in the morning and afternoon peak hours compared to the Existing Conditions and improved LOS over the 2040 No-Build condition, especially during the afternoon peak hour. The 2040 Build analysis results indicate that:

- During the morning peak hour, the Exit 85 merge areas operate at LOS B;
- During the afternoon peak hour, the Exit 85 merge areas operate at LOS B.

The Ramp Diverge Analyses are also provided in **Appendix C** and the summary results are shown in **Table 8**.

The analysis results for the ramp diverge areas, indicate the following:

Using the design hour volumes for the morning and afternoon peak hours, the analysis results for 2016 Existing Conditions indicate that:

- During the morning peak hour, the Exit 85 diverge areas operate at LOS B;
- During the afternoon peak hour, the Exit 85 diverge areas operate at LOS C or better.

With traffic volumes projected to increase adjacent to Exit 85 at an annual rate of between 2.0 and 2.5 percent per year and if I-26 is not widened, the increased traffic volumes traveling on the existing diverge ramps capacity will result in increased density and will reduce the diverge area LOS at the off-ramps.

- During the morning peak hour, the Exit 85 diverge areas operate at LOS C or better;
- During the afternoon peak hour, the Exit 85 diverge areas operate at LOS D.

The additional capacity provided by the construction of a third lane in each direction along I-26 will lower densities in the ramp diverge areas, resulting in substantial improvement in LOS compared to the 2040 No-Build condition, with LOS comparable to those experienced under 2016 Existing conditions. The 2040 Build analysis results indicate that:

- During the morning peak hour, the Exit 85 diverge areas operate at LOS C or better;
- During the afternoon peak hour, the Exit 85 diverge areas operate at LOS C.

Existing and 2040 No Build Intersection Analysis

Capacity analyses for the unsignalized intersections at the interchanges within the study area were performed. Analyses were performed for existing conditions (existing traffic, intersection traffic control and geometry), 2040 No-Build conditions (2040 traffic, and existing intersection traffic control and geometry), and 2040 Build conditions (2040 traffic and modified intersection traffic control and geometry).

For unsignalized intersections, the intersection operation is represented by the worst approach delay and LOS of all the STOP sign controlled approaches to the intersection.

The results of the unsignalized intersection capacity analyses for existing conditions and the 2040 No-Build conditions are shown in **Table 9** and **Figure 14**. The HCM intersection capacity outputs for each intersection are provided in **Appendix D**.

Under existing conditions, the STOP sign controlled approaches at the unsignalized intersections along SC 202 at Exit 85 operate at LOS A or B for the morning and afternoon peak hours. *No improvements are necessary to provide acceptable LOS under existing conditions.*

In general, with the forecast increases in traffic and without improvements to the intersections, delay in the 2040 No-Build analyses can be expected to be higher than delay during the Existing Conditions analyses. However, the approaches are expected to continue to operate at LOS B or better during the morning and afternoon peak hours.

No improvements should be necessary to provide acceptable LOS during the 2040 No-Build operating conditions at these intersections.

Table 9- Intersection Capacity Analysis Results

Intersection #	Intersection Name	2016 Existing Conditions				2040 No Build Conditions			
		AM Peak		PM Peak		AM Peak		PM Peak	
		LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
Exit 85									
8501	SC 202 at Four Oaks Road[1]	A	9.8	A	9.8	B	11.2	B	11.4
8502	SC 202 at Meadow Brook Road[1]	A	9.1	A	9.7	A	9.8	B	11.0
8503	SC 202 at I-26 WB Off-Ramp EBL Slip Ramp / I-26 WBR Slip Ramp[1]	B	10.5	A	9.6	B	12.6	B	10.8
8513	SC 202 at I-26 WB On-Ramp[1]	A	3.9	A	1.6	A	4.4	A	1.8
8523	SC 202 at I-26 WB Off-Ramp EBR Slip Ramp / I-26 WB Loop Ramp[1]	A	9.1	A	9.0	A	9.8	A	9.7
8504	SC 202 at I-26 WB On-Ramp NBL Slip Ramp / I-26 NBR Slip Ramp[1]	A	5.5	A	1.8	A	6.6	A	2.0
8514	SC 202 at I-26 WB Off-Ramp[1]	B	10.7	A	9.8	B	14.7	B	11.8
8524	SC 202 at I-26 WB On-Ramp SBR Slip Ramp / I-26 EB Loop Ramp[1]	A	0.0	A	0.0	A	0.0	A	0.0

[1] **Intersection unsignalized under all scenarios; worst approach LOS and delay reported.**

[2] **Queue unable to be processed per HCM 2000 methodology; error reported.**

[3] **Values from *Interchange Modification Report: I-26 at S-48 (Columbia Avenue) Interchange Improvements.***

Source: Table 21 – *Interstate 26 Widening Traffic Analysis Report*

2040 Build Intersection Analysis – Preferred Alternative 1A

The SC 202 interchange is expected to be modified as part of the I-26 Widening project. In the Interstate 26 Widening Report, Alternative 1A, which replaces the existing interchange with a Diamond interchange with a loop ramp in the northeast quadrant, was chosen as the Preferred Alternative.

Other elements of the alternative concept include:

- Relocating the intersection of Meadow Brook Road and SC 202 to provide greater separation from the westbound ramps.
- Realigning Meadow Brook Road.
- Upgraded acceleration/deceleration lanes on I-26
    - Eastbound on-ramp: 1300’ (1600’ including the taper)
    - Eastbound off-ramp: 220’ taper
    - Westbound on-ramp: 780’ (1080’ including the taper)
    - Westbound off-ramp: 895’ (1195’ including the taper)

Capacity analysis for the unsignalized intersections of the Preferred Alternative were performed for the 2040 Final Build conditions which included the 2040 traffic volumes and the Preferred Alternative geometry at the Exit 85 interchange.

For the Preferred Alternative, all intersections operate at LOS A or LOS B. The Preferred Alternative did not require any traffic control improvements to provide an acceptable LOS.

The results of the unsignalized intersection capacity analyses for the 2040 Build Preferred Alternative 1A are shown in **Table 10** and **Figure 15**. Queuing results for the 2040 No-Build and Build conditions are shown in **Table 11**.

Source: Figure 74, *Interstate 26 Widening Traffic Analysis Report*

Figure 14. Exit 85 – SC 202 Interchange Intersection LOS Summary

Table 10- Intersection Capacity Analysis Results - 2040 Base vs 2040 Build Exit 85

Intersection #	Intersection Name	2040 No Build Conditions				2040 Build Conditions			
		AM Peak		PM Peak		AM Peak		PM Peak	
		LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
Alternative 1A: Diamond Loop									
8501	SC 202 at Four Oaks Road[1]	B	11.2	B	11.4	B	11.4	B	11.8
8502	SC 202 at Meadow Brook Road[1]	A	9.8	B	11.0	intersection removed; shifted to 8501			
8503	SC 202 at I-26 WB Off-Ramp EBL Slip Ramp / I-26 WBR Slip Ramp[1,2]	B	12.6	B	10.8	B	10.4	A	9.8
8513	SC 202 at I-26 WB On-Ramp[1]	A	4.4	A	1.8	A	3.7	A	1.0
8523	SC 202 at I-26 WB Off-Ramp EBR Slip Ramp / I-26 WB Loop Ramp[1,2]	A	9.8	A	9.7	intersection removed; shifted to 8503			
8504	SC 202 at I-26 WB On-Ramp NBL Slip Ramp / I-26 NBR Slip Ramp[1,2]	A	6.6	A	2.0	B	12.2	B	11.1
8514	SC 202 at I-26 WB Off-Ramp[1]	B	14.7	B	11.8	intersections removed; shifted to 8504			
8524	SC 202 at I-26 WB On-Ramp SBR Slip Ramp / I-26 EB Loop Ramp[1,2]	A	0.0	A	0.0				

[1] Intersection unsignalized under all scenarios; worst approach LOS and delay reported.

[2] Intersection name updated under 2040 Build Conditions.

[3] HCM 2010 delay and LOS reported for proposed roundabout intersections.

Source: Table 22 – *Interstate 26 Widening Traffic Analysis Report*

Table 11. 2040 Build Intersection Queue Lengths Exit 85

Intersection #	Intersection Name	Movement		95th Percentile Queue Length (ft)				Available Storage Length (ft)	
		2040 No Build Conditions	2040 Build Conditions	2040 No Build Conditions		2040 Build Conditions		2040 No Build	2040 Build
				AM Peak	PM Peak	AM Peak	PM Peak		
Alternative 1A: Diamond Loop									
8501	SC 202 at Four Oaks Road	NBTR	NBL	0	0	0	0	0	200
			NBTR			0	0		
		SBLT	SBL	0	0	0	0	0	200
			SBTR			0	0		
		-	EBLTR	-	-	0	0		
		WBLR	WBLTR	0	0	0	0		
8502	SC 202 at Meadow Brook Road	NBLT	-	0	0	intersection removed; shifted to 8501		0	intersection removed; shifted to 8501
		SBTR	-	0	0			0	
		EBLR	-	0	0			0	
8503	SC 202 at I-26 WB Off-Ramp EBL Slip Ramp / I-26 WB Ramps[1]	EBL	EBL	0	0	0	0		
			EBR			0	25	0	325
8513	SC 202 at I-26 WB On-Ramp	NBLT	NBL	0	0	0	0	0	200
			NBT			0	0		
		SBTR	SBT	0	0	0	0		
			SBR			0	0	0	200
8523	SC 202 at I-26 WB Off-Ramp EBR Slip Ramp	EBR	-	0	25	shifted to 8503		0	shifted to 8503
8504	SC 202 at I-26 WB On-Ramp NBL Slip Ramp / I-26 EB Ramps[1]	NBLT	NBT	25	0	0	0		
			NBR			0	0	0	230
		SBT	SBL	0	0	0	0	0	200
			SBT			0	0		
		-	EBLT	-	-	0	0		
			EBR			0	0	0	400
8514	SC 202 at I-26 WB Off-Ramp	EBL	-	25	25	shifted to 8504			

Source: Table 24, *Interstate 26 Widening Traffic Analysis Report*

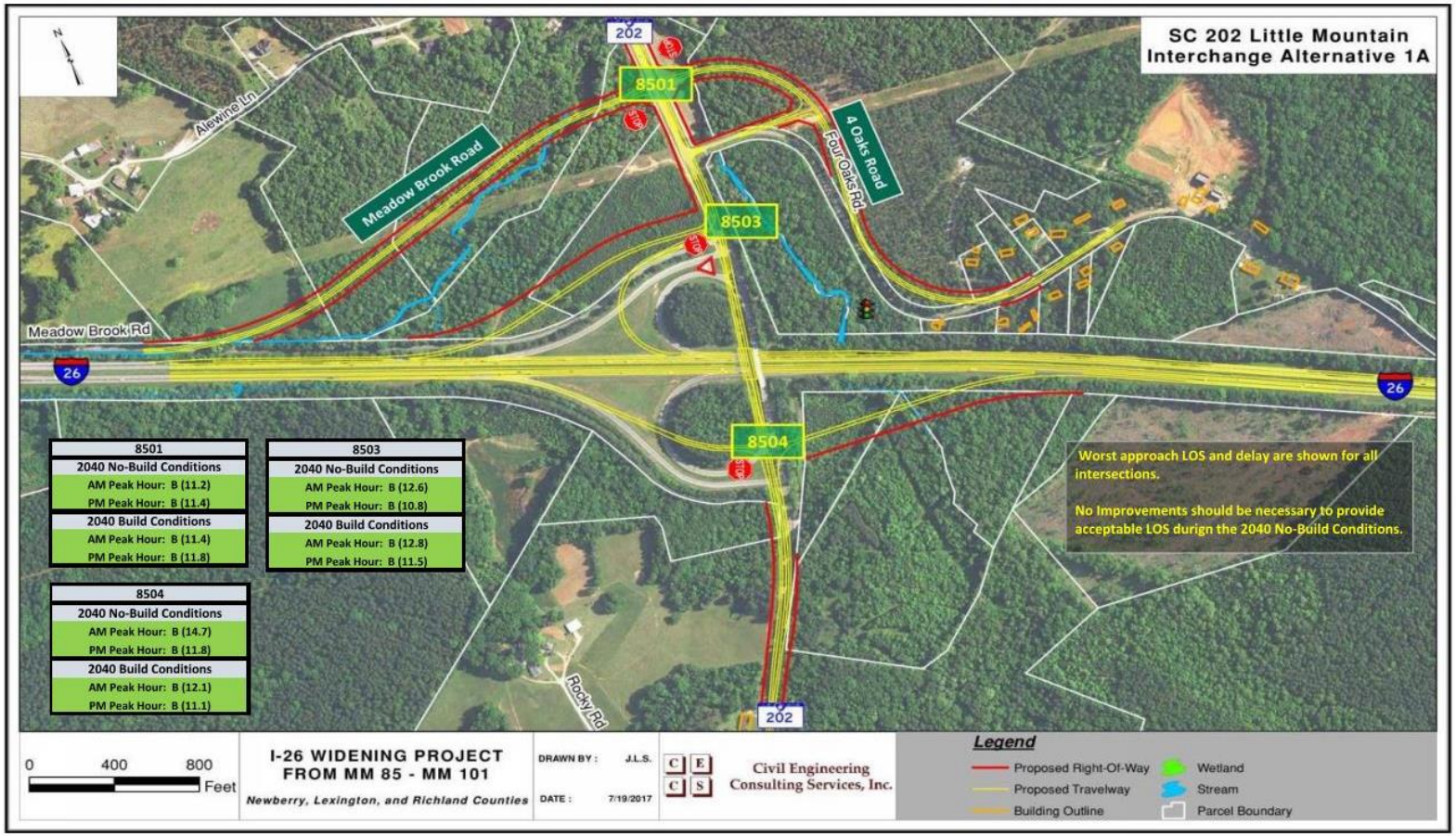


Figure 15. Exit 85 – SC 202 Interchange Intersection LOS Summary Preferred Alternative 1A

TransModeler Network Analysis

TransModeler, a microsimulation software, was used to analyze the Existing, No-Build, and Build alternative freeway networks. A TransModeler microsimulation model consists of a large amount of component database and executable files that are run through the TransModeler software. The model then is initiated within TransModeler through a single project file. The main components of the model are network files, traffic control and signal timing plans, vehicle detector layout and configuration, trip tables for both autos and trucks, traffic counts, and parameter files. This section illustrates how to develop these main components for creating a base year model of existing conditions. The microsimulation model was developed for the 20-mile interstate section of the project and was based on a calibrated base model for the area.

There are several limitations of using HCS, which is a macroscopic, deterministic model that uses HCM methodologies. The HCS analysis may show differing conditions than existing operations and conditions in the field because it does not consider upstream and downstream traffic impacts and is unable to model interactions between the two. The HCS model is a spot check at a certain location; therefore upstream and downstream operations are not taken into consideration and have no effect on the analyses. This is not the case for actual conditions, as upstream or downstream congestion may have direct impacts at a specific segment causing a ripple effect. TransModeler evaluates each segment and lane by taking into consideration vehicle interaction and driver behaviors, as well as the operational impacts for both the upstream and downstream traffic conditions.

The existing conditions and 2040 No-Build conditions TransModeler analysis was performed using the existing number of freeway lanes present on the segments within the study area, similar to the HCS analysis. Therefore, the same TransModeler simulation network was used for existing and No-Build conditions. The only difference between the existing and No-Build conditions is the input trip table volumes and a proposed widening project along Broad River Road. The 2040 No-Build conditions volumes were developed using the growth rates determined based on discussions with SCDOT. It was determined that a growth rate of 1.5 percent would be used from the east end of the study area to east of US 176 (Broad River Road), 2.0 percent would be used from US 176 (Broad River Road) to the east of SC 202, and a growth rate of 2.5 percent would be used from SC 202 to the west. The existing truck percentages for the model were developed utilizing classification counts along the mainline along with intersection counts along the arterials. These inputs were combined to develop an Origin-Destination (OD) matrix for both medium and heavy trucks. These truck volumes were then scaled up to 2040 volumes by the same proportions as the overall volume growth.

The 2040 Build AM and PM TransModeler models for the 20-mile study area of I-26 were developed by modifying the 2040 No-Build models to incorporate the widening of I-26 in each direction as well as the Preferred Alternatives for each interchange. Synchro was used to input the recommended traffic signal timing information into the network for the arterial intersections. Each simulation was run for one hour with 30 minutes of seeding time to load the network. 10 repetitions were used for both the AM and PM peak periods.

The Basic Freeway Segment Analysis outputs for the existing conditions, 2040 No-Build conditions, and the Preferred Alternative 1A Build conditions are provided in **Appendix E** and a summary of results is shown in **Table 12**.

The widening of I-26 extends to Exit 85 to accommodate the projected increase in traffic volume within the corridor. This widening will result in segment densities adjacent to Exit 85 in the 2040 Build condition being comparable to those in existing conditions.

The analysis results for the freeway segment analysis for the Existing Conditions, summarized in **Table 12**, indicate the following:

- During the morning peak hour, all freeway segments operate at LOS B or better.
- During the afternoon peak hour, all freeway segments operate at LOS C or better.

With traffic volumes projected to increase within the corridor at an annual rate of 2.0 to 2.5 percent per year and if I-26 is not widened, the increased volumes traveling on the existing interstate during the 2040 No-Build conditions will result in increased density and reductions of freeway segment LOS. However, due to unprocessed volume from upstream queuing, the No-Build conditions may appear better than the Existing conditions in some locations.

- During the 2040 No-Build morning peak hour, the eastbound segment from Exit 85 to 91 is expected to operate at LOS F. All other segments are expected to operate at LOS C or better.
- During the 2040 No-Build afternoon peak hour, the eastbound segment from Exit 85 to 91 is expected to operate at LOS F. All other segments are expected to operate at LOS C or better.

The additional capacity provided by the construction of a third lane in each direction along I-26 will result in substantial improvement in LOS compared to the 2040 No-Build condition, with LOS comparable to those experienced under existing conditions. The 2040 Build analysis results indicate that:

- During the morning peak hour, all freeway segments operate at LOS C or better.
- During the afternoon peak hour, all freeway segments operate at LOS C or better.

Table 12: Basic Freeway Segment Analysis TransModeler Results

Segment	Existing Conditions				2040 No Build Conditions				2040 Build Conditions			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	LOS[1]	Density[2]	LOS[1]	Density[2]	LOS[1]	Density[2]	LOS[1]	Density[2]	LOS[1]	Density[2]	LOS[1]	Density[2]
I-26 Eastbound												
Exit 82 to Exit 85	B	13.9	C	20.0	C	20.4	C	25.6	C	20.1	C	25.9
Exit 85 to Exit 91	B	16.7	C	20.5	F	104.9	F	99.6	B	15.9	B	16.9
I-26 Westbound												
Exit 91 to Exit 85	B	15.3	C	24.5	B	13.2	B	15.1	A	9.9	B	16.7
Exit 85 to Exit 82	B	15.2	C	23.4	A	10.9	B	13.6	B	14.7	C	24.6

[1] Per Highway Capacity Manual 2010 criteria.
[2] Density expressed as passanger cars/per mile/per lane.

Table 13: Freeway Merge Analysis TransModeler Results

Segment	Existing Conditions				2040 No Build Conditions				2040 Build Conditions			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	LOS[1]	Density[2]	LOS[1]	Density[2]	LOS[1]	Density[2]	LOS[1]	Density[2]	LOS[1]	Density[2]	LOS[1]	Density[2]
I-26 Eastbound												
Exit 85 Loop On	B	17.0	B	17.5	D	30.9	D	26.5	B	13.0	B	13.0
I-26 Westbound												
Exit 85 On ramp	B	11.5	C	18.7	A	9.3	B	11.1	A	9.8	B	14.3

[1] Per Highway Capacity Manual 2010 criteria.
[2] Density expressed as passanger cars/per mile/per lane.

Table 14: Freeway Diverge Analysis TransModeler Results

Segment	Existing Conditions				2040 No Build Conditions				2040 Build Conditions			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	LOS[1]	Density[2]	LOS[1]	Density[2]	LOS[1]	Density[2]	LOS[1]	Density[2]	LOS[1]	Density[2]	LOS[1]	Density[2]
I-26 Eastbound												
Exit 85	B	11.8	B	16.1	B	17.9	C	22.1	C	23.1	D	28.2
I-26 Westbound												
Exit 85 Loop Off	B	13.8	C	21.8	B	13.0	B	15.2	A	8.9	B	16.2

[1] Per Highway Capacity Manual 2010 criteria.
[2] Density expressed as passanger cars/per mile/per lane.

The summary of the Ramp Merge Analyses results for the Build condition, compared to the Existing and No-Build conditions, is shown in **Table 13**. The outputs for the Build conditions analyses are provided in **Appendix F**.

The widening of I-26 to three lanes to the west side of Exit 85 will result in the Exit 85 merge areas in the 2040 Build condition having densities comparable to those in existing conditions.

The analysis results for the ramp merge areas, summarized in **Table 13**, indicate the following:

Using the design hour volumes for the morning and afternoon peak hours, the analysis results for the Existing conditions indicate that:

- During the morning peak hour, the Exit 85 eastbound and westbound ramp merge areas operate at LOS B
- During the afternoon peak hour, the Exit 85 eastbound and westbound ramp merge areas operate at LOS C or better

With traffic volumes projected to increase within the corridor for 2040 No-Build conditions and if I-26 is not widened, the increased traffic volumes traveling on the existing interstate capacity will result in increased density and could reduce the merge area LOS. However, due to unprocessed volume from upstream queuing, the No-Build conditions may appear better than the Existing conditions in some locations.

- During the 2040 No-Build morning peak hour, the eastbound ramp merge at Exit 85 is expected to operate at LOS D. The westbound ramp merge at Exit 85 is expected to operate at LOS A.
- During the 2040 No-Build afternoon peak hour, the eastbound ramp merge at Exit 85 is expected to operate at LOS D. The westbound ramp merge at Exit 85 is expected to operate at LOS B.

The additional capacity provided by the construction of a third lane in each direction along I-26 will result in improvement in LOS compared to the 2040 No-Build condition, with LOS comparable to those experienced under existing conditions. The 2040 Build analysis results indicate that:

- During the morning peak hour, the Exit 85 eastbound and westbound ramp merge areas operate at LOS B or better.
- During the afternoon peak hour, the Exit 85 eastbound and westbound ramp merge areas operate at LOS B.

The summary of the Ramp Diverge Analyses results for the Build conditions, compared to the Existing and No-Build conditions, are shown in **Table 14**. The outputs for the Build conditions analyses are also provided in **Appendix F**.

The widening of I-26 to three lanes to the west side of Exit 85 will result in the Exit 85 diverge areas in the 2040 Build condition having densities comparable to those in existing conditions.

The analysis results for the ramp diverge areas, summarized in **Table 14**, indicate the following:

Using the design hour volumes for the morning and afternoon peak hours, the analysis results for the Existing conditions indicate that:

- During the morning peak hour, the Exit 85 eastbound and westbound ramp diverge areas operate at LOS B.
- During the afternoon peak hour, the Exit 85 eastbound and westbound ramp diverge areas operate at LOS C or better.

With traffic volumes projected to increase within the corridor for 2040 No-Build conditions and if I-26 is not widened, the increased traffic volumes traveling on the existing interstate capacity will result in increased density and could reduce the LOS at the diverge areas. However, due to unprocessed volume from upstream queuing, the No-Build conditions may appear better than the Existing conditions in some locations.

- During the morning peak hour, the Exit 85 eastbound and westbound ramp diverge areas operate at LOS B
- During the afternoon peak hour, the Exit 85 eastbound and westbound ramp diverge areas operate at LOS C or better

The additional capacity provided by the construction of a third lane in each direction along I-26 will result in improvement in LOS compared to the 2040 No-Build condition, with LOS comparable to those experienced under existing conditions. The 2040 Build analysis results indicate that:

- During the morning peak hour, the Exit 85 eastbound and westbound ramp diverge areas operate at LOS C or better.
- During the afternoon peak hour, the Exit 85 eastbound and westbound ramp diverge areas operate at LOS D and LOS B, respectively.

VII. Interchange Justification

A policy statement for justifying the need for additional or modified access to the existing sections of an Interstate System was first published in the Federal Register on October 22, 1990 entitled "Access to the Interstate System". It was then modified and updated on February 11, 1998, on August 27, 2009 and on May 22, 2017. The objectives of this policy are to ensure that all new or revised access points do not adversely impact the operations and safety of the Interstate System, and all new or revised access points have been vetted through a systematic evaluation process.

In order to explain the intent and requirements of this new policy, U. S. Department of Transportation Federal Highway Administration published a Memorandum on May 22, 2017. This FHWA Guide was followed in preparing the current Interchange Modification Report (IMR) for the I-26/Exit 85 Interchange in Newberry County, South Carolina.

Policy Point 1

An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis should, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (23 CFR 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, should be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Requests for a proposed change in access should include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute, and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request should also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).

The intent of the Policy Point 1 is to require detailed operational and safety analysis of the relevant interstate segments and provide a comparison of the No-Build and Build conditions that are anticipated to occur through the design year of the project.

The analysis of the interstate facility and Exit 85 is an extension of the previous project-wide traffic operations and safety analysis as summarized in the *I-26 Widening Traffic Analysis Report* and the *I-26 Widening Project MM 85 – MM 101 Traffic Safety Analysis Report*.

The analysis of the interstate facility includes the portion of I-26 between SC 773 interchange (Exit 82) and the Columbia Avenue (S-32-48) interchange (Exit 91), including the proposed modification of SC 202 interchange (Exit 85). The analysis was performed using methodologies and procedures outlined in the Transportation Research Board's *Highway Capacity Manual* and used the HCS-2010 analysis and TransModeler simulation model software.

The analysis of the 2040 Build conditions of the Preferred Alternative (Alternative 1A) illustrates that the project would not have any significant negative impact on the safety and on the operation of the facilities within the project area. The analysis shows Interstate 26 mainline operations and ramp merge/diverge areas are estimated to operate at LOS D or better during the 2040 morning and afternoon peak hours. Without the proposed improvement, the freeway segments and ramp merge/diverge areas would operate between LOS A to LOS F during the 2040 No-Build morning peak hour, and between LOS B to LOS F during the 2040 No-Build afternoon peak hour.

Exit 82, the interchange adjacent to Exit 85, is not expected to be modified as part of the I-26 Widening project. Exit 91 (Columbia Avenue) is expected to be modified to provide a Diverging Diamond Interchange. The DDI concept was evaluated and selected as the Preferred Alternative in the *Interchange Modification Report, I-26 at S-48 (Columbia Avenue) Interchange Improvements*.

Exit 82 - SC 773 is located approximately 3.15 miles northwest of the Exit 85 interchange. Exit 91 - Columbia Avenue (S-32-48) is located approximately 5.85 miles southeast of the Exit 85 interchange. With interchange spacing exceeding 3 miles to the next adjacent interchange from Exit 85, there are no anticipated operational concerns related to the spacing between interchanges. Sufficient distance exists between upstream and downstream merging/diverging areas at the adjacent interchanges to eliminate the influence of traffic movements within these areas, and analysis shows the freeway segments are projected to operate at LOS D or better.

The Accident Analysis Report identifies rear end collisions and no collision with motor vehicle as the most frequent types of crashes within the study area. The report also identifies driving too fast for conditions as the main cause of rear end crashes. The presence of median barriers and guardrail fences are noted as the first harmful event for no collision with motor vehicle crashes. The Accident Analysis Report points out that the geometric conditions resulting from merge/diverge areas of loop ramps seem to play a role in the frequency of the crashes and that merging distance at on-ramps and diverging distances at off-ramps should be improved to SCDOT

standards where these standards are not already met. Study area hot spots along the interchange arterials include frequent crashes at Exit 91 along Columbia Avenue at business driveways to the west of the eastbound off-ramp intersection. It is anticipated that access controls implemented as part of the proposed Exit 91 DDI interchange improvement will address these concerns.

Modifying interchanges to eliminate loop ramps at Exit 85 may also reduce crashes on the segments adjacent to the loop ramps. By replacing the substandard ramps and modifying the existing interchange to meet current design standards, the proposed interchanges with SC 202 and with Columbia Avenue are anticipated to contribute to an improvement in traffic safety.

The Preferred Alternative (Alternative 1A) of the interchange design also provides space for the construction of an additional travel lane in each direction along I-26. Altogether, these design provisions would enhance the operational efficiency and safety of the corridor, thereby increasing capacity and improving levels of service in the long term.

Pedestrian facilities are not incorporated into the design due to the rural nature of the interchange area.

A conceptual signing plan is included in **Appendix G**.

Policy Point 2

The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" may be considered on a case-by-case basis for applications requiring special access, such as managed lanes (e.g., transit, HOVs, HOT lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)). In rare instances where all basic movements are not provided by the proposed design, the report should include a full-interchange option with a comparison of the operational and safety analyses to the partial-interchange option. The report should also include the mitigation proposed to compensate for the missing movements, including wayfinding signage, impacts on local intersections, mitigation of driver expectation leading to wrong-way movements on ramps, etc. The report should describe whether future provision of a full interchange is precluded by the proposed design.

The intent of the Policy Point 2 is to require implementation of an interchange design for the new access that allows for all relevant movements for general purpose traffic, whenever feasible.

The existing SC 202 interchange is a partial cloverleaf interchange that provides for all traffic movements. Because of its unconventional orientation, all ramps are located on the west side

of the interchange. Spacing between the existing ramps are short. In addition, two-way Meadow Brook Road runs parallel to the westbound on-ramp and ties in SC 202 70 feet north of westbound on-ramp and SC 202 intersection.

As illustrated in the design concept for the Preferred Alternative, the proposed modification of Exit 85 would continue to provide full access for all traffic movements. It would shift ramp movements away from the two-way frontage roads directly to intersections with SC 202, and provide ramps that meet or exceed current design standards, improving access to SC 202 and the surrounding roadway network.

Appendix A

Turning Movement Count Data

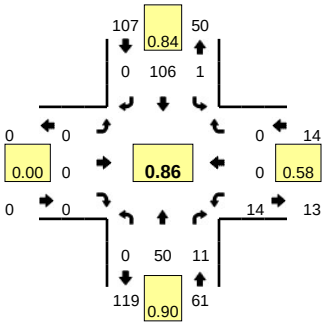
Exit 85

Type of peak hour being reported: Intersection Peak

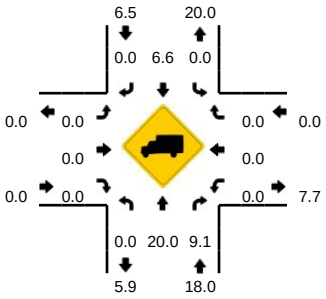
Method for determining peak hour: Total Entering Volume

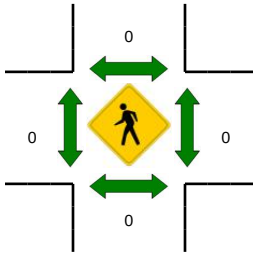
LOCATION: SC 202 -- S-36-370 (4 Oaks Rd)
CITY/STATE: Newberry, SC

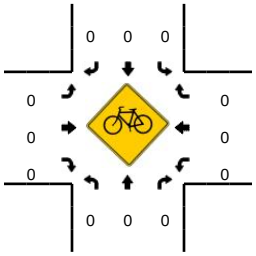
QC JOB #: 138535194
DATE: Tue, Aug 23 2016

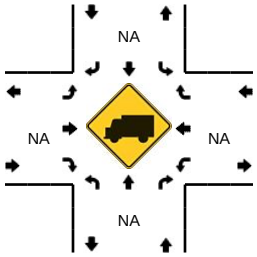


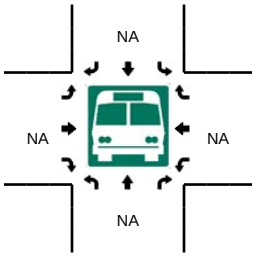
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM











15-Min Count Period Beginning At	SC 202 (Northbound)				SC 202 (Southbound)				S-36-370 (4 Oaks Rd) (Eastbound)				S-36-370 (4 Oaks Rd) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	10	0	0	0	32	0	0	0	0	0	0	5	0	0	1	48	
7:15 AM	0	16	1	0	0	26	0	0	0	0	0	0	2	0	0	0	45	
7:30 AM	0	10	7	0	0	32	0	0	0	0	0	0	4	0	0	0	53	
7:45 AM	0	14	3	0	1	16	0	0	0	0	0	0	2	0	0	0	36	182
8:00 AM	0	8	1	0	0	19	0	0	0	0	0	0	1	0	0	0	29	163
8:15 AM	0	7	0	0	1	21	0	0	0	0	0	0	1	0	0	0	30	148
8:30 AM	0	6	1	0	0	6	0	0	0	0	0	0	1	0	0	0	14	109
8:45 AM	0	5	2	0	1	8	0	0	0	0	0	0	1	0	1	0	18	91

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	40	28	0	0	128	0	0	0	0	0	0	16	0	0	0	212
Heavy Trucks	0	0	0		0	8	0		0	0	0		0	0	0		8
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/23/2016 2:52 PM

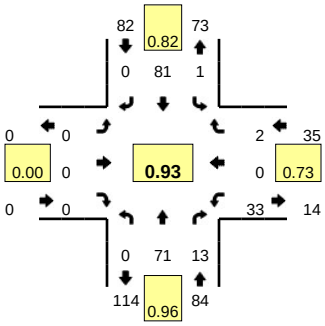
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: SC 202 -- S-36-370 (4 Oaks Rd)
CITY/STATE: Newberry, SC

QC JOB #: 138535195
DATE: Tue, Aug 23 2016



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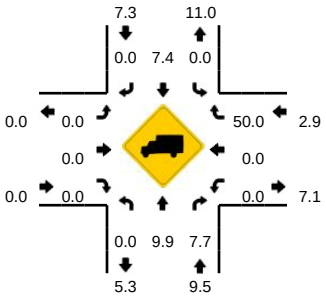
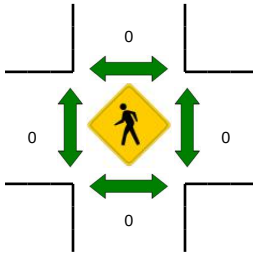
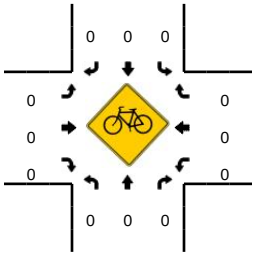
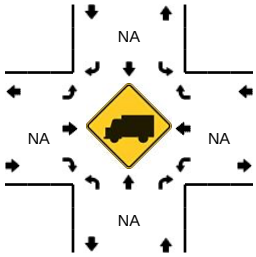
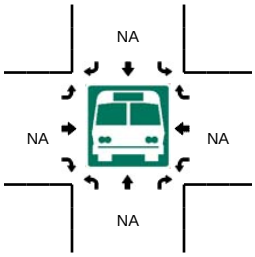
Peak 15-Min: 4:15 PM -- 4:30 PM











15-Min Count Period Beginning At	SC 202 (Northbound)				SC 202 (Southbound)				S-36-370 (4 Oaks Rd) (Eastbound)				S-36-370 (4 Oaks Rd) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	11	2	0	0	25	0	0	0	0	0	0	11	0	1	0	50	
4:15 PM	0	19	5	0	0	22	0	0	0	0	0	0	8	0	0	0	54	
4:30 PM	0	22	2	0	1	14	0	0	0	0	0	0	5	0	0	0	44	
4:45 PM	0	19	4	0	0	20	0	0	0	0	0	0	9	0	1	0	53	201
5:00 PM	0	21	0	0	1	20	0	0	0	0	0	0	3	0	0	0	45	196
5:15 PM	0	16	5	0	1	17	0	0	0	0	0	0	4	0	1	0	44	186
5:30 PM	0	17	3	0	0	11	0	0	0	0	0	0	6	0	0	0	37	179
5:45 PM	0	14	3	0	0	16	0	0	0	0	0	0	3	0	1	0	37	163

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	76	20	0	0	88	0	0	0	0	0	0	32	0	0	0	216
Heavy Trucks	0	20	0		0	0	0		0	0	0		0	0	0		20
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/23/2016 2:52 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

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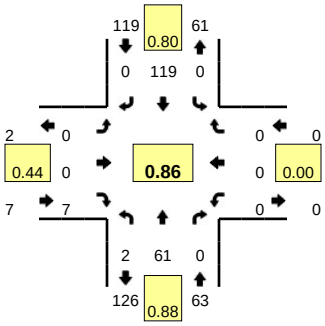
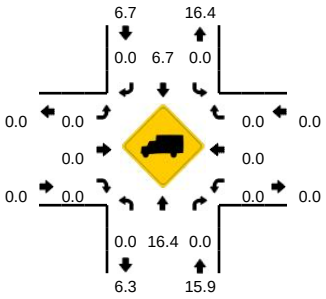
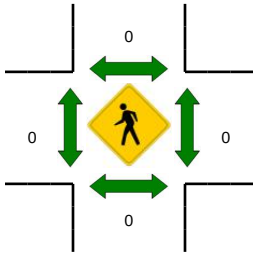
CITY/STATE: Newberry, SC

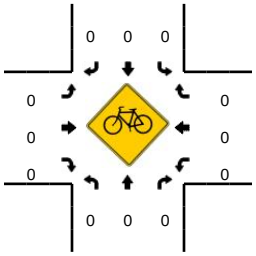
QC JOB #: 138535196
DATE: Tue, Aug 23 2016

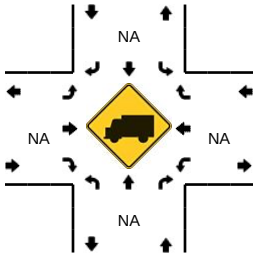


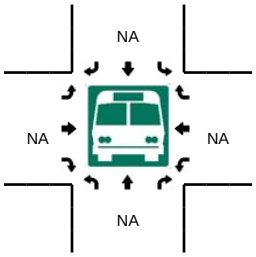
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM











15-Min Count Period Beginning At	SC 202 (Northbound)				SC 202 (Southbound)				S-36-811 (Meadow Brook Rd) (Eastbound)				S-36-811 (Meadow Brook Rd) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	11	0	0	0	37	0	0	0	0	1	0	0	0	0	0	49	
7:15 AM	2	16	0	0	0	28	0	0	0	0	4	0	0	0	0	0	50	
7:30 AM	0	17	0	0	0	36	0	0	0	0	2	0	0	0	0	0	55	
7:45 AM	0	17	0	0	0	18	0	0	0	0	0	0	0	0	0	0	35	189
8:00 AM	2	9	0	0	0	20	0	0	0	0	0	0	0	0	0	0	31	171
8:15 AM	0	7	0	0	0	21	0	0	0	0	2	0	0	0	0	0	30	151
8:30 AM	0	7	0	0	0	7	0	0	0	0	1	0	0	0	0	0	15	111
8:45 AM	2	5	0	0	0	9	0	0	0	0	0	0	0	0	0	0	16	92

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	68	0	0	0	144	0	0	0	0	8	0	0	0	0	0	220
Heavy Trucks	0	0	0		0	8	0		0	0	0		0	0	0		8
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/23/2016 2:52 PM

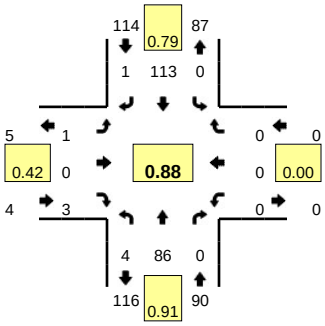
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

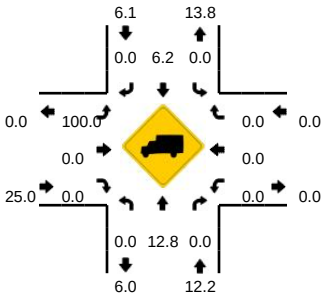
Method for determining peak hour: Total Entering Volume

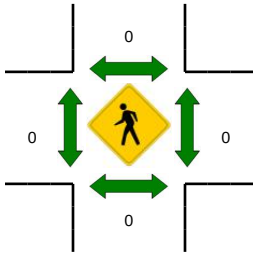
LOCATION: SC 202 -- S-36-811 (Meadow Brook Rd)
CITY/STATE: Newberry, SC

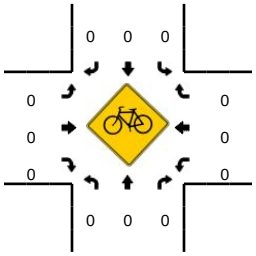
QC JOB #: 138535197
DATE: Tue, Aug 23 2016

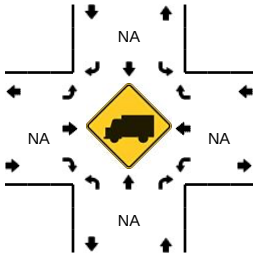


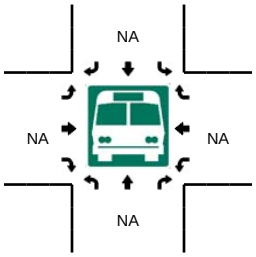
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:15 PM -- 4:30 PM











15-Min Count Period Beginning At	SC 202 (Northbound)				SC 202 (Southbound)				S-36-811 (Meadow Brook Rd) (Eastbound)				S-36-811 (Meadow Brook Rd) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	14	0	0	0	35	1	0	0	0	0	0	0	0	0	0	52	
4:15 PM	2	24	0	0	0	30	0	0	1	0	2	0	0	0	0	0	59	
4:30 PM	0	24	0	0	0	19	0	0	0	0	1	0	0	0	0	0	44	
4:45 PM	0	24	0	0	0	29	0	0	0	0	0	0	0	0	0	0	53	208
5:00 PM	0	21	0	0	0	23	0	0	0	0	1	0	0	0	0	0	45	201
5:15 PM	1	21	0	0	0	22	0	0	0	0	0	0	0	0	0	0	44	186
5:30 PM	2	19	0	1	0	17	0	0	0	0	0	0	0	0	0	0	39	181
5:45 PM	4	18	0	0	0	20	0	0	0	0	1	0	0	0	0	0	43	171

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	96	0	0	0	120	0	0	4	0	8	0	0	0	0	0	236
Heavy Trucks	0	16	0		0	0	0		4	0	0		0	0	0		20
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/23/2016 2:52 PM

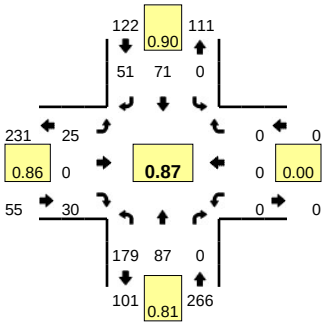
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

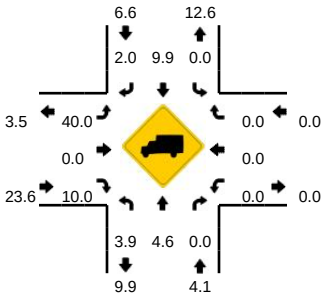
Method for determining peak hour: Total Entering Volume

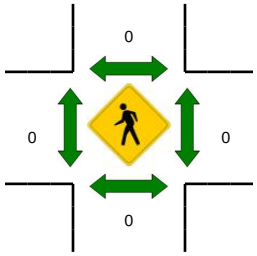
LOCATION: SC 202 -- I-26 EB Ramp
CITY/STATE: Little Mountain, SC

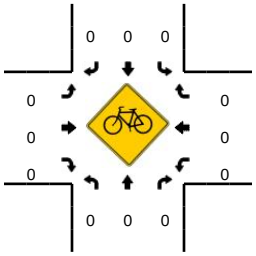
QC JOB #: 138535292
DATE: Tue, Aug 23 2016

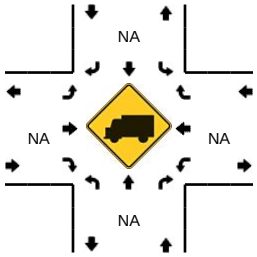


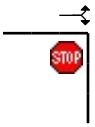
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

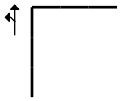


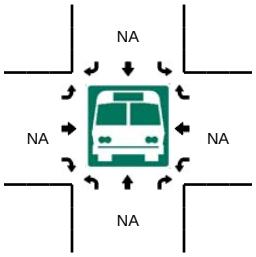












15-Min Count Period Beginning At	SC 202 (Northbound)				SC 202 (Southbound)				I-26 EB Ramp (Eastbound)				I-26 EB Ramp (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	36	12	0	0	0	15	19	0	7	0	8	1	0	0	0	0	98	
7:15 AM	43	22	0	0	0	25	8	0	7	0	9	0	0	0	0	0	114	
7:30 AM	56	26	0	0	0	17	17	0	6	0	6	0	0	0	0	0	128	
7:45 AM	44	27	0	0	0	14	7	0	4	0	7	0	0	0	0	0	103	443
8:00 AM	11	14	0	0	0	6	13	0	8	0	3	0	0	0	0	0	55	400
8:15 AM	20	12	0	0	0	18	9	0	1	0	1	0	0	0	0	0	61	347
8:30 AM	14	10	0	0	0	11	5	0	3	0	4	0	0	0	0	0	47	266
8:45 AM	17	14	0	0	0	9	4	0	2	0	7	0	0	0	0	0	53	216
9:00 AM	12	10	0	0	0	5	10	0	2	0	6	0	0	0	0	0	45	206
9:15 AM	2	13	0	0	0	7	3	0	2	0	1	1	0	0	0	0	29	174
9:30 AM	12	10	0	0	0	8	7	0	2	0	1	0	0	0	0	0	40	167
9:45 AM	9	6	0	0	0	23	5	0	1	0	3	0	0	0	0	0	47	161
10:00 AM	6	7	0	0	0	15	1	0	1	0	4	0	0	0	0	0	34	150
10:15 AM	9	5	0	0	0	5	3	0	3	0	2	0	0	0	0	0	27	148
10:30 AM	5	7	0	0	0	8	1	0	1	0	4	0	0	0	0	0	26	134
10:45 AM	10	10	0	0	0	7	5	0	2	0	0	0	0	0	0	0	34	121
11:00 AM	3	12	0	0	0	8	2	0	3	0	3	0	0	0	0	0	31	118
11:15 AM	6	5	0	0	0	11	5	0	2	0	1	0	0	0	0	0	30	121
11:30 AM	4	12	0	0	0	10	5	0	5	0	3	1	0	0	0	0	40	135
11:45 AM	6	6	0	0	0	13	4	0	3	0	1	0	0	0	0	0	33	134
12:00 PM	3	8	0	0	0	9	4	0	2	0	6	0	0	0	0	0	32	135
12:15 PM	6	9	0	0	0	3	2	0	3	0	0	0	0	0	0	0	23	128
12:30 PM	4	7	0	0	0	18	1	0	3	0	3	0	0	0	0	0	36	124
12:45 PM	10	12	0	0	0	12	3	0	1	0	5	1	0	0	0	0	44	135

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	224	104	0	0	0	68	68	0	24	0	24	0	0	0	0	0	512
Heavy Trucks	0	0	0		0	0	4		0	0	0		0	0	0		4
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/23/2016 2:52 PM

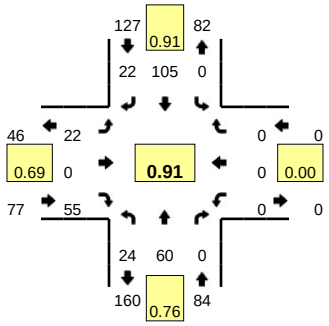
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

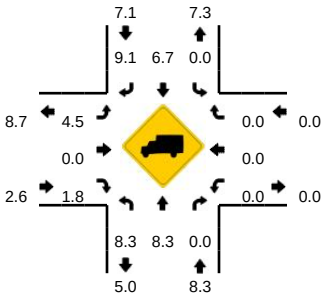
Method for determining peak hour: Total Entering Volume

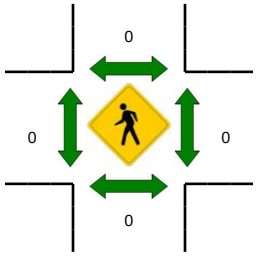
LOCATION: SC 202 -- I-26 EB Ramp
CITY/STATE: Little Mountain, SC

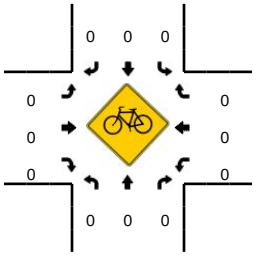
QC JOB #: 138535293
DATE: Tue, Aug 23 2016

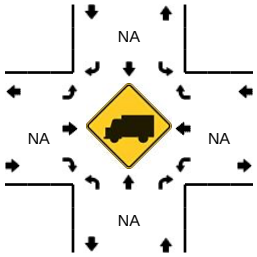


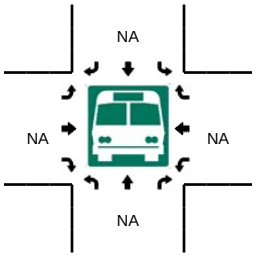
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:30 PM -- 5:45 PM











15-Min Count Period Beginning At	SC 202 (Northbound)				SC 202 (Southbound)				I-26 EB Ramp (Eastbound)				I-26 EB Ramp (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
1:00 PM	7	7	0	0	0	15	2	0	1	0	9	0	0	0	0	0	41	
1:15 PM	5	5	0	0	0	14	3	0	3	0	7	0	0	0	0	0	37	
1:30 PM	6	9	0	0	0	22	1	0	0	0	14	0	0	0	0	0	52	
1:45 PM	8	4	0	0	0	20	2	0	1	0	9	0	0	0	0	0	44	174
2:00 PM	6	8	0	0	0	15	4	0	2	0	2	1	0	0	0	0	38	171
2:15 PM	7	9	0	0	0	10	3	0	2	0	7	0	0	0	0	0	38	172
2:30 PM	2	9	0	0	0	17	2	0	2	0	7	1	0	0	0	0	40	160
2:45 PM	6	16	0	0	0	12	0	0	2	0	5	0	0	0	0	0	41	157
3:00 PM	9	19	0	0	0	11	6	0	4	0	8	0	0	0	0	0	57	176
3:15 PM	16	16	0	0	0	12	3	0	3	0	7	1	0	0	0	0	58	196
3:30 PM	4	11	0	0	0	17	4	0	2	0	10	1	0	0	0	0	49	205
3:45 PM	7	12	0	0	0	23	4	0	2	0	11	1	0	0	0	0	60	224
4:00 PM	8	13	0	0	0	20	9	0	2	0	7	1	0	0	0	0	60	227
4:15 PM	5	12	0	0	0	25	6	0	10	0	6	0	0	0	0	0	64	233
4:30 PM	7	11	0	0	0	19	4	0	4	0	7	0	0	0	0	0	52	236
4:45 PM	5	15	0	0	0	28	7	0	7	0	8	0	0	0	0	0	70	246
5:00 PM	5	16	0	0	0	27	6	0	5	0	11	0	0	0	0	0	70	256
5:15 PM	7	9	0	0	0	19	6	0	7	0	21	0	0	0	0	0	69	261
5:30 PM	7	20	0	0	0	31	3	0	3	0	15	0	0	0	0	0	79	288
5:45 PM	6	14	0	0	0	21	5	0	6	0	6	0	0	0	0	0	58	276
6:00 PM	0	14	0	0	0	26	8	0	6	0	7	0	0	0	0	0	61	267
6:15 PM	8	12	0	0	0	24	1	0	1	0	10	0	0	0	0	0	56	254
6:30 PM	9	11	0	0	0	26	2	0	5	0	8	0	0	0	0	0	61	236
6:45 PM	8	8	0	0	0	17	0	0	2	0	7	0	0	0	0	0	42	220

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	80	0	0	0	124	12	0	12	0	60	0	0	0	0	0	316
Heavy Trucks	0	8	0		0	8	0		0	0	0		0	0	0		16
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/23/2016 2:52 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

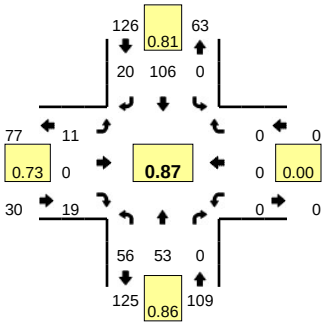
LOCATION: SC 202 -- I-26 WB Ramp

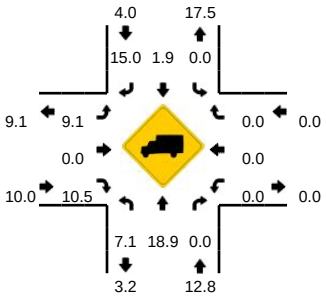
CITY/STATE: Newberry, SC

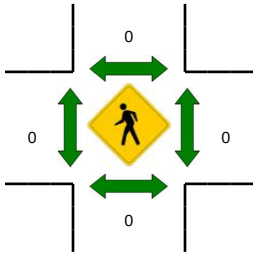
QC JOB #: 138535294

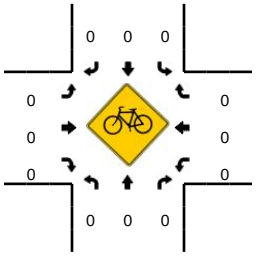
DATE: Tue, Aug 23 2016

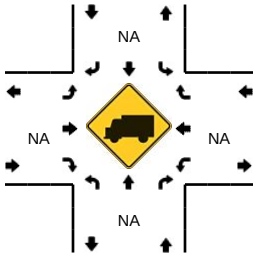
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

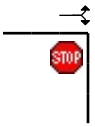


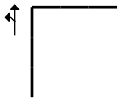


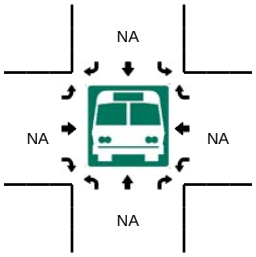












15-Min Count Period Beginning At	SC 202 (Northbound)				SC 202 (Southbound)				I-26 WB Ramp (Eastbound)				I-26 WB Ramp (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	8	10	0	0	0	32	7	0	1	0	3	0	0	0	0	0	61	
7:15 AM	14	13	0	0	0	28	4	0	5	0	7	0	0	0	0	0	71	
7:30 AM	17	16	0	0	0	30	7	0	1	0	4	1	0	0	0	0	76	
7:45 AM	17	14	0	0	0	16	2	0	3	0	5	0	0	0	0	0	57	265
8:00 AM	14	8	0	0	0	19	2	0	3	0	1	0	0	0	0	0	47	251
8:15 AM	9	4	0	0	0	20	3	0	3	0	5	0	0	0	0	0	44	224
8:30 AM	7	6	0	0	0	8	0	0	1	0	8	0	0	0	0	0	30	178
8:45 AM	10	6	0	0	0	7	2	0	1	0	6	0	0	0	0	0	32	153
9:00 AM	3	10	0	0	0	15	3	0	2	0	1	0	0	0	0	0	34	140
9:15 AM	9	6	0	0	0	7	2	0	2	0	5	0	0	0	0	0	31	127
9:30 AM	2	12	0	0	0	12	4	0	2	0	4	0	0	0	0	0	36	133
9:45 AM	5	1	0	0	0	12	2	1	1	0	13	0	0	0	0	0	35	136
10:00 AM	1	8	0	0	0	12	3	0	3	0	4	0	0	0	0	0	31	133
10:15 AM	2	3	0	0	0	6	3	0	3	0	1	0	0	0	0	0	18	120
10:30 AM	5	4	0	0	0	5	1	0	2	0	4	0	0	0	0	0	21	105
10:45 AM	4	8	0	0	0	6	4	0	3	0	6	0	0	0	0	0	31	101
11:00 AM	7	8	0	0	0	5	4	0	0	0	6	0	0	0	0	0	30	100
11:15 AM	3	4	0	0	0	8	2	0	2	0	7	0	0	0	0	0	26	108
11:30 AM	9	8	0	0	0	8	4	0	6	0	7	0	0	0	0	0	42	129
11:45 AM	1	7	0	1	0	6	0	0	0	0	9	0	0	0	0	0	24	122
12:00 PM	6	4	0	0	0	7	1	0	2	0	5	0	0	0	0	0	25	117
12:15 PM	7	6	0	0	0	4	3	0	1	0	1	0	0	0	0	0	22	113
12:30 PM	1	9	0	0	0	7	4	0	4	0	12	0	0	0	0	0	37	108
12:45 PM	5	8	0	0	0	8	2	0	2	0	8	0	0	0	0	0	33	117

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	68	64	0	0	0	120	28	0	4	0	16	4	0	0	0	0	304
Heavy Trucks	0	0	0		0	0	4		0	0	0		0	0	0		4
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/23/2016 2:52 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

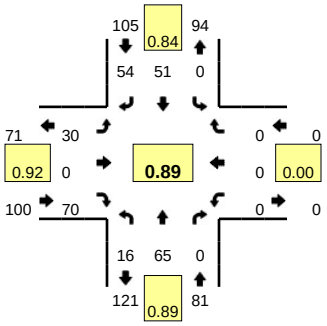
Method for determining peak hour: Total Entering Volume

LOCATION: SC 202 -- I-26 WB Ramp

CITY/STATE: Newberry, SC

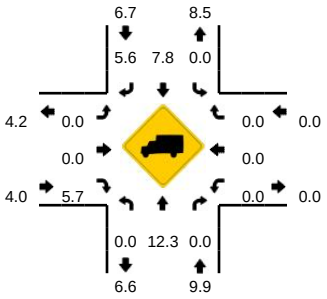
QC JOB #: 138535295

DATE: Tue, Aug 23 2016

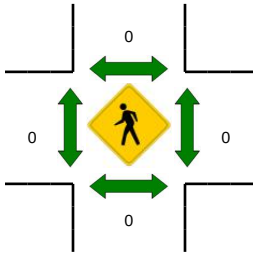


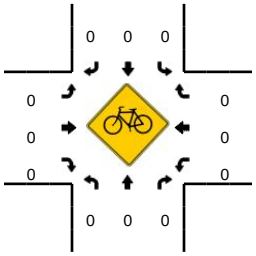
Peak-Hour: 4:15 PM -- 5:15 PM

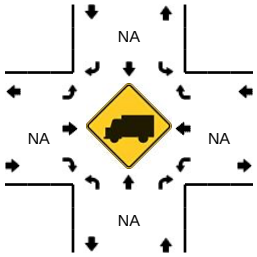
Peak 15-Min: 4:45 PM -- 5:00 PM

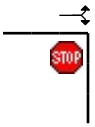


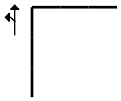
Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

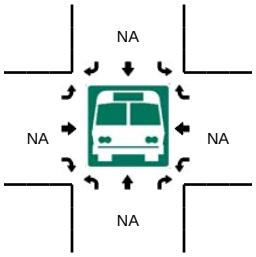












15-Min Count Period Beginning At	SC 202 (Northbound)				SC 202 (Southbound)				I-26 WB Ramp (Eastbound)				I-26 WB Ramp (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
1:00 PM	1	7	0	0	0	6	2	0	3	0	11	0	0	0	0	0	30	
1:15 PM	1	8	0	0	0	10	3	0	3	0	9	1	0	0	0	0	35	
1:30 PM	2	7	0	0	0	4	6	0	6	0	20	0	0	0	0	0	45	
1:45 PM	5	1	0	0	0	10	3	0	0	0	13	0	0	0	0	0	32	142
2:00 PM	0	10	0	0	0	15	3	0	0	0	2	0	0	0	0	0	30	142
2:15 PM	4	7	0	0	0	8	4	0	0	0	5	1	0	0	0	0	29	136
2:30 PM	5	6	0	0	0	7	2	0	2	0	10	0	0	0	0	0	32	123
2:45 PM	4	16	0	0	0	6	7	0	3	0	5	0	0	0	0	0	41	132
3:00 PM	10	14	0	0	0	11	5	0	2	0	5	0	0	0	0	0	47	149
3:15 PM	8	11	0	0	0	7	3	0	3	0	8	0	0	0	0	0	40	160
3:30 PM	2	12	0	0	0	6	8	0	4	0	14	0	0	0	0	0	46	174
3:45 PM	4	10	0	0	0	14	13	0	5	0	15	0	0	0	0	0	61	194
4:00 PM	3	12	0	0	0	12	23	0	4	0	16	0	0	0	0	0	70	217
4:15 PM	2	20	0	0	0	15	17	0	5	0	15	0	0	0	0	0	74	251
4:30 PM	2	14	0	0	0	10	10	0	11	0	14	0	0	0	0	0	61	266
4:45 PM	5	17	0	0	0	13	17	0	6	0	22	0	0	0	0	0	80	285
5:00 PM	7	14	0	0	0	13	10	0	7	0	19	1	0	0	0	0	71	286
5:15 PM	3	13	0	0	0	11	11	0	9	0	14	0	0	0	0	0	61	273
5:30 PM	8	14	0	1	0	9	8	0	5	0	24	0	0	0	0	0	69	281
5:45 PM	8	10	0	0	0	13	8	0	11	0	13	0	0	0	0	0	63	264
6:00 PM	9	12	0	0	0	17	9	0	6	0	17	0	0	0	0	0	70	263
6:15 PM	3	10	0	0	0	6	5	0	11	0	18	0	0	0	0	0	53	255
6:30 PM	5	11	0	0	0	13	4	0	4	0	11	0	0	0	0	0	48	234
6:45 PM	4	6	0	0	0	7	4	0	4	0	12	0	0	0	0	0	37	208

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	20	68	0	0	0	52	68	0	24	0	88	0	0	0	0	0	320
Heavy Trucks	0	12	0		0	4	8		0	0	0		0	0	0		24
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/23/2016 2:52 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Appendix B

HCS Freeway Segment Analysis Outputs

Appendix B

HCS Freeway Segment Analysis Outputs EX AM

HCS 2010: Basic Freeway Segments Release 6.3

Nadia Morozova
STV
140 Stoneridge Drive, Suite 450
Columbia, SC 29210

Phone: 8036384811 Fax:
E-mail: Nadezhda.Morozova@stvinc.com

Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/08/2017
Analysis Time Period:	AM Peak
Freeway/Direction:	I-26 SB
From/To:	EB02 Segment Exit 82-85
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	1283	veh/h
Peak-hour factor, PHF	0.88	
Peak 15-min volume, v15	364	v
Trucks and buses	16	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.806	
Driver population factor, fp	1.00	
Flow rate, vp	904	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	904	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	70.0	mi/h
Number of lanes, N	2	
Density, D	12.9	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Nadia Morozova
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140 Stoneridge Drive, Suite 450
Columbia, SC 29210

Phone: 8036384811 Fax:
E-mail: Nadezhda.Morozova@stvinc.com

Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/08/2017
Analysis Time Period:	AM Peak
Freeway/Direction:	I-26 SB
From/To:	EB03 Segment Exit 85-91
Jurisdiction:	Newberry/Lexington County
Analysis Year:	2016
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	1458	veh/h
Peak-hour factor, PHF	0.88	
Peak 15-min volume, v15	414	v
Trucks and buses	16	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.806	
Driver population factor, fp	1.00	
Flow rate, vp	1027	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1027	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	70.0	mi/h
Number of lanes, N	2	
Density, D	14.7	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

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Columbia, SC 29210

Phone: 8036384811 Fax:
E-mail: Nadezhda.Morozova@stvinc.com

Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/08/2017
Analysis Time Period:	AM Peak
Freeway/Direction:	I-26 NB
From/To:	WB03 Segment Exit 85-91
Jurisdiction:	Newberry/Lexington County
Analysis Year:	2016
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	1123	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	312	v
Trucks and buses	23	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.743	
Driver population factor, fp	1.00	
Flow rate, vp	839	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	839	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	70.0	mi/h
Number of lanes, N	2	
Density, D	12.0	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Nadia Morozova
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140 Stoneridge Drive, Suite 450
Columbia, SC 29210

Phone: 8036384811 Fax:
E-mail: Nadezhda.Morozova@stvinc.com

Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/08/2017
Analysis Time Period:	AM Peak
Freeway/Direction:	I-26 NB
From/To:	WB02 Segment Exit 82-85
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	1170	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	325	v
Trucks and buses	23	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.743	
Driver population factor, fp	1.00	
Flow rate, vp	874	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	874	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	70.0	mi/h
Number of lanes, N	2	
Density, D	12.5	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Appendix B

HCS Freeway Segment Analysis Outputs EX PM

HCS 2010: Basic Freeway Segments Release 6.3

Nadia Morozova
STV
140 Stoneridge Drive, Suite 450
Columbia, SC 29210

Phone: 8036384811 Fax:
E-mail: Nadezhda.Morozova@stvinc.com

Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/08/2017
Analysis Time Period:	PM Peak
Freeway/Direction:	I-26 SB
From/To:	EB02 Segment Exit 82-85
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	2018	veh/h
Peak-hour factor, PHF	0.91	
Peak 15-min volume, v15	554	v
Trucks and buses	14	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.826	
Driver population factor, fp	1.00	
Flow rate, vp	1342	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1342	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	69.8	mi/h
Number of lanes, N	2	
Density, D	19.2	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

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Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/08/2017
Analysis Time Period:	PM Peak
Freeway/Direction:	I-26 SB
From/To:	EB03 Segment Exit 85-91
Jurisdiction:	Newberry/Lexington County
Analysis Year:	2016
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	1989	veh/h
Peak-hour factor, PHF	0.91	
Peak 15-min volume, v15	546	v
Trucks and buses	14	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.826	
Driver population factor, fp	1.00	
Flow rate, vp	1322	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1322	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	69.8	mi/h
Number of lanes, N	2	
Density, D	18.9	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/08/2017
Analysis Time Period:	PM Peak
Freeway/Direction:	I-26 NB
From/To:	WB03 Segment Exit 85-91
Jurisdiction:	Newberry/Lexington County
Analysis Year:	2016
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	2053	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	558	v
Trucks and buses	13	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.837	
Driver population factor, fp	1.00	
Flow rate, vp	1333	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1333	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	69.8	mi/h
Number of lanes, N	2	
Density, D	19.1	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/08/2017
Analysis Time Period:	PM Peak
Freeway/Direction:	I-26 NB
From/To:	WB02 Segment Exit 82-85
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	2019	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	549	v
Trucks and buses	13	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.837	
Driver population factor, fp	1.00	
Flow rate, vp	1311	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1311	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	69.9	mi/h
Number of lanes, N	2	
Density, D	18.8	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

Appendix B

HCS Freeway Segment Analysis Outputs NO_BUILD AM

HCS 2010: Basic Freeway Segments Release 6.90

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Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/09/2017
Analysis Time Period:	AM Peak
Freeway/Direction:	I-26 SB
From/To:	EB02 Segment Exit 82-85
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	2158	veh/h
Peak-hour factor, PHF	0.88	
Peak 15-min volume, v15	613	v
Trucks and buses	16	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.806	
Driver population factor, fp	1.00	
Flow rate, vp	1520	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1520	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	68.8	mi/h
Number of lanes, N	2	
Density, D	22.1	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/09/2017
Analysis Time Period:	AM Peak
Freeway/Direction:	I-26 SB
From/To:	EB03 Segment Exit 85-91
Jurisdiction:	Newberry/Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	2475	veh/h
Peak-hour factor, PHF	0.88	
Peak 15-min volume, v15	703	v
Trucks and buses	16	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.806	
Driver population factor, fp	1.00	
Flow rate, vp	1744	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1744	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	66.6	mi/h
Number of lanes, N	2	
Density, D	26.2	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/09/2017
Analysis Time Period:	AM Peak
Freeway/Direction:	I-26 NB
From/To:	WB03 Segment Exit 85-91
Jurisdiction:	Newberry/Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	1345	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	374	v
Trucks and buses	23	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.743	
Driver population factor, fp	1.00	
Flow rate, vp	1005	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1005	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	70.0	mi/h
Number of lanes, N	2	
Density, D	14.4	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

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Agency or Company:	STV Incorporated
Date Performed:	03/09/2017
Analysis Time Period:	AM Peak
Freeway/Direction:	I-26 NB
From/To:	WB02 Segment Exit 82-85
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	1430	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	397	v
Trucks and buses	23	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.743	
Driver population factor, fp	1.00	
Flow rate, vp	1069	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1069	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	70.0	mi/h
Number of lanes, N	2	
Density, D	15.3	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Appendix B

HCS Freeway Segment Analysis Outputs NO_BUILD PM

HCS 2010: Basic Freeway Segments Release 6.90

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Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/09/2017
Analysis Time Period:	PM Peak
Freeway/Direction:	I-26 SB
From/To:	EB02 Segment Exit 82-85
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	2721	veh/h
Peak-hour factor, PHF	0.91	
Peak 15-min volume, v15	748	v
Trucks and buses	14	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.826	
Driver population factor, fp	1.00	
Flow rate, vp	1809	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1809	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	65.7	mi/h
Number of lanes, N	2	
Density, D	27.5	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/09/2017
Analysis Time Period:	PM Peak
Freeway/Direction:	I-26 SB
From/To:	EB03 Segment Exit 85-91
Jurisdiction:	Newberry/Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	2668	veh/h
Peak-hour factor, PHF	0.91	
Peak 15-min volume, v15	733	v
Trucks and buses	14	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.826	
Driver population factor, fp	1.00	
Flow rate, vp	1774	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1774	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	66.2	mi/h
Number of lanes, N	2	
Density, D	26.8	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/09/2017
Analysis Time Period:	PM Peak
Freeway/Direction:	I-26 NB
From/To:	WB03 Segment Exit 85-91
Jurisdiction:	Newberry/Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	2801	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	761	v
Trucks and buses	13	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.837	
Driver population factor, fp	1.00	
Flow rate, vp	1819	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1819	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	65.6	mi/h
Number of lanes, N	2	
Density, D	27.7	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/09/2017
Analysis Time Period:	PM Peak
Freeway/Direction:	I-26 NB
From/To:	WB02 Segment Exit 82-85
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	2740	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	745	v
Trucks and buses	13	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.837	
Driver population factor, fp	1.00	
Flow rate, vp	1780	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1780	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	66.1	mi/h
Number of lanes, N	2	
Density, D	26.9	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

Appendix B

HCS Freeway Segment Analysis Outputs 2040_BUILD AM

HCS 2010: Basic Freeway Segments Release 6.90

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Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/09/2017
Analysis Time Period:	AM Peak
Freeway/Direction:	I-26 SB
From/To:	EB03 Segment Exit 85-91
Jurisdiction:	Newberry/Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	2475	veh/h
Peak-hour factor, PHF	0.88	
Peak 15-min volume, v15	703	v
Trucks and buses	16	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.806	
Driver population factor, fp	1.00	
Flow rate, vp	1162	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1162	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	70.0	mi/h
Number of lanes, N	3	
Density, D	16.6	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/09/2017
Analysis Time Period:	AM Peak
Freeway/Direction:	I-26 NB
From/To:	WB03 Segment Exit 85-91
Jurisdiction:	Newberry/Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	1345	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	374	v
Trucks and buses	23	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.743	
Driver population factor, fp	1.00	
Flow rate, vp	670	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	670	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	70.0	mi/h
Number of lanes, N	3	
Density, D	9.6	pc/mi/ln
Level of service, LOS	A	

Overall results are not computed when free-flow speed is less than 55 mph.

