

To: Steve Gramm, SDDOT

From: Chase Cutler, PE, PTOE / Ben White, PE

Subject: SD Highway 38 – Future No-Build Traffic Operations and Safety Analysis (Draft)

Date: January 16, 2024

*Introduction*

The South Dakota Department of Transportation (SDDOT), City of Hartford, Town of Humboldt, City of Sioux Falls, Sioux Falls Metropolitan Planning Organization (MPO), Minnehaha County, and Federal Highway Administration (FHWA) initiated an assessment of approximately 14.2 miles of the SD Highway 38 (SD 38) corridor from the SD Highway 19 intersection in Humboldt, South Dakota to the Marion Road intersection in Sioux Falls, South Dakota. The study segment of SD 38 is predominantly a rural two-lane highway and located in a rapidly developing area and serves as a viable alternate route to Interstate-90. Development pressure is expected to impact the SD 38 corridor with higher traffic volumes, greater demand for multi-modal (bike and pedestrian) uses, and additional access management concerns.

Segments of the SD 38 corridor are expected to need major rehabilitation or reconstruction within the next 10 to 15 years. Primary concerns of this study are to ensure the roadway is reconstructed to meet future traffic volume demands.

The purpose of this technical memorandum is to document the future no-build traffic assessment in support of the study being completed along SD 38. This technical report will provide a future year conditions assessment of the two-lane highway and at each of the study intersections. **Table 1** depicts the eighteen study intersections reviewed as part of the existing conditions assessment and traffic data review.

TABLE 1: SD 38 STUDY INTERSECTIONS

Main Line	Cross Street(s)
SD Highway 38	SD Highway 19 / 457 <sup>th</sup> Avenue
SD Highway 38	459 <sup>th</sup> Avenue
SD Highway 38	I-90 Speedway Entrance
SD Highway 38	Western Avenue / 463 <sup>rd</sup> Avenue
SD Highway 38	Main Avenue
SD Highway 38	Vandemark Avenue
SD Highway 38	2 <sup>nd</sup> Street
SD Highway 38	West Central High School Entrance
SD Highway 38	Railroad Street / 464 <sup>th</sup> Avenue
SD Highway 38	Mickelson Road/260 <sup>th</sup> Street
SD Highway 38	466 <sup>th</sup> Avenue (North)
SD Highway 38	WB I-90 Exit 390
SD Highway 38	EB I-90 Exit 390
SD Highway 38	466 <sup>th</sup> Avenue (South)
SD Highway 38	County Highway 141 / 468 <sup>th</sup> Avenue
SD Highway 38	County Highway 139 / 469 <sup>th</sup> Avenue
SD Highway 38	La Mesa Drive / 470 <sup>th</sup> Avenue
SD Highway 38	Marion Road

## *Existing Traffic Data*

The existing traffic volume data for the SD 38 corridor was developed from 12-hour count data collected on November 2, 2022, for 17 intersections. Event traffic data for the I-90 Speedway intersection was developed from 14-hour count data collected on May 27<sup>th</sup>, 2023 at the intersection of SD 38 & the I-90 Speedway Entrance. The count data included turning movements by approach in 15-minute intervals with composition of passenger vehicles and trucks. Review of the traffic volume data revealed the peak hour periods occurred between 7:15-8:15 AM and 4:45-5:45 PM. The daily traffic data was provided by SDDOT.

## *Traffic Forecast Methodology*

In order to evaluate the existing infrastructure under future traffic conditions, the 2050 ADT volumes were collected from the Sioux Falls Metropolitan Planning Organization (SFMPO) Travel Demand Model (TDM). These forecasted volumes account for localized traffic growth, changes in traffic patterns, and any planned roadway improvements. To determine the traffic growth within the study area and estimate 2050 peak hour volumes, the 2018 base year ADT was referenced from the TDM. Additionally, the future year ADT was acquired from available SDDOT GIS data to account for portions of SD 38 that were outside the TDM boundaries. Available development site plans were sourced and any planned development trips that had not been included in the TDM were incorporated into the future year forecasted volumes.

The growth calculated from the ADT values were used to develop 2050 design year morning (AM) and afternoon (PM) peak hour volumes at study intersections. The peak hour volumes will be used for the traffic analysis to assess the level of operations for intersections within the study area.

Additional traffic characteristics such as the heavy vehicle percentages were established during the existing year traffic forecast development. The values established under existing year traffic are anticipated to remain relatively consistent through the future year traffic condition and were used during the 2050 design year analysis.

To develop the interim year traffic conditions, straight-line growth rates between the existing year ADT volumes and the estimated 2050 ADT volumes were calculated and the interim year traffic volumes were interpolated. Interim year 2029 and 2040 traffic forecasts were developed.

The estimated interim year 2029 and 2040 morning (AM) and afternoon (PM) peak hour volumes were developed by process of interpolation using straight-line growth assumptions based on the existing year and future year 2050 traffic volumes. The peak hour volumes were used for the traffic analysis to assess the level of operations for intersections and highway segments within the study area.

## *Traffic Operations Methodology*

Intersection level of service (LOS) is primarily a function of peak hour turning movement volumes, intersection lane configuration, and traffic control. For intersection analysis, the Highway Capacity Manual (HCM) defines LOS in terms of the average control delay at the intersection in seconds per vehicle. The results of a HCM analysis are typically presented in the form of a letter grade (A-F) that provides a qualitative estimate of the operational efficiency or effectiveness of the corridor. Much like an academic report card, LOS A represents the best range of operating conditions (i.e., motorists experiencing little delay or congestion) and LOS F represents the worst (i.e., extreme delay or severe congestion).

**Table 2** defines the control delay range corresponding to each LOS for unsignalized and signalized intersection locations. At intersections, LOS E is considered to be at capacity and typically represents a scenario in which significant queuing is present or traffic signal cycle failure is evident. For unsignalized intersections, the intersection LOS is given by the worst approach LOS. For instance, an intersection with LOS D on one approach and LOS B on the rest would result in LOS D for the intersection.

TABLE 2: LEVEL OF SERVICE FOR CONTROL DELAY (INTERSECTIONS)

Level Of Service	Unsignalized	Traffic Signal
	Control Delay (sec/veh)	Control Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 15	> 10 and ≤ 20
C	> 15 and ≤ 25	> 20 and ≤ 35
D	> 25 and ≤ 35	> 35 and ≤ 55
E	> 35 and ≤ 50	> 55 and ≤ 80
F	> 50	> 80

Source: Highway Capacity Manual, 7<sup>th</sup> Edition.

Following SDDOT guidance, LOS C is the desired minimum traffic operational goal for intersections in rural environments while LOS D is an acceptable operational goal for intersections in dense urban environments. The intersections within the study area have a desired traffic operational goal of LOS C.

**Table 3** defines the follower density range corresponding to each LOS for two-lane highway segments. On two-lane highways, LOS E is considered to be at capacity. For two-lane highway segments, a LOS B would represent a scenario where some platooning is present with the potential passing demand and passing opportunities balanced while a LOS D would represent a scenario where significant platooning is present and passing demand far exceeds passing opportunities.

TABLE 3: LEVEL OF SERVICE FOR FOLLOWER DENSITY (TWO-LANE HIGHWAYS)

Level Of Service	Speed ≥ 50 mph	Speed < 50 mph
	Follower Density (followers/mi/ln)	Follower Density (followers/mi/ln)
A	≤ 2.0	≤ 2.5
B	> 2.0 - 4.0	> 2.5 – 5.0
C	> 4.0 – 8.0	> 5.0 – 10.0
D	> 8.0 – 12.0	> 10.0 – 15.0
E	> 12.0	> 15.0
F	Demand exceeds capacity	

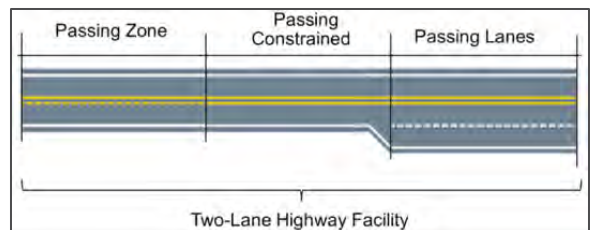
Source: Highway Capacity Manual, 7<sup>th</sup> Edition.

Following SDDOT guidance, LOS C is the desired traffic operational goal for highways in rural environments (functional classification of collector) and LOS D is considered the minimal acceptable operations for highways in urban environments (functional classification of minor arterial). The SD 38 highway segments within the study area are categorized as rural with federal functional classification of collector between Humboldt to Hartford and categorized as urban with federal functional classification of minor arterial between Hartford to Sioux Falls. The two-lane highway segments within the study area have a desired traffic operational goal of LOS C.

The highway was segmented according to the two-lane highway methodology presented in chapter 15 of HCM7, with segment breaks reflecting the passing zones. The segmentation for analysis can be seen in the Appendix.

The following analysis years/scenarios were evaluated for traffic operational analysis:

- Opening year 2029 No-Build.
- Interim year 2040 No-Build.
- Design year 2050 No-Build.



Operational analysis was completed for the AM and PM peak hour periods of each scenario.

## Future Traffic Operations

Traffic operations analysis for the study area intersections included capacity evaluation using the Highway Capacity Manual (HCM) 7<sup>th</sup> Edition techniques thru use of the Highway Capacity Software (HCS) 2022. Output reports from the HCS2022 software are available in the Appendix.

Traffic operations analysis for the study area SD Highway 38 corridor included capacity evaluation using the Highway Capacity Manual (HCM) 7<sup>th</sup> Edition techniques through use of the Highway Capacity Software (HCS) 2022. The two-lane highway traffic operations analysis used existing highway geometry with planned improvements, future year traffic volumes and posted travel speeds. Planned improvements to the SD 38 corridor include the construction of eastbound and westbound left turn lanes at the SD 38 & 459<sup>th</sup> Avenue intersection as well as roadway widening of the SD 38 corridor between Railroad Street/ 464<sup>th</sup> Avenue to 465<sup>th</sup> Street to a three-lane cross section with center two-way left turn lane.

Output reports from the HCS2022 software are available in the Appendix.

## Opening Year 2029

Opening Year 2029 traffic operations analysis used existing intersection geometry with planned improvements, future year traffic volumes and posted travel speeds. The results of the Opening Year 2029 intersection capacity analysis can be seen in **Figure 1** and **Table 4** below.

TABLE 4: HCM TRAFFIC INTERSECTION OPERATIONS – OPENING 2029

ID #	SD Hwy 38 Cross Street(s)	Intersection Control	AM PEAK HOUR		PM PEAK HOUR	
			Delay	LOS	Delay	LOS
1	SD Highway 19 / 457 <sup>th</sup> Avenue	TWSC	10.4	B	10.5	B
2	459 <sup>th</sup> Avenue	TWSC	10.4	B	11.8	B
3	I-90 Speedway Entrance	TWSC	0.0	A	0.0	A
4	Western Avenue / 463 <sup>rd</sup> Avenue	TWSC	13.5	B	16.5	C
5	Main Avenue	TWSC	12.0	B	15.2	C
6	Vandemark Avenue	TWSC	12.6	B	12.7	B
7	2 <sup>nd</sup> Street	TWSC	16.6	C	18.5	C
8	West Central High School Entrance	TWSC	12.1	B	12.0	B
9	Railroad Street / 464 <sup>th</sup> Avenue	TWSC	18.2	C	19.8	C
10	Mickelson Road / 260 <sup>th</sup> Street	TWSC	24.8	C	54.5	F
11	466 <sup>th</sup> Avenue (North)	TWSC	19.5	C	20.3	C
12	WB I-90 Exit 390	TWSC	11.5	B	17.7	C
13	EB I-90 Exit 390	TWSC	12.3	B	15.4	C
14	466 <sup>th</sup> Avenue (South)	TWSC	11.9	B	12.3	B
15	County Highway 141 / 468 <sup>th</sup> Avenue	TWSC	13.5	B	14.5	B
16	County Highway 139 / 469 <sup>th</sup> Avenue	TWSC	14.2	B	18.5	C
17	La Mesa Drive / 470 <sup>th</sup> Avenue	TWSC	17.0	C	21.7	C
18	Marion Road	Signal	16.2	B	20.6	C

Notes: Bold/Highlighted indicates a poor LOS

Under the Opening Year 2029 conditions, the traffic operations analysis showed acceptable operations at the majority of intersections within the study area, with intersections achieving LOS C or greater during both the AM and PM peak hours. The SD 38 & Mickelson Road/260<sup>th</sup> Street intersection which produced a LOS F during the PM peak hour which can be attributed to the additional development traffic demand at this intersection.

The results of the two-lane highway capacity analysis can be seen in **Table 5** and **Table 6**.



TABLE 5: HCM TRAFFIC HIGHWAY OPERATIONS – OPENING 2029, EASTBOUND SD 38

ID #	Segment Type	AM PEAK HOUR		PM PEAK HOUR	
		Density	LOS	Density	LOS
<b>SD Highway 38 Eastbound</b>					
EB 1	Passing Zone	0.6	A	0.2	A
EB 2	Passing Constrained	0.7	A	0.3	A
EB 3	Passing Zone	0.5	A	0.2	A
EB 4	Passing Constrained	0.7	A	0.3	A
EB 5	Passing Zone	0.5	A	0.2	A
EB 6	Passing Constrained	0.7	A	0.3	A
EB 7	Passing Zone	0.6	A	0.2	A
EB 8	Passing Zone	0.5	A	0.2	A
EB 9	Passing Constrained	0.7	A	0.3	A
EB 10	Passing Zone	0.5	A	0.2	A
EB 11	Passing Zone	0.6	A	0.3	A
EB 12	Passing Constrained	0.7	A	0.4	A
EB 13	Passing Zone	0.6	A	0.3	A
EB 14	Passing Constrained	1.3	A	0.7	A
EB 15	Passing Zone	3.7	B	1.8	A
EB 16	Passing Constrained	4.1	C	1.9	A
EB 17	Passing Zone	3.7	B	1.8	A
EB 18	Passing Zone	3.6	B	1.3	A
EB 19	Passing Constrained	3.6	B	1.3	A
EB 20	Passing Constrained	3.8	B	1.4	A
EB 21	Passing Constrained	4.0	C	1.7	A
EB 22	Passing Constrained	1.2	A	1.0	A
EB 23	Passing Constrained	1.3	A	1.0	A
EB 24	Passing Zone	1.1	A	0.9	A
EB 25	Passing Constrained	1.2	A	1.0	A
EB 26	Passing Zone	1.1	A	0.8	A
EB 27	Passing Constrained	1.3	A	1.0	A
EB 28	Passing Zone	1.1	A	0.9	A
EB 29	Passing Zone	1.5	A	1.2	A
EB 30	Passing Constrained	1.6	A	1.3	A
EB 31	Passing Zone	1.4	A	1.2	A
EB 32	Passing Constrained	1.6	A	1.3	A
EB 33	Passing Constrained	4.2	C	1.3	A
EB 34	Passing Zone	3.9	B	1.3	A
EB 35	Passing Constrained	4.0	C	1.2	A

Notes: Bold/Highlighted indicates a poor LOS

TABLE 6: HCM TRAFFIC HIGHWAY OPERATIONS – OPENING 2029, WESTBOUND SD 38

ID #	Segment Type	AM PEAK HOUR		PM PEAK HOUR	
		Density	LOS	Density	LOS
<b>SD Highway 38 Westbound</b>					
WB 1	Passing Constrained	0.7	A	4.4	C
WB 2	Passing Zone	0.7	A	4.2	C
WB 3	Passing Constrained	0.8	A	2.1	B
WB 4	Passing Zone	0.8	A	2.1	B
WB 5	Passing Constrained	0.7	A	2.0	A
WB 6	Passing Zone	0.8	A	2.1	B
WB 7	Passing Constrained	0.6	A	1.5	A
WB 8	Passing Constrained	0.7	A	1.7	A
WB 9	Passing Zone	0.6	A	1.4	A
WB 10	Passing Constrained	0.7	A	1.6	A
WB 11	Passing Zone	0.6	A	1.5	A
WB 12	Passing Constrained	0.7	A	1.7	A
WB 13	Passing Constrained	0.7	A	1.7	A
WB 14	Passing Constrained	0.9	A	2.1	B
WB 15	Passing Constrained	0.8	A	1.7	A
WB 16	Passing Constrained	1.5	A	5.1	C
WB 17	Passing Constrained	1.3	A	4.9	C
WB 18	Passing Constrained	1.4	A	5.1	C
WB 19	Passing Zone	1.3	A	4.8	C
WB 20	Passing Constrained	1.4	A	5.1	C
WB 21	Passing Constrained	1.9	A	5.1	C
WB 22	Passing Zone	1.7	A	4.1	C
WB 23	Passing Zone	0.3	A	0.7	A
WB 24	Passing Zone	0.3	A	0.7	A
WB 25	Passing Zone	0.3	A	0.6	A
WB 26	Passing Constrained	0.3	A	0.8	A
WB 27	Passing Zone	0.3	A	0.6	A
WB 28	Passing Constrained	0.3	A	0.8	A
WB 29	Passing Constrained	0.3	A	0.8	A
WB 30	Passing Zone	0.3	A	0.6	A
WB 31	Passing Constrained	0.3	A	0.8	A
WB 32	Passing Zone	0.3	A	0.7	A
WB 33	Passing Constrained	0.3	A	0.8	A
WB 34	Passing Zone	0.3	A	0.7	A
WB 35	Passing Constrained	0.5	A	1.0	A

Notes: Bold/Highlighted indicates a poor LOS

Under the Opening Year 2029 conditions, the traffic operations analysis showed acceptable operations at all of the highway segments within the study area, with all segments achieving LOS C or greater during both the AM and PM peak hours.

In general, the Opening Year 2029 condition traffic operations demonstrated acceptable performance measures throughout the majority of intersections and highway segments within the study area. The desired LOS was realized for all intersections and highway segments during the AM and PM peak hours with the exception of the Mickelson Road/260<sup>th</sup> Street intersection.

## Interim Year 2040

Interim Year 2040 traffic operations analysis used future year traffic volumes and posted travel speeds. The SD 38 & Mickelson Road/260<sup>th</sup> Street intersection was analyzed under traffic signal control. The results of the Interim Year 2040 intersection capacity analysis can be seen in **Figure 2** and **Table 7** below.

**TABLE 7: HCM TRAFFIC INTERSECTION OPERATIONS – INTERIM YEAR 2040**

ID #	SD Hwy 38 Cross Street(s)	Intersection Control	AM PEAK HOUR		PM PEAK HOUR	
			Delay	LOS	Delay	LOS
1	SD Highway 19 / 457 <sup>th</sup> Avenue	TWSC	11.1	B	11.2	B
2	459 <sup>th</sup> Avenue	TWSC	10.9	B	12.4	B
3	I-90 Speedway Entrance	TWSC	0.0	A	0.0	A
4	Western Avenue / 463 <sup>rd</sup> Avenue	TWSC	15.9	C	23.2	C
5	Main Avenue	TWSC	13.1	B	19.0	C
6	Vandemark Avenue	TWSC	13.6	B	14.6	B
7	2 <sup>nd</sup> Street	TWSC	21.2	C	25.6	D
8	West Central High School Entrance	TWSC	13.5	B	13.2	B
9	Railroad Street / 464 <sup>th</sup> Avenue	TWSC	<b>25.3</b>	<b>D</b>	26.2	<b>D</b>
10	Mickelson Road / 260 <sup>th</sup> Street	Signal	30.1	C	29.6	C
11	466 <sup>th</sup> Avenue (North)	TWSC	24.6	C	25.0	D
12	WB I-90 Exit 390	TWSC	13.1	B	27.0	D
13	EB I-90 Exit 390	TWSC	14.4	B	21.1	C
14	466 <sup>th</sup> Avenue (South)	TWSC	12.6	B	13.6	B
15	County Highway 141 / 468 <sup>th</sup> Avenue	TWSC	14.8	B	17.2	C
16	County Highway 139 / 469 <sup>th</sup> Avenue	TWSC	21.3	C	56.2	F
17	La Mesa Drive / 470 <sup>th</sup> Avenue	TWSC	23.3	C	33.0	D
18	Marion Road	Signal	17.2	B	26.5	C

Notes: Bold/Highlighted indicates a poor LOS

Under the Interim Year 2040 conditions, the traffic operations analysis showed acceptable operations at the majority of intersections within the study area, with intersections achieving LOS C or greater during both the AM and PM peak hours. The six study intersections of SD 38 & 2<sup>nd</sup> Street, SD 38 & Railroad Street/464<sup>th</sup> Avenue, SD 38 & 466<sup>th</sup> Avenue (North), SD 38 & WB I-90, SD 38 & County Highway 139/469<sup>th</sup> Avenue, and SD 38 & La Mesa Drive/470<sup>th</sup> Avenue all produced a LOS D during at least one peak hour which does not meet the LOS goal established by the SDDOT.

The results of the two-lane highway capacity analysis can be seen in **Table 8** and **Table 9**.

TABLE 8: HCM TRAFFIC HIGHWAY OPERATIONS – INTERIM YEAR 2040, EASTBOUND SD 38

ID #	Segment Type	AM PEAK HOUR		PM PEAK HOUR	
		Density	LOS	Density	LOS
<b>SD Highway 38 Eastbound</b>					
EB 1	Passing Zone	0.8	A	0.4	A
EB 2	Passing Constrained	0.9	A	0.4	A
EB 3	Passing Zone	0.8	A	0.4	A
EB 4	Passing Constrained	0.9	A	0.4	A
EB 5	Passing Zone	0.8	A	0.4	A
EB 6	Passing Constrained	0.9	A	0.4	A
EB 7	Passing Zone	0.8	A	0.4	A
EB 8	Passing Zone	0.8	A	0.3	A
EB 9	Passing Constrained	1.0	A	0.5	A
EB 10	Passing Zone	0.8	A	0.4	A
EB 11	Passing Zone	0.8	A	0.4	A
EB 12	Passing Constrained	1.0	A	0.5	A
EB 13	Passing Zone	0.8	A	0.4	A
EB 14	Passing Constrained	1.6	A	0.8	A
EB 15	Passing Zone	4.9	C	2.4	B
EB 16	Passing Constrained	5.3	C	2.6	B
EB 17	Passing Zone	4.9	C	2.4	B
EB 18	Passing Zone	5.2	C	2.1	B
EB 19	Passing Constrained	5.1	C	2.0	A
EB 20	Passing Constrained	5.4	C	2.2	B
EB 21	Passing Constrained	5.8	C	2.6	B
EB 22	Passing Constrained	1.8	A	1.7	A
EB 23	Passing Constrained	1.7	A	1.3	A
EB 24	Passing Zone	1.5	A	1.2	A
EB 25	Passing Constrained	1.7	A	1.3	A
EB 26	Passing Zone	1.5	A	1.2	A
EB 27	Passing Constrained	1.7	A	1.3	A
EB 28	Passing Zone	1.6	A	1.3	A
EB 29	Passing Zone	2.1	B	1.9	A
EB 30	Passing Constrained	2.3	B	1.9	A
EB 31	Passing Zone	2.0	A	1.8	A
EB 32	Passing Constrained	2.3	B	1.9	A
EB 33	Passing Constrained	5.6	C	1.9	A
EB 34	Passing Zone	5.3	C	1.8	A
EB 35	Passing Constrained	5.4	C	1.8	A

Notes: Bold/Highlighted indicates a poor LOS

TABLE 9: HCM TRAFFIC HIGHWAY OPERATIONS – INTERIM YEAR 2040, WESTBOUND SD 38

ID #	Segment Type	AM PEAK HOUR		PM PEAK HOUR	
		Density	LOS	Density	LOS
<b>SD Highway 38 Westbound</b>					
WB 1	Passing Constrained	1.0	A	6.0	C
WB 2	Passing Zone	1.0	A	5.8	C
WB 3	Passing Constrained	1.2	A	2.9	B
WB 4	Passing Zone	1.2	A	3.0	B
WB 5	Passing Constrained	1.1	A	2.8	B
WB 6	Passing Zone	1.2	A	3.0	B
WB 7	Passing Constrained	0.9	A	2.0	A
WB 8	Passing Constrained	1.0	A	2.2	B
WB 9	Passing Zone	0.8	A	1.9	A
WB 10	Passing Constrained	1.0	A	2.2	B
WB 11	Passing Zone	0.9	A	2.0	A
WB 12	Passing Constrained	1.0	A	2.2	B
WB 13	Passing Constrained	1.0	A	2.2	B
WB 14	Passing Constrained	1.4	A	3.2	B
WB 15	Passing Constrained	1.1	A	2.6	B
WB 16	Passing Constrained	2.1	B	7.2	C
WB 17	Passing Constrained	1.9	A	6.8	C
WB 18	Passing Constrained	2.0	A	7.1	C
WB 19	Passing Zone	1.9	A	6.9	C
WB 20	Passing Constrained	2.0	A	7.1	C
WB 21	Passing Constrained	2.4	B	6.5	C
WB 22	Passing Zone	2.2	B	5.4	C
WB 23	Passing Zone	0.4	A	1.0	A
WB 24	Passing Zone	0.4	A	1.0	A
WB 25	Passing Zone	0.4	A	0.9	A
WB 26	Passing Constrained	0.5	A	1.2	A
WB 27	Passing Zone	0.4	A	1.0	A
WB 28	Passing Constrained	0.5	A	1.2	A
WB 29	Passing Constrained	0.5	A	1.1	A
WB 30	Passing Zone	0.4	A	0.9	A
WB 31	Passing Constrained	0.5	A	1.1	A
WB 32	Passing Zone	0.5	A	1.0	A
WB 33	Passing Constrained	0.5	A	1.1	A
WB 34	Passing Zone	0.5	A	1.0	A
WB 35	Passing Constrained	0.7	A	1.5	A

Notes: Bold/Highlighted indicates a poor LOS

Under the Interim Year 2040 conditions, the traffic operations analysis showed acceptable operations at all of the highway segments within the study area, with segments achieving LOS C or greater during both the AM and PM peak hours.

In general, the Interim Year 2040 condition traffic operations demonstrated acceptable performance measures throughout the majority of intersections and highway segments within the study area. The desired LOS was realized for the majority of intersections and highway segments during the AM and PM peak hours with the exception of five study intersections that had LOS D.

## Design Year 2050

Design Year 2050 traffic operations analysis used future year traffic volumes and posted travel speeds. The SD 38 & Mickelson Road/260<sup>th</sup> Street intersection was analyzed under traffic signal control. The results of the Design Year 2050 intersection capacity analysis can be seen in **Figure 3** and **Table 10** below.

TABLE 10: HCM TRAFFIC INTERSECTION OPERATIONS – DESIGN YEAR 2050

ID #	SD Hwy 38 Cross Street(s)	Intersection Control	AM PEAK HOUR		PM PEAK HOUR	
			Delay	LOS	Delay	LOS
1	SD Highway 19 / 457 <sup>th</sup> Avenue	TWSC	12.2	B	12.3	B
2	459 <sup>th</sup> Avenue	TWSC	11.6	B	13.5	B
3	I-90 Speedway Entrance	TWSC	0.0	A	0.0	A
4	Western Avenue / 463 <sup>rd</sup> Avenue	TWSC	21.5	C	56.5	F
5	Main Avenue	TWSC	14.4	B	25.5	D
6	Vandemark Avenue	TWSC	15.4	C	16.8	C
7	2 <sup>nd</sup> Street	TWSC	31.1	C	38.3	E
8	West Central High School Entrance	TWSC	15.4	C	14.8	B
9	Railroad Street / 464 <sup>th</sup> Avenue	TWSC	41.4	E	42.7	E
10	Mickelson Road / 260 <sup>th</sup> Street	Signal	19.2	B	21.3	C
11	466 <sup>th</sup> Avenue (North)	TWSC	31.6	D	31.4	D
12	WB I-90 Exit 390	TWSC	14.9	B	66.1	F
13	EB I-90 Exit 390	TWSC	18.4	C	30.0	D
14	466 <sup>th</sup> Avenue (South)	TWSC	13.9	B	15.7	C
15	County Highway 141 / 468 <sup>th</sup> Avenue	TWSC	16.7	C	21.3	C
16	County Highway 139 / 469 <sup>th</sup> Avenue	TWSC	42.5	E	259.5	F
17	La Mesa Drive / 470 <sup>th</sup> Avenue	TWSC	39.2	E	81.5	F
18	Marion Road	Signal	19.1	B	32.1	C

Notes: Bold/Highlighted indicates a poor LOS

Under the Design Year 2050 conditions, the traffic operations analysis showed potential capacity constraints and inefficiencies at many intersections within the study area. The nine study intersections of SD 38 & Western Avenue/463<sup>rd</sup> Avenue, SD 38 & Main Avenue, SD 38 & 2<sup>nd</sup> Street, SD 38 & Railroad Street/464<sup>th</sup> Avenue, SD 38 & 466<sup>th</sup> Avenue (North), SD 38 & WB I-90, SD 38 & EB I-90, SD 38 & County Highway 139/469<sup>th</sup> Avenue, and SD 38 & La Mesa Drive/470<sup>th</sup> Avenue all produced a LOS D or worse during at least one peak hour which does not meet the LOS goal established by the SDDOT.

The results of the two-lane highway capacity analysis can be seen in **Table 11** and **Table 12**.



TABLE 11: HCM TRAFFIC HIGHWAY OPERATIONS – DESIGN YEAR 2050, EASTBOUND SD 38

ID #	Segment Type	AM PEAK HOUR		PM PEAK HOUR	
		Density	LOS	Density	LOS
<b>SD Highway 38 Eastbound</b>					
EB 1	Passing Zone	1.2	A	0.6	A
EB 2	Passing Constrained	1.3	A	0.6	A
EB 3	Passing Zone	1.1	A	0.5	A
EB 4	Passing Constrained	1.3	A	0.6	A
EB 5	Passing Zone	1.1	A	0.5	A
EB 6	Passing Constrained	1.3	A	0.6	A
EB 7	Passing Zone	1.2	A	0.6	A
EB 8	Passing Zone	1.1	A	0.6	A
EB 9	Passing Constrained	1.3	A	0.7	A
EB 10	Passing Zone	1.1	A	0.5	A
EB 11	Passing Zone	1.1	A	0.5	A
EB 12	Passing Constrained	1.3	A	0.7	A
EB 13	Passing Zone	1.1	A	0.5	A
EB 14	Passing Constrained	2.1	B	1.1	A
EB 15	Passing Zone	6.7	C	3.4	B
EB 16	Passing Constrained	7.1	C	3.5	B
EB 17	Passing Zone	6.7	C	3.4	B
EB 18	Passing Zone	8.1	D	3.3	B
EB 19	Passing Constrained	7.9	C	3.1	B
EB 20	Passing Constrained	8.3	D	3.4	B
EB 21	Passing Constrained	9.2	D	4.2	C
EB 22	Passing Constrained	3.2	B	2.9	B
EB 23	Passing Constrained	2.4	B	1.9	A
EB 24	Passing Zone	2.2	B	1.8	A
EB 25	Passing Constrained	2.3	B	1.9	A
EB 26	Passing Zone	2.1	B	1.7	A
EB 27	Passing Constrained	2.4	B	1.9	A
EB 28	Passing Zone	2.2	B	1.8	A
EB 29	Passing Zone	3.3	B	2.8	B
EB 30	Passing Constrained	3.5	B	2.9	B
EB 31	Passing Zone	3.2	B	2.8	B
EB 32	Passing Constrained	3.5	B	2.9	B
EB 33	Passing Constrained	8.2	D	2.9	B
EB 34	Passing Zone	8.0	C	2.8	B
EB 35	Passing Constrained	8.0	C	2.7	B

Notes: Bold/Highlighted indicates a poor LOS

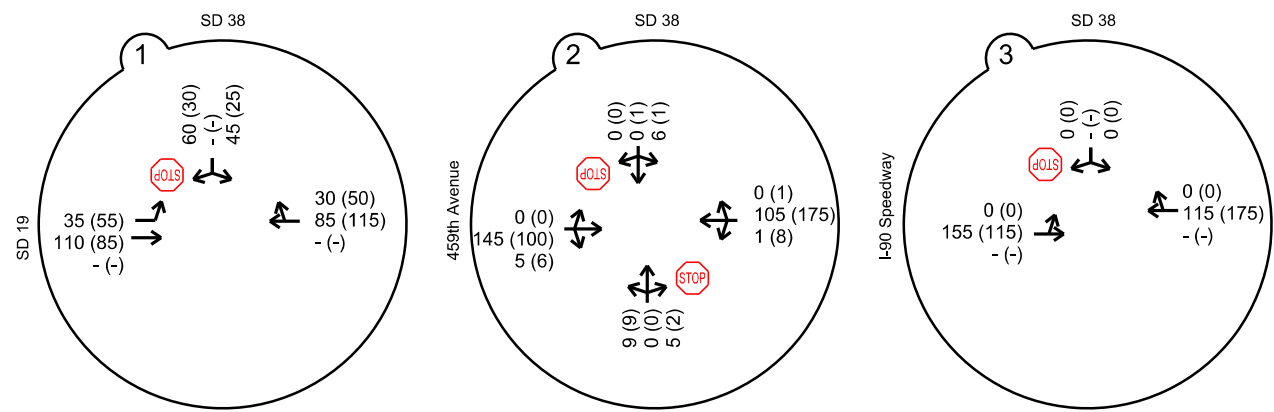
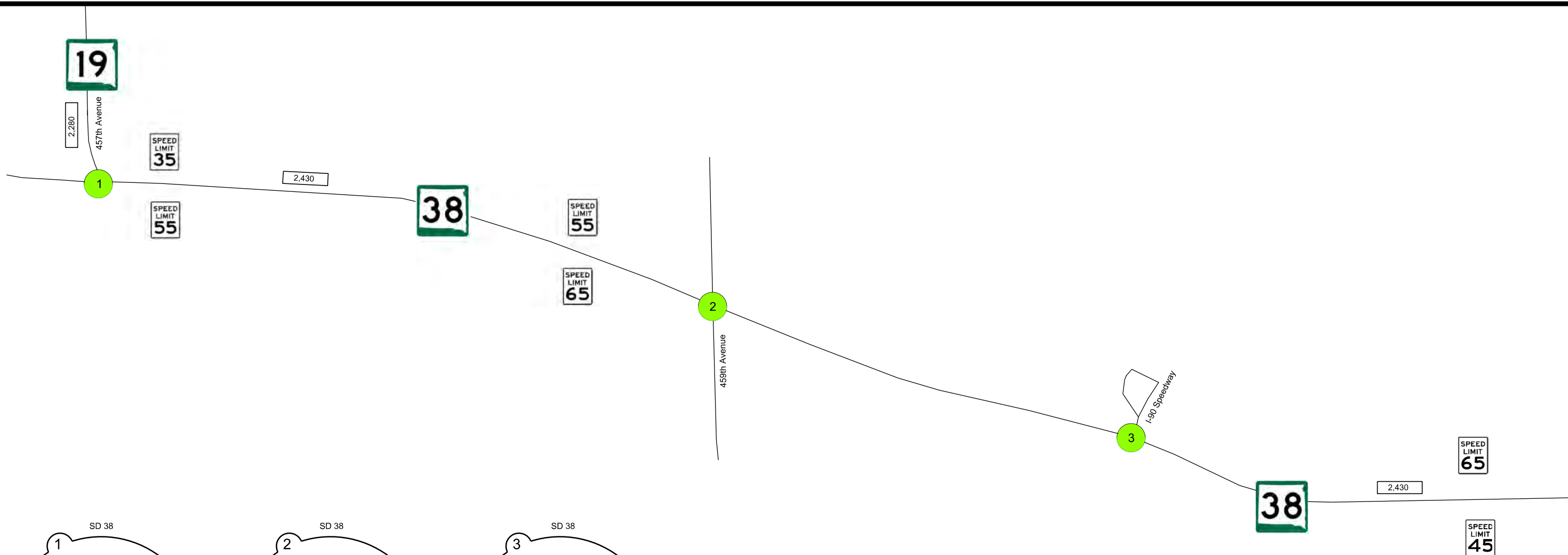
TABLE 12: HCM TRAFFIC HIGHWAY OPERATIONS – DESIGN YEAR 2050, WESTBOUND SD 38

ID #	Segment Type	AM PEAK HOUR		PM PEAK HOUR	
		Density	LOS	Density	LOS
<b>SD Highway 38 Westbound</b>					
WB 1	Passing Constrained	1.6	A	8.7	D
WB 2	Passing Zone	1.5	A	8.5	D
WB 3	Passing Constrained	1.8	A	4.4	C
WB 4	Passing Zone	1.8	A	4.4	C
WB 5	Passing Constrained	1.7	A	4.2	C
WB 6	Passing Zone	1.8	A	4.4	C
WB 7	Passing Constrained	1.3	A	2.9	B
WB 8	Passing Constrained	1.4	A	3.2	B
WB 9	Passing Zone	1.3	A	2.8	B
WB 10	Passing Constrained	1.4	A	3.1	B
WB 11	Passing Zone	1.3	A	2.9	B
WB 12	Passing Constrained	1.4	A	3.2	B
WB 13	Passing Constrained	1.4	A	3.2	B
WB 14	Passing Constrained	2.4	B	5.4	C
WB 15	Passing Constrained	1.9	A	4.3	C
WB 16	Passing Constrained	3.3	B	10.9	D
WB 17	Passing Constrained	3.0	B	10.5	D
WB 18	Passing Constrained	3.2	B	10.8	D
WB 19	Passing Zone	3.1	B	10.7	D
WB 20	Passing Constrained	3.2	B	10.8	D
WB 21	Passing Constrained	3.3	B	8.7	D
WB 22	Passing Zone	3.1	B	7.4	C
WB 23	Passing Zone	0.6	A	1.4	A
WB 24	Passing Zone	0.6	A	1.4	A
WB 25	Passing Zone	0.6	A	1.4	A
WB 26	Passing Constrained	0.7	A	1.7	A
WB 27	Passing Zone	0.6	A	1.4	A
WB 28	Passing Constrained	0.7	A	1.7	A
WB 29	Passing Constrained	0.7	A	1.7	A
WB 30	Passing Zone	0.6	A	1.4	A
WB 31	Passing Constrained	0.7	A	1.7	A
WB 32	Passing Zone	0.6	A	1.5	A
WB 33	Passing Constrained	0.7	A	1.7	A
WB 34	Passing Zone	0.6	A	1.5	A
WB 35	Passing Constrained	0.9	A	2.1	B

Notes: Bold/Highlighted indicates a poor LOS

Under the Design Year 2050 conditions, the traffic operations analysis showed potential capacity constraints at some segments within the study area. There were four eastbound segments and eight westbound segments that resulted in LOS D during at least one of the peak hours. The segments represent areas of focus for potential capacity improvements.

Overall, the Design Year 2050 condition traffic operations demonstrated the areas within the study limits that could benefit most from potential improvements. The desired LOS was realized for the majority of intersections and highway segments during the AM and PM peak hours but there were notable exceptions that did not meet the LOS criteria goals. The recognition of issues at these locations will be used to guide future concepts.



INTERSECTION PEAK HOUR OPERATIONS				HCM 7TH EDITION LEVEL OF SERVICE	
ID	INTERSECTIONS	CONTROL TYPE		AM	PM
		SIGNAL	STOP		
1	SD Highway 38 & SD Highway 19 / 457th Ave		X	B	B
2	SD Highway 38 & 459th Ave		X	B	B
3	SD Highway 38 & I-90 Speedway		X	A	A

NOTES: TWO-WAY STOP CONTROL LOS REPRESENTATIVE OF WORST CASE STOP CONTROLLED APPROACH.  
 \* DENOTES V/C RATIO > 1

### LEGEND

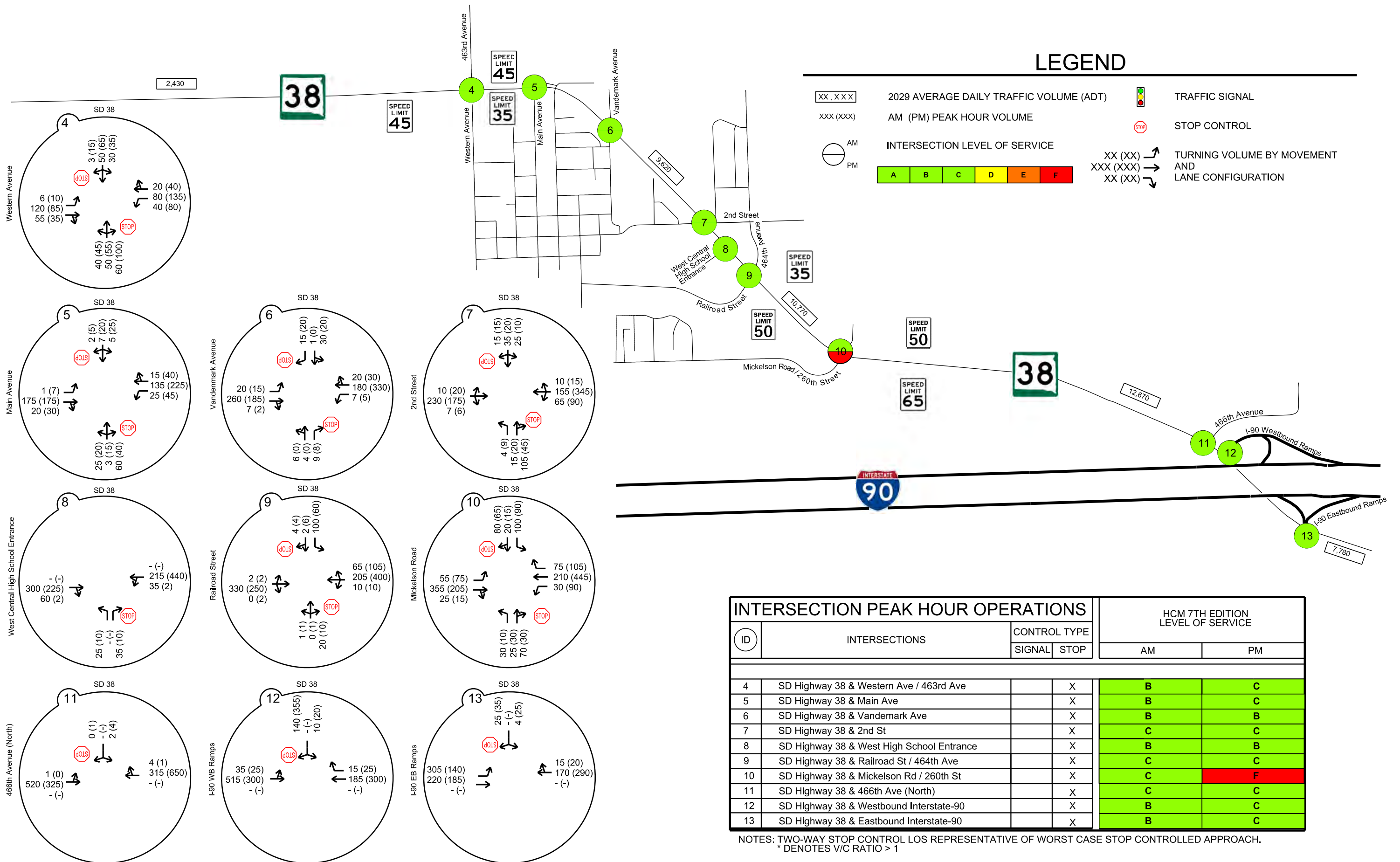
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- xxx (xxx)     AM (PM) PEAK HOUR VOLUME
- <sup>AM</sup>/<sub>PM</sub>     INTERSECTION LEVEL OF SERVICE
- ⬆     TURNING VOLUME BY MOVEMENT AND LANE CONFIGURATION
- ⬇     AND
- ⬇     LANE CONFIGURATION
- 🚦     TRAFFIC SIGNAL
- 🛑     STOP CONTROL



NOT TO SCALE

# LEGEND

- XX,XXX 2029 AVERAGE DAILY TRAFFIC VOLUME (ADT)
- XXX (XXX) AM (PM) PEAK HOUR VOLUME
- AM INTERSECTION LEVEL OF SERVICE
- PM
- TRAFFIC SIGNAL
- STOP CONTROL
- TURNING VOLUME BY MOVEMENT AND LANE CONFIGURATION