Appendix B

HCS Freeway Segment Analysis Outputs 2040_BUILD PM

HCS 2010: Basic Freeway Segments Release 6.90

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Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/09/2017
Analysis Time Period:	PM Peak
Freeway/Direction:	I-26 SB
From/To:	EB03 Segment Exit 85-91
Jurisdiction:	Newberry/Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	2668	veh/h
Peak-hour factor, PHF	0.91	
Peak 15-min volume, v15	733	v
Trucks and buses	14	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.826	
Driver population factor, fp	1.00	
Flow rate, vp	1183	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1183	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	70.0	mi/h
Number of lanes, N	3	
Density, D	16.9	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.90

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STV
140 Stoneridge Drive, Suite 450
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Operational Analysis

Analyst:	RJD
Agency or Company:	STV Incorporated
Date Performed:	03/09/2017
Analysis Time Period:	PM Peak
Freeway/Direction:	I-26 NB
From/To:	WB03 Segment Exit 85-91
Jurisdiction:	Newberry/Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Flow Inputs and Adjustments

Volume, V	2801	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	761	v
Trucks and buses	13	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.837	
Driver population factor, fp	1.00	
Flow rate, vp	1213	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1213	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	70.0	mi/h
Number of lanes, N	3	
Density, D	17.3	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

Appendix C

HCS Ramp Merge/Diverge Analysis Outputs

Appendix C

HCS Ramp Diverge Analysis Outputs
Existing I-26 Eastbound Off-Ramps

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2158	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	99	vph
Length of first accel/decel lane	210	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	283	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2158		99		283		vph
Peak-hour factor, PHF	0.88		0.83		0.96		
Peak 15-min volume, v15	613		30		74		v
Trucks and buses	16		22		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.752		0.893		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3041 159 330 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 2560.94 (Equation 13-12 or 13-13)

P_{FD} = 0.677 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2109 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3041	7200	No
$v_{FO} = v_F - v_R$	2882	7200	No
v_R	159	2100	No
v_3 or v_{av34}	932 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2109 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2109	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 20.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.377

Space mean speed in ramp influence area, S_R = 59.4 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 63.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2158	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	99	vph
Length of first accel/decel lane	210	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	416	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3275	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2158		99		416		vph
Peak-hour factor, PHF	0.88		0.83		0.86		
Peak 15-min volume, v15	613		30		121		v
Trucks and buses	16		22		7		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.752		0.905		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3041 159 535 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.677 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2109 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3041	7200	No
$v_{FO} = v_F - v_R$	2882	7200	No
v_R	159	2100	No
v_3 or v_{av34}	932 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2109 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2109	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 20.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.377

Space mean speed in ramp influence area, S_R = 59.4 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 63.9 mph

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2345	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	223	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	416	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2345		223		416		vph
Peak-hour factor, PHF	0.88		0.87		0.86		
Peak 15-min volume, v15	666		64		121		v
Trucks and buses	16		15		7		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.816		0.905		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3304 314 535 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 4345.07 (Equation 13-12 or 13-13)

P_{FD} = 0.663 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2296 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3304	7200	No
$v_{FO} = v_F - v_R$	2990	7200	No
v_R	314	2100	No
v_3 or v_{av34}	1008 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2296 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2296	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 22.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.391

Space mean speed in ramp influence area, S_R = 59.0 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 63.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2345	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	223	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	416	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2345		223		416		vph
Peak-hour factor, PHF	0.88		0.87		0.86		
Peak 15-min volume, v15	666		64		121		v
Trucks and buses	16		15		7		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.816		0.905		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3304 314 535 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 4345.07 (Equation 13-12 or 13-13)

P_{FD} = 0.663 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2296 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3304	7200	No
$v_{FO} = v_F - v_R$	2990	7200	No
v_R	314	2100	No
v_3 or v_{av34}	1008 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2296 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2296	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 22.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.391

Space mean speed in ramp influence area, S_R = 59.0 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 63.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3669	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	222	vph
Length of first accel/decel lane	1265	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1417	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3669		222		1417		vph
Peak-hour factor, PHF	0.88		0.72		0.82		
Peak 15-min volume, v15	1042		77		432		v
Trucks and buses	16		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.930		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5170 331 1832 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 11119.61 Equation 13-12 or 13-13)

P_{FD} = 0.626 Using Equation 6

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3360 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5170	7200	No
$v_{FO} = v_F - v_R$	4839	7200	No
v_R	331	2000	No
v_3 or v_{av34}	1810 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3360 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3360	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 21.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.458

Space mean speed in ramp influence area, S_R = 57.2 mph

Space mean speed in outer lanes, S_O = 73.6 mph

Space mean speed for all vehicles, S = 62.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3669	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	222	vph
Length of first accel/decel lane	1265	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2340	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3669		222		2340		vph
Peak-hour factor, PHF	0.88		0.72		0.88		
Peak 15-min volume, v15	1042		77		665		v
Trucks and buses	16		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.930		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5170 331 2819 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.616 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3310 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5170	7200	No
$v_{FO} = v_F - v_R$	4839	7200	No
v_R	331	2000	No
v_3 or v_{av34}	1860 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3310 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3310	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 21.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.458

Space mean speed in ramp influence area, S_R = 57.2 mph

Space mean speed in outer lanes, S_O = 73.4 mph

Space mean speed for all vehicles, S = 62.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3598	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	127	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1455	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3598	127	1455	vph
Peak-hour factor, PHF	0.88	0.46	0.88	
Peak 15-min volume, v15	1022	69	413	v
Trucks and buses	16	3	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.957	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5070	289	1753	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 10582.81 Equation 13-12 or 13-13)

P_{FD} = 0.625 Using Equation 6

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3278 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5070	6900	No
$v_{FO} = v_F - v_R$	4781	6900	No
v_R	289	1900	No

v_{R3} or v_{av34} 1792 pc/h (Equation 13-14 or 13-17)

Is v_{R3} or v_{av34} > 2700 pc/h? No

Is v_{R3} or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3278 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3278	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 30.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.584

Space mean speed in ramp influence area, S_R = 49.5 mph

Space mean speed in outer lanes, S_0 = 62.7 mph

Space mean speed for all vehicles, S = 53.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3598	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	127	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	203	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	2240	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3598	127	203	vph
Peak-hour factor, PHF	0.88	0.46	0.60	
Peak 15-min volume, v15	1022	69	85	v
Trucks and buses	16	3	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.957	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5070	289	364	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 413.37 (Equation 13-12 or 13-13)

P_{FD} = 0.620 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3253 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5070	6900	No
$v_{FO} = v_F - v_R$	4781	6900	No
v_R	289	1900	No

v_R or v_{av34} 1817 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3253 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3253	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 30.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.584

Space mean speed in ramp influence area, S_R = 49.5 mph

Space mean speed in outer lanes, S_0 = 62.6 mph

Space mean speed for all vehicles, S = 53.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3471	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	203	vph
Length of first accel/decel lane	915	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	127	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	2240	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3471	203	127	vph
Peak-hour factor, PHF	0.88	0.60	0.46	
Peak 15-min volume, v15	986	85	69	v
Trucks and buses	16	5	3	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.930	0.957	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4891	364	289	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.621 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3175 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4891	6900	No
$v_{FO} = v_F - v_R$	4527	6900	No
v_R	364	1900	No

v_{R3} or v_{av34} 1716 pc/h (Equation 13-14 or 13-17)

Is v_{R3} or v_{av34} > 2700 pc/h? No

Is v_{R3} or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3175 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3175	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 23.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.591

Space mean speed in ramp influence area, S_R = 49.4 mph

Space mean speed in outer lanes, S_0 = 63.0 mph

Space mean speed for all vehicles, S = 53.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3471	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	203	vph
Length of first accel/decel lane	915	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1361	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	930	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3471	203	1361	vph
Peak-hour factor, PHF	0.88	0.60	0.83	
Peak 15-min volume, v15	986	85	410	v
Trucks and buses	16	5	6	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.930	0.917	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4891	364	1787	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.621 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3175 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4891	6900	No
$v_{FO} = v_F - v_R$	4527	6900	No
v_R	364	1900	No

v_{R} or v_{av34} = 1716 pc/h (Equation 13-14 or 13-17)

Is v_{3} or v_{av34} > 2700 pc/h? No

Is v_{3} or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3175 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3175	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 23.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.591

Space mean speed in ramp influence area, S_R = 49.4 mph

Space mean speed in outer lanes, S_0 = 63.0 mph

Space mean speed for all vehicles, S = 53.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2721	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	134	vph
Length of first accel/decel lane	210	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	221	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2721		134		221		vph
Peak-hour factor, PHF	0.91		0.79		0.85		
Peak 15-min volume, v15	748		42		65		v
Trucks and buses	14		8		18		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.893		0.787		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3618 190 330 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 2360.95 (Equation 13-12 or 13-13)

P_{FD} = 0.661 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2455 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3618	7200	No
$v_{FO} = v_F - v_R$	3428	7200	No
v_R	190	2100	No
v_3 or v_{av34}	1163 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2455 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2455	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 23.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.380

Space mean speed in ramp influence area, S_R = 59.4 mph

Space mean speed in outer lanes, S_O = 76.2 mph

Space mean speed for all vehicles, S = 63.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2721	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	134	vph
Length of first accel/decel lane	210	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	81	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3275	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2721		134		81		vph
Peak-hour factor, PHF	0.91		0.79		0.66		
Peak 15-min volume, v15	748		42		31		v
Trucks and buses	14		8		10		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.893		0.870		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3618 190 141 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.661 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2455 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3618	7200	No
$v_{FO} = v_F - v_R$	3428	7200	No
v_R	190	2100	No
v_3 or v_{av34}	1163 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2455 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2455	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 23.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.380

Space mean speed in ramp influence area, S_R = 59.4 mph

Space mean speed in outer lanes, S_O = 76.2 mph

Space mean speed for all vehicles, S = 63.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3200	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	230	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	81	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3200		230		81		vph
Peak-hour factor, PHF	0.91		0.85		0.66		
Peak 15-min volume, v15	879		68		31		v
Trucks and buses	14		16		10		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.806		0.870		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4255 336 141 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 983.75 (Equation 13-12 or 13-13)

P_{FD} = 0.638 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2837 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4255	7200	No
$v_{FO} = v_F - v_R$	3919	7200	No
v_R	336	2100	No
v_3 or v_{av34}	1418 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2837 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2837	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 26.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.393

Space mean speed in ramp influence area, S_R = 59.0 mph

Space mean speed in outer lanes, S_O = 75.2 mph

Space mean speed for all vehicles, S = 63.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3200	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	230	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1362	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2830	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3200		230		1362		vph
Peak-hour factor, PHF	0.91		0.85		0.77		
Peak 15-min volume, v15	879		68		442		v
Trucks and buses	14		16		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.806		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4255 336 1901 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.638 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2837 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4255	7200	No
$v_{FO} = v_F - v_R$	3919	7200	No
v_R	336	2100	No
v_3 or v_{av34}	1418 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2837 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2837	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 26.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.393

Space mean speed in ramp influence area, S_R = 59.0 mph

Space mean speed in outer lanes, S_O = 75.2 mph

Space mean speed for all vehicles, S = 63.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3800	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	761	vph
Length of first accel/decel lane	1265	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1362	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3800		761		1362		vph
Peak-hour factor, PHF	0.91		0.83		0.77		
Peak 15-min volume, v15	1044		229		442		v
Trucks and buses	14		15		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.816		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5053 1123 1901 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 18660.85 Equation 13-12 or 13-13)

P_{FD} = 0.635 Using Equation 6

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3618 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5053	7200	No
$v_{FO} = v_F - v_R$	3930	7200	No
v_R	1123	2000	No
v_3 or v_{av34}	1435 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3618 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3618	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 24.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.529

Space mean speed in ramp influence area, S_R = 55.2 mph

Space mean speed in outer lanes, S_O = 75.1 mph

Space mean speed for all vehicles, S = 59.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3800	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	761	vph
Length of first accel/decel lane	1265	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1158	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3800		761		1158		vph
Peak-hour factor, PHF	0.91		0.83		0.94		
Peak 15-min volume, v15	1044		229		308		v
Trucks and buses	14		15		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.816		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5053 1123 1324 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.582 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3410 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5053	7200	No
$v_{FO} = v_F - v_R$	3930	7200	No
v_R	1123	2000	No
v_3 or v_{av34}	1643 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3410 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3410	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 22.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.529

Space mean speed in ramp influence area, S_R = 55.2 mph

Space mean speed in outer lanes, S_O = 74.3 mph

Space mean speed for all vehicles, S = 60.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2609	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	105	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	720	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2609	105	720	vph
Peak-hour factor, PHF	0.91	0.94	0.94	
Peak 15-min volume, v15	717	28	191	v
Trucks and buses	14	3	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.957	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3469	117	823	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 5800.06 (Equation 13-12 or 13-13)

P_{FD} = 0.668 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2356 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3469	6900	No
$v_{FO} = v_F - v_R$	3352	6900	No
v_R	117	1900	No

v_R or v_{av34} 1113 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2356 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2356	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 22.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.569

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_0 = 65.4 mph

Space mean speed for all vehicles, S = 53.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2609	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	105	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	55	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	2240	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2609	105	55	vph
Peak-hour factor, PHF	0.91	0.94	0.86	
Peak 15-min volume, v15	717	28	16	v
Trucks and buses	14	3	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.957	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3469	117	68	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 68.31 (Equation 13-12 or 13-13)

P_{FD} = 0.668 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2356 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3469	6900	No
$v_{FO} = v_F - v_R$	3352	6900	No
v_R	117	1900	No

v_R or v_{av34} 1113 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2356 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2356	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 22.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.569

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_0 = 65.4 mph

Space mean speed for all vehicles, S = 53.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2504	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	55	vph
Length of first accel/decel lane	915	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	105	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	2240	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2504	55	105	vph
Peak-hour factor, PHF	0.91	0.86	0.94	
Peak 15-min volume, v15	688	16	28	v
Trucks and buses	14	4	3	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.943	0.957	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3329	68	117	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.674 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2265 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3329	6900	No
$v_{FO} = v_F - v_R$	3261	6900	No
v_R	68	1900	No

v_R or v_{av34} 1064 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2265 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2265	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 15.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.564

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_0 = 65.6 mph

Space mean speed for all vehicles, S = 54.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2504	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	55	vph
Length of first accel/decel lane	915	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	856	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	930	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2504	55	856	vph
Peak-hour factor, PHF	0.91	0.86	0.95	
Peak 15-min volume, v15	688	16	225	v
Trucks and buses	14	4	6	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.943	0.917	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3329	68	982	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.674 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2265 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3329	6900	No
$v_{FO} = v_F - v_R$	3261	6900	No
v_R	68	1900	No

v_R or v_{av34} 1064 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2265 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2265	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 15.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.564

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_0 = 65.6 mph

Space mean speed for all vehicles, S = 54.0 mph

Appendix C

HCS Ramp Merge Analysis Outputs
Existing I-26 Eastbound On-Ramps

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1127	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	156	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	64	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2265	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1127	156	64	vph
Peak-hour factor, PHF	0.88	0.96	0.80	
Peak 15-min volume, v15	320	41	20	v
Trucks and buses	16	8	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.893	0.837	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1588	182	96	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1588 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1770	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is v_{3av34} or v_{3av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1588 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1770	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 10.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.248

Space mean speed in ramp influence area, S_R = 63.1 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 63.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1127	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	156	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	55	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1127	156	55	vph
Peak-hour factor, PHF	0.88	0.96	0.83	
Peak 15-min volume, v15	320	41	17	v
Trucks and buses	16	8	22	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.893	0.752	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1588	182	88	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_{12}(P_{FM})$ = 1588 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1770	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

```
      3     av34
Is   v  or v      > 1.5 v  /2            No
      3     av34         12
If yes, v    = 1588                   (Equation 13-15, 13-16, 13-18, or 13-19)
         12A

_______________________Flow Entering Merge Influence Area_____________________
                     Actual        Max Desirable         Violation?
     v               1770          4600                  No
      R12
_________________Level of Service Determination (if not F)____________________

Density, D = 5.475 + 0.00734 v  + 0.0078 v   - 0.00627 L   =   10.6    pc/mi/ln
          R                   R           12            A
Level of service for ramp-freeway junction areas of influence  B

_____________________________Speed Estimation_____________________________________

Intermediate speed variable,                 M  = 0.248
                                              S
Space mean speed in ramp influence area,     S  = 63.1    mph
                                              R
Space mean speed in outer lanes,             S  =  N/A    mph
                                              0
Space mean speed for all vehicles,           S  = 63.1    mph
_____________________________________________________________________________
```

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1228	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	230	vph
Length of first accel/decel lane	520	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	55	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1228	230	55	vph
Peak-hour factor, PHF	0.88	0.86	0.83	
Peak 15-min volume, v15	349	67	17	v
Trucks and buses	16	7	22	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.905	0.752	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1730	296	88	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1730 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2026	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is v_{3av34} or v_{3av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1730 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2026	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 17.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.314	
Space mean speed in ramp influence area,	S_R = 61.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 61.2	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1228	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	230	vph
Length of first accel/decel lane	520	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	78	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1228	230	78	vph
Peak-hour factor, PHF	0.88	0.86	0.87	
Peak 15-min volume, v15	349	67	22	v
Trucks and buses	16	7	15	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.905	0.816	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1730	296	110	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1730 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2026	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is v_{3av34} or v_{3av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1730 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2026	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 17.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.314	
Space mean speed in ramp influence area,	S_R = 61.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 61.2	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1380	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	901	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	78	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1725	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1380	901	78	vph
Peak-hour factor, PHF	0.88	0.82	0.87	
Peak 15-min volume, v15	392	275	22	v
Trucks and buses	16	4	15	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.943	0.816	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1945	1165	110	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1945 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3110	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is $v_{3,av34}$ or $v_{3,av34}$ > 1.5 v_{12} /2 — No

If yes, v_{12A} = 1945 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3110	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 19.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.303

Space mean speed in ramp influence area, S_R = 61.5 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 61.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1380	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	901	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	138	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1380	901	138	vph
Peak-hour factor, PHF	0.88	0.82	0.72	
Peak 15-min volume, v15	392	275	48	v
Trucks and buses	16	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1945	1165	206	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1945 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3110	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

```
      3     av34
Is   v  or v      > 1.5 v  /2            No
      3     av34         12
If yes, v    = 1945                   (Equation 13-15, 13-16, 13-18, or 13-19)
         12A

_______________________Flow Entering Merge Influence Area_____________________
                     Actual        Max Desirable         Violation?
     v               3110          4600                  No
      R12
_________________Level of Service Determination (if not F)____________________

Density, D = 5.475 + 0.00734 v  + 0.0078 v   - 0.00627 L   =   19.8    pc/mi/ln
          R                   R           12            A
Level of service for ramp-freeway junction areas of influence  B

_____________________________Speed Estimation_____________________________________

Intermediate speed variable,                 M  = 0.303
                                              S
Space mean speed in ramp influence area,     S  = 61.5    mph
                                              R
Space mean speed in outer lanes,             S  =  N/A    mph
                                              0
Space mean speed for all vehicles,           S  = 61.5    mph
_____________________________________________________________________________
```

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2143	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1455	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	138	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	905	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2143	1455	138	vph
Peak-hour factor, PHF	0.88	0.88	0.72	
Peak 15-min volume, v15	609	413	48	v
Trucks and buses	16	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3020	1753	206	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_{12}(P_{FM})$ = 3020 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4773	4800	No
v_{3} or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_{3} or v_{av34} > 2700 pc/h?		No	

Is v_{3} or v_{av34} > 1.5 v_{av34} /2 — No

If yes, v_{12A} = 3020 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4773	4600	Yes

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 32.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.677

Space mean speed in ramp influence area, S_R = 51.0 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 51.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2143	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1455	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	127	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2143	1455	127	vph
Peak-hour factor, PHF	0.88	0.88	0.46	
Peak 15-min volume, v15	609	413	69	v
Trucks and buses	16	4	3	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.943	0.957	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3020	1753	289	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_{12} (P_{FM})$ = 3020 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4773	4800	No
v_{3} or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_{3} or v_{av34} > 2700 pc/h?		No	

Is v_3 or v_{av34} > 1.5 v_{av34} /2 No

If yes, v_{12A} = 3020 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4773	4600	Yes

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 32.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.677

Space mean speed in ramp influence area, S_R = 51.0 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 51.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1896	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	122	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	88	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2265	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1896	122	88	vph
Peak-hour factor, PHF	0.91	0.85	0.74	
Peak 15-min volume, v15	521	36	30	v
Trucks and buses	14	18	18	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.787	0.787	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2521	182	151	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2521 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2703	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is v_{av34} or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2521 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2703	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 17.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.283	
Space mean speed in ramp influence area,	S_R = 62.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 62.1	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1896	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	122	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	74	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1896	122	74	vph
Peak-hour factor, PHF	0.91	0.85	0.79	
Peak 15-min volume, v15	521	36	23	v
Trucks and buses	14	18	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.787	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2521	182	105	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2521 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2703	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is v_{3av34} or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2521 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2703	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 17.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.283

Space mean speed in ramp influence area, S_R = 62.1 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 62.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1944	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	45	vph
Length of first accel/decel lane	520	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	74	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1944	45	74	vph
Peak-hour factor, PHF	0.91	0.66	0.79	
Peak 15-min volume, v15	534	17	23	v
Trucks and buses	14	10	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.870	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2585	78	105	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_{12}(P_{FM})$ = 2585 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		2663	4800	No
v_3 or v_{av34}		0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	

Is v_3 or v_{av34} > 1.5 v_{av34} /2 — No

If yes, v_{12A} = 2585 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2663	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 23.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.341	
Space mean speed in ramp influence area,	S_R = 60.5	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 60.5	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1944	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	45	vph
Length of first accel/decel lane	520	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	136	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1944	45	136	vph
Peak-hour factor, PHF	0.91	0.66	0.85	
Peak 15-min volume, v15	534	17	40	v
Trucks and buses	14	10	16	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.870	0.806	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2585	78	198	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2585 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2663	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is v_{3av34} or v_{12A} > 1.5 v_{3av34} /2 No

If yes, v_{12A} = 2585 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2663	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 23.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.341

Space mean speed in ramp influence area, S_R = 60.5 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 60.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1853	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	509	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	136	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1725	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1853	509	136	vph
Peak-hour factor, PHF	0.91	0.77	0.85	
Peak 15-min volume, v15	509	165	40	v
Trucks and buses	14	5	16	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.930	0.806	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2464	711	198	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2464 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3175	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

v_{av34}

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2464 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3175	4600	No

Level of Service Determination (if not F)

Density, D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 20.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.309

Space mean speed in ramp influence area, S_R = 61.3 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 61.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1853	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	509	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	473	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1853	509	473	vph
Peak-hour factor, PHF	0.91	0.77	0.83	
Peak 15-min volume, v15	509	165	142	v
Trucks and buses	14	5	15	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.930	0.816	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2464	711	698	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2464 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3175	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

v_{3av34}

Is v_{3av34} or v_{12} > 1.5 v_{12A} /2 No

If yes, v_{12A} = 2464 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3175	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 20.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.309	
Space mean speed in ramp influence area,	S_R = 61.3	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 61.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1889	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	720	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	473	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	905	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1889	720	473	vph
Peak-hour factor, PHF	0.91	0.94	0.83	
Peak 15-min volume, v15	519	191	142	v
Trucks and buses	14	5	15	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.930	0.816	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2512	823	698	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2512 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3335	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is v_{3} or v_{av34} > 1.5 v_{av34} /2 — No

If yes, v_{12A} = 2512 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3335	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 21.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.326	
Space mean speed in ramp influence area,	S_R = 60.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 60.9	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1889	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	720	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	105	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1889	720	105	vph
Peak-hour factor, PHF	0.91	0.94	0.94	
Peak 15-min volume, v15	519	191	28	v
Trucks and buses	14	5	3	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.930	0.957	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2512	823	117	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2512 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3335	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

v_{av34}
Is v_3 or v_{av34} > 1.5 v_{12} /2 No

v_{av34}
If yes, v_{12A} = 2512 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3335	4600	No

Level of Service Determination (if not F)

Density, D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 21.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.326

Space mean speed in ramp influence area, S_R = 60.9 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 60.9 mph

Appendix C

HCS Ramp Diverge Analysis Outputs
Existing I-26 Westbound Off-Ramps

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2006	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	343	vph
Length of first accel/decel lane	1035	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	238	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	1922	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2006	343	238	vph
Peak-hour factor, PHF	0.90	0.87	0.78	
Peak 15-min volume, v15	557	99	76	v
Trucks and buses	23	7	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.905	0.905	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2998	436	337	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.665 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2140 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2998	6900	No
$v_{FO} = v_F - v_R$	2562	6900	No
v_R	436	1900	No

v_R or v_{av34} = 858 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2140 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2140	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 13.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.597

Space mean speed in ramp influence area, S_R = 49.2 mph

Space mean speed in outer lanes, S_0 = 65.8 mph

Space mean speed for all vehicles, S = 53.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2006	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	343	vph
Length of first accel/decel lane	1035	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	137	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1080	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2006	343	137	vph
Peak-hour factor, PHF	0.90	0.87	0.93	
Peak 15-min volume, v15	557	99	37	v
Trucks and buses	23	7	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.905	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2998	436	156	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.665 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2140 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2998	6900	No
$v_{FO} = v_F - v_R$	2562	6900	No
v_R	436	1900	No

v_R or v_{av34} = 858 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2140 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2140	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 13.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.597

Space mean speed in ramp influence area, S_R = 49.2 mph

Space mean speed in outer lanes, S_0 = 65.8 mph

Space mean speed for all vehicles, S = 53.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2896	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	898	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	196	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2896		898		196		vph
Peak-hour factor, PHF	0.90		0.83		0.93		
Peak 15-min volume, v15	804		270		53		v
Trucks and buses	23		13		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.837		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4328 1293 223 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2616 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4328	9600	No
$v_{FO} = v_F - v_R$	3035	9600	No
v_R	1293	2000	No
v_3 or v_{av34}	856 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2616 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2616	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 13.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.544

Space mean speed in ramp influence area, S_R = 54.8 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 61.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2896	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	898	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	351	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3290	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2896		898		351		vph
Peak-hour factor, PHF	0.90		0.83		0.79		
Peak 15-min volume, v15	804		270		111		v
Trucks and buses	23		13		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.837		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4328 1293 478 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2616 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4328	9600	No
$v_{FO} = v_F - v_R$	3035	9600	No
v_R	1293	2000	No
v_3 or v_{av34}	856 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2616 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2616	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 13.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.544

Space mean speed in ramp influence area, S_R = 54.8 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 61.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2349	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	1188	vph
Length of first accel/decel lane	1065	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	351	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2349		1188		351		vph
Peak-hour factor, PHF	0.90		0.82		0.79		
Peak 15-min volume, v15	653		362		111		v
Trucks and buses	23		16		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.806		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3510 1796 478 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 31377.16 Equation 13-12 or 13-13)

P_{FD} = 0.609 Using Equation 6

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2840 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3510	7200	No
$v_{FO} = v_F - v_R$	1714	7200	No
v_R	1796	2100	No
v_3 or v_{av34}	670 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2840 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2840	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 19.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.525

Space mean speed in ramp influence area, S_R = 55.3 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 58.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2349	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	1188	vph
Length of first accel/decel lane	1065	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	184	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2350	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2349		1188		184		vph
Peak-hour factor, PHF	0.90		0.82		0.94		
Peak 15-min volume, v15	653		362		49		v
Trucks and buses	23		16		10		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.806		0.870		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3510 1796 225 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.590 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2807 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3510	7200	No
$v_{FO} = v_F - v_R$	1714	7200	No
v_R	1796	2100	No
v_3 or v_{av34}	703 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2807 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2807	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 18.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.525

Space mean speed in ramp influence area, S_R = 55.3 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 58.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1123	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	30.0	mph
Volume on ramp	29	vph
Length of first accel/decel lane	415	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	108	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1123	29	108	vph
Peak-hour factor, PHF	0.90	0.61	0.94	
Peak 15-min volume, v15	312	12	29	v
Trucks and buses	23	11	10	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.858	0.870	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1678	55	132	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1678 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1678	4800	No
$v_{FO} = v_F - v_R$	1623	4800	No
v_R	55	2000	No

v_R or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1678 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1678	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 14.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.498

Space mean speed in ramp influence area, S_R = 56.1 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 56.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1123	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	30.0	mph
Volume on ramp	29	vph
Length of first accel/decel lane	415	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	76	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	980	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1123	29	76	vph
Peak-hour factor, PHF	0.90	0.61	0.75	
Peak 15-min volume, v15	312	12	25	v
Trucks and buses	23	11	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.858	0.837	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1678	55	121	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1678 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1678	4800	No
$v_{FO} = v_F - v_R$	1623	4800	No
v_R	55	2000	No

v_R or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1678 (Equation 13-15, 13-16, 18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1678	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 14.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.498

Space mean speed in ramp influence area, S_R = 56.1 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 56.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1170	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	154	vph
Length of first accel/decel lane	840	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	76	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1170	154	76	vph
Peak-hour factor, PHF	0.90	0.93	0.75	
Peak 15-min volume, v15	325	41	25	v
Trucks and buses	23	25	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.727	0.837	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1748	228	121	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1748 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1748	4800	No
$v_{FO} = v_F - v_R$	1520	4800	No
v_R	228	2100	No

v_R
v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1748 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1748	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 11.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.384

Space mean speed in ramp influence area, S_R = 59.3 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 59.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1170	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	154	vph
Length of first accel/decel lane	840	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	113	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1170	154	113	vph
Peak-hour factor, PHF	0.90	0.93	0.83	
Peak 15-min volume, v15	325	41	34	v
Trucks and buses	23	25	37	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.727	0.643	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1748	228	212	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1748 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1748	4800	No
$v_{FO} = v_F - v_R$	1520	4800	No
v_R	228	2100	No

v_R or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1748 (Equation 13-15, 13-16, 18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1748	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 11.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.384

Space mean speed in ramp influence area, S_R = 59.3 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 59.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4460	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	970	vph
Length of first accel/decel lane	1035	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	556	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	1922	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4460	970	556	vph
Peak-hour factor, PHF	0.92	0.92	0.86	
Peak 15-min volume, v15	1212	264	162	v
Trucks and buses	13	6	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.917	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5793	1149	695	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.562 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3760 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5793	6900	No
$v_{FO} = v_F - v_R$	4644	6900	No
v_R	1149	1900	No

v_R or v_{av34} = 2033 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3760 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3760	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 27.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.661

Space mean speed in ramp influence area, S_R = 48.1 mph

Space mean speed in outer lanes, S_0 = 61.8 mph

Space mean speed for all vehicles, S = 52.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4460	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	970	vph
Length of first accel/decel lane	1035	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	256	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1080	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4460	970	256	vph
Peak-hour factor, PHF	0.92	0.92	0.89	
Peak 15-min volume, v15	1212	264	72	v
Trucks and buses	13	6	3	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.917	0.957	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5793	1149	301	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.562 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3760 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5793	6900	No
$v_{FO} = v_F - v_R$	4644	6900	No
v_R	1149	1900	No

v_R
v_3 or v_{av34} 2033 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3760 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3760	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 27.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.661

Space mean speed in ramp influence area, S_R = 48.1 mph

Space mean speed in outer lanes, S_0 = 61.8 mph

Space mean speed for all vehicles, S = 52.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	6026	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	2189	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane	500	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	366	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	6026		2189		366		vph
Peak-hour factor, PHF	0.92		0.86		0.89		
Peak 15-min volume, v15	1637		636		103		v
Trucks and buses	13		4		3		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.943		0.957		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 7827 2698 430 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.260 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4032 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7827	9600	No
$v_{FO} = v_F - v_R$	5129	9600	No
v_R	2698	4000	No
v_3 or v_{av34}	1897 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4032 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4032	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 7.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable, D_S = 0.671

Space mean speed in ramp influence area, S_R = 51.2 mph

Space mean speed in outer lanes, S_O = 73.3 mph

Space mean speed for all vehicles, S = 60.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	6026	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	2189	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane	500	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	273	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3290	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	6026		2189		273		vph
Peak-hour factor, PHF	0.92		0.86		0.93		
Peak 15-min volume, v15	1637		636		73		v
Trucks and buses	13		4		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.943		0.971		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 7827 2698 302 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.260 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4032 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7827	9600	No
$v_{FO} = v_F - v_R$	5129	9600	No
v_R	2698	4000	No
v_3 or v_{av34}	1897 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4032 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4032	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 7.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable, D_S = 0.671

Space mean speed in ramp influence area, S_R = 51.2 mph

Space mean speed in outer lanes, S_O = 73.3 mph

Space mean speed for all vehicles, S = 60.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4110	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	1576	vph
Length of first accel/decel lane	1065	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	273	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4110		1576		273		vph
Peak-hour factor, PHF	0.92		0.93		0.93		
Peak 15-min volume, v15	1117		424		73		v
Trucks and buses	13		13		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.837		0.971		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5339 2025 302 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 7569.49 (Equation 13-12 or 13-13)

P_{FD} = 0.533 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3793 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5339	7200	No
$v_{FO} = v_F - v_R$	3314	7200	No
v_R	2025	2100	No
v_3 or v_{av34}	1546 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	No	

If yes, v_{12A} = 3793 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3793	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 27.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.545

Space mean speed in ramp influence area, S_R = 54.7 mph

Space mean speed in outer lanes, S_O = 74.7 mph

Space mean speed for all vehicles, S = 59.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.50

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/21/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4110	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	1576	vph
Length of first accel/decel lane	1065	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	267	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2350	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4110		1576		267		vph
Peak-hour factor, PHF	0.92		0.93		0.69		
Peak 15-min volume, v15	1117		424		97		v
Trucks and buses	13		13		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.837		0.893		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5339 2025 433 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.533 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3793 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5339	7200	No
$v_{FO} = v_F - v_R$	3314	7200	No
v_R	2025	2100	No
v_3 or v_{av34}	1546 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3793 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3793	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 27.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.545

Space mean speed in ramp influence area, S_R = 54.7 mph

Space mean speed in outer lanes, S_O = 74.7 mph

Space mean speed for all vehicles, S = 59.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2053	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	30.0	mph
Volume on ramp	104	vph
Length of first accel/decel lane	415	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	88	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2053	104	88	vph
Peak-hour factor, PHF	0.92	0.90	0.69	
Peak 15-min volume, v15	558	29	32	v
Trucks and buses	13	10	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.870	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2667	133	143	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2667 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2667	4800	No
$v_{FO} = v_F - v_R$	2534	4800	No
v_R	133	2000	No

v_R
v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)
Is v_3 or v_{av34} > 2700 pc/h? No
Is v_3 or v_{av34} > 1.5 v_{12} /2 No
If yes, v_{12A} = 2667 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2667	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 23.5 pc/mi/ln
Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.505
Space mean speed in ramp influence area, S_R = 55.9 mph
Space mean speed in outer lanes, S_0 = N/A mph
Space mean speed for all vehicles, S = 55.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2053	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	30.0	mph
Volume on ramp	104	vph
Length of first accel/decel lane	415	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	70	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	980	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2053	104	70	vph
Peak-hour factor, PHF	0.92	0.90	0.79	
Peak 15-min volume, v15	558	29	22	v
Trucks and buses	13	10	10	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.870	0.870	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2667	133	102	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2667 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2667	4800	No
$v_{FO} = v_F - v_R$	2534	4800	No
v_R	133	2000	No

v_R
v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)
Is v_3 or v_{av34} > 2700 pc/h? No
Is v_3 or v_{av34} > 1.5 v_{12} /2 No
If yes, v_{12A} = 2667 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2667	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 23.5 pc/mi/ln
Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.505
Space mean speed in ramp influence area, S_R = 55.9 mph
Space mean speed in outer lanes, S_0 = N/A mph
Space mean speed for all vehicles, S = 55.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2019	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	175	vph
Length of first accel/decel lane	840	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	70	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2019	175	70	vph
Peak-hour factor, PHF	0.92	0.86	0.79	
Peak 15-min volume, v15	549	51	22	v
Trucks and buses	13	14	10	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.826	0.870	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2623	246	102	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2623 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2623	4800	No
$v_{FO} = v_F - v_R$	2377	4800	No
v_R	246	2100	No

v_R or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2623 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2623	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 19.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.385

Space mean speed in ramp influence area, S_R = 59.2 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 59.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2019	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	175	vph
Length of first accel/decel lane	840	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	70	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2019	175	70	vph
Peak-hour factor, PHF	0.92	0.86	0.80	
Peak 15-min volume, v15	549	51	22	v
Trucks and buses	13	14	23	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.826	0.743	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2623	246	118	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2623 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2623	4800	No
$v_{FO} = v_F - v_R$	2377	4800	No
v	246	2100	No

v_R
v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2623 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2623	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 19.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.385

Space mean speed in ramp influence area, S_R = 59.2 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 59.2 mph

Appendix C

HCS Ramp Merge Analysis Outputs
Existing I-26 Westbound On-Ramps

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	1663	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	137	vph
Length of first accel/decel lane	1135	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	343	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1080	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1663	137	343	vph
Peak-hour factor, PHF	0.90	0.93	0.87	
Peak 15-min volume, v15	462	37	99	v
Trucks and buses	23	4	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.943	0.905	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2485	156	436	pcph

Estimation of V12 Merge Areas

L_{EQ} = 497.31 (Equation 13-6 or 13-7)

P_{FM} = 0.609 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1514 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2641	6900	No
v_3 or v_{av34}	971 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

v_{av34}
Is v_3 or v_{av34} > 1.5 v_{12} /2 No
v_{av34}
If yes, v_{12A} = 1514 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2641	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 11.3 pc/mi/ln
Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.262
Space mean speed in ramp influence area, S_R = 55.3 mph
Space mean speed in outer lanes, S_0 = 58.3 mph
Space mean speed for all vehicles, S = 56.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	1663	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	137	vph
Length of first accel/decel lane	1135	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	558	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1663	137	558	vph
Peak-hour factor, PHF	0.90	0.93	0.83	
Peak 15-min volume, v15	462	37	168	v
Trucks and buses	23	4	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.943	0.837	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2485	156	803	pcph

Estimation of V12 Merge Areas

L_{EQ} = 3475.51 (Equation 13-6 or 13-7)

P_{FM} = 0.609 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1514 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2641	6900	No
v_3 or v_{av34}	971 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

v_{3av34} Is v_{3av34} or v_{12} > 1.5 v_{12A} /2 No

If yes, v_{3av34} = 1514 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2641	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 11.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.262

Space mean speed in ramp influence area, S_R = 55.3 mph

Space mean speed in outer lanes, S_0 = 58.3 mph

Space mean speed for all vehicles, S = 56.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB Loop
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1242	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	218	vph
Length of first accel/decel lane	1440	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	558	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	710	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1242	218	558	vph
Peak-hour factor, PHF	0.90	0.79	0.83	
Peak 15-min volume, v15	345	69	168	v
Trucks and buses	23	5	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.930	0.837	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1856	297	803	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1856 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2153	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is $v_{3,av34}$ or $v_{3,av34}$ > 1.5 v_{12} /2 — No

If yes, v_{12A} = 1856 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2153	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 13.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.254

Space mean speed in ramp influence area, S_R = 62.9 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 62.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1242	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	218	vph
Length of first accel/decel lane	1440	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	445	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1242	218	445	vph
Peak-hour factor, PHF	0.90	0.79	0.82	
Peak 15-min volume, v15	345	69	136	v
Trucks and buses	23	5	16	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.930	0.806	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1856	297	673	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1856 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2153	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is $v_{3,av34}$ or $v_{3,av34}$ > 1.5 v_{12} /2 — No

If yes, v_{12A} = 1856 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2153	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 13.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.254	
Space mean speed in ramp influence area,	S_R = 62.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 62.9	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1015	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	108	vph
Length of first accel/decel lane	1195	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	445	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1465	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1015	108	445	vph
Peak-hour factor, PHF	0.90	0.94	0.82	
Peak 15-min volume, v15	282	29	136	v
Trucks and buses	23	10	16	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.870	0.806	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1517	132	673	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1517 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1649	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

v_{av34}
Is v_3 or v_{av34} > 1.5 v_{12} /2 No
v_{av34}
If yes, v_{12A} = 1517 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1649	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 10.8 pc/mi/ln
Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.258
Space mean speed in ramp influence area, S_R = 62.8 mph
Space mean speed in outer lanes, S_0 = N/A mph
Space mean speed for all vehicles, S = 62.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1015	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	108	vph
Length of first accel/decel lane	1195	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	29	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1015	108	29	vph
Peak-hour factor, PHF	0.90	0.94	0.61	
Peak 15-min volume, v15	282	29	12	v
Trucks and buses	23	10	11	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.870	0.858	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1517	132	55	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1517 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1649	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is v_{3av34} or v_{3av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1517 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1649	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 10.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.258	
Space mean speed in ramp influence area,	S_R = 62.8	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 62.8	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1094	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	76	vph
Length of first accel/decel lane	555	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	29	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	980	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1094	76	29	vph
Peak-hour factor, PHF	0.90	0.75	0.61	
Peak 15-min volume, v15	304	25	12	v
Trucks and buses	23	13	11	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.837	0.858	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1635	121	55	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1635 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1756	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is v_{3av34} or v_{3av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1635 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1756	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 15.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.305

Space mean speed in ramp influence area, S_R = 61.5 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 61.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1094	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	76	vph
Length of first accel/decel lane	555	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	154	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1094	76	154	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	291	20	41	v
Trucks and buses	23	13	25	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.837	0.727	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1565	97	225	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_{12}(P_{FM})$ = 1565 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1662	4800	No
v_{3} or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_{3} or v_{av34} > 2700 pc/h?		No	

Is v_{3av34} or v_{3av34} > 1.5 v_{12} /2 — No

If yes, v_{12A} = 1565 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1662	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 14.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.303

Space mean speed in ramp influence area, S_R = 61.5 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 61.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3490	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	256	vph
Length of first accel/decel lane	1135	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	970	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1080	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3490	256	970	vph
Peak-hour factor, PHF	0.92	0.89	0.92	
Peak 15-min volume, v15	948	72	264	v
Trucks and buses	13	3	6	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.957	0.917	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4533	301	1149	pcph

Estimation of V12 Merge Areas

L_{EQ} = 966.62 (Equation 13-6 or 13-7)

P_{FM} = 0.609 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2762 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4834	6900	No
v_3 or v_{av34}	1771 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

v_{av34}

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2762 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4834	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 22.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.325

Space mean speed in ramp influence area, S_R = 54.2 mph

Space mean speed in outer lanes, S_0 = 55.4 mph

Space mean speed for all vehicles, S = 54.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3490	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	256	vph
Length of first accel/decel lane	1135	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1361	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3490	256	1361	vph
Peak-hour factor, PHF	0.92	0.89	0.86	
Peak 15-min volume, v15	948	72	396	v
Trucks and buses	13	3	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.957	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4533	301	1678	pcph

Estimation of V12 Merge Areas

L_{EQ} = 7262.65 (Equation 13-6 or 13-7)

P_{FM} = 0.609 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2762 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4834	6900	No
v_3 or v_{av34}	1771 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

v_{3av34}

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2762 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4834	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 22.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.325

Space mean speed in ramp influence area, S_R = 54.2 mph

Space mean speed in outer lanes, S_0 = 55.4 mph

Space mean speed for all vehicles, S = 54.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2385	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	170	vph
Length of first accel/decel lane	1440	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1361	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	710	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2385	170	1361	vph
Peak-hour factor, PHF	0.92	0.93	0.86	
Peak 15-min volume, v15	648	46	396	v
Trucks and buses	13	2	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.971	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3098	188	1678	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3098 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3286	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is v_{3} or v_{av34} > 1.5 v_{12} /2 — No

If yes, v_{12A} = 3098 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3286	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_{A} =$ 22.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.324	
Space mean speed in ramp influence area,	S_R = 60.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 60.9	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2385	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	170	vph
Length of first accel/decel lane	1440	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	590	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2385	170	590	vph
Peak-hour factor, PHF	0.92	0.93	0.93	
Peak 15-min volume, v15	648	46	159	v
Trucks and buses	13	2	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.971	0.837	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3098	188	758	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3098 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3286	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is $v_{3,av34}$ or $v_{3,av34}$ > 1.5 v_{12} /2 — No

If yes, v_{12A} = 3098 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3286	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 22.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.324	
Space mean speed in ramp influence area,	S_R = 60.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 60.9	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1965	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	88	vph
Length of first accel/decel lane	1195	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	590	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1465	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1965	88	590	vph
Peak-hour factor, PHF	0.92	0.69	0.93	
Peak 15-min volume, v15	534	32	159	v
Trucks and buses	13	8	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.893	0.837	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2552	143	758	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2552 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2695	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is v_3 or v_{av34} > 1.5 v_{av34} /2 No

If yes, v_{12A} = 2552 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2695	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 18.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.295

Space mean speed in ramp influence area, S_R = 61.7 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 61.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1965	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	88	vph
Length of first accel/decel lane	1195	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	104	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1965	88	104	vph
Peak-hour factor, PHF	0.92	0.69	0.90	
Peak 15-min volume, v15	534	32	29	v
Trucks and buses	13	8	10	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.893	0.870	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2552	143	133	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2552 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2695	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is v_3 or v_{av34} > 1.5 v_{av34} /2 No

If yes, v_{12A} = 2552 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2695	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 18.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.295	
Space mean speed in ramp influence area,	S_R = 61.7	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 61.7	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1949	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	70	vph
Length of first accel/decel lane	555	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	104	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	980	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1949	70	104	vph
Peak-hour factor, PHF	0.92	0.79	0.90	
Peak 15-min volume, v15	530	22	29	v
Trucks and buses	13	10	10	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.870	0.870	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2532	102	133	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2532 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2634	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is v_{3} or v_{av34} > 1.5 v_{av34} /2 No

If yes, v_{12A} = 2532 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2634	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 22.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.336

Space mean speed in ramp influence area, S_R = 60.6 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 60.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/08/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2016
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1949	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	70	vph
Length of first accel/decel lane	555	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	175	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1949	70	175	vph
Peak-hour factor, PHF	0.92	0.79	0.86	
Peak 15-min volume, v15	530	22	51	v
Trucks and buses	13	10	14	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.870	0.826	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2532	102	246	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2532 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2634	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	

Is v_{3} or v_{av34} > 1.5 v_{av34} /2 No

If yes, v_{12A} = 2532 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2634	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 22.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.336	
Space mean speed in ramp influence area,	S_R = 60.6	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 60.6	mph

Appendix C

HCS Ramp Diverge Analysis Outputs
2040 No-Build I-26 Eastbound Off-Ramps

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1861	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	116	vph
Length of first accel/decel lane	875	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	283	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2265	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1861		116		283		vph
Peak-hour factor, PHF	0.88		0.80		0.96		
Peak 15-min volume, v15	529		36		74		v
Trucks and buses	16		13		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.837		0.893		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 2622 173 330 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2622 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2622	4800	No
$v_{FO} = v_F - v_R$	2449	4800	No
v_R	173	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2622 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2622	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 18.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.379	
Space mean speed in ramp influence area,	S_R = 59.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 59.4	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1861	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	116	vph
Length of first accel/decel lane	875	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	1861		116			vph
Peak-hour factor, PHF	0.88		0.80			
Peak 15-min volume, v15	529		36			v
Trucks and buses	16		13			%
Recreational vehicles	0		0			%
Terrain type:	Rolling		Rolling			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	2.5		2.5			
Recreational vehicle PCE, ER	2.0		2.0			
Heavy vehicle adjustment, fHV	0.806		0.837			
Driver population factor, fP	1.00		1.00			

Flow rate, vp 2622 173 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2622 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2622	4800	No
$v_{FO} = v_F - v_R$	2449	4800	No
v_R	173	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2622 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2622	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 18.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.379	
Space mean speed in ramp influence area,	S_R = 59.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 59.4	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2158	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	99	vph
Length of first accel/decel lane	405	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	416	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2158		99		416		vph
Peak-hour factor, PHF	0.88		0.83		0.86		
Peak 15-min volume, v15	613		30		121		v
Trucks and buses	16		22		7		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.752		0.905		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3041 159 535 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3041 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3041	4800	No
$v_{FO} = v_F - v_R$	2882	4800	No
v_R	159	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3041 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3041	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D$ = 26.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.377

Space mean speed in ramp influence area, S_R = 59.4 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 59.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2158	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	99	vph
Length of first accel/decel lane	405	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	283	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2158		99		283		vph
Peak-hour factor, PHF	0.88		0.83		0.96		
Peak 15-min volume, v15	613		30		74		v
Trucks and buses	16		22		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.752		0.893		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3041 159 330 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3041 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3041	4800	No
$v_{FO} = v_F - v_R$	2882	4800	No
v_R	159	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3041 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3041	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 26.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.377

Space mean speed in ramp influence area, S_R = 59.4 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 59.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2345	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	223	vph
Length of first accel/decel lane	995	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1417	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1725	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2345		223		1417		vph
Peak-hour factor, PHF	0.88		0.87		0.82		
Peak 15-min volume, v15	666		64		432		v
Trucks and buses	16		15		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.816		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3304 314 1832 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3304 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3304	4800	No
$v_{FO} = v_F - v_R$	2990	4800	No
v_R	314	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3304 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3304	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 23.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.391

Space mean speed in ramp influence area, S_R = 59.0 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 59.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2345	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	223	vph
Length of first accel/decel lane	995	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	416	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2345		223		416		vph
Peak-hour factor, PHF	0.88		0.87		0.86		
Peak 15-min volume, v15	666		64		121		v
Trucks and buses	16		15		7		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.816		0.905		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3304 314 535 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3304 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3304	4800	No
$v_{FO} = v_F - v_R$	2990	4800	No
v_R	314	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3304 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3304	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 23.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.391

Space mean speed in ramp influence area, S_R = 59.0 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 59.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3669	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	222	vph
Length of first accel/decel lane	970	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2340	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	905	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3669		222		2340		vph
Peak-hour factor, PHF	0.88		0.72		0.88		
Peak 15-min volume, v15	1042		77		665		v
Trucks and buses	16		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.930		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5170 331 2819 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 5170 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5170	4800	Yes
$v_{FO} = v_F - v_R$	4839	4800	Yes
v_R	331	2000	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 5170 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	5170	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 40.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.458

Space mean speed in ramp influence area, S_R = 57.2 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 57.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3669	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	222	vph
Length of first accel/decel lane	970	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1417	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3669		222		1417		vph
Peak-hour factor, PHF	0.88		0.72		0.82		
Peak 15-min volume, v15	1042		77		432		v
Trucks and buses	16		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.930		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5170 331 1832 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 5170 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5170	4800	Yes
$v_{FO} = v_F - v_R$	4839	4800	Yes
v_R	331	2000	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 5170 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	5170	4400	Yes

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D$ = 40.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.458

Space mean speed in ramp influence area, S_R = 57.2 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 57.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5788	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	182	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	291	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	2240	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5788		182		291		vph
Peak-hour factor, PHF	0.88		0.46		0.60		
Peak 15-min volume, v15	1644		99		121		v
Trucks and buses	16		3		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.957		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 8156 413 521 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 708.16 (Equation 13-12 or 13-13)

P_{FD} = 0.537 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4572 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	8156	6900	Yes
$v_{FO} = v_F - v_R$	7743	6900	Yes
v_R	413	1900	No
v_3 or v_{av34}	3584 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	Yes	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 5456 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	5456	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 49.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.595

Space mean speed in ramp influence area, S_R = 49.3 mph

Space mean speed in outer lanes, S_O = 59.2 mph

Space mean speed for all vehicles, S = 52.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5606	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	291	vph
Length of first accel/decel lane	915	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1946	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	930	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5606		291		1946		vph
Peak-hour factor, PHF	0.88		0.60		0.83		
Peak 15-min volume, v15	1593		121		586		v
Trucks and buses	16		5		6		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.930		0.917		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 7899 521 2556 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.539 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4494 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7899	6900	Yes
$v_{FO} = v_F - v_R$	7378	6900	Yes
v_R	521	1900	No
v_3 or v_{av34}	3405 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	Yes	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	No	

If yes, v_{12A} = 5199 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	5199	4400	Yes

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 40.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.605

Space mean speed in ramp influence area, S_R = 49.1 mph

Space mean speed in outer lanes, S_O = 59.2 mph

Space mean speed for all vehicles, S = 52.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5606	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	291	vph
Length of first accel/decel lane	915	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	182	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	2240	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5606		291		182		vph
Peak-hour factor, PHF	0.88		0.60		0.46		
Peak 15-min volume, v15	1593		121		99		v
Trucks and buses	16		5		3		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.930		0.957		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 7899 521 413 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.539 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4494 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7899	6900	Yes
$v_{FO} = v_F - v_R$	7378	6900	Yes
v_R	521	1900	No
v_3 or v_{av34}	3405 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? Yes

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 5199 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	5199	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 40.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.605

Space mean speed in ramp influence area, S_R = 49.1 mph

Space mean speed in outer lanes, S_O = 59.2 mph

Space mean speed for all vehicles, S = 52.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5788	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	182	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2340	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5788		182		2340		vph
Peak-hour factor, PHF	0.88		0.46		0.88		
Peak 15-min volume, v15	1644		99		665		v
Trucks and buses	16		3		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.957		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 8156 413 2819 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 12407.57 Equation 13-12 or 13-13)

P_{FD} = 0.537 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4572 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	8156	6900	Yes
$v_{FO} = v_F - v_R$	7743	6900	Yes
v_R	413	1900	No
v_3 or v_{av34}	3584 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? Yes

Is v_3 or v_{av34} > 1.5 v_{12}/2 Yes

If yes, v_{12A} = 5456 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	5456	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 49.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.595

Space mean speed in ramp influence area, S_R = 49.3 mph

Space mean speed in outer lanes, S_O = 59.2 mph

Space mean speed for all vehicles, S = 52.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2016
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3191	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	160	vph
Length of first accel/decel lane	875	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	221	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2265	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3191		160		221		vph
Peak-hour factor, PHF	0.91		0.74		0.85		
Peak 15-min volume, v15	877		54		65		v
Trucks and buses	14		18		18		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.787		0.787		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4243 275 330 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4243 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4243	4800	No
$v_{FO} = v_F - v_R$	3968	4800	No
v_R	275	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4243 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4243	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D$ = 32.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.388

Space mean speed in ramp influence area, S_R = 59.1 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 59.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3191	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	160	vph
Length of first accel/decel lane	875	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3191		160			vph
Peak-hour factor, PHF	0.91		0.74			
Peak 15-min volume, v15	877		54			v
Trucks and buses	14		18			%
Recreational vehicles	0		0			%
Terrain type:	Rolling		Rolling			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	2.5		2.5			
Recreational vehicle PCE, ER	2.0		2.0			
Heavy vehicle adjustment, fHV	0.826		0.787			
Driver population factor, fP	1.00		1.00			

Flow rate, vp 4243 275 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4243 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4243	4800	No
$v_{FO} = v_F - v_R$	3968	4800	No
v_R	275	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4243 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4243	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D$ = 32.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.388

Space mean speed in ramp influence area, S_R = 59.1 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 59.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2721	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	134	vph
Length of first accel/decel lane	405	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	81	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2721		134		81		vph
Peak-hour factor, PHF	0.91		0.79		0.66		
Peak 15-min volume, v15	748		42		31		v
Trucks and buses	14		8		10		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.893		0.870		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3618 190 141 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3618 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3618	4800	No
$v_{FO} = v_F - v_R$	3428	4800	No
v_R	190	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3618 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3618	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 31.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.380

Space mean speed in ramp influence area, S_R = 59.4 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 59.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2721	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	134	vph
Length of first accel/decel lane	405	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	221	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2721		134		221		vph
Peak-hour factor, PHF	0.91		0.79		0.85		
Peak 15-min volume, v15	748		42		65		v
Trucks and buses	14		8		18		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.893		0.787		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3618 190 330 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3618 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3618	4800	No
$v_{FO} = v_F - v_R$	3428	4800	No
v_R	190	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3618 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3618	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 31.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.380

Space mean speed in ramp influence area, S_R = 59.4 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 59.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3200	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	230	vph
Length of first accel/decel lane	995	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1362	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1725	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3200		230		1362		vph
Peak-hour factor, PHF	0.91		0.85		0.77		
Peak 15-min volume, v15	879		68		442		v
Trucks and buses	14		16		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.806		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4255 336 1901 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4255 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4255	4800	No
$v_{FO} = v_F - v_R$	3919	4800	No
v_R	336	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4255 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4255	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 31.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.393

Space mean speed in ramp influence area, S_R = 59.0 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 59.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3200	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	230	vph
Length of first accel/decel lane	995	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	81	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3200		230		81		vph
Peak-hour factor, PHF	0.91		0.85		0.66		
Peak 15-min volume, v15	879		68		31		v
Trucks and buses	14		16		10		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.806		0.870		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4255 336 141 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4255 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4255	4800	No
$v_{FO} = v_F - v_R$	3919	4800	No
v_R	336	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4255 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4255	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D$ = 31.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.393

Space mean speed in ramp influence area, S_R = 59.0 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 59.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3800	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	761	vph
Length of first accel/decel lane	970	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1158	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	905	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3800		761		1158		vph
Peak-hour factor, PHF	0.91		0.83		0.94		
Peak 15-min volume, v15	1044		229		308		v
Trucks and buses	14		15		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.816		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5053 1123 1324 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 5053 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5053	4800	Yes
$v_{FO} = v_F - v_R$	3930	4800	No
v_R	1123	2000	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 5053 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	5053	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 39.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.529

Space mean speed in ramp influence area, S_R = 55.2 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 55.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3800	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	761	vph
Length of first accel/decel lane	970	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1362	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3800		761		1362		vph
Peak-hour factor, PHF	0.91		0.83		0.77		
Peak 15-min volume, v15	1044		229		442		v
Trucks and buses	14		15		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.816		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5053 1123 1901 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 5053 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5053	4800	Yes
$v_{FO} = v_F - v_R$	3930	4800	No
v_R	1123	2000	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 5053 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	5053	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 39.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	D_S = 0.529	
Space mean speed in ramp influence area,	S_R = 55.2	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 55.2	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4198	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	151	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	79	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	2240	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4198		151		79		vph
Peak-hour factor, PHF	0.91		0.94		0.86		
Peak 15-min volume, v15	1153		40		23		v
Trucks and buses	14		3		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.957		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5582 168 97 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 106.74 (Equation 13-12 or 13-13)

P_{FD} = 0.613 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3485 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5582	6900	No
$v_{FO} = v_F - v_R$	5414	6900	No
v_R	168	1900	No
v_3 or v_{av34}	2097 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3485 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3485	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 32.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.573

Space mean speed in ramp influence area, S_R = 49.7 mph

Space mean speed in outer lanes, S_O = 61.5 mph

Space mean speed for all vehicles, S = 53.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4047	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	79	vph
Length of first accel/decel lane	915	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1224	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	930	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4047		79		1224		vph
Peak-hour factor, PHF	0.91		0.86		0.95		
Peak 15-min volume, v15	1112		23		322		v
Trucks and buses	14		4		6		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.943		0.917		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5381 97 1404 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.621 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3378 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5381	6900	No
$v_{FO} = v_F - v_R$	5284	6900	No
v_R	97	1900	No
v_3 or v_{av34}	2003 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3378 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3378	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D$ = 25.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.567

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_O = 61.9 mph

Space mean speed for all vehicles, S = 53.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4047	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	79	vph
Length of first accel/decel lane	915	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	151	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	2240	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4047		79		151		vph
Peak-hour factor, PHF	0.91		0.86		0.94		
Peak 15-min volume, v15	1112		23		40		v
Trucks and buses	14		4		3		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.943		0.957		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5381 97 168 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.621 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3378 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5381	6900	No
$v_{FO} = v_F - v_R$	5284	6900	No
v_R	97	1900	No
v_3 or v_{av34}	2003 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3378 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3378	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 25.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.567

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_O = 61.9 mph

Space mean speed for all vehicles, S = 53.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4198	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	151	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1158	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4198		151		1158		vph
Peak-hour factor, PHF	0.91		0.94		0.94		
Peak 15-min volume, v15	1153		40		308		v
Trucks and buses	14		3		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.957		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5582 168 1324 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 7094.71 (Equation 13-12 or 13-13)

P_{FD} = 0.613 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3485 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5582	6900	No
$v_{FO} = v_F - v_R$	5414	6900	No
v_R	168	1900	No
v_3 or v_{av34}	2097 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3485 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3485	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 32.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.573

Space mean speed in ramp influence area, S_R = 49.7 mph

Space mean speed in outer lanes, S_O = 61.5 mph

Space mean speed for all vehicles, S = 53.6 mph

Appendix C

HCS Ramp Diverge Analysis Outputs
2040 No-Build I-26 Westbound Off-Ramps

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1430	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	279	vph
Length of first accel/decel lane	840	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	205	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1430		279		205		vph
Peak-hour factor, PHF	0.90		0.93		0.83		
Peak 15-min volume, v15	397		75		62		v
Trucks and buses	23		25		37		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.727		0.643		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 2137 412 384 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2137 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2137	4800	No
$v_{FO} = v_F - v_R$	1725	4800	No
v_R	412	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2137 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2137	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 15.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.400

Space mean speed in ramp influence area, S_R = 58.8 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 58.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1430	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	279	vph
Length of first accel/decel lane	840	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	137	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1430		279		137		vph
Peak-hour factor, PHF	0.90		0.93		0.75		
Peak 15-min volume, v15	397		75		46		v
Trucks and buses	23		25		13		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.727		0.837		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 2137 412 218 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2137 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2137	4800	No
$v_{FO} = v_F - v_R$	1725	4800	No
v_R	412	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2137 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2137	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 15.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.400

Space mean speed in ramp influence area, S_R = 58.8 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 58.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1345	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	30.0	mph
Volume on ramp	52	vph
Length of first accel/decel lane	415	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	137	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	980	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1345		52		137		vph
Peak-hour factor, PHF	0.90		0.61		0.75		
Peak 15-min volume, v15	374		21		46		v
Trucks and buses	23		11		13		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.858		0.837		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 2010 99 218 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2010 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2010	4800	No
$v_{FO} = v_F - v_R$	1911	4800	No
v_R	99	2000	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2010 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2010	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D$ = 17.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.502

Space mean speed in ramp influence area, S_R = 55.9 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 55.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1345	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	30.0	mph
Volume on ramp	52	vph
Length of first accel/decel lane	415	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	184	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1345		52		184		vph
Peak-hour factor, PHF	0.90		0.61		0.94		
Peak 15-min volume, v15	374		21		49		v
Trucks and buses	23		11		10		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.858		0.870		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 2010 99 225 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2010 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2010	4800	No
$v_{FO} = v_F - v_R$	1911	4800	No
v_R	99	2000	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	

If yes, v_{12A} = 2010 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2010	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 17.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.502

Space mean speed in ramp influence area, S_R = 55.9 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 55.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2349	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	1188	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	184	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1465	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2349		1188		184		vph
Peak-hour factor, PHF	0.90		0.82		0.94		
Peak 15-min volume, v15	653		362		49		v
Trucks and buses	23		16		10		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.806		0.870		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3510 1796 225 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3510 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3510	4800	No
$v_{FO} = v_F - v_R$	1714	4800	No
v_R	1796	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3510 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3510	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 24.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.525

Space mean speed in ramp influence area, S_R = 55.3 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 55.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2349	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	1188	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	351	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2349		1188		351		vph
Peak-hour factor, PHF	0.90		0.82		0.79		
Peak 15-min volume, v15	653		362		111		v
Trucks and buses	23		16		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.806		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3510 1796 478 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3510 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3510	4800	No
$v_{FO} = v_F - v_R$	1714	4800	No
v_R	1796	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3510 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3510	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 24.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.525

Space mean speed in ramp influence area, S_R = 55.3 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 55.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2896	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	898	vph
Length of first accel/decel lane	1210	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	351	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	710	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2896		898		351		vph
Peak-hour factor, PHF	0.90		0.83		0.79		
Peak 15-min volume, v15	804		270		111		v
Trucks and buses	23		13		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.837		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4328 1293 478 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4328 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4328	4800	No
$v_{FO} = v_F - v_R$	3035	4800	No
v_R	1293	2000	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4328 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4328	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 30.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.544

Space mean speed in ramp influence area, S_R = 54.8 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 54.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2896	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	898	vph
Length of first accel/decel lane	1210	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	196	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2896		898		196		vph
Peak-hour factor, PHF	0.90		0.83		0.93		
Peak 15-min volume, v15	804		270		53		v
Trucks and buses	23		13		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.837		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4328 1293 223 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4328 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4328	4800	No
$v_{FO} = v_F - v_R$	3035	4800	No
v_R	1293	2000	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4328 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4328	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 30.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.544

Space mean speed in ramp influence area, S_R = 54.8 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 54.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3191	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	491	vph
Length of first accel/decel lane	1035	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	196	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1080	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3191		491		196		vph
Peak-hour factor, PHF	0.90		0.87		0.93		
Peak 15-min volume, v15	886		141		53		v
Trucks and buses	23		7		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.905		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4769 624 223 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.612 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3161 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4769	6900	No
$v_{FO} = v_F - v_R$	4145	6900	No
v_R	624	1900	No
v_3 or v_{av34}	1608 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3161 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3161	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 22.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.614

Space mean speed in ramp influence area, S_R = 48.9 mph

Space mean speed in outer lanes, S_O = 63.4 mph

Space mean speed for all vehicles, S = 53.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3191	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	491	vph
Length of first accel/decel lane	1035	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	341	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	1922	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3191		491		341		vph
Peak-hour factor, PHF	0.90		0.87		0.78		
Peak 15-min volume, v15	886		141		109		v
Trucks and buses	23		7		7		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.905		0.905		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4769 624 483 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.612 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3161 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4769	6900	No
$v_{FO} = v_F - v_R$	4145	6900	No
v_R	624	1900	No
v_3 or v_{av34}	1608 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3161 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3161	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 22.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.614

Space mean speed in ramp influence area, S_R = 48.9 mph

Space mean speed in outer lanes, S_O = 63.4 mph

Space mean speed for all vehicles, S = 53.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2740	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	317	vph
Length of first accel/decel lane	840	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	127	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2740		317		127		vph
Peak-hour factor, PHF	0.92		0.86		0.80		
Peak 15-min volume, v15	745		92		40		v
Trucks and buses	13		14		23		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.826		0.743		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3559 446 214 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3559 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3559	4800	No
$v_{FO} = v_F - v_R$	3113	4800	No
v_R	446	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3559 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3559	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 27.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.403

Space mean speed in ramp influence area, S_R = 58.7 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 58.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2740	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	317	vph
Length of first accel/decel lane	840	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	127	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2740		317		127		vph
Peak-hour factor, PHF	0.92		0.86		0.79		
Peak 15-min volume, v15	745		92		40		v
Trucks and buses	13		14		10		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.826		0.870		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3559 446 185 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3559 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3559	4800	No
$v_{FO} = v_F - v_R$	3113	4800	No
v_R	446	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3559 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3559	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 27.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.403

Space mean speed in ramp influence area, S_R = 58.7 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 58.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2801	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	30.0	mph
Volume on ramp	188	vph
Length of first accel/decel lane	415	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	127	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	980	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2801		188		127		vph
Peak-hour factor, PHF	0.92		0.90		0.79		
Peak 15-min volume, v15	761		52		40		v
Trucks and buses	13		10		10		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.870		0.870		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3638 240 185 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3638 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3638	4800	No
$v_{FO} = v_F - v_R$	3398	4800	No
v_R	240	2000	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3638 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3638	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, v_{12} - L_D$ = 31.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.515

Space mean speed in ramp influence area, S_R = 55.6 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 55.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2801	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	30.0	mph
Volume on ramp	188	vph
Length of first accel/decel lane	415	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	267	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2801		188		267		vph
Peak-hour factor, PHF	0.92		0.90		0.69		
Peak 15-min volume, v15	761		52		97		v
Trucks and buses	13		10		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.870		0.893		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3638 240 433 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3638 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3638	4800	No
$v_{FO} = v_F - v_R$	3398	4800	No
v_R	240	2000	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	

If yes, v_{12A} = 3638 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3638	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 31.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.515

Space mean speed in ramp influence area, S_R = 55.6 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 55.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4110	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	1576	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	267	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1465	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4110		1576		267		vph
Peak-hour factor, PHF	0.92		0.93		0.69		
Peak 15-min volume, v15	1117		424		97		v
Trucks and buses	13		13		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.837		0.893		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5339 2025 433 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 5339 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5339	4800	Yes
$v_{FO} = v_F - v_R$	3314	4800	No
v_R	2025	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 5339 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	5339	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 39.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.545

Space mean speed in ramp influence area, S_R = 54.7 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 54.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4110	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	1576	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	273	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4110		1576		273		vph
Peak-hour factor, PHF	0.92		0.93		0.93		
Peak 15-min volume, v15	1117		424		73		v
Trucks and buses	13		13		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.837		0.971		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5339 2025 302 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 5339 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5339	4800	Yes
$v_{FO} = v_F - v_R$	3314	4800	No
v_R	2025	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 5339 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	5339	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 39.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.545

Space mean speed in ramp influence area, S_R = 54.7 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 54.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	6026	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	2189	vph
Length of first accel/decel lane	1210	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	273	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	710	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	6026		2189		273		vph
Peak-hour factor, PHF	0.92		0.86		0.93		
Peak 15-min volume, v15	1637		636		73		v
Trucks and buses	13		4		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.943		0.971		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 7827 2698 302 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 7827 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7827	4800	Yes
$v_{FO} = v_F - v_R$	5129	4800	Yes
v_R	2698	2000	Yes
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	No	

If yes, v_{12A} = 7827 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	7827	4400	Yes

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D$ = 60.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.671

Space mean speed in ramp influence area, S_R = 51.2 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 51.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	6026	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	2189	vph
Length of first accel/decel lane	1210	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	366	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	6026		2189		366		vph
Peak-hour factor, PHF	0.92		0.86		0.89		
Peak 15-min volume, v15	1637		636		103		v
Trucks and buses	13		4		3		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.943		0.957		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 7827 2698 430 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 7827 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7827	4800	Yes
$v_{FO} = v_F - v_R$	5129	4800	Yes
v_R	2698	2000	Yes
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 7827 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	7827	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 60.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.671

Space mean speed in ramp influence area, S_R = 51.2 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 51.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	7047	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	1387	vph
Length of first accel/decel lane	1035	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	366	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1080	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	7047		1387		366		vph
Peak-hour factor, PHF	0.92		0.92		0.89		
Peak 15-min volume, v15	1915		377		103		v
Trucks and buses	13		6		3		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.917		0.957		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 9153 1643 430 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.456 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 5065 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9153	6900	Yes
$v_{FO} = v_F - v_R$	7510	6900	Yes
v_R	1643	1900	No
v_3 or v_{av34}	4088 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? Yes

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 6453 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	6453	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 50.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.706

Space mean speed in ramp influence area, S_R = 47.3 mph

Space mean speed in outer lanes, S_O = 59.2 mph

Space mean speed for all vehicles, S = 50.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	7047	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	1387	vph
Length of first accel/decel lane	1035	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	795	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	1922	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	7047		1387		795		vph
Peak-hour factor, PHF	0.92		0.92		0.86		
Peak 15-min volume, v15	1915		377		231		v
Trucks and buses	13		6		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.917		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 9153 1643 994 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.456 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 5065 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9153	6900	Yes
$v_{FO} = v_F - v_R$	7510	6900	Yes
v_R	1643	1900	No
v_3 or v_{av34}	4088 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? Yes

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 6453 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	6453	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 50.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.706

Space mean speed in ramp influence area, S_R = 47.3 mph

Space mean speed in outer lanes, S_O = 59.2 mph

Space mean speed for all vehicles, S = 50.3 mph

Appendix C

HCS Ramp Merge Analysis Outputs
2040 No-Build I-26 Eastbound On-Ramps

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1745	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	283	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	99	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1745	283	99	vph
Peak-hour factor, PHF	0.88	0.96	0.83	
Peak 15-min volume, v15	496	74	30	v
Trucks and buses	16	8	22	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.893	0.752	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 2459 330 159 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2459 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2789	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2459 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2789	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.288

Space mean speed in ramp influence area, S_R = 61.9 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 61.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1745	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	283	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	116	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2265	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1745	283	116	vph
Peak-hour factor, PHF	0.88	0.96	0.80	
Peak 15-min volume, v15	496	74	36	v
Trucks and buses	16	8	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.893	0.837	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 2459 330 173 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2459 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2789	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2459 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2789	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 18.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.288

Space mean speed in ramp influence area, S_R = 61.9 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 61.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2059	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	416	vph
Length of first accel/decel lane	520	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	223	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2059	416	223	vph
Peak-hour factor, PHF	0.88	0.86	0.87	
Peak 15-min volume, v15	585	121	64	v
Trucks and buses	16	7	15	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.905	0.816	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 2901 535 314 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2901 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3436	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2901 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3436	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 28.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.406	
Space mean speed in ramp influence area,	S_R = 58.6	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 58.6	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2059	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	416	vph
Length of first accel/decel lane	520	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	99	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2059	416	99	vph
Peak-hour factor, PHF	0.88	0.86	0.83	
Peak 15-min volume, v15	585	121	30	v
Trucks and buses	16	7	22	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.905	0.752	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 2901 535 159 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2901 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3436	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2901 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3436	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 28.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.406	
Space mean speed in ramp influence area,	S_R = 58.6	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 58.6	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2252	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1417	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	222	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2252	1417	222	vph
Peak-hour factor, PHF	0.88	0.82	0.72	
Peak 15-min volume, v15	640	432	77	v
Trucks and buses	16	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3173 1832 331 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3173 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5005	4800	Yes

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3173 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	5005	4600	Yes

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 34.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 0.798

Space mean speed in ramp influence area, S_R = 47.7 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 47.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2252	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1417	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	223	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1725	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2252	1417	223	vph
Peak-hour factor, PHF	0.88	0.82	0.87	
Peak 15-min volume, v15	640	432	64	v
Trucks and buses	16	4	15	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.943	0.816	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3173 1832 314 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3173 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5005	4800	Yes

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3173 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	5005	4600	Yes

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 34.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 0.798

Space mean speed in ramp influence area, S_R = 47.7 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 47.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3447	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	2340	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	182	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3447	2340	182	vph
Peak-hour factor, PHF	0.88	0.88	0.46	
Peak 15-min volume, v15	979	665	99	v
Trucks and buses	16	4	3	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.943	0.957	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4857 2819 413 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 4857 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7676	4800	Yes

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4857 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	7676	4600	Yes

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 54.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 8.624

Space mean speed in ramp influence area, S_R = -171.5 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3447	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	2340	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	222	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	905	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3447	2340	222	vph
Peak-hour factor, PHF	0.88	0.88	0.72	
Peak 15-min volume, v15	979	665	77	v
Trucks and buses	16	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4857 2819 331 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 4857 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7676	4800	Yes

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4857 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	7676	4600	Yes

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 54.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 8.624

Space mean speed in ramp influence area, S_R = -171.5 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3031	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	134	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3031	221	134	vph
Peak-hour factor, PHF	0.91	0.85	0.79	
Peak 15-min volume, v15	833	65	42	v
Trucks and buses	14	18	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.787	0.893	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4030 330 190 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 4030 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4360	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4030 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4360	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 30.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.530

Space mean speed in ramp influence area, S_R = 55.2 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 55.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3031	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	160	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2265	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3031	221	160	vph
Peak-hour factor, PHF	0.91	0.85	0.74	
Peak 15-min volume, v15	833	65	54	v
Trucks and buses	14	18	18	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.787	0.787	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4030 330 275 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 4030 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4360	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 4030 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4360	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 30.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.530	
Space mean speed in ramp influence area,	S_R = 55.2	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 55.2	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2587	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	81	vph
Length of first accel/decel lane	520	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	230	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2587	81	230	vph
Peak-hour factor, PHF	0.91	0.66	0.85	
Peak 15-min volume, v15	711	31	68	v
Trucks and buses	14	10	16	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.870	0.806	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3440 141 336 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3440 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3581	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3440 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3581	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 30.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.425

Space mean speed in ramp influence area, S_R = 58.1 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 58.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2587	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	81	vph
Length of first accel/decel lane	520	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	134	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2587	81	134	vph
Peak-hour factor, PHF	0.91	0.66	0.79	
Peak 15-min volume, v15	711	31	42	v
Trucks and buses	14	10	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.870	0.893	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3440 141 190 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3440 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3581	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3440 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3581	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 30.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.425	
Space mean speed in ramp influence area,	S_R = 58.1	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 58.1	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2438	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1362	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	761	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2438	1362	761	vph
Peak-hour factor, PHF	0.91	0.77	0.83	
Peak 15-min volume, v15	670	442	229	v
Trucks and buses	14	5	15	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.930	0.816	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3242 1901 1123 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3242 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5143	4800	Yes

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3242 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	5143	4600	Yes

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 35.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 0.884

Space mean speed in ramp influence area, S_R = 45.3 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 45.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2438	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1362	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	230	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1725	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2438	1362	230	vph
Peak-hour factor, PHF	0.91	0.77	0.85	
Peak 15-min volume, v15	670	442	68	v
Trucks and buses	14	5	16	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.930	0.806	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3242 1901 336 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3242 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5143	4800	Yes

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3242 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	5143	4600	Yes

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 35.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	M_S = 0.884	
Space mean speed in ramp influence area,	S_R = 45.3	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 45.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3039	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1158	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	151	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3039	1158	151	vph
Peak-hour factor, PHF	0.91	0.94	0.94	
Peak 15-min volume, v15	835	308	40	v
Trucks and buses	14	5	3	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.930	0.957	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4041 1324 168 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 4041 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5365	4800	Yes

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4041 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	5365	4600	Yes

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 37.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 1.050

Space mean speed in ramp influence area, S_R = 40.6 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 40.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3039	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1158	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	761	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	905	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3039	1158	761	vph
Peak-hour factor, PHF	0.91	0.94	0.83	
Peak 15-min volume, v15	835	308	229	v
Trucks and buses	14	5	15	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.930	0.816	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4041 1324 1123 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 4041 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5365	4800	Yes

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4041 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	5365	4600	Yes

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 37.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 1.050

Space mean speed in ramp influence area, S_R = 40.6 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 40.6 mph

Appendix C

HCS Ramp Merge Analysis Outputs
2040 No-Build I-26 Westbound On-Ramps

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1613	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	205	vph
Length of first accel/decel lane	1300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1613	205		vph
Peak-hour factor, PHF	0.90	0.83		
Peak 15-min volume, v15	448	62		v
Trucks and buses	23	37		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		
Heavy vehicle adjustment, fHV	0.743	0.643		
Driver population factor, fP	1.00	1.00		

Flow rate, vp 2411 384 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2411 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2795	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2411 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2795	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.294	
Space mean speed in ramp influence area,	S_R = 61.8	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 61.8	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1613	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	205	vph
Length of first accel/decel lane	1300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	279	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1613	205	279	vph
Peak-hour factor, PHF	0.90	0.83	0.93	
Peak 15-min volume, v15	448	62	75	v
Trucks and buses	23	37	25	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.643	0.727	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 2411 384 412 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2411 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2795	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2411 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2795	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 18.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.294	
Space mean speed in ramp influence area,	S_R = 61.8	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 61.8	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1293	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	137	vph
Length of first accel/decel lane	555	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	279	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1293	137	279	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	344	36	74	v
Trucks and buses	23	13	25	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.837	0.727	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 1850 174 408 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1850 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2024	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 $v_{12}/2$	No	

If yes, v_{12A} = 1850 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2024	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 17.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.312	
Space mean speed in ramp influence area,	S_R = 61.3	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 61.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1293	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	137	vph
Length of first accel/decel lane	555	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	52	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	980	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1293	137	52	vph
Peak-hour factor, PHF	0.90	0.75	0.61	
Peak 15-min volume, v15	359	46	21	v
Trucks and buses	23	13	11	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.837	0.858	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 1932 218 99 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1932 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2150	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 $v_{12}/2$ No

If yes, v_{12A} = 1932 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2150	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 18.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.316	
Space mean speed in ramp influence area,	S_R = 61.2	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 61.2	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1161	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	184	vph
Length of first accel/decel lane	1195	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	52	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1161	184	52	vph
Peak-hour factor, PHF	0.90	0.94	0.61	
Peak 15-min volume, v15	323	49	21	v
Trucks and buses	23	10	11	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.870	0.858	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 1735 225 99 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1735 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1960	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 1735 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1960	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 13.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.265	
Space mean speed in ramp influence area,	S_R = 62.6	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 62.6	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1161	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	184	vph
Length of first accel/decel lane	1195	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1188	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1465	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1161	184	1188	vph
Peak-hour factor, PHF	0.90	0.94	0.82	
Peak 15-min volume, v15	323	49	362	v
Trucks and buses	23	10	16	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.870	0.806	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 1735 225 1796 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1735 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1960	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 1735 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1960	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 13.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.265

Space mean speed in ramp influence area, S_R = 62.6 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 62.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1998	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	351	vph
Length of first accel/decel lane	1440	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1188	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1998	351	1188	vph
Peak-hour factor, PHF	0.90	0.79	0.82	
Peak 15-min volume, v15	555	111	362	v
Trucks and buses	23	5	16	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.930	0.806	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 2986 478 1796 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2986 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3464	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2986 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3464	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 23.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.345	
Space mean speed in ramp influence area,	S_R = 60.3	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 60.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1998	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	351	vph
Length of first accel/decel lane	1440	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	898	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	710	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1998	351	898	vph
Peak-hour factor, PHF	0.90	0.79	0.83	
Peak 15-min volume, v15	555	111	270	v
Trucks and buses	23	5	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.930	0.837	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 2986 478 1293 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2986 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3464	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2986 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3464	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 23.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.345	
Space mean speed in ramp influence area,	S_R = 60.3	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 60.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2700	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	196	vph
Length of first accel/decel lane	1135	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	898	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2700	196	898	vph
Peak-hour factor, PHF	0.90	0.93	0.83	
Peak 15-min volume, v15	750	53	270	v
Trucks and buses	23	4	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.943	0.837	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4035 223 1293 pcph

Estimation of V12 Merge Areas

L_{EQ} = 5596.31 (Equation 13-6 or 13-7)

P_{FM} = 0.609 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2458 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4258	6900	No
v_3 or v_{av34}	1577 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	No	

If yes, v_{12A} = 2458 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4258	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 19.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.298

Space mean speed in ramp influence area, S_R = 54.6 mph

Space mean speed in outer lanes, S_O = 56.1 mph

Space mean speed for all vehicles, S = 55.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2700	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	196	vph
Length of first accel/decel lane	1135	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	491	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1080	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2700	196	491	vph
Peak-hour factor, PHF	0.90	0.93	0.87	
Peak 15-min volume, v15	750	53	141	v
Trucks and buses	23	4	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.943	0.905	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4035 223 624 pcph

Estimation of V12 Merge Areas

L_{EQ} = 843.35 (Equation 13-6 or 13-7)

P_{FM} = 0.609 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2458 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4258	6900	No
v_3 or v_{av34}	1577 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	No	

If yes, v_{12A} = 2458 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4258	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 19.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.298

Space mean speed in ramp influence area, S_R = 54.6 mph

Space mean speed in outer lanes, S_O = 56.1 mph

Space mean speed for all vehicles, S = 55.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2924	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	127	vph
Length of first accel/decel lane	1300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2924	127		vph
Peak-hour factor, PHF	0.92	0.80		
Peak 15-min volume, v15	795	40		v
Trucks and buses	13	23		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		
Heavy vehicle adjustment, fHV	0.837	0.743		
Driver population factor, fP	1.00	1.00		

Flow rate, vp 3798 214 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3798 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4012	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3798 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4012	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 28.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.446	
Space mean speed in ramp influence area,	S_R = 57.5	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.5	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2924	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	127	vph
Length of first accel/decel lane	1300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	317	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2924	127	317	vph
Peak-hour factor, PHF	0.92	0.80	0.86	
Peak 15-min volume, v15	795	40	92	v
Trucks and buses	13	23	14	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.743	0.826	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3798 214 446 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3798 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4012	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3798 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4012	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 28.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.446	
Space mean speed in ramp influence area,	S_R = 57.5	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.5	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2613	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	127	vph
Length of first accel/decel lane	555	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	317	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2613	127	317	vph
Peak-hour factor, PHF	0.92	0.79	0.86	
Peak 15-min volume, v15	710	40	92	v
Trucks and buses	13	10	14	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.870	0.826	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3394 185 446 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3394 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3579	4800	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3394 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3579	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 29.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.422	
Space mean speed in ramp influence area,	S_R = 58.2	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 58.2	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2613	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	127	vph
Length of first accel/decel lane	555	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	188	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	980	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2613	127	188	vph
Peak-hour factor, PHF	0.92	0.79	0.90	
Peak 15-min volume, v15	710	40	52	v
Trucks and buses	13	10	10	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.870	0.870	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3394 185 240 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3394 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3579	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3394 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3579	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 29.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.422	
Space mean speed in ramp influence area,	S_R = 58.2	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 58.2	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2534	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	267	vph
Length of first accel/decel lane	1195	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	188	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2534	267	188	vph
Peak-hour factor, PHF	0.92	0.69	0.90	
Peak 15-min volume, v15	689	97	52	v
Trucks and buses	13	8	10	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.893	0.870	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3291 433 240 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3291 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3724	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3291 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3724	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 26.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.399

Space mean speed in ramp influence area, S_R = 58.8 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 58.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2534	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	267	vph
Length of first accel/decel lane	1195	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1576	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1465	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2534	267	1576	vph
Peak-hour factor, PHF	0.92	0.69	0.93	
Peak 15-min volume, v15	689	97	424	v
Trucks and buses	13	8	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.893	0.837	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3291 433 2025 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 3291$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3724	4800	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 $v_{12}/2$ No

If yes, v_{12A} = 3291 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3724	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 26.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.399	
Space mean speed in ramp influence area,	S_R = 58.8	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 58.8	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4110	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	273	vph
Length of first accel/decel lane	1440	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1576	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4110	273	1576	vph
Peak-hour factor, PHF	0.92	0.93	0.93	
Peak 15-min volume, v15	1117	73	424	v
Trucks and buses	13	2	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.971	0.837	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 5339 302 2025 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 5339 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5641	4800	Yes

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 5339 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	5641	4600	Yes

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 40.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 1.319

Space mean speed in ramp influence area, S_R = 33.1 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 33.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4110	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	273	vph
Length of first accel/decel lane	1440	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2189	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	710	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4110	273	2189	vph
Peak-hour factor, PHF	0.92	0.93	0.86	
Peak 15-min volume, v15	1117	73	636	v
Trucks and buses	13	2	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.971	0.943	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 5339 302 2698 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 5339 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5641	4800	Yes

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 5339 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	5641	4600	Yes

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 40.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	M_S = 1.319	
Space mean speed in ramp influence area,	S_R = 33.1	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 33.1	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5660	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	366	vph
Length of first accel/decel lane	1135	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2189	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5660	366	2189	vph
Peak-hour factor, PHF	0.92	0.89	0.86	
Peak 15-min volume, v15	1538	103	636	v
Trucks and buses	13	3	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.957	0.943	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 7352 430 2698 pcph

Estimation of V12 Merge Areas

L_{EQ} = 11677.38 Equation 13-6 or 13-7)

P_{FM} = 0.620 Using Equation 5

$v_{12} = v_F (P_{FM})$ = 4555 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7782	6900	Yes
v_3 or v_{av34}	2797 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	Yes	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 4652 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	5082	4600	Yes

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 37.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 0.870

Space mean speed in ramp influence area, S_R = 44.3 mph

Space mean speed in outer lanes, S_O = 51.1 mph

Space mean speed for all vehicles, S = 46.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 No-Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5660	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	366	vph
Length of first accel/decel lane	1135	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1387	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1080	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5660	366	1387	vph
Peak-hour factor, PHF	0.92	0.89	0.92	
Peak 15-min volume, v15	1538	103	377	v
Trucks and buses	13	3	6	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.957	0.917	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 7352 430 1643 pcph

Estimation of V12 Merge Areas

L_{EQ} = 1597.49 (Equation 13-6 or 13-7)

P_{FM} = 0.577 Using Equation 2

$v_{12} = v_F (P_{FM})$ = 4239 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7782	6900	Yes
v_3 or v_{av34}	3113 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	Yes	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 4652 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	7782	4600	Yes

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 37.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 0.870

Space mean speed in ramp influence area, S_R = 44.3 mph

Space mean speed in outer lanes, S_O = 51.1 mph

Space mean speed for all vehicles, S = 46.5 mph

Appendix C

HCS Ramp Diverge Analysis Outputs
2040 Build I-26 Eastbound Off-Ramps

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2158	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	99	vph
Length of first accel/decel lane	405	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	416	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2158		99		416		vph
Peak-hour factor, PHF	0.88		0.83		0.86		
Peak 15-min volume, v15	613		30		121		v
Trucks and buses	16		22		7		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.752		0.905		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3041 159 535 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.677 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2109 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3041	7200	No
$v_{FO} = v_F - v_R$	2882	7200	No
v_R	159	2100	No
v_3 or v_{av34}	932 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2109 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2109	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 18.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.377

Space mean speed in ramp influence area, S_R = 59.4 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 63.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2158	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	99	vph
Length of first accel/decel lane	405	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	283	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2158		99		283		vph
Peak-hour factor, PHF	0.88		0.83		0.96		
Peak 15-min volume, v15	613		30		74		v
Trucks and buses	16		22		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.752		0.893		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3041 159 330 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 2560.94 (Equation 13-12 or 13-13)

P_{FD} = 0.677 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2109 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3041	7200	No
$v_{FO} = v_F - v_R$	2882	7200	No
v_R	159	2100	No
v_3 or v_{av34}	932 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2109 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2109	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 18.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.377

Space mean speed in ramp influence area, S_R = 59.4 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 63.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2345	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	223	vph
Length of first accel/decel lane	995	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1417	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1725	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2345		223		1417		vph
Peak-hour factor, PHF	0.88		0.87		0.82		
Peak 15-min volume, v15	666		64		432		v
Trucks and buses	16		15		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.816		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3304 314 1832 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.663 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2296 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3304	7200	No
$v_{FO} = v_F - v_R$	2990	7200	No
v_R	314	2100	No
v_3 or v_{av34}	1008 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2296 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2296	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 15.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.391

Space mean speed in ramp influence area, S_R = 59.0 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 63.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2345	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	223	vph
Length of first accel/decel lane	995	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	416	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2345		223		416		vph
Peak-hour factor, PHF	0.88		0.87		0.86		
Peak 15-min volume, v15	666		64		121		v
Trucks and buses	16		15		7		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.816		0.905		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3304 314 535 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 4345.07 (Equation 13-12 or 13-13)

P_{FD} = 0.663 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2296 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3304	7200	No
$v_{FO} = v_F - v_R$	2990	7200	No
v_R	314	2100	No
v_3 or v_{av34}	1008 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2296 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2296	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 15.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.391

Space mean speed in ramp influence area, S_R = 59.0 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 63.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3669	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	222	vph
Length of first accel/decel lane	970	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2340	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	905	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3669		222		2340		vph
Peak-hour factor, PHF	0.88		0.72		0.88		
Peak 15-min volume, v15	1042		77		665		v
Trucks and buses	16		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.930		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5170 331 2819 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.616 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3310 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5170	7200	No
$v_{FO} = v_F - v_R$	4839	7200	No
v_R	331	2000	No
v_3 or v_{av34}	1860 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3310 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3310	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 24.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.458

Space mean speed in ramp influence area, S_R = 57.2 mph

Space mean speed in outer lanes, S_O = 73.4 mph

Space mean speed for all vehicles, S = 62.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3669	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	222	vph
Length of first accel/decel lane	970	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1417	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3669		222		1417		vph
Peak-hour factor, PHF	0.88		0.72		0.82		
Peak 15-min volume, v15	1042		77		432		v
Trucks and buses	16		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.930		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5170 331 1832 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 11119.61 Equation 13-12 or 13-13)

P_{FD} = 0.626 Using Equation 10

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3360 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5170	7200	No
$v_{FO} = v_F - v_R$	4839	7200	No
v_R	331	2000	No
v_3 or v_{av34}	1810 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3360 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3360	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 24.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.458

Space mean speed in ramp influence area, S_R = 57.2 mph

Space mean speed in outer lanes, S_O = 73.6 mph

Space mean speed for all vehicles, S = 62.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5788	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	182	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	291	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	2240	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5788		182		291		vph
Peak-hour factor, PHF	0.88		0.46		0.60		
Peak 15-min volume, v15	1644		99		121		v
Trucks and buses	16		3		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.957		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 8156 413 521 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 708.16 (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3789 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	8156	9200	No
$v_{FO} = v_F - v_R$	7743	9200	No
v_R	413	1900	No
v_3 or v_{av34}	2183 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3789 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3789	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D$ = 34.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.595

Space mean speed in ramp influence area, S_R = 49.3 mph

Space mean speed in outer lanes, S_O = 61.2 mph

Space mean speed for all vehicles, S = 55.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5606	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	291	vph
Length of first accel/decel lane	915	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1946	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	930	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5606		291		1946		vph
Peak-hour factor, PHF	0.88		0.60		0.83		
Peak 15-min volume, v15	1593		121		586		v
Trucks and buses	16		5		6		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.930		0.917		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 7899 521 2556 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3738 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7899	9200	No
$v_{FO} = v_F - v_R$	7378	9200	No
v_R	521	1900	No
v_3 or v_{av34}	2080 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3738 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3738	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 28.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.605

Space mean speed in ramp influence area, S_R = 49.1 mph

Space mean speed in outer lanes, S_O = 61.6 mph

Space mean speed for all vehicles, S = 55.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5606	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	291	vph
Length of first accel/decel lane	915	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	182	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	2240	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5606		291		182		vph
Peak-hour factor, PHF	0.88		0.60		0.46		
Peak 15-min volume, v15	1593		121		99		v
Trucks and buses	16		5		3		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.930		0.957		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 7899 521 413 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3738 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7899	9200	No
$v_{FO} = v_F - v_R$	7378	9200	No
v_R	521	1900	No
v_3 or v_{av34}	2080 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3738 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3738	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 28.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.605

Space mean speed in ramp influence area, S_R = 49.1 mph

Space mean speed in outer lanes, S_O = 61.6 mph

Space mean speed for all vehicles, S = 55.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5788	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	182	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2340	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5788		182		2340		vph
Peak-hour factor, PHF	0.88		0.46		0.88		
Peak 15-min volume, v15	1644		99		665		v
Trucks and buses	16		3		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.806		0.957		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 8156 413 2819 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3789 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	8156	9200	No
$v_{FO} = v_F - v_R$	7743	9200	No
v_R	413	1900	No
v_3 or v_{av34}	2183 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3789 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3789	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D$ = 34.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.595

Space mean speed in ramp influence area, S_R = 49.3 mph

Space mean speed in outer lanes, S_O = 61.2 mph

Space mean speed for all vehicles, S = 55.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2721	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	134	vph
Length of first accel/decel lane	405	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	81	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	2721		134		81	vph
Peak-hour factor, PHF	0.91		0.79		0.66	
Peak 15-min volume, v15	748		42		31	v
Trucks and buses	14		8		10	%
Recreational vehicles	0		0		0	%
Terrain type:	Rolling		Rolling		Rolling	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	2.5		2.5		2.5	
Recreational vehicle PCE, ER	2.0		2.0		2.0	
Heavy vehicle adjustment, fHV	0.826		0.893		0.870	
Driver population factor, fP	1.00		1.00		1.00	

Flow rate, vp 3618 190 141 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.661 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2455 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3618	7200	No
$v_{FO} = v_F - v_R$	3428	7200	No
v_R	190	2100	No
v_3 or v_{av34}	1163 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2455 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2455	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 21.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.380

Space mean speed in ramp influence area, S_R = 59.4 mph

Space mean speed in outer lanes, S_O = 76.2 mph

Space mean speed for all vehicles, S = 63.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2721	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	134	vph
Length of first accel/decel lane	405	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	221	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2721		134		221		vph
Peak-hour factor, PHF	0.91		0.79		0.85		
Peak 15-min volume, v15	748		42		65		v
Trucks and buses	14		8		18		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.893		0.787		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3618 190 330 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 2360.95 (Equation 13-12 or 13-13)

P_{FD} = 0.661 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2455 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3618	7200	No
$v_{FO} = v_F - v_R$	3428	7200	No
v_R	190	2100	No
v_3 or v_{av34}	1163 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2455 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2455	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 21.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.380

Space mean speed in ramp influence area, S_R = 59.4 mph

Space mean speed in outer lanes, S_O = 76.2 mph

Space mean speed for all vehicles, S = 63.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3200	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	230	vph
Length of first accel/decel lane	995	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1362	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1725	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3200		230		1362		vph
Peak-hour factor, PHF	0.91		0.85		0.77		
Peak 15-min volume, v15	879		68		442		v
Trucks and buses	14		16		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.806		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4255 336 1901 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.638 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2837 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4255	7200	No
$v_{FO} = v_F - v_R$	3919	7200	No
v_R	336	2100	No
v_3 or v_{av34}	1418 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2837 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2837	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 19.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.393

Space mean speed in ramp influence area, S_R = 59.0 mph

Space mean speed in outer lanes, S_O = 75.2 mph

Space mean speed for all vehicles, S = 63.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3200	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	230	vph
Length of first accel/decel lane	995	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	81	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3200		230		81		vph
Peak-hour factor, PHF	0.91		0.85		0.66		
Peak 15-min volume, v15	879		68		31		v
Trucks and buses	14		16		10		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.806		0.870		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4255 336 141 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 983.75 (Equation 13-12 or 13-13)

P_{FD} = 0.638 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2837 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4255	7200	No
$v_{FO} = v_F - v_R$	3919	7200	No
v_R	336	2100	No
v_3 or v_{av34}	1418 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2837 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2837	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 19.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.393

Space mean speed in ramp influence area, S_R = 59.0 mph

Space mean speed in outer lanes, S_O = 75.2 mph

Space mean speed for all vehicles, S = 63.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3800	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	761	vph
Length of first accel/decel lane	970	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1158	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	905	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3800		761		1158		vph
Peak-hour factor, PHF	0.91		0.83		0.94		
Peak 15-min volume, v15	1044		229		308		v
Trucks and buses	14		15		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.816		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5053 1123 1324 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.582 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3410 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5053	7200	No
$v_{FO} = v_F - v_R$	3930	7200	No
v_R	1123	2000	No
v_3 or v_{av34}	1643 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3410 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3410	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 24.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.529

Space mean speed in ramp influence area, S_R = 55.2 mph

Space mean speed in outer lanes, S_O = 74.3 mph

Space mean speed for all vehicles, S = 60.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3800	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	761	vph
Length of first accel/decel lane	970	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1362	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3800		761		1362		vph
Peak-hour factor, PHF	0.91		0.83		0.77		
Peak 15-min volume, v15	1044		229		442		v
Trucks and buses	14		15		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.816		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5053 1123 1901 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 18660.85 Equation 13-12 or 13-13)

P_{FD} = 0.635 Using Equation 10

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3618 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5053	7200	No
$v_{FO} = v_F - v_R$	3930	7200	No
v_R	1123	2000	No
v_3 or v_{av34}	1435 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	No	

If yes, v_{12A} = 3618 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3618	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 26.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.529

Space mean speed in ramp influence area, S_R = 55.2 mph

Space mean speed in outer lanes, S_O = 75.1 mph

Space mean speed for all vehicles, S = 59.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4198	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	151	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	79	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	2240	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4198		151		79	vph
Peak-hour factor, PHF	0.91		0.94		0.86	
Peak 15-min volume, v15	1153		40		23	v
Trucks and buses	14		3		4	%
Recreational vehicles	0		0		0	%
Terrain type:	Rolling		Rolling		Rolling	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	2.5		2.5		2.5	
Recreational vehicle PCE, ER	2.0		2.0		2.0	
Heavy vehicle adjustment, fHV	0.826		0.957		0.943	
Driver population factor, fP	1.00		1.00		1.00	

Flow rate, vp 5582 168 97 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 106.74 (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2529 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5582	9200	No
$v_{FO} = v_F - v_R$	5414	9200	No
v_R	168	1900	No
v_3 or v_{av34}	1526 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2529 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2529	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 24.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.573

Space mean speed in ramp influence area, S_R = 49.7 mph

Space mean speed in outer lanes, S_O = 63.8 mph

Space mean speed for all vehicles, S = 56.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4047	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	79	vph
Length of first accel/decel lane	915	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1224	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	930	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4047		79		1224		vph
Peak-hour factor, PHF	0.91		0.86		0.95		
Peak 15-min volume, v15	1112		23		322		v
Trucks and buses	14		4		6		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.943		0.917		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5381 97 1404 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2401 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5381	9200	No
$v_{FO} = v_F - v_R$	5284	9200	No
v_R	97	1900	No
v_3 or v_{av34}	1490 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2401 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2401	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D$ = 16.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.567

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_O = 63.9 mph

Space mean speed for all vehicles, S = 56.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4047	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	79	vph
Length of first accel/decel lane	915	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	151	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	2240	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4047		79		151		vph
Peak-hour factor, PHF	0.91		0.86		0.94		
Peak 15-min volume, v15	1112		23		40		v
Trucks and buses	14		4		3		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.943		0.957		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5381 97 168 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2401 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5381	9200	No
$v_{FO} = v_F - v_R$	5284	9200	No
v_R	97	1900	No
v_3 or v_{av34}	1490 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2401 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2401	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D$ = 16.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.567

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_O = 63.9 mph

Space mean speed for all vehicles, S = 56.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4198	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	151	vph
Length of first accel/decel lane	225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1158	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4198		151		1158		vph
Peak-hour factor, PHF	0.91		0.94		0.94		
Peak 15-min volume, v15	1153		40		308		v
Trucks and buses	14		3		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.826		0.957		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5582 168 1324 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2529 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5582	9200	No
$v_{FO} = v_F - v_R$	5414	9200	No
v_R	168	1900	No
v_3 or v_{av34}	1526 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2529 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2529	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 24.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.573

Space mean speed in ramp influence area, S_R = 49.7 mph

Space mean speed in outer lanes, S_O = 63.8 mph

Space mean speed for all vehicles, S = 56.5 mph

Appendix C

HCS Ramp Diverge Analysis Outputs
2040 Build I-26 Westbound Off-Ramps

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1430	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	279	vph
Length of first accel/decel lane	840	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	205	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1430		279		205		vph
Peak-hour factor, PHF	0.90		0.93		0.83		
Peak 15-min volume, v15	397		75		62		v
Trucks and buses	23		25		37		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.727		0.643		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 2137 412 384 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.688 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1598 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2137	7200	No
$v_{FO} = v_F - v_R$	1725	7200	No
v_R	412	2100	No
v_3 or v_{av34}	539 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 1598 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1598	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D$ = 10.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.400

Space mean speed in ramp influence area, S_R = 58.8 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 62.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1430	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	279	vph
Length of first accel/decel lane	840	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	137	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1430		279		137		vph
Peak-hour factor, PHF	0.90		0.93		0.75		
Peak 15-min volume, v15	397		75		46		v
Trucks and buses	23		25		13		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.727		0.837		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 2137 412 218 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 2453.88 (Equation 13-12 or 13-13)

P_{FD} = 0.688 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1598 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2137	7200	No
$v_{FO} = v_F - v_R$	1725	7200	No
v_R	412	2100	No
v_3 or v_{av34}	539 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 1598 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1598	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 10.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.400

Space mean speed in ramp influence area, S_R = 58.8 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 62.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1345	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	30.0	mph
Volume on ramp	52	vph
Length of first accel/decel lane	415	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	137	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	980	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1345		52		137		vph
Peak-hour factor, PHF	0.90		0.61		0.75		
Peak 15-min volume, v15	374		21		46		v
Trucks and buses	23		11		13		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.858		0.837		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 2010 99 218 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.705 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1447 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2010	7200	No
$v_{FO} = v_F - v_R$	1911	7200	No
v_R	99	2000	No
v_3 or v_{av34}	563 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 1447 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1447	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 13.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.502

Space mean speed in ramp influence area, S_R = 55.9 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 60.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1345	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	30.0	mph
Volume on ramp	52	vph
Length of first accel/decel lane	415	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	184	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1345		52		184		vph
Peak-hour factor, PHF	0.90		0.61		0.94		
Peak 15-min volume, v15	374		21		49		v
Trucks and buses	23		11		10		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.858		0.870		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 2010 99 225 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 2050.94 (Equation 13-12 or 13-13)

P_{FD} = 0.705 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1447 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2010	7200	No
$v_{FO} = v_F - v_R$	1911	7200	No
v_R	99	2000	No
v_3 or v_{av34}	563 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 1447 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1447	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 13.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.502

Space mean speed in ramp influence area, S_R = 55.9 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 60.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2349	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	1188	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	184	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1465	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2349		1188		184		vph
Peak-hour factor, PHF	0.90		0.82		0.94		
Peak 15-min volume, v15	653		362		49		v
Trucks and buses	23		16		10		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.806		0.870		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3510 1796 225 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.590 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2807 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3510	7200	No
$v_{FO} = v_F - v_R$	1714	7200	No
v_R	1796	2100	No
v_3 or v_{av34}	703 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2807 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2807	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 18.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.525	
Space mean speed in ramp influence area,	S_R = 55.3	mph
Space mean speed in outer lanes,	S_O = 76.8	mph
Space mean speed for all vehicles,	S = 58.6	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2349	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	1188	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	351	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2349		1188		351		vph
Peak-hour factor, PHF	0.90		0.82		0.79		
Peak 15-min volume, v15	653		362		111		v
Trucks and buses	23		16		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.806		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3510 1796 478 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 31377.16 Equation 13-12 or 13-13)

P_{FD} = 0.609 Using Equation 10

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2840 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3510	7200	No
$v_{FO} = v_F - v_R$	1714	7200	No
v_R	1796	2100	No
v_3 or v_{av34}	670 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2840 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2840	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 18.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.525

Space mean speed in ramp influence area, S_R = 55.3 mph

Space mean speed in outer lanes, S_O = 76.8 mph

Space mean speed for all vehicles, S = 58.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2896	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	898	vph
Length of first accel/decel lane	1210	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	351	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	710	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2896		898		351		vph
Peak-hour factor, PHF	0.90		0.83		0.79		
Peak 15-min volume, v15	804		270		111		v
Trucks and buses	23		13		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.837		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4328 1293 478 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.592 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3091 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4328	7200	No
$v_{FO} = v_F - v_R$	3035	7200	No
v_R	1293	2000	No
v_3 or v_{av34}	1237 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3091 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3091	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 19.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.544

Space mean speed in ramp influence area, S_R = 54.8 mph

Space mean speed in outer lanes, S_O = 75.9 mph

Space mean speed for all vehicles, S = 59.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2896	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	898	vph
Length of first accel/decel lane	1210	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	196	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2896		898		196		vph
Peak-hour factor, PHF	0.90		0.83		0.93		
Peak 15-min volume, v15	804		270		53		v
Trucks and buses	23		13		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.837		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4328 1293 223 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 3085.39 (Equation 13-12 or 13-13)

P_{FD} = 0.592 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3091 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4328	7200	No
$v_{FO} = v_F - v_R$	3035	7200	No
v_R	1293	2000	No
v_3 or v_{av34}	1237 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3091 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3091	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 19.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.544

Space mean speed in ramp influence area, S_R = 54.8 mph

Space mean speed in outer lanes, S_O = 75.9 mph

Space mean speed for all vehicles, S = 59.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3191	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	491	vph
Length of first accel/decel lane	1035	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	196	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1080	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3191		491		196		vph
Peak-hour factor, PHF	0.90		0.87		0.93		
Peak 15-min volume, v15	886		141		53		v
Trucks and buses	23		7		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.905		0.943		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4769 624 223 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2431 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4769	9200	No
$v_{FO} = v_F - v_R$	4145	9200	No
v_R	624	1900	No
v_3 or v_{av34}	1169 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2431 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2431	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D$ = 15.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.614

Space mean speed in ramp influence area, S_R = 48.9 mph

Space mean speed in outer lanes, S_O = 65.2 mph

Space mean speed for all vehicles, S = 55.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3191	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	491	vph
Length of first accel/decel lane	1035	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	341	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	1922	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3191		491		341		vph
Peak-hour factor, PHF	0.90		0.87		0.78		
Peak 15-min volume, v15	886		141		109		v
Trucks and buses	23		7		7		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.743		0.905		0.905		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 4769 624 483 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2431 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4769	9200	No
$v_{FO} = v_F - v_R$	4145	9200	No
v_R	624	1900	No
v_3 or v_{av34}	1169 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2431 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2431	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 15.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.614

Space mean speed in ramp influence area, S_R = 48.9 mph

Space mean speed in outer lanes, S_O = 65.2 mph

Space mean speed for all vehicles, S = 55.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2740	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	317	vph
Length of first accel/decel lane	840	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	127	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2740		317		127		vph
Peak-hour factor, PHF	0.92		0.86		0.80		
Peak 15-min volume, v15	745		92		40		v
Trucks and buses	13		14		23		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.826		0.743		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3559 446 214 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.651 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2471 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3559	7200	No
$v_{FO} = v_F - v_R$	3113	7200	No
v_R	446	2100	No
v_3 or v_{av34}	1088 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2471 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2471	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 17.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.403

Space mean speed in ramp influence area, S_R = 58.7 mph

Space mean speed in outer lanes, S_O = 76.4 mph

Space mean speed for all vehicles, S = 63.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2740	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	317	vph
Length of first accel/decel lane	840	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	127	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2740		317		127		vph
Peak-hour factor, PHF	0.92		0.86		0.79		
Peak 15-min volume, v15	745		92		40		v
Trucks and buses	13		14		10		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.826		0.870		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3559 446 185 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 1555.13 (Equation 13-12 or 13-13)

P_{FD} = 0.651 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2471 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3559	7200	No
$v_{FO} = v_F - v_R$	3113	7200	No
v_R	446	2100	No
v_3 or v_{av34}	1088 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2471 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2471	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 17.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.403

Space mean speed in ramp influence area, S_R = 58.7 mph

Space mean speed in outer lanes, S_O = 76.4 mph

Space mean speed for all vehicles, S = 63.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2801	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	30.0	mph
Volume on ramp	188	vph
Length of first accel/decel lane	415	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	127	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	980	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2801		188		127		vph
Peak-hour factor, PHF	0.92		0.90		0.79		
Peak 15-min volume, v15	761		52		40		v
Trucks and buses	13		10		10		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.870		0.870		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3638 240 185 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.658 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2476 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3638	7200	No
$v_{FO} = v_F - v_R$	3398	7200	No
v_R	240	2000	No
v_3 or v_{av34}	1162 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2476 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2476	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 21.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.515

Space mean speed in ramp influence area, S_R = 55.6 mph

Space mean speed in outer lanes, S_O = 76.2 mph

Space mean speed for all vehicles, S = 60.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2801	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	30.0	mph
Volume on ramp	188	vph
Length of first accel/decel lane	415	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	267	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2801		188		267		vph
Peak-hour factor, PHF	0.92		0.90		0.69		
Peak 15-min volume, v15	761		52		97		v
Trucks and buses	13		10		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.870		0.893		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 3638 240 433 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 3173.70 (Equation 13-12 or 13-13)

P_{FD} = 0.658 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2476 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3638	7200	No
$v_{FO} = v_F - v_R$	3398	7200	No
v_R	240	2000	No
v_3 or v_{av34}	1162 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 2476 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2476	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 21.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.515

Space mean speed in ramp influence area, S_R = 55.6 mph

Space mean speed in outer lanes, S_O = 76.2 mph

Space mean speed for all vehicles, S = 60.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4110	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	1576	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	267	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1465	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4110		1576		267		vph
Peak-hour factor, PHF	0.92		0.93		0.69		
Peak 15-min volume, v15	1117		424		97		v
Trucks and buses	13		13		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.837		0.893		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5339 2025 433 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.533 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3793 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5339	7200	No
$v_{FO} = v_F - v_R$	3314	7200	No
v_R	2025	2100	No
v_3 or v_{av34}	1546 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3793 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3793	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 26.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.545

Space mean speed in ramp influence area, S_R = 54.7 mph

Space mean speed in outer lanes, S_O = 74.7 mph

Space mean speed for all vehicles, S = 59.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4110	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	1576	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	273	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4110		1576		273		vph
Peak-hour factor, PHF	0.92		0.93		0.93		
Peak 15-min volume, v15	1117		424		73		v
Trucks and buses	13		13		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.837		0.971		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 5339 2025 302 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 7569.49 (Equation 13-12 or 13-13)

P_{FD} = 0.533 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3793 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5339	7200	No
$v_{FO} = v_F - v_R$	3314	7200	No
v_R	2025	2100	No
v_3 or v_{av34}	1546 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	No	

If yes, v_{12A} = 3793 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3793	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 26.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.545

Space mean speed in ramp influence area, S_R = 54.7 mph

Space mean speed in outer lanes, S_O = 74.7 mph

Space mean speed for all vehicles, S = 59.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	6026	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	2189	vph
Length of first accel/decel lane	1210	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	273	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	710	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	6026		2189		273		vph
Peak-hour factor, PHF	0.92		0.86		0.93		
Peak 15-min volume, v15	1637		636		73		v
Trucks and buses	13		4		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.943		0.971		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 7827 2698 302 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.440 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4956 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7827	7200	Yes
$v_{FO} = v_F - v_R$	5129	7200	No
v_R	2698	2000	Yes
v_3 or v_{av34}	2871 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? Yes

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 5127 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	5127	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 37.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.671

Space mean speed in ramp influence area, S_R = 51.2 mph

Space mean speed in outer lanes, S_O = 70.2 mph

Space mean speed for all vehicles, S = 56.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	6026	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	2189	vph
Length of first accel/decel lane	1210	ft
Length of second accel/decel lane	500	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	273	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	710	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	6026		2189		273		vph
Peak-hour factor, PHF	0.92		0.86		0.93		
Peak 15-min volume, v15	1637		636		73		v
Trucks and buses	13		4		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.943		0.971		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 7827 2698 302 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.450 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 5006 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7827	7200	Yes
$v_{FO} = v_F - v_R$	5129	7200	No
v_R	2698	4000	No
v_3 or v_{av34}	2821 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? Yes

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 5127 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	5127	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 22.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.671

Space mean speed in ramp influence area, S_R = 51.2 mph

Space mean speed in outer lanes, S_O = 70.2 mph

Space mean speed for all vehicles, S = 56.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	6026	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	2189	vph
Length of first accel/decel lane	1210	ft
Length of second accel/decel lane	500	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	273	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	710	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	6026		2189		273	vph
Peak-hour factor, PHF	0.92		0.86		0.93	
Peak 15-min volume, v15	1637		636		73	v
Trucks and buses	13		4		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Rolling		Rolling		Rolling	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	2.5		2.5		2.5	
Recreational vehicle PCE, ER	2.0		2.0		2.0	
Heavy vehicle adjustment, fHV	0.837		0.943		0.971	
Driver population factor, fP	1.00		1.00		1.00	

Flow rate, vp 7827 2698 302 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.260 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4032 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7827	9600	No
$v_{FO} = v_F - v_R$	5129	9600	No
v_R	2698	4000	No
v_3 or v_{av34}	1897 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4032 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4032	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 12.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.671

Space mean speed in ramp influence area, S_R = 51.2 mph

Space mean speed in outer lanes, S_O = 73.3 mph

Space mean speed for all vehicles, S = 60.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	6026	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	2189	vph
Length of first accel/decel lane	1210	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	273	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	710	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	6026		2189		273		vph
Peak-hour factor, PHF	0.92		0.86		0.93		
Peak 15-min volume, v15	1637		636		73		v
Trucks and buses	13		4		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.943		0.971		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 7827 2698 302 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4934 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7827	9600	No
$v_{FO} = v_F - v_R$	5129	9600	No
v_R	2698	2000	Yes
v_3 or v_{av34}	1446 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4934 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4934	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 35.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.671