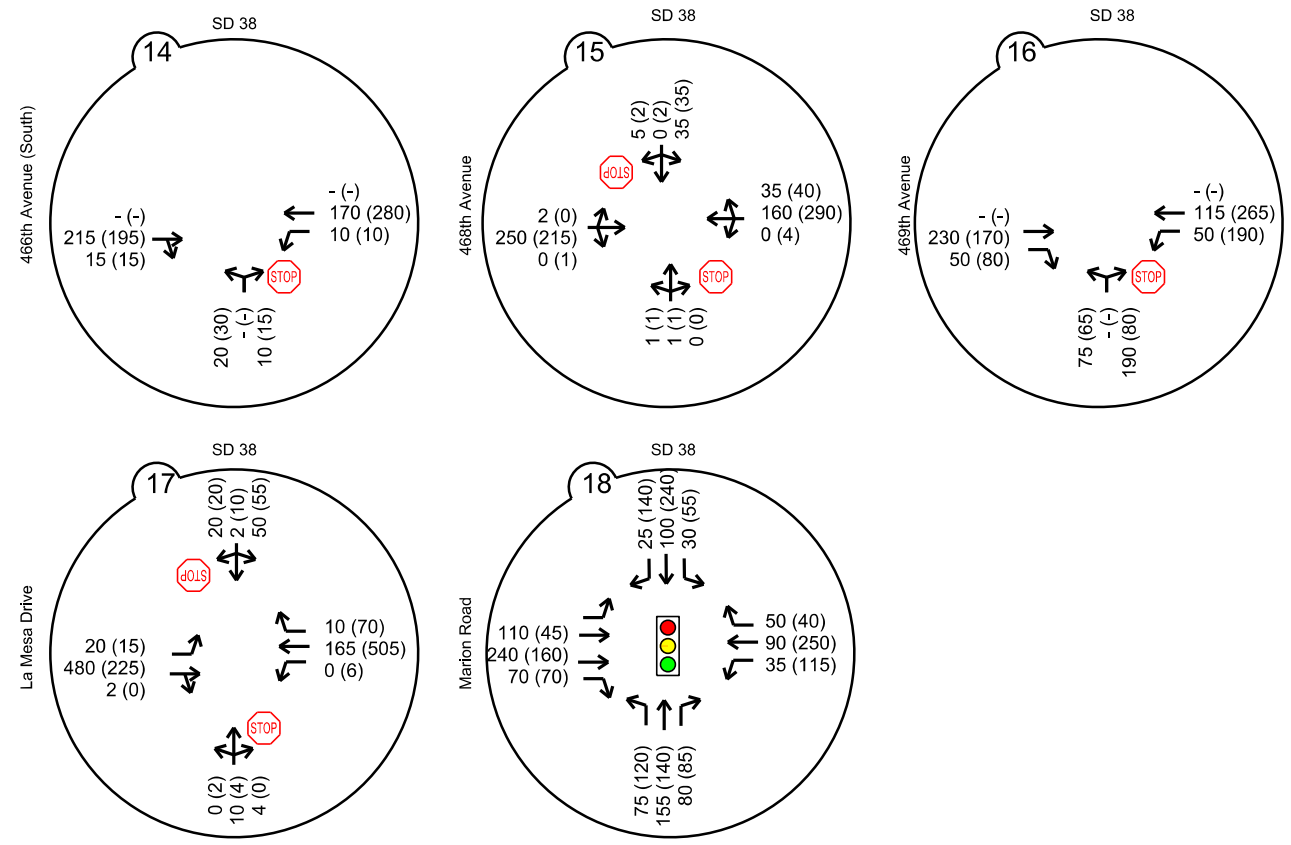
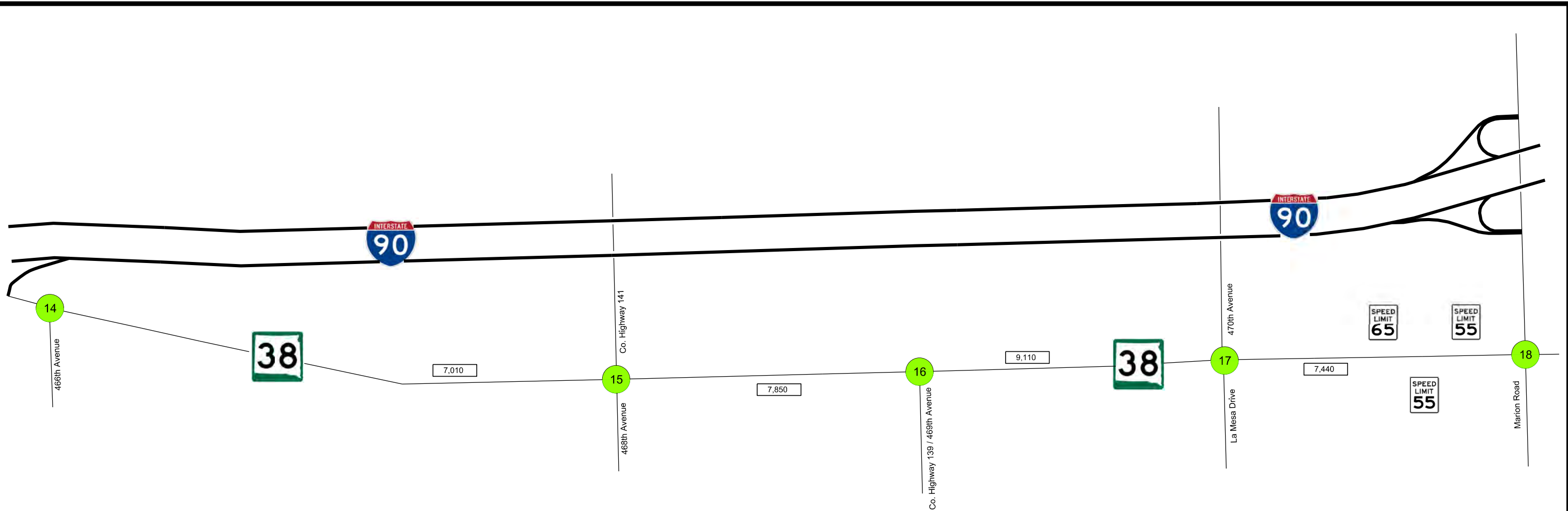
## INTERSECTION PEAK HOUR OPERATIONS

ID	INTERSECTIONS	CONTROL TYPE		HCM 7TH EDITION LEVEL OF SERVICE	
		SIGNAL	STOP	AM	PM
4	SD Highway 38 & Western Ave / 463rd Ave		X	B	C
5	SD Highway 38 & Main Ave		X	B	C
6	SD Highway 38 & Vandemark Ave		X	B	B
7	SD Highway 38 & 2nd St		X	C	C
8	SD Highway 38 & West High School Entrance		X	B	B
9	SD Highway 38 & Railroad St / 464th Ave		X	C	C
10	SD Highway 38 & Mickelson Rd / 260th St		X	C	F
11	SD Highway 38 & 466th Ave (North)		X	C	C
12	SD Highway 38 & Westbound Interstate-90		X	B	C
13	SD Highway 38 & Eastbound Interstate-90		X	B	C

NOTES: TWO-WAY STOP CONTROL LOS REPRESENTATIVE OF WORST CASE STOP CONTROLLED APPROACH.  
 \* DENOTES V/C RATIO > 1



NOT TO SCALE



INTERSECTION PEAK HOUR OPERATIONS				HCM 7TH EDITION LEVEL OF SERVICE	
ID	INTERSECTIONS	CONTROL TYPE		AM	PM
		SIGNAL	STOP		
14	SD Highway 38 & 466th Ave (South)		X	B	B
15	SD Highway 38 & Co. Hwy 141 / 468th Ave		X	B	B
16	SD Highway 38 & Co. Hwy 139 / 469th Ave		X	B	C
17	SD Highway 38 & La Mesa Drive / 470th Ave		X	C	C
18	SD Highway 38 & Marion Drive	X		B	C

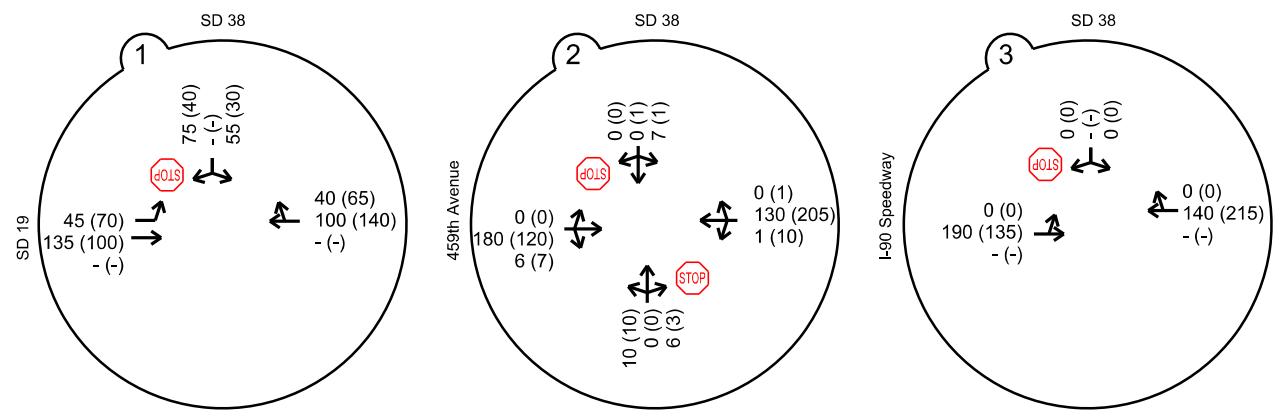
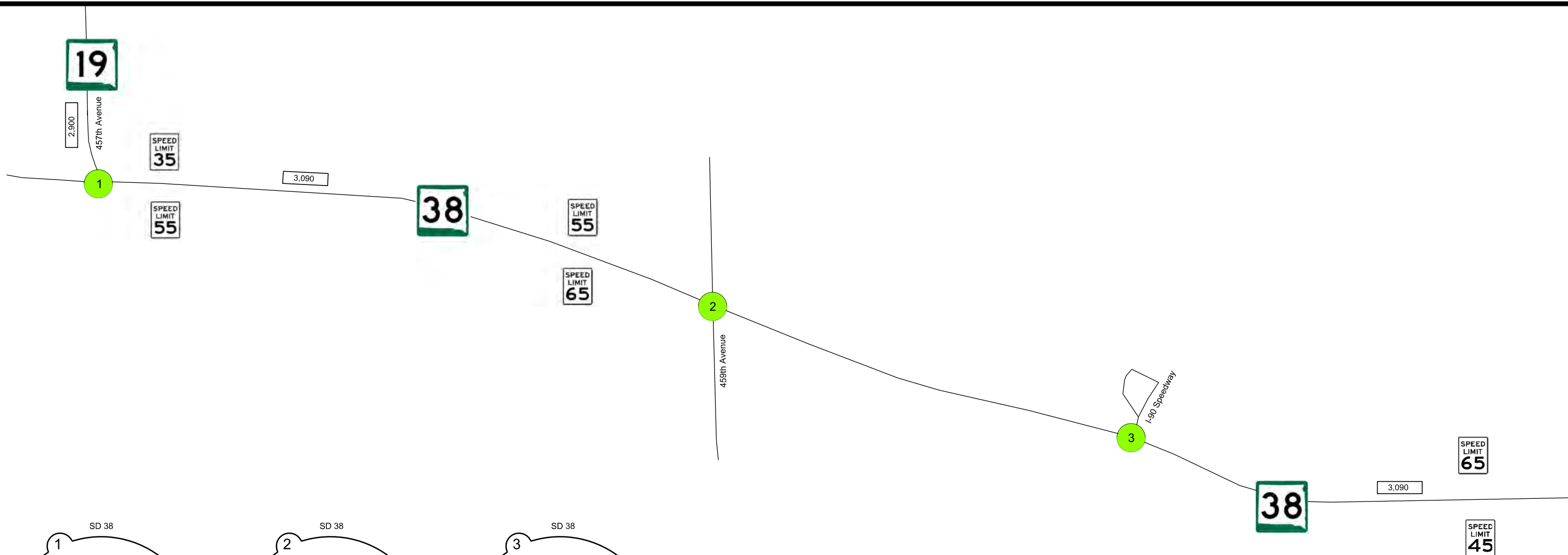
NOTES: TWO-WAY STOP CONTROL LOS REPRESENTATIVE OF WORST CASE STOP CONTROLLED APPROACH.  
 \* DENOTES V/C RATIO > 1

### LEGEND

- XX,XXX 2029 AVERAGE DAILY TRAFFIC VOLUME (ADT)
- xxx (xxx) AM (PM) PEAK HOUR VOLUME
- AM / PM INTERSECTION LEVEL OF SERVICE
- XX (XX) / XXX (XXX) / XX (XX) TURNING VOLUME BY MOVEMENT AND LANE CONFIGURATION
- TRAFFIC SIGNAL
- STOP CONTROL
- A B C D E F



NOT TO SCALE



INTERSECTION PEAK HOUR OPERATIONS				HCM 7TH EDITION LEVEL OF SERVICE	
ID	INTERSECTIONS	CONTROL TYPE		AM	PM
		SIGNAL	STOP		
1	SD Highway 38 & SD Highway 19 / 457th Ave		X	B	B
2	SD Highway 38 & 459th Ave		X	B	B
3	SD Highway 38 & I-90 Speedway		X	A	A

NOTES: TWO-WAY STOP CONTROL LOS REPRESENTATIVE OF WORST CASE STOP CONTROLLED APPROACH.  
 \* DENOTES V/C RATIO > 1

### LEGEND

- xx . xxx     2040 AVERAGE DAILY TRAFFIC VOLUME (ADT)
- xxx (xxx)     AM (PM) PEAK HOUR VOLUME
- <sup>AM</sup>/<sub>PM</sub>     INTERSECTION LEVEL OF SERVICE
- ⬆     TURNING VOLUME BY MOVEMENT AND LANE CONFIGURATION
- ⬇     AND
- ⬅     LANE CONFIGURATION
- 🚦     TRAFFIC SIGNAL
- 🛑     STOP CONTROL

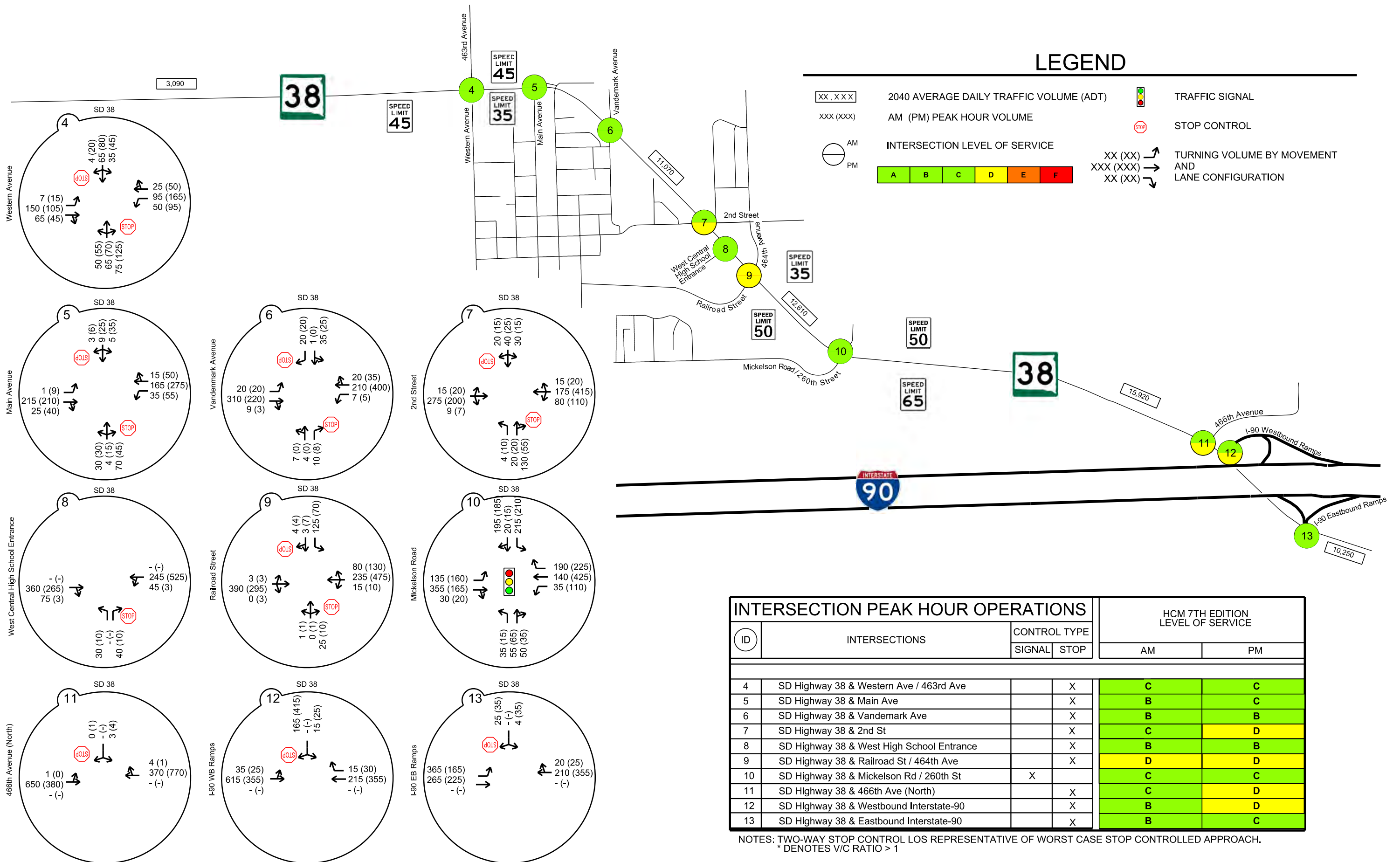


NOT TO SCALE



# LEGEND

- XX,XXX 2040 AVERAGE DAILY TRAFFIC VOLUME (ADT)
- XXX (XXX) AM (PM) PEAK HOUR VOLUME
- AM INTERSECTION LEVEL OF SERVICE
- PM INTERSECTION LEVEL OF SERVICE
- TRAFFIC SIGNAL
- STOP CONTROL
- TURNING VOLUME BY MOVEMENT AND LANE CONFIGURATION



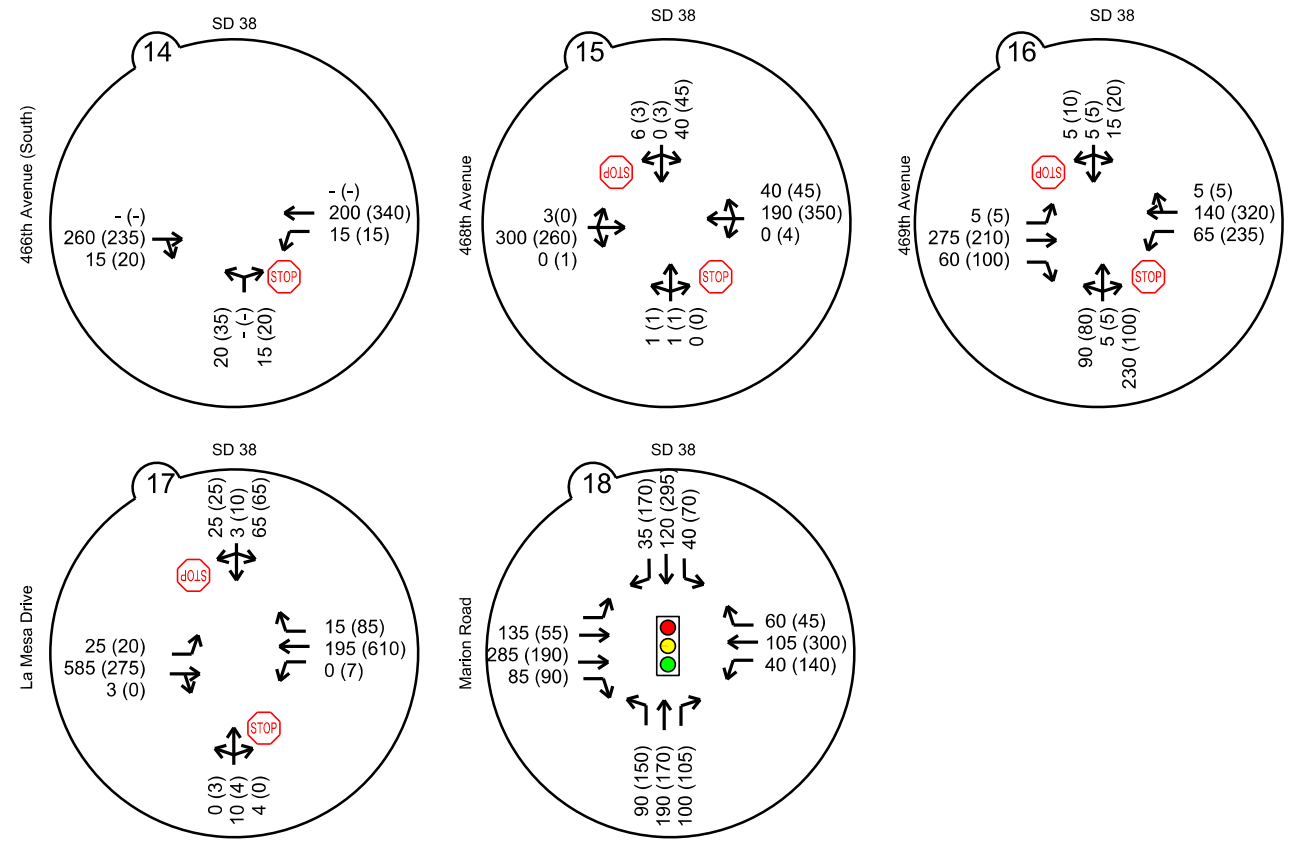
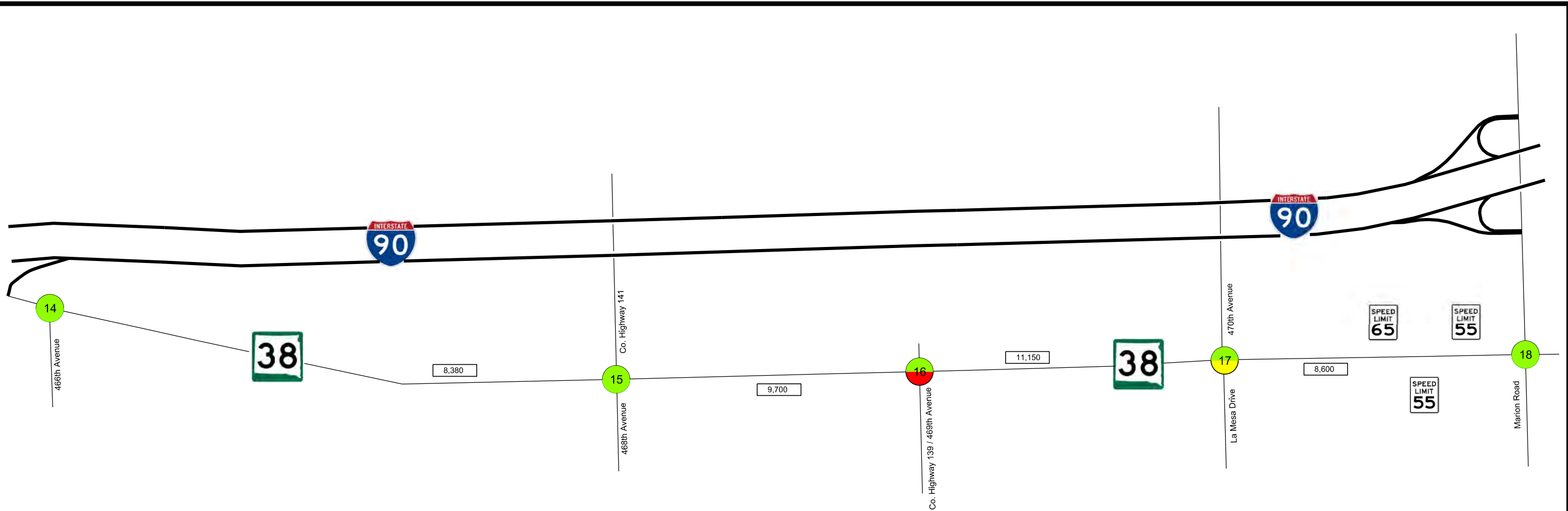
## INTERSECTION PEAK HOUR OPERATIONS

ID	INTERSECTIONS	CONTROL TYPE		HCM 7TH EDITION LEVEL OF SERVICE	
		SIGNAL	STOP	AM	PM
4	SD Highway 38 & Western Ave / 463rd Ave		X	C	C
5	SD Highway 38 & Main Ave		X	B	C
6	SD Highway 38 & Vandemark Ave		X	B	B
7	SD Highway 38 & 2nd St		X	C	D
8	SD Highway 38 & West High School Entrance		X	B	B
9	SD Highway 38 & Railroad St / 464th Ave		X	D	D
10	SD Highway 38 & Mickelson Rd / 260th St	X		C	C
11	SD Highway 38 & 466th Ave (North)		X	C	D
12	SD Highway 38 & Westbound Interstate-90		X	B	D
13	SD Highway 38 & Eastbound Interstate-90		X	B	C

NOTES: TWO-WAY STOP CONTROL LOS REPRESENTATIVE OF WORST CASE STOP CONTROLLED APPROACH.  
 \* DENOTES V/C RATIO > 1



NOT TO SCALE



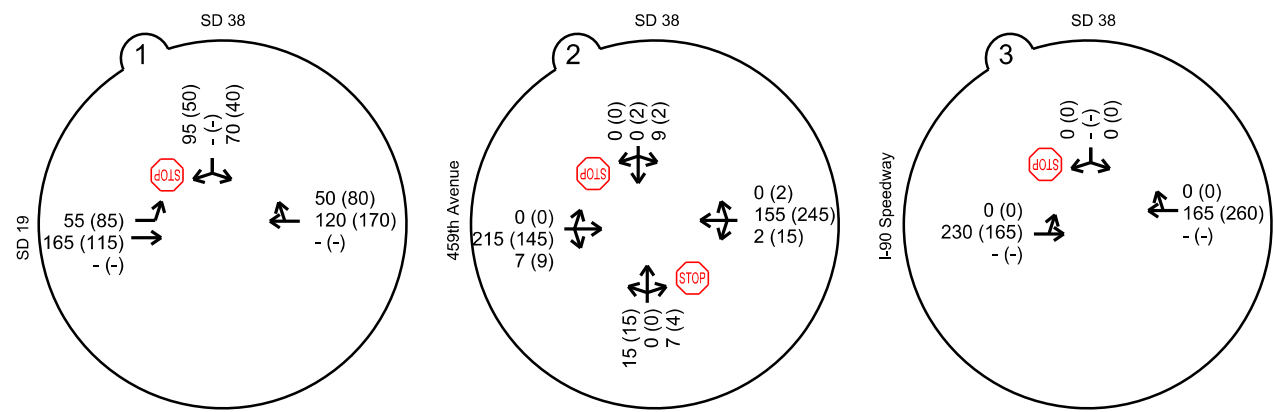
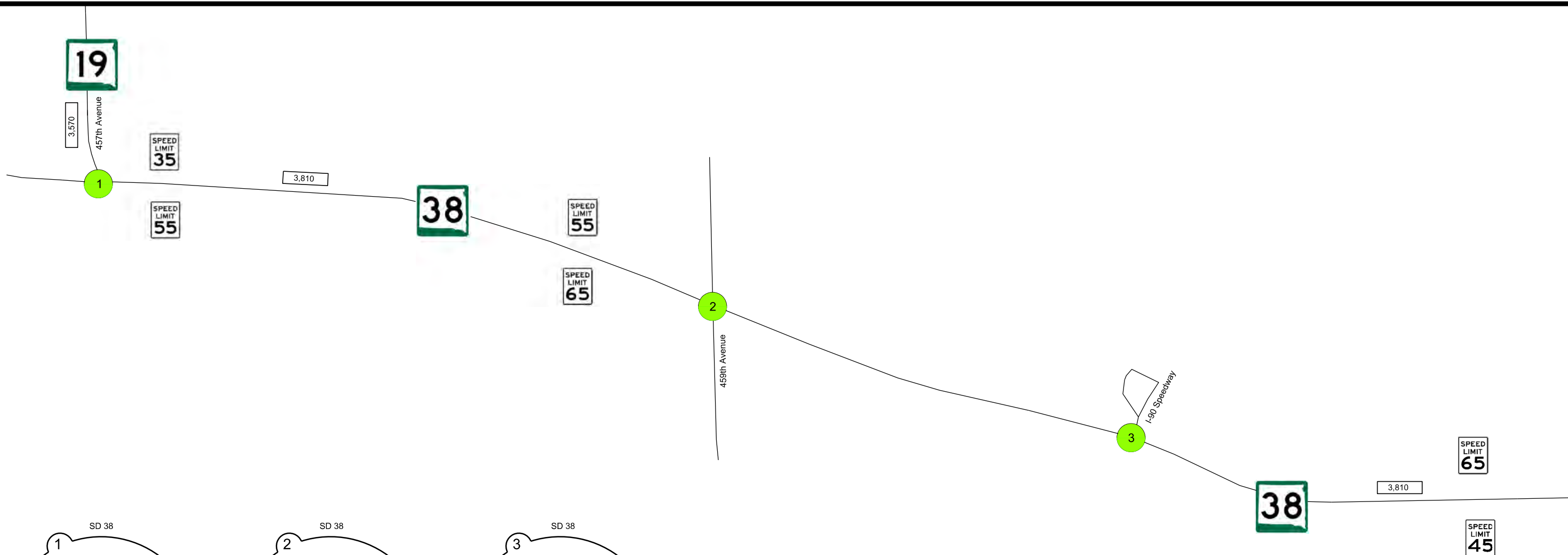
INTERSECTION PEAK HOUR OPERATIONS				HCM 7TH EDITION LEVEL OF SERVICE	
ID	INTERSECTIONS	CONTROL TYPE		AM	PM
		SIGNAL	STOP		
14	SD Highway 38 & 466th Ave (South)		X	B	B
15	SD Highway 38 & Co. Hwy 141 / 468th Ave		X	B	C
16	SD Highway 38 & Co. Hwy 139 / 469th Ave		X	C	F
17	SD Highway 38 & La Mesa Drive / 470th Ave		X	C	D
18	SD Highway 38 & Marion Drive	X		B	C

NOTES: TWO-WAY STOP CONTROL LOS REPRESENTATIVE OF WORST CASE STOP CONTROLLED APPROACH.  
 \* DENOTES V/C RATIO > 1

### LEGEND

- XX,XXX 2040 AVERAGE DAILY TRAFFIC VOLUME (ADT)
- xxx (xxx) AM (PM) PEAK HOUR VOLUME
- AM PM INTERSECTION LEVEL OF SERVICE
- XX (XX) XXX (XXX) XX (XX) TURNING VOLUME BY MOVEMENT AND LANE CONFIGURATION
- TRAFFIC SIGNAL
- STOP CONTROL





INTERSECTION PEAK HOUR OPERATIONS				HCM 7TH EDITION LEVEL OF SERVICE	
ID	INTERSECTIONS	CONTROL TYPE		AM	PM
		SIGNAL	STOP		
1	SD Highway 38 & SD Highway 19 / 457th Ave		X	B	B
2	SD Highway 38 & 459th Ave		X	B	B
3	SD Highway 38 & I-90 Speedway		X	A	A

NOTES: TWO-WAY STOP CONTROL LOS REPRESENTATIVE OF WORST CASE STOP CONTROLLED APPROACH.  
 \* DENOTES V/C RATIO > 1

### LEGEND

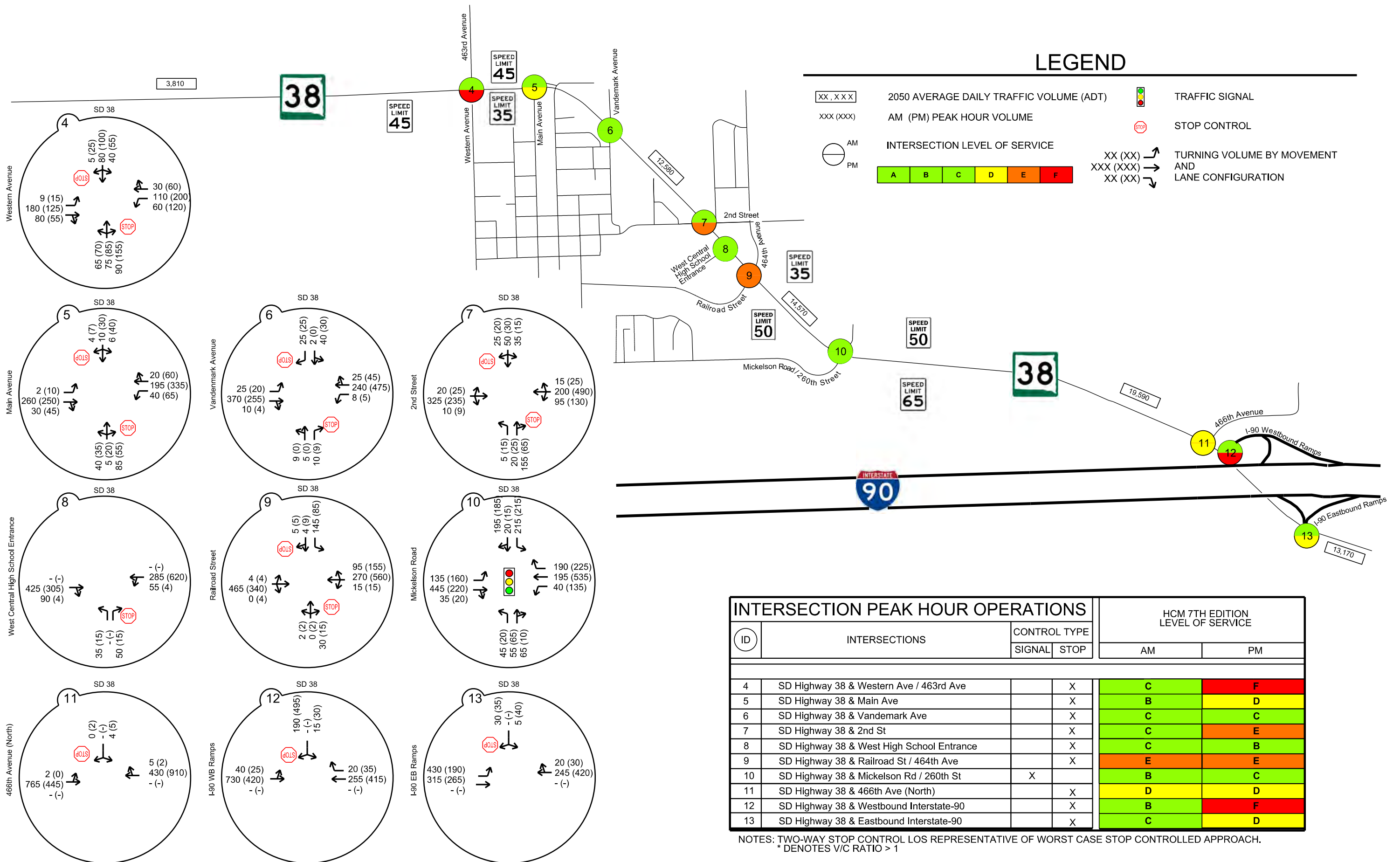
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- xxx (xxx)    AM (PM) PEAK HOUR VOLUME
- <sup>AM</sup>/<sub>PM</sub>      INTERSECTION LEVEL OF SERVICE
- xx (xx) ↗    TURNING VOLUME BY MOVEMENT AND LANE CONFIGURATION
- xxx (xxx) →
- xx (xx) ↘
- 🚦            TRAFFIC SIGNAL
- 🛑            STOP CONTROL



NOT TO SCALE

# LEGEND

- XX,XXX 2050 AVERAGE DAILY TRAFFIC VOLUME (ADT)
- XXX (XXX) AM (PM) PEAK HOUR VOLUME
- AM INTERSECTION LEVEL OF SERVICE
- PM
- TRAFFIC SIGNAL
- STOP CONTROL
- TURNING VOLUME BY MOVEMENT AND LANE CONFIGURATION



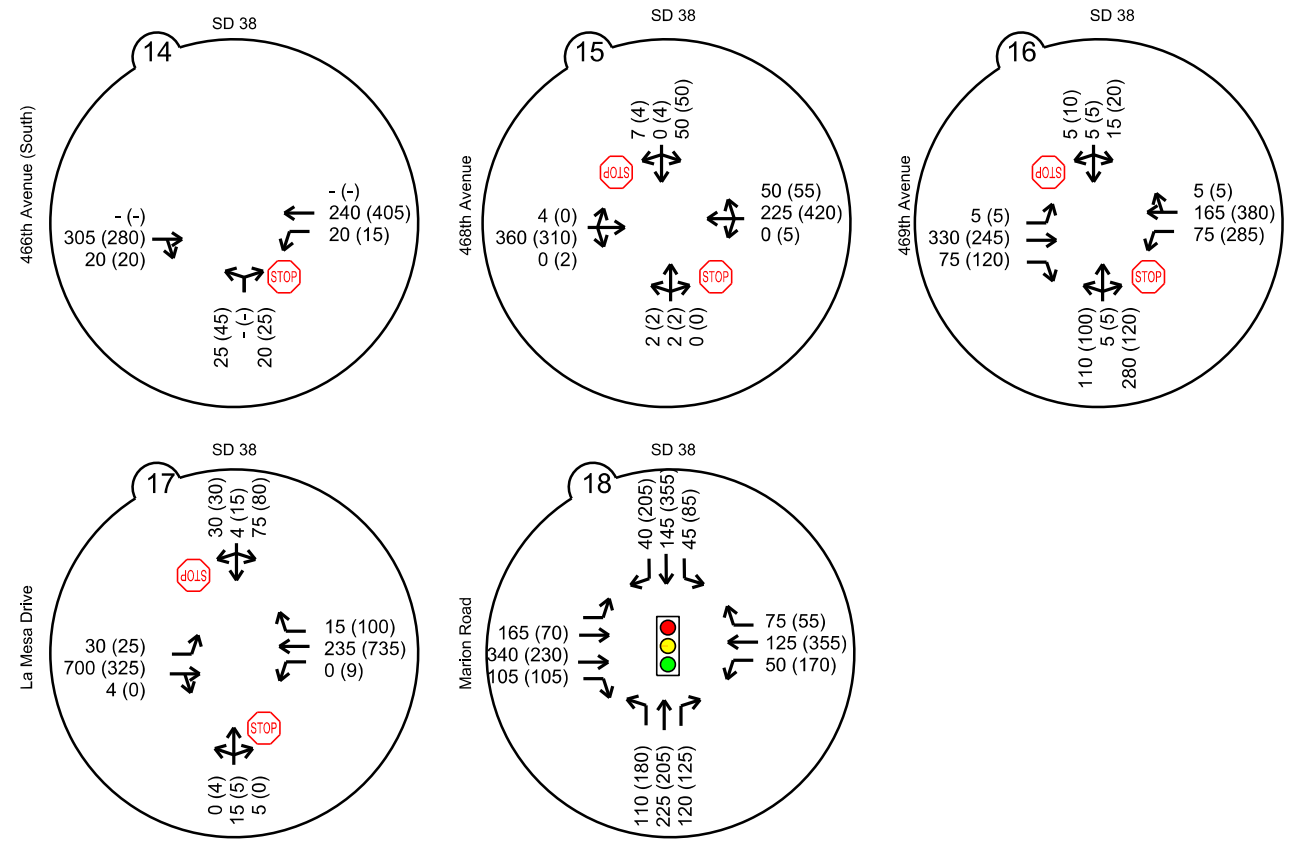
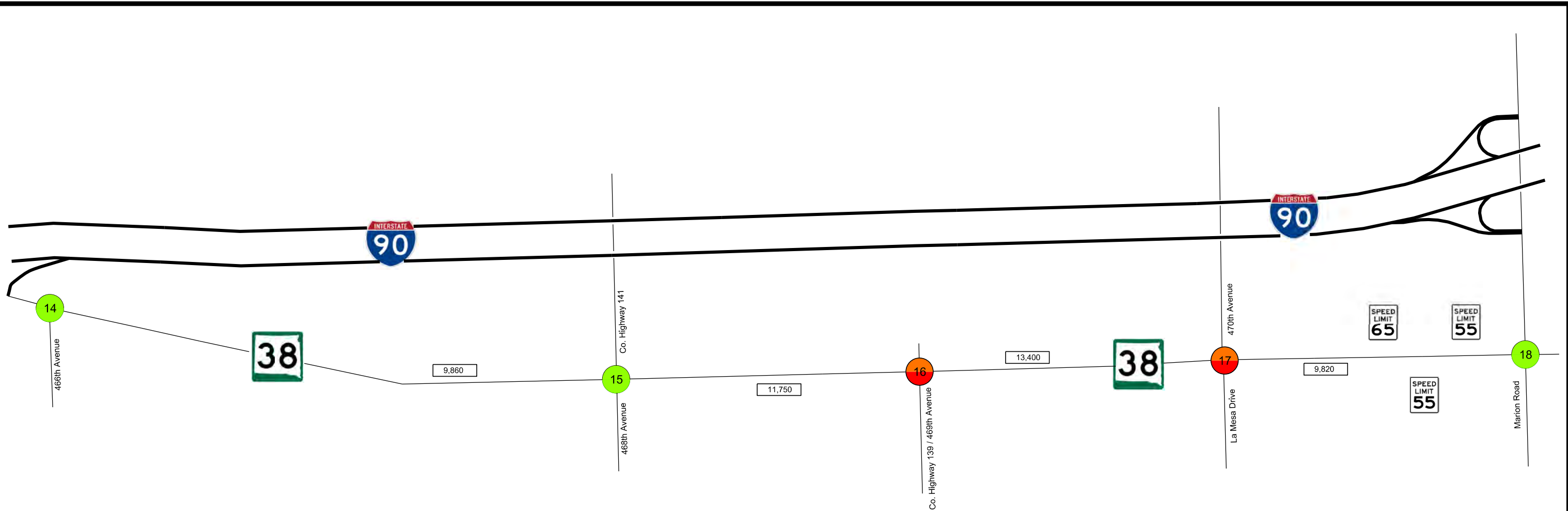
## INTERSECTION PEAK HOUR OPERATIONS

ID	INTERSECTIONS	CONTROL TYPE		HCM 7TH EDITION LEVEL OF SERVICE	
		SIGNAL	STOP	AM	PM
4	SD Highway 38 & Western Ave / 463rd Ave		X	C	F
5	SD Highway 38 & Main Ave		X	B	D
6	SD Highway 38 & Vandemark Ave		X	C	C
7	SD Highway 38 & 2nd St		X	C	E
8	SD Highway 38 & West High School Entrance		X	C	B
9	SD Highway 38 & Railroad St / 464th Ave		X	E	E
10	SD Highway 38 & Mickelson Rd / 260th St	X		B	C
11	SD Highway 38 & 466th Ave (North)		X	D	D
12	SD Highway 38 & Westbound Interstate-90		X	B	F
13	SD Highway 38 & Eastbound Interstate-90		X	C	D

NOTES: TWO-WAY STOP CONTROL LOS REPRESENTATIVE OF WORST CASE STOP CONTROLLED APPROACH.  
 \* DENOTES V/C RATIO > 1



NOT TO SCALE



INTERSECTION PEAK HOUR OPERATIONS				HCM 7TH EDITION LEVEL OF SERVICE	
ID	INTERSECTIONS	CONTROL TYPE		AM	PM
		SIGNAL	STOP		
14	SD Highway 38 & 466th Ave (South)		X	B	C
15	SD Highway 38 & Co. Hwy 141 / 468th Ave		X	C	C
16	SD Highway 38 & Co. Hwy 139 / 469th Ave		X	E	F
17	SD Highway 38 & La Mesa Drive / 470th Ave		X	E	F
18	SD Highway 38 & Marion Drive	X		B	C

NOTES: TWO-WAY STOP CONTROL LOS REPRESENTATIVE OF WORST CASE STOP CONTROLLED APPROACH.  
 \* DENOTES V/C RATIO > 1

### LEGEND

- XX,XXX 2050 AVERAGE DAILY TRAFFIC VOLUME (ADT)
- xxx (xxx) AM (PM) PEAK HOUR VOLUME
- AM / PM INTERSECTION LEVEL OF SERVICE
- XX (XX) / XXX (XXX) / XX (XX) TURNING VOLUME BY MOVEMENT AND LANE CONFIGURATION
- TRAFFIC SIGNAL
- STOP CONTROL
- A B C D E F





## Event Traffic Analysis

Traffic data was collected at the I-90 Speedway during a race event which occurred on May 27<sup>th</sup>, 2023. The traffic data was collected for a 14-hour period between 1PM – 3AM to ensure the entirety of the event traffic was recorded. Review of the traffic data revealed that the peak hours associated with the arrival of vehicles to the event and departure of vehicles from the event were 5:45 – 6:45PM and 12:15 – 1:15AM, respectively. The peak hour traffic volumes can be seen below in **Figure 4**.