Space mean speed in ramp influence area, S_R = 51.2 mph

Space mean speed in outer lanes, S_O = 75.1 mph

Space mean speed for all vehicles, S = 58.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	6026	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	2189	vph
Length of first accel/decel lane	1210	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	366	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	6026		2189		366		vph
Peak-hour factor, PHF	0.92		0.86		0.89		
Peak 15-min volume, v15	1637		636		103		v
Trucks and buses	13		4		3		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.943		0.957		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 7827 2698 430 pcph

Estimation of V12 Diverge Areas

L_{EQ} = 9353.31 (Equation 13-12 or 13-13)

P_{FD} = 0.440 Using Equation 9

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4956 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7827	7200	Yes
$v_{FO} = v_F - v_R$	5129	7200	No
v_R	2698	2000	Yes
v_3 or v_{av34}	2871 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	Yes	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	No	

If yes, v_{12A} = 5127 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	5127	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 37.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.671

Space mean speed in ramp influence area, S_R = 51.2 mph

Space mean speed in outer lanes, S_O = 70.2 mph

Space mean speed for all vehicles, S = 56.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	6026	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	2189	vph
Length of first accel/decel lane	1210	ft
Length of second accel/decel lane	500	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	366	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	6026		2189		366		vph
Peak-hour factor, PHF	0.92		0.86		0.89		
Peak 15-min volume, v15	1637		636		103		v
Trucks and buses	13		4		3		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.943		0.957		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 7827 2698 430 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.450 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 5006 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7827	7200	Yes
$v_{FO} = v_F - v_R$	5129	7200	No
v_R	2698	4000	No
v_3 or v_{av34}	2821 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? Yes

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 5127 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	5127	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 22.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.671

Space mean speed in ramp influence area, S_R = 51.2 mph

Space mean speed in outer lanes, S_O = 70.2 mph

Space mean speed for all vehicles, S = 56.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	6026	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	2189	vph
Length of first accel/decel lane	1210	ft
Length of second accel/decel lane	500	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	366	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	6026		2189		366	vph
Peak-hour factor, PHF	0.92		0.86		0.89	
Peak 15-min volume, v15	1637		636		103	v
Trucks and buses	13		4		3	%
Recreational vehicles	0		0		0	%
Terrain type:	Rolling		Rolling		Rolling	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	2.5		2.5		2.5	
Recreational vehicle PCE, ER	2.0		2.0		2.0	
Heavy vehicle adjustment, fHV	0.837		0.943		0.957	
Driver population factor, fP	1.00		1.00		1.00	

Flow rate, vp 7827 2698 430 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.260 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4032 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7827	9600	No
$v_{FO} = v_F - v_R$	5129	9600	No
v_R	2698	4000	No
v_3 or v_{av34}	1897 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4032 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4032	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 12.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.671

Space mean speed in ramp influence area, S_R = 51.2 mph

Space mean speed in outer lanes, S_O = 73.3 mph

Space mean speed for all vehicles, S = 60.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	6026	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	2189	vph
Length of first accel/decel lane	1210	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	366	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	6026		2189		366	vph
Peak-hour factor, PHF	0.92		0.86		0.89	
Peak 15-min volume, v15	1637		636		103	v
Trucks and buses	13		4		3	%
Recreational vehicles	0		0		0	%
Terrain type:	Rolling		Rolling		Rolling	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	2.5		2.5		2.5	
Recreational vehicle PCE, ER	2.0		2.0		2.0	
Heavy vehicle adjustment, fHV	0.837		0.943		0.957	
Driver population factor, fP	1.00		1.00		1.00	

Flow rate, vp 7827 2698 430 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4934 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	7827	9600	No
$v_{FO} = v_F - v_R$	5129	9600	No
v_R	2698	2000	Yes
v_3 or v_{av34}	1446 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4934 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4934	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 35.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.671

Space mean speed in ramp influence area, S_R = 51.2 mph

Space mean speed in outer lanes, S_O = 75.1 mph

Space mean speed for all vehicles, S = 58.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	7047	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	1387	vph
Length of first accel/decel lane	1035	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	366	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1080	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	7047		1387		366		vph
Peak-hour factor, PHF	0.92		0.92		0.89		
Peak 15-min volume, v15	1915		377		103		v
Trucks and buses	13		6		3		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.917		0.957		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 9153 1643 430 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4917 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9153	9200	No
$v_{FO} = v_F - v_R$	7510	9200	No
v_R	1643	1900	No
v_3 or v_{av34}	2118 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4917 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4917	4400	Yes

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, v_{12} - L_D$ = 37.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, D_S = 0.706

Space mean speed in ramp influence area, S_R = 47.3 mph

Space mean speed in outer lanes, S_O = 61.5 mph

Space mean speed for all vehicles, S = 52.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	7047	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	1387	vph
Length of first accel/decel lane	1035	ft
Length of second accel/decel lane	500	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	366	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1080	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	7047		1387		366		vph
Peak-hour factor, PHF	0.92		0.92		0.89		
Peak 15-min volume, v15	1915		377		103		v
Trucks and buses	13		6		3		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.917		0.957		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 9153 1643 430 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.260 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3596 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9153	9200	No
$v_{FO} = v_F - v_R$	7510	9200	No
v_R	1643	3800	No
v_3 or v_{av34}	2778 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? Yes

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3753 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3753	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 13.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.706

Space mean speed in ramp influence area, S_R = 47.3 mph

Space mean speed in outer lanes, S_O = 59.2 mph

Space mean speed for all vehicles, S = 53.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	7047	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	1387	vph
Length of first accel/decel lane	1035	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	795	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	1922	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	7047		1387		795		vph
Peak-hour factor, PHF	0.92		0.92		0.86		
Peak 15-min volume, v15	1915		377		231		v
Trucks and buses	13		6		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.917		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 9153 1643 994 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4917 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9153	9200	No
$v_{FO} = v_F - v_R$	7510	9200	No
v_R	1643	1900	No
v_3 or v_{av34}	2118 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 4917 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4917	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 37.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, D_S = 0.706

Space mean speed in ramp influence area, S_R = 47.3 mph

Space mean speed in outer lanes, S_O = 61.5 mph

Space mean speed for all vehicles, S = 52.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	7047	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	2	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	1387	vph
Length of first accel/decel lane	1035	ft
Length of second accel/decel lane	500	ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	795	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	1922	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	7047		1387		795		vph
Peak-hour factor, PHF	0.92		0.92		0.86		
Peak 15-min volume, v15	1915		377		231		v
Trucks and buses	13		6		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		
Heavy vehicle adjustment, fHV	0.837		0.917		0.930		
Driver population factor, fP	1.00		1.00		1.00		

Flow rate, vp 9153 1643 994 pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.260 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3596 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9153	9200	No
$v_{FO} = v_F - v_R$	7510	9200	No
v_R	1643	3800	No
v_3 or v_{av34}	2778 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? Yes

Is v_3 or v_{av34} > 1.5 v_{12}/2 No

If yes, v_{12A} = 3753 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3753	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 13.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.706

Space mean speed in ramp influence area, S_R = 47.3 mph

Space mean speed in outer lanes, S_O = 59.2 mph

Space mean speed for all vehicles, S = 53.7 mph

Appendix C

HCS Ramp Merge Analysis Outputs
2040 Build I-26 Eastbound On-Ramps

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1745	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	283	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	99	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1745	283	99	vph
Peak-hour factor, PHF	0.88	0.96	0.83	
Peak 15-min volume, v15	496	74	30	v
Trucks and buses	16	8	22	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.893	0.752	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 2459 330 159 pcph

Estimation of V12 Merge Areas

L_{EQ} = 619.34 (Equation 13-6 or 13-7)

P_{FM} = 0.616 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1515 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2789	7200	No
v_3 or v_{av34}	944 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	Yes	

If yes, v_{12A} = 1515 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1845	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 11.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.249	
Space mean speed in ramp influence area,	S_R = 63.0	mph
Space mean speed in outer lanes,	S_O = 68.4	mph
Space mean speed for all vehicles,	S = 64.7	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1745	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	283	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	116	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2265	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1745	283	116	vph
Peak-hour factor, PHF	0.88	0.96	0.80	
Peak 15-min volume, v15	496	74	36	v
Trucks and buses	16	8	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.893	0.837	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 2459 330 173 pcph

Estimation of V12 Merge Areas

L_{EQ} = 635.55 (Equation 13-6 or 13-7)

P_{FM} = 0.616 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1515 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2789	7200	No
v_3 or v_{av34}	944 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1515 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2789	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 11.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.249

Space mean speed in ramp influence area, S_R = 63.0 mph

Space mean speed in outer lanes, S_O = 68.4 mph

Space mean speed for all vehicles, S = 64.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2059	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	416	vph
Length of first accel/decel lane	520	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	223	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2059	416	223	vph
Peak-hour factor, PHF	0.88	0.86	0.87	
Peak 15-min volume, v15	585	121	64	v
Trucks and buses	16	7	15	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.905	0.816	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 2901 535 314 pcph

Estimation of V12 Merge Areas

L_{EQ} = 1900.27 (Equation 13-6 or 13-7)

P_{FM} = 0.592 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1718 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3436	7200	No
v_3 or v_{av34}	1183 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1718 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2253	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 19.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.322

Space mean speed in ramp influence area, S_R = 61.0 mph

Space mean speed in outer lanes, S_O = 67.5 mph

Space mean speed for all vehicles, S = 63.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2059	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	416	vph
Length of first accel/decel lane	520	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	99	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2059	416	99	vph
Peak-hour factor, PHF	0.88	0.86	0.83	
Peak 15-min volume, v15	585	121	30	v
Trucks and buses	16	7	22	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.905	0.752	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 2901 535 159 pcph

Estimation of V12 Merge Areas

L_{EQ} = 394.38 (Equation 13-6 or 13-7)

P_{FM} = 0.592 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1718 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3436	7200	No
v_3 or v_{av34}	1183 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	Yes	

If yes, v_{12A} = 1718 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2253	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 19.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.322

Space mean speed in ramp influence area, S_R = 61.0 mph

Space mean speed in outer lanes, S_O = 67.5 mph

Space mean speed for all vehicles, S = 63.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2252	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1417	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	222	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2252	1417	222	vph
Peak-hour factor, PHF	0.88	0.82	0.72	
Peak 15-min volume, v15	640	432	77	v
Trucks and buses	16	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3173 1832 331 pcph

Estimation of V12 Merge Areas

L_{EQ} = 1225.47 (Equation 13-6 or 13-7)

P_{FM} = 0.619 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1966 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5005	7200	No
v_3 or v_{av34}	1207 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 $v_{12}/2$	Yes	

If yes, v_{12A} = 1966 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3798	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 24.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.390

Space mean speed in ramp influence area, S_R = 59.1 mph

Space mean speed in outer lanes, S_O = 67.5 mph

Space mean speed for all vehicles, S = 60.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2252	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1417	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	223	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1725	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2252	1417	223	vph
Peak-hour factor, PHF	0.88	0.82	0.87	
Peak 15-min volume, v15	640	432	64	v
Trucks and buses	16	4	15	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.943	0.816	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3173 1832 314 pcph

Estimation of V12 Merge Areas

L_{EQ} = 1165.27 (Equation 13-6 or 13-7)

P_{FM} = 0.619 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1966 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5005	7200	No
v_3 or v_{av34}	1207 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	Yes	

If yes, v_{12A} = 1966 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3798	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 24.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.390

Space mean speed in ramp influence area, S_R = 59.1 mph

Space mean speed in outer lanes, S_O = 67.5 mph

Space mean speed for all vehicles, S = 60.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3447	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	2340	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	182	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3447	2340	182	vph
Peak-hour factor, PHF	0.88	0.88	0.46	
Peak 15-min volume, v15	979	665	99	v
Trucks and buses	16	4	3	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.943	0.957	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4857 2819 413 pcph

Estimation of V12 Merge Areas

L_{EQ} = 1529.06 (Equation 13-6 or 13-7)

P_{FM} = 0.619 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 3009 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7676	7200	Yes
v_3 or v_{av34}	1848 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 3009 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	5828	4600	Yes

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 40.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 1.541

Space mean speed in ramp influence area, S_R = 26.9 mph

Space mean speed in outer lanes, S_O = 65.1 mph

Space mean speed for all vehicles, S = 31.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3447	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	2340	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	182	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3447	2340	182	vph
Peak-hour factor, PHF	0.88	0.88	0.46	
Peak 15-min volume, v15	979	665	99	v
Trucks and buses	16	4	3	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.943	0.957	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4857 2819 413 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = -0.135 Using Equation 0

$v_{12} = v_F (P_{FM})$ = -653 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7676	9600	No
v_3 or v_{av34}	2755 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	Yes	
Is v_3 or v_{av34}	> 1.5 $v_{12}/2$	Yes	

If yes, v_{12A} = 1942 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4761	4600	Yes

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 31.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.672	
Space mean speed in ramp influence area,	S_R = 51.2	mph
Space mean speed in outer lanes,	S_O = 66.6	mph
Space mean speed for all vehicles,	S = 56.1	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3447	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	2340	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	222	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	905	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3447	2340	222	vph
Peak-hour factor, PHF	0.88	0.88	0.72	
Peak 15-min volume, v15	979	665	77	v
Trucks and buses	16	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4857 2819 331 pcph

Estimation of V12 Merge Areas

L_{EQ} = 1736.86 (Equation 13-6 or 13-7)

P_{FM} = 0.567 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 2754 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7676	7200	Yes
v_3 or v_{av34}	2103 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 $v_{12}/2$	Yes	

If yes, v_{12A} = 2775 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	5594	4600	Yes

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 38.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	M_S = 1.264	
Space mean speed in ramp influence area,	S_R = 34.6	mph
Space mean speed in outer lanes,	S_O = 64.3	mph
Space mean speed for all vehicles,	S = 39.6	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3447	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	2340	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	222	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	905	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3447	2340	222	vph
Peak-hour factor, PHF	0.88	0.88	0.72	
Peak 15-min volume, v15	979	665	77	v
Trucks and buses	16	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.806	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4857 2819 331 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = -0.135 Using Equation 0

$v_{12} = v_F (P_{FM})$ = -653 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7676	9600	No
v_3 or v_{av34}	2755 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	Yes	
Is v_3 or v_{av34}	> 1.5 $v_{12}/2$	Yes	

If yes, v_{12A} = 1942 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4761	4600	Yes

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 31.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.672	
Space mean speed in ramp influence area,	S_R = 51.2	mph
Space mean speed in outer lanes,	S_O = 66.6	mph
Space mean speed for all vehicles,	S = 56.1	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3031	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	134	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3031	221	134	vph
Peak-hour factor, PHF	0.91	0.85	0.79	
Peak 15-min volume, v15	833	65	42	v
Trucks and buses	14	18	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.787	0.893	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4030 330 190 pcph

Estimation of V12 Merge Areas

L_{EQ} = 740.09 (Equation 13-6 or 13-7)

P_{FM} = 0.616 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2482 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4360	7200	No
v_3 or v_{av34}	1548 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2482 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4360	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 18.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.290	
Space mean speed in ramp influence area,	S_R = 61.9	mph
Space mean speed in outer lanes,	S_O = 66.2	mph
Space mean speed for all vehicles,	S = 63.4	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 82
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3031	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	160	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2265	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3031	221	160	vph
Peak-hour factor, PHF	0.91	0.85	0.74	
Peak 15-min volume, v15	833	65	54	v
Trucks and buses	14	18	18	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.787	0.787	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4030 330 275 pcph

Estimation of V12 Merge Areas

L_{EQ} = 971.74 (Equation 13-6 or 13-7)

P_{FM} = 0.616 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2482 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4360	7200	No
v_3 or v_{av34}	1548 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 $v_{12}/2$	Yes	

If yes, v_{12A} = 2482 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2812	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 18.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.290

Space mean speed in ramp influence area, S_R = 61.9 mph

Space mean speed in outer lanes, S_O = 66.2 mph

Space mean speed for all vehicles, S = 63.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2587	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	81	vph
Length of first accel/decel lane	520	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	230	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2587	81	230	vph
Peak-hour factor, PHF	0.91	0.66	0.85	
Peak 15-min volume, v15	711	31	68	v
Trucks and buses	14	10	16	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.870	0.806	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3440 141 336 pcph

Estimation of V12 Merge Areas

L_{EQ} = 2033.41 (Equation 13-6 or 13-7)

P_{FM} = 0.592 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2037 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3581	7200	No
v_3 or v_{av34}	1403 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	Yes	

If yes, v_{12A} = 2037 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2178	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 19.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.319	
Space mean speed in ramp influence area,	S_R = 61.1	mph
Space mean speed in outer lanes,	S_O = 66.7	mph
Space mean speed for all vehicles,	S = 63.2	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 85 Loop
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2587	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	81	vph
Length of first accel/decel lane	520	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	134	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1050	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2587	81	134	vph
Peak-hour factor, PHF	0.91	0.66	0.79	
Peak 15-min volume, v15	711	31	42	v
Trucks and buses	14	10	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.870	0.893	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3440 141 190 pcph

Estimation of V12 Merge Areas

L_{EQ} = 425.41 (Equation 13-6 or 13-7)

P_{FM} = 0.592 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2037 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3581	7200	No
v_3 or v_{av34}	1403 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	Yes	

If yes, v_{12A} = 2037 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2178	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 19.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.319

Space mean speed in ramp influence area, S_R = 61.1 mph

Space mean speed in outer lanes, S_O = 66.7 mph

Space mean speed for all vehicles, S = 63.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2438	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1362	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	761	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2438	1362	761	vph
Peak-hour factor, PHF	0.91	0.77	0.83	
Peak 15-min volume, v15	670	442	229	v
Trucks and buses	14	5	15	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.930	0.816	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3242 1901 1123 pcph

Estimation of V12 Merge Areas

L_{EQ} = 4157.72 (Equation 13-6 or 13-7)

P_{FM} = 0.619 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2008 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5143	7200	No
v_3 or v_{av34}	1234 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 $v_{12}/2$	Yes	

If yes, v_{12A} = 2008 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3909	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 25.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.410

Space mean speed in ramp influence area, S_R = 58.5 mph

Space mean speed in outer lanes, S_O = 67.4 mph

Space mean speed for all vehicles, S = 60.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2438	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1362	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	230	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1725	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2438	1362	230	vph
Peak-hour factor, PHF	0.91	0.77	0.85	
Peak 15-min volume, v15	670	442	68	v
Trucks and buses	14	5	16	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.930	0.806	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3242 1901 336 pcph

Estimation of V12 Merge Areas

L_{EQ} = 1194.80 (Equation 13-6 or 13-7)

P_{FM} = 0.619 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2008 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5143	7200	No
v_3 or v_{av34}	1234 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 $v_{12}/2$	Yes	

If yes, v_{12A} = 2008 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3909	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 25.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.410

Space mean speed in ramp influence area, S_R = 58.5 mph

Space mean speed in outer lanes, S_O = 67.4 mph

Space mean speed for all vehicles, S = 60.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3039	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1158	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	151	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3039	1158	151	vph
Peak-hour factor, PHF	0.91	0.94	0.94	
Peak 15-min volume, v15	835	308	40	v
Trucks and buses	14	5	3	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.930	0.957	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4041 1324 168 pcph

Estimation of V12 Merge Areas

L_{EQ} = 621.99 (Equation 13-6 or 13-7)

P_{FM} = 0.619 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2503 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5365	7200	No
v_3 or v_{av34}	1538 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	Yes	

If yes, v_{12A} = 2503 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3827	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 25.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.395	
Space mean speed in ramp influence area,	S_R = 58.9	mph
Space mean speed in outer lanes,	S_O = 66.3	mph
Space mean speed for all vehicles,	S = 60.9	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 SB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3039	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1158	vph
Length of first accel/decel lane	1500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	761	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	905	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3039	1158	761	vph
Peak-hour factor, PHF	0.91	0.94	0.83	
Peak 15-min volume, v15	835	308	229	v
Trucks and buses	14	5	15	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.826	0.930	0.816	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4041 1324 1123 pcph

Estimation of V12 Merge Areas

L_{EQ} = 1242.31 (Equation 13-6 or 13-7)

P_{FM} = 0.598 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 2417 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5365	7200	No
v_3 or v_{av34}	1624 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 $v_{12}/2$	Yes	

If yes, v_{12A} = 2417 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3741	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 24.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.380	
Space mean speed in ramp influence area,	S_R = 59.4	mph
Space mean speed in outer lanes,	S_O = 66.0	mph
Space mean speed for all vehicles,	S = 61.2	mph

Appendix C

HCS Ramp Merge Analysis Outputs
2040 Build I-26 Westbound On-Ramps

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1293	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	137	vph
Length of first accel/decel lane	555	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	279	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1293	137	279	vph
Peak-hour factor, PHF	0.94	0.94	0.94	
Peak 15-min volume, v15	344	36	74	v
Trucks and buses	23	13	25	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.837	0.727	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 1850 174 408 pcph

Estimation of V12 Merge Areas

L_{EQ} = 2414.42 (Equation 13-6 or 13-7)

P_{FM} = 0.593 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1097 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2024	7200	No
v_3 or v_{av34}	753 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	

If yes, v_{12A} = 1097 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1271	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 11.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.296

Space mean speed in ramp influence area, S_R = 61.7 mph

Space mean speed in outer lanes, S_O = 69.1 mph

Space mean speed for all vehicles, S = 64.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1293	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	137	vph
Length of first accel/decel lane	555	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	52	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	980	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1293	137	52	vph
Peak-hour factor, PHF	0.90	0.75	0.61	
Peak 15-min volume, v15	359	46	21	v
Trucks and buses	23	13	11	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.837	0.858	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 1932 218 99 pcph

Estimation of V12 Merge Areas

L_{EQ} = 134.72 (Equation 13-6 or 13-7)

P_{FM} = 0.593 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1146 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2150	7200	No
v_3 or v_{av34}	786 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 $v_{12}/2$	Yes	

If yes, v_{12A} = 1146 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1364	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 12.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.297

Space mean speed in ramp influence area, S_R = 61.7 mph

Space mean speed in outer lanes, S_O = 69.0 mph

Space mean speed for all vehicles, S = 64.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1161	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	184	vph
Length of first accel/decel lane	1195	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	52	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1161	184	52	vph
Peak-hour factor, PHF	0.90	0.94	0.61	
Peak 15-min volume, v15	323	49	21	v
Trucks and buses	23	10	11	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.870	0.858	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 1735 225 99 pcph

Estimation of V12 Merge Areas

L_{EQ} = 416.90 (Equation 13-6 or 13-7)

P_{FM} = 0.611 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1060 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1960	7200	No
v_3 or v_{av34}	675 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	Yes	

If yes, v_{12A} = 1060 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1285	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 7.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable, M_S = 0.251

Space mean speed in ramp influence area, S_R = 63.0 mph

Space mean speed in outer lanes, S_O = 69.4 mph

Space mean speed for all vehicles, S = 65.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1161	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	184	vph
Length of first accel/decel lane	1195	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1188	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1465	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1161	184	1188	vph
Peak-hour factor, PHF	0.90	0.94	0.82	
Peak 15-min volume, v15	323	49	362	v
Trucks and buses	23	10	16	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.870	0.806	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 1735 225 1796 pcph

Estimation of V12 Merge Areas

L_{EQ} = 378.22 (Equation 13-6 or 13-7)

P_{FM} = 0.611 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1060 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1960	7200	No
v_3 or v_{av34}	675 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 $v_{12}/2$	Yes	

If yes, v_{12A} = 1060 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1285	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 7.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable, M_S = 0.251

Space mean speed in ramp influence area, S_R = 63.0 mph

Space mean speed in outer lanes, S_O = 69.4 mph

Space mean speed for all vehicles, S = 65.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1998	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	351	vph
Length of first accel/decel lane	1440	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1188	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1998	351	1188	vph
Peak-hour factor, PHF	0.90	0.79	0.82	
Peak 15-min volume, v15	555	111	362	v
Trucks and buses	23	5	16	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.930	0.806	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 2986 478 1796 pcph

Estimation of V12 Merge Areas

L_{EQ} = 6811.29 (Equation 13-6 or 13-7)

P_{FM} = 0.618 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1845 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3464	7200	No
v_3 or v_{av34}	1141 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1845 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2323	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 14.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.260	
Space mean speed in ramp influence area,	S_R = 62.7	mph
Space mean speed in outer lanes,	S_O = 67.7	mph
Space mean speed for all vehicles,	S = 64.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	1998	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	351	vph
Length of first accel/decel lane	1440	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	898	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	710	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1998	351	898	vph
Peak-hour factor, PHF	0.90	0.79	0.83	
Peak 15-min volume, v15	555	111	270	v
Trucks and buses	23	5	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.930	0.837	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 2986 478 1293 pcph

Estimation of V12 Merge Areas

L_{EQ} = 808.86 (Equation 13-6 or 13-7)

P_{FM} = 0.612 Using Equation 2

$v_{12} = v_F (P_{FM})$ = 1826 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3464	7200	No
v_3 or v_{av34}	1160 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	No	

If yes, v_{12A} = 1826 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3464	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 14.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.259

Space mean speed in ramp influence area, S_R = 62.7 mph

Space mean speed in outer lanes, S_O = 67.6 mph

Space mean speed for all vehicles, S = 64.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2700	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	196	vph
Length of first accel/decel lane	1135	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	898	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2700	196	898	vph
Peak-hour factor, PHF	0.90	0.93	0.83	
Peak 15-min volume, v15	750	53	270	v
Trucks and buses	23	4	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.943	0.837	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4035 223 1293 pcph

Estimation of V12 Merge Areas

L_{EQ} = 5596.31 (Equation 13-6 or 13-7)

P_{FM} = 0.190 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 766 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4258	9200	No
v_3 or v_{av34}	1634 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 $v_{12}/2$	Yes	

If yes, v_{12A} = 1614 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4258	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 12.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.266	
Space mean speed in ramp influence area,	S_R = 55.2	mph
Space mean speed in outer lanes,	S_O = 57.4	mph
Space mean speed for all vehicles,	S = 56.5	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2700	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	196	vph
Length of first accel/decel lane	1135	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	491	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1080	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2700	196	491	vph
Peak-hour factor, PHF	0.90	0.93	0.87	
Peak 15-min volume, v15	750	53	141	v
Trucks and buses	23	4	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.743	0.943	0.905	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 4035 223 624 pcph

Estimation of V12 Merge Areas

L_{EQ} = 843.35 (Equation 13-6 or 13-7)

P_{FM} = 0.190 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 766 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4258	9200	No
v_3 or v_{av34}	1634 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 $v_{12}/2$	Yes	

If yes, v_{12A} = 1614 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4258	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 12.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.266	
Space mean speed in ramp influence area,	S_R = 55.2	mph
Space mean speed in outer lanes,	S_O = 57.4	mph
Space mean speed for all vehicles,	S = 56.5	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2613	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	127	vph
Length of first accel/decel lane	555	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	317	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2613	127	317	vph
Peak-hour factor, PHF	0.92	0.79	0.86	
Peak 15-min volume, v15	710	40	92	v
Trucks and buses	13	10	14	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.870	0.826	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3394 185 446 pcph

Estimation of V12 Merge Areas

L_{EQ} = 2639.29 (Equation 13-6 or 13-7)

P_{FM} = 0.593 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2013 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3579	7200	No
v_3 or v_{av34}	1381 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 2013 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2198	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 19.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.317

Space mean speed in ramp influence area, S_R = 61.1 mph

Space mean speed in outer lanes, S_O = 66.8 mph

Space mean speed for all vehicles, S = 63.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 85
Jurisdiction:	Newberry County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2613	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	127	vph
Length of first accel/decel lane	555	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	188	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	980	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2613	127	188	vph
Peak-hour factor, PHF	0.92	0.79	0.90	
Peak 15-min volume, v15	710	40	52	v
Trucks and buses	13	10	10	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.870	0.870	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3394 185 240 pcph

Estimation of V12 Merge Areas

L_{EQ} = 440.53 (Equation 13-6 or 13-7)

P_{FM} = 0.593 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2013 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3579	7200	No
v_3 or v_{av34}	1381 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	Yes	

If yes, v_{12A} = 2013 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2198	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 19.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.317

Space mean speed in ramp influence area, S_R = 61.1 mph

Space mean speed in outer lanes, S_O = 66.8 mph

Space mean speed for all vehicles, S = 63.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2534	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	267	vph
Length of first accel/decel lane	1195	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	188	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2534	267	188	vph
Peak-hour factor, PHF	0.92	0.69	0.90	
Peak 15-min volume, v15	689	97	52	v
Trucks and buses	13	8	10	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.893	0.870	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3291 433 240 pcph

Estimation of V12 Merge Areas

L_{EQ} = 1010.68 (Equation 13-6 or 13-7)

P_{FM} = 0.611 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2011 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3724	7200	No
v_3 or v_{av34}	1280 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 $v_{12}/2$	Yes	

If yes, v_{12A} = 2011 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2444	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.282

Space mean speed in ramp influence area, S_R = 62.1 mph

Space mean speed in outer lanes, S_O = 67.2 mph

Space mean speed for all vehicles, S = 63.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 91
Jurisdiction:	Lexington County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2534	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	267	vph
Length of first accel/decel lane	1195	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1576	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1465	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2534	267	1576	vph
Peak-hour factor, PHF	0.92	0.69	0.93	
Peak 15-min volume, v15	689	97	424	v
Trucks and buses	13	8	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.893	0.837	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 3291 433 2025 pcph

Estimation of V12 Merge Areas

L_{EQ} = 755.72 (Equation 13-6 or 13-7)

P_{FM} = 0.611 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2011 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3724	7200	No
v_3 or v_{av34}	1280 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	Yes	

If yes, v_{12A} = 2011 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2444	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.282

Space mean speed in ramp influence area, S_R = 62.1 mph

Space mean speed in outer lanes, S_O = 67.2 mph

Space mean speed for all vehicles, S = 63.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4110	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	273	vph
Length of first accel/decel lane	1440	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1576	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4110	273	1576	vph
Peak-hour factor, PHF	0.92	0.93	0.93	
Peak 15-min volume, v15	1117	73	424	v
Trucks and buses	13	2	13	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.971	0.837	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 5339 302 2025 pcph

Estimation of V12 Merge Areas

L_{EQ} = 7679.76 (Equation 13-6 or 13-7)

P_{FM} = 0.618 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 3299 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5641	7200	No
v_3 or v_{av34}	2040 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 $v_{12}/2$	Yes	

If yes, v_{12A} = 3299 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3601	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 24.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.363

Space mean speed in ramp influence area, S_R = 59.8 mph

Space mean speed in outer lanes, S_O = 64.5 mph

Space mean speed for all vehicles, S = 61.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 97 Loop
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4110	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	273	vph
Length of first accel/decel lane	1440	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2189	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	710	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4110	273	2189	vph
Peak-hour factor, PHF	0.92	0.93	0.86	
Peak 15-min volume, v15	1117	73	636	v
Trucks and buses	13	2	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.971	0.943	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 5339 302 2698 pcph

Estimation of V12 Merge Areas

L_{EQ} = 1274.73 (Equation 13-6 or 13-7)

P_{FM} = 0.582 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 3108 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5641	7200	No
v_3 or v_{av34}	2231 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	Yes	

If yes, v_{12A} = 3108 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3410	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 22.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.338	
Space mean speed in ramp influence area,	S_R = 60.5	mph
Space mean speed in outer lanes,	S_O = 63.8	mph
Space mean speed for all vehicles,	S = 61.8	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5660	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	366	vph
Length of first accel/decel lane	1135	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2189	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	9999	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5660	366	2189	vph
Peak-hour factor, PHF	0.92	0.89	0.86	
Peak 15-min volume, v15	1538	103	636	v
Trucks and buses	13	3	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.957	0.943	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 7352 430 2698 pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.164 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1206 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7782	9200	No
v_3 or v_{av34}	3073 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	Yes	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	Yes	

If yes, v_{12A} = 2940 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3370	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 24.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.355	
Space mean speed in ramp influence area,	S_R = 53.6	mph
Space mean speed in outer lanes,	S_O = 53.9	mph
Space mean speed for all vehicles,	S = 53.8	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RJD
Agency/Co.:	STV Incorporated
Date performed:	03/09/2017
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-26 NB
Junction:	Exit 101
Jurisdiction:	Richland County
Analysis Year:	2040 Build
Description:	I-26 mm 85-101

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5660	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	366	vph
Length of first accel/decel lane	1135	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1387	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1080	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5660	366	1387	vph
Peak-hour factor, PHF	0.92	0.89	0.92	
Peak 15-min volume, v15	1538	103	377	v
Trucks and buses	13	3	6	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	
Heavy vehicle adjustment, fHV	0.837	0.957	0.917	
Driver population factor, fP	1.00	1.00	1.00	

Flow rate, vp 7352 430 1643 pcph

Estimation of V12 Merge Areas

L_{EQ} = 1597.49 (Equation 13-6 or 13-7)

P_{FM} = 0.164 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1206 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7782	9200	No
v_3 or v_{av34}	3073 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	Yes	
Is v_3 or v_{av34}	> 1.5 v_{12}/2	Yes	

If yes, v_{12A} = 2940 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	7782	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 24.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.355	
Space mean speed in ramp influence area,	S_R = 53.6	mph
Space mean speed in outer lanes,	S_O = 53.9	mph
Space mean speed for all vehicles,	S = 53.8	mph

Appendix D

Synchro Intersection Analysis Outputs

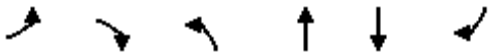
Appendix D

Synchro Intersection Analysis Outputs
Exit 85 - Existing AM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	13	0	52	11	1	106
Future Volume (Veh/h)	13	0	52	11	1	106
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.90	0.78	0.39	0.25	0.83
Hourly flow rate (vph)	20	0	67	28	4	128
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	217	81			95	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	217	81			95	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	774	979			1512	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	20	95	132
Volume Left	20	0	4
Volume Right	0	28	0
cSH	774	1700	1512
Volume to Capacity	0.03	0.06	0.00
Queue Length 95th (ft)	2	0	0
Control Delay (s)	9.8	0.0	0.2
Lane LOS	A		A
Approach Delay (s)	9.8	0.0	0.2
Approach LOS	A		

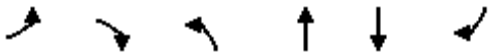
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	16.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	7	2	63	119	0
Future Volume (Veh/h)	0	7	2	63	119	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.44	0.25	0.90	0.80	0.90
Hourly flow rate (vph)	0	16	8	70	149	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	235	149	149			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	235	149	149			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	99			
cM capacity (veh/h)	749	903	1445			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	16	78	149
Volume Left	0	8	0
Volume Right	16	0	0
cSH	903	1445	1700
Volume to Capacity	0.02	0.01	0.09
Queue Length 95th (ft)	1	0	0
Control Delay (s)	9.1	0.8	0.0
Lane LOS	A	A	
Approach Delay (s)	9.1	0.8	0.0
Approach LOS	A		

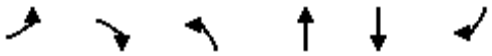
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	16.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	0	0	111	106	0
Future Volume (Veh/h)	10	0	0	111	106	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.50	0.90	0.90	0.83	0.83	0.90
Hourly flow rate (vph)	20	0	0	134	128	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	262	128	128			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	262	128	128			
tC, single (s)	6.6	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.7	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	680	927	1470			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	20	134	128
Volume Left	20	0	0
Volume Right	0	0	0
cSH	680	1700	1700
Volume to Capacity	0.03	0.08	0.08
Queue Length 95th (ft)	2	0	0
Control Delay (s)	10.5	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.5	0.0	0.0
Approach LOS	B		

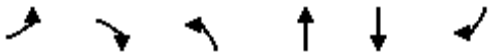
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	179	111	74	0
Future Volume (Veh/h)	0	0	179	111	74	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.80	0.87	0.71	0.90
Hourly flow rate (vph)	0	0	224	128	104	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	680	104	104			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	680	104	104			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	85			
cM capacity (veh/h)	356	956	1475			

Direction, Lane #	NB 1	SB 1
Volume Total	352	104
Volume Left	224	0
Volume Right	0	0
cSH	1475	1700
Volume to Capacity	0.15	0.06
Queue Length 95th (ft)	13	0
Control Delay (s)	5.5	0.0
Lane LOS	A	
Approach Delay (s)	5.5	0.0
Approach LOS		

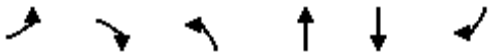
Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	25.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	56	65	106	20
Future Volume (Veh/h)	0	0	56	65	106	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.82	0.88	0.83	0.71
Hourly flow rate (vph)	0	0	68	74	128	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	352	142	156			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	352	142	156			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	95			
cM capacity (veh/h)	618	911	1388			

Direction, Lane #	NB 1	SB 1
Volume Total	142	156
Volume Left	68	0
Volume Right	0	28
cSH	1388	1700
Volume to Capacity	0.05	0.09
Queue Length 95th (ft)	4	0
Control Delay (s)	3.9	0.0
Lane LOS	A	
Approach Delay (s)	3.9	0.0
Approach LOS		

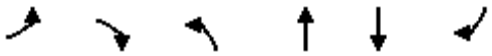
Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	24	31	0	266	74	0
Future Volume (Veh/h)	24	31	0	266	74	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.83	0.90	0.81	0.71	0.90
Hourly flow rate (vph)	28	37	0	328	104	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	432	104	104			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	432	104	104			
tC, single (s)	6.8	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.8	3.4	2.2			
p0 queue free %	95	96	100			
cM capacity (veh/h)	518	932	1500			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	65	328	104
Volume Left	28	0	0
Volume Right	37	0	0
cSH	694	1700	1700
Volume to Capacity	0.09	0.19	0.06
Queue Length 95th (ft)	8	0	0
Control Delay (s)	10.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.7	0.0	0.0
Approach LOS	B		

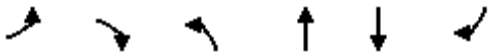
Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	24.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	19	0	111	106	0
Future Volume (Veh/h)	0	19	0	111	106	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.68	0.90	0.83	0.83	0.90
Hourly flow rate (vph)	0	28	0	134	128	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	262	128	128			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	262	128	128			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	100	97	100			
cM capacity (veh/h)	731	909	1470			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	28	134	128
Volume Left	0	0	0
Volume Right	28	0	0
cSH	909	1700	1700
Volume to Capacity	0.03	0.08	0.08
Queue Length 95th (ft)	2	0	0
Control Delay (s)	9.1	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.1	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	15.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	111	74	51
Future Volume (Veh/h)	0	0	0	111	74	51
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.87	0.71	0.67
Hourly flow rate (vph)	0	0	0	128	104	76
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	270	142	180			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	270	142	180			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	724	911	1408			

Direction, Lane #	NB 1	SB 1
Volume Total	128	180
Volume Left	0	0
Volume Right	0	76
cSH	1700	1700
Volume to Capacity	0.08	0.11
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	10.3%	ICU Level of Service	A
Analysis Period (min)	15		

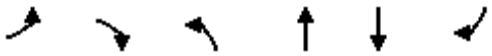
Appendix D

Synchro Intersection Analysis Outputs
Exit 85 - Existing PM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	1	95	11	2	77
Future Volume (Veh/h)	25	1	95	11	2	77
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.69	0.25	0.92	0.55	0.50	0.86
Hourly flow rate (vph)	36	4	103	20	4	90
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	211	113			123	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	211	113			123	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	100			100	
cM capacity (veh/h)	780	945			1477	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	40	123	94
Volume Left	36	0	4
Volume Right	4	20	0
cSH	794	1700	1477
Volume to Capacity	0.05	0.07	0.00
Queue Length 95th (ft)	4	0	0
Control Delay (s)	9.8	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.8	0.0	0.3
Approach LOS	A		

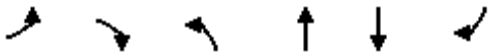
Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	15.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	4	2	105	102	0
Future Volume (Veh/h)	1	4	2	105	102	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.25	0.50	0.25	0.97	0.84	0.90
Hourly flow rate (vph)	4	8	8	108	121	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	245	121	121			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	245	121	121			
tC, single (s)	7.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	4.4	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	569	936	1479			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	12	116	121
Volume Left	4	8	0
Volume Right	8	0	0
cSH	770	1479	1700
Volume to Capacity	0.02	0.01	0.07
Queue Length 95th (ft)	1	0	0
Control Delay (s)	9.7	0.6	0.0
Lane LOS	A	A	
Approach Delay (s)	9.7	0.6	0.0
Approach LOS	A		

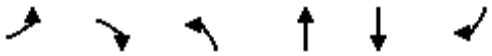
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	17.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	0	0	89	52	0
Future Volume (Veh/h)	34	0	0	89	52	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.66	0.90	0.90	0.92	0.85	0.90
Hourly flow rate (vph)	52	0	0	97	61	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	158	61	61			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	158	61	61			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	100	100			
cM capacity (veh/h)	838	1010	1555			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	52	97	61
Volume Left	52	0	0
Volume Right	0	0	0
cSH	838	1700	1700
Volume to Capacity	0.06	0.06	0.04
Queue Length 95th (ft)	5	0	0
Control Delay (s)	9.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.6	0.0	0.0
Approach LOS	A		

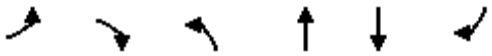
Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	22	89	99	0
Future Volume (Veh/h)	0	0	22	89	99	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.79	0.91	0.88	0.90
Hourly flow rate (vph)	0	0	28	98	113	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	267	113	113			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	267	113	113			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.4			
p0 queue free %	100	100	98			
cM capacity (veh/h)	712	945	1361			

Direction, Lane #	NB 1	SB 1
Volume Total	126	113
Volume Left	28	0
Volume Right	0	0
cSH	1361	1700
Volume to Capacity	0.02	0.07
Queue Length 95th (ft)	2	0
Control Delay (s)	1.8	0.0
Lane LOS	A	
Approach Delay (s)	1.8	0.0
Approach LOS		

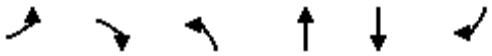
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	15.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	16	107	52	54
Future Volume (Veh/h)	0	0	16	107	52	54
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.57	0.94	0.85	0.79
Hourly flow rate (vph)	0	0	28	114	61	68
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	265	95	129			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	265	95	129			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	98			
cM capacity (veh/h)	715	967	1469			

Direction, Lane #	NB 1	SB 1
Volume Total	142	129
Volume Left	28	0
Volume Right	0	68
cSH	1469	1700
Volume to Capacity	0.02	0.08
Queue Length 95th (ft)	1	0
Control Delay (s)	1.6	0.0
Lane LOS	A	
Approach Delay (s)	1.6	0.0
Approach LOS		

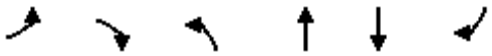
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	16.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	33	41	0	78	99	0
Future Volume (Veh/h)	33	41	0	78	99	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.65	0.73	0.90	0.90	0.88	0.90
Hourly flow rate (vph)	51	56	0	87	113	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	200	113	113			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	200	113	113			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	93	94	100			
cM capacity (veh/h)	773	945	1489			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	107	87	113
Volume Left	51	0	0
Volume Right	56	0	0
cSH	855	1700	1700
Volume to Capacity	0.13	0.05	0.07
Queue Length 95th (ft)	11	0	0
Control Delay (s)	9.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.8	0.0	0.0
Approach LOS	A		

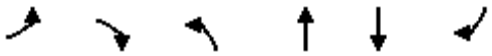
Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	16.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	70	0	89	52	0
Future Volume (Veh/h)	0	70	0	89	52	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.80	0.90	0.92	0.85	0.90
Hourly flow rate (vph)	0	88	0	97	61	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	158	61	61			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	158	61	61			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	100	91	100			
cM capacity (veh/h)	838	993	1555			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	88	97	61
Volume Left	0	0	0
Volume Right	88	0	0
cSH	993	1700	1700
Volume to Capacity	0.09	0.06	0.04
Queue Length 95th (ft)	7	0	0
Control Delay (s)	9.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	89	99	23
Future Volume (Veh/h)	0	0	0	89	99	23
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.91	0.88	0.82
Hourly flow rate (vph)	0	0	0	98	113	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	225	127	141			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	225	127	141			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	768	929	1455			

Direction, Lane #	NB 1	SB 1
Volume Total	98	141
Volume Left	0	0
Volume Right	0	28
cSH	1700	1700
Volume to Capacity	0.06	0.08
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	9.9%	ICU Level of Service	A
Analysis Period (min)	15		

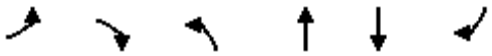
Appendix D

Synchro Intersection Analysis Outputs
Exit 85 - No Build AM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	13	0	52	11	1	106
Future Volume (Veh/h)	13	0	52	11	1	106
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.90	0.78	0.39	0.25	0.83
Hourly flow rate (vph)	36	0	121	51	7	231
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	392	146			172	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	392	146			172	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	100			100	
cM capacity (veh/h)	614	901			1417	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	36	172	238
Volume Left	36	0	7
Volume Right	0	51	0
cSH	614	1700	1417
Volume to Capacity	0.06	0.10	0.00
Queue Length 95th (ft)	5	0	0
Control Delay (s)	11.2	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	11.2	0.0	0.3
Approach LOS	B		

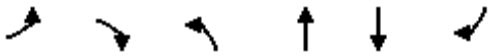
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	21.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	7	2	63	119	0
Future Volume (Veh/h)	0	7	2	63	119	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.44	0.25	0.90	0.80	0.90
Hourly flow rate (vph)	0	29	14	127	269	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	424	269	269			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	424	269	269			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	99			
cM capacity (veh/h)	581	775	1306			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	29	141	269
Volume Left	0	14	0
Volume Right	29	0	0
cSH	775	1306	1700
Volume to Capacity	0.04	0.01	0.16
Queue Length 95th (ft)	3	1	0
Control Delay (s)	9.8	0.9	0.0
Lane LOS	A	A	
Approach Delay (s)	9.8	0.9	0.0
Approach LOS	A		

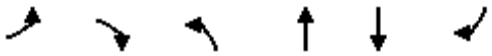
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	21.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	0	0	111	106	0
Future Volume (Veh/h)	10	0	0	111	106	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.50	0.90	0.90	0.83	0.83	0.90
Hourly flow rate (vph)	36	0	0	242	231	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	473	231	231			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	473	231	231			
tC, single (s)	6.6	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.7	3.3	2.2			
p0 queue free %	93	100	100			
cM capacity (veh/h)	510	813	1349			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	36	242	231
Volume Left	36	0	0
Volume Right	0	0	0
cSH	510	1700	1700
Volume to Capacity	0.07	0.14	0.14
Queue Length 95th (ft)	6	0	0
Control Delay (s)	12.6	0.0	0.0
Lane LOS	B		
Approach Delay (s)	12.6	0.0	0.0
Approach LOS	B		

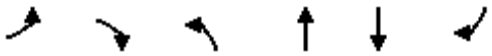
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	20.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	179	111	74	0
Future Volume (Veh/h)	0	0	179	111	74	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.80	0.87	0.71	0.90
Hourly flow rate (vph)	0	0	405	231	189	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1230	189	189			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1230	189	189			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	71			
cM capacity (veh/h)	140	858	1373			

Direction, Lane #	NB 1	SB 1
Volume Total	636	189
Volume Left	405	0
Volume Right	0	0
cSH	1373	1700
Volume to Capacity	0.29	0.11
Queue Length 95th (ft)	31	0
Control Delay (s)	6.6	0.0
Lane LOS	A	
Approach Delay (s)	6.6	0.0
Approach LOS		

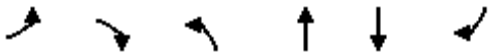
Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	56	65	106	20
Future Volume (Veh/h)	0	0	56	65	106	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.82	0.88	0.83	0.71
Hourly flow rate (vph)	0	0	124	134	231	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	638	256	282			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	638	256	282			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	90			
cM capacity (veh/h)	400	787	1247			

Direction, Lane #	NB 1	SB 1
Volume Total	258	282
Volume Left	124	0
Volume Right	0	51
cSH	1247	1700
Volume to Capacity	0.10	0.17
Queue Length 95th (ft)	8	0
Control Delay (s)	4.4	0.0
Lane LOS	A	
Approach Delay (s)	4.4	0.0
Approach LOS		

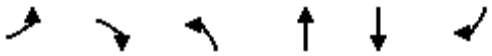
Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	24	31	0	266	74	0
Future Volume (Veh/h)	24	31	0	266	74	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.83	0.90	0.81	0.71	0.90
Hourly flow rate (vph)	51	68	0	594	189	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	783	189	189			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	783	189	189			
tC, single (s)	6.8	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.8	3.4	2.2			
p0 queue free %	84	92	100			
cM capacity (veh/h)	316	835	1397			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	119	594	189
Volume Left	51	0	0
Volume Right	68	0	0
cSH	490	1700	1700
Volume to Capacity	0.24	0.35	0.11
Queue Length 95th (ft)	24	0	0
Control Delay (s)	14.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.7	0.0	0.0
Approach LOS	B		

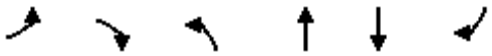
Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	37.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	19	0	111	106	0
Future Volume (Veh/h)	0	19	0	111	106	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.68	0.90	0.83	0.83	0.90
Hourly flow rate (vph)	0	51	0	242	231	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	473	231	231			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	473	231	231			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	100	94	100			
cM capacity (veh/h)	553	796	1349			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	51	242	231
Volume Left	0	0	0
Volume Right	51	0	0
cSH	796	1700	1700
Volume to Capacity	0.06	0.14	0.14
Queue Length 95th (ft)	5	0	0
Control Delay (s)	9.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.8	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	111	74	51
Future Volume (Veh/h)	0	0	0	111	74	51
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.87	0.71	0.67
Hourly flow rate (vph)	0	0	0	231	189	138
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	489	258	327			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	489	258	327			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	542	786	1244			

Direction, Lane #	NB 1	SB 1
Volume Total	231	327
Volume Left	0	0
Volume Right	0	138
cSH	1700	1700
Volume to Capacity	0.14	0.19
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	16.0%	ICU Level of Service	A
Analysis Period (min)	15		

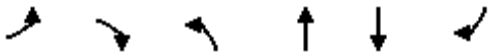
Appendix D

Synchro Intersection Analysis Outputs
Exit 85 - No Build PM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	1	95	11	2	77
Future Volume (Veh/h)	25	1	95	11	2	77
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.69	0.25	0.92	0.55	0.50	0.86
Hourly flow rate (vph)	66	7	187	36	7	162
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	381	205			223	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	381	205			223	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	99			99	
cM capacity (veh/h)	622	841			1358	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	73	223	169
Volume Left	66	0	7
Volume Right	7	36	0
cSH	638	1700	1358
Volume to Capacity	0.11	0.13	0.01
Queue Length 95th (ft)	10	0	0
Control Delay (s)	11.4	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	11.4	0.0	0.4
Approach LOS	B		

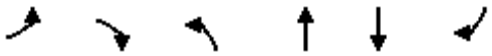
Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	20.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	4	2	105	102	0
Future Volume (Veh/h)	1	4	2	105	102	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.25	0.50	0.25	0.97	0.84	0.90
Hourly flow rate (vph)	7	14	14	196	220	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	444	220	220			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	444	220	220			
tC, single (s)	7.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	4.4	3.3	2.2			
p0 queue free %	98	98	99			
cM capacity (veh/h)	421	825	1361			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	21	210	220
Volume Left	7	14	0
Volume Right	14	0	0
cSH	625	1361	1700
Volume to Capacity	0.03	0.01	0.13
Queue Length 95th (ft)	3	1	0
Control Delay (s)	11.0	0.6	0.0
Lane LOS	B	A	
Approach Delay (s)	11.0	0.6	0.0
Approach LOS	B		

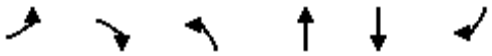
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	0	0	89	52	0
Future Volume (Veh/h)	34	0	0	89	52	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.66	0.90	0.90	0.92	0.85	0.90
Hourly flow rate (vph)	93	0	0	175	111	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	286	111	111			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	286	111	111			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	100	100			
cM capacity (veh/h)	709	948	1492			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	93	175	111
Volume Left	93	0	0
Volume Right	0	0	0
cSH	709	1700	1700
Volume to Capacity	0.13	0.10	0.07
Queue Length 95th (ft)	11	0	0
Control Delay (s)	10.8	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.8	0.0	0.0
Approach LOS	B		

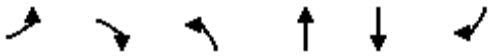
Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	22	89	99	0
Future Volume (Veh/h)	0	0	22	89	99	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.79	0.91	0.88	0.90
Hourly flow rate (vph)	0	0	50	177	204	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	481	204	204			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	481	204	204			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.4			
p0 queue free %	100	100	96			
cM capacity (veh/h)	526	842	1257			

Direction, Lane #	NB 1	SB 1
Volume Total	227	204
Volume Left	50	0
Volume Right	0	0
cSH	1257	1700
Volume to Capacity	0.04	0.12
Queue Length 95th (ft)	3	0
Control Delay (s)	2.0	0.0
Lane LOS	A	
Approach Delay (s)	2.0	0.0
Approach LOS		

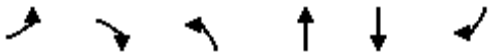
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	26.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	16	107	52	54
Future Volume (Veh/h)	0	0	16	107	52	54
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.57	0.94	0.85	0.79
Hourly flow rate (vph)	0	0	51	206	111	124
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	481	173	235			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	481	173	235			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	96			
cM capacity (veh/h)	527	876	1344			

Direction, Lane #	NB 1	SB 1
Volume Total	257	235
Volume Left	51	0
Volume Right	0	124
cSH	1344	1700
Volume to Capacity	0.04	0.14
Queue Length 95th (ft)	3	0
Control Delay (s)	1.8	0.0
Lane LOS	A	
Approach Delay (s)	1.8	0.0
Approach LOS		

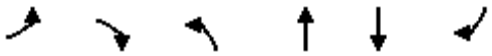
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	29.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	33	41	0	78	99	0
Future Volume (Veh/h)	33	41	0	78	99	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.65	0.73	0.90	0.90	0.88	0.90
Hourly flow rate (vph)	92	102	0	157	204	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	361	204	204			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	361	204	204			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	85	88	100			
cM capacity (veh/h)	624	842	1380			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	194	157	204
Volume Left	92	0	0
Volume Right	102	0	0
cSH	722	1700	1700
Volume to Capacity	0.27	0.09	0.12
Queue Length 95th (ft)	27	0	0
Control Delay (s)	11.8	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.8	0.0	0.0
Approach LOS	B		

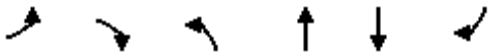
Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	24.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	70	0	89	52	0
Future Volume (Veh/h)	0	70	0	89	52	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.80	0.90	0.92	0.85	0.90
Hourly flow rate (vph)	0	158	0	175	111	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	286	111	111			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	286	111	111			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	100	83	100			
cM capacity (veh/h)	709	931	1492			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	158	175	111
Volume Left	0	0	0
Volume Right	158	0	0
cSH	931	1700	1700
Volume to Capacity	0.17	0.10	0.07
Queue Length 95th (ft)	15	0	0
Control Delay (s)	9.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	89	99	23
Future Volume (Veh/h)	0	0	0	89	99	23
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.91	0.88	0.82
Hourly flow rate (vph)	0	0	0	177	204	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	406	230	255			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	406	230	255			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	604	815	1322			

Direction, Lane #	NB 1	SB 1
Volume Total	177	255
Volume Left	0	0
Volume Right	0	51
cSH	1700	1700
Volume to Capacity	0.10	0.15
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

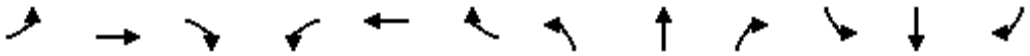
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	15.3%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix D

Synchro Intersection Analysis Outputs
Exit 85 - Alternative 1 AM

HCM Unsignalized Intersection Capacity Analysis
8501: SC 202 & Meadow Brook Road/Four Oaks Road

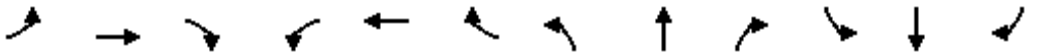
09/12/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	13	24	0	0	4	94	20	2	192	0
Future Volume (Veh/h)	0	0	13	24	0	0	4	94	20	2	192	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	14	27	0	0	4	104	22	2	213	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	329	351	213	354	340	115	213			126		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	329	351	213	354	340	115	213			126		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	95	100	100	100			100		
cM capacity (veh/h)	626	574	832	593	582	943	1369			1473		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	14	27	4	126	2	213
Volume Left	0	27	4	0	2	0
Volume Right	14	0	0	22	0	0
cSH	832	593	1369	1700	1473	1700
Volume to Capacity	0.02	0.05	0.00	0.07	0.00	0.13
Queue Length 95th (ft)	1	4	0	0	0	0
Control Delay (s)	9.4	11.4	7.6	0.0	7.4	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.4	11.4	0.2		0.1	
Approach LOS	A	B				

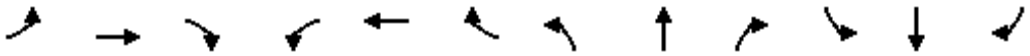
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	24.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	34	0	18	101	99	0	0	192	36
Future Volume (Veh/h)	0	0	0	34	0	18	101	99	0	0	192	36
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	38	0	20	112	110	0	0	213	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	567	547	213	547	587	110	253			110		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	567	547	213	547	587	110	253			110		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.5	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.5	2.3			2.2		
p0 queue free %	100	100	100	91	100	98	91			100		
cM capacity (veh/h)	399	408	832	411	387	885	1278			1493		

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	38	20	112	110	213	40
Volume Left	38	0	112	0	0	0
Volume Right	0	20	0	0	0	40
cSH	411	885	1278	1700	1700	1700
Volume to Capacity	0.09	0.02	0.09	0.06	0.13	0.02
Queue Length 95th (ft)	8	2	7	0	0	0
Control Delay (s)	14.7	9.2	8.1	0.0	0.0	0.0
Lane LOS	B	A	A			
Approach Delay (s)	12.8		4.1		0.0	
Approach LOS	B					

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	38.5%	ICU Level of Service		A
Analysis Period (min)	15			



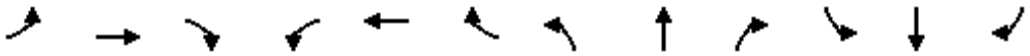
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	0	56	0	0	0	0	157	324	92	134	0
Future Volume (Veh/h)	43	0	56	0	0	0	0	157	324	92	134	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	48	0	62	0	0	0	0	174	360	102	149	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			14									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	527	527	149	558	527	174	149			174		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	527	527	149	558	527	174	149			174		
tC, single (s)	7.5	6.5	6.3	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.8	4.0	3.4	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	88	100	93	100	100	100	100			93		
cM capacity (veh/h)	387	426	879	389	426	875	1445			1409		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	110	174	360	102	149
Volume Left	48	0	0	102	0
Volume Right	62	0	360	0	0
cSH	887	1700	1700	1409	1700
Volume to Capacity	0.12	0.10	0.21	0.07	0.09
Queue Length 95th (ft)	11	0	0	6	0
Control Delay (s)	12.1	0.0	0.0	7.8	0.0
Lane LOS	B			A	
Approach Delay (s)	12.1	0.0		3.2	
Approach LOS	B				

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	38.5%	ICU Level of Service		A
Analysis Period (min)	15			

Appendix D

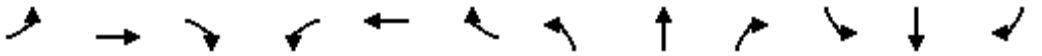
Synchro Intersection Analysis Outputs
Exit 85 - Alternative 1 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	7	45	0	2	4	170	20	4	139	0
Future Volume (Veh/h)	2	0	7	45	0	2	4	170	20	4	139	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	0	8	50	0	2	4	189	22	4	154	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	361	381	154	378	370	200	154			211		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	361	381	154	378	370	200	154			211		
tC, single (s)	8.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.4	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	91	100	100	100			100		
cM capacity (veh/h)	446	552	897	576	560	846	1439			1372		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	10	52	4	211	4	154
Volume Left	2	50	4	0	4	0
Volume Right	8	2	0	22	0	0
cSH	746	583	1439	1700	1372	1700
Volume to Capacity	0.01	0.09	0.00	0.12	0.00	0.09
Queue Length 95th (ft)	1	7	0	0	0	0
Control Delay (s)	9.9	11.8	7.5	0.0	7.6	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.9	11.8	0.1		0.2	
Approach LOS	A	B				

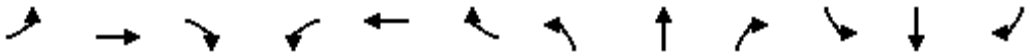
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	25.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	127	0	61	29	132	0	0	94	98
Future Volume (Veh/h)	0	0	0	127	0	61	29	132	0	0	94	98
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	141	0	68	32	147	0	0	104	109
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	383	315	104	315	424	147	213			147		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	383	315	104	315	424	147	213			147		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	77	100	92	98			100		
cM capacity (veh/h)	526	590	956	619	513	905	1369			1447		

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	141	68	32	147	104	109
Volume Left	141	0	32	0	0	0
Volume Right	0	68	0	0	0	109
cSH	619	905	1369	1700	1700	1700
Volume to Capacity	0.23	0.08	0.02	0.09	0.06	0.06
Queue Length 95th (ft)	22	6	2	0	0	0
Control Delay (s)	12.5	9.3	7.7	0.0	0.0	0.0
Lane LOS	B	A	A			
Approach Delay (s)	11.5		1.4		0.0	
Approach LOS	B					

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	26.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	0	74	0	0	0	0	101	40	42	179	0
Future Volume (Veh/h)	60	0	74	0	0	0	0	101	40	42	179	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	67	0	82	0	0	0	0	112	44	47	199	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			14									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	405	405	199	446	405	112	199			112		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	405	405	199	446	405	112	199			112		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	87	100	90	100	100	100	100			97		
cM capacity (veh/h)	530	520	847	463	520	947	1385			1429		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	149	112	44	47	199
Volume Left	67	0	0	47	0
Volume Right	82	0	44	0	0
cSH	1179	1700	1700	1429	1700
Volume to Capacity	0.13	0.07	0.03	0.03	0.12
Queue Length 95th (ft)	11	0	0	3	0
Control Delay (s)	11.1	0.0	0.0	7.6	0.0
Lane LOS	B			A	
Approach Delay (s)	11.1	0.0		1.5	
Approach LOS	B				