FIGURE 4: EVENT TRAFFIC EXHIBIT



Existing Year 2022 traffic operations analysis used existing intersection geometry, event traffic volumes, and posted travel speeds. The results of the intersection capacity analysis can be seen in **Table 13** below.

TABLE 13: HCM TRAFFIC INTERSECTION OPERATIONS – EVENT TRAFFIC

SD Hwy 38 Cross Street(s)	Control Type	Intersection LOS / Delay (sec/veh)				EB	WB	SB
		Arrival		Departure		95% Queue Length (veh)	95% Queue Length (veh)	95% Queue Length (veh)
I-90 Speedway Entrance	TWSC	12.7	B	16.5	C	0.2	0	5.9

Notes: Bold/Highlighted indicates a poor LOS

Under the Existing Year 2022 conditions, the traffic operations analysis showed acceptable operations at the study intersection under the event traffic, with the intersection achieving LOS C or greater during the peak hours. There were no significant delays or vehicle queues produced during the HCM analysis. Observations from review of the video collected at this intersection, indicated that there was a maximum queue of 5 vehicles on the eastbound SD 38 approach. Additionally, there were several observed occurrences of westbound through vehicles utilizing the oncoming traffic lanes to pass slowing or turning vehicles that were entering the speedway.



## *Predictive Safety Analysis*

Safety analysis of locations within the SD Highway 38 study corridor area of influence was completed for the design year 2050 No-Build scenario. Existing crash analysis was completed by summarizing recent historical crashes and reviewing crash trends and can be seen in the previously submitted Existing Traffic and Operations Analysis technical memo. Predictive crash analysis was completed using the Interactive Highway Safety Design Model (IHSDM) Crash Prediction analysis tool to evaluate the safety effects and predict the expected change in crashes between design year scenarios.

Results of the IHSDM evaluation—which supports the Federal Highway Administration's (FHWA's) Data-Driven Safety Analysis (DDSA) initiative—will assist with identifying design features or segments along the roadway with the greatest potential for improvement and quantify its expected safety performance. This approach combined crash, roadway inventory, and traffic volume data to provide more reliable estimates of the proposed roadway's expected safety performance. Ultimately, these results could support agencies decision making in the highway design process and inform the public as to what safety benefits can be expected from the investment.

Design year 2050 crash analysis determined the expected crash frequency and predicted crash frequency within the SD Highway 38 area of influence resulting from the No-Build roadway conditions. Predicted crash frequency is a measure of safety performance based on segments or intersections of a common facility type. Predictive crash frequency accounts for changes in traffic volume, roadway characteristics, and general time trends, but does not consider the historical crash data. The expected crash frequency is the combination of observed and predicted crash frequencies using the Empirical Bayes (EB) method to compute a weighted average. Expected crash frequency accounts for changes in traffic volume, roadway characteristics, and general time trends, and considers the historical crash data. However, the expected crash frequency is not applicable when facility type changes. To account for the potential future roadway changes we have included both the predicted and expected crash results.

In addition to crash frequency, the expected crash severity was determined by IHSDM. Crash severity represents the highest level of injury of all vehicle occupants.

A summary of the expected and predicted crashes for the SD Highway 38 segments between SD Highway 19 and Marion Road are provided in **Table 14** and **Table 15**. Along the SD 38 segments, there were a several segments that produced a high number of crash incidents. The segments from 459<sup>th</sup> Ave to Western Avenue, Mickelson Road to 466<sup>th</sup> Avenue (North), and the three segments between 466<sup>th</sup> Avenue (South) to La Mesa Drive all indicated the potential for safety performance improvements. The expected crash type distribution for segments indicated that run-off road and rear-end crashes were the most frequent crash types.

A summary of the expected and predicted crashes for the SD Highway 38 intersections are provided in **Table 16** and **Table 17**. There were several intersections that demonstrated a high number of crash instances. The SD 38 intersections with Western Avenue/463<sup>rd</sup> Street, Main Avenue, 2<sup>nd</sup> Street, Railroad Street/464<sup>th</sup> Avenue, and Marion Road all indicated the potential for safety performance improvements. The expected crash type distribution for intersections indicated that angle crashes and rear-end crashes were the most frequent crash types.

TABLE 14: SD 38 SEGMENT CRASH FREQUENCY

Location		Segment Length (Miles)	Expected Crashes				Predicted Crashes			
			Total Crashes	Total Crashes/Year	Fatal / Injury Crashes/Year	PDO Crashes/Year	Total Crashes	Total Crashes/Year	Fatal / Injury Crashes/Year	PDO Crashes/Year
Segment 1:	SD Highway 19 to 459 <sup>th</sup> Avenue	2.05	43.44	1.67	0.50	1.16	47.76	1.83	0.58	1.24
Segment 2:	459 <sup>th</sup> Avenue to Western Avenue	4.08	104.94	4.03	1.51	2.52	94.87	3.64	1.17	2.47
Segment 3:	Western Avenue to Main Avenue	0.24	7.61	0.29	0.11	0.17	18.36	0.70	0.22	0.47
Segment 4:	Main Avenue to Vandemark Avenue	0.31	17.45	0.67	0.17	0.49	24.91	0.95	0.30	0.65
Segment 5:	Vandemark Avenue to 2 <sup>nd</sup> Street	0.47	23.07	0.88	0.46	0.41	39.24	1.50	0.48	1.02
Segment 7:	2 <sup>nd</sup> Street to West Central High School	0.06	20.20	0.77	0.38	0.38	20.20	0.22	0.07	0.15
Segment 8:	West Central High School Entrance to Railroad Street	0.20	7.57	0.29	0.11	0.18	19.83	0.76	0.24	0.51
Segment 9:	Railroad Street to Mickelson Road	0.45	39.15	1.50	0.55	0.94	50.88	1.95	0.62	1.32
Segment 10:	Mickelson Road to 466 <sup>th</sup> Avenue (North)	1.40	220.30	8.47	3.63	4.83	179.01	6.88	2.21	4.67
Segment 11:	466 <sup>th</sup> Avenue (North) to WB I-90 Ramps	0.07	2.68	0.10	0.04	0.06	7.75	0.29	0.09	0.20
Segment 12:	WB I-90 Ramps to EB I-90 Ramps	0.28	8.86	0.34	0.12	0.20	23.11	0.88	0.28	0.60
Segment 13:	EB I-90 Ramps to 466 <sup>th</sup> Avenue (South)	0.07	2.51	0.09	0.03	0.05	7.02	0.27	0.08	0.18
Segment 14:	466 <sup>th</sup> Avenue (South) to County Highway 141	2.02	85.22	3.27	1.28	1.99	132.89	5.11	1.64	3.47
Segment 15:	County Highway 141 to County Highway 139	1.00	63.35	2.43	0.99	1.44	71.03	2.73	0.87	1.85
Segment 16:	County Highway 139 to La Mesa Drive	1.00	50.98	1.96	0.92	1.03	79.29	3.04	0.97	2.07
Segment 17:	La Mesa Drive to Marion Road	0.97	36.81	1.41	0.57	0.82	58.75	2.25	0.71	1.53
<b>Total</b>	<b>All SD 38 Segments</b>	<b>14.67</b>	<b>734.14</b>	<b>28.17</b>	<b>11.37</b>	<b>16.67</b>	<b>874.90</b>	<b>33.00</b>	<b>10.53</b>	<b>22.40</b>

Source: Interactive Highway Safety Design Model (IHSDM) 2021 Release, v17.0.0, HR Green, 2023.

TABLE 15: EXPECTED SEGMENT MANNER OF CRASH

Manner of Crash	Total Crashes
Collision with Animal	87.57
Sideswipe - same direction	28.80
Run Off Road	376.14
Angle	62.28
Rear-end	110.11
Others	78.34
<b>Total Crashes</b>	<b>743.24</b>

TABLE 16: SD 38 INTERSECTION CRASH FREQUENCY

Location		Expected Crashes				Predicted Crashes			
		Total Crashes	Total Crashes/Year	Fatal / Injury Crashes/Year	PDO Crashes/Year	Total Crashes	Total Crashes/Year	Fatal / Injury Crashes/Year	PDO Crashes/Year
Intersection 1:	SD Highway 19 / 457 <sup>th</sup> Avenue	18.39	0.70	0.19	0.50	21.11	0.81	0.33	0.47
Intersection 2:	459 <sup>th</sup> Avenue	18.94	0.72	0.29	0.43	27.93	1.07	0.46	0.61
Intersection 3:	I-90 Speedway Entrance	NA	NA	NA	NA	NA	NA	NA	NA
Intersection 4:	Western Avenue / 463 <sup>rd</sup> Avenue	87.65	3.37	1.60	1.76	169.48	6.51	2.80	3.70
Intersection 5:	Main Avenue	42.11	1.61	0.67	0.94	132.77	5.10	2.20	2.90
Intersection 6:	Vandemark Avenue	28.33	1.08	0.50	0.58	74.90	2.88	1.24	1.63
Intersection 7:	2 <sup>nd</sup> Street	56.15	2.15	0.81	1.34	166.63	6.40	2.76	3.64
Intersection 8:	West Central High School Entrance	18.93	0.72	0.33	0.38	73.62	2.83	1.17	1.65
Intersection 9:	Railroad Street / 464 <sup>th</sup> Avenue	53.57	2.06	1.17	0.88	137.23	5.27	2.27	3.00
Intersection 10:	Mickelson Road/260 <sup>th</sup> Street	38.24	1.47	0.68	0.78	160.99	6.19	2.56	3.62
Intersection 11:	466 <sup>th</sup> Avenue North	24.85	0.95	0.32	0.62	33.89	1.30	0.54	0.76
Intersection 12:	WB I-90 Exit 390	20.00	0.76	0.41	0.35	15.08	0.58	0.19	0.38
Intersection 13:	EB I-90 Exit 390	9.41	0.36	0.15	0.20	10.35	0.39	0.13	0.26
Intersection 14:	466 <sup>th</sup> Avenue South	29.18	1.12	0.40	0.71	75.53	2.90	1.20	1.69
Intersection 15:	County Highway 141 / 468 <sup>th</sup> Avenue	44.28	1.70	0.95	0.74	87.10	3.35	1.44	1.90
Intersection 16:	County Highway 139 / 469 <sup>th</sup> Avenue	32.02	1.23	0.57	0.66	57.44	2.20	0.91	1.29
Intersection 17:	La Mesa Drive / 470 <sup>th</sup> Avenue	46.40	1.78	0.73	1.04	61.03	2.34	1.01	1.33
Intersection 18:	Marion Road	114.94	4.42	1.53	2.88	50.33	1.93	0.63	1.30
<b>Total</b>	<b>All SD 38 Intersections</b>	<b>683.39</b>	<b>26.20</b>	<b>11.30</b>	<b>14.79</b>	<b>1,355.41</b>	<b>52.05</b>	<b>21.84</b>	<b>30.13</b>

Source: Interactive Highway Safety Design Model (IHSDM) 2021 Release, v17.0.0, HR Green, 2023.

TABLE 17: EXPECTED INTERSECTION MANNER OF CRASH

Manner of Crash	Total Crashes
Run Off Road	85.49
Angle	245.00
Sideswipe	59.86
Head-on	27.53
Rear-end	196.55
Others	67.73
<b>Total Crashes</b>	<b>682.16</b>

## Summary

The purpose of this technical memorandum is to document the future no-build traffic assessment at the eighteen study intersections and associated highway corridor segments along the SD Highway 38 corridor, from the SD Highway 19 intersection in Humboldt, South Dakota to the Marion Road intersection in Sioux Falls, South Dakota.

Future year 2050 traffic forecasts were constructed using traffic data supplied by the SFMPO and the SDDOT. This data was used to develop 2050 design year morning (AM) and afternoon (PM) peak hour volumes at study intersections. To develop the interim year traffic conditions, straight-line growth rates between the existing year ADT volumes and the estimated 2050 ADT volumes were calculated and the interim year traffic volumes were interpolated to develop interim year 2029 and 2040 traffic forecasts.

Using the established traffic volumes, the traffic operations at study intersections and along the two-lane highway were evaluated. The no-build conditions traffic assessment revealed that there are intersections and highway segments that will need capacity improvements within the design year timeframe.

The traffic operations analysis indicated that the following intersections and highway segments should be investigated for future capacity or operational improvements:

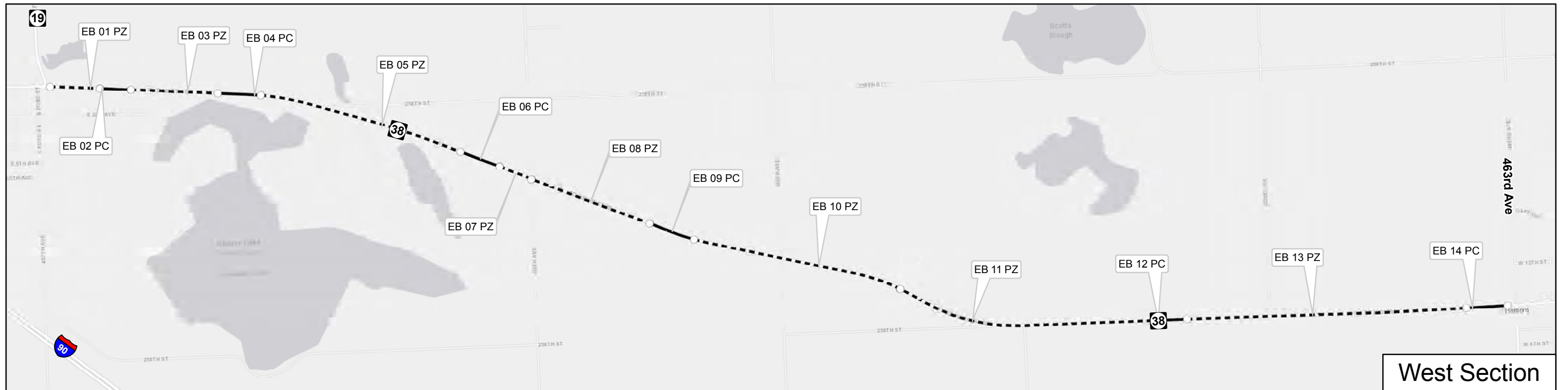
- ◆ SD Highway 38 & Western Avenue/463<sup>rd</sup> Avenue,
- ◆ SD Highway 38 & Main Avenue,
- ◆ SD Highway 38 & 2<sup>nd</sup> Street,
- ◆ SD Highway 38 & Railroad Street/464<sup>th</sup> Avenue,
- ◆ SD Highway 38 & 466<sup>th</sup> Avenue (North),
- ◆ SD Highway 38 & WB I-90 ramps,
- ◆ SD Highway 38 & EB I-90 ramps,
- ◆ SD Highway 38 & County Highway 139/469<sup>th</sup> Avenue, and
- ◆ SD Highway 38 & La Mesa Drive/470<sup>th</sup> Avenue,
- ◆ SD Highway 38 segment between Railroad Street/464<sup>th</sup> Street and EB I-90 ramps,
- ◆ SD Highway 38 segment between County Highway 139/469<sup>th</sup> Avenue and La Mesa Drive/470<sup>th</sup> Avenue.

A predictive safety analysis of the SD Highway 38 study corridor was completed for the design year 2050 No-Build scenario. Along the SD 38 segments, there were a several intersections and highway segments that produced a high number of crash incidents that indicated a need for potential safety improvements.

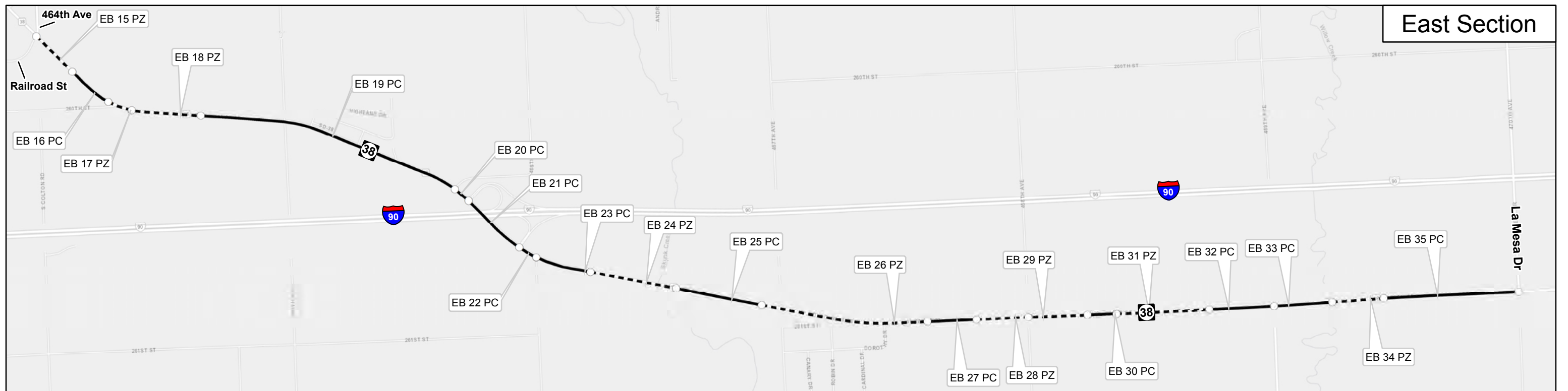
The traffic safety analysis indicated that the following intersections and highway segments should be investigated for future safety improvements:

- ◆ SD Highway 38 & Western Avenue/463<sup>rd</sup> Avenue,
- ◆ SD Highway 38 & Main Avenue,
- ◆ SD Highway 38 & 2<sup>nd</sup> Street,
- ◆ SD Highway 38 & Railroad Street/464<sup>th</sup> Avenue,
- ◆ SD Highway 38 & Mickelson Road/260<sup>th</sup> Street, and
- ◆ SD Highway 38 & Marion Road,
- ◆ SD Highway 38 segment between 459<sup>th</sup> Street and Western Avenue/463<sup>rd</sup> Avenue,
- ◆ SD Highway 38 segment between Mickelson Road/260<sup>th</sup> Street and 466<sup>th</sup> Avenue (North),
- ◆ SD Highway 38 segment between 466<sup>th</sup> Avenue (South) and La Mesa Drive/470<sup>th</sup> Avenue.

*Appendix A – Two-lane Highway Segmentation*



West Section



East Section

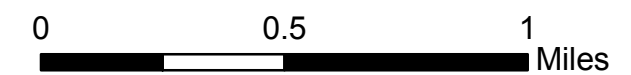
# Highway 38 Analysis Segments

Eastbound Lanes

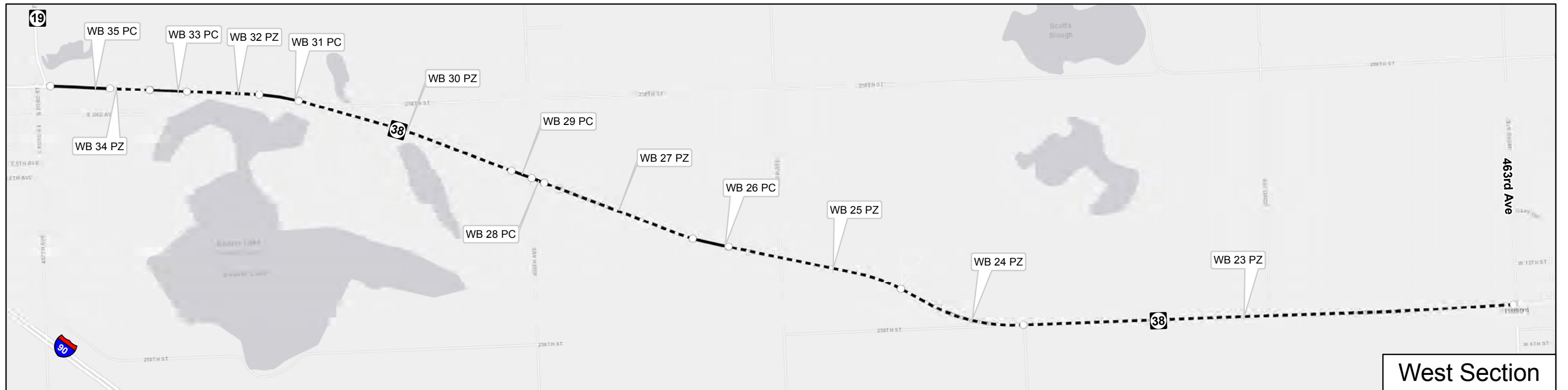
FIGURE 6

## Legend

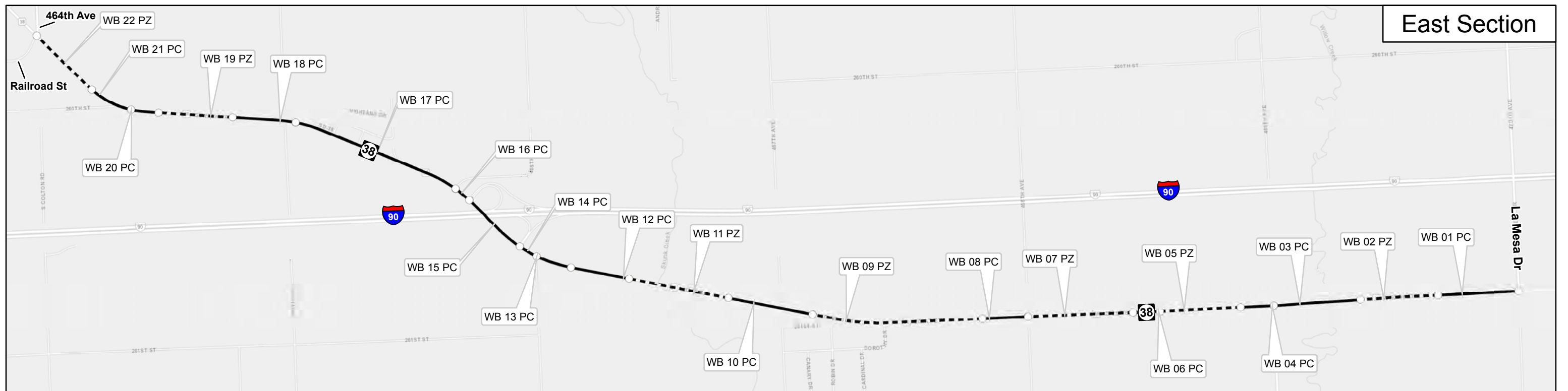
- Analysis Segments**
- Passing Constrained
  - - - - - Passing Zones







West Section



East Section

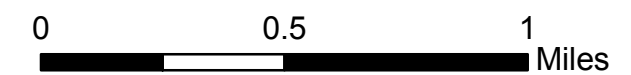
# Highway 38 Analysis Segments

Westbound Lanes

FIGURE 6

## Legend

- Analysis Segments**
- Passing Constrained
  - - - - Passing Zones

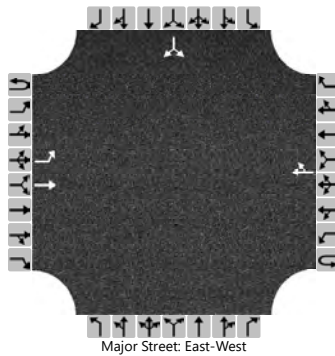


*Appendix B – HCS Output*

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & SD 19		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	SD 19		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		35	110				85	30						45		60
Percent Heavy Vehicles (%)		30												9		11
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.40												6.49		6.31
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.47												3.58		3.40

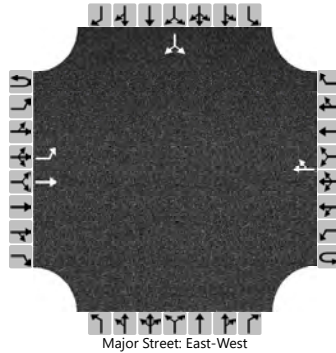
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		38													114		
Capacity, c (veh/h)		1305													784		
v/c Ratio		0.03													0.15		
95% Queue Length, Q <sub>95</sub> (veh)		0.1													0.5		
Control Delay (s/veh)		7.8													10.4		
Level of Service (LOS)		A													B		
Approach Delay (s/veh)		1.9												10.4			
Approach LOS		A												B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & SD 19		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	SD 19		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		55	85				115	50						25		30
Percent Heavy Vehicles (%)		2												10		14
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.50		6.34
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.59		3.43

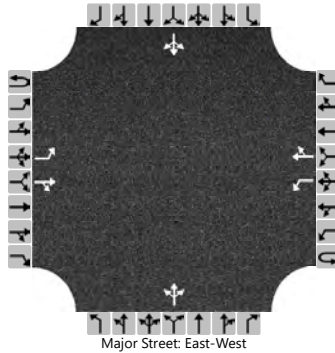
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		60													60		
Capacity, c (veh/h)		1396													715		
v/c Ratio		0.04													0.08		
95% Queue Length, Q <sub>95</sub> (veh)		0.1													0.3		
Control Delay (s/veh)		7.7													10.5		
Level of Service (LOS)		A													B		
Approach Delay (s/veh)		3.0												10.5			
Approach LOS		A												B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 459th		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	459th Ave		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		0	145	5		1	105	0		9	0	5		6	0	0
Percent Heavy Vehicles (%)		3				3				13	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1					7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13					7.23	6.50	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2					3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23					3.62	4.00	3.30		3.50	4.00	3.30

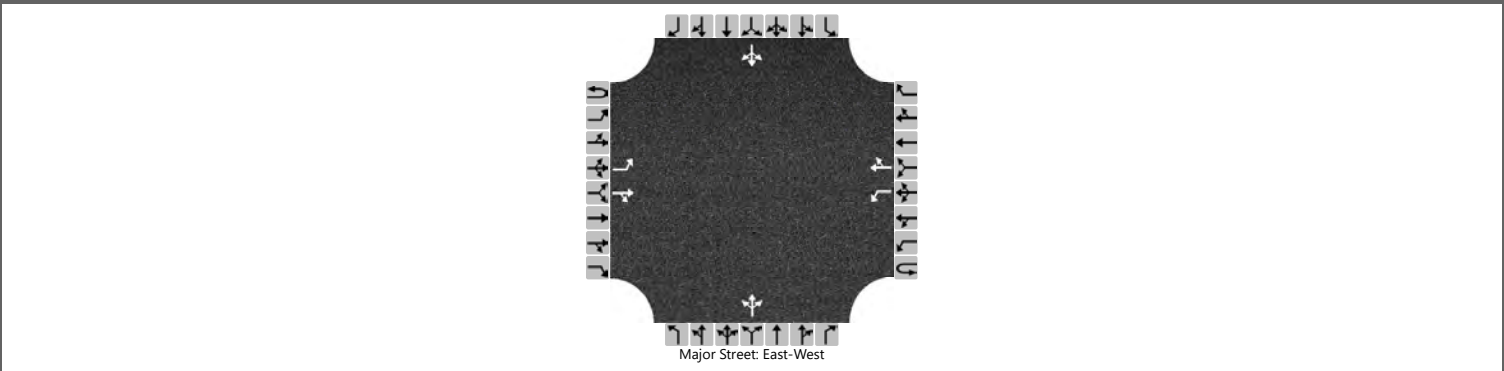
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				1					15					7	
Capacity, c (veh/h)		1469				1410					722					678	
v/c Ratio		0.00				0.00					0.02					0.01	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.1					0.0	
Control Delay (s/veh)		7.5				7.6					10.1					10.4	
Level of Service (LOS)		A				A					B					B	
Approach Delay (s/veh)		0.0				0.1				10.1				10.4			
Approach LOS		A				A				B				B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 459th		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	459th Ave		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		0	100	6		8	175	1		9	0	2		1	1	0
Percent Heavy Vehicles (%)		0				0				13	0	0		0	100	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.23	6.50	6.20		7.10	7.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.62	4.00	3.30		3.50	4.90	3.30

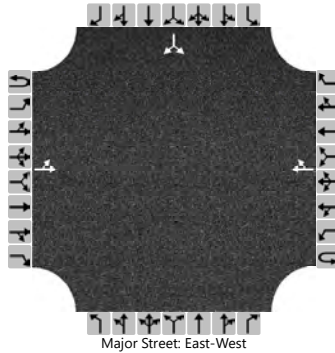
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				9					12					2	
Capacity, c (veh/h)		1394				1486					649					534	
v/c Ratio		0.00				0.01					0.02					0.00	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.1					0.0	
Control Delay (s/veh)		7.6				7.4					10.6					11.8	
Level of Service (LOS)		A				A					B					B	
Approach Delay (s/veh)		0.0				0.3				10.6				11.8			
Approach LOS		A				A				B				B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 Expressway		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	I-90 Expressway		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		0	155				115	0						0		0
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

## Delay, Queue Length, and Level of Service

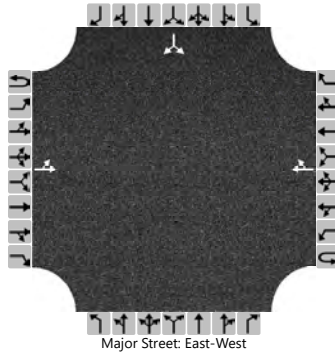
Flow Rate, v (veh/h)		0													0	
Capacity, c (veh/h)		1455													0	
v/c Ratio		0.00														
95% Queue Length, Q <sub>95</sub> (veh)		0.0														
Control Delay (s/veh)		7.5	0.0													
Level of Service (LOS)		A	A													
Approach Delay (s/veh)		0.0														
Approach LOS		A														



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 Expressway		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	I-90 Expressway		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		0	115				175	0						0		0
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

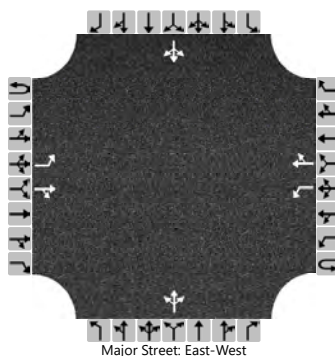
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													0	
Capacity, c (veh/h)		1378													0	
v/c Ratio		0.00														
95% Queue Length, Q <sub>95</sub> (veh)		0.0														
Control Delay (s/veh)		7.6	0.0													
Level of Service (LOS)		A	A													
Approach Delay (s/veh)		0.0														
Approach LOS		A														

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 463rd Ave / Western Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	463rd Ave / Western Ave		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		6	120	55		40	80	20		40	50	60		30	50	3
Percent Heavy Vehicles (%)		3				3				14	2	6		0	7	33
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.24	6.52	6.26		7.10	6.57	6.53
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.63	4.02	3.35		3.50	4.06	3.60

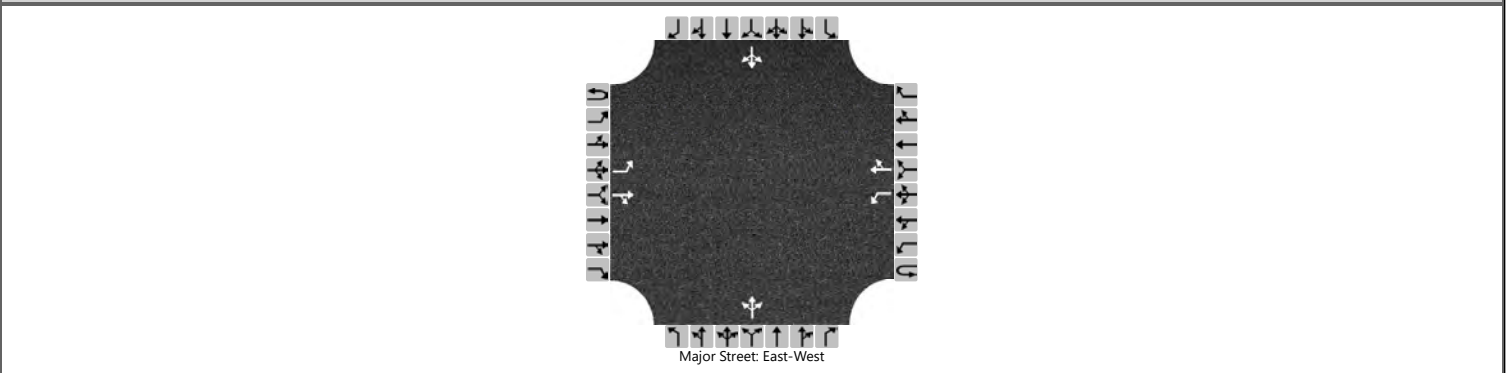
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		7				43					163				90		
Capacity, c (veh/h)		1476				1378					615				514		
v/c Ratio		0.00				0.03					0.26				0.18		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.1					1.1				0.6		
Control Delay (s/veh)		7.5				7.7					12.9				13.5		
Level of Service (LOS)		A				A					B				B		
Approach Delay (s/veh)		0.2				2.2				12.9				13.5			
Approach LOS		A				A				B				B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 463rd Ave / Western Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	463rd Ave / Western Ave		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0	
Configuration		L		TR		L		TR			LTR				LTR		
Volume (veh/h)		10	85	35		80	135	40		45	55	100		35	65	15	
Percent Heavy Vehicles (%)		22				3				0	11	4		0	4	0	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized																	
Median Type   Storage	Undivided																

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.32				4.13				7.10	6.61	6.24		7.10	6.54	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.40				2.23				3.50	4.10	3.34		3.50	4.04	3.30

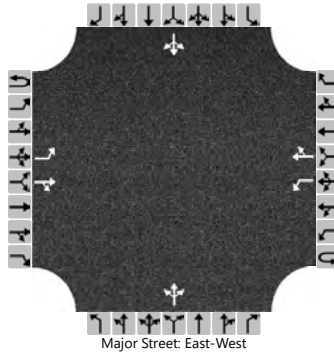
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				87					217				125		
Capacity, c (veh/h)		1272				1449					568				437		
v/c Ratio		0.01				0.06					0.38				0.29		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.2					1.8				1.2		
Control Delay (s/veh)		7.9				7.6					15.2				16.5		
Level of Service (LOS)		A				A					C				C		
Approach Delay (s/veh)		0.6				2.4				15.2				16.5			
Approach LOS		A				A				C				C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Main Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	Main Ave (9th St)		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0	
Configuration		L		TR		L		TR			LTR				LTR		
Volume (veh/h)		1	175	20		25	135	15		25	3	60		5	7	2	
Percent Heavy Vehicles (%)		0				11				5	0	2		0	17	0	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized																	
Median Type   Storage	Undivided																

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.21				7.15	6.50	6.22		7.10	6.67	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.30				3.55	4.00	3.32		3.50	4.15	3.30

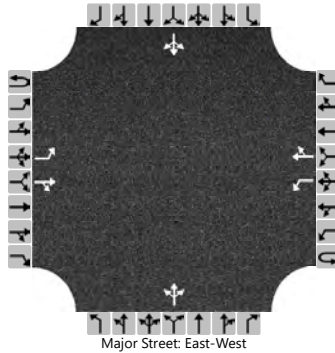
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1				27					96				15		
Capacity, c (veh/h)		1428				1307					706				529		
v/c Ratio		0.00				0.02					0.14				0.03		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.1					0.5				0.1		
Control Delay (s/veh)		7.5				7.8					10.9				12.0		
Level of Service (LOS)		A				A					B				B		
Approach Delay (s/veh)		0.0				1.1				10.9				12.0			
Approach LOS		A				A				B				B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Main Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	Main Ave (9th St)		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		7	175	30		45	225	40		20	15	40		25	20	5
Percent Heavy Vehicles (%)		0				0				5	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.15	6.50	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.55	4.00	3.30		3.50	4.00	3.30

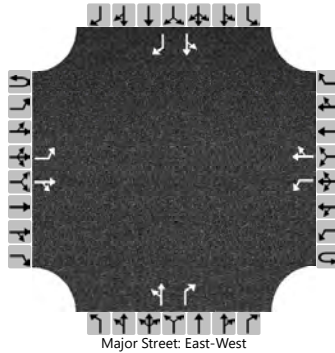
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		8				49					82				54		
Capacity, c (veh/h)		1286				1358					544				406		
v/c Ratio		0.01				0.04					0.15				0.13		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.1					0.5				0.5		
Control Delay (s/veh)		7.8				7.7					12.8				15.2		
Level of Service (LOS)		A				A					B				C		
Approach Delay (s/veh)		0.3				1.1				12.8				15.2			
Approach LOS		A				A				B				C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Vandemark Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	Vandemark Avenue		
Time Analyzed	AM			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	1		0	1	1
Configuration		L		TR		L		TR		LT		R		LT		R
Volume (veh/h)		20	260	7		7	180	20		6	4	9		30	1	15
Percent Heavy Vehicles (%)		0				0				40	0	0		0	0	7
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized									No				No			
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.20		7.10	6.50	6.27
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.86	4.00	3.30		3.50	4.00	3.36

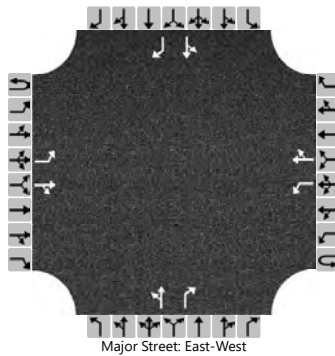
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		22				8				11		10		34		16	
Capacity, c (veh/h)		1364				1283				399		757		429		821	
v/c Ratio		0.02				0.01				0.03		0.01		0.08		0.02	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0				0.1		0.0		0.3		0.1	
Control Delay (s/veh)		7.7				7.8				14.3		9.8		14.1		9.5	
Level of Service (LOS)		A				A				B		A		B		A	
Approach Delay (s/veh)		0.5				0.3				12.2				12.6			
Approach LOS		A				A				B				B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Vandemark Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	Vandemark Avenue		
Time Analyzed	PM			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Number of Lanes	0	1	1	0	0	1	1	0		0	1	1		0	1	1	
Configuration		L		TR		L		TR		LT		R		LT		R	
Volume (veh/h)		15	185	2		5	330	30		0	0	8		20	0	20	
Percent Heavy Vehicles (%)		0				0				0	0	100		0	0	7	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized										No				No			
Median Type   Storage	Undivided																

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	7.20		7.10	6.50	6.27
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	4.20		3.50	4.00	3.36

## Delay, Queue Length, and Level of Service

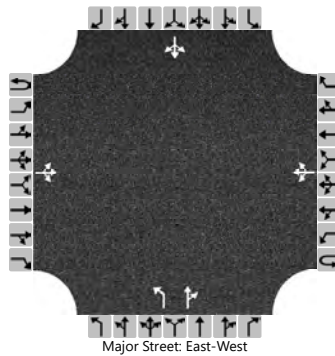
Flow Rate, v (veh/h)		16				5				0		9		22		22
Capacity, c (veh/h)		1178				1381				0		642		391		660
v/c Ratio		0.01				0.00						0.01		0.06		0.03
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0						0.0		0.2		0.1
Control Delay (s/veh)		8.1				7.6						10.7		14.7		10.6
Level of Service (LOS)		A				A						B		B		B
Approach Delay (s/veh)		0.6				0.1					12.7					
Approach LOS		A				A					B					



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 2nd St		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	2nd St		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	0	1	0	0	0	1	0		1	1	0		0	1	0	
Configuration			LTR				LTR			L		TR			LTR		
Volume (veh/h)		10	230	7		65	155	10		4	15	105		25	35	15	
Percent Heavy Vehicles (%)		10				16				33	8	5		0	4	8	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized																	
Median Type   Storage	Undivided																

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.20				4.26				7.43	6.58	6.25		7.10	6.54	6.28
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.29				2.34				3.80	4.07	3.35		3.50	4.04	3.37

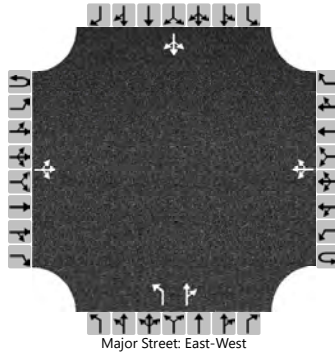
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				71				4		130			82	
Capacity, c (veh/h)		1323				1230				303		683			392	
v/c Ratio		0.01				0.06				0.01		0.19			0.21	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.2				0.0		0.7			0.8	
Control Delay (s/veh)		7.7	0.1	0.1		8.1	0.5	0.5		17.0		11.5			16.6	
Level of Service (LOS)		A	A	A		A	A	A		C		B			C	
Approach Delay (s/veh)		0.4				2.7				11.7				16.6		
Approach LOS		A				A				B				C		

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 2nd St		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	2nd St		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	0	1	0	0	0	1	0		1	1	0		0	1	0	
Configuration			LTR				LTR			L		TR			LTR		
Volume (veh/h)		20	175	6		90	345	15		9	20	45		10	20	15	
Percent Heavy Vehicles (%)		0				0				0	0	6		0	6	0	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized																	
Median Type   Storage	Undivided																

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.26		7.10	6.56	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.35		3.50	4.05	3.30

## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		22				98				10		71			49	
Capacity, c (veh/h)		1155				1388				238		508			315	
v/c Ratio		0.02				0.07				0.04		0.14			0.16	
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.2				0.1		0.5			0.5	
Control Delay (s/veh)		8.2	0.2	0.2		7.8	0.7	0.7		20.7		13.2			18.5	
Level of Service (LOS)		A	A	A		A	A	A		C		B			C	
Approach Delay (s/veh)		1.0				2.1				14.1				18.5		
Approach LOS		A				A				B				C		

# HCS Two-Way Stop-Control Report

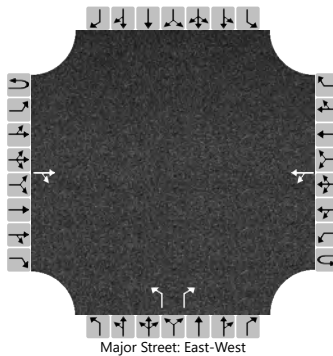
## General Information

Analyst	NM
Agency/Co.	HRG
Date Performed	5/5/2023
Analysis Year	2029
Time Analyzed	AM Peak
Intersection Orientation	East-West
Project Description	SD 38

## Site Information

Intersection	SD 38 & West Central HS Entrance
Jurisdiction	SDDOT
East/West Street	SD 38
North/South Street	West Central HS Entrance
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			300	60		35	215			25		35				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type   Storage					Undivided											

## Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						38				27		38				
Capacity, c (veh/h)						1178				410		690				
v/c Ratio						0.03				0.07		0.06				
95% Queue Length, Q <sub>95</sub> (veh)						0.1				0.2		0.2				
Control Delay (s/veh)						8.2	0.3			14.4		10.5				
Level of Service (LOS)						A	A			B		B				
Approach Delay (s/veh)						1.4				12.1						
Approach LOS						A				B						

# HCS Two-Way Stop-Control Report

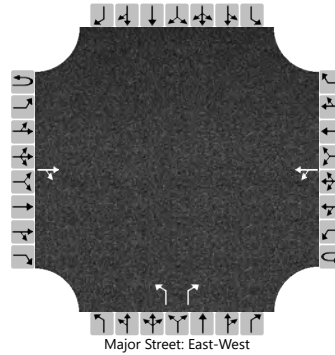
## General Information

Analyst	NM
Agency/Co.	HRG
Date Performed	5/5/2023
Analysis Year	2029
Time Analyzed	PM Peak
Intersection Orientation	East-West
Project Description	SD 38

## Site Information

Intersection	SD 38 & West Central HS Entrance
Jurisdiction	SDDOT
East/West Street	SD 38
North/South Street	West Central HS Entrance
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			225	2		2	440			10		10				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