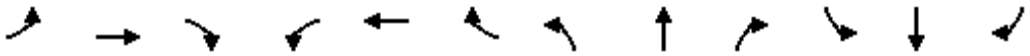
Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	26.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Appendix D

Synchro Intersection Analysis Outputs
Exit 85 - Alternative 1A AM

HCM Unsignalized Intersection Capacity Analysis
8501: SC 202 & Meadow Brook Road/Four Oaks Road

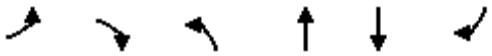
09/12/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	13	24	0	0	4	94	20	2	192	0
Future Volume (Veh/h)	0	0	13	24	0	0	4	94	20	2	192	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	14	27	0	0	4	104	22	2	213	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	329	351	213	354	340	115	213			126		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	329	351	213	354	340	115	213			126		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	95	100	100	100			100		
cM capacity (veh/h)	626	574	832	593	582	943	1369			1473		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	14	27	4	126	2	213
Volume Left	0	27	4	0	2	0
Volume Right	14	0	0	22	0	0
cSH	832	593	1369	1700	1473	1700
Volume to Capacity	0.02	0.05	0.00	0.07	0.00	0.13
Queue Length 95th (ft)	1	4	0	0	0	0
Control Delay (s)	9.4	11.4	7.6	0.0	7.4	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.4	11.4	0.2		0.1	
Approach LOS	A	B				

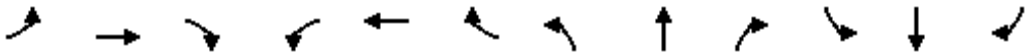
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	24.8%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	34	0	201	192	0
Future Volume (Veh/h)	18	34	0	201	192	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	38	0	223	213	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	324	213	213			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	324	213	213			
tC, single (s)	7.3	7.0	4.1			
tC, 2 stage (s)						
tF (s)	3.8	3.4	2.2			
p0 queue free %	97	95	100			
cM capacity (veh/h)	586	777	1369			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	20	38	112	112	213
Volume Left	20	0	0	0	0
Volume Right	0	38	0	0	0
cSH	586	777	1700	1700	1700
Volume to Capacity	0.03	0.05	0.07	0.07	0.13
Queue Length 95th (ft)	3	4	0	0	0
Control Delay (s)	11.4	9.9	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	10.4		0.0		0.0
Approach LOS	B				

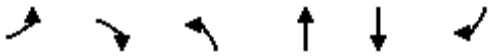
Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	0	56	0	0	0	0	157	324	92	134	0
Future Volume (Veh/h)	43	0	56	0	0	0	0	157	324	92	134	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	48	0	62	0	0	0	0	174	360	102	149	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			14									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	527	887	149	558	527	174	149			534		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	527	887	149	558	527	174	149			534		
tC, single (s)	7.5	6.5	6.3	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.8	4.0	3.4	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	93	100	100	100	100			90		
cM capacity (veh/h)	379	257	879	381	414	875	1445			1039		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	110	174	360	102	149
Volume Left	48	0	0	102	0
Volume Right	62	0	360	0	0
cSH	869	1700	1700	1039	1700
Volume to Capacity	0.13	0.10	0.21	0.10	0.09
Queue Length 95th (ft)	11	0	0	8	0
Control Delay (s)	12.2	0.0	0.0	8.8	0.0
Lane LOS	B			A	
Approach Delay (s)	12.2	0.0		3.6	
Approach LOS	B				

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	38.5%	ICU Level of Service		A
Analysis Period (min)	15			



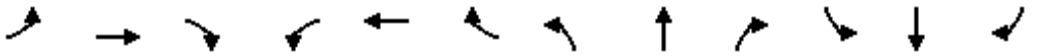
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	101	118	192	36
Future Volume (Veh/h)	0	0	101	118	192	36
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	112	131	213	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	568	213	253			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	568	213	253			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	91			
cM capacity (veh/h)	445	832	1278			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	112	131	213	40
Volume Left	112	0	0	0
Volume Right	0	0	0	40
cSH	1278	1700	1700	1700
Volume to Capacity	0.09	0.08	0.13	0.02
Queue Length 95th (ft)	7	0	0	0
Control Delay (s)	8.1	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	3.7		0.0	
Approach LOS				

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix D

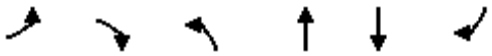
Synchro Intersection Analysis Outputs
Exit 85 - Alternative 1A PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	7	45	0	2	4	170	20	4	139	0
Future Volume (Veh/h)	2	0	7	45	0	2	4	170	20	4	139	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	0	8	50	0	2	4	189	22	4	154	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	361	381	154	378	370	200	154			211		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	361	381	154	378	370	200	154			211		
tC, single (s)	8.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.4	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	91	100	100	100			100		
cM capacity (veh/h)	446	552	897	576	560	846	1439			1372		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	10	52	4	211	4	154
Volume Left	2	50	4	0	4	0
Volume Right	8	2	0	22	0	0
cSH	746	583	1439	1700	1372	1700
Volume to Capacity	0.01	0.09	0.00	0.12	0.00	0.09
Queue Length 95th (ft)	1	7	0	0	0	0
Control Delay (s)	9.9	11.8	7.5	0.0	7.6	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.9	11.8	0.1		0.2	
Approach LOS	A	B				

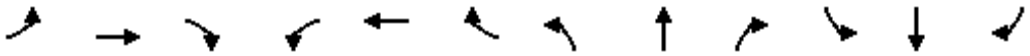
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	25.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	61	127	0	161	94	0
Future Volume (Veh/h)	61	127	0	161	94	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	68	141	0	179	104	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	194	104	104			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	194	104	104			
tC, single (s)	6.8	7.0	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	91	85	100			
cM capacity (veh/h)	783	918	1500			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	68	141	90	90	104
Volume Left	68	0	0	0	0
Volume Right	0	141	0	0	0
cSH	783	918	1700	1700	1700
Volume to Capacity	0.09	0.15	0.05	0.05	0.06
Queue Length 95th (ft)	7	14	0	0	0
Control Delay (s)	10.0	9.6	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	9.8		0.0		0.0
Approach LOS	A				

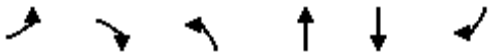
Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	0	74	0	0	0	0	101	40	42	179	0
Future Volume (Veh/h)	60	0	74	0	0	0	0	101	40	42	179	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	67	0	82	0	0	0	0	112	44	47	199	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			14									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	405	449	199	446	405	112	199			156		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	405	449	199	446	405	112	199			156		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	87	100	90	100	100	100	100			97		
cM capacity (veh/h)	530	491	847	463	520	947	1385			1377		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	149	112	44	47	199
Volume Left	67	0	0	47	0
Volume Right	82	0	44	0	0
cSH	1178	1700	1700	1377	1700
Volume to Capacity	0.13	0.07	0.03	0.03	0.12
Queue Length 95th (ft)	11	0	0	3	0
Control Delay (s)	11.1	0.0	0.0	7.7	0.0
Lane LOS	B			A	
Approach Delay (s)	11.1	0.0		1.5	
Approach LOS	B				

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	20.7%	ICU Level of Service		A
Analysis Period (min)	15			



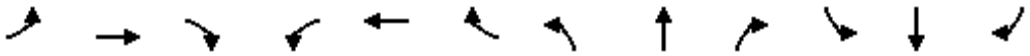
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	29	193	94	98
Future Volume (Veh/h)	0	0	29	193	94	98
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	32	214	104	109
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	382	104	213			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	382	104	213			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	98			
cM capacity (veh/h)	610	956	1369			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	32	214	104	109
Volume Left	32	0	0	0
Volume Right	0	0	0	109
cSH	1369	1700	1700	1700
Volume to Capacity	0.02	0.13	0.06	0.06
Queue Length 95th (ft)	2	0	0	0
Control Delay (s)	7.7	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	1.0		0.0	
Approach LOS				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix D

Synchro Intersection Analysis Outputs
Exit 85 - Alternative 2 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	13	24	0	0	4	94	20	2	192	0
Future Volume (Veh/h)	0	0	13	24	0	0	4	94	20	2	192	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	14	27	0	0	4	104	22	2	213	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	329	351	213	354	340	115	213			126		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	329	351	213	354	340	115	213			126		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	95	100	100	100			100		
cM capacity (veh/h)	626	574	832	593	582	943	1369			1473		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	14	27	4	126	2	213
Volume Left	0	27	4	0	2	0
Volume Right	14	0	0	22	0	0
cSH	832	593	1369	1700	1473	1700
Volume to Capacity	0.02	0.05	0.00	0.07	0.00	0.13
Queue Length 95th (ft)	1	4	0	0	0	0
Control Delay (s)	9.4	11.4	7.6	0.0	7.4	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.4	11.4	0.2		0.1	
Approach LOS	A	B				

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	24.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	18	200	0	0	192
Future Volume (Veh/h)	0	18	200	0	0	192
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	20	222	0	0	213
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	435	111			222	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	435	111			222	
tC, single (s)	6.8	7.4			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	555	852			1359	

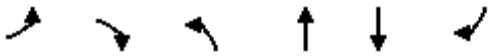
Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	20	111	111	213
Volume Left	0	0	0	0
Volume Right	20	0	0	0
cSH	852	1700	1700	1700
Volume to Capacity	0.02	0.07	0.07	0.13
Queue Length 95th (ft)	2	0	0	0
Control Delay (s)	9.3	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	9.3	0.0		0.0
Approach LOS	A			

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑	↱		↑
Traffic Volume (veh/h)	0	0	157	324	0	190
Future Volume (Veh/h)	0	0	157	324	0	190
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	174	360	0	211
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	385	174			534	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	385	174			534	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	622	875			1044	

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	174	360	211
Volume Left	0	0	0
Volume Right	0	360	0
cSH	1700	1700	1700
Volume to Capacity	0.10	0.21	0.12
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0		0.0
Approach LOS			

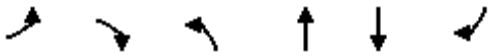
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	23.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	101	117	192	36
Future Volume (Veh/h)	0	0	101	117	192	36
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	112	130	213	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	567	213	253			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	567	213	253			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	91			
cM capacity (veh/h)	446	832	1278			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	112	130	213	40
Volume Left	112	0	0	0
Volume Right	0	0	0	40
cSH	1278	1700	1700	1700
Volume to Capacity	0.09	0.08	0.13	0.02
Queue Length 95th (ft)	7	0	0	0
Control Delay (s)	8.1	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	3.7		0.0	
Approach LOS				

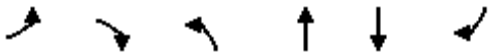
Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	43	56	0	157	134	0
Future Volume (Veh/h)	43	56	0	157	134	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	48	62	0	174	149	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	323	149	149			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	323	149	149			
tC, single (s)	6.8	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.8	3.4	2.2			
p0 queue free %	92	93	100			
cM capacity (veh/h)	603	879	1445			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	48	62	174	149
Volume Left	48	0	0	0
Volume Right	0	62	0	0
cSH	603	879	1700	1700
Volume to Capacity	0.08	0.07	0.10	0.09
Queue Length 95th (ft)	6	6	0	0
Control Delay (s)	11.5	9.4	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	10.3		0.0	0.0
Approach LOS	B			

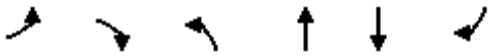
Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	34	0	201	192	0
Future Volume (Veh/h)	0	34	0	201	192	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	38	0	223	213	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	436	213	213			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	436	213	213			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	100	95	100			
cM capacity (veh/h)	581	815	1369			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	38	223	213
Volume Left	0	0	0
Volume Right	38	0	0
cSH	815	1700	1700
Volume to Capacity	0.05	0.13	0.13
Queue Length 95th (ft)	4	0	0
Control Delay (s)	9.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		



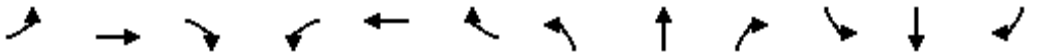
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	201	134	92
Future Volume (Veh/h)	0	0	0	201	134	92
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	223	149	102
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	372	149	251			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	372	149	251			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	633	903	1326			

Direction, Lane #	NB 1	SB 1	SB 2
Volume Total	223	149	102
Volume Left	0	0	0
Volume Right	0	0	102
cSH	1700	1700	1700
Volume to Capacity	0.13	0.09	0.06
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0	0.0	
Approach LOS			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix D

Synchro Intersection Analysis Outputs
Exit 85 - Alternative 2 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	7	45	0	2	4	170	20	4	139	0
Future Volume (Veh/h)	2	0	7	45	0	2	4	170	20	4	139	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	0	8	50	0	2	4	189	22	4	154	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	361	381	154	378	370	200	154			211		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	361	381	154	378	370	200	154			211		
tC, single (s)	8.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.4	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	91	100	100	100			100		
cM capacity (veh/h)	446	552	897	576	560	846	1439			1372		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	10	52	4	211	4	154
Volume Left	2	50	4	0	4	0
Volume Right	8	2	0	22	0	0
cSH	746	583	1439	1700	1372	1700
Volume to Capacity	0.01	0.09	0.00	0.12	0.00	0.09
Queue Length 95th (ft)	1	7	0	0	0	0
Control Delay (s)	9.9	11.8	7.5	0.0	7.6	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.9	11.8	0.1		0.2	
Approach LOS	A	B				

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	25.6%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	61	161	0	0	94
Future Volume (Veh/h)	0	61	161	0	0	94
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	68	179	0	0	104
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	283	90			179	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	283	90			179	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	93			100	
cM capacity (veh/h)	689	957			1409	

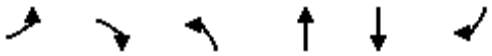
Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	68	90	90	104
Volume Left	0	0	0	0
Volume Right	68	0	0	0
cSH	957	1700	1700	1700
Volume to Capacity	0.07	0.05	0.05	0.06
Queue Length 95th (ft)	6	0	0	0
Control Delay (s)	9.0	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	9.0	0.0		0.0
Approach LOS	A			

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑	↱		↑
Traffic Volume (veh/h)	0	0	101	40	0	253
Future Volume (Veh/h)	0	0	101	40	0	253
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	112	44	0	281
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	393	112			156	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	393	112			156	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	615	947			1436	

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	112	44	281
Volume Left	0	0	0
Volume Right	0	44	0
cSH	1700	1700	1700
Volume to Capacity	0.07	0.03	0.17
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0		0.0
Approach LOS			

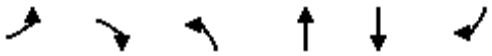
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	16.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	29	193	94	98
Future Volume (Veh/h)	0	0	29	193	94	98
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	32	214	104	109
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	382	104	213			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	382	104	213			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	98			
cM capacity (veh/h)	610	956	1369			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	32	214	104	109
Volume Left	32	0	0	0
Volume Right	0	0	0	109
cSH	1369	1700	1700	1700
Volume to Capacity	0.02	0.13	0.06	0.06
Queue Length 95th (ft)	2	0	0	0
Control Delay (s)	7.7	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	1.0		0.0	
Approach LOS				

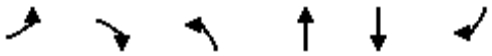
Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	16.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	74	0	101	179	0
Future Volume (Veh/h)	60	74	0	101	179	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	67	82	0	112	199	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	311	199	199			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	311	199	199			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	90	90	100			
cM capacity (veh/h)	667	847	1385			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	67	82	112	199
Volume Left	67	0	0	0
Volume Right	0	82	0	0
cSH	667	847	1700	1700
Volume to Capacity	0.10	0.10	0.07	0.12
Queue Length 95th (ft)	8	8	0	0
Control Delay (s)	11.0	9.7	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	10.3		0.0	0.0
Approach LOS	B			

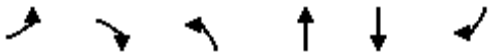
Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	127	0	161	94	0
Future Volume (Veh/h)	0	127	0	161	94	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	141	0	179	104	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	283	104	104			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	283	104	104			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	100	85	100			
cM capacity (veh/h)	711	940	1500			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	141	179	104
Volume Left	0	0	0
Volume Right	141	0	0
cSH	940	1700	1700
Volume to Capacity	0.15	0.11	0.06
Queue Length 95th (ft)	13	0	0
Control Delay (s)	9.5	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.5	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	161	179	42
Future Volume (Veh/h)	0	0	0	161	179	42
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	179	199	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	378	199	246			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	378	199	246			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	628	847	1332			

Direction, Lane #	NB 1	SB 1	SB 2
Volume Total	179	199	47
Volume Left	0	0	0
Volume Right	0	0	47
cSH	1700	1700	1700
Volume to Capacity	0.11	0.12	0.03
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0	0.0	
Approach LOS			

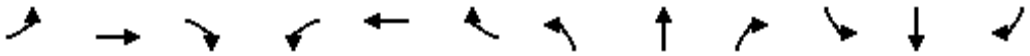
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix D

Synchro Intersection Analysis Outputs
Exit 85 - Alternative 2A AM

HCM Unsignalized Intersection Capacity Analysis
8501: SC 202 & Meadow Brook Road/Four Oaks Road

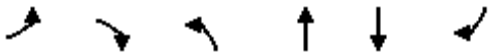
09/12/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	13	24	0	0	4	94	20	2	192	0
Future Volume (Veh/h)	0	0	13	24	0	0	4	94	20	2	192	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	14	27	0	0	4	104	22	2	213	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	329	351	213	354	340	115	213			126		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	329	351	213	354	340	115	213			126		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	95	100	100	100			100		
cM capacity (veh/h)	626	574	832	593	582	943	1369			1473		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	14	27	4	126	2	213
Volume Left	0	27	4	0	2	0
Volume Right	14	0	0	22	0	0
cSH	832	593	1369	1700	1473	1700
Volume to Capacity	0.02	0.05	0.00	0.07	0.00	0.13
Queue Length 95th (ft)	1	4	0	0	0	0
Control Delay (s)	9.4	11.4	7.6	0.0	7.4	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.4	11.4	0.2		0.1	
Approach LOS	A	B				

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	24.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	0	0	201	192	0
Future Volume (Veh/h)	18	0	0	201	192	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	0	0	223	213	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	324	213	213			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	324	213	213			
tC, single (s)	7.3	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.8	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	586	798	1369			

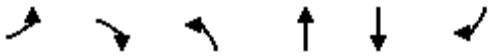
Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	20	112	112	213
Volume Left	20	0	0	0
Volume Right	0	0	0	0
cSH	586	1700	1700	1700
Volume to Capacity	0.03	0.07	0.07	0.13
Queue Length 95th (ft)	3	0	0	0
Control Delay (s)	11.4	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	11.4	0.0		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑	↱		↑
Traffic Volume (veh/h)	0	0	157	324	0	190
Future Volume (Veh/h)	0	0	157	324	0	190
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	174	360	0	211
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	385	174			534	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	385	174			534	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	622	875			1044	

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	174	360	211
Volume Left	0	0	0
Volume Right	0	360	0
cSH	1700	1700	1700
Volume to Capacity	0.10	0.21	0.12
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0		0.0
Approach LOS			

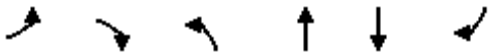
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	23.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	101	118	192	36
Future Volume (Veh/h)	0	0	101	118	192	36
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	112	131	213	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	568	213	253			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	568	213	253			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	91			
cM capacity (veh/h)	445	832	1278			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	112	131	213	40
Volume Left	112	0	0	0
Volume Right	0	0	0	40
cSH	1278	1700	1700	1700
Volume to Capacity	0.09	0.08	0.13	0.02
Queue Length 95th (ft)	7	0	0	0
Control Delay (s)	8.1	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	3.7		0.0	
Approach LOS				

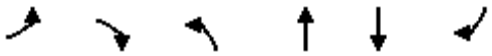
Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	43	56	0	157	134	0
Future Volume (Veh/h)	43	56	0	157	134	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	48	62	0	174	149	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	323	149	149			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	323	149	149			
tC, single (s)	6.8	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.8	3.4	2.2			
p0 queue free %	92	93	100			
cM capacity (veh/h)	603	879	1445			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	48	62	174	149
Volume Left	48	0	0	0
Volume Right	0	62	0	0
cSH	603	879	1700	1700
Volume to Capacity	0.08	0.07	0.10	0.09
Queue Length 95th (ft)	6	6	0	0
Control Delay (s)	11.5	9.4	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	10.3		0.0	0.0
Approach LOS	B			

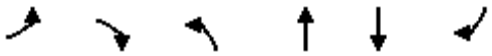
Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	34	0	201	192	0
Future Volume (Veh/h)	0	34	0	201	192	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	38	0	223	213	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	436	213	213			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	436	213	213			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	100	95	100			
cM capacity (veh/h)	581	815	1369			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	38	223	213
Volume Left	0	0	0
Volume Right	38	0	0
cSH	815	1700	1700
Volume to Capacity	0.05	0.13	0.13
Queue Length 95th (ft)	4	0	0
Control Delay (s)	9.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		



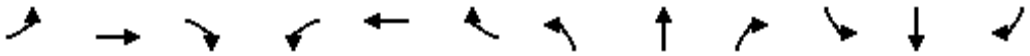
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	201	134	92
Future Volume (Veh/h)	0	0	0	201	134	92
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	223	149	102
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	372	149	251			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	372	149	251			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	633	903	1326			

Direction, Lane #	NB 1	SB 1	SB 2
Volume Total	223	149	102
Volume Left	0	0	0
Volume Right	0	0	102
cSH	1700	1700	1700
Volume to Capacity	0.13	0.09	0.06
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0	0.0	
Approach LOS			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix D

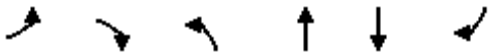
Synchro Intersection Analysis Outputs
Exit 85 - Alternative 2A PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	7	45	0	2	4	170	20	4	139	0
Future Volume (Veh/h)	2	0	7	45	0	2	4	170	20	4	139	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	0	8	50	0	2	4	189	22	4	154	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	361	381	154	378	370	200	154			211		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	361	381	154	378	370	200	154			211		
tC, single (s)	8.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.4	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	91	100	100	100			100		
cM capacity (veh/h)	446	552	897	576	560	846	1439			1372		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	10	52	4	211	4	154
Volume Left	2	50	4	0	4	0
Volume Right	8	2	0	22	0	0
cSH	746	583	1439	1700	1372	1700
Volume to Capacity	0.01	0.09	0.00	0.12	0.00	0.09
Queue Length 95th (ft)	1	7	0	0	0	0
Control Delay (s)	9.9	11.8	7.5	0.0	7.6	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.9	11.8	0.1		0.2	
Approach LOS	A	B				

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	25.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	61	0	0	161	94	0
Future Volume (Veh/h)	61	0	0	161	94	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	68	0	0	179	104	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	194	104	104			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	194	104	104			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	100	100			
cM capacity (veh/h)	783	937	1500			

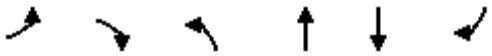
Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	68	90	90	104
Volume Left	68	0	0	0
Volume Right	0	0	0	0
cSH	783	1700	1700	1700
Volume to Capacity	0.09	0.05	0.05	0.06
Queue Length 95th (ft)	7	0	0	0
Control Delay (s)	10.0	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	10.0	0.0		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	23.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑	↱		↑
Traffic Volume (veh/h)	0	0	101	40	0	253
Future Volume (Veh/h)	0	0	101	40	0	253
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	112	44	0	281
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	393	112			156	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	393	112			156	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	615	947			1436	

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	112	44	281
Volume Left	0	0	0
Volume Right	0	44	0
cSH	1700	1700	1700
Volume to Capacity	0.07	0.03	0.17
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0		0.0
Approach LOS			

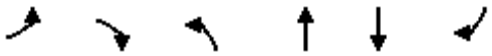
Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		16.6%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	29	193	94	98
Future Volume (Veh/h)	0	0	29	193	94	98
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	32	214	104	109
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	382	104	213			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	382	104	213			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	98			
cM capacity (veh/h)	610	956	1369			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	32	214	104	109
Volume Left	32	0	0	0
Volume Right	0	0	0	109
cSH	1369	1700	1700	1700
Volume to Capacity	0.02	0.13	0.06	0.06
Queue Length 95th (ft)	2	0	0	0
Control Delay (s)	7.7	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	1.0		0.0	
Approach LOS				

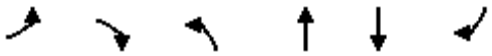
Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	23.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	74	0	101	179	0
Future Volume (Veh/h)	60	74	0	101	179	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	67	82	0	112	199	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	311	199	199			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	311	199	199			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	90	90	100			
cM capacity (veh/h)	667	847	1385			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	67	82	112	199
Volume Left	67	0	0	0
Volume Right	0	82	0	0
cSH	667	847	1700	1700
Volume to Capacity	0.10	0.10	0.07	0.12
Queue Length 95th (ft)	8	8	0	0
Control Delay (s)	11.0	9.7	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	10.3		0.0	0.0
Approach LOS	B			

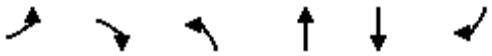
Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	127	0	161	94	0
Future Volume (Veh/h)	0	127	0	161	94	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	141	0	179	104	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	283	104	104			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	283	104	104			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	100	85	100			
cM capacity (veh/h)	711	940	1500			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	141	179	104
Volume Left	0	0	0
Volume Right	141	0	0
cSH	940	1700	1700
Volume to Capacity	0.15	0.11	0.06
Queue Length 95th (ft)	13	0	0
Control Delay (s)	9.5	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.5	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		



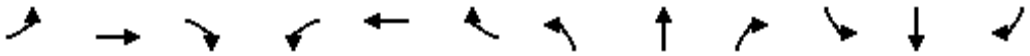
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	161	179	42
Future Volume (Veh/h)	0	0	0	161	179	42
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	179	199	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	378	199	246			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	378	199	246			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	628	847	1332			

Direction, Lane #	NB 1	SB 1	SB 2
Volume Total	179	199	47
Volume Left	0	0	0
Volume Right	0	0	47
cSH	1700	1700	1700
Volume to Capacity	0.11	0.12	0.03
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0	0.0	
Approach LOS			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix D

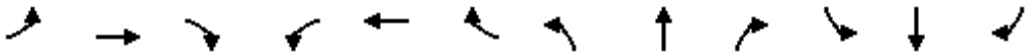
Synchro Intersection Analysis Outputs
Exit 85 - Alternative 3 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	13	24	0	0	4	94	20	2	192	0
Future Volume (Veh/h)	0	0	13	24	0	0	4	94	20	2	192	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	14	27	0	0	4	104	22	2	213	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	340	351	213	354	340	115	213			126		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	340	351	213	354	340	115	213			126		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	95	100	100	100			100		
cM capacity (veh/h)	616	574	832	593	582	943	1369			1473		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	14	27	130	215
Volume Left	0	27	4	2
Volume Right	14	0	22	0
cSH	832	593	1369	1473
Volume to Capacity	0.02	0.05	0.00	0.00
Queue Length 95th (ft)	1	4	0	0
Control Delay (s)	9.4	11.4	0.3	0.1
Lane LOS	A	B	A	A
Approach Delay (s)	9.4	11.4	0.3	0.1
Approach LOS	A	B		

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	25.6%	ICU Level of Service	A	
Analysis Period (min)	15			



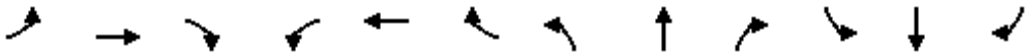
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	0	0	0	34	0	18	101	99	0	0	192	36
Future Volume (veh/h)	0	0	0	34	0	18	101	99	0	0	192	36
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	38	0	20	112	110	0	0	213	40
Approach Volume (veh/h)		0			58			222			253	
Crossing Volume (veh/h)		251			222			0			150	
High Capacity (veh/h)		1137			1164			1385			1232	
High v/c (veh/h)		0.00			0.05			0.16			0.21	
Low Capacity (veh/h)		937			961			1161			1022	
Low v/c (veh/h)		0.00			0.06			0.19			0.25	

Intersection Summary					
Maximum v/c High	0.21				
Maximum v/c Low	0.25				
Intersection Capacity Utilization	36.4%	ICU Level of Service		A	

Intersection	
Intersection Delay, s/veh	6.2
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	0	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	58	222	253
Demand Flow Rate, veh/h	0	66	254	265
Vehicles Circulating, veh/h	258	254	0	162
Vehicles Exiting, veh/h	169	0	258	158
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	5.4	5.8	6.8
Approach LOS	-	A	A	A

Lane	Left	Left	Left
Designated Moves	LTR	LT	TR
Assumed Moves	LTR	LT	TR
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	66	254	265
Cap Entry Lane, veh/h	876	1130	961
Entry HV Adj Factor	0.879	0.874	0.954
Flow Entry, veh/h	58	222	253
Cap Entry, veh/h	770	987	917
V/C Ratio	0.075	0.225	0.276
Control Delay, s/veh	5.4	5.8	6.8
LOS	A	A	A
95th %tile Queue, veh	0	1	1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	43	0	56	0	0	0	0	157	324	92	134	0
Future Volume (veh/h)	43	0	56	0	0	0	0	157	324	92	134	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	48	0	62	0	0	0	0	174	360	102	149	0
Approach Volume (veh/h)		110			0			534			251	
Crossing Volume (veh/h)		251			222			150			0	
High Capacity (veh/h)		1137			1164			1232			1385	
High v/c (veh/h)		0.10			0.00			0.43			0.18	
Low Capacity (veh/h)		937			961			1022			1161	
Low v/c (veh/h)		0.12			0.00			0.52			0.22	

Intersection Summary				
Maximum v/c High	0.43			
Maximum v/c Low	0.52			
Intersection Capacity Utilization	56.1%	ICU Level of Service	B	

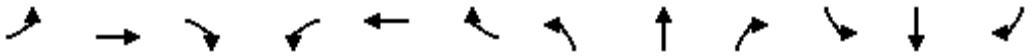
Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	0	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	110	0	534	251
Demand Flow Rate, veh/h	134	0	557	265
Vehicles Circulating, veh/h	265	249	169	0
Vehicles Exiting, veh/h	0	477	230	249
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.8	0.0	12.2	5.6
Approach LOS	A	-	B	A

Lane	Left	Left	Left
Designated Moves	LTR	TR	LT
Assumed Moves	LTR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	134	557	265
Cap Entry Lane, veh/h	867	954	1130
Entry HV Adj Factor	0.821	0.959	0.946
Flow Entry, veh/h	110	534	251
Cap Entry, veh/h	712	915	1069
V/C Ratio	0.155	0.584	0.235
Control Delay, s/veh	6.8	12.2	5.6
LOS	A	B	A
95th %tile Queue, veh	1	4	1

Appendix D

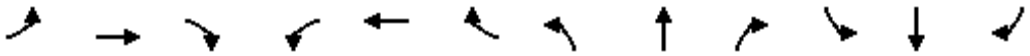
Synchro Intersection Analysis Outputs
Exit 85 - Alternative 3 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	7	45	0	2	4	170	20	4	139	0
Future Volume (Veh/h)	2	0	7	45	0	2	4	170	20	4	139	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	0	8	50	0	2	4	189	22	4	154	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	372	381	154	378	370	200	154			211		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	372	381	154	378	370	200	154			211		
tC, single (s)	8.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.4	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	91	100	100	100			100		
cM capacity (veh/h)	438	552	897	576	560	846	1439			1372		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	10	52	215	158
Volume Left	2	50	4	4
Volume Right	8	2	22	0
cSH	742	583	1439	1372
Volume to Capacity	0.01	0.09	0.00	0.00
Queue Length 95th (ft)	1	7	0	0
Control Delay (s)	9.9	11.8	0.2	0.2
Lane LOS	A	B	A	A
Approach Delay (s)	9.9	11.8	0.2	0.2
Approach LOS	A	B		

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	27.4%	ICU Level of Service	A	
Analysis Period (min)	15			



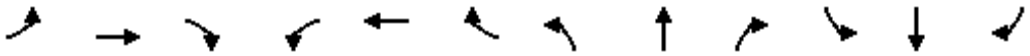
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	0	0	0	127	0	61	29	132	0	0	94	98
Future Volume (veh/h)	0	0	0	127	0	61	29	132	0	0	94	98
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	141	0	68	32	147	0	0	104	109
Approach Volume (veh/h)		0			209			179			213	
Crossing Volume (veh/h)		245			179			0			173	
High Capacity (veh/h)		1143			1204			1385			1210	
High v/c (veh/h)		0.00			0.17			0.13			0.18	
Low Capacity (veh/h)		942			997			1161			1002	
Low v/c (veh/h)		0.00			0.21			0.15			0.21	

Intersection Summary				
Maximum v/c High	0.18			
Maximum v/c Low	0.21			
Intersection Capacity Utilization	40.3%	ICU Level of Service		A

Intersection	
Intersection Delay, s/veh	6.1
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	0	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	209	179	213
Demand Flow Rate, veh/h	0	217	195	227
Vehicles Circulating, veh/h	262	195	0	181
Vehicles Exiting, veh/h	146	0	262	231
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	6.4	5.1	6.6
Approach LOS	-	A	A	A

Lane	Left	Left	Left
Designated Moves	LTR	LT	TR
Assumed Moves	LTR	LT	TR
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	217	195	227
Cap Entry Lane, veh/h	930	1130	943
Entry HV Adj Factor	0.963	0.917	0.937
Flow Entry, veh/h	209	179	213
Cap Entry, veh/h	895	1036	883
V/C Ratio	0.233	0.173	0.241
Control Delay, s/veh	6.4	5.1	6.6
LOS	A	A	A
95th %tile Queue, veh	1	1	1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	60	0	74	0	0	0	0	101	40	42	179	0
Future Volume (veh/h)	60	0	74	0	0	0	0	101	40	42	179	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	67	0	82	0	0	0	0	112	44	47	199	0
Approach Volume (veh/h)		149			0			156			246	
Crossing Volume (veh/h)		246			179			114			0	
High Capacity (veh/h)		1142			1204			1267			1385	
High v/c (veh/h)		0.13			0.00			0.12			0.18	
Low Capacity (veh/h)		941			997			1054			1161	
Low v/c (veh/h)		0.16			0.00			0.15			0.21	

Intersection Summary				
Maximum v/c High	0.18			
Maximum v/c Low	0.21			
Intersection Capacity Utilization	37.4%	ICU Level of Service	A	

Intersection	
Intersection Delay, s/veh	5.8
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	0	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	149	0	156	246
Demand Flow Rate, veh/h	155	0	176	259
Vehicles Circulating, veh/h	259	195	125	0
Vehicles Exiting, veh/h	0	106	289	195
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.1	0.0	5.8	5.5
Approach LOS	A	-	A	A

Lane	Left	Left	Left
Designated Moves	LTR	TR	LT
Assumed Moves	LTR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	155	176	259
Cap Entry Lane, veh/h	872	997	1130
Entry HV Adj Factor	0.961	0.886	0.950
Flow Entry, veh/h	149	156	246
Cap Entry, veh/h	838	883	1073
V/C Ratio	0.178	0.176	0.229
Control Delay, s/veh	6.1	5.8	5.5
LOS	A	A	A
95th %tile Queue, veh	1	1	1

Appendix E

TransModeler Freeway Segment Outputs

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
SEB on EXIT 101A RAMP TO US 176	4755	23.0	0.5	22.3	24.0	10
SEB on EXIT 101A RAMP TO US 176	4756	18.1	0.9	16.3	19.2	10
NWB on EXIT 101B RAMP TO US 176	4741	17.7	0.6	17.0	18.7	10
NWB on EXIT 101B RAMP TO US 176	4742	14.1	0.9	11.9	15.1	10
NWB on I 26 E	4781	19.0	0.9	17.8	21.2	10
NWB on I 26 E	4782	20.5	2.2	17.6	23.7	10
NWB on I 26 E	4783	14.0	1.5	11.4	16.6	10
SEB on I 26 E	4785	16.9	1.4	14.4	19.7	10
SEB on I 26 E	4786	27.3	2.1	23.3	31.3	10
SEB on I 26 E	4787	23.2	0.3	22.7	23.6	10
SEB on I 26 E	4788	27.8	1.7	25.8	30.7	10
SEB on I 26 E	4789	17.2	1.5	15.2	19.3	10
SEB on I 26 E	4793	16.8	1.5	14.7	19.8	10
EB on I 26 E	4799	12.4	0.4	11.4	12.8	10
SEB on I 26 E	4800	20.4	1.8	17.6	22.9	10
SEB on I 26 E	4801	16.7	0.3	16.1	17.1	10
SEB on I 26 E	4802	12.3	1.5	8.9	14.1	10
EB on I 26 E	8740	14.0	1.4	12.5	16.4	10
EB on I 26 E	8741	11.8	1.9	9.6	15.3	10
SEB on I 26 E	8744	17.0	1.6	14.5	19.7	10
EB on I 26 E	8764	12.0	0.7	10.7	12.9	10
EB on I 26 E	8766	10.6	1.3	7.8	12.7	10
EB on I 26 E	8769	9.1	0.5	8.1	10.0	10
EB on I 26 E	8770	14.3	0.9	12.8	16.1	10
EB on I 26 E	8778	13.9	0.3	13.4	14.4	10

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)
Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
NWB on I 26 W	4791	16.1	1.5	14.0	18.1	10
NWB on I 26 W	4795	10.5	1.3	7.8	12.6	10
NWB on I 26 W	4796	15.3	0.7	14.2	16.9	10
NWB on I 26 W	4797	16.7	1.6	14.2	20.1	10
NWB on I 26 W	4805	15.8	1.6	13.6	17.8	10
WB on I 26 W	4807	15.4	0.7	14.3	17.1	10
WB on I 26 W	4808	19.0	3.0	13.3	24.1	10
WB on I 26 W	4809	13.8	2.1	11.5	17.9	10
WB on I 26 W	8748	16.7	1.0	15.2	18.4	10
WB on I 26 W	8756	11.5	1.7	9.2	14.5	10
WB on I 26 W	8757	15.2	0.8	14.0	16.6	10
NWB on I 26 W	8773	9.6	1.3	8.1	12.5	10
WB on I 26 W	8775	12.8	1.1	10.7	15.3	10
WB on I 26 W	8776	11.5	1.6	8.9	14.1	10
WB on I 26 W	8777	16.5	1.5	13.6	19.0	10
NWB on I 26 W	8779	14.2	0.9	13.1	16.3	10
SEB on JAMES F BYRNES EXPY	4718	36.1	2.3	31.7	38.7	10
SEB on JAMES F BYRNES EXPY	4719	39.8	1.2	37.5	41.6	10
SEB on JAMES F BYRNES EXPY	4720	33.1	0.9	31.2	34.4	10
NWB on JAMES F BYRNES EXPY	4725	19.3	1.7	16.9	22.6	10
NWB on JAMES F BYRNES EXPY	4726	23.4	0.7	22.6	24.8	10
NWB on JAMES F BYRNES EXPY	4727	28.5	2.1	23.5	31.5	10
NWB on JAMES F BYRNES EXPY	4728	24.1	1.3	21.6	26.6	10
NWB on JAMES F BYRNES EXPY	4729	27.5	4.3	22.0	36.4	10
NWB on JAMES F BYRNES EXPY	4730	18.3	0.6	16.8	19.3	10
NWB on JAMES F BYRNES EXPY	4732	18.5	0.5	17.5	19.3	10

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
SEB on JAMES F BYRNES EXPY	4733	27.0	0.7	25.8	27.9	10
SEB on JAMES F BYRNES EXPY	4736	29.5	1.0	28.4	31.2	10
SEB on JAMES F BYRNES EXPY	4737	24.2	0.8	22.1	24.9	10
NWB on JAMES F BYRNES EXPY	4739	14.5	0.7	13.3	16.1	10
SEB on JAMES F BYRNES EXPY	4745	21.8	1.3	19.7	24.0	10
SEB on JAMES F BYRNES EXPY	4748	26.6	0.8	25.5	27.8	10
NWB on JAMES F BYRNES EXPY	4753	14.8	1.5	12.5	17.5	10
NWB on JAMES F BYRNES EXPY	4760	12.1	1.4	9.1	14.3	10
NWB on JAMES F BYRNES EXPY	4761	19.2	1.9	15.7	22.2	10
NWB on JAMES F BYRNES EXPY	4762	22.2	0.9	21.1	24.5	10
NWB on JAMES F BYRNES EXPY	4763	24.3	3.4	20.6	32.9	10
NWB on JAMES F BYRNES EXPY	4764	16.1	1.3	14.0	18.2	10
SEB on JAMES F BYRNES EXPY	4766	40.6	3.7	35.1	45.7	10
SEB on JAMES F BYRNES EXPY	4767	53.6	3.3	47.8	59.9	10
SEB on JAMES F BYRNES EXPY	4768	35.9	0.6	35.1	37.0	10
SEB on JAMES F BYRNES EXPY	4769	28.9	1.7	26.6	31.9	10
NWB on JAMES F BYRNES EXPY	4771	18.6	1.7	16.3	22.1	10
NWB on JAMES F BYRNES EXPY	4773	13.4	1.4	10.4	15.7	10
NWB on JAMES F BYRNES EXPY	4774	19.0	0.9	17.7	21.5	10
SEB on JAMES F BYRNES EXPY	4776	24.7	1.5	22.0	26.5	10

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
SEB on EXIT 101A RAMP TO US 176	4755	16.8	1.4	14.5	19.2	10
SEB on EXIT 101A RAMP TO US 176	4756	13.8	0.8	12.7	15.3	10
NWB on EXIT 101B RAMP TO US 176	4741	54.8	17.7	34.7	81.8	10
NWB on EXIT 101B RAMP TO US 176	4742	56.8	21.8	27.7	87.6	10
NWB on I 26 E	4781	28.7	1.5	24.6	30.1	10
NWB on I 26 E	4782	29.6	2.8	23.9	34.0	10
NWB on I 26 E	4783	19.9	1.1	17.1	21.8	10
SEB on I 26 E	4785	16.6	0.8	15.5	18.0	10
SEB on I 26 E	4786	26.8	2.1	23.8	30.9	10
SEB on I 26 E	4787	23.7	0.6	22.9	24.8	10
SEB on I 26 E	4788	28.0	4.1	22.8	36.4	10
SEB on I 26 E	4789	16.9	1.1	14.8	18.7	10
SEB on I 26 E	4793	19.3	1.2	17.1	21.1	10
EB on I 26 E	4799	18.7	0.5	17.6	19.4	10
SEB on I 26 E	4800	22.5	1.3	20.6	24.7	10
SEB on I 26 E	4801	20.5	0.4	19.7	21.2	10
SEB on I 26 E	4802	15.5	0.8	14.2	16.6	10
EB on I 26 E	8740	21.0	1.7	18.1	24.8	10
EB on I 26 E	8741	16.1	2.6	14.4	23.5	10
SEB on I 26 E	8744	17.5	1.9	14.9	21.3	10
EB on I 26 E	8764	18.7	0.7	17.4	19.5	10
EB on I 26 E	8766	15.6	1.6	12.5	17.5	10
EB on I 26 E	8769	14.2	1.1	12.8	15.7	10
EB on I 26 E	8770	20.1	1.5	17.3	22.6	10
EB on I 26 E	8778	20.0	0.3	19.4	20.7	10

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
NWB on I 26 W	4791	23.7	1.7	19.2	25.3	10
NWB on I 26 W	4795	17.7	1.7	13.5	19.6	10
NWB on I 26 W	4796	24.5	1.3	21.0	25.5	10
NWB on I 26 W	4797	25.9	2.2	23.9	30.7	10
NWB on I 26 W	4805	25.0	1.3	23.2	27.0	10
WB on I 26 W	4807	24.9	1.3	21.4	26.1	10
WB on I 26 W	4808	29.4	2.2	26.3	33.5	10
WB on I 26 W	4809	21.8	2.4	17.2	24.8	10
WB on I 26 W	8748	25.0	1.3	22.5	27.2	10
WB on I 26 W	8756	18.7	2.0	15.6	23.0	10
WB on I 26 W	8757	23.4	1.2	20.2	24.6	10
NWB on I 26 W	8773	14.6	1.2	12.3	16.1	10
WB on I 26 W	8775	21.6	1.5	19.1	23.6	10
WB on I 26 W	8776	17.6	2.2	14.7	21.9	10
WB on I 26 W	8777	25.3	2.1	19.8	27.6	10
NWB on I 26 W	8779	21.4	1.3	17.9	23.1	10
SEB on JAMES F BYRNES EXPY	4718	25.9	2.7	22.3	31.5	10
SEB on JAMES F BYRNES EXPY	4719	28.9	2.1	25.7	32.2	10
SEB on JAMES F BYRNES EXPY	4720	25.9	0.7	24.8	27.1	10
NWB on JAMES F BYRNES EXPY	4725	135.6	2.2	131.6	140.2	10
NWB on JAMES F BYRNES EXPY	4726	75.6	2.0	72.9	78.8	10
NWB on JAMES F BYRNES EXPY	4727	71.0	3.3	65.7	75.3	10
NWB on JAMES F BYRNES EXPY	4728	48.9	3.4	46.7	58.9	10
NWB on JAMES F BYRNES EXPY	4729	58.2	5.2	48.5	66.8	10
NWB on JAMES F BYRNES EXPY	4730	35.1	4.1	32.4	46.7	10
NWB on JAMES F BYRNES EXPY	4732	40.4	7.1	34.9	58.8	10

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various

Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
SEB on JAMES F BYRNES EXPY	4733	20.8	0.7	19.5	22.1	10
SEB on JAMES F BYRNES EXPY	4736	21.9	0.7	20.7	23.1	10
SEB on JAMES F BYRNES EXPY	4737	17.0	1.4	14.5	19.1	10
NWB on JAMES F BYRNES EXPY	4739	35.2	8.2	27.9	52.7	10
SEB on JAMES F BYRNES EXPY	4745	16.6	1.1	14.7	18.2	10
SEB on JAMES F BYRNES EXPY	4748	17.9	1.1	16.6	19.8	10
NWB on JAMES F BYRNES EXPY	4753	112.6	22.5	75.6	144.8	10
NWB on JAMES F BYRNES EXPY	4760	119.2	5.4	112.0	127.9	10
NWB on JAMES F BYRNES EXPY	4761	168.1	4.7	160.6	178.0	10
NWB on JAMES F BYRNES EXPY	4762	54.7	15.6	45.7	100.7	10
NWB on JAMES F BYRNES EXPY	4763	68.3	12.9	57.9	104.6	10
NWB on JAMES F BYRNES EXPY	4764	40.9	10.3	31.1	68.6	10
SEB on JAMES F BYRNES EXPY	4766	20.2	1.4	17.6	22.3	10
SEB on JAMES F BYRNES EXPY	4767	29.2	2.8	24.9	33.9	10
SEB on JAMES F BYRNES EXPY	4768	25.5	0.6	24.2	26.2	10
SEB on JAMES F BYRNES EXPY	4769	20.9	1.6	18.7	23.3	10
NWB on JAMES F BYRNES EXPY	4771	30.7	1.4	28.2	33.1	10
NWB on JAMES F BYRNES EXPY	4773	20.3	1.5	17.3	22.3	10
NWB on JAMES F BYRNES EXPY	4774	27.8	1.5	23.8	29.1	10
SEB on JAMES F BYRNES EXPY	4776	19.4	1.5	15.9	20.7	10

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
SEB on EXIT 101A RAMP TO US 176	4755	21.1	1.3	19.0	23.6	10
SEB on EXIT 101A RAMP TO US 176	4756	17.1	1.4	14.3	19.2	10
NWB on EXIT 101B RAMP TO US 176	4741	24.3	1.2	22.4	26.3	10
NWB on EXIT 101B RAMP TO US 176	4742	20.0	1.1	18.5	22.3	10
NWB on I 26 E	4781	148.9	22.9	109.6	179.4	10
NWB on I 26 E	4782	191.9	10.7	170.3	209.3	10
NWB on I 26 E	4783	130.2	10.4	110.5	149.6	10
SEB on I 26 E	4785	14.4	1.2	12.1	16.3	10
SEB on I 26 E	4786	22.3	2.1	19.1	25.9	10
SEB on I 26 E	4787	21.7	1.7	18.7	24.4	10
SEB on I 26 E	4788	53.8	14.3	27.0	70.8	10
SEB on I 26 E	4789	38.3	9.7	21.9	55.3	10
SEB on I 26 E	4793	18.4	0.5	17.8	19.6	10
EB on I 26 E	4799	17.6	0.3	17.2	18.1	10
SEB on I 26 E	4800	39.5	3.4	35.6	45.7	10
SEB on I 26 E	4801	104.9	7.6	88.0	112.5	10
SEB on I 26 E	4802	137.5	4.9	130.0	145.6	10
EB on I 26 E	8740	21.6	1.4	19.5	23.9	10
EB on I 26 E	8741	17.9	1.3	15.9	20.0	10
SEB on I 26 E	8744	30.9	2.5	28.5	36.9	10
EB on I 26 E	8764	17.9	0.7	16.8	19.0	10
EB on I 26 E	8766	15.3	1.5	13.2	17.5	10
EB on I 26 E	8769	14.0	0.6	12.7	15.2	10
EB on I 26 E	8770	21.0	1.6	17.9	23.5	10
EB on I 26 E	8778	20.4	0.3	20.0	20.9	10

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)
Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
NWB on I 26 W	4791	17.9	2.0	14.8	21.4	10
NWB on I 26 W	4795	10.0	0.9	9.0	12.5	10
NWB on I 26 W	4796	13.2	1.2	11.7	15.0	10
NWB on I 26 W	4797	14.5	2.3	9.5	19.0	10
NWB on I 26 W	4805	13.6	2.3	10.5	18.5	10
WB on I 26 W	4807	13.6	1.3	11.7	15.6	10
WB on I 26 W	4808	16.2	2.3	13.6	19.7	10
WB on I 26 W	4809	13.0	2.1	9.0	16.8	10
WB on I 26 W	8748	11.6	1.4	8.4	13.5	10
WB on I 26 W	8756	9.3	1.3	6.6	11.5	10
WB on I 26 W	8757	10.9	0.9	9.3	12.1	10
NWB on I 26 W	8773	7.5	1.0	5.7	9.6	10
WB on I 26 W	8775	8.5	0.9	7.0	9.8	10
WB on I 26 W	8776	8.8	1.5	6.5	11.4	10
WB on I 26 W	8777	11.9	1.6	9.7	15.5	10
NWB on I 26 W	8779	10.5	0.7	9.7	11.8	10
SEB on JAMES F BYRNES EXPY	4718	46.1	5.9	36.4	55.5	10
SEB on JAMES F BYRNES EXPY	4719	45.9	2.7	41.1	50.1	10
SEB on JAMES F BYRNES EXPY	4720	35.5	1.1	33.8	37.4	10
NWB on JAMES F BYRNES EXPY	4725	27.9	2.5	23.8	31.4	10
NWB on JAMES F BYRNES EXPY	4726	42.6	4.5	37.8	52.3	10
NWB on JAMES F BYRNES EXPY	4727	54.8	8.4	48.1	70.3	10
NWB on JAMES F BYRNES EXPY	4728	43.8	9.6	34.5	63.9	10
NWB on JAMES F BYRNES EXPY	4729	58.2	17.2	35.3	92.8	10
NWB on JAMES F BYRNES EXPY	4730	40.2	11.3	26.8	65.0	10
NWB on JAMES F BYRNES EXPY	4732	27.0	1.3	24.2	28.9	10

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
SEB on JAMES F BYRNES EXPY	4733	27.5	0.9	26.0	29.0	10
SEB on JAMES F BYRNES EXPY	4736	29.9	1.3	27.6	32.0	10
SEB on JAMES F BYRNES EXPY	4737	24.0	1.3	22.2	26.3	10
NWB on JAMES F BYRNES EXPY	4739	21.5	0.9	20.0	22.7	10
SEB on JAMES F BYRNES EXPY	4745	20.9	1.6	18.3	23.1	10
SEB on JAMES F BYRNES EXPY	4748	27.9	1.3	26.0	30.3	10
NWB on JAMES F BYRNES EXPY	4753	19.9	1.0	18.3	21.7	10
NWB on JAMES F BYRNES EXPY	4760	17.0	0.8	15.1	17.8	10
NWB on JAMES F BYRNES EXPY	4761	33.2	3.0	28.3	38.6	10
NWB on JAMES F BYRNES EXPY	4762	31.5	0.6	30.5	32.7	10
NWB on JAMES F BYRNES EXPY	4763	37.5	2.8	31.2	40.9	10
NWB on JAMES F BYRNES EXPY	4764	24.7	3.4	20.7	32.3	10
SEB on JAMES F BYRNES EXPY	4766	31.9	7.7	25.1	52.1	10
SEB on JAMES F BYRNES EXPY	4767	41.7	5.5	35.0	50.3	10
SEB on JAMES F BYRNES EXPY	4768	32.2	1.9	29.3	35.5	10
SEB on JAMES F BYRNES EXPY	4769	27.2	2.3	21.9	30.4	10
NWB on JAMES F BYRNES EXPY	4771	25.3	1.5	23.1	27.6	10
NWB on JAMES F BYRNES EXPY	4773	17.5	0.8	16.0	18.7	10
NWB on JAMES F BYRNES EXPY	4774	36.6	17.1	24.0	80.8	10
SEB on JAMES F BYRNES EXPY	4776	23.7	6.9	16.7	43.8	10

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
SEB on EXIT 101A RAMP TO US 176	4755	14.2	0.8	12.9	15.3	10
SEB on EXIT 101A RAMP TO US 176	4756	11.9	1.2	10.0	13.8	10
NWB on EXIT 101B RAMP TO US 176	4741	146.0	20.0	106.6	181.0	10
NWB on EXIT 101B RAMP TO US 176	4742	138.7	16.3	102.9	161.8	10
NWB on I 26 E	4781	115.2	44.6	27.1	182.2	10
NWB on I 26 E	4782	163.2	9.6	138.4	177.3	10
NWB on I 26 E	4783	106.2	9.0	89.6	123.1	10
SEB on I 26 E	4785	13.0	0.7	12.0	14.3	10
SEB on I 26 E	4786	20.8	1.4	18.7	23.7	10
SEB on I 26 E	4787	78.2	15.4	51.8	108.8	10
SEB on I 26 E	4788	217.9	10.8	199.8	235.5	10
SEB on I 26 E	4789	133.5	7.9	120.9	146.1	10
SEB on I 26 E	4793	17.8	0.8	16.6	19.1	10
EB on I 26 E	4799	23.2	0.6	21.8	24.0	10
SEB on I 26 E	4800	34.8	3.5	28.0	41.0	10
SEB on I 26 E	4801	99.6	8.1	86.7	111.6	10
SEB on I 26 E	4802	123.3	7.8	112.1	135.7	10
EB on I 26 E	8740	27.1	1.5	24.4	29.6	10
EB on I 26 E	8741	22.1	2.4	19.2	26.4	10
SEB on I 26 E	8744	26.5	3.1	21.8	30.9	10
EB on I 26 E	8764	23.2	0.9	21.5	24.7	10
EB on I 26 E	8766	19.8	1.7	17.2	22.9	10
EB on I 26 E	8769	17.8	1.0	15.9	19.6	10
EB on I 26 E	8770	26.3	1.6	23.7	28.5	10
EB on I 26 E	8778	25.6	0.6	24.3	26.7	10

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various

Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
NWB on I 26 W	4791	19.9	1.4	17.5	21.5	10
NWB on I 26 W	4795	11.3	1.1	10.1	13.3	10
NWB on I 26 W	4796	15.1	0.7	13.9	16.2	10
NWB on I 26 W	4797	16.6	1.5	14.6	18.7	10
NWB on I 26 W	4805	16.0	1.2	14.6	18.1	10
WB on I 26 W	4807	15.6	0.7	14.4	16.5	10
WB on I 26 W	4808	17.2	2.0	14.5	20.6	10
WB on I 26 W	4809	15.2	2.1	11.4	17.7	10
WB on I 26 W	8748	13.3	1.4	10.7	14.9	10
WB on I 26 W	8756	11.1	1.5	8.8	14.0	10
WB on I 26 W	8757	13.6	0.6	12.4	14.4	10
NWB on I 26 W	8773	8.6	0.9	7.1	10.2	10
WB on I 26 W	8775	11.8	0.9	10.3	13.0	10
WB on I 26 W	8776	11.0	0.9	9.9	12.4	10
WB on I 26 W	8777	13.9	1.3	12.0	15.5	10
NWB on I 26 W	8779	12.5	0.6	11.2	13.3	10
SEB on JAMES F BYRNES EXPY	4718	26.9	2.6	22.8	30.5	10
SEB on JAMES F BYRNES EXPY	4719	29.1	1.7	26.7	32.4	10
SEB on JAMES F BYRNES EXPY	4720	24.6	1.1	22.7	26.2	10
NWB on JAMES F BYRNES EXPY	4725	152.1	4.6	145.2	160.1	10
NWB on JAMES F BYRNES EXPY	4726	117.9	13.4	99.8	146.9	10
NWB on JAMES F BYRNES EXPY	4727	125.2	17.0	101.3	160.6	10
NWB on JAMES F BYRNES EXPY	4728	111.9	18.9	83.8	150.8	10
NWB on JAMES F BYRNES EXPY	4729	143.3	23.4	102.4	188.4	10
NWB on JAMES F BYRNES EXPY	4730	97.2	13.6	73.5	123.5	10
NWB on JAMES F BYRNES EXPY	4732	129.7	19.4	95.5	167.0	10

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various

Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
SEB on JAMES F BYRNES EXPY	4733	19.0	0.9	17.8	20.3	10
SEB on JAMES F BYRNES EXPY	4736	19.0	1.1	16.8	21.1	10
SEB on JAMES F BYRNES EXPY	4737	16.1	1.1	14.0	17.5	10
NWB on JAMES F BYRNES EXPY	4739	113.9	14.5	86.0	139.3	10
SEB on JAMES F BYRNES EXPY	4745	12.9	0.7	11.6	14.3	10
SEB on JAMES F BYRNES EXPY	4748	17.0	1.0	15.5	19.1	10
NWB on JAMES F BYRNES EXPY	4753	198.9	9.6	173.5	210.5	10
NWB on JAMES F BYRNES EXPY	4760	155.7	3.8	151.1	162.8	10
NWB on JAMES F BYRNES EXPY	4761	196.3	5.9	185.8	208.7	10
NWB on JAMES F BYRNES EXPY	4762	115.3	8.2	106.1	135.2	10
NWB on JAMES F BYRNES EXPY	4763	124.5	10.0	111.2	146.9	10
NWB on JAMES F BYRNES EXPY	4764	86.7	4.1	78.7	92.2	10
SEB on JAMES F BYRNES EXPY	4766	16.1	0.9	14.5	17.8	10
SEB on JAMES F BYRNES EXPY	4767	22.2	1.3	19.7	24.2	10
SEB on JAMES F BYRNES EXPY	4768	20.1	0.8	19.1	21.5	10
SEB on JAMES F BYRNES EXPY	4769	16.7	1.6	15.1	20.7	10
NWB on JAMES F BYRNES EXPY	4771	28.6	2.3	25.1	33.7	10
NWB on JAMES F BYRNES EXPY	4773	16.2	0.7	14.6	17.1	10
NWB on JAMES F BYRNES EXPY	4774	24.5	10.0	18.7	54.3	10
SEB on JAMES F BYRNES EXPY	4776	18.3	0.9	16.7	19.8	10

Summary Aggregate Report for Segment Statistics

Density (PCE/mi/lane)

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
SEB on EXIT 101A RAMP TO US 176	4755	26.9	0.7	25.8	27.8	10
SEB on EXIT 101A RAMP TO US 176	4756	23.9	1.1	21.8	25.8	10
NWB on EXIT 101B RAMP TO US 176	4741	18.3	0.8	17.0	19.6	10
NWB on EXIT 101B RAMP TO US 176	4742	17.7	1.7	14.9	21.2	10
WB on I 26 E	4780	19.0	2.2	14.5	22.7	10
WB on I 26 E	4781	16.1	0.4	15.6	16.7	10
WB on I 26 E	4782	21.9	5.1	15.8	33.5	10
WB on I 26 E	4783	18.0	3.0	15.2	26.4	10
SEB on I 26 E	4785	16.5	0.9	14.8	18.1	10
SEB on I 26 E	4786	26.0	1.7	23.0	28.2	10
SEB on I 26 E	4787	20.4	0.3	20.0	21.0	10
SEB on I 26 E	4789	17.2	0.9	16.1	18.5	10
SEB on I 26 E	4793	15.2	0.7	14.2	16.1	10
EB on I 26 E	4799	17.7	0.3	17.3	18.2	10
SEB on I 26 E	4800	13.2	1.1	11.6	14.8	10
SEB on I 26 E	4801	13.0	0.8	11.9	14.3	10
SEB on I 26 E	4802	20.8	1.9	18.4	24.3	10
SEB on I 26 E	8740	12.9	0.9	11.5	14.1	10
EB on I 26 E	8741	23.1	2.5	18.1	26.4	10
EB on I 26 E	8764	17.5	0.6	16.8	18.6	10
EB on I 26 E	8766	14.8	2.0	12.6	19.7	10
EB on I 26 E	8769	14.4	1.5	12.4	16.6	10
EB on I 26 E	8770	21.0	1.4	20.0	25.0	10
EB on I 26 E	8778	20.1	0.4	19.3	20.7	10
SEB on I 26 E	8887	24.4	1.9	21.5	28.4	10