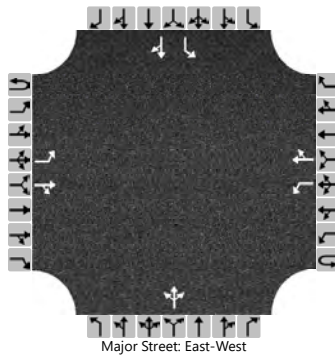
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						2				11		11				
Capacity, c (veh/h)						1331				392		798				
v/c Ratio						0.00				0.03		0.01				
95% Queue Length, Q <sub>95</sub> (veh)						0.0				0.1		0.0				
Control Delay (s/veh)						7.7	0.0			14.4		9.6				
Level of Service (LOS)						A	A			B		A				
Approach Delay (s/veh)					0.1				12.0							
Approach LOS					A				B							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Railroad Street		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	Railroad St		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		2	330	0		10	205	65		1	0	20		100	2	4
Percent Heavy Vehicles (%)		0				0				0	0	15		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.35		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.44		3.50	4.00	3.30

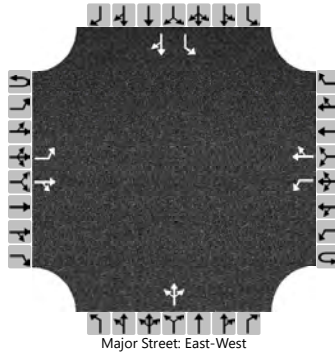
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				11				23				109		7
Capacity, c (veh/h)		1280				1211				638				372		587
v/c Ratio		0.00				0.01				0.04				0.29		0.01
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0				0.1				1.2		0.0
Control Delay (s/veh)		7.8				8.0				10.9				18.6		11.2
Level of Service (LOS)		A				A				B				C		B
Approach Delay (s/veh)	0.0				0.3				10.9				18.2			
Approach LOS	A				A				B				C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Railroad Street		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	Railroad St		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0	
Configuration		L		TR		L		TR			LTR			L		TR	
Volume (veh/h)		2	250	2		10	400	105		1	1	10		60	6	4	
Percent Heavy Vehicles (%)		0				40				0	0	15		5	0	0	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized																	
Median Type   Storage	Undivided																

## Critical and Follow-up Headways

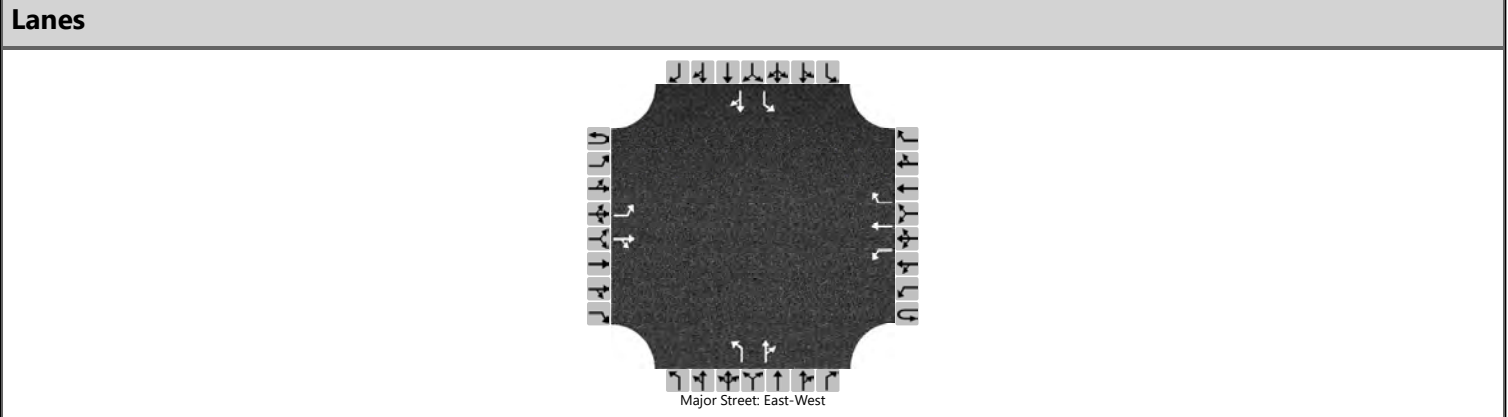
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.50				7.10	6.50	6.35		7.15	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.56				3.50	4.00	3.44		3.55	4.00	3.30

## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				11					13			65		11	
Capacity, c (veh/h)		1031				1099					599			295		390	
v/c Ratio		0.00				0.01					0.02			0.22		0.03	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.1			0.8		0.1	
Control Delay (s/veh)		8.5				8.3					11.1			20.6		14.5	
Level of Service (LOS)		A				A					B			C		B	
Approach Delay (s/veh)		0.1				0.2				11.1				19.8			
Approach LOS		A				A				B				C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 260th St (Mickelson Rd)		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	260th St (Mickelson Rd)		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	1		1	1	0		1	1	0
Configuration		L		TR		L	T	R		L		TR		L		TR
Volume (veh/h)		55	355	25		30	210	75		30	25	70		100	20	80
Percent Heavy Vehicles (%)		3				26				4	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized					No											
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.36				7.14	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.43				3.54	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

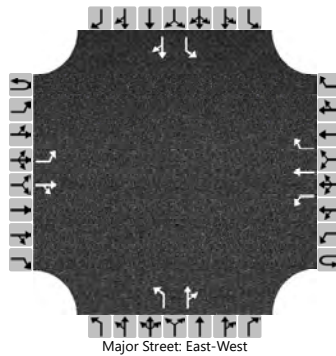
Flow Rate, v (veh/h)		60				33				33		103		109		109	
Capacity, c (veh/h)		1245				1028				222		463		217		589	
v/c Ratio		0.05				0.03				0.15		0.22		0.50		0.18	
95% Queue Length, Q <sub>95</sub> (veh)		0.2				0.1				0.5		0.8		2.5		0.7	
Control Delay (s/veh)		8.0				8.6				24.0		15.0		37.1		12.5	
Level of Service (LOS)		A				A				C		B		E		B	
Approach Delay (s/veh)		1.0				0.8				17.2				24.8			
Approach LOS		A				A				C				C			



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 260th St (Mickelson Rd)		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	260th St (Mickelson Rd)		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	1		1	1	0		1	1	0
Configuration		L		TR		L	T	R		L		TR		L		TR
Volume (veh/h)		75	205	15		90	445	105		10	30	30		90	15	65
Percent Heavy Vehicles (%)		3				1				0	3	0		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized					No											
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.11				7.10	6.53	6.20		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.21				3.50	4.03	3.30		3.53	4.03	3.33

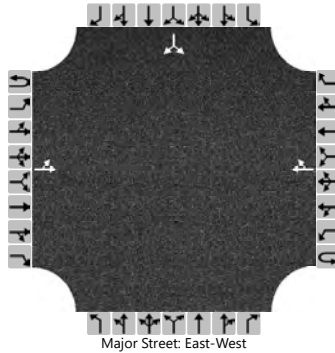
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		82				98				11		65		98		87
Capacity, c (veh/h)		974				1334				136		266		130		414
v/c Ratio		0.08				0.07				0.08		0.25		0.75		0.21
95% Queue Length, Q <sub>95</sub> (veh)		0.3				0.2				0.3		0.9		4.4		0.8
Control Delay (s/veh)		9.0				7.9				33.8		22.9		88.8		16.0
Level of Service (LOS)		A				A				D		C		F		C
Approach Delay (s/veh)	2.3				1.1				24.4				54.5			
Approach LOS	A				A				C				F			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD38 & 466th Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	466th Ave		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		1	520				315	4						2		0
Percent Heavy Vehicles (%)		0												50		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.90		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.95		3.33

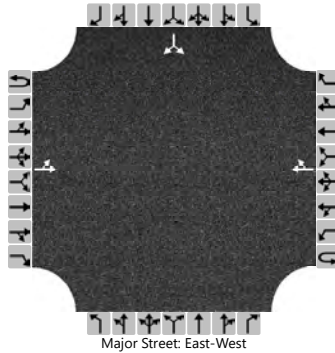
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1													2		
Capacity, c (veh/h)		1223													251		
v/c Ratio		0.00													0.01		
95% Queue Length, Q <sub>95</sub> (veh)		0.0													0.0		
Control Delay (s/veh)		7.9	0.0												19.5		
Level of Service (LOS)		A	A												C		
Approach Delay (s/veh)		0.0												19.5			
Approach LOS		A												C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD38 & 466th Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	466th Ave		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		0	325				650	1						4		1
Percent Heavy Vehicles (%)		0												33		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.73		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.80		3.30

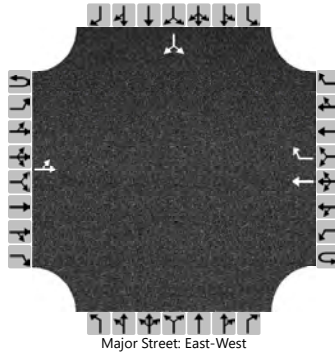
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													5	
Capacity, c (veh/h)		900													241	
v/c Ratio		0.00													0.02	
95% Queue Length, Q <sub>95</sub> (veh)		0.0													0.1	
Control Delay (s/veh)		9.0	0.0												20.3	
Level of Service (LOS)		A	A												C	
Approach Delay (s/veh)	0.0												20.3			
Approach LOS	A												C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 WB Terminal		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	I-90 WB Terminal		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	1		0	0	0		0	1	0
Configuration		LT					T	R							LR	
Volume (veh/h)		35	515				185	15						10		140
Percent Heavy Vehicles (%)		0												56		12
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized							No									
Median Type   Storage							Undivided									

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.96		6.32
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												4.00		3.41

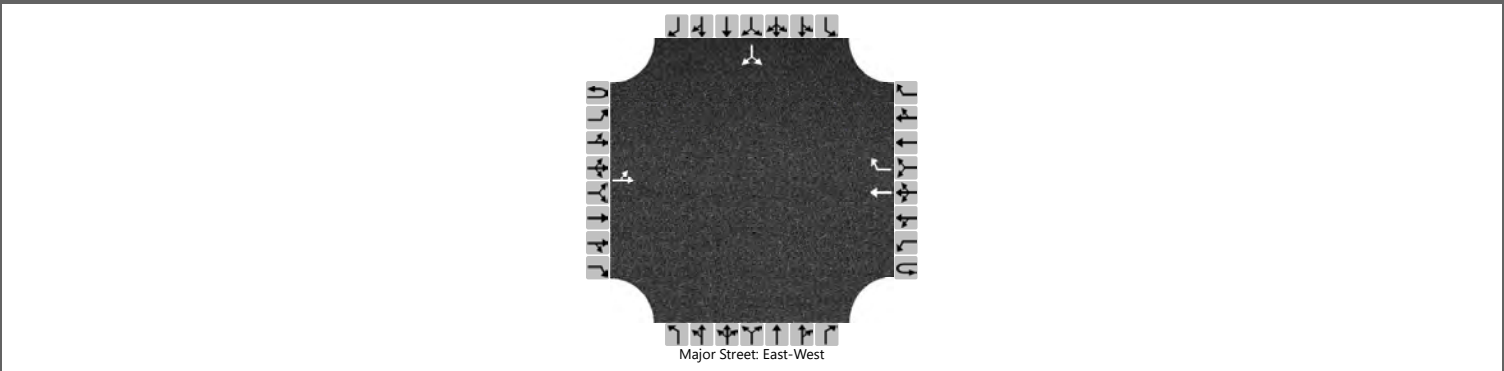
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		38														163	
Capacity, c (veh/h)		1364														715	
v/c Ratio		0.03														0.23	
95% Queue Length, Q <sub>95</sub> (veh)		0.1														0.9	
Control Delay (s/veh)		7.7	0.3													11.5	
Level of Service (LOS)		A	A													B	
Approach Delay (s/veh)		0.8												11.5			
Approach LOS		A												B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 WB Terminal		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	I-90 WB Terminal		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	1		0	0	0		0	1	0
Configuration		LT					T	R							LR	
Volume (veh/h)		25	300				300	25						20		355
Percent Heavy Vehicles (%)		0												6		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized							No									
Median Type   Storage							Undivided									

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.46		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.55		3.32

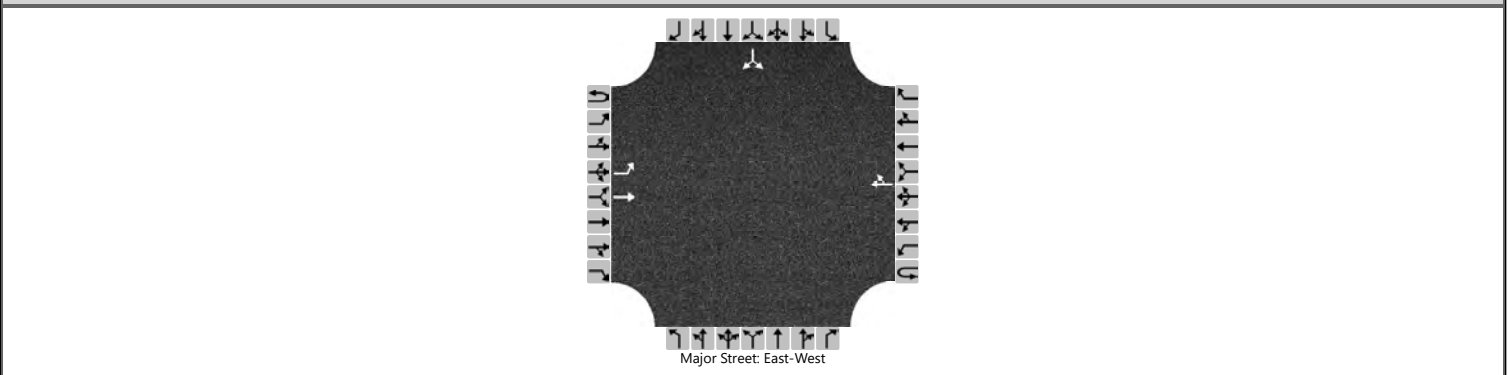
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		27														408	
Capacity, c (veh/h)		1217														684	
v/c Ratio		0.02														0.60	
95% Queue Length, Q <sub>95</sub> (veh)		0.1														4.0	
Control Delay (s/veh)		8.0	0.2													17.7	
Level of Service (LOS)		A	A													C	
Approach Delay (s/veh)		0.8												17.7			
Approach LOS		A												C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 EB Ramp Terminal		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	I-90 EB Ramp Terminal		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		305	220				170	15						4		25
Percent Heavy Vehicles (%)		1												33		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.11												6.73		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.21												3.80		3.33

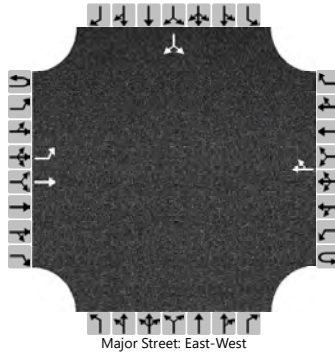
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		332													32		
Capacity, c (veh/h)		1377													527		
v/c Ratio		0.24													0.06		
95% Queue Length, Q <sub>95</sub> (veh)		0.9													0.2		
Control Delay (s/veh)		8.4													12.3		
Level of Service (LOS)		A													B		
Approach Delay (s/veh)		4.9												12.3			
Approach LOS		A												B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 EB Ramp Terminal		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	I-90 EB Ramp Terminal		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		140	185				290	20						25		35
Percent Heavy Vehicles (%)		12												36		3
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.22												6.76		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.31												3.82		3.33

## Delay, Queue Length, and Level of Service

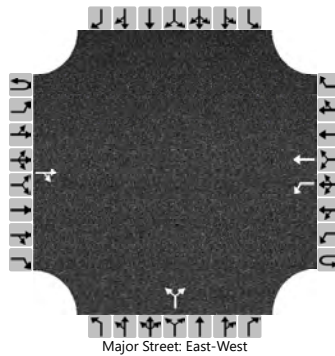
Flow Rate, v (veh/h)		152													65	
Capacity, c (veh/h)		1168													412	
v/c Ratio		0.13													0.16	
95% Queue Length, Q <sub>95</sub> (veh)		0.4													0.6	
Control Delay (s/veh)		8.5													15.4	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)	3.7												15.4			
Approach LOS	A												C			



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 466th Ave (South)		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	466th Ave (South)		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			215	15		10	170			20		10				
Percent Heavy Vehicles (%)						20				33		60				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.30					6.73		6.80			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.38					3.80		3.84			

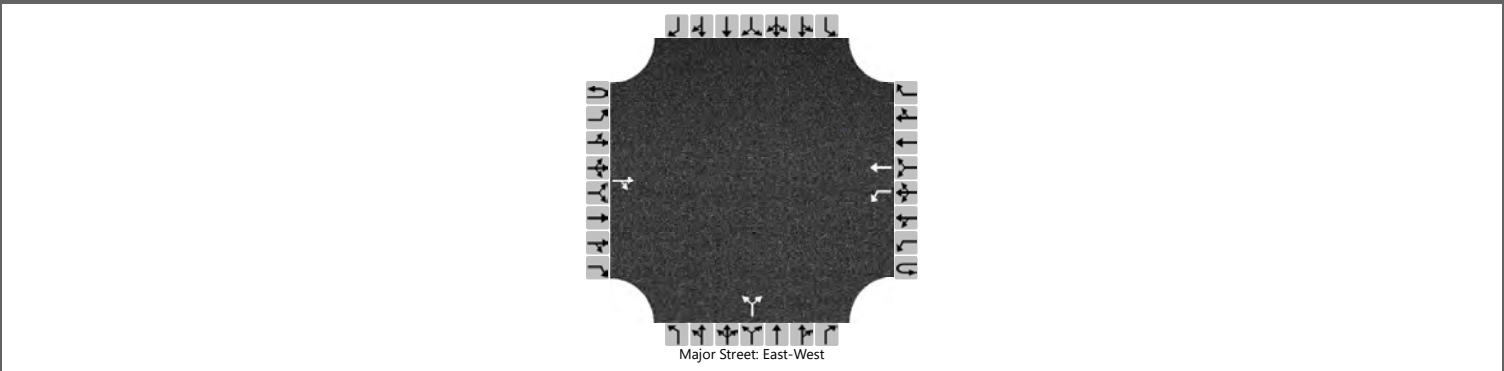
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						11						33				
Capacity, c (veh/h)						1217						555				
v/c Ratio						0.01						0.06				
95% Queue Length, Q <sub>95</sub> (veh)						0.0						0.2				
Control Delay (s/veh)						8.0						11.9				
Level of Service (LOS)						A						B				
Approach Delay (s/veh)					0.4				11.9							
Approach LOS					A				B							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 466th Ave (South)		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	466th Ave (South)		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			195	15		10	280			30		15				
Percent Heavy Vehicles (%)						11				20		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.21					6.60		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.30					3.68		3.30			

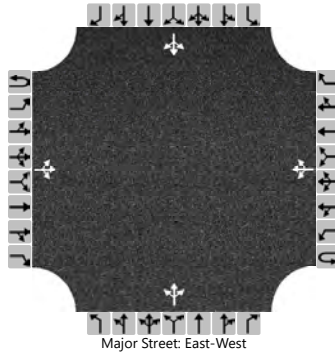
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						11					49					
Capacity, c (veh/h)						1289					544					
v/c Ratio						0.01					0.09					
95% Queue Length, Q <sub>95</sub> (veh)						0.0					0.3					
Control Delay (s/veh)						7.8					12.3					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)						0.3					12.3					
Approach LOS						A					B					

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 468th Avenue		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	468th Ave / County Highway 141		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0	0	1	0	0	0	1	0	
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		2	250	0		0	160	35		1	1	0		35	0	5
Percent Heavy Vehicles (%)		0				0				0	100	0		4	0	50
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	7.50	6.20		7.14	6.50	6.70
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.90	3.30		3.54	4.00	3.75

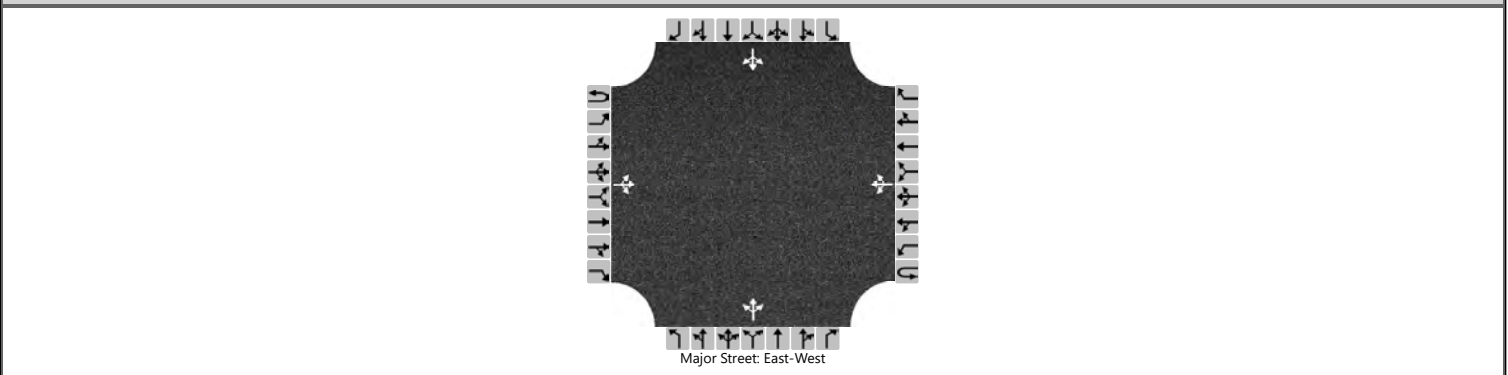
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				0					2					43
Capacity, c (veh/h)		1370				1303					427					520
v/c Ratio		0.00				0.00					0.01					0.08
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.0					0.3
Control Delay (s/veh)		7.6	0.0	0.0		7.8	0.0	0.0			13.5					12.6
Level of Service (LOS)		A	A	A		A	A	A			B					B
Approach Delay (s/veh)		0.1				0.0				13.5				12.6		
Approach LOS		A				A				B				B		

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 468th Avenue		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	468th Ave / County Highway 141		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	215	1		4	290	40		1	1	0		35	2	2
Percent Heavy Vehicles (%)		0				0				0	0	0		4	100	50
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.20		7.14	7.50	6.70
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.54	4.90	3.75