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)
Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
SEB on I 26 E	8888	23.4	3.7	17.0	28.3	10
SEB on I 26 E	8890	15.5	1.7	12.8	18.2	10
EB on I 26 E	8891	14.2	1.1	12.4	16.7	10
SEB on I 26 E	8893	15.9	0.3	15.3	16.5	10
NWB on I 26 W	4791	9.4	0.6	8.4	10.3	10
NWB on I 26 W	4795	8.0	0.9	6.4	9.5	10
NWB on I 26 W	4796	7.7	0.9	6.6	9.1	10
NWB on I 26 W	4797	10.4	1.5	8.5	14.1	10
NWB on I 26 W	4805	10.5	0.6	9.8	11.3	10
WB on I 26 W	4806	15.1	4.0	10.7	22.4	10
WB on I 26 W	4807	9.9	0.4	9.2	10.4	10
WB on I 26 W	4808	7.9	1.2	5.4	9.9	10
WB on I 26 W	4809	8.9	1.2	6.9	10.8	10
WB on I 26 W	8748	10.3	1.0	9.1	12.6	10
WB on I 26 W	8756	9.8	1.7	7.7	12.8	10
WB on I 26 W	8757	7.7	1.4	5.4	9.9	10
NWB on I 26 W	8773	10.0	0.7	8.7	11.0	10
WB on I 26 W	8775	11.5	0.8	9.9	12.9	10
WB on I 26 W	8776	11.4	2.2	8.8	16.4	10
WB on I 26 W	8777	15.4	1.1	13.8	16.9	10
NWB on I 26 W	8779	13.0	0.5	12.2	14.0	10
NWB on I 26 W	8889	10.0	0.3	9.2	10.4	10
WB on I 26 W	8895	14.7	0.5	14.1	15.5	10
WB on I 26 W	8896	10.6	1.8	6.9	12.7	10
SEB on JAMES F BYRNES EXPY	4718	50.7	3.9	45.3	58.0	10
SEB on JAMES F BYRNES EXPY	4719	40.5	1.1	39.2	42.3	10

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)
Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
SEB on JAMES F BYRNES EXPY	4720	34.2	0.6	33.3	35.1	10
NWB on JAMES F BYRNES EXPY	4725	25.0	3.0	18.9	30.3	10
NWB on JAMES F BYRNES EXPY	4726	24.8	0.5	23.8	25.4	10
NWB on JAMES F BYRNES EXPY	4727	30.3	1.1	28.6	32.7	10
NWB on JAMES F BYRNES EXPY	4728	26.1	1.5	24.6	29.1	10
NWB on JAMES F BYRNES EXPY	4729	25.4	1.7	22.2	28.6	10
NWB on JAMES F BYRNES EXPY	4730	24.3	1.0	22.3	25.6	10
NWB on JAMES F BYRNES EXPY	4732	19.8	0.7	19.0	21.6	10
SEB on JAMES F BYRNES EXPY	4733	34.2	1.6	31.9	36.5	10
SEB on JAMES F BYRNES EXPY	4736	33.2	0.5	32.1	33.8	10
SEB on JAMES F BYRNES EXPY	4737	29.3	1.3	28.1	32.1	10
NWB on JAMES F BYRNES EXPY	4739	16.6	0.9	15.3	18.1	10
SEB on JAMES F BYRNES EXPY	4745	25.8	0.5	25.1	26.5	10
SEB on JAMES F BYRNES EXPY	4748	33.4	0.9	32.3	34.8	10
NWB on JAMES F BYRNES EXPY	4753	14.8	0.9	13.3	16.6	10
NWB on JAMES F BYRNES EXPY	4760	14.4	0.6	13.2	15.2	10
NWB on JAMES F BYRNES EXPY	4761	15.8	1.4	13.0	17.7	10
NWB on JAMES F BYRNES EXPY	4763	15.1	0.4	14.6	15.8	10
NWB on JAMES F BYRNES EXPY	4764	12.9	0.2	12.5	13.4	10
SEB on JAMES F BYRNES EXPY	4768	23.5	0.6	22.3	24.2	10
SEB on JAMES F BYRNES EXPY	4769	31.8	1.0	30.2	33.1	10
NWB on JAMES F BYRNES EXPY	4771	15.2	0.6	14.4	16.1	10
NWB on JAMES F BYRNES EXPY	4773	12.8	1.2	11.1	14.6	10
NWB on JAMES F BYRNES EXPY	4774	16.2	0.4	15.7	16.8	10
NWB on JAMES F BYRNES EXPY	4775	19.1	2.0	17.1	23.4	10
SEB on JAMES F BYRNES EXPY	4776	19.7	0.5	19.1	20.6	10

Summary Aggregate Report for Segment Statistics

Density (PCE/mi/lane)

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
NWB on JAMES F BYRNES EXPY	4779	16.5	1.1	15.0	18.1	10
SEB on JAMES F BYRNES EXPY	8856	25.7	0.2	25.2	25.9	10

Summary Aggregate Report for Segment Statistics

Density (PCE/mi/lane)

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
SEB on EXIT 101A RAMP TO US 176	4755	18.7	1.0	17.2	20.9	10
SEB on EXIT 101A RAMP TO US 176	4756	16.2	1.5	13.6	18.2	10
NWB on EXIT 101B RAMP TO US 176	4741	33.3	0.5	32.4	34.0	10
NWB on EXIT 101B RAMP TO US 176	4742	32.8	1.0	31.0	34.3	10
WB on I 26 E	4780	27.4	2.5	24.0	31.7	10
WB on I 26 E	4781	23.8	0.4	23.3	24.5	10
WB on I 26 E	4782	31.8	4.6	25.2	40.3	10
WB on I 26 E	4783	24.0	3.4	21.3	33.5	10
SEB on I 26 E	4785	16.8	0.9	15.5	18.5	10
SEB on I 26 E	4786	26.0	2.5	21.5	29.7	10
SEB on I 26 E	4787	20.8	0.3	20.1	21.4	10
SEB on I 26 E	4789	17.6	0.8	16.6	19.2	10
SEB on I 26 E	4793	16.3	0.6	15.2	17.2	10
EB on I 26 E	4799	23.5	0.6	22.1	24.5	10
SEB on I 26 E	4800	17.4	0.8	16.0	18.7	10
SEB on I 26 E	4801	13.0	0.6	11.9	14.1	10
SEB on I 26 E	4802	21.3	1.7	19.7	25.1	10
SEB on I 26 E	8740	16.4	0.8	14.9	17.8	10
EB on I 26 E	8741	28.2	2.0	24.4	30.8	10
EB on I 26 E	8764	23.0	0.8	22.0	24.5	10
EB on I 26 E	8766	19.7	1.1	17.6	21.1	10
EB on I 26 E	8769	18.1	0.7	16.6	19.1	10
EB on I 26 E	8770	26.8	1.3	24.3	28.5	10
EB on I 26 E	8778	25.9	0.7	24.9	27.1	10
SEB on I 26 E	8887	25.9	2.5	22.3	31.2	10

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)
Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
SEB on I 26 E	8888	23.8	4.1	18.8	31.5	10
SEB on I 26 E	8890	16.5	1.3	14.7	19.3	10
EB on I 26 E	8891	18.2	1.0	16.3	19.9	10
SEB on I 26 E	8893	16.9	0.3	16.3	17.5	10
NWB on I 26 W	4791	15.9	0.7	14.5	17.2	10
NWB on I 26 W	4795	13.4	1.1	11.3	14.8	10
NWB on I 26 W	4796	13.5	0.6	12.1	14.3	10
NWB on I 26 W	4797	18.8	1.2	16.3	20.7	10
NWB on I 26 W	4805	17.5	1.2	16.0	19.6	10
WB on I 26 W	4806	25.3	3.4	20.1	31.0	10
WB on I 26 W	4807	16.7	0.4	16.0	17.1	10
WB on I 26 W	4808	14.3	0.9	12.5	15.6	10
WB on I 26 W	4809	16.2	1.5	12.9	18.0	10
WB on I 26 W	8748	16.0	1.1	14.0	18.1	10
WB on I 26 W	8756	14.3	1.4	11.7	15.9	10
WB on I 26 W	8757	13.6	1.4	10.5	15.3	10
NWB on I 26 W	8773	15.2	1.0	13.9	16.7	10
WB on I 26 W	8775	21.4	1.2	20.1	24.0	10
WB on I 26 W	8776	19.3	1.7	17.1	21.9	10
WB on I 26 W	8777	25.4	1.7	22.8	29.0	10
NWB on I 26 W	8779	21.5	0.5	20.8	22.1	10
NWB on I 26 W	8889	16.6	0.3	16.1	16.9	10
WB on I 26 W	8895	24.6	0.6	23.6	25.3	10
WB on I 26 W	8896	20.3	2.4	17.2	25.8	10
SEB on JAMES F BYRNES EXPY	4718	28.9	2.6	24.8	31.9	10
SEB on JAMES F BYRNES EXPY	4719	27.3	0.9	25.6	28.8	10

Summary Aggregate Report for Segment Statistics
Density (PCE/mi/lane)
Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
SEB on JAMES F BYRNES EXPY	4720	27.0	1.0	25.0	28.3	10
NWB on JAMES F BYRNES EXPY	4725	126.0	2.4	123.0	131.3	10
NWB on JAMES F BYRNES EXPY	4726	77.2	0.5	76.5	78.4	10
NWB on JAMES F BYRNES EXPY	4727	62.4	1.5	58.5	64.7	10
NWB on JAMES F BYRNES EXPY	4728	47.3	1.2	45.7	48.6	10
NWB on JAMES F BYRNES EXPY	4729	43.1	0.8	41.3	44.0	10
NWB on JAMES F BYRNES EXPY	4730	38.7	0.9	37.5	39.9	10
NWB on JAMES F BYRNES EXPY	4732	35.7	0.5	35.0	36.7	10
SEB on JAMES F BYRNES EXPY	4733	24.7	1.1	22.6	26.6	10
SEB on JAMES F BYRNES EXPY	4736	23.3	0.8	21.9	24.8	10
SEB on JAMES F BYRNES EXPY	4737	21.3	1.0	19.7	23.2	10
NWB on JAMES F BYRNES EXPY	4739	30.7	0.8	29.7	32.3	10
SEB on JAMES F BYRNES EXPY	4745	18.5	1.5	15.1	20.9	10
SEB on JAMES F BYRNES EXPY	4748	20.5	0.8	19.1	21.3	10
NWB on JAMES F BYRNES EXPY	4753	25.4	1.0	24.0	27.5	10
NWB on JAMES F BYRNES EXPY	4760	24.9	1.0	23.5	26.3	10
NWB on JAMES F BYRNES EXPY	4761	27.4	1.0	25.6	29.0	10
NWB on JAMES F BYRNES EXPY	4763	26.3	0.2	26.0	26.6	10
NWB on JAMES F BYRNES EXPY	4764	23.1	0.5	22.4	23.9	10
SEB on JAMES F BYRNES EXPY	4768	14.3	0.8	13.3	15.2	10
SEB on JAMES F BYRNES EXPY	4769	21.7	1.3	19.4	23.8	10
NWB on JAMES F BYRNES EXPY	4771	22.1	0.2	21.7	22.5	10
NWB on JAMES F BYRNES EXPY	4773	19.5	1.0	17.7	20.6	10
NWB on JAMES F BYRNES EXPY	4774	23.4	0.3	22.8	23.7	10
NWB on JAMES F BYRNES EXPY	4775	26.8	2.3	22.8	30.1	10
SEB on JAMES F BYRNES EXPY	4776	16.4	0.5	15.8	17.1	10

Summary Aggregate Report for Segment Statistics

Density (PCE/mi/lane)

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

Segment Name/Description	Segment ID	Average	Standard Deviation	Min	Max	Number Of Samples
NWB on JAMES F BYRNES EXPY	4779	25.0	1.2	23.2	26.8	10
SEB on JAMES F BYRNES EXPY	8856	17.5	0.2	17.1	17.9	10

Appendix F

TransModeler Ramp Merge/Diverge Outputs

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4718

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	35.0	D
	2	34.0	D
	3	35.0	E
	4	35.0	D
	5	34.0	D
	6	34.0	D
	7	34.0	D
	8	36.0	E
	9	33.0	D
	10	35.0	E

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4719

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	35.0	D
	2	34.0	D
	3	35.0	E
	4	35.0	D
	5	34.0	D
	6	34.0	D
	7	34.0	D
	8	36.0	E
	9	33.0	D
	10	35.0	E

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4720

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	33.0	D
	2	33.0	D
	3	32.0	D
	4	33.0	D
	5	32.0	D
	6	32.0	D
	7	33.0	D
	8	34.0	D
	9	31.0	D
	10	32.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4725

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	22.0	C
	2	24.0	C
	3	22.0	C
	4	24.0	C
	5	23.0	C
	6	22.0	C
	7	21.0	C
	8	22.0	C
	9	22.0	C
	10	23.0	C

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4726

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	22.0	C
	2	24.0	C
	3	22.0	C
	4	24.0	C
	5	23.0	C
	6	22.0	C
	7	21.0	C
	8	22.0	C
	9	22.0	C
	10	23.0	C

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4727

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	26.0	C
	2	28.0	D
	3	27.0	C
	4	29.0	D
	5	27.0	C
	6	27.0	C
	7	28.0	C
	8	27.0	C
	9	27.0	C
	10	27.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4728

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	24.0	C
	2	34.0	D
	3	24.0	C
	4	25.0	C
	5	26.0	C
	6	27.0	D
	7	27.0	D
	8	29.0	D
	9	28.0	D
	10	27.0	D

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4729

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	21.0	C
	2	21.0	C
	3	19.0	B
	4	20.0	B
	5	20.0	C
	6	20.0	B
	7	20.0	B
	8	20.0	C
	9	20.0	B
	10	20.0	C

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4730

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	21.0	C
	2	21.0	C
	3	19.0	B
	4	20.0	B
	5	20.0	C
	6	20.0	B
	7	20.0	B
	8	20.0	C
	9	20.0	B
	10	20.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4732

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	19.0	C
	2	19.0	C
	3	18.0	C
	4	18.0	C
	5	18.0	B
	6	19.0	C
	7	19.0	C
	8	19.0	C
	9	18.0	C
	10	18.0	C

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4733

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	28.0	D
	2	28.0	D
	3	27.0	D
	4	27.0	D
	5	27.0	D
	6	28.0	D
	7	26.0	D
	8	27.0	D
	9	26.0	C
	10	28.0	D

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4736

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	34.0	D
	2	31.0	D
	3	31.0	D
	4	32.0	D
	5	31.0	D
	6	32.0	D
	7	31.0	D
	8	33.0	D
	9	28.0	D
	10	30.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4737

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	27.0	C
	2	27.0	C
	3	26.0	C
	4	27.0	C
	5	26.0	C
	6	26.0	C
	7	26.0	C
	8	28.0	C
	9	25.0	C
	10	25.0	C

NWB on JAMES F BYRNES EXPY (Merge/Diverge Analysis)
Segment ID 4739

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	14.0	B
	2	16.0	B
	3	14.0	B
	4	15.0	B
	5	14.0	B
	6	15.0	B
	7	13.0	B
	8	14.0	B
	9	15.0	B
	10	14.0	B

NWB on EXIT 101B RAMP TO US 176 (Partial Basic Analysis)
Segment ID 4741

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	19.0	C
	2	20.0	C
	3	21.0	C
	4	18.0	C
	5	18.0	B
	6	22.0	C
	7	18.0	C
	8	16.0	B
	9	17.0	B
	10	19.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on EXIT 101B RAMP TO US 176 (Diverge Analysis)
Segment ID 4742

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	15.0	B
	2	16.0	B
	3	14.0	B
	4	16.0	B
	5	16.0	B
	6	14.0	B
	7	15.0	B
	8	16.0	B
	9	16.0	B
	10	16.0	B

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4745

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	23.0	C
	2	23.0	C
	3	20.0	C
	4	21.0	C
	5	22.0	C
	6	22.0	C
	7	20.0	C
	8	22.0	C
	9	21.0	C
	10	24.0	C

SEB on JAMES F BYRNES EXPY (Merge/Diverge Analysis)
Segment ID 4748

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	25.0	C
	2	27.0	C
	3	28.0	C
	4	27.0	C
	5	27.0	C
	6	26.0	C
	7	27.0	C
	8	27.0	C
	9	25.0	C
	10	26.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4753

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	18.0	B
	3	13.0	B
	4	15.0	B
	5	16.0	B
	6	16.0	B
	7	14.0	B
	8	15.0	B
	9	14.0	B
	10	13.0	B

SEB on EXIT 101A RAMP TO US 176 (Partial Basic Analysis)
Segment ID 4755

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	26.0	C
	2	25.0	C
	3	22.0	C
	4	24.0	C
	5	22.0	C
	6	24.0	C
	7	24.0	C
	8	22.0	C
	9	25.0	C
	10	23.0	C

SEB on EXIT 101A RAMP TO US 176 (Diverge Analysis)
Segment ID 4756

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	20.0	C
	2	21.0	C
	3	19.0	B
	4	20.0	C
	5	21.0	C
	6	20.0	B
	7	20.0	B
	8	20.0	C
	9	19.0	B
	10	20.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4760

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	18.0	B
	3	17.0	B
	4	16.0	B
	5	16.0	B
	6	18.0	B
	7	16.0	B
	8	16.0	B
	9	16.0	B
	10	16.0	B

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4761

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	18.0	B
	3	17.0	B
	4	16.0	B
	5	16.0	B
	6	18.0	B
	7	16.0	B
	8	16.0	B
	9	16.0	B
	10	16.0	B

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4762

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	22.0	C
	2	24.0	C
	3	21.0	C
	4	23.0	C
	5	22.0	C
	6	22.0	C
	7	22.0	C
	8	23.0	C
	9	22.0	C
	10	22.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4763

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	19.0	B
	3	17.0	B
	4	17.0	B
	5	16.0	B
	6	19.0	B
	7	16.0	B
	8	17.0	B
	9	16.0	B
	10	17.0	B

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4764

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	19.0	B
	3	17.0	B
	4	17.0	B
	5	16.0	B
	6	19.0	B
	7	16.0	B
	8	17.0	B
	9	16.0	B
	10	17.0	B

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4766

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	43.0	E
	2	39.0	E
	3	35.0	E
	4	42.0	E
	5	39.0	E
	6	35.0	E
	7	37.0	E
	8	42.0	E
	9	45.0	E
	10	44.0	E

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4767

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	37.0	E
	2	37.0	E
	3	35.0	E
	4	36.0	E
	5	36.0	E
	6	36.0	E
	7	35.0	E
	8	36.0	E
	9	35.0	E
	10	36.0	E

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4768

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	37.0	E
	2	37.0	E
	3	35.0	E
	4	36.0	E
	5	36.0	E
	6	36.0	E
	7	35.0	E
	8	36.0	E
	9	35.0	E
	10	36.0	E

SEB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4769

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	42.0	E
	2	40.0	E
	3	37.0	E
	4	42.0	E
	5	40.0	E
	6	37.0	E
	7	39.0	E
	8	42.0	E
	9	43.0	E
	10	42.0	E

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4771

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	17.0	B
	2	20.0	C
	3	16.0	B
	4	19.0	C
	5	21.0	C
	6	22.0	C
	7	18.0	B
	8	18.0	C
	9	17.0	B
	10	18.0	C

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4773

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	17.0	B
	3	13.0	B
	4	16.0	B
	5	17.0	B
	6	13.0	B
	7	17.0	B
	8	15.0	B
	9	16.0	B
	10	15.0	B

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4774

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	19.0	C
	2	22.0	C
	3	18.0	B
	4	20.0	C
	5	19.0	C
	6	20.0	C
	7	19.0	C
	8	19.0	C
	9	19.0	C
	10	19.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4776

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	26.0	D
	2	25.0	C
	3	25.0	C
	4	27.0	D
	5	22.0	C
	6	23.0	C
	7	25.0	C
	8	25.0	C
	9	26.0	D
	10	23.0	C

NWB on I 26 E (Basic Analysis)
Segment ID 4781

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	19.0	C
	2	21.0	C
	3	18.0	C
	4	20.0	C
	5	19.0	C
	6	19.0	C
	7	19.0	C
	8	19.0	C
	9	19.0	C
	10	19.0	C

NWB on I 26 E (Partial Basic Analysis)
Segment ID 4782

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	19.0	C
	2	21.0	C
	3	18.0	C
	4	20.0	C
	5	19.0	C
	6	19.0	C
	7	19.0	C
	8	19.0	C
	9	19.0	C
	10	19.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 E (Diverge Analysis)
Segment ID 4783

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	18.0	B
	3	16.0	B
	4	15.0	B
	5	17.0	B
	6	17.0	B
	7	17.0	B
	8	17.0	B
	9	18.0	B
	10	17.0	B

SEB on I 26 E (Merge Analysis)
Segment ID 4785

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	18.0	B
	2	20.0	C
	3	19.0	B
	4	19.0	B
	5	19.0	B
	6	19.0	B
	7	17.0	B
	8	19.0	B
	9	18.0	B
	10	17.0	B

SEB on I 26 E (Merge Analysis)
Segment ID 4786

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	18.0	B
	2	20.0	C
	3	19.0	B
	4	19.0	B
	5	19.0	B
	6	19.0	B
	7	17.0	B
	8	19.0	B
	9	18.0	B
	10	17.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Partial Basic Analysis)
Segment ID 4787

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	23.0	C
	2	23.0	C
	3	23.0	C
	4	23.0	C
	5	23.0	C
	6	23.0	C
	7	23.0	C
	8	23.0	C
	9	23.0	C
	10	24.0	C

SEB on I 26 E (Diverge Analysis)
Segment ID 4788

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	20.0	B
	2	22.0	C
	3	20.0	C
	4	20.0	C
	5	21.0	C
	6	21.0	C
	7	19.0	B
	8	20.0	B
	9	19.0	B
	10	18.0	B

SEB on I 26 E (Diverge Analysis)
Segment ID 4789

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	20.0	B
	2	22.0	C
	3	20.0	C
	4	20.0	C
	5	21.0	C
	6	21.0	C
	7	19.0	B
	8	20.0	B
	9	19.0	B
	10	18.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Basic Analysis)
Segment ID 4791

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	18.0	B
	3	14.0	B
	4	18.0	C
	5	15.0	B
	6	18.0	B
	7	15.0	B
	8	18.0	B
	9	15.0	B
	10	15.0	B

SEB on I 26 E (Basic Analysis)
Segment ID 4793

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	15.0	B
	2	15.0	B
	3	17.0	B
	4	16.0	B
	5	18.0	B
	6	18.0	B
	7	15.0	B
	8	20.0	C
	9	17.0	B
	10	17.0	B

NWB on I 26 W (Merge Analysis)
Segment ID 4795

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	14.0	B
	2	16.0	B
	3	14.0	B
	4	14.0	B
	5	13.0	B
	6	13.0	B
	7	13.0	B
	8	12.0	B
	9	11.0	B
	10	12.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Partial Basic Analysis)
Segment ID 4796

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	17.0	B
	3	14.0	B
	4	16.0	B
	5	16.0	B
	6	15.0	B
	7	15.0	B
	8	15.0	B
	9	15.0	B
	10	15.0	B

NWB on I 26 W (Basic Analysis)
Segment ID 4797

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	17.0	B
	3	14.0	B
	4	16.0	B
	5	16.0	B
	6	15.0	B
	7	15.0	B
	8	15.0	B
	9	15.0	B
	10	15.0	B

EB on I 26 E (Partial Basic Analysis)
Segment ID 4799

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	12.0	B
	2	13.0	B
	3	12.0	B
	4	12.0	B
	5	13.0	B
	6	13.0	B
	7	12.0	B
	8	12.0	B
	9	12.0	B
	10	13.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Merge Analysis)
Segment ID 4800

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	15.0	B
	2	15.0	B
	3	14.0	B
	4	15.0	B
	5	14.0	B
	6	15.0	B
	7	16.0	B
	8	15.0	B
	9	15.0	B
	10	15.0	B

SEB on I 26 E (Partial Basic Analysis)
Segment ID 4801

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	17.0	B
	3	17.0	B
	4	17.0	B
	5	17.0	B
	6	17.0	B
	7	16.0	B
	8	17.0	B
	9	17.0	B
	10	17.0	B

SEB on I 26 E (Diverge Analysis)
Segment ID 4802

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	16.0	B
	3	15.0	B
	4	16.0	B
	5	14.0	B
	6	16.0	B
	7	16.0	B
	8	14.0	B
	9	16.0	B
	10	16.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Basic Analysis)
Segment ID 4805

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	17.0	B
	3	14.0	B
	4	17.0	B
	5	17.0	B
	6	17.0	B
	7	14.0	B
	8	14.0	B
	9	18.0	B
	10	16.0	B

WB on I 26 W (Partial Basic Analysis)
Segment ID 4807

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	17.0	B
	3	14.0	B
	4	16.0	B
	5	15.0	B
	6	16.0	B
	7	15.0	B
	8	15.0	B
	9	15.0	B
	10	15.0	B

WB on I 26 W (Diverge Analysis)
Segment ID 4808

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	17.0	B
	3	14.0	B
	4	15.0	B
	5	16.0	B
	6	16.0	B
	7	13.0	B
	8	15.0	B
	9	16.0	B
	10	15.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Diverge Analysis)
Segment ID 4809

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	17.0	B
	3	14.0	B
	4	15.0	B
	5	16.0	B
	6	16.0	B
	7	13.0	B
	8	15.0	B
	9	16.0	B
	10	15.0	B

EB on I 26 E (Basic Analysis)
Segment ID 8740

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	13.0	B
	2	16.0	B
	3	13.0	B
	4	16.0	B
	5	15.0	B
	6	14.0	B
	7	13.0	B
	8	15.0	B
	9	13.0	B
	10	14.0	B

EB on I 26 E (Diverge Analysis)
Segment ID 8741

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	12.0	B
	2	12.0	B
	3	13.0	B
	4	11.0	B
	5	12.0	B
	6	13.0	B
	7	12.0	B
	8	12.0	B
	9	11.0	B
	10	12.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Merge Analysis)
Segment ID 8744

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	15.0	B
	2	15.0	B
	3	14.0	B
	4	15.0	B
	5	14.0	B
	6	15.0	B
	7	16.0	B
	8	15.0	B
	9	15.0	B
	10	15.0	B

WB on I 26 W (Basic Analysis)
Segment ID 8748

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	18.0	C
	2	18.0	B
	3	16.0	B
	4	15.0	B
	5	15.0	B
	6	17.0	B
	7	17.0	B
	8	16.0	B
	9	17.0	B
	10	17.0	B

WB on I 26 W (Merge Analysis)
Segment ID 8756

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	14.0	B
	2	16.0	B
	3	13.0	B
	4	14.0	B
	5	13.0	B
	6	14.0	B
	7	14.0	B
	8	12.0	B
	9	13.0	B
	10	13.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Partial Basic Analysis)
Segment ID 8757

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	15.0	B
	2	17.0	B
	3	14.0	B
	4	16.0	B
	5	15.0	B
	6	16.0	B
	7	15.0	B
	8	15.0	B
	9	15.0	B
	10	15.0	B

EB on I 26 E (Basic Analysis)
Segment ID 8764

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	12.0	B
	2	12.0	B
	3	11.0	A
	4	13.0	B
	5	13.0	B
	6	12.0	B
	7	11.0	B
	8	13.0	B
	9	11.0	B
	10	12.0	B

EB on I 26 E (Diverge Analysis)
Segment ID 8766

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	10.0	B
	2	12.0	B
	3	12.0	B
	4	12.0	B
	5	11.0	B
	6	13.0	B
	7	13.0	B
	8	12.0	B
	9	12.0	B
	10	12.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

EB on I 26 E (Merge Analysis)
Segment ID 8769

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	10.0	B
	2	12.0	B
	3	10.0	B
	4	10.0	B
	5	11.0	B
	6	11.0	B
	7	11.0	B
	8	11.0	B
	9	11.0	B
	10	10.0	B

EB on I 26 E (Partial Basic Analysis)
Segment ID 8770

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	13.0	B
	2	14.0	B
	3	14.0	B
	4	14.0	B
	5	14.0	B
	6	14.0	B
	7	14.0	B
	8	14.0	B
	9	13.0	B
	10	14.0	B

NWB on I 26 W (Merge Analysis)
Segment ID 8773

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	11.0	B
	2	10.0	B
	3	9.0	A
	4	11.0	B
	5	9.0	A
	6	12.0	B
	7	10.0	A
	8	12.0	B
	9	11.0	B
	10	9.0	A

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Basic Analysis)
Segment ID 8775

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	11.0	A
	2	15.0	B
	3	12.0	B
	4	14.0	B
	5	13.0	B
	6	13.0	B
	7	13.0	B
	8	12.0	B
	9	12.0	B
	10	13.0	B

WB on I 26 W (Diverge Analysis)
Segment ID 8776

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	16.0	B
	3	15.0	B
	4	15.0	B
	5	14.0	B
	6	13.0	B
	7	14.0	B
	8	12.0	B
	9	13.0	B
	10	13.0	B

WB on I 26 W (Partial Basic Analysis)
Segment ID 8777

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	15.0	B
	2	17.0	B
	3	14.0	B
	4	16.0	B
	5	15.0	B
	6	16.0	B
	7	15.0	B
	8	15.0	B
	9	15.0	B
	10	15.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

EB on I 26 E (Partial Basic Analysis)
Segment ID 8778

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	13.0	B
	2	14.0	B
	3	14.0	B
	4	14.0	B
	5	14.0	B
	6	14.0	B
	7	14.0	B
	8	14.0	B
	9	13.0	B
	10	14.0	B

NWB on I 26 W (Partial Basic Analysis)
Segment ID 8779

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	14.0	B
	2	16.0	B
	3	13.0	B
	4	14.0	B
	5	14.0	B
	6	15.0	B
	7	14.0	B
	8	13.0	B
	9	14.0	B
	10	14.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4718

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	26.0	C
	2	27.0	C
	3	27.0	C
	4	25.0	C
	5	28.0	C
	6	25.0	C
	7	28.0	C
	8	28.0	D
	9	28.0	C
	10	28.0	D

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4719

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	26.0	C
	2	27.0	C
	3	27.0	C
	4	25.0	C
	5	28.0	C
	6	25.0	C
	7	28.0	C
	8	28.0	D
	9	28.0	C
	10	28.0	D

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4720

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	25.0	C
	2	26.0	C
	3	26.0	C
	4	26.0	D
	5	24.0	C
	6	26.0	C
	7	26.0	D
	8	26.0	C
	9	25.0	C
	10	25.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4725

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	95.0	F
	2	96.0	F
	3	93.0	F
	4	99.0	F
	5	94.0	F
	6	97.0	F
	7	94.0	F
	8	97.0	F
	9	94.0	F
	10	96.0	F

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4726

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	95.0	F
	2	96.0	F
	3	93.0	F
	4	99.0	F
	5	94.0	F
	6	97.0	F
	7	94.0	F
	8	97.0	F
	9	94.0	F
	10	96.0	F

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4727

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	74.0	F
	2	73.0	F
	3	74.0	F
	4	77.0	F
	5	75.0	F
	6	78.0	F
	7	74.0	F
	8	80.0	F
	9	76.0	F
	10	76.0	F

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4728

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	52.0	F
	2	53.0	F
	3	51.0	F
	4	53.0	F
	5	51.0	F
	6	56.0	F
	7	58.0	F
	8	65.0	F
	9	51.0	F
	10	57.0	F

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4729

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	41.0	E
	2	39.0	E
	3	38.0	E
	4	37.0	E
	5	38.0	E
	6	38.0	E
	7	38.0	E
	8	51.0	E
	9	39.0	E
	10	40.0	E

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4730

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	41.0	E
	2	39.0	E
	3	38.0	E
	4	37.0	E
	5	38.0	E
	6	38.0	E
	7	38.0	E
	8	51.0	E
	9	39.0	E
	10	40.0	E

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4732

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	49.0	F
	2	37.0	E
	3	39.0	E
	4	37.0	E
	5	38.0	E
	6	35.0	D
	7	36.0	E
	8	59.0	F
	9	38.0	E
	10	38.0	E

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4733

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	21.0	C
	2	21.0	C
	3	21.0	C
	4	22.0	C
	5	21.0	C
	6	20.0	C
	7	21.0	C
	8	21.0	C
	9	20.0	C
	10	21.0	C

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4736

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	21.0	C
	2	22.0	C
	3	25.0	C
	4	20.0	C
	5	23.0	C
	6	22.0	C
	7	23.0	C
	8	23.0	C
	9	25.0	C
	10	22.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4737

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	19.0	B
	2	19.0	B
	3	17.0	B
	4	21.0	C
	5	20.0	B
	6	19.0	B
	7	21.0	C
	8	20.0	B
	9	18.0	B
	10	19.0	B

NWB on JAMES F BYRNES EXPY (Merge/Diverge Analysis)
Segment ID 4739

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	48.0	E
	2	29.0	D
	3	37.0	E
	4	28.0	D
	5	38.0	E
	6	31.0	D
	7	28.0	C
	8	53.0	E
	9	30.0	D
	10	29.0	D

NWB on EXIT 101B RAMP TO US 176 (Partial Basic Analysis)
Segment ID 4741

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	76.0	F
	2	36.0	E
	3	64.0	F
	4	36.0	E
	5	72.0	F
	6	39.0	E
	7	40.0	E
	8	70.0	F
	9	47.0	F
	10	49.0	F

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on EXIT 101B RAMP TO US 176 (Diverge Analysis)
Segment ID 4742

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	80.0	E
	2	32.0	D
	3	72.0	E
	4	34.0	D
	5	86.0	E
	6	30.0	D
	7	35.0	D
	8	62.0	E
	9	62.0	E
	10	65.0	E

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4745

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	16.0	B
	2	18.0	B
	3	18.0	C
	4	18.0	B
	5	15.0	B
	6	16.0	B
	7	17.0	B
	8	17.0	B
	9	17.0	B
	10	16.0	B

SEB on JAMES F BYRNES EXPY (Merge/Diverge Analysis)
Segment ID 4748

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	18.0	B
	2	19.0	B
	3	19.0	B
	4	17.0	B
	5	17.0	B
	6	17.0	B
	7	17.0	B
	8	20.0	B
	9	18.0	B
	10	19.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4753

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	145.0	F
	2	76.0	F
	3	132.0	F
	4	97.0	F
	5	141.0	F
	6	80.0	F
	7	116.0	F
	8	103.0	F
	9	118.0	F
	10	120.0	F

SEB on EXIT 101A RAMP TO US 176 (Partial Basic Analysis)
Segment ID 4755

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	16.0	B
	2	16.0	B
	3	16.0	B
	4	19.0	C
	5	19.0	C
	6	16.0	B
	7	21.0	C
	8	18.0	C
	9	15.0	B
	10	17.0	B

SEB on EXIT 101A RAMP TO US 176 (Diverge Analysis)
Segment ID 4756

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	15.0	B
	2	14.0	B
	3	13.0	B
	4	16.0	B
	5	16.0	B
	6	14.0	B
	7	17.0	B
	8	15.0	B
	9	14.0	B
	10	16.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4760

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	83.0	F
	2	81.0	F
	3	79.0	F
	4	76.0	F
	5	79.0	F
	6	87.0	F
	7	84.0	F
	8	102.0	F
	9	81.0	F
	10	80.0	F

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4761

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	83.0	F
	2	81.0	F
	3	79.0	F
	4	76.0	F
	5	79.0	F
	6	87.0	F
	7	84.0	F
	8	102.0	F
	9	81.0	F
	10	80.0	F

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4762

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	48.0	F
	2	47.0	F
	3	52.0	F
	4	45.0	E
	5	48.0	F
	6	55.0	F
	7	49.0	F
	8	100.0	F
	9	47.0	F
	10	45.0	F

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4763

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	73.0	E
	2	70.0	E
	3	70.0	E
	4	65.0	E
	5	68.0	E
	6	80.0	E
	7	75.0	E
	8	95.0	E
	9	72.0	E
	10	71.0	E

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4764

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	73.0	E
	2	70.0	E
	3	70.0	E
	4	65.0	E
	5	68.0	E
	6	80.0	E
	7	75.0	E
	8	95.0	E
	9	72.0	E
	10	71.0	E

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4766

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	18.0	B
	2	22.0	C
	3	20.0	B
	4	23.0	C
	5	21.0	C
	6	20.0	B
	7	23.0	C
	8	22.0	C
	9	20.0	B
	10	21.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4767

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	26.0	C
	3	26.0	C
	4	26.0	D
	5	25.0	C
	6	25.0	C
	7	26.0	D
	8	26.0	D
	9	25.0	C
	10	25.0	C

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4768

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	26.0	C
	3	26.0	C
	4	26.0	D
	5	25.0	C
	6	25.0	C
	7	26.0	D
	8	26.0	D
	9	25.0	C
	10	25.0	C

SEB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4769

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	21.0	C
	2	24.0	C
	3	22.0	C
	4	24.0	C
	5	23.0	C
	6	22.0	C
	7	24.0	C
	8	24.0	C
	9	23.0	C
	10	23.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4771

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	31.0	D
	2	33.0	D
	3	28.0	D
	4	31.0	D
	5	29.0	D
	6	32.0	D
	7	30.0	D
	8	30.0	D
	9	32.0	D
	10	31.0	D

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4773

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	24.0	C
	3	22.0	C
	4	24.0	C
	5	22.0	C
	6	22.0	C
	7	25.0	C
	8	19.0	B
	9	22.0	C
	10	23.0	C

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4774

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	29.0	D
	2	29.0	D
	3	27.0	D
	4	29.0	D
	5	28.0	D
	6	27.0	D
	7	29.0	D
	8	24.0	C
	9	29.0	D
	10	28.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4776

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	16.0	B
	2	20.0	C
	3	21.0	C
	4	20.0	C
	5	21.0	C
	6	20.0	C
	7	19.0	C
	8	20.0	C
	9	17.0	B
	10	20.0	C

NWB on I 26 E (Basic Analysis)
Segment ID 4781

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	30.0	D
	2	30.0	D
	3	28.0	D
	4	30.0	D
	5	29.0	D
	6	29.0	D
	7	30.0	D
	8	25.0	C
	9	29.0	D
	10	29.0	D

NWB on I 26 E (Partial Basic Analysis)
Segment ID 4782

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	30.0	D
	2	30.0	D
	3	28.0	D
	4	30.0	D
	5	29.0	D
	6	29.0	D
	7	30.0	D
	8	25.0	C
	9	29.0	D
	10	29.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 E (Diverge Analysis)
Segment ID 4783

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	26.0	C
	2	25.0	C
	3	23.0	C
	4	24.0	C
	5	23.0	C
	6	24.0	C
	7	24.0	C
	8	20.0	C
	9	25.0	C
	10	25.0	C

SEB on I 26 E (Merge Analysis)
Segment ID 4785

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	18.0	B
	2	19.0	B
	3	18.0	B
	4	17.0	B
	5	17.0	B
	6	18.0	B
	7	18.0	B
	8	18.0	B
	9	20.0	B
	10	18.0	B

SEB on I 26 E (Merge Analysis)
Segment ID 4786

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	18.0	B
	2	19.0	B
	3	18.0	B
	4	17.0	B
	5	17.0	B
	6	18.0	B
	7	18.0	B
	8	18.0	B
	9	20.0	B
	10	18.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Partial Basic Analysis)
Segment ID 4787

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	23.0	C
	2	25.0	C
	3	24.0	C
	4	24.0	C
	5	24.0	C
	6	23.0	C
	7	24.0	C
	8	24.0	C
	9	24.0	C
	10	23.0	C

SEB on I 26 E (Diverge Analysis)
Segment ID 4788

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	21.0	C
	2	21.0	C
	3	20.0	C
	4	19.0	B
	5	19.0	B
	6	20.0	B
	7	20.0	C
	8	20.0	C
	9	21.0	C
	10	20.0	B

SEB on I 26 E (Diverge Analysis)
Segment ID 4789

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	21.0	C
	2	21.0	C
	3	20.0	C
	4	19.0	B
	5	19.0	B
	6	20.0	B
	7	20.0	C
	8	20.0	C
	9	21.0	C
	10	20.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Basic Analysis)
Segment ID 4791

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	25.0	C
	3	24.0	C
	4	25.0	C
	5	25.0	C
	6	22.0	C
	7	24.0	C
	8	19.0	C
	9	24.0	C
	10	23.0	C

SEB on I 26 E (Basic Analysis)
Segment ID 4793

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	19.0	C
	2	19.0	C
	3	19.0	C
	4	21.0	C
	5	21.0	C
	6	18.0	C
	7	20.0	C
	8	20.0	C
	9	17.0	B
	10	18.0	C

NWB on I 26 W (Merge Analysis)
Segment ID 4795

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	21.0	C
	2	23.0	C
	3	20.0	B
	4	24.0	C
	5	22.0	C
	6	22.0	C
	7	22.0	C
	8	18.0	B
	9	22.0	C
	10	22.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Partial Basic Analysis)
Segment ID 4796

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	25.0	C
	2	26.0	C
	3	24.0	C
	4	25.0	C
	5	24.0	C
	6	24.0	C
	7	25.0	C
	8	21.0	C
	9	25.0	C
	10	25.0	C

NWB on I 26 W (Basic Analysis)
Segment ID 4797

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	25.0	C
	2	26.0	C
	3	24.0	C
	4	25.0	C
	5	24.0	C
	6	24.0	C
	7	25.0	C
	8	21.0	C
	9	25.0	C
	10	25.0	C

EB on I 26 E (Partial Basic Analysis)
Segment ID 4799

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	18.0	B
	2	19.0	C
	3	19.0	C
	4	18.0	B
	5	19.0	C
	6	19.0	C
	7	19.0	C
	8	19.0	C
	9	19.0	C
	10	19.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Merge Analysis)
Segment ID 4800

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	19.0	B
	3	17.0	B
	4	17.0	B
	5	18.0	B
	6	16.0	B
	7	17.0	B
	8	16.0	B
	9	17.0	B
	10	17.0	B

SEB on I 26 E (Partial Basic Analysis)
Segment ID 4801

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	20.0	C
	2	21.0	C
	3	20.0	C
	4	21.0	C
	5	20.0	C
	6	20.0	C
	7	21.0	C
	8	20.0	C
	9	21.0	C
	10	20.0	C

SEB on I 26 E (Diverge Analysis)
Segment ID 4802

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	19.0	B
	3	20.0	B
	4	20.0	B
	5	19.0	B
	6	18.0	B
	7	18.0	B
	8	18.0	B
	9	18.0	B
	10	19.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Basic Analysis)
Segment ID 4805

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	27.0	D
	2	27.0	D
	3	26.0	C
	4	25.0	C
	5	24.0	C
	6	25.0	C
	7	24.0	C
	8	23.0	C
	9	24.0	C
	10	26.0	C

WB on I 26 W (Partial Basic Analysis)
Segment ID 4807

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	26.0	D
	2	26.0	D
	3	24.0	C
	4	26.0	C
	5	25.0	C
	6	25.0	C
	7	25.0	C
	8	21.0	C
	9	25.0	C
	10	25.0	C

WB on I 26 W (Diverge Analysis)
Segment ID 4808

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	26.0	C
	2	26.0	C
	3	23.0	C
	4	27.0	C
	5	25.0	C
	6	25.0	C
	7	26.0	C
	8	22.0	C
	9	25.0	C
	10	26.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Diverge Analysis)
Segment ID 4809

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	26.0	C
	2	26.0	C
	3	23.0	C
	4	27.0	C
	5	25.0	C
	6	25.0	C
	7	26.0	C
	8	22.0	C
	9	25.0	C
	10	26.0	C

EB on I 26 E (Basic Analysis)
Segment ID 8740

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	21.0	C
	2	20.0	C
	3	20.0	C
	4	22.0	C
	5	21.0	C
	6	18.0	C
	7	25.0	C
	8	21.0	C
	9	22.0	C
	10	20.0	C

EB on I 26 E (Diverge Analysis)
Segment ID 8741

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	16.0	B
	2	17.0	B
	3	17.0	B
	4	17.0	B
	5	17.0	B
	6	18.0	B
	7	17.0	B
	8	18.0	B
	9	17.0	B
	10	19.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Merge Analysis)
Segment ID 8744

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	19.0	B
	3	17.0	B
	4	17.0	B
	5	18.0	B
	6	16.0	B
	7	17.0	B
	8	16.0	B
	9	17.0	B
	10	17.0	B

WB on I 26 W (Basic Analysis)
Segment ID 8748

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	26.0	D
	2	25.0	C
	3	27.0	D
	4	26.0	D
	5	26.0	C
	6	24.0	C
	7	25.0	C
	8	23.0	C
	9	24.0	C
	10	24.0	C

WB on I 26 W (Merge Analysis)
Segment ID 8756

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	23.0	C
	2	23.0	C
	3	20.0	B
	4	21.0	C
	5	21.0	C
	6	21.0	C
	7	22.0	C
	8	18.0	B
	9	22.0	C
	10	21.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Partial Basic Analysis)
Segment ID 8757

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	24.0	C
	3	23.0	C
	4	25.0	C
	5	24.0	C
	6	23.0	C
	7	24.0	C
	8	20.0	C
	9	24.0	C
	10	24.0	C

EB on I 26 E (Basic Analysis)
Segment ID 8764

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	18.0	C
	2	19.0	C
	3	19.0	C
	4	18.0	C
	5	19.0	C
	6	20.0	C
	7	19.0	C
	8	18.0	C
	9	18.0	B
	10	17.0	B

EB on I 26 E (Diverge Analysis)
Segment ID 8766

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	18.0	B
	3	17.0	B
	4	17.0	B
	5	17.0	B
	6	16.0	B
	7	19.0	B
	8	17.0	B
	9	20.0	B
	10	19.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

EB on I 26 E (Merge Analysis)
Segment ID 8769

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	14.0	B
	2	15.0	B
	3	15.0	B
	4	16.0	B
	5	15.0	B
	6	16.0	B
	7	15.0	B
	8	17.0	B
	9	15.0	B
	10	16.0	B

EB on I 26 E (Partial Basic Analysis)
Segment ID 8770

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	19.0	C
	2	20.0	C
	3	19.0	C
	4	20.0	C
	5	20.0	C
	6	20.0	C
	7	21.0	C
	8	20.0	C
	9	20.0	C
	10	20.0	C

NWB on I 26 W (Merge Analysis)
Segment ID 8773

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	15.0	B
	3	16.0	B
	4	15.0	B
	5	15.0	B
	6	14.0	B
	7	16.0	B
	8	13.0	B
	9	17.0	B
	10	16.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Basic Analysis)
Segment ID 8775

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	19.0	C
	3	22.0	C
	4	23.0	C
	5	23.0	C
	6	22.0	C
	7	22.0	C
	8	19.0	C
	9	21.0	C
	10	22.0	C

WB on I 26 W (Diverge Analysis)
Segment ID 8776

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	22.0	C
	2	23.0	C
	3	20.0	C
	4	21.0	C
	5	20.0	B
	6	21.0	C
	7	22.0	C
	8	18.0	B
	9	22.0	C
	10	21.0	C

WB on I 26 W (Partial Basic Analysis)
Segment ID 8777

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	24.0	C
	3	23.0	C
	4	25.0	C
	5	24.0	C
	6	23.0	C
	7	24.0	C
	8	20.0	C
	9	24.0	C
	10	24.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

EB on I 26 E (Partial Basic Analysis)
Segment ID 8778

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	19.0	C
	2	20.0	C
	3	19.0	C
	4	20.0	C
	5	20.0	C
	6	20.0	C
	7	21.0	C
	8	20.0	C
	9	20.0	C
	10	20.0	C

NWB on I 26 W (Partial Basic Analysis)
Segment ID 8779

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	23.0	C
	2	22.0	C
	3	21.0	C
	4	22.0	C
	5	22.0	C
	6	22.0	C
	7	22.0	C
	8	18.0	B
	9	21.0	C
	10	22.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4718

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	41.0	E
	2	38.0	E
	3	39.0	E
	4	43.0	E
	5	36.0	E
	6	40.0	E
	7	42.0	E
	8	40.0	E
	9	36.0	E
	10	40.0	E

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4719

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	41.0	E
	2	38.0	E
	3	39.0	E
	4	43.0	E
	5	36.0	E
	6	40.0	E
	7	42.0	E
	8	40.0	E
	9	36.0	E
	10	40.0	E

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4720

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	36.0	E
	2	34.0	D
	3	34.0	D
	4	35.0	E
	5	34.0	D
	6	34.0	D
	7	35.0	D
	8	36.0	E
	9	33.0	D
	10	34.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4725

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	39.0	E
	2	44.0	E
	3	36.0	E
	4	36.0	E
	5	40.0	E
	6	39.0	E
	7	36.0	E
	8	35.0	E
	9	39.0	E
	10	38.0	E

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4726

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	39.0	E
	2	44.0	E
	3	36.0	E
	4	36.0	E
	5	40.0	E
	6	39.0	E
	7	36.0	E
	8	35.0	E
	9	39.0	E
	10	38.0	E

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4727

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	47.0	E
	2	62.0	E
	3	46.0	E
	4	41.0	E
	5	61.0	E
	6	45.0	E
	7	47.0	E
	8	45.0	E
	9	52.0	E
	10	47.0	E

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4728

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	41.0	E
	2	65.0	F
	3	40.0	E
	4	42.0	E
	5	58.0	F
	6	40.0	E
	7	45.0	F
	8	42.0	E
	9	57.0	F
	10	41.0	E

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4729

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	39.0	E
	2	64.0	E
	3	32.0	D
	4	28.0	D
	5	48.0	E
	6	33.0	D
	7	42.0	E
	8	32.0	D
	9	54.0	E
	10	37.0	E

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4730

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	39.0	E
	2	64.0	E
	3	32.0	D
	4	28.0	D
	5	48.0	E
	6	33.0	D
	7	42.0	E
	8	32.0	D
	9	54.0	E
	10	37.0	E

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4732

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	27.0	D
	2	29.0	D
	3	28.0	D
	4	24.0	C
	5	28.0	D
	6	27.0	D
	7	27.0	D
	8	25.0	C
	9	28.0	D
	10	27.0	D

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4733

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	28.0	D
	2	29.0	D
	3	26.0	D
	4	28.0	D
	5	27.0	D
	6	26.0	D
	7	28.0	D
	8	27.0	D
	9	28.0	D
	10	28.0	D

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4736

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	32.0	D
	2	34.0	D
	3	30.0	D
	4	32.0	D
	5	28.0	D
	6	31.0	D
	7	31.0	D
	8	32.0	D
	9	32.0	D
	10	31.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4737

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	28.0	D
	2	27.0	C
	3	25.0	C
	4	26.0	C
	5	26.0	C
	6	25.0	C
	7	27.0	C
	8	28.0	D
	9	26.0	C
	10	26.0	C

NWB on JAMES F BYRNES EXPY (Merge/Diverge Analysis)
Segment ID 4739

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	22.0	C
	2	22.0	C
	3	22.0	C
	4	20.0	C
	5	21.0	C
	6	20.0	C
	7	21.0	C
	8	21.0	C
	9	22.0	C
	10	23.0	C

NWB on EXIT 101B RAMP TO US 176 (Partial Basic Analysis)
Segment ID 4741

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	25.0	C
	2	25.0	C
	3	24.0	C
	4	28.0	D
	5	23.0	C
	6	29.0	D
	7	24.0	C
	8	28.0	D
	9	25.0	C
	10	27.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on EXIT 101B RAMP TO US 176 (Diverge Analysis)
Segment ID 4742

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	22.0	C
	2	20.0	B
	3	21.0	C
	4	21.0	C
	5	21.0	C
	6	21.0	C
	7	22.0	C
	8	22.0	C
	9	21.0	C
	10	22.0	C

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4745

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	20.0	C
	2	23.0	C
	3	19.0	C
	4	21.0	C
	5	22.0	C
	6	18.0	C
	7	21.0	C
	8	22.0	C
	9	23.0	C
	10	22.0	C

SEB on JAMES F BYRNES EXPY (Merge/Diverge Analysis)
Segment ID 4748

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	28.0	D
	2	28.0	C
	3	27.0	C
	4	30.0	D
	5	26.0	C
	6	26.0	C
	7	29.0	D
	8	27.0	C
	9	29.0	D
	10	28.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4753

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	18.0	C
	2	21.0	C
	3	19.0	C
	4	19.0	C
	5	20.0	C
	6	20.0	C
	7	20.0	C
	8	22.0	C
	9	20.0	C
	10	21.0	C

SEB on EXIT 101A RAMP TO US 176 (Partial Basic Analysis)
Segment ID 4755

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	24.0	C
	2	22.0	C
	3	20.0	C
	4	23.0	C
	5	22.0	C
	6	21.0	C
	7	23.0	C
	8	22.0	C
	9	21.0	C
	10	20.0	C

SEB on EXIT 101A RAMP TO US 176 (Diverge Analysis)
Segment ID 4756

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	20.0	C
	2	20.0	B
	3	17.0	B
	4	17.0	B
	5	20.0	B
	6	18.0	B
	7	19.0	B
	8	19.0	B
	9	19.0	B
	10	17.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4760

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	25.0	C
	2	23.0	C
	3	26.0	C
	4	25.0	C
	5	26.0	C
	6	25.0	C
	7	27.0	C
	8	27.0	C
	9	27.0	C
	10	25.0	C

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4761

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	25.0	C
	2	23.0	C
	3	26.0	C
	4	25.0	C
	5	26.0	C
	6	25.0	C
	7	27.0	C
	8	27.0	C
	9	27.0	C
	10	25.0	C

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4762

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	31.0	D
	2	30.0	D
	3	31.0	D
	4	31.0	D
	5	32.0	D
	6	32.0	D
	7	31.0	D
	8	32.0	D
	9	31.0	D
	10	32.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4763

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	24.0	C
	2	24.0	C
	3	27.0	C
	4	24.0	C
	5	26.0	C
	6	25.0	C
	7	27.0	C
	8	27.0	C
	9	28.0	C
	10	26.0	C

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4764

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	24.0	C
	2	24.0	C
	3	27.0	C
	4	24.0	C
	5	26.0	C
	6	25.0	C
	7	27.0	C
	8	27.0	C
	9	28.0	C
	10	26.0	C

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4766

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	33.0	D
	2	35.0	E
	3	29.0	D
	4	27.0	C
	5	26.0	C
	6	26.0	C
	7	29.0	D
	8	48.0	E
	9	37.0	E
	10	29.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4767

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	33.0	D
	2	34.0	D
	3	29.0	D
	4	32.0	D
	5	31.0	D
	6	29.0	D
	7	33.0	D
	8	33.0	D
	9	35.0	E
	10	32.0	D

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4768

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	33.0	D
	2	34.0	D
	3	29.0	D
	4	32.0	D
	5	31.0	D
	6	29.0	D
	7	33.0	D
	8	33.0	D
	9	35.0	E
	10	32.0	D

SEB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4769

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	35.0	D
	2	37.0	E
	3	31.0	D
	4	31.0	D
	5	27.0	C
	6	28.0	D
	7	31.0	D
	8	43.0	E
	9	38.0	E
	10	32.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4771

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	25.0	C
	2	25.0	C
	3	23.0	C
	4	23.0	C
	5	27.0	D
	6	23.0	C
	7	27.0	D
	8	26.0	C
	9	28.0	D
	10	27.0	D

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4773

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	37.0	E
	2	30.0	D
	3	20.0	C
	4	29.0	D
	5	21.0	C
	6	20.0	C
	7	18.0	B
	8	31.0	D
	9	25.0	C
	10	25.0	C

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4774

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	85.0	F
	2	49.0	F
	3	25.0	C
	4	31.0	D
	5	25.0	C
	6	25.0	C
	7	24.0	C
	8	51.0	F
	9	31.0	D
	10	33.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4776

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	20.0	C
	2	23.0	C
	3	21.0	C
	4	22.0	C
	5	17.0	B
	6	21.0	C
	7	24.0	C
	8	44.0	E
	9	24.0	C
	10	22.0	C

NWB on I 26 E (Basic Analysis)
Segment ID 4781

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	180.0	F
	2	177.0	F
	3	125.0	F
	4	156.0	F
	5	151.0	F
	6	149.0	F
	7	109.0	F
	8	177.0	F
	9	134.0	F
	10	130.0	F

NWB on I 26 E (Partial Basic Analysis)
Segment ID 4782

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	180.0	F
	2	177.0	F
	3	125.0	F
	4	156.0	F
	5	151.0	F
	6	149.0	F
	7	109.0	F
	8	177.0	F
	9	134.0	F
	10	130.0	F

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 E (Diverge Analysis)
Segment ID 4783

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	159.0	F
	2	167.0	F
	3	137.0	F
	4	155.0	F
	5	132.0	F
	6	140.0	F
	7	142.0	F
	8	155.0	F
	9	148.0	F
	10	149.0	F

SEB on I 26 E (Merge Analysis)
Segment ID 4785

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	22.0	C
	2	23.0	C
	3	19.0	B
	4	21.0	C
	5	17.0	B
	6	19.0	B
	7	17.0	B
	8	22.0	C
	9	17.0	B
	10	20.0	B

SEB on I 26 E (Merge Analysis)
Segment ID 4786

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	22.0	C
	2	23.0	C
	3	19.0	B
	4	21.0	C
	5	17.0	B
	6	19.0	B
	7	17.0	B
	8	22.0	C
	9	17.0	B
	10	20.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Partial Basic Analysis)
Segment ID 4787

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	21.0	C
	2	24.0	C
	3	19.0	C
	4	22.0	C
	5	18.0	C
	6	21.0	C
	7	21.0	C
	8	23.0	C
	9	23.0	C
	10	21.0	C

SEB on I 26 E (Diverge Analysis)
Segment ID 4788

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	35.0	E
	2	36.0	E
	3	30.0	D
	4	30.0	D
	5	24.0	C
	6	31.0	D
	7	21.0	C
	8	39.0	E
	9	20.0	C
	10	33.0	D

SEB on I 26 E (Diverge Analysis)
Segment ID 4789

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	35.0	E
	2	36.0	E
	3	30.0	D
	4	30.0	D
	5	24.0	C
	6	31.0	D
	7	21.0	C
	8	39.0	E
	9	20.0	C
	10	33.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Basic Analysis)
Segment ID 4791

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	17.0	B
	2	15.0	B
	3	21.0	C
	4	16.0	B
	5	20.0	C
	6	20.0	C
	7	18.0	B
	8	16.0	B
	9	17.0	B
	10	18.0	C

SEB on I 26 E (Basic Analysis)
Segment ID 4793

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	18.0	B
	2	18.0	C
	3	19.0	C
	4	19.0	C
	5	19.0	C
	6	18.0	C
	7	18.0	C
	8	18.0	B
	9	20.0	C
	10	18.0	C

NWB on I 26 W (Merge Analysis)
Segment ID 4795

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	10.0	A
	2	12.0	B
	3	12.0	B
	4	13.0	B
	5	13.0	B
	6	13.0	B
	7	12.0	B
	8	13.0	B
	9	11.0	B
	10	13.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Partial Basic Analysis)
Segment ID 4796

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	12.0	B
	2	12.0	B
	3	15.0	B
	4	13.0	B
	5	14.0	B
	6	15.0	B
	7	14.0	B
	8	13.0	B
	9	12.0	B
	10	13.0	B

NWB on I 26 W (Basic Analysis)
Segment ID 4797

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	12.0	B
	2	12.0	B
	3	15.0	B
	4	13.0	B
	5	14.0	B
	6	15.0	B
	7	14.0	B
	8	13.0	B
	9	12.0	B
	10	13.0	B

EB on I 26 E (Partial Basic Analysis)
Segment ID 4799

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	17.0	B
	2	18.0	C
	3	18.0	B
	4	17.0	B
	5	17.0	B
	6	18.0	C
	7	18.0	B
	8	18.0	B
	9	17.0	B
	10	17.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Merge Analysis)
Segment ID 4800

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	58.0	E
	2	61.0	E
	3	60.0	E
	4	60.0	E
	5	62.0	E
	6	64.0	E
	7	64.0	E
	8	59.0	E
	9	61.0	E
	10	60.0	E

SEB on I 26 E (Partial Basic Analysis)
Segment ID 4801

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	113.0	F
	2	97.0	F
	3	97.0	F
	4	108.0	F
	5	110.0	F
	6	110.0	F
	7	109.0	F
	8	111.0	F
	9	87.0	F
	10	104.0	F

SEB on I 26 E (Diverge Analysis)
Segment ID 4802

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	116.0	F
	2	119.0	F
	3	113.0	F
	4	122.0	F
	5	122.0	F
	6	122.0	F
	7	124.0	F
	8	118.0	F
	9	113.0	F
	10	119.0	F

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Basic Analysis)
Segment ID 4805

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	11.0	A
	2	13.0	B
	3	19.0	C
	4	11.0	B
	5	16.0	B
	6	15.0	B
	7	12.0	B
	8	13.0	B
	9	13.0	B
	10	14.0	B

WB on I 26 W (Partial Basic Analysis)
Segment ID 4807

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	12.0	B
	2	12.0	B
	3	15.0	B
	4	13.0	B
	5	15.0	B
	6	16.0	B
	7	15.0	B
	8	13.0	B
	9	12.0	B
	10	14.0	B

WB on I 26 W (Diverge Analysis)
Segment ID 4808

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	12.0	B
	2	13.0	B
	3	16.0	B
	4	14.0	B
	5	14.0	B
	6	16.0	B
	7	14.0	B
	8	12.0	B
	9	13.0	B
	10	12.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Diverge Analysis)
Segment ID 4809

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	12.0	B
	2	13.0	B
	3	16.0	B
	4	14.0	B
	5	14.0	B
	6	16.0	B
	7	14.0	B
	8	12.0	B
	9	13.0	B
	10	12.0	B

EB on I 26 E (Basic Analysis)
Segment ID 8740

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	20.0	C
	2	20.0	C
	3	21.0	C
	4	24.0	C
	5	21.0	C
	6	22.0	C
	7	21.0	C
	8	23.0	C
	9	20.0	C
	10	23.0	C

EB on I 26 E (Diverge Analysis)
Segment ID 8741

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	19.0	B
	2	19.0	B
	3	19.0	B
	4	17.0	B
	5	17.0	B
	6	18.0	B
	7	17.0	B
	8	18.0	B
	9	18.0	B
	10	17.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Merge Analysis)
Segment ID 8744

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	58.0	E
	2	61.0	E
	3	60.0	E
	4	60.0	E
	5	62.0	E
	6	64.0	E
	7	64.0	E
	8	59.0	E
	9	61.0	E
	10	60.0	E

WB on I 26 W (Basic Analysis)
Segment ID 8748

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	13.0	B
	2	8.0	A
	3	13.0	B
	4	11.0	A
	5	12.0	B
	6	11.0	B
	7	13.0	B
	8	11.0	A
	9	11.0	B
	10	12.0	B

WB on I 26 W (Merge Analysis)
Segment ID 8756

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	9.0	A
	2	9.0	A
	3	10.0	B
	4	11.0	B
	5	12.0	B
	6	10.0	A
	7	11.0	B
	8	9.0	A
	9	9.0	A
	10	9.0	A

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Partial Basic Analysis)
Segment ID 8757

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	10.0	A
	2	10.0	A
	3	12.0	B
	4	11.0	B
	5	12.0	B
	6	12.0	B
	7	11.0	A
	8	10.0	A
	9	10.0	A
	10	11.0	B

EB on I 26 E (Basic Analysis)
Segment ID 8764

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	17.0	B
	2	18.0	C
	3	18.0	B
	4	17.0	B
	5	18.0	C
	6	19.0	C
	7	18.0	B
	8	19.0	C
	9	17.0	B
	10	17.0	B

EB on I 26 E (Diverge Analysis)
Segment ID 8766

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	17.0	B
	2	16.0	B
	3	17.0	B
	4	17.0	B
	5	16.0	B
	6	16.0	B
	7	17.0	B
	8	15.0	B
	9	17.0	B
	10	18.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

EB on I 26 E (Merge Analysis)
Segment ID 8769

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	15.0	B
	2	16.0	B
	3	16.0	B
	4	15.0	B
	5	16.0	B
	6	15.0	B
	7	16.0	B
	8	16.0	B
	9	16.0	B
	10	16.0	B

EB on I 26 E (Partial Basic Analysis)
Segment ID 8770

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	20.0	C
	2	20.0	C
	3	21.0	C
	4	20.0	C
	5	20.0	C
	6	21.0	C
	7	21.0	C
	8	20.0	C
	9	20.0	C
	10	21.0	C

NWB on I 26 W (Merge Analysis)
Segment ID 8773

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	7.0	A
	2	7.0	A
	3	7.0	A
	4	8.0	A
	5	8.0	A
	6	10.0	A
	7	8.0	A
	8	7.0	A
	9	8.0	A
	10	8.0	A

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Basic Analysis)
Segment ID 8775

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	7.0	A
	2	9.0	A
	3	9.0	A
	4	9.0	A
	5	9.0	A
	6	10.0	A
	7	8.0	A
	8	7.0	A
	9	9.0	A
	10	8.0	A

WB on I 26 W (Diverge Analysis)
Segment ID 8776

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	10.0	A
	2	9.0	A
	3	10.0	A
	4	11.0	B
	5	12.0	B
	6	11.0	B
	7	11.0	B
	8	9.0	A
	9	9.0	A
	10	10.0	B

WB on I 26 W (Partial Basic Analysis)
Segment ID 8777

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	10.0	A
	2	10.0	A
	3	12.0	B
	4	11.0	B
	5	12.0	B
	6	12.0	B
	7	11.0	A
	8	10.0	A
	9	10.0	A
	10	11.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

EB on I 26 E (Partial Basic Analysis)
Segment ID 8778

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	20.0	C
	2	20.0	C
	3	21.0	C
	4	20.0	C
	5	20.0	C
	6	21.0	C
	7	21.0	C
	8	20.0	C
	9	20.0	C
	10	21.0	C

NWB on I 26 W (Partial Basic Analysis)
Segment ID 8779

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	10.0	A
	2	10.0	A
	3	11.0	A
	4	10.0	A
	5	12.0	B
	6	11.0	B
	7	11.0	B
	8	10.0	A
	9	10.0	A
	10	11.0	A

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4718

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	29.0	D
	2	26.0	C
	3	29.0	D
	4	28.0	C
	5	26.0	C
	6	28.0	C
	7	27.0	C
	8	27.0	C
	9	26.0	C
	10	27.0	C

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4719

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	29.0	D
	2	26.0	C
	3	29.0	D
	4	28.0	C
	5	26.0	C
	6	28.0	C
	7	27.0	C
	8	27.0	C
	9	26.0	C
	10	27.0	C

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4720

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	25.0	C
	2	24.0	C
	3	26.0	C
	4	24.0	C
	5	24.0	C
	6	24.0	C
	7	26.0	C
	8	23.0	C
	9	22.0	C
	10	24.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4725

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	141.0	F
	2	132.0	F
	3	123.0	F
	4	131.0	F
	5	126.0	F
	6	115.0	F
	7	152.0	F
	8	116.0	F
	9	130.0	F
	10	128.0	F

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4726

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	141.0	F
	2	132.0	F
	3	123.0	F
	4	131.0	F
	5	126.0	F
	6	115.0	F
	7	152.0	F
	8	116.0	F
	9	130.0	F
	10	128.0	F

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4727

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	135.0	E
	2	119.0	F
	3	108.0	F
	4	122.0	E
	5	117.0	E
	6	99.0	F
	7	144.0	E
	8	103.0	F
	9	114.0	F
	10	117.0	F

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4728

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	135.0	F
	2	117.0	F
	3	100.0	F
	4	119.0	F
	5	116.0	F
	6	89.0	F
	7	158.0	F
	8	92.0	F
	9	114.0	F
	10	119.0	F

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4729

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	120.0	E
	2	101.0	E
	3	87.0	E
	4	98.0	E
	5	107.0	E
	6	76.0	E
	7	133.0	E
	8	89.0	E
	9	105.0	E
	10	101.0	E

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4730

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	120.0	E
	2	101.0	E
	3	87.0	E
	4	98.0	E
	5	107.0	E
	6	76.0	E
	7	133.0	E
	8	89.0	E
	9	105.0	E
	10	101.0	E

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4732

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	153.0	F
	2	128.0	F
	3	110.0	F
	4	122.0	F
	5	141.0	F
	6	96.0	F
	7	167.0	F
	8	122.0	F
	9	135.0	F
	10	127.0	F

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4733

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	20.0	C
	2	19.0	C
	3	19.0	C
	4	18.0	B
	5	18.0	C
	6	19.0	C
	7	19.0	C
	8	20.0	C
	9	18.0	C
	10	20.0	C

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4736

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	23.0	C
	2	18.0	B
	3	21.0	C
	4	21.0	C
	5	19.0	C
	6	19.0	C
	7	19.0	C
	8	19.0	C
	9	17.0	B
	10	20.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4737

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	19.0	B
	2	17.0	B
	3	18.0	B
	4	17.0	B
	5	17.0	B
	6	18.0	B
	7	18.0	B
	8	17.0	B
	9	16.0	B
	10	18.0	B

NWB on JAMES F BYRNES EXPY (Merge/Diverge Analysis)
Segment ID 4739

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	130.0	E
	2	112.0	E
	3	101.0	E
	4	104.0	E
	5	122.0	E
	6	86.0	E
	7	139.0	E
	8	108.0	E
	9	121.0	E
	10	116.0	E

NWB on EXIT 101B RAMP TO US 176 (Partial Basic Analysis)
Segment ID 4741

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	165.0	F
	2	151.0	F
	3	131.0	F
	4	130.0	F
	5	161.0	F
	6	113.0	F
	7	184.0	F
	8	139.0	F
	9	158.0	F
	10	144.0	F

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on EXIT 101B RAMP TO US 176 (Diverge Analysis)
Segment ID 4742

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	157.0	E
	2	148.0	E
	3	129.0	E
	4	129.0	E
	5	149.0	E
	6	102.0	E
	7	167.0	F
	8	134.0	E
	9	152.0	E
	10	132.0	E

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4745

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	13.0	B
	2	13.0	B
	3	13.0	B
	4	12.0	B
	5	12.0	B
	6	12.0	B
	7	14.0	B
	8	14.0	B
	9	13.0	B
	10	13.0	B

SEB on JAMES F BYRNES EXPY (Merge/Diverge Analysis)
Segment ID 4748

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	19.0	B
	2	17.0	B
	3	17.0	B
	4	16.0	B
	5	16.0	B
	6	18.0	B
	7	18.0	B
	8	17.0	B
	9	17.0	B
	10	16.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4753

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	206.0	F
	2	202.0	F
	3	174.0	F
	4	204.0	F
	5	203.0	F
	6	193.0	F
	7	211.0	F
	8	199.0	F
	9	203.0	F
	10	199.0	F

SEB on EXIT 101A RAMP TO US 176 (Partial Basic Analysis)
Segment ID 4755

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	16.0	B
	2	14.0	B
	3	15.0	B
	4	14.0	B
	5	13.0	B
	6	14.0	B
	7	15.0	B
	8	14.0	B
	9	13.0	B
	10	13.0	B

SEB on EXIT 101A RAMP TO US 176 (Diverge Analysis)
Segment ID 4756

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	13.0	B
	2	12.0	B
	3	14.0	B
	4	12.0	B
	5	12.0	B
	6	13.0	B
	7	13.0	B
	8	13.0	B
	9	12.0	B
	10	14.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4760

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	128.0	F
	2	120.0	F
	3	124.0	F
	4	128.0	F
	5	121.0	F
	6	126.0	F
	7	139.0	E
	8	118.0	F
	9	127.0	F
	10	130.0	F

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4761

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	128.0	F
	2	120.0	F
	3	124.0	F
	4	128.0	F
	5	121.0	F
	6	126.0	F
	7	139.0	E
	8	118.0	F
	9	127.0	F
	10	130.0	F

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4762

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	114.0	F
	2	108.0	F
	3	120.0	F
	4	114.0	F
	5	108.0	F
	6	112.0	F
	7	135.0	F
	8	106.0	F
	9	111.0	F
	10	121.0	F

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4763

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	117.0	F
	2	109.0	F
	3	114.0	F
	4	119.0	F
	5	108.0	F
	6	119.0	F
	7	127.0	F
	8	112.0	F
	9	117.0	F
	10	119.0	F

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4764

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	117.0	F
	2	109.0	F
	3	114.0	F
	4	119.0	F
	5	108.0	F
	6	119.0	F
	7	127.0	F
	8	112.0	F
	9	117.0	F
	10	119.0	F

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4766

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	18.0	B
	2	15.0	B
	3	17.0	B
	4	16.0	B
	5	16.0	B
	6	17.0	B
	7	17.0	B
	8	16.0	B
	9	16.0	B
	10	16.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4767

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	21.0	C
	2	19.0	C
	3	21.0	C
	4	19.0	C
	5	19.0	C
	6	21.0	C
	7	22.0	C
	8	20.0	C
	9	19.0	C
	10	20.0	C

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4768

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	21.0	C
	2	19.0	C
	3	21.0	C
	4	19.0	C
	5	19.0	C
	6	21.0	C
	7	22.0	C
	8	20.0	C
	9	19.0	C
	10	20.0	C

SEB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4769

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	19.0	B
	2	17.0	B
	3	18.0	B
	4	18.0	B
	5	18.0	B
	6	19.0	B
	7	18.0	B
	8	18.0	B
	9	17.0	B
	10	17.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4771

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	30.0	D
	2	29.0	D
	3	25.0	C
	4	28.0	D
	5	28.0	D
	6	30.0	D
	7	26.0	C
	8	34.0	D
	9	28.0	D
	10	28.0	D

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4773

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	37.0	E
	2	19.0	B
	3	19.0	B
	4	18.0	B
	5	18.0	B
	6	18.0	B
	7	16.0	B
	8	17.0	B
	9	21.0	C
	10	17.0	B

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4774

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	59.0	F
	2	22.0	C
	3	21.0	C
	4	21.0	C
	5	22.0	C
	6	21.0	C
	7	19.0	C
	8	23.0	C
	9	22.0	C
	10	21.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4776

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	19.0	C
	2	17.0	B
	3	18.0	C
	4	17.0	B
	5	19.0	C
	6	18.0	C
	7	19.0	C
	8	18.0	B
	9	18.0	B
	10	20.0	C

NWB on I 26 E (Basic Analysis)
Segment ID 4781

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	176.0	F
	2	73.0	F
	3	84.0	F
	4	105.0	F
	5	114.0	F
	6	112.0	F
	7	28.0	D
	8	146.0	F
	9	183.0	F
	10	126.0	F

NWB on I 26 E (Partial Basic Analysis)
Segment ID 4782

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	176.0	F
	2	73.0	F
	3	84.0	F
	4	105.0	F
	5	114.0	F
	6	112.0	F
	7	28.0	D
	8	146.0	F
	9	183.0	F
	10	126.0	F

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 E (Diverge Analysis)
Segment ID 4783

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	136.0	F
	2	121.0	F
	3	116.0	F
	4	122.0	F
	5	129.0	F
	6	117.0	F
	7	96.0	F
	8	118.0	F
	9	134.0	F
	10	133.0	F

SEB on I 26 E (Merge Analysis)
Segment ID 4785

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	41.0	E
	2	44.0	E
	3	42.0	E
	4	44.0	E
	5	44.0	E
	6	42.0	E
	7	40.0	E
	8	38.0	E
	9	46.0	E
	10	43.0	E

SEB on I 26 E (Merge Analysis)
Segment ID 4786

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	41.0	E
	2	44.0	E
	3	42.0	E
	4	44.0	E
	5	44.0	E
	6	42.0	E
	7	40.0	E
	8	38.0	E
	9	46.0	E
	10	43.0	E

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Partial Basic Analysis)
Segment ID 4787

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	63.0	F
	2	75.0	F
	3	49.0	F
	4	98.0	F
	5	72.0	F
	6	73.0	F
	7	67.0	F
	8	78.0	F
	9	107.0	F
	10	75.0	F

SEB on I 26 E (Diverge Analysis)
Segment ID 4788

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	95.0	F
	2	102.0	F
	3	94.0	F
	4	102.0	F
	5	99.0	F
	6	95.0	F
	7	94.0	F
	8	91.0	F
	9	105.0	F
	10	97.0	F

SEB on I 26 E (Diverge Analysis)
Segment ID 4789

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	95.0	F
	2	102.0	F
	3	94.0	F
	4	102.0	F
	5	99.0	F
	6	95.0	F
	7	94.0	F
	8	91.0	F
	9	105.0	F
	10	97.0	F

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Basic Analysis)
Segment ID 4791

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	21.0	C
	2	18.0	C
	3	20.0	C
	4	20.0	C
	5	21.0	C
	6	21.0	C
	7	18.0	C
	8	22.0	C
	9	20.0	C
	10	18.0	B

SEB on I 26 E (Basic Analysis)
Segment ID 4793

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	18.0	C
	2	17.0	B
	3	18.0	C
	4	17.0	B
	5	17.0	B
	6	19.0	C
	7	17.0	B
	8	17.0	B
	9	19.0	C
	10	18.0	C

NWB on I 26 W (Merge Analysis)
Segment ID 4795

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	13.0	B
	2	15.0	B
	3	15.0	B
	4	12.0	B
	5	14.0	B
	6	13.0	B
	7	13.0	B
	8	16.0	B
	9	13.0	B
	10	13.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Partial Basic Analysis)
Segment ID 4796

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	15.0	B
	2	15.0	B
	3	15.0	B
	4	15.0	B
	5	16.0	B
	6	16.0	B
	7	14.0	B
	8	16.0	B
	9	15.0	B
	10	14.0	B

NWB on I 26 W (Basic Analysis)
Segment ID 4797

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	15.0	B
	2	15.0	B
	3	15.0	B
	4	15.0	B
	5	16.0	B
	6	16.0	B
	7	14.0	B
	8	16.0	B
	9	15.0	B
	10	14.0	B

EB on I 26 E (Partial Basic Analysis)
Segment ID 4799

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	23.0	C
	3	24.0	C
	4	23.0	C
	5	23.0	C
	6	23.0	C
	7	22.0	C
	8	23.0	C
	9	23.0	C
	10	23.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Merge Analysis)
Segment ID 4800

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	60.0	E
	2	54.0	E
	3	52.0	E
	4	54.0	E
	5	56.0	E
	6	54.0	E
	7	50.0	E
	8	52.0	E
	9	58.0	E
	10	56.0	E

SEB on I 26 E (Partial Basic Analysis)
Segment ID 4801

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	109.0	F
	2	104.0	F
	3	95.0	F
	4	111.0	F
	5	100.0	F
	6	86.0	F
	7	98.0	F
	8	96.0	F
	9	106.0	F
	10	86.0	F

SEB on I 26 E (Diverge Analysis)
Segment ID 4802

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	113.0	F
	2	114.0	F
	3	104.0	F
	4	109.0	F
	5	114.0	F
	6	103.0	F
	7	108.0	F
	8	107.0	F
	9	114.0	F
	10	107.0	F

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Basic Analysis)
Segment ID 4805

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	15.0	B
	2	16.0	B
	3	15.0	B
	4	18.0	B
	5	16.0	B
	6	15.0	B
	7	16.0	B
	8	18.0	C
	9	16.0	B
	10	15.0	B

WB on I 26 W (Partial Basic Analysis)
Segment ID 4807

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	15.0	B
	2	16.0	B
	3	16.0	B
	4	15.0	B
	5	16.0	B
	6	16.0	B
	7	15.0	B
	8	17.0	B
	9	15.0	B
	10	14.0	B

WB on I 26 W (Diverge Analysis)
Segment ID 4808

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	14.0	B
	2	16.0	B
	3	16.0	B
	4	14.0	B
	5	17.0	B
	6	15.0	B
	7	13.0	B
	8	16.0	B
	9	15.0	B
	10	15.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Diverge Analysis)
Segment ID 4809

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	14.0	B
	2	16.0	B
	3	16.0	B
	4	14.0	B
	5	17.0	B
	6	15.0	B
	7	13.0	B
	8	16.0	B
	9	15.0	B
	10	15.0	B

EB on I 26 E (Basic Analysis)
Segment ID 8740

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	27.0	D
	2	30.0	D
	3	28.0	D
	4	29.0	D
	5	26.0	C
	6	28.0	D
	7	24.0	C
	8	27.0	D
	9	25.0	C
	10	28.0	D

EB on I 26 E (Diverge Analysis)
Segment ID 8741

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	21.0	C
	3	23.0	C
	4	22.0	C
	5	22.0	C
	6	23.0	C
	7	21.0	C
	8	23.0	C
	9	23.0	C
	10	22.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Merge Analysis)
Segment ID 8744

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	60.0	E
	2	54.0	E
	3	52.0	E
	4	54.0	E
	5	56.0	E
	6	54.0	E
	7	50.0	E
	8	52.0	E
	9	58.0	E
	10	56.0	E

WB on I 26 W (Basic Analysis)
Segment ID 8748

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	14.0	B
	2	15.0	B
	3	14.0	B
	4	12.0	B
	5	13.0	B
	6	14.0	B
	7	13.0	B
	8	15.0	B
	9	15.0	B
	10	11.0	A

WB on I 26 W (Merge Analysis)
Segment ID 8756

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	10.0	B
	2	14.0	B
	3	11.0	B
	4	12.0	B
	5	13.0	B
	6	12.0	B
	7	13.0	B
	8	13.0	B
	9	11.0	B
	10	11.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Partial Basic Analysis)
Segment ID 8757

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	12.0	B
	2	14.0	B
	3	14.0	B
	4	14.0	B
	5	14.0	B
	6	14.0	B
	7	14.0	B
	8	14.0	B
	9	13.0	B
	10	13.0	B

EB on I 26 E (Basic Analysis)
Segment ID 8764

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	23.0	C
	2	24.0	C
	3	25.0	C
	4	24.0	C
	5	23.0	C
	6	24.0	C
	7	23.0	C
	8	22.0	C
	9	24.0	C
	10	22.0	C

EB on I 26 E (Diverge Analysis)
Segment ID 8766

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	23.0	C
	3	23.0	C
	4	22.0	C
	5	22.0	C
	6	23.0	C
	7	20.0	C
	8	24.0	C
	9	22.0	C
	10	22.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

EB on I 26 E (Merge Analysis)
Segment ID 8769

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	21.0	C
	2	18.0	B
	3	20.0	B
	4	20.0	C
	5	19.0	B
	6	20.0	B
	7	19.0	B
	8	20.0	B
	9	20.0	C
	10	21.0	C

EB on I 26 E (Partial Basic Analysis)
Segment ID 8770

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	26.0	D
	2	25.0	C
	3	27.0	D
	4	26.0	D
	5	25.0	C
	6	26.0	C
	7	24.0	C
	8	26.0	C
	9	26.0	C
	10	26.0	C

NWB on I 26 W (Merge Analysis)
Segment ID 8773

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	8.0	A
	2	10.0	A
	3	11.0	B
	4	9.0	A
	5	9.0	A
	6	9.0	A
	7	8.0	A
	8	10.0	A
	9	10.0	A
	10	9.0	A

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Basic Analysis)
Segment ID 8775

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	11.0	B
	2	13.0	B
	3	13.0	B
	4	11.0	B
	5	12.0	B
	6	13.0	B
	7	12.0	B
	8	12.0	B
	9	11.0	A
	10	10.0	A

WB on I 26 W (Diverge Analysis)
Segment ID 8776

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	12.0	B
	2	13.0	B
	3	12.0	B
	4	12.0	B
	5	13.0	B
	6	12.0	B
	7	13.0	B
	8	14.0	B
	9	12.0	B
	10	13.0	B

WB on I 26 W (Partial Basic Analysis)
Segment ID 8777

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	12.0	B
	2	14.0	B
	3	14.0	B
	4	14.0	B
	5	14.0	B
	6	14.0	B
	7	14.0	B
	8	14.0	B
	9	13.0	B
	10	13.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

EB on I 26 E (Partial Basic Analysis)
Segment ID 8778

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	26.0	D
	2	25.0	C
	3	27.0	D
	4	26.0	D
	5	25.0	C
	6	26.0	C
	7	24.0	C
	8	26.0	C
	9	26.0	C
	10	26.0	C

NWB on I 26 W (Partial Basic Analysis)
Segment ID 8779

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	11.0	B
	2	13.0	B
	3	12.0	B
	4	12.0	B
	5	13.0	B
	6	13.0	B
	7	13.0	B
	8	13.0	B
	9	12.0	B
	10	12.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4718

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	39.0	E
	2	41.0	E
	3	38.0	E
	4	38.0	E
	5	40.0	E
	6	39.0	E
	7	40.0	E
	8	41.0	E
	9	38.0	E
	10	39.0	E

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4719

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	36.0	E
	2	35.0	E
	3	35.0	D
	4	35.0	D
	5	35.0	D
	6	35.0	D
	7	35.0	D
	8	35.0	D
	9	36.0	E
	10	36.0	E

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4720

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	36.0	E
	2	35.0	E
	3	35.0	D
	4	35.0	D
	5	35.0	D
	6	35.0	D
	7	35.0	D
	8	35.0	D
	9	36.0	E
	10	36.0	E

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4725

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	25.0	C
	2	25.0	C
	3	25.0	C
	4	24.0	C
	5	25.0	C
	6	23.0	C
	7	24.0	C
	8	24.0	C
	9	25.0	C
	10	24.0	C

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4726

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	25.0	C
	2	25.0	C
	3	25.0	C
	4	24.0	C
	5	25.0	C
	6	23.0	C
	7	24.0	C
	8	24.0	C
	9	25.0	C
	10	24.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4727

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	32.0	D
	2	32.0	D
	3	34.0	D
	4	32.0	D
	5	32.0	D
	6	31.0	D
	7	32.0	D
	8	32.0	D
	9	33.0	D
	10	32.0	D

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4728

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	25.0	C
	2	27.0	C
	3	27.0	C
	4	26.0	C
	5	26.0	C
	6	25.0	C
	7	27.0	C
	8	27.0	C
	9	26.0	C
	10	27.0	C

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4729

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	25.0	C
	2	27.0	C
	3	27.0	C
	4	26.0	C
	5	26.0	C
	6	25.0	C
	7	27.0	C
	8	27.0	C
	9	26.0	C
	10	27.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4730

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	25.0	C
	2	27.0	C
	3	27.0	C
	4	26.0	C
	5	26.0	C
	6	25.0	C
	7	27.0	C
	8	27.0	C
	9	26.0	C
	10	27.0	C

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4732

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	20.0	C
	2	20.0	C
	3	22.0	C
	4	19.0	C
	5	20.0	C
	6	19.0	C
	7	21.0	C
	8	20.0	C
	9	19.0	C
	10	19.0	C

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4733

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	35.0	D
	2	34.0	D
	3	32.0	D
	4	32.0	D
	5	35.0	E
	6	35.0	D
	7	36.0	E
	8	37.0	E
	9	32.0	D
	10	34.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4736

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	40.0	E
	2	35.0	D
	3	38.0	E
	4	37.0	E
	5	36.0	E
	6	40.0	E
	7	39.0	E
	8	41.0	E
	9	38.0	E
	10	40.0	E

SEB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4737

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	28.0	C
	2	28.0	D
	3	28.0	C
	4	27.0	C
	5	27.0	C
	6	27.0	C
	7	27.0	C
	8	27.0	C
	9	27.0	C
	10	27.0	C

NWB on JAMES F BYRNES EXPY (Weaving Analysis)
Segment ID 4739

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	17.0	B
	2	18.0	B
	3	15.0	B
	4	18.0	B
	5	17.0	B
	6	16.0	B
	7	17.0	B
	8	16.0	B
	9	16.0	B
	10	16.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on EXIT 101B RAMP TO US 176 (Partial Basic Analysis)
Segment ID 4741

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	24.0	C
	2	22.0	C
	3	27.0	D
	4	23.0	C
	5	21.0	C
	6	21.0	C
	7	24.0	C
	8	23.0	C
	9	26.0	D
	10	24.0	C

NWB on EXIT 101B RAMP TO US 176 (Diverge Analysis)
Segment ID 4742

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	14.0	B
	3	17.0	B
	4	16.0	B
	5	14.0	B
	6	14.0	B
	7	14.0	B
	8	15.0	B
	9	15.0	B
	10	15.0	B

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4745

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	27.0	D
	2	27.0	D
	3	25.0	C
	4	26.0	D
	5	26.0	C
	6	25.0	C
	7	27.0	D
	8	26.0	C
	9	26.0	C
	10	25.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Weaving Analysis)
Segment ID 4748

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	33.0	D
	2	33.0	D
	3	34.0	D
	4	32.0	D
	5	33.0	D
	6	35.0	D
	7	34.0	D
	8	33.0	D
	9	33.0	D
	10	35.0	D

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4753

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	15.0	B
	2	15.0	B
	3	15.0	B
	4	14.0	B
	5	15.0	B
	6	15.0	B
	7	17.0	B
	8	16.0	B
	9	13.0	B
	10	14.0	B

SEB on EXIT 101A RAMP TO US 176 (Partial Basic Analysis)
Segment ID 4755

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	26.0	D
	2	28.0	D
	3	31.0	D
	4	28.0	D
	5	28.0	D
	6	29.0	D
	7	24.0	C
	8	28.0	D
	9	28.0	D
	10	27.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on EXIT 101A RAMP TO US 176 (Diverge Analysis)
Segment ID 4756

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	21.0	C
	2	21.0	C
	3	20.0	C
	4	20.0	C
	5	20.0	B
	6	21.0	C
	7	21.0	C
	8	21.0	C
	9	21.0	C
	10	21.0	C

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4760

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	9.0	A
	2	9.0	A
	3	9.0	A
	4	9.0	A
	5	9.0	A
	6	9.0	A
	7	10.0	B
	8	10.0	A
	9	9.0	A
	10	10.0	A

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4761

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	9.0	A
	2	9.0	A
	3	9.0	A
	4	9.0	A
	5	9.0	A
	6	9.0	A
	7	10.0	B
	8	10.0	A
	9	9.0	A
	10	10.0	A

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4763

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	15.0	B
	2	16.0	B
	3	15.0	B
	4	15.0	B
	5	15.0	B
	6	15.0	B
	7	16.0	B
	8	15.0	B
	9	15.0	B
	10	15.0	B

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4764

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	9.0	A
	2	9.0	A
	3	9.0	A
	4	11.0	B
	5	9.0	A
	6	8.0	A
	7	8.0	A
	8	10.0	A
	9	9.0	A
	10	9.0	A

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4768

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	22.0	C
	2	21.0	C
	3	20.0	C
	4	21.0	C
	5	19.0	B
	6	21.0	C
	7	20.0	B
	8	21.0	C
	9	19.0	B
	10	20.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4769

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	24.0	C
	2	24.0	C
	3	23.0	C
	4	23.0	C
	5	22.0	C
	6	24.0	C
	7	23.0	C
	8	24.0	C
	9	22.0	C
	10	23.0	C

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4771

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	14.0	B
	2	16.0	B
	3	15.0	B
	4	16.0	B
	5	15.0	B
	6	14.0	B
	7	16.0	B
	8	16.0	B
	9	15.0	B
	10	15.0	B

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4773

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	13.0	B
	2	13.0	B
	3	12.0	B
	4	12.0	B
	5	13.0	B
	6	12.0	B
	7	13.0	B
	8	13.0	B
	9	12.0	B
	10	13.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4774

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	17.0	B
	3	16.0	B
	4	16.0	B
	5	16.0	B
	6	16.0	B
	7	16.0	B
	8	17.0	B
	9	16.0	B
	10	16.0	B

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4775

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	17.0	B
	3	16.0	B
	4	16.0	B
	5	16.0	B
	6	16.0	B
	7	16.0	B
	8	17.0	B
	9	16.0	B
	10	16.0	B

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4776

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	20.0	C
	2	20.0	C
	3	19.0	C
	4	19.0	C
	5	20.0	C
	6	20.0	C
	7	21.0	C
	8	20.0	C
	9	20.0	C
	10	19.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4779

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	17.0	B
	2	17.0	B
	3	18.0	B
	4	18.0	B
	5	15.0	B
	6	17.0	B
	7	16.0	B
	8	18.0	C
	9	15.0	B
	10	15.0	B

WB on I 26 E (Basic Analysis)
Segment ID 4780

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	16.0	B
	3	16.0	B
	4	16.0	B
	5	15.0	B
	6	16.0	B
	7	17.0	B
	8	16.0	B
	9	16.0	B
	10	16.0	B

WB on I 26 E (Partial Basic Analysis)
Segment ID 4781

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	16.0	B
	3	16.0	B
	4	16.0	B
	5	15.0	B
	6	16.0	B
	7	17.0	B
	8	16.0	B
	9	16.0	B
	10	16.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 E (Diverge Analysis)
Segment ID 4782

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	18.0	B
	2	16.0	B
	3	17.0	B
	4	18.0	B
	5	24.0	C
	6	16.0	B
	7	16.0	B
	8	17.0	B
	9	18.0	B
	10	17.0	B

WB on I 26 E (Diverge Analysis)
Segment ID 4783

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	18.0	B
	2	16.0	B
	3	17.0	B
	4	18.0	B
	5	24.0	C
	6	16.0	B
	7	16.0	B
	8	17.0	B
	9	18.0	B
	10	17.0	B

SEB on I 26 E (Merge Analysis)
Segment ID 4785

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	13.0	B
	2	14.0	B
	3	15.0	B
	4	14.0	B
	5	14.0	B
	6	13.0	B
	7	14.0	B
	8	14.0	B
	9	14.0	B
	10	15.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Partial Basic Analysis)
Segment ID 4786

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	20.0	C
	2	21.0	C
	3	20.0	C
	4	20.0	C
	5	20.0	C
	6	20.0	C
	7	21.0	C
	8	21.0	C
	9	21.0	C
	10	20.0	C

SEB on I 26 E (Partial Basic Analysis)
Segment ID 4787

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	20.0	C
	2	21.0	C
	3	20.0	C
	4	20.0	C
	5	20.0	C
	6	20.0	C
	7	21.0	C
	8	21.0	C
	9	21.0	C
	10	20.0	C

SEB on I 26 E (Diverge Analysis)
Segment ID 4789

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	15.0	B
	2	16.0	B
	3	15.0	B
	4	15.0	B
	5	14.0	B
	6	15.0	B
	7	15.0	B
	8	15.0	B
	9	15.0	B
	10	15.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Basic Analysis)
Segment ID 4791

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	10.0	A
	2	9.0	A
	3	10.0	A
	4	9.0	A
	5	9.0	A
	6	9.0	A
	7	10.0	A
	8	10.0	A
	9	9.0	A
	10	8.0	A

SEB on I 26 E (Basic Analysis)
Segment ID 4793

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	15.0	B
	2	16.0	B
	3	14.0	B
	4	15.0	B
	5	16.0	B
	6	15.0	B
	7	15.0	B
	8	16.0	B
	9	15.0	B
	10	14.0	B

NWB on I 26 W (Merge Analysis)
Segment ID 4795

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	7.0	A
	2	7.0	A
	3	7.0	A
	4	7.0	A
	5	6.0	A
	6	7.0	A
	7	7.0	A
	8	6.0	A
	9	6.0	A
	10	6.0	A

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Merge Analysis)
Segment ID 4796

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	7.0	A
	2	7.0	A
	3	7.0	A
	4	7.0	A
	5	6.0	A
	6	7.0	A
	7	7.0	A
	8	6.0	A
	9	6.0	A
	10	6.0	A

NWB on I 26 W (Basic Analysis)
Segment ID 4797

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	10.0	A
	2	10.0	A
	3	10.0	A
	4	10.0	A
	5	9.0	A
	6	10.0	A
	7	10.0	A
	8	10.0	A
	9	10.0	A
	10	10.0	A

EB on I 26 E (Partial Basic Analysis)
Segment ID 4799

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	18.0	B
	2	18.0	B
	3	18.0	C
	4	18.0	B
	5	18.0	B
	6	18.0	B
	7	18.0	B
	8	18.0	B
	9	17.0	B
	10	18.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Basic Analysis)
Segment ID 4800

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	13.0	B
	2	13.0	B
	3	12.0	B
	4	13.0	B
	5	13.0	B
	6	14.0	B
	7	13.0	B
	8	13.0	B
	9	13.0	B
	10	13.0	B

SEB on I 26 E (Merge Analysis)
Segment ID 4801

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	13.0	B
	2	13.0	B
	3	12.0	B
	4	12.0	B
	5	12.0	B
	6	11.0	B
	7	12.0	B
	8	12.0	B
	9	12.0	B
	10	12.0	B

SEB on I 26 E (Diverge Analysis)
Segment ID 4802

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	14.0	B
	2	14.0	B
	3	15.0	B
	4	14.0	B
	5	13.0	B
	6	13.0	B
	7	13.0	B
	8	14.0	B
	9	14.0	B
	10	14.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Basic Analysis)
Segment ID 4805

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	10.0	A
	2	11.0	A
	3	11.0	A
	4	11.0	B
	5	10.0	A
	6	10.0	A
	7	11.0	B
	8	11.0	B
	9	10.0	A
	10	10.0	A

WB on I 26 W (Basic Analysis)
Segment ID 4806

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	10.0	A
	2	11.0	A
	3	10.0	A
	4	10.0	A
	5	9.0	A
	6	10.0	A
	7	10.0	A
	8	10.0	A
	9	10.0	A
	10	9.0	A

WB on I 26 W (Partial Basic Analysis)
Segment ID 4807

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	10.0	A
	2	11.0	A
	3	10.0	A
	4	10.0	A
	5	9.0	A
	6	10.0	A
	7	10.0	A
	8	10.0	A
	9	10.0	A
	10	9.0	A

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Diverge Analysis)
Segment ID 4808

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	6.0	A
	2	6.0	A
	3	6.0	A
	4	6.0	A
	5	6.0	A
	6	5.0	A
	7	6.0	A
	8	6.0	A
	9	5.0	A
	10	6.0	A

WB on I 26 W (Diverge Analysis)
Segment ID 4809

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	6.0	A
	2	6.0	A
	3	6.0	A
	4	6.0	A
	5	6.0	A
	6	5.0	A
	7	6.0	A
	8	6.0	A
	9	5.0	A
	10	6.0	A

SEB on I 26 E (Basic Analysis)
Segment ID 8740

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	13.0	B
	2	13.0	B
	3	12.0	B
	4	13.0	B
	5	13.0	B
	6	14.0	B
	7	13.0	B
	8	13.0	B
	9	13.0	B
	10	13.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

EB on I 26 E (Diverge Analysis)
Segment ID 8741

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	19.0	B
	2	19.0	B
	3	18.0	B
	4	18.0	B
	5	16.0	B
	6	17.0	B
	7	18.0	B
	8	18.0	B
	9	17.0	B
	10	17.0	B

WB on I 26 W (Basic Analysis)
Segment ID 8748

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	9.0	A
	2	9.0	A
	3	11.0	B
	4	10.0	A
	5	10.0	A
	6	9.0	A
	7	13.0	B
	8	11.0	A
	9	10.0	A
	10	11.0	A

WB on I 26 W (Merge Analysis)
Segment ID 8756

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	12.0	B
	2	11.0	B
	3	11.0	B
	4	11.0	B
	5	9.0	A
	6	11.0	B
	7	12.0	B
	8	11.0	B
	9	11.0	B
	10	9.0	A

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Merge Analysis)
Segment ID 8757

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	12.0	B
	2	11.0	B
	3	11.0	B
	4	11.0	B
	5	9.0	A
	6	11.0	B
	7	12.0	B
	8	11.0	B
	9	11.0	B
	10	9.0	A

EB on I 26 E (Basic Analysis)
Segment ID 8764

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	17.0	B
	2	17.0	B
	3	17.0	B
	4	17.0	B
	5	19.0	C
	6	18.0	B
	7	18.0	C
	8	18.0	B
	9	17.0	B
	10	17.0	B

EB on I 26 E (Diverge Analysis)
Segment ID 8766

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	18.0	B
	3	15.0	B
	4	15.0	B
	5	17.0	B
	6	17.0	B
	7	16.0	B
	8	17.0	B
	9	17.0	B
	10	16.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

EB on I 26 E (Merge Analysis)
Segment ID 8769

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	17.0	B
	2	17.0	B
	3	17.0	B
	4	16.0	B
	5	15.0	B
	6	15.0	B
	7	15.0	B
	8	15.0	B
	9	15.0	B
	10	15.0	B

EB on I 26 E (Partial Basic Analysis)
Segment ID 8770

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	20.0	C
	2	21.0	C
	3	20.0	C
	4	20.0	C
	5	20.0	C
	6	20.0	C
	7	21.0	C
	8	20.0	C
	9	20.0	C
	10	19.0	C

NWB on I 26 W (Merge Analysis)
Segment ID 8773

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	10.0	A
	2	10.0	B
	3	11.0	B
	4	12.0	B
	5	11.0	B
	6	10.0	A
	7	9.0	A
	8	11.0	B
	9	11.0	B
	10	10.0	A

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Basic Analysis)
Segment ID 8775

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	11.0	B
	2	12.0	B
	3	11.0	A
	4	11.0	B
	5	11.0	A
	6	11.0	B
	7	13.0	B
	8	13.0	B
	9	10.0	A
	10	12.0	B

WB on I 26 W (Diverge Analysis)
Segment ID 8776

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	11.0	B
	2	12.0	B
	3	11.0	B
	4	11.0	B
	5	10.0	A
	6	11.0	B
	7	13.0	B
	8	11.0	B
	9	11.0	B
	10	10.0	B

WB on I 26 W (Partial Basic Analysis)
Segment ID 8777

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	15.0	B
	2	15.0	B
	3	15.0	B
	4	15.0	B
	5	14.0	B
	6	15.0	B
	7	15.0	B
	8	15.0	B
	9	14.0	B
	10	14.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

EB on I 26 E (Partial Basic Analysis)
Segment ID 8778

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	20.0	C
	2	21.0	C
	3	20.0	C
	4	20.0	C
	5	20.0	C
	6	20.0	C
	7	21.0	C
	8	20.0	C
	9	20.0	C
	10	19.0	C

NWB on I 26 W (Partial Basic Analysis)
Segment ID 8779

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	13.0	B
	2	14.0	B
	3	13.0	B
	4	13.0	B
	5	13.0	B
	6	13.0	B
	7	14.0	B
	8	13.0	B
	9	13.0	B
	10	12.0	B

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 8856

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	26.0	C
	2	26.0	C
	3	26.0	C
	4	25.0	C
	5	25.0	C
	6	26.0	C
	7	26.0	C
	8	26.0	C
	9	26.0	C
	10	26.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Diverge Analysis)
Segment ID 8887

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	15.0	B
	2	16.0	B
	3	15.0	B
	4	15.0	B
	5	14.0	B
	6	15.0	B
	7	15.0	B
	8	15.0	B
	9	15.0	B
	10	15.0	B

SEB on I 26 E (Diverge Analysis)
Segment ID 8888

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	14.0	B
	2	14.0	B
	3	15.0	B
	4	14.0	B
	5	13.0	B
	6	13.0	B
	7	13.0	B
	8	14.0	B
	9	14.0	B
	10	14.0	B

NWB on I 26 W (Partial Basic Analysis)
Segment ID 8889

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	10.0	A
	2	10.0	A
	3	10.0	A
	4	10.0	A
	5	9.0	A
	6	10.0	A
	7	10.0	A
	8	10.0	A
	9	10.0	A
	10	10.0	A

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Partial Basic Analysis)
Segment ID 8890

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	17.0	B
	3	16.0	B
	4	16.0	B
	5	16.0	B
	6	16.0	B
	7	16.0	B
	8	16.0	B
	9	16.0	B
	10	15.0	B

EB on I 26 E (Diverge Analysis)
Segment ID 8891

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	19.0	B
	2	19.0	B
	3	18.0	B
	4	18.0	B
	5	16.0	B
	6	17.0	B
	7	18.0	B
	8	18.0	B
	9	17.0	B
	10	17.0	B

SEB on I 26 E (Partial Basic Analysis)
Segment ID 8893

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	16.0	B
	2	17.0	B
	3	16.0	B
	4	16.0	B
	5	16.0	B
	6	16.0	B
	7	16.0	B
	8	16.0	B
	9	16.0	B
	10	15.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (7:15:00AM - 8:15:00AM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Partial Basic Analysis)
Segment ID 8895

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	15.0	B
	2	15.0	B
	3	15.0	B
	4	15.0	B
	5	14.0	B
	6	15.0	B
	7	15.0	B
	8	15.0	B
	9	14.0	B
	10	14.0	B

WB on I 26 W (Merge Analysis)
Segment ID 8896

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
8:15:00AM	1	12.0	B
	2	11.0	B
	3	11.0	B
	4	11.0	B
	5	9.0	A
	6	11.0	B
	7	12.0	B
	8	11.0	B
	9	11.0	B
	10	9.0	A

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4718

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	27.0	C
	2	27.0	C
	3	27.0	C
	4	28.0	C
	5	26.0	C
	6	27.0	C
	7	27.0	C
	8	28.0	D
	9	27.0	C
	10	27.0	C

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4719

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	27.0	D
	2	25.0	C
	3	25.0	C
	4	27.0	D
	5	27.0	D
	6	28.0	D
	7	27.0	D
	8	28.0	D
	9	28.0	D
	10	27.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4720

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	27.0	D
	2	25.0	C
	3	25.0	C
	4	27.0	D
	5	27.0	D
	6	28.0	D
	7	27.0	D
	8	28.0	D
	9	28.0	D
	10	27.0	D

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4725

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	87.0	F
	2	87.0	F
	3	89.0	F
	4	88.0	F
	5	87.0	F
	6	89.0	F
	7	87.0	F
	8	88.0	F
	9	87.0	F
	10	87.0	F

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4726

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	87.0	F
	2	87.0	F
	3	89.0	F
	4	88.0	F
	5	87.0	F
	6	89.0	F
	7	87.0	F
	8	88.0	F
	9	87.0	F
	10	87.0	F

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4727

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	81.0	F
	2	82.0	F
	3	82.0	F
	4	80.0	F
	5	81.0	F
	6	82.0	F
	7	79.0	F
	8	81.0	F
	9	82.0	F
	10	80.0	F

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4728

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	37.0	E
	2	37.0	E
	3	38.0	F
	4	39.0	F
	5	38.0	E
	6	39.0	E
	7	39.0	E
	8	38.0	E
	9	38.0	F
	10	37.0	E

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4729

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	37.0	E
	2	37.0	E
	3	38.0	F
	4	39.0	F
	5	38.0	E
	6	39.0	E
	7	39.0	E
	8	38.0	E
	9	38.0	F
	10	37.0	E

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4730

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	37.0	E
	2	37.0	E
	3	38.0	F
	4	39.0	F
	5	38.0	E
	6	39.0	E
	7	39.0	E
	8	38.0	E
	9	38.0	F
	10	37.0	E

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4732

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	36.0	E
	2	35.0	E
	3	37.0	E
	4	36.0	E
	5	35.0	E
	6	36.0	E
	7	36.0	E
	8	36.0	E
	9	35.0	E
	10	35.0	E

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4733

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	23.0	C
	2	25.0	C
	3	25.0	C
	4	27.0	D
	5	24.0	C
	6	25.0	C
	7	25.0	C
	8	25.0	C
	9	24.0	C
	10	25.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4736

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	30.0	D
	2	22.0	C
	3	26.0	C
	4	28.0	D
	5	26.0	C
	6	24.0	C
	7	30.0	D
	8	23.0	C
	9	24.0	C
	10	20.0	C

SEB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4737

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	17.0	B
	3	17.0	B
	4	18.0	B
	5	17.0	B
	6	18.0	B
	7	18.0	B
	8	18.0	B
	9	18.0	B
	10	17.0	B

NWB on JAMES F BYRNES EXPY (Weaving Analysis)
Segment ID 4739

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	32.0	D
	2	31.0	D
	3	30.0	D
	4	31.0	D
	5	30.0	D
	6	31.0	D
	7	30.0	D
	8	31.0	D
	9	32.0	D
	10	31.0	D

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on EXIT 101B RAMP TO US 176 (Partial Basic Analysis)
Segment ID 4741

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	45.0	F
	2	35.0	D
	3	44.0	E
	4	45.0	F
	5	44.0	E
	6	45.0	E
	7	44.0	E
	8	43.0	E
	9	44.0	E
	10	50.0	F

NWB on EXIT 101B RAMP TO US 176 (Diverge Analysis)
Segment ID 4742

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	26.0	C
	2	27.0	C
	3	27.0	C
	4	26.0	C
	5	26.0	C
	6	27.0	C
	7	26.0	C
	8	26.0	C
	9	26.0	C
	10	26.0	C

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4745

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	19.0	C
	2	18.0	C
	3	20.0	C
	4	20.0	C
	5	19.0	C
	6	17.0	B
	7	18.0	B
	8	21.0	C
	9	15.0	B
	10	19.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Weaving Analysis)
Segment ID 4748

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	21.0	C
	2	19.0	B
	3	19.0	B
	4	20.0	B
	5	21.0	C
	6	21.0	C
	7	20.0	C
	8	21.0	C
	9	21.0	C
	10	21.0	C

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4753

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	25.0	C
	3	28.0	D
	4	24.0	C
	5	25.0	C
	6	25.0	C
	7	26.0	C
	8	26.0	C
	9	26.0	D
	10	26.0	C

SEB on EXIT 101A RAMP TO US 176 (Partial Basic Analysis)
Segment ID 4755

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	19.0	C
	2	19.0	C
	3	22.0	C
	4	20.0	C
	5	21.0	C
	6	20.0	C
	7	18.0	B
	8	18.0	B
	9	26.0	C
	10	20.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on EXIT 101A RAMP TO US 176 (Diverge Analysis)
Segment ID 4756

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	11.0	B
	2	11.0	B
	3	9.0	A
	4	11.0	B
	5	12.0	B
	6	12.0	B
	7	12.0	B
	8	12.0	B
	9	11.0	B
	10	11.0	B

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4760

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	16.0	B
	2	15.0	B
	3	16.0	B
	4	15.0	B
	5	16.0	B
	6	16.0	B
	7	15.0	B
	8	16.0	B
	9	16.0	B
	10	16.0	B

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4761

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	16.0	B
	2	15.0	B
	3	16.0	B
	4	15.0	B
	5	16.0	B
	6	16.0	B
	7	15.0	B
	8	16.0	B
	9	16.0	B
	10	16.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4763

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	26.0	D
	2	26.0	C
	3	26.0	D
	4	27.0	D
	5	26.0	D
	6	26.0	D
	7	26.0	C
	8	26.0	D
	9	26.0	D
	10	26.0	D

NWB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4764

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	23.0	C
	2	22.0	C
	3	23.0	C
	4	23.0	C
	5	23.0	C
	6	22.0	C
	7	23.0	C
	8	24.0	C
	9	25.0	C
	10	21.0	C

SEB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4768

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	10.0	B
	2	10.0	B
	3	9.0	A
	4	10.0	B
	5	12.0	B
	6	10.0	B
	7	10.0	A
	8	11.0	B
	9	11.0	B
	10	10.0	A

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on JAMES F BYRNES EXPY (Diverge Analysis)
Segment ID 4769

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	13.0	B
	2	12.0	B
	3	13.0	B
	4	12.0	B
	5	13.0	B
	6	12.0	B
	7	13.0	B
	8	13.0	B
	9	13.0	B
	10	13.0	B

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4771

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	22.0	C
	2	22.0	C
	3	22.0	C
	4	22.0	C
	5	22.0	C
	6	22.0	C
	7	22.0	C
	8	22.0	C
	9	22.0	C
	10	23.0	C

NWB on JAMES F BYRNES EXPY (Merge Analysis)
Segment ID 4773

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	18.0	B
	2	16.0	B
	3	17.0	B
	4	17.0	B
	5	18.0	B
	6	15.0	B
	7	16.0	B
	8	18.0	B
	9	17.0	B
	10	17.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 4774

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	24.0	C
	3	23.0	C
	4	24.0	C
	5	23.0	C
	6	23.0	C
	7	23.0	C
	8	24.0	C
	9	24.0	C
	10	24.0	C

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4775

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	24.0	C
	3	23.0	C
	4	24.0	C
	5	23.0	C
	6	23.0	C
	7	23.0	C
	8	24.0	C
	9	24.0	C
	10	24.0	C

SEB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4776

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	16.0	B
	2	16.0	B
	3	16.0	B
	4	17.0	B
	5	16.0	B
	6	17.0	B
	7	17.0	B
	8	16.0	B
	9	16.0	B
	10	17.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on JAMES F BYRNES EXPY (Basic Analysis)
Segment ID 4779

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	25.0	C
	2	25.0	C
	3	23.0	C
	4	24.0	C
	5	26.0	D
	6	24.0	C
	7	24.0	C
	8	27.0	D
	9	26.0	D
	10	27.0	D

WB on I 26 E (Basic Analysis)
Segment ID 4780

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	23.0	C
	3	24.0	C
	4	24.0	C
	5	23.0	C
	6	23.0	C
	7	23.0	C
	8	24.0	C
	9	24.0	C
	10	24.0	C

WB on I 26 E (Partial Basic Analysis)
Segment ID 4781

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	23.0	C
	3	24.0	C
	4	24.0	C
	5	23.0	C
	6	23.0	C
	7	23.0	C
	8	24.0	C
	9	24.0	C
	10	24.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 E (Diverge Analysis)
Segment ID 4782

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	22.0	C
	2	22.0	C
	3	22.0	C
	4	22.0	C
	5	28.0	D
	6	22.0	C
	7	22.0	C
	8	21.0	C
	9	23.0	C
	10	24.0	C

WB on I 26 E (Diverge Analysis)
Segment ID 4783

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	22.0	C
	2	22.0	C
	3	22.0	C
	4	22.0	C
	5	28.0	D
	6	22.0	C
	7	22.0	C
	8	21.0	C
	9	23.0	C
	10	24.0	C

SEB on I 26 E (Merge Analysis)
Segment ID 4785

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	14.0	B
	2	14.0	B
	3	14.0	B
	4	15.0	B
	5	14.0	B
	6	13.0	B
	7	14.0	B
	8	13.0	B
	9	15.0	B
	10	13.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Partial Basic Analysis)
Segment ID 4786

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	21.0	C
	2	21.0	C
	3	21.0	C
	4	21.0	C
	5	21.0	C
	6	21.0	C
	7	20.0	C
	8	21.0	C
	9	21.0	C
	10	21.0	C

SEB on I 26 E (Partial Basic Analysis)
Segment ID 4787

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	21.0	C
	2	21.0	C
	3	21.0	C
	4	21.0	C
	5	21.0	C
	6	21.0	C
	7	20.0	C
	8	21.0	C
	9	21.0	C
	10	21.0	C

SEB on I 26 E (Diverge Analysis)
Segment ID 4789

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	16.0	B
	2	16.0	B
	3	16.0	B
	4	18.0	B
	5	16.0	B
	6	16.0	B
	7	16.0	B
	8	16.0	B
	9	17.0	B
	10	15.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Basic Analysis)
Segment ID 4791

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	15.0	B
	2	16.0	B
	3	16.0	B
	4	17.0	B
	5	15.0	B
	6	16.0	B
	7	17.0	B
	8	16.0	B
	9	16.0	B
	10	16.0	B

SEB on I 26 E (Basic Analysis)
Segment ID 4793

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	16.0	B
	3	16.0	B
	4	17.0	B
	5	16.0	B
	6	16.0	B
	7	15.0	B
	8	17.0	B
	9	16.0	B
	10	17.0	B

NWB on I 26 W (Merge Analysis)
Segment ID 4795

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	10.0	A
	2	10.0	B
	3	10.0	B
	4	10.0	A
	5	10.0	B
	6	10.0	A
	7	10.0	A
	8	10.0	A
	9	10.0	B
	10	11.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Merge Analysis)
Segment ID 4796

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	10.0	A
	2	10.0	B
	3	10.0	B
	4	10.0	A
	5	10.0	B
	6	10.0	A
	7	10.0	A
	8	10.0	A
	9	10.0	B
	10	11.0	B

NWB on I 26 W (Basic Analysis)
Segment ID 4797

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	16.0	B
	3	17.0	B
	4	17.0	B
	5	17.0	B
	6	17.0	B
	7	16.0	B
	8	17.0	B
	9	17.0	B
	10	17.0	B

EB on I 26 E (Partial Basic Analysis)
Segment ID 4799

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	24.0	C
	2	24.0	C
	3	24.0	C
	4	24.0	C
	5	23.0	C
	6	23.0	C
	7	22.0	C
	8	24.0	C
	9	23.0	C
	10	23.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Basic Analysis)
Segment ID 4800

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	16.0	B
	3	17.0	B
	4	18.0	B
	5	18.0	C
	6	16.0	B
	7	16.0	B
	8	17.0	B
	9	17.0	B
	10	16.0	B

SEB on I 26 E (Merge Analysis)
Segment ID 4801

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	11.0	B
	2	11.0	B
	3	11.0	B
	4	12.0	B
	5	10.0	B
	6	10.0	B
	7	10.0	B
	8	10.0	A
	9	10.0	B
	10	12.0	B

SEB on I 26 E (Diverge Analysis)
Segment ID 4802

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	12.0	B
	2	13.0	B
	3	13.0	B
	4	14.0	B
	5	12.0	B
	6	11.0	B
	7	13.0	B
	8	13.0	B
	9	13.0	B
	10	13.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

NWB on I 26 W (Basic Analysis)
Segment ID 4805

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	16.0	B
	3	18.0	C
	4	20.0	C
	5	17.0	B
	6	17.0	B
	7	17.0	B
	8	16.0	B
	9	17.0	B
	10	19.0	C

WB on I 26 W (Basic Analysis)
Segment ID 4806

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	16.0	B
	3	17.0	B
	4	17.0	B
	5	17.0	B
	6	17.0	B
	7	16.0	B
	8	17.0	B
	9	17.0	B
	10	17.0	B

WB on I 26 W (Partial Basic Analysis)
Segment ID 4807

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	16.0	B
	3	17.0	B
	4	17.0	B
	5	17.0	B
	6	17.0	B
	7	16.0	B
	8	17.0	B
	9	17.0	B
	10	17.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Diverge Analysis)
Segment ID 4808

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	10.0	B
	2	9.0	A
	3	12.0	B
	4	9.0	A
	5	10.0	B
	6	11.0	B
	7	11.0	B
	8	10.0	A
	9	10.0	A
	10	12.0	B

WB on I 26 W (Diverge Analysis)
Segment ID 4809

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	10.0	B
	2	9.0	A
	3	12.0	B
	4	9.0	A
	5	10.0	B
	6	11.0	B
	7	11.0	B
	8	10.0	A
	9	10.0	A
	10	12.0	B

SEB on I 26 E (Basic Analysis)
Segment ID 8740

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	16.0	B
	3	17.0	B
	4	18.0	B
	5	18.0	C
	6	16.0	B
	7	16.0	B
	8	17.0	B
	9	17.0	B
	10	16.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

EB on I 26 E (Diverge Analysis)
Segment ID 8741

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	22.0	C
	2	23.0	C
	3	22.0	C
	4	22.0	C
	5	21.0	C
	6	21.0	C
	7	22.0	C
	8	23.0	C
	9	22.0	C
	10	22.0	C

WB on I 26 W (Basic Analysis)
Segment ID 8748

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	16.0	B
	2	14.0	B
	3	16.0	B
	4	15.0	B
	5	18.0	C
	6	17.0	B
	7	16.0	B
	8	16.0	B
	9	16.0	B
	10	15.0	B

WB on I 26 W (Merge Analysis)
Segment ID 8756

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	19.0	B
	2	17.0	B
	3	18.0	B
	4	18.0	B
	5	19.0	B
	6	17.0	B
	7	16.0	B
	8	18.0	B
	9	18.0	B
	10	19.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Merge Analysis)
Segment ID 8757

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	19.0	B
	2	17.0	B
	3	18.0	B
	4	18.0	B
	5	19.0	B
	6	17.0	B
	7	16.0	B
	8	18.0	B
	9	18.0	B
	10	19.0	B

EB on I 26 E (Basic Analysis)
Segment ID 8764

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	23.0	C
	2	22.0	C
	3	24.0	C
	4	25.0	C
	5	24.0	C
	6	23.0	C
	7	22.0	C
	8	23.0	C
	9	22.0	C
	10	22.0	C

EB on I 26 E (Diverge Analysis)
Segment ID 8766

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	22.0	C
	2	23.0	C
	3	22.0	C
	4	24.0	C
	5	23.0	C
	6	21.0	C
	7	21.0	C
	8	24.0	C
	9	23.0	C
	10	23.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

EB on I 26 E (Merge Analysis)
Segment ID 8769

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	20.0	B
	2	21.0	C
	3	20.0	B
	4	19.0	B
	5	18.0	B
	6	19.0	B
	7	19.0	B
	8	20.0	C
	9	20.0	B
	10	21.0	C

EB on I 26 E (Partial Basic Analysis)
Segment ID 8770

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	25.0	C
	2	26.0	C
	3	26.0	D
	4	27.0	D
	5	26.0	D
	6	25.0	C
	7	25.0	C
	8	26.0	D
	9	27.0	D
	10	25.0	C

NWB on I 26 W (Merge Analysis)
Segment ID 8773

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	15.0	B
	2	15.0	B
	3	15.0	B
	4	15.0	B
	5	17.0	B
	6	15.0	B
	7	16.0	B
	8	15.0	B
	9	17.0	B
	10	17.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Basic Analysis)
Segment ID 8775

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	20.0	C
	2	21.0	C
	3	23.0	C
	4	24.0	C
	5	20.0	C
	6	21.0	C
	7	22.0	C
	8	21.0	C
	9	23.0	C
	10	20.0	C

WB on I 26 W (Diverge Analysis)
Segment ID 8776

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	19.0	B
	2	18.0	B
	3	17.0	B
	4	18.0	B
	5	18.0	B
	6	18.0	B
	7	17.0	B
	8	18.0	B
	9	17.0	B
	10	19.0	B

WB on I 26 W (Partial Basic Analysis)
Segment ID 8777

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	25.0	C
	2	24.0	C
	3	25.0	C
	4	25.0	C
	5	25.0	C
	6	25.0	C
	7	24.0	C
	8	25.0	C
	9	25.0	C
	10	25.0	C

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

EB on I 26 E (Partial Basic Analysis)
Segment ID 8778

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	25.0	C
	2	26.0	C
	3	26.0	D
	4	27.0	D
	5	26.0	D
	6	25.0	C
	7	25.0	C
	8	26.0	D
	9	27.0	D
	10	25.0	C

NWB on I 26 W (Partial Basic Analysis)
Segment ID 8779

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	22.0	C
	2	21.0	C
	3	21.0	C
	4	22.0	C
	5	22.0	C
	6	21.0	C
	7	21.0	C
	8	21.0	C
	9	22.0	C
	10	22.0	C

SEB on JAMES F BYRNES EXPY (Partial Basic Analysis)
Segment ID 8856

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	18.0	B
	2	17.0	B
	3	17.0	B
	4	17.0	B
	5	17.0	B
	6	17.0	B
	7	17.0	B
	8	18.0	B
	9	18.0	B
	10	17.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Diverge Analysis)
Segment ID 8887

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	16.0	B
	2	16.0	B
	3	16.0	B
	4	18.0	B
	5	16.0	B
	6	16.0	B
	7	16.0	B
	8	16.0	B
	9	17.0	B
	10	15.0	B

SEB on I 26 E (Diverge Analysis)
Segment ID 8888

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	12.0	B
	2	13.0	B
	3	13.0	B
	4	14.0	B
	5	12.0	B
	6	11.0	B
	7	13.0	B
	8	13.0	B
	9	13.0	B
	10	13.0	B

NWB on I 26 W (Partial Basic Analysis)
Segment ID 8889

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	16.0	B
	3	17.0	B
	4	17.0	B
	5	17.0	B
	6	17.0	B
	7	16.0	B
	8	17.0	B
	9	17.0	B
	10	17.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

SEB on I 26 E (Partial Basic Analysis)
Segment ID 8890

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	17.0	B
	3	17.0	B
	4	17.0	B
	5	17.0	B
	6	17.0	B
	7	16.0	B
	8	17.0	B
	9	17.0	B
	10	17.0	B

EB on I 26 E (Diverge Analysis)
Segment ID 8891

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	22.0	C
	2	23.0	C
	3	22.0	C
	4	22.0	C
	5	21.0	C
	6	21.0	C
	7	22.0	C
	8	23.0	C
	9	22.0	C
	10	22.0	C

SEB on I 26 E (Partial Basic Analysis)
Segment ID 8893

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	17.0	B
	2	17.0	B
	3	17.0	B
	4	17.0	B
	5	17.0	B
	6	17.0	B
	7	16.0	B
	8	17.0	B
	9	17.0	B
	10	17.0	B

Overview Aggregate Report for Freeway Segment Level of Service

Across 10 simulations (4:45:00PM - 5:45:00PM)

Date & Time of Run: Various Selection: I-26 Mainline

WB on I 26 W (Partial Basic Analysis)
Segment ID 8895

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	25.0	C
	2	24.0	C
	3	25.0	C
	4	25.0	C
	5	25.0	C
	6	25.0	C
	7	24.0	C
	8	25.0	C
	9	25.0	C
	10	25.0	C

WB on I 26 W (Merge Analysis)
Segment ID 8896

Interval Ending	Run	Density (pce/mi/ln)	Level of Service
5:45:00PM	1	19.0	B
	2	17.0	B
	3	18.0	B
	4	18.0	B
	5	19.0	B
	6	17.0	B
	7	16.0	B
	8	18.0	B
	9	18.0	B
	10	19.0	B

Appendix G

Conceptual Signing Plan

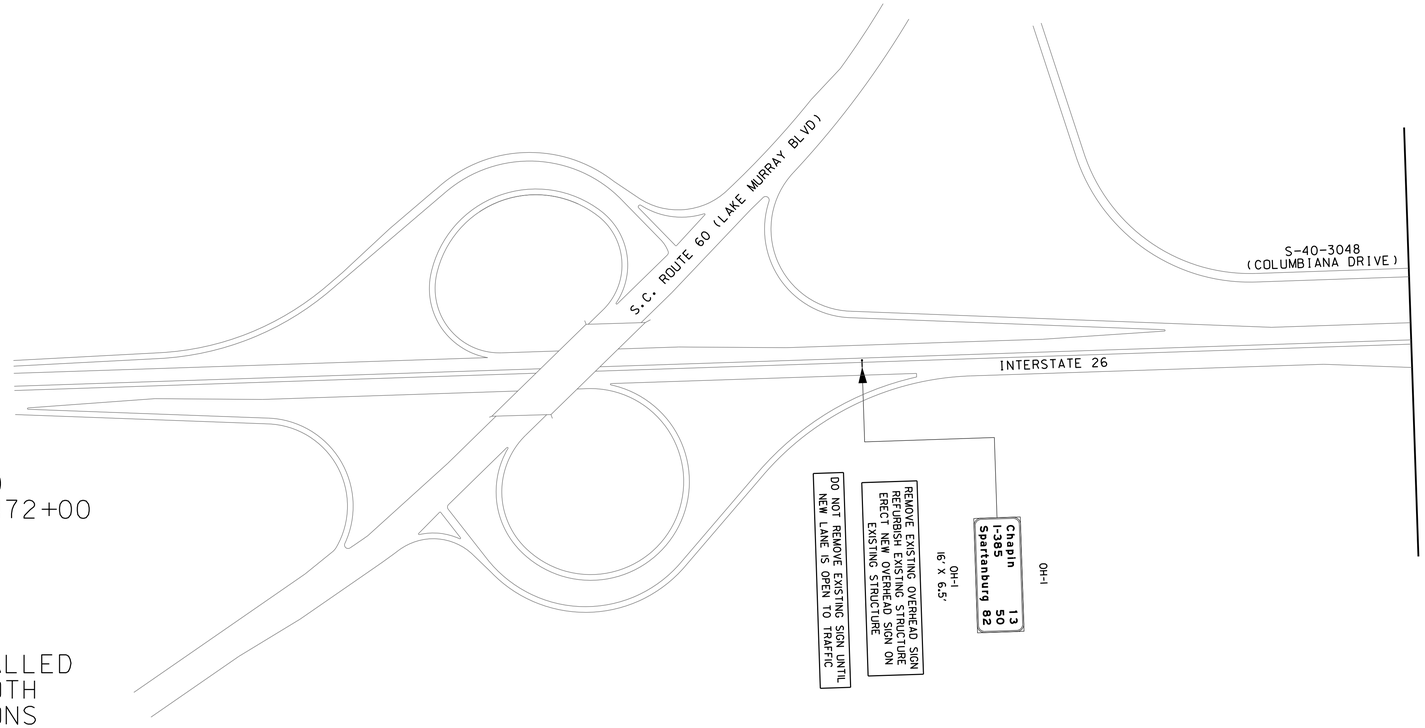
I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND LEXINGTON	P029208	I-26	SN5

GENERAL NOTES:

1) ALL I-BEAM POSTS FOR LOGO SIGNS WILL BE DESIGNED TO SUPPORT FULL SIZE LOGO PANELS, MAINLINE PANELS ARE 15' X 10' AND RAMP PANELS ARE 8.5' X 6.5'

2) INTERMEDIATE REFERENCE LOCATION SIGNS (MILE MARKERS) TO BE INSTALLED ON THE MEDIAN BARRIER WALL FROM STA. 604+75 TO STA. 1046+50 AND FROM STA. 1112+00 TO STA. 1472+00 AT TWO TENTHS (0.2) OF A MILE INTERVALS. THE SIGNS ARE TO BE INSTALLED IN BOTH DIRECTION BACK TO BACK. INTERMEDIATE REFERENCE LOCATION SIGNS (MILE MARKERS) TO BE INSTALLED ON RIGHT SIDE OF ROADWAY INTO BOTH WESTBOUND AND EASTBOUND DIRECTIONS FROM STA. 1046+50 TO STA. 1112+00 AT TWO TENTHS (0.2) OF A MILE INTERVALS.



REVISIONS NO.	DATE	DESCRIPTION	BY	CHECKED	REVISIONS NO.	DATE	DESCRIPTION	BY	CHECKED

DRAWN BY : R.L.D.
DATE : 01/05/18

REVIEWED BY : T.L.R.
DATE : 01/08/18

APPROVED BY : B.G.N.
DATE : 01/09/18

CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND AND LEXINGTON	P029208	I-26	SN6

MATCH LINE
SEE SHEET SN5

S-40-3048
(COLUMBIANA DRIVE)

EXITS 102 A-B
60
Lake Murray Blvd
Irmo
½ MILE

OH-2

OH-2A-102A-B

EXIT 101 B
176
EAST
Broad River Road - EAST
EXIT ONLY

OH-2B-101B
15.5' X 12.5'
EP-10' X 2.5'

RETAIN EXISTING OVERHEAD SIGN
OH2A-102A-B
REMOVE EXISTING OVERHEAD SIGN OH-2B-101B
REFURBISH AND MODIFY EXISTING STRUCTURE
AND ADJUST SIGN HANGERS
ERECT NEW OVERHEAD SIGN OH-2B-101B ON
EXISTING STRUCTURE

MI025-101

EXIT 101

MI025-101
6.5' X 5'

ERECT NEW I-BEAM POSTS
INSTALL NEW SIGN

OH-3

EXIT 101 A
WEST
176
Broad River Road - WEST
EXIT ONLY

EXIT 101 B
EAST
176
Broad River Road - EAST
EXIT ONLY

OH-3B-101A
15.5' X 12.5'
EP-10.5' X 2.5'

OH-3B-101B
15.5' X 12.5'
EP-10' X 2.5'

ERECT NEW CANTILEVER STRUCTURE
INSTALL NEW SIGN

Entering SCDOT Assistance Zone
DIAL *HP

REMOVE EXISTING SIGN
REMOVE EXISTING I-BEAM POSTS

R2-4a-48-60/45

SPEED LIMIT 60 MPH 45

ERECT NEW I-BEAM POSTS
INSTALL NEW SIGN

INSTALL BARRIER-MOUNT I-BEAM POST
INSTALL NEW SIGN

600 605 610 615

INTERSTATE 26

S-40-2894 (WESTERN LN)

REMOVE EXISTING SIGN
REMOVE EXISTING I-BEAM POSTS

Leaving SCDOT Assistance Zone

ERECT NEW I-BEAM POSTS
INSTALL NEW SIGN

R2-4a-48-65/45

SPEED LIMIT 65 MPH 45

MATCH LINE STA. 615+00
SEE SHEET SN7

U.S. ROUTE 176 (BROAD RIVER RD)

NOTE:
REMOVE LANE DROP WARNING
SIGNS AND POSTS
ON BARRIER WALL WHEN NEW
LANE IS OPEN TO TRAFFIC

REVISIONS NO.	REVISIONS DATE	DESCRIPTION	BY	CHECKED	REVISIONS NO.	REVISIONS DATE	DESCRIPTION	BY	CHECKED

DRAWN BY : R.L.D.
DATE : 01/05/18

REVIEWED BY : T.L.R.
DATE : 01/08/18

APPROVED BY : B.G.N.
DATE : 01/09/18

CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

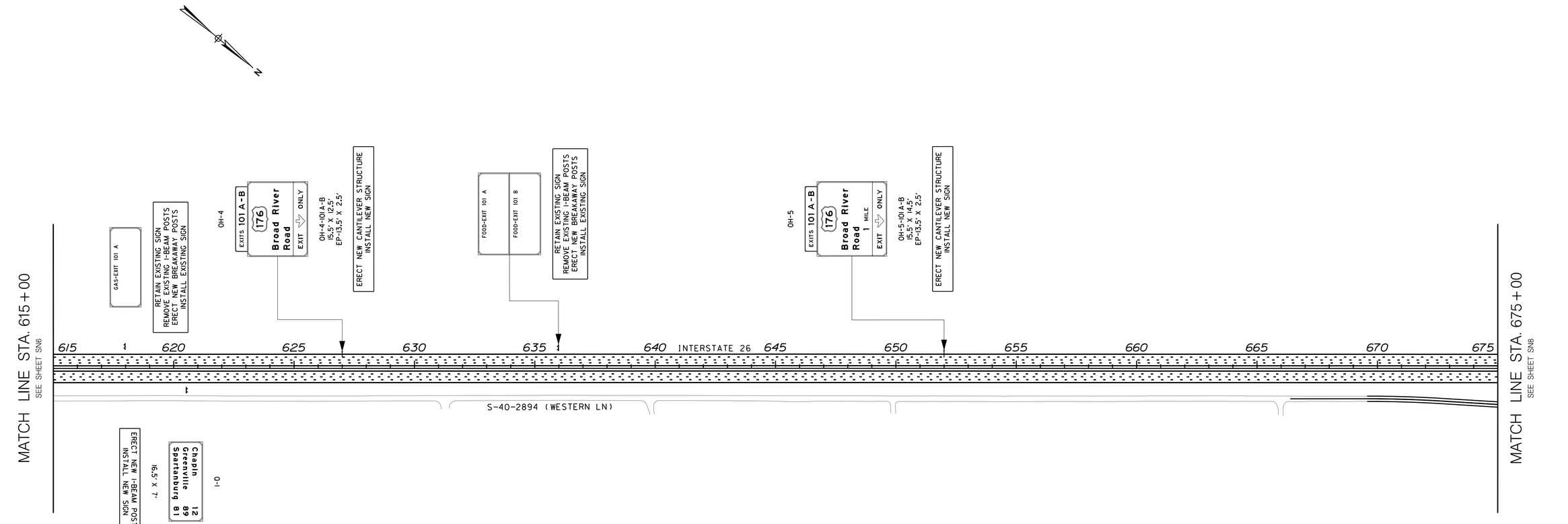
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
BEGIN TO STA. 615+00.00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND AND LEXINGTON	P029208	I-26	SN7



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CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

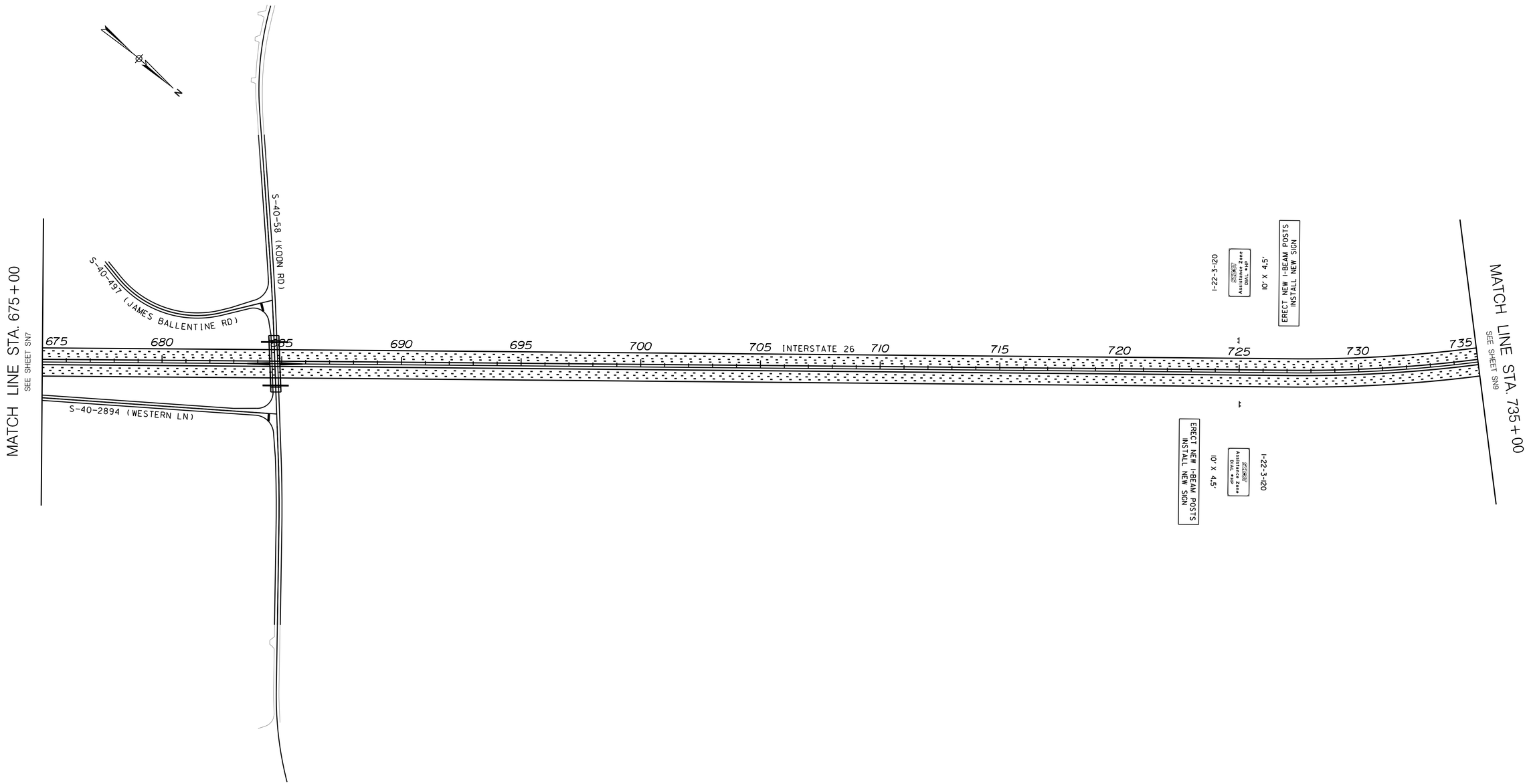
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 615+00.00 TO STA. 675+00.00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND LEXINGTON	P029208	I-26	SN8



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CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

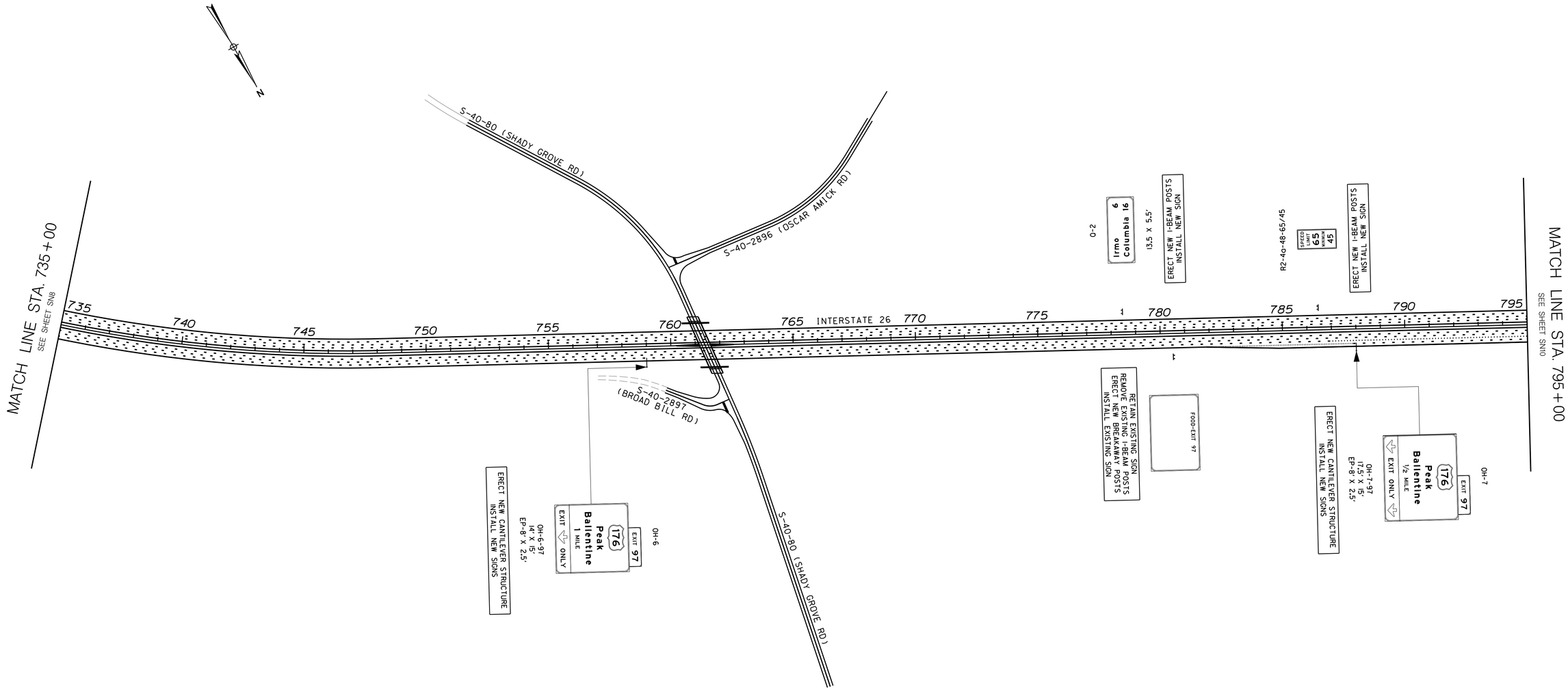
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 675+00.00 TO STA. 735+00.00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND LEXINGTON	P029208	I-26	SN9



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CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 735+00.00 TO STA. 795+00.00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND LEXINGTON	P029208	I-26	SN10

MATCH LINE STA. 795+00
SEE SHEET SN9

MATCH LINE STA. 855+00
SEE SHEET SN11

INTERSTATE 26

795 800 805 810 815 820 825 830 835 840 845 850 855

S-40-385 (RAUCH-METZ RD)

S-40-2805 (BROAD STONE RD CONN.)

S-40-2805 (BROAD STONE RD)

U.S. ROUTE 176 (BROAD RIVER RD)

S-40-2898 (BROAD BERRY RD)

OH-3: 176 EAST Ballentine White Rock; 26 EAST Columbia ONLY

OH-13A: 14.5' X W — ERECT NEW SIGN BRIDGE STRUCTURE INSTALL NEW SIGNS

OH-13B: 15' X 12.5'

OH-12: 176 EAST Ballentine White Rock; 176 WEST Peak Pomaria

OH-12A: 13.5' X 12.5' — ERECT NEW SIGN BRIDGE STRUCTURE INSTALL NEW SIGNS

OH-12B: 15' X 12.5'

OH-4: 26 EAST Columbia RIGHT LANE — ERECT NEW CANTILEVER STRUCTURE INSTALL NEW SIGN; 21.5' X 0'

OH-15: 26 WEST Spartanburg LEFT LANE — ERECT NEW CANTILEVER STRUCTURE INSTALL NEW SIGNS; 15.5' X 10'

OH-15A: 26 EAST Columbia — 15' X 65'

4' X 7'

OH-8: 176 Peak Ballentine — EXIT ONLY; EXIT 97 — 11' X 13'; EP-8' X 2.5'

OH-8-97: ERECT NEW CANTILEVER STRUCTURE INSTALL NEW SIGNS

RETAIN EXISTING SIGN REMOVE EXISTING I-BEAM POSTS ERECT NEW BREAKAWAY POSTS INSTALL EXISTING SIGN

GAS-EXIT 97

MI025-97: EXIT 97 — 6' X 5' — ERECT NEW I-BEAM POSTS INSTALL NEW SIGN

OH-9: 175 EAST Ballentine White Rock; 175 WEST Peak Pomaria — 15' X 12.5'

OH-9A: 15' X 12.5' — ERECT NEW SIGN BRIDGE STRUCTURE INSTALL NEW SIGNS

OH-9B: 15' X 12.5'

OH-16: 176 WEST Peak Pomaria

OH-16A: 18.5' X 8.5' — ERECT NEW SIGN BRIDGE STRUCTURE INSTALL NEW SIGNS

OH-16B: 12.5' X 4.5'

OH-11: 26 WEST Spartanburg; 26 EAST Columbia LEFT LANE

OH-11A: 12.5' X 10' — ERECT NEW CANTILEVER STRUCTURE INSTALL NEW SIGNS

OH-11B: 18.5' X 8.5'

OH-10: 26 WEST Spartanburg RIGHT LANE — 15.5' X 12'; ERECT NEW CANTILEVER STRUCTURE INSTALL NEW SIGN

MI025-97: EXIT 97 — 6' X 5' — ERECT NEW I-BEAM POSTS INSTALL NEW SIGN

OH-17: EXIT 97 — 176 Ballentine White Rock

OH-17-97: 18.5' X 10'; EP-8' X 2.5' — ERECT NEW CANTILEVER STRUCTURE INSTALL NEW SIGN

RETAIN EXISTING SIGN REMOVE EXISTING I-BEAM POSTS ERECT NEW BREAKAWAY POSTS INSTALL EXISTING SIGN

GAS

FOOD

RETAIN EXISTING SIGN REMOVE EXISTING I-BEAM POSTS ERECT NEW BREAKAWAY POSTS INSTALL EXISTING SIGN

Ⓐ ERECT NEW I-BEAM POSTS INSTALL NEW SIGN

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CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

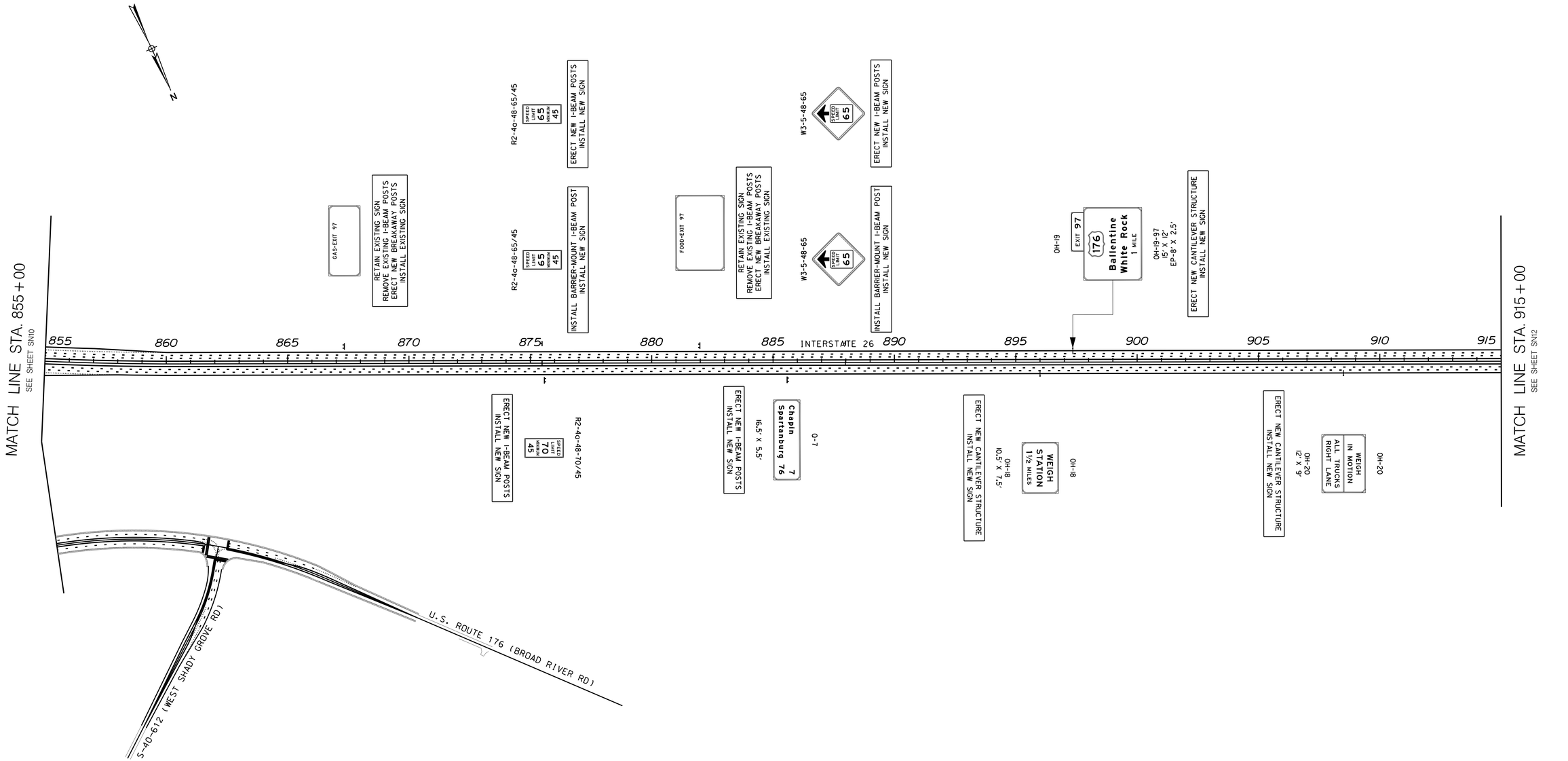
SCDOT

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 795+00.00 TO STA. 855+00.00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND LEXINGTON	P029208	I-26	SN11



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CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

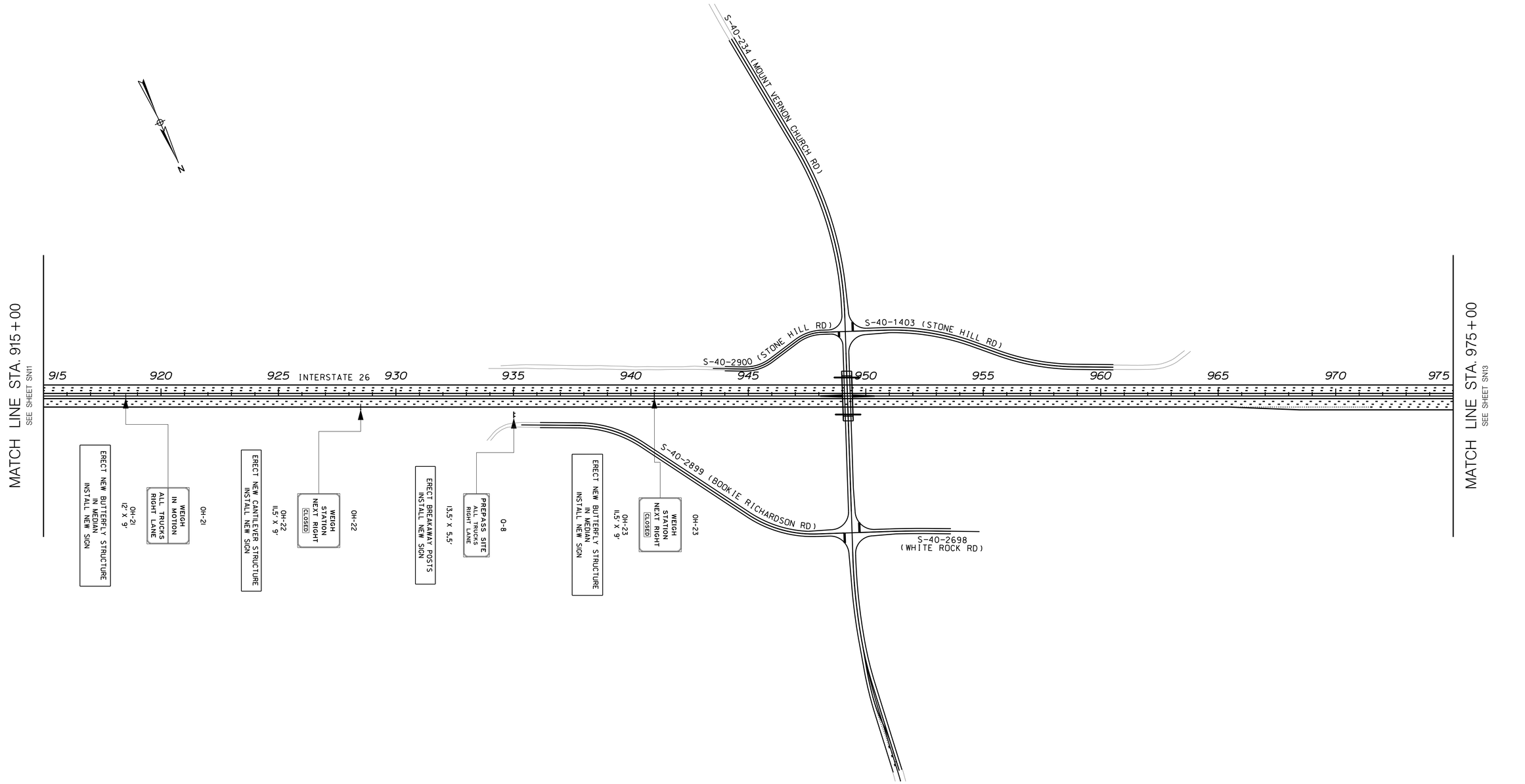
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 855+00.00 TO STA. 915+00.00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND LEXINGTON	P029208	I-26	SNI2



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CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

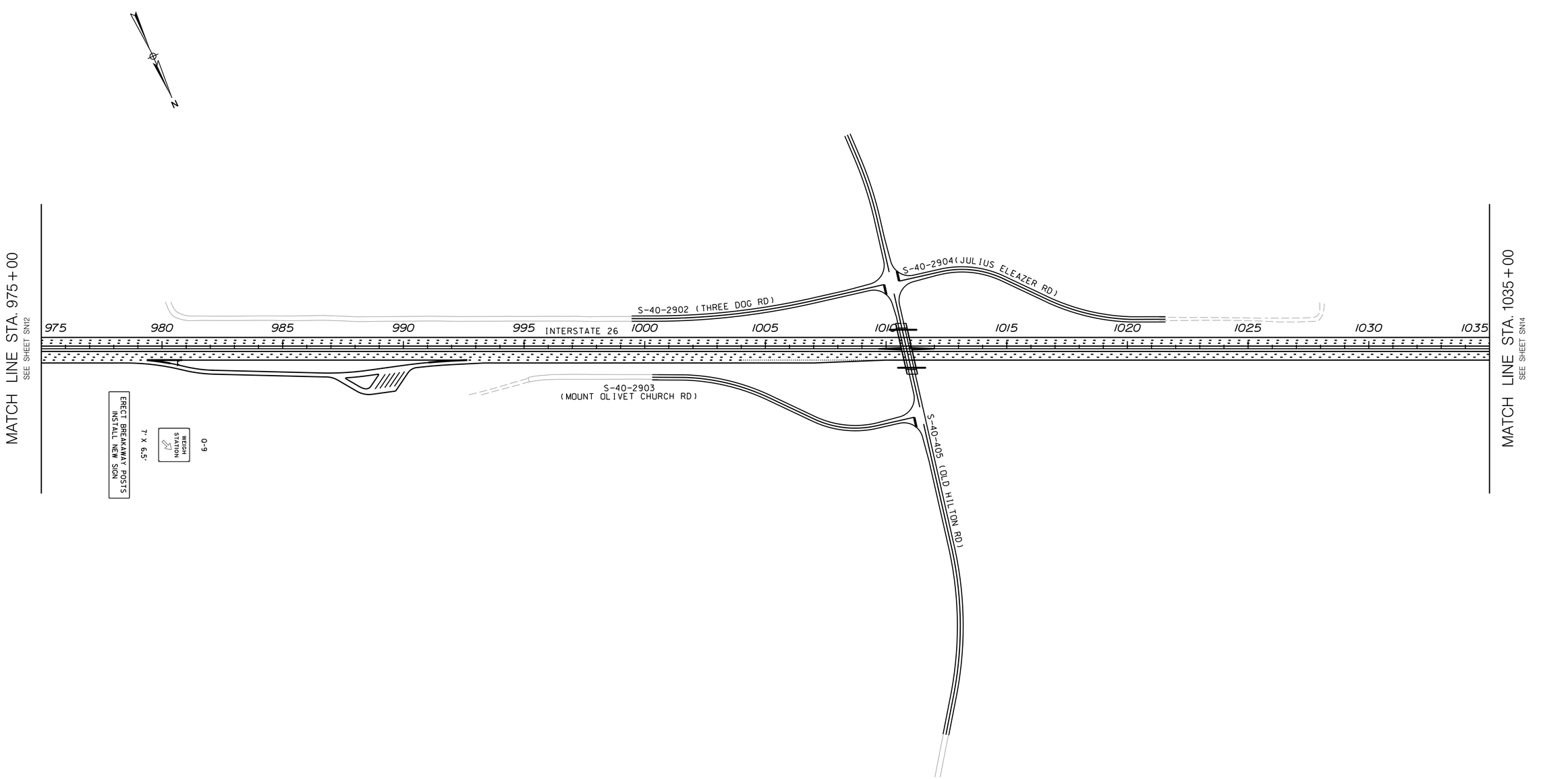
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 915+00.00 TO STA. 975+00.00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND/ RICHLAND LEXINGTON	P029208	I-26	SNI3



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CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

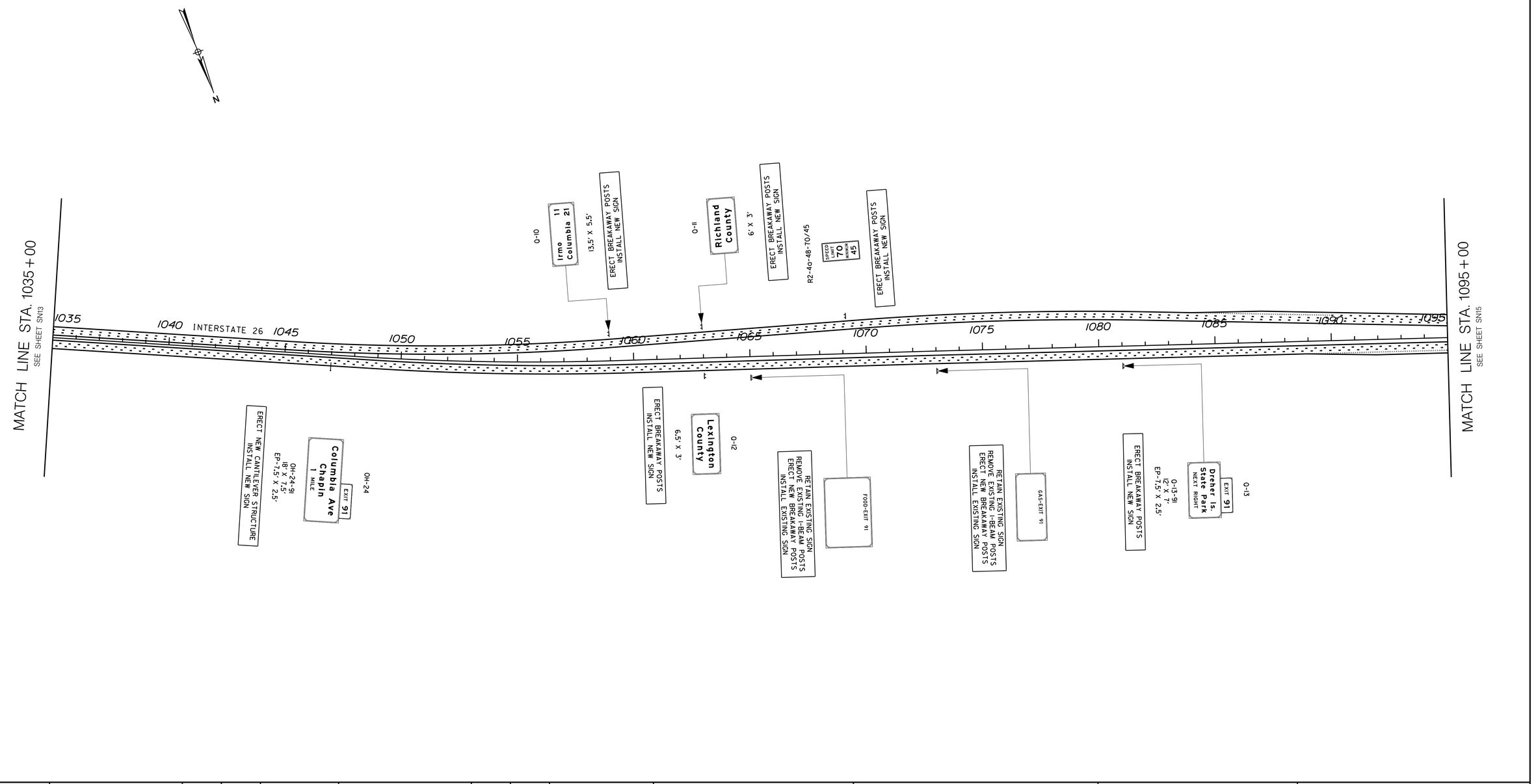
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 975+00.00 TO STA. 1035+00.00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND AND LEXINGTON	P029208	I-26	SNI4



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CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

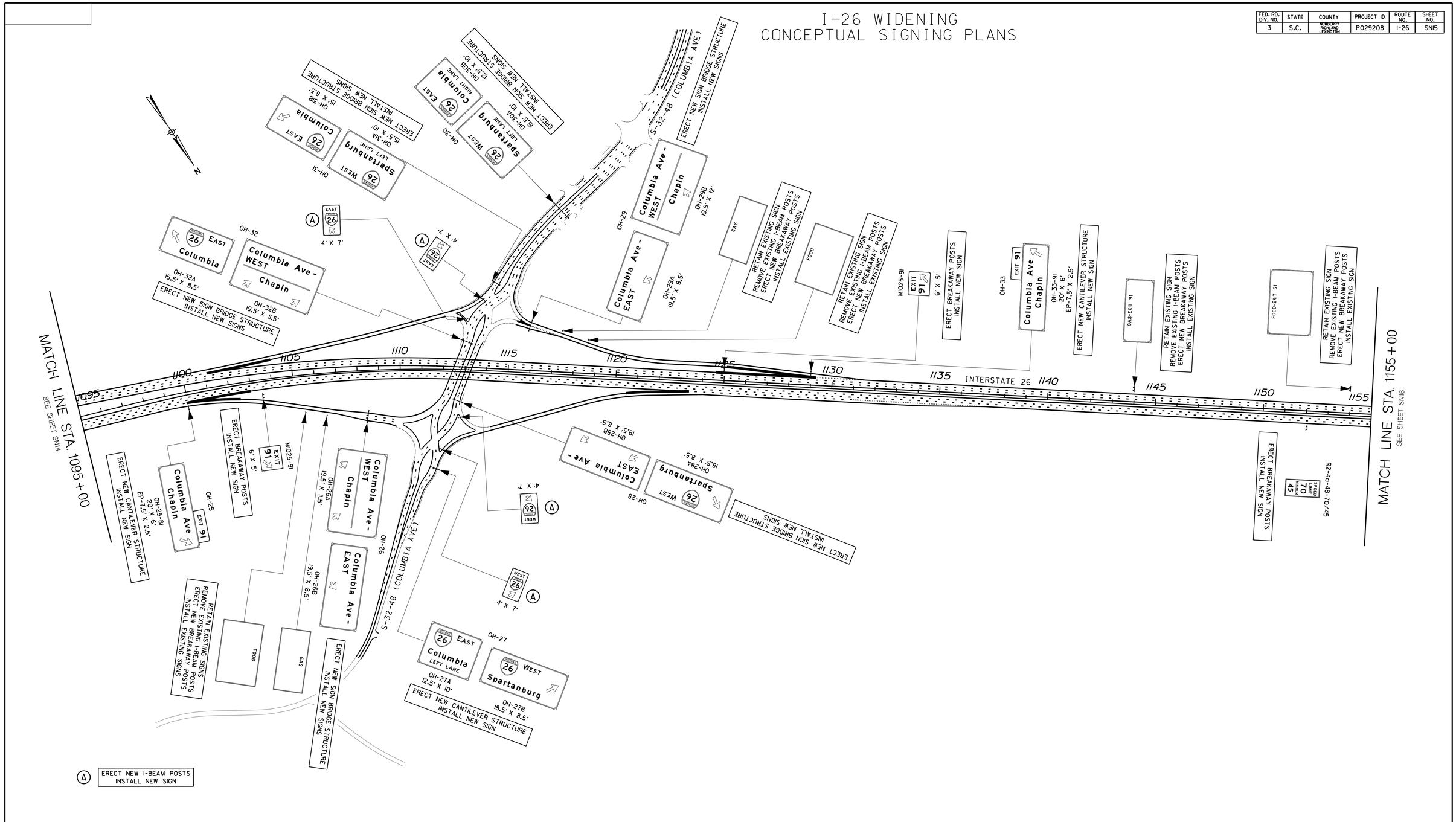
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 1035+00.00 TO STA. 1095+00.00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	NEWBERRY RICHLAND LEXINGTON	P029208	I-26	SN15



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CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

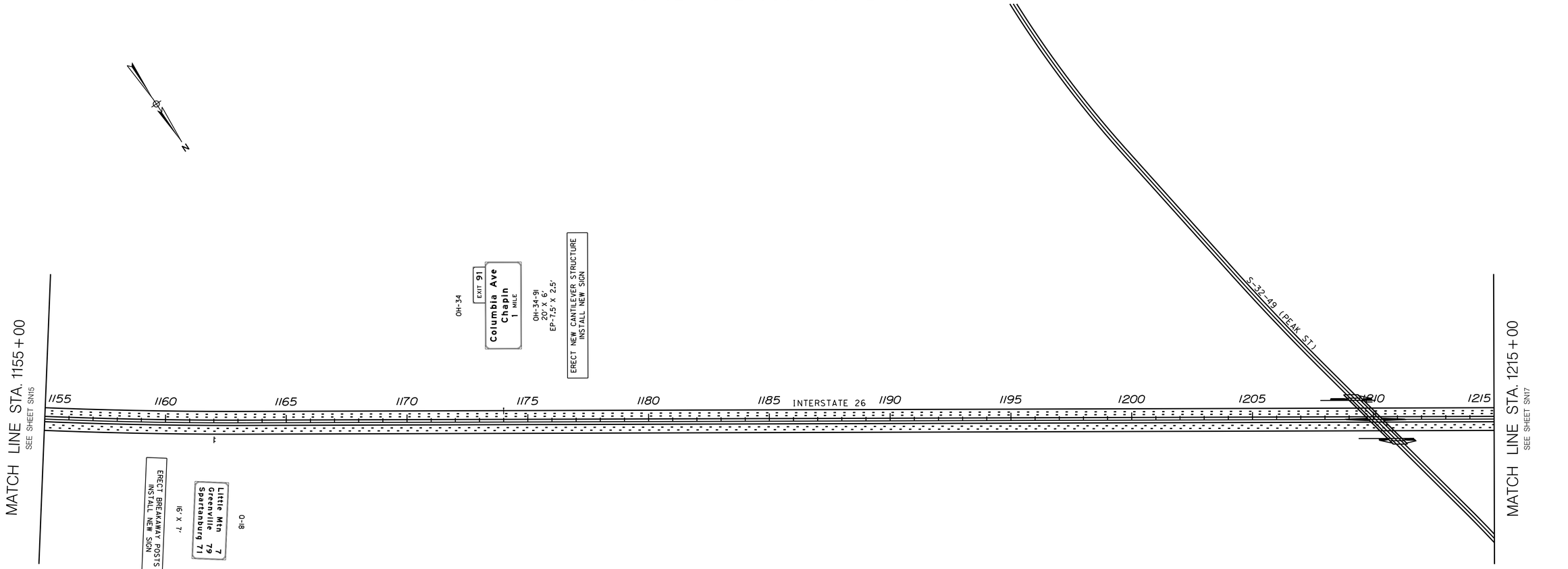
SCDOT

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 1095+00.00 TO STA. 1155+00.00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND AND LEXINGTON	P029208	I-26	SN16



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CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

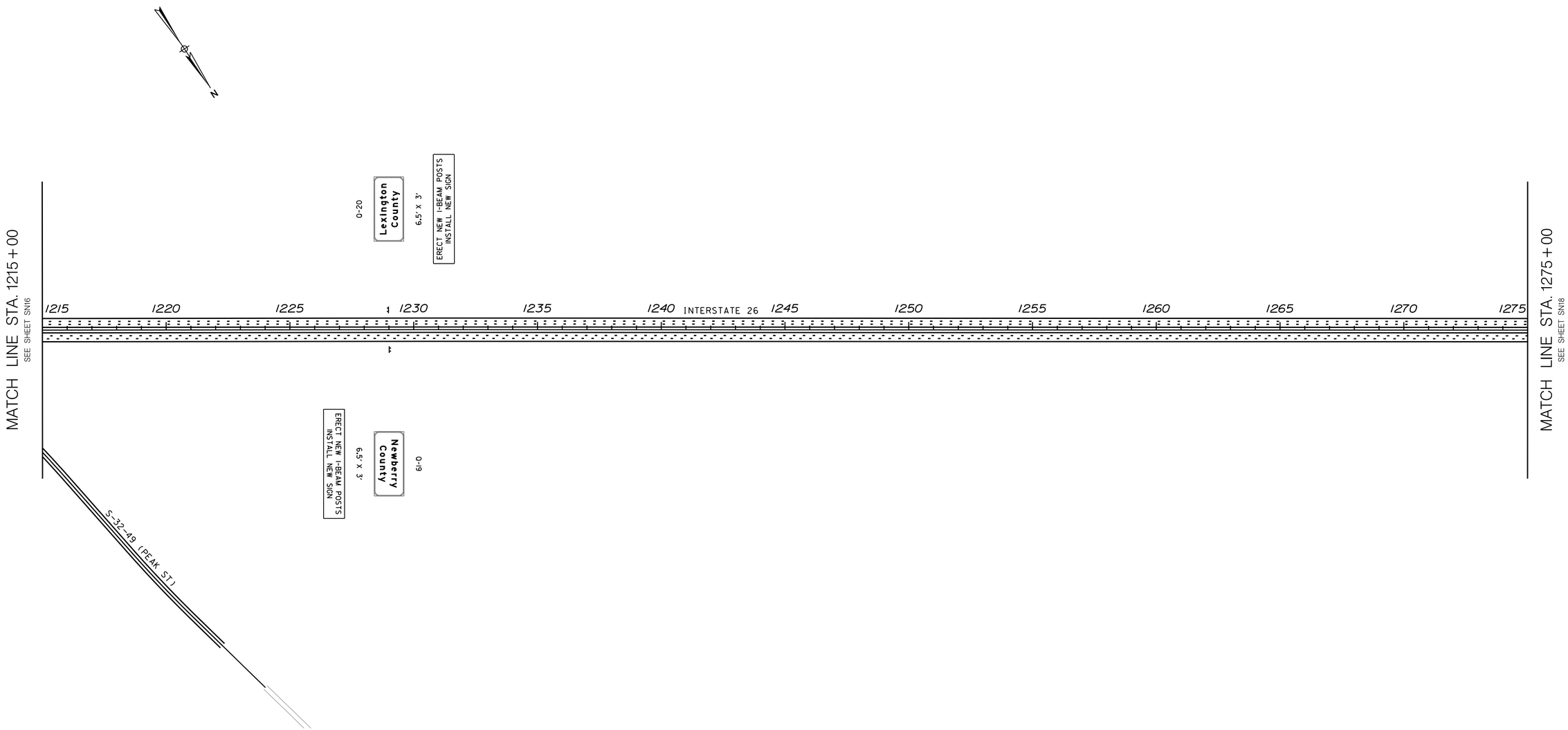
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 1155+00.00 TO STA. 1215+00.00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND LEXINGTON	P029208	I-26	SN17



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CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

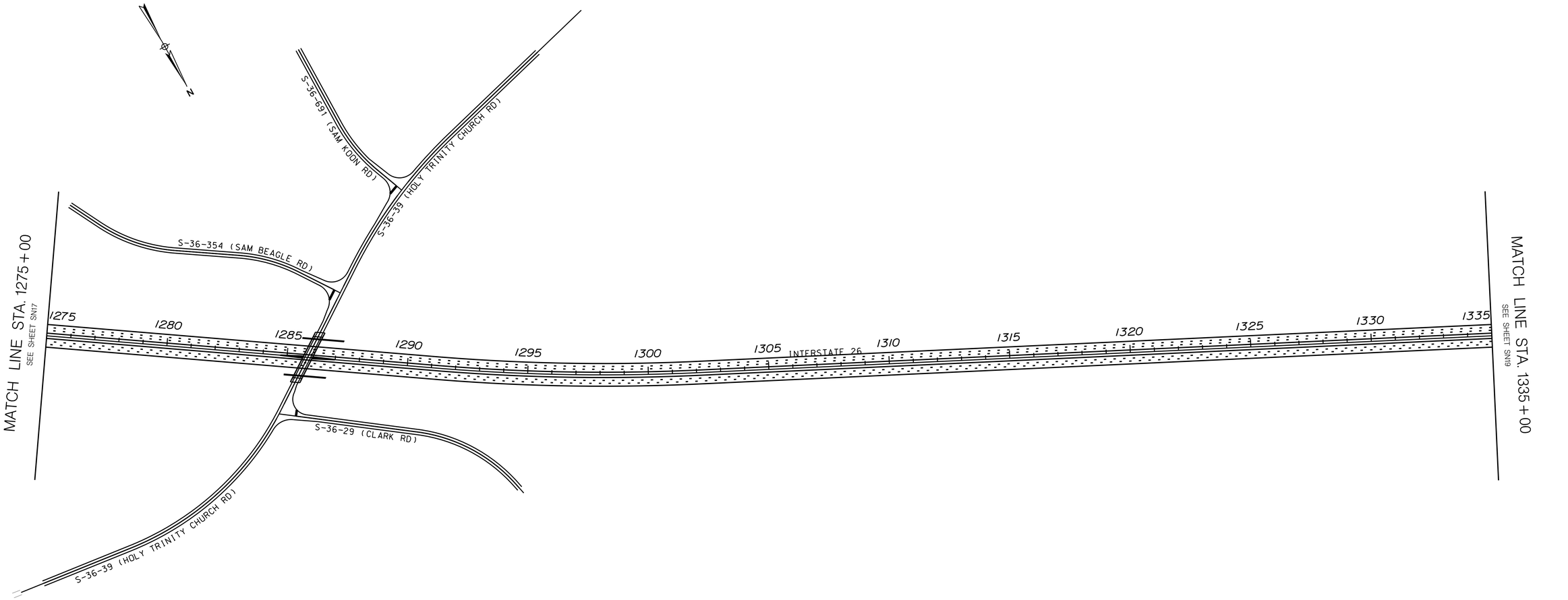
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 1215+00.00 TO STA. 1275+00.00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND/ RICHLAND LEXINGTON	P029208	I-26	SN18



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C E
C S
CIVIL ENGINEERING
CONSULTING SERVICES, INC.

0 200 400 600 800
SCALE: 1" = 200' HORIZ

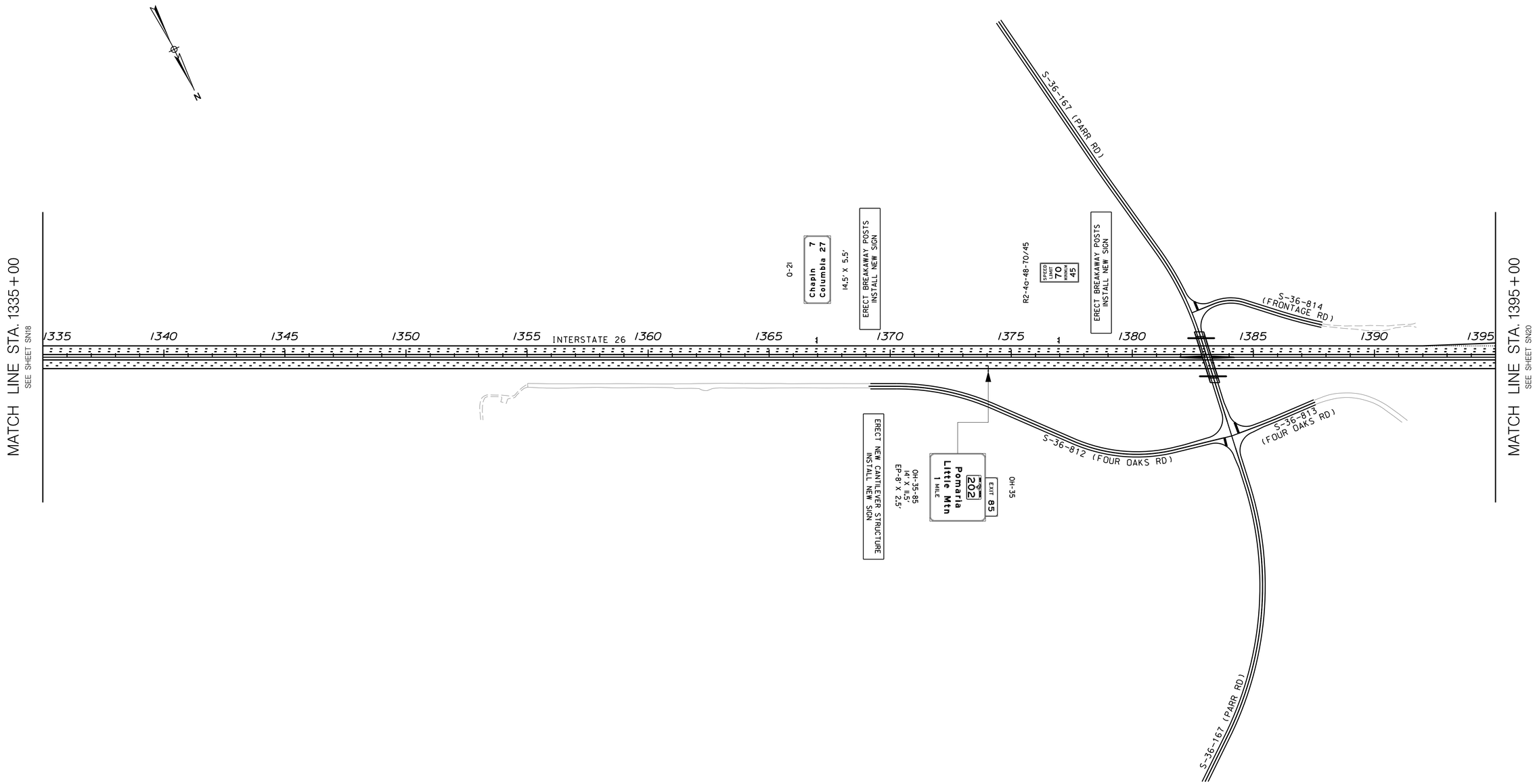
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 1275+00.00 TO STA. 1335+00.00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND LEXINGTON	P029208	I-26	SN19



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CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

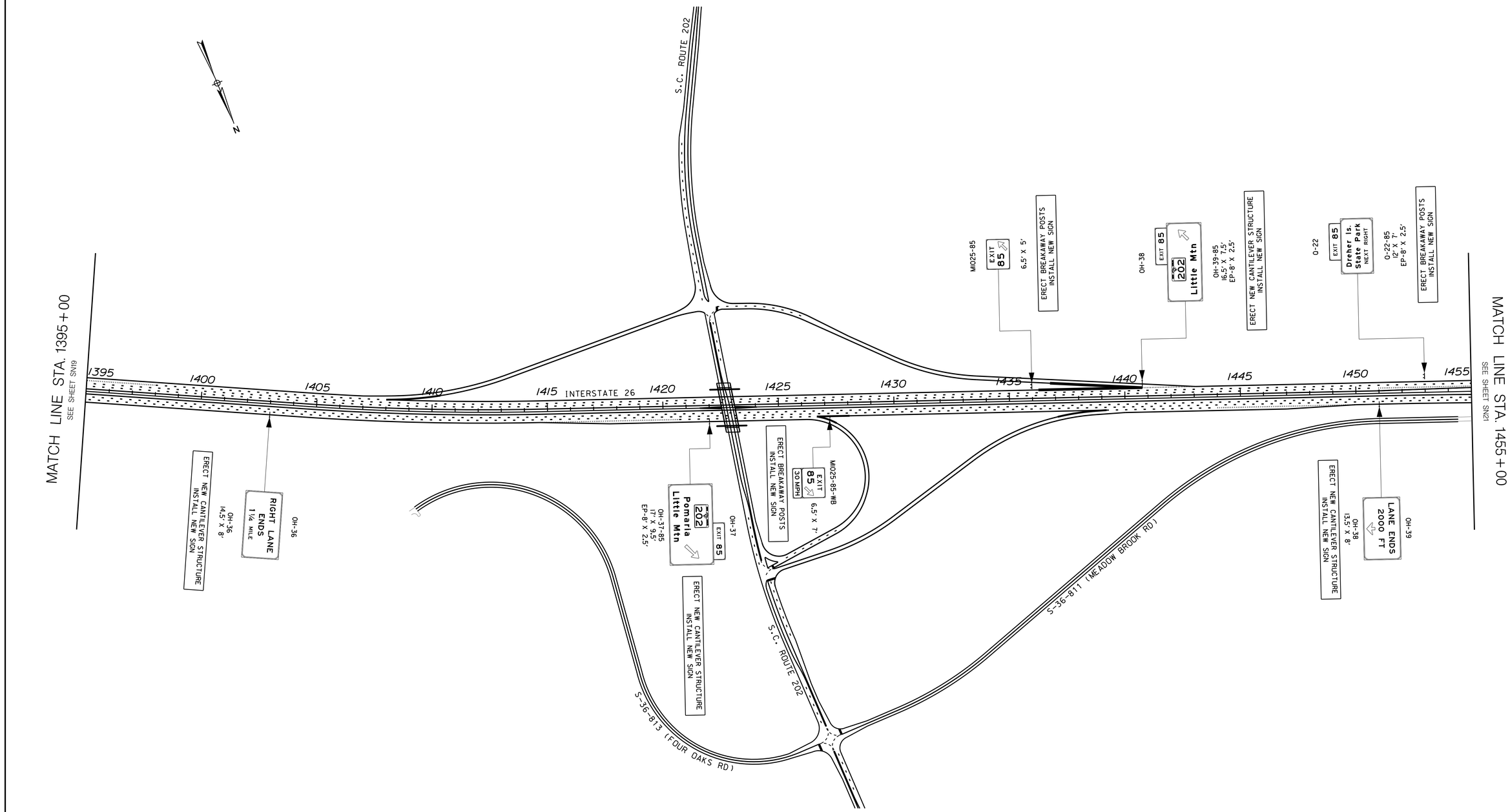
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 1335+00.00 TO STA. 1395+00.00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND/ SPARTANBURG/ ROWLAND LEXINGTON	P029208	I-26	SN20



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CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

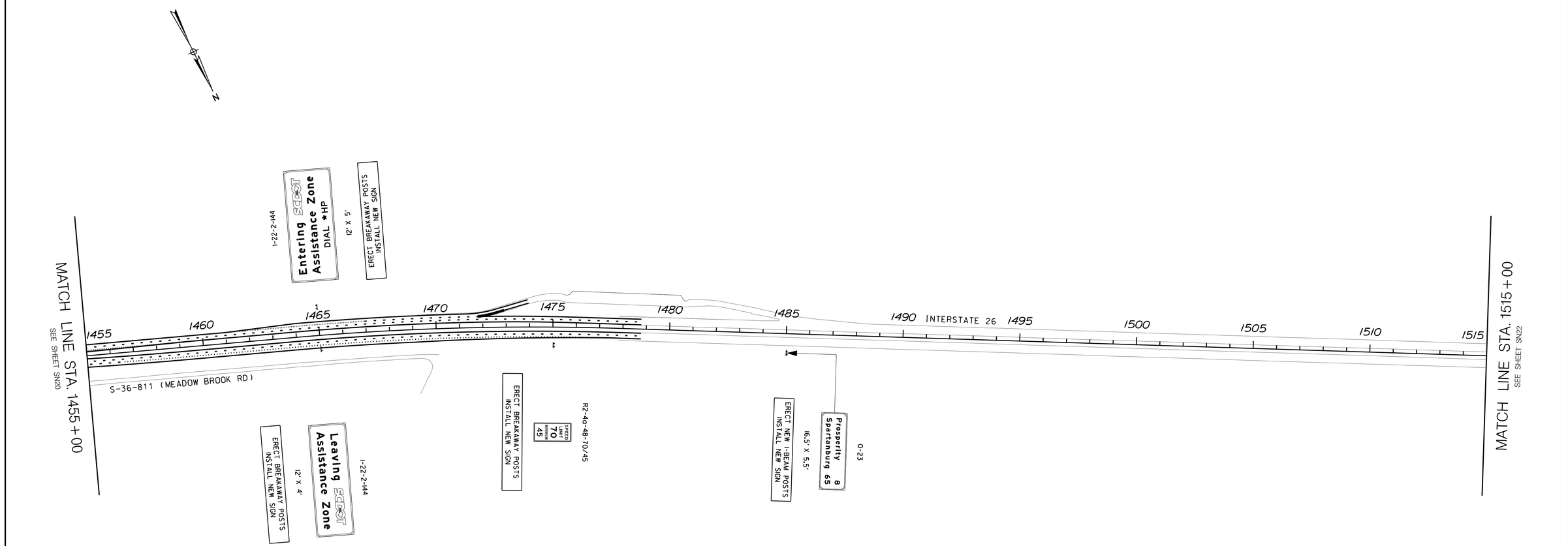
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 1395+00.00 TO STA. 1455+00.00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND LEXINGTON	P029208	I-26	SN21



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C E
C S
CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800
SCALE: 1" = 200' HORIZ

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION SCDOT

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 1455+00.00 TO STA. 1515+00

I-26 WIDENING
CONCEPTUAL SIGNING PLANS

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.
3	S.C.	RICHLAND & LEXINGTON	P029208	I-26	SN22

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CIVIL ENGINEERING CONSULTING SERVICES, INC.

0 200 400 600 800

SCALE: 1" = 200' HORIZ

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

INTERSTATE 26 WIDENING

SIGNING PLAN SHEET
STA. 1515+00.00 TO STA. XX+XX

$$$$$$paths$$$$$$$$filename$$$$$$$$
$$$$date$$$$