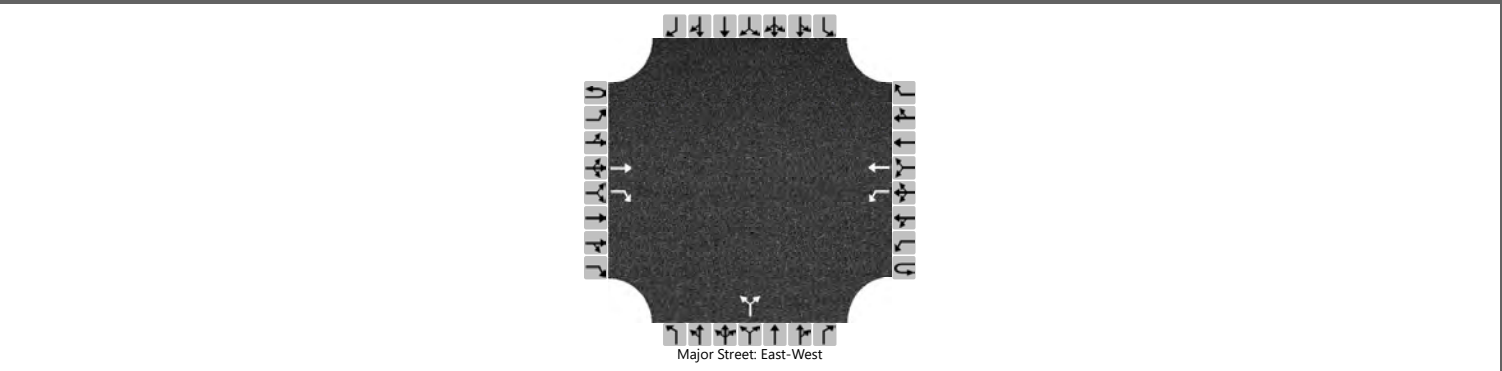
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				4					2					42
Capacity, c (veh/h)		1211				1344					425					420
v/c Ratio		0.00				0.00					0.01					0.10
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.0					0.3
Control Delay (s/veh)		8.0	0.0	0.0		7.7	0.0	0.0			13.5					14.5
Level of Service (LOS)		A	A	A		A	A	A			B					B
Approach Delay (s/veh)		0.0				0.1				13.5				14.5		
Approach LOS		A				A				B				B		

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 469th Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	469th Ave / Co Hwy 139		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	1	1	0		0	1	0		0	0	0
Configuration			T	R		L	T				LR					
Volume (veh/h)			230	50		50	115			75		190				
Percent Heavy Vehicles (%)						5				13		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No															
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.15					6.53		6.23			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.25					3.62		3.33			

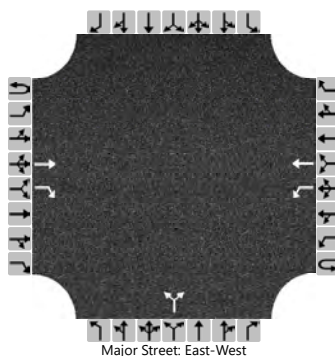
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						54						288				
Capacity, c (veh/h)						1240						676				
v/c Ratio						0.04						0.43				
95% Queue Length, Q <sub>95</sub> (veh)						0.1						2.1				
Control Delay (s/veh)						8.0						14.2				
Level of Service (LOS)						A						B				
Approach Delay (s/veh)					2.4				14.2							
Approach LOS					A				B							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 469th Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	469th Ave / Co Hwy 139		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	1	1	0		0	1	0		0	0	0
Configuration			T	R		L	T				LR					
Volume (veh/h)			170	80		190	265			65		80				
Percent Heavy Vehicles (%)						5				2		15				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No															
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.15					6.42		6.35			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.25					3.52		3.44			

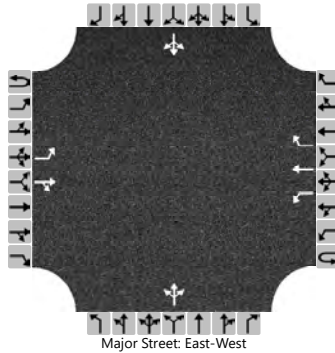
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						207						158				
Capacity, c (veh/h)						1274						423				
v/c Ratio						0.16						0.37				
95% Queue Length, Q <sub>95</sub> (veh)						0.6						1.7				
Control Delay (s/veh)						8.4						18.5				
Level of Service (LOS)						A						C				
Approach Delay (s/veh)					3.5				18.5							
Approach LOS					A				C							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & La Mesa		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	La Mesa		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	1		0	1	0		0	1	0
Configuration		L		TR		L	T	R			LTR				LTR	
Volume (veh/h)		20	480	2		0	165	10		0	10	4		50	2	20
Percent Heavy Vehicles (%)		0				0				0	13	0		0	50	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized					No											
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.63	6.20		7.10	7.00	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.12	3.30		3.50	4.45	3.30

## Delay, Queue Length, and Level of Service

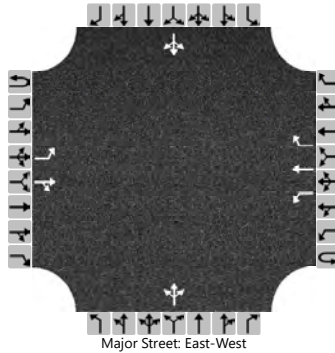
Flow Rate, v (veh/h)		22				0				15				78		
Capacity, c (veh/h)		1396				1053				364				378		
v/c Ratio		0.02				0.00				0.04				0.21		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0				0.1				0.8		
Control Delay (s/veh)		7.6				8.4				15.3				17.0		
Level of Service (LOS)		A				A				C				C		
Approach Delay (s/veh)	0.3				0.0				15.3				17.0			
Approach LOS	A				A				C				C			



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & La Mesa		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2029			North/South Street	La Mesa		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	1		0	1	0		0	1	0
Configuration		L		TR		L	T	R			LTR				LTR	
Volume (veh/h)		15	225	0		6	505	70		2	4	0		55	10	20
Percent Heavy Vehicles (%)		0				0				0	0	0		9	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized					No											
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

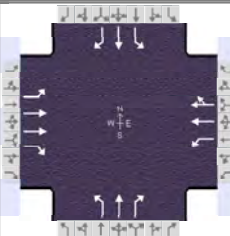
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.20		7.19	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.58	4.00	3.30

## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		16				7					7					92	
Capacity, c (veh/h)		966				1333					265					307	
v/c Ratio		0.02				0.00					0.02					0.30	
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.0					0.1					1.2	
Control Delay (s/veh)		8.8				7.7					18.9					21.7	
Level of Service (LOS)		A				A					C					C	
Approach Delay (s/veh)		0.5				0.1				18.9				21.7			
Approach LOS		A				A				C				C			

## HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	HRG			Duration, h	0.250		
Analyst	NM	Analysis Date	May 5, 2023		Area Type	Other	
Jurisdiction	SDDOT	Time Period	AM Peak		PHF	0.92	
Urban Street	SD 38	Analysis Year	2029		Analysis Period	1 > 7:15	
Intersection	SD 38 & Marion Street	File Name	(18) SD38&Marion_AM.xus				
Project Description							



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( v ), veh/h	110	240	70	35	90	50	75	155	80	30	100	25

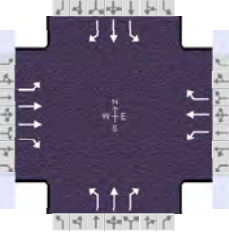
Signal Information				Signal Timing Diagram											
Cycle, s	50.0	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	No	Simult. Gap E/W	On												
Force Mode	Fixed	Simult. Gap N/S	On												
		Green		2.1	2.4	16.2	1.8	1.6	10.0						
		Yellow		4.0	0.0	4.0	4.0	0.0	4.0						
		Red		0.0	0.0	0.0	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	1.1	4.0	2.0	3.0	2.0	3.0
Phase Duration, s	8.4	22.6	6.1	20.2	7.4	15.5	5.8	14.0
Change Period, ( Y+R <sub>c</sub> ), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway ( MAH ), s	2.9	0.0	2.9	0.0	2.9	2.9	2.9	2.9
Queue Clearance Time ( g <sub>s</sub> ), s	5.4		2.7		4.4	6.3	3.0	4.6
Green Extension Time ( g <sub>e</sub> ), s	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.4
Phase Call Probability	0.81		0.41		0.68	1.00	0.36	1.00
Max Out Probability	0.71		0.00		1.00	0.02	1.00	0.02

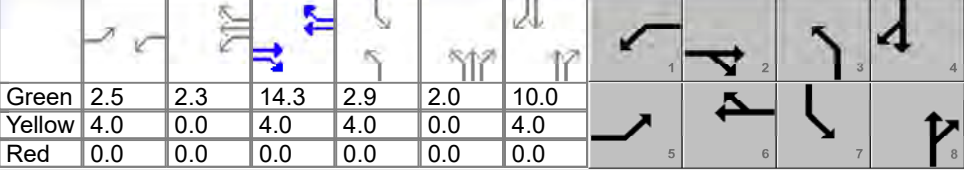
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( v ), veh/h	120	261	76	38	77	75	82	168	87	33	109	27
Adjusted Saturation Flow Rate ( s ), veh/h/ln	1701	1674	1525	1714	1772	1567	1647	1674	1502	1554	1758	1466
Queue Service Time ( g <sub>s</sub> ), s	3.4	2.7	1.6	0.7	1.5	1.7	2.4	4.3	2.4	1.0	2.6	0.8
Cycle Queue Clearance Time ( g <sub>c</sub> ), s	3.4	2.7	1.6	0.7	1.5	1.7	2.4	4.3	2.4	1.0	2.6	0.8
Green Ratio ( g/C )	0.09	0.37	0.37	0.36	0.32	0.32	0.07	0.23	0.23	0.04	0.20	0.20
Capacity ( c ), veh/h	151	1244	567	531	574	507	112	386	347	57	351	292
Volume-to-Capacity Ratio ( X )	0.791	0.210	0.134	0.072	0.135	0.147	0.730	0.436	0.251	0.576	0.310	0.093
Back of Queue ( Q ), ft/ln ( 95 th percentile)	56.9	33.9	20.4	8.5	23.5	26	40.9	61.8	28.7	18.1	38.7	9.4
Back of Queue ( Q ), veh/ln ( 95 th percentile)	2.3	1.3	0.8	0.3	0.9	0.9	1.6	2.3	1.1	0.7	1.5	0.4
Queue Storage Ratio ( RQ ) ( 95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay ( d <sub>1</sub> ), s/veh	22.3	10.7	10.4	10.4	12.0	12.0	22.9	16.4	15.7	23.7	17.1	16.3
Incremental Delay ( d <sub>2</sub> ), s/veh	3.5	0.4	0.5	0.0	0.5	0.6	3.4	0.3	0.1	3.4	0.2	0.1
Initial Queue Delay ( d <sub>3</sub> ), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay ( d ), s/veh	25.8	11.1	10.9	10.4	12.4	12.6	26.3	16.7	15.8	27.1	17.3	16.4
Level of Service ( LOS )	C	B	B	B	B	B	C	B	B	C	B	B
Approach Delay, s/veh / LOS	14.9		B	12.1		B	18.8		B	19.0		B
Intersection Delay, s/veh / LOS	16.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.08	B	2.09	B	2.27	B	2.42	B
Bicycle LOS Score / LOS	0.86	A	0.64	A	1.04	A	0.77	A

# HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	HRG			Duration, h	0.250	
Analyst	NM	Analysis Date	May 5, 2023	Area Type	Other	
Jurisdiction	SDDOT	Time Period	PM Peak	PHF	0.90	
Urban Street	SD 38	Analysis Year	2029	Analysis Period	1 > 16:45	
Intersection	SD 38 & Marion Street	File Name	(18) SD38&Marion_PM.xus			
Project Description						

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand ( v ), veh/h	45	160	70	115	250	40	120	140	85	55	240	140

Signal Information																		
Cycle, s	50.0	Reference Phase	2	Green	2.5	2.3	14.3	2.9	2.0	10.0	Yellow	4.0	0.0	4.0	4.0	0.0	4.0	
Offset, s	0	Reference Point	End	Red	0.0	0.0	0.0	0.0	0.0	0.0	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0
Phase Duration, s	6.5	18.3	8.8	20.6	8.9	16.0	6.9	14.0
Change Period, ( Y+R <sub>c</sub> ), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway ( MAH ), s	2.9	0.0	2.9	0.0	2.9	3.0	2.9	3.0
Queue Clearance Time ( g <sub>s</sub> ), s	3.7		5.7		5.8	5.7	3.8	9.1
Green Extension Time ( g <sub>e</sub> ), s	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.4
Phase Call Probability	0.50		0.83		0.84	1.00	0.57	1.00
Max Out Probability	0.41		1.00		1.00	0.07	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( v ), veh/h	50	178	78	128	278	44	133	156	94	61	267	156
Adjusted Saturation Flow Rate ( s ), veh/h/ln	1474	1660	1490	1688	1772	1406	1714	1772	1478	1688	1772	1478
Queue Service Time ( g <sub>s</sub> ), s	1.7	2.0	2.0	3.7	6.2	1.1	3.8	3.7	2.6	1.8	7.1	4.7
Cycle Queue Clearance Time ( g <sub>c</sub> ), s	1.7	2.0	2.0	3.7	6.2	1.1	3.8	3.7	2.6	1.8	7.1	4.7
Green Ratio ( g/C )	0.05	0.29	0.29	0.10	0.33	0.33	0.10	0.24	0.24	0.06	0.20	0.20
Capacity ( c ), veh/h	74	953	428	161	588	467	168	426	356	97	354	296
Volume-to-Capacity Ratio ( X )	0.678	0.187	0.182	0.796	0.472	0.095	0.795	0.365	0.266	0.633	0.753	0.526
Back of Queue ( Q ), ft/ln ( 95 th percentile)	28.6	28.3	27.3	65.8	99.2	14.3	89.7	52	31.3	29.5	125.7	59.5
Back of Queue ( Q ), veh/ln ( 95 th percentile)	1.0	1.1	1.1	2.6	3.9	0.5	3.6	2.0	1.2	1.2	4.9	2.3
Queue Storage Ratio ( RQ ) ( 95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay ( d <sub>1</sub> ), s/veh	23.4	13.4	13.4	22.1	13.2	11.5	22.1	15.8	15.4	23.1	18.8	17.9
Incremental Delay ( d <sub>2</sub> ), s/veh	4.0	0.4	0.9	5.8	2.7	0.4	16.3	0.2	0.1	2.5	5.2	0.5
Initial Queue Delay ( d <sub>3</sub> ), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay ( d ), s/veh	27.4	13.9	14.3	27.9	15.9	11.9	38.3	16.0	15.5	25.6	24.0	18.4
Level of Service ( LOS )	C	B	B	C	B	B	D	B	B	C	C	B
Approach Delay, s/veh / LOS	16.2	B		18.9	B		23.7	C		22.4	C	
Intersection Delay, s/veh / LOS	20.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.09	B	2.09	B	2.26	B	2.27	B
Bicycle LOS Score / LOS	0.74	A	1.23	A	1.12	A	1.29	A

# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	3/15/2023
Agency	HRG	Analysis Year	2050 NB
Jurisdiction	SDDOT	Time Analyzed	AM PEAK
Project Description	EB SD38 Corridor Study	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1084
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	405	Opposing Demand Flow Rate, veh/h	245
Peak Hour Factor	0.88	Total Trucks, %	2.16
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0
Speed Slope Coefficient (m)	4.33465	Speed Power Coefficient (p)	0.52741
PF Slope Coefficient (m)	-1.33665	PF Power Coefficient (p)	0.76555
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1084	-	-	52.7

### Vehicle Results

Average Speed, mi/h	52.7	Percent Followers, %	48.8
Segment Travel Time, minutes	0.23	Follower Density (FD), followers/mi/ln	3.7
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	405	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.75	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	507
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	405	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	2.16		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.43973	PF Power Coefficient (p)	0.72475		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.1		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	507	-	-	52.2
<b>Vehicle Results</b>					
Average Speed, mi/h	52.2	Percent Followers, %	52.6		
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	4.1		
Vehicle LOS	C				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	405	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.75	Bicycle Effective Speed Factor	4.62		
Bicycle LOS	C				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	535		
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	405	Opposing Demand Flow Rate, veh/h	245		
Peak Hour Factor	0.88	Total Trucks, %	2.16		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0		
Speed Slope Coefficient (m)	4.33465	Speed Power Coefficient (p)	0.52741		
PF Slope Coefficient (m)	-1.33665	PF Power Coefficient (p)	0.76555		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.7		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	535	-	-	52.7

### Vehicle Results

Average Speed, mi/h	52.7	Percent Followers, %	48.8
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	3.7
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	405	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.75	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1494
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	483	Opposing Demand Flow Rate, veh/h	256
Peak Hour Factor	0.88	Total Trucks, %	1.63
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.28

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.34129	Speed Power Coefficient (p)	0.52497
PF Slope Coefficient (m)	-1.24091	PF Power Coefficient (p)	0.80645
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1494	-	-	67.4

### Vehicle Results

Average Speed, mi/h	67.4	Percent Followers, %	49.8
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	3.6
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	483	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5762
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	483	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.63
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.28

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.62977	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.20069	PF Power Coefficient (p)	0.78591
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5762	-	-	66.9

### Vehicle Results

Average Speed, mi/h	66.9	Percent Followers, %	49.2
Segment Travel Time, minutes	0.98	Follower Density (FD), followers/mi/ln	3.6
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	483	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	383
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	488	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.89
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.29

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29361	PF Power Coefficient (p)	0.75772
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	383	-	-	66.9

### Vehicle Results

Average Speed, mi/h	66.9	Percent Followers, %	52.8
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	3.8
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	488	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.91	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1485
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	505	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.19
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57684	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28453	PF Power Coefficient (p)	0.76145
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1485	-	-	66.9

### Vehicle Results

Average Speed, mi/h	66.9	Percent Followers, %	53.4
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	4.0
Vehicle LOS	C		

<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	505	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.27	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

### Segment 8

#### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	426
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

#### Demand and Capacity

Directional Demand Flow Rate, veh/h	231	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	6.47
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

#### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29307	PF Power Coefficient (p)	0.75839
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

#### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	426	-	-	68.0

#### Vehicle Results

Average Speed, mi/h	68.0	Percent Followers, %	34.6
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

#### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	231	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.91	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

### Segment 9

#### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1212
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

#### Demand and Capacity

Directional Demand Flow Rate, veh/h	242	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29321	PF Power Coefficient (p)	0.75821
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1212	-	-	68.0

### Vehicle Results

Average Speed, mi/h	68.0	Percent Followers, %	35.7
Segment Travel Time, minutes	0.20	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	242	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.53	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1877
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	242	Opposing Demand Flow Rate, veh/h	172
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.31794	Speed Power Coefficient (p)	0.54766
PF Slope Coefficient (m)	-1.20625	PF Power Coefficient (p)	0.82046
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1877	-	-	68.5
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### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	31.4
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	242	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.53	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1872
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	242	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58354	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.26676	PF Power Coefficient (p)	0.76864
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1872	-	-	68.0

### Vehicle Results

Average Speed, mi/h	68.0	Percent Followers, %	34.7
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	242	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.53	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 12

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	3603
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	242	Opposing Demand Flow Rate, veh/h	172
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.34159	Speed Power Coefficient (p)	0.54766
PF Slope Coefficient (m)	-1.16323	PF Power Coefficient (p)	0.83771
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3603	-	-	68.5

Vehicle Results			
Average Speed, mi/h	68.5	Percent Followers, %	29.8
Segment Travel Time, minutes	0.60	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	242	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.53	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1053
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	242	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29321	PF Power Coefficient (p)	0.75821

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1053	-	-	68.0

### Vehicle Results

Average Speed, mi/h	68.0	Percent Followers, %	35.7
Segment Travel Time, minutes	0.18	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	242	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.53	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1120
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	242	Opposing Demand Flow Rate, veh/h	172
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.30804	Speed Power Coefficient (p)	0.54766
PF Slope Coefficient (m)	-1.23154	PF Power Coefficient (p)	0.80916
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1120	-	-	68.5

### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	32.3
Segment Travel Time, minutes	0.19	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	242	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.53	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 15

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1272
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	278	Opposing Demand Flow Rate, veh/h	188
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.31419	Speed Power Coefficient (p)	0.54284
PF Slope Coefficient (m)	-1.23547	PF Power Coefficient (p)	0.80786
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1272	-	-	68.3

### Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	35.6
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	278	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.54	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 16

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	625
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	278	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29323	PF Power Coefficient (p)	0.75819
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	625	-	-	67.8

### Vehicle Results

Average Speed, mi/h	67.8	Percent Followers, %	38.8
Segment Travel Time, minutes	0.10	Follower Density (FD), followers/mi/ln	1.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	278	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.54	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 17

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1995
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	278	Opposing Demand Flow Rate, veh/h	188
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.32599	Speed Power Coefficient (p)	0.54284
PF Slope Coefficient (m)	-1.20573	PF Power Coefficient (p)	0.82101
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1995	-	-	68.3

### Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	34.4
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Segment Travel Time, minutes	0.33	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	278	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.54	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 18

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1399
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	278	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57524	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28884	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1399	-	-	67.8

### Vehicle Results

Average Speed, mi/h	67.8	Percent Followers, %	38.6
Segment Travel Time, minutes	0.23	Follower Density (FD), followers/mi/ln	1.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	278	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.54	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 19

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1254
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	516	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	1.51		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29366	PF Power Coefficient (p)	0.75766		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.2		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1254	-	-	66.8
<b>Vehicle Results</b>					
Average Speed, mi/h	66.8	Percent Followers, %	54.3		
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	4.2		
Vehicle LOS	C				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	516	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
<b>Segment 20</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	1108		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	516	Opposing Demand Flow Rate, veh/h	177		
Peak Hour Factor	0.88	Total Trucks, %	1.51		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.31027	Speed Power Coefficient (p)	0.54591		
PF Slope Coefficient (m)	-1.23339	PF Power Coefficient (p)	0.80813		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.9		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1108	-	-	67.3

### Vehicle Results

Average Speed, mi/h	67.3	Percent Followers, %	51.4
Segment Travel Time, minutes	0.19	Follower Density (FD), followers/mi/ln	3.9
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	516	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 21

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2901
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	516	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.51
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.59854	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.23554	PF Power Coefficient (p)	0.77974
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2901	-	-	66.8

### Vehicle Results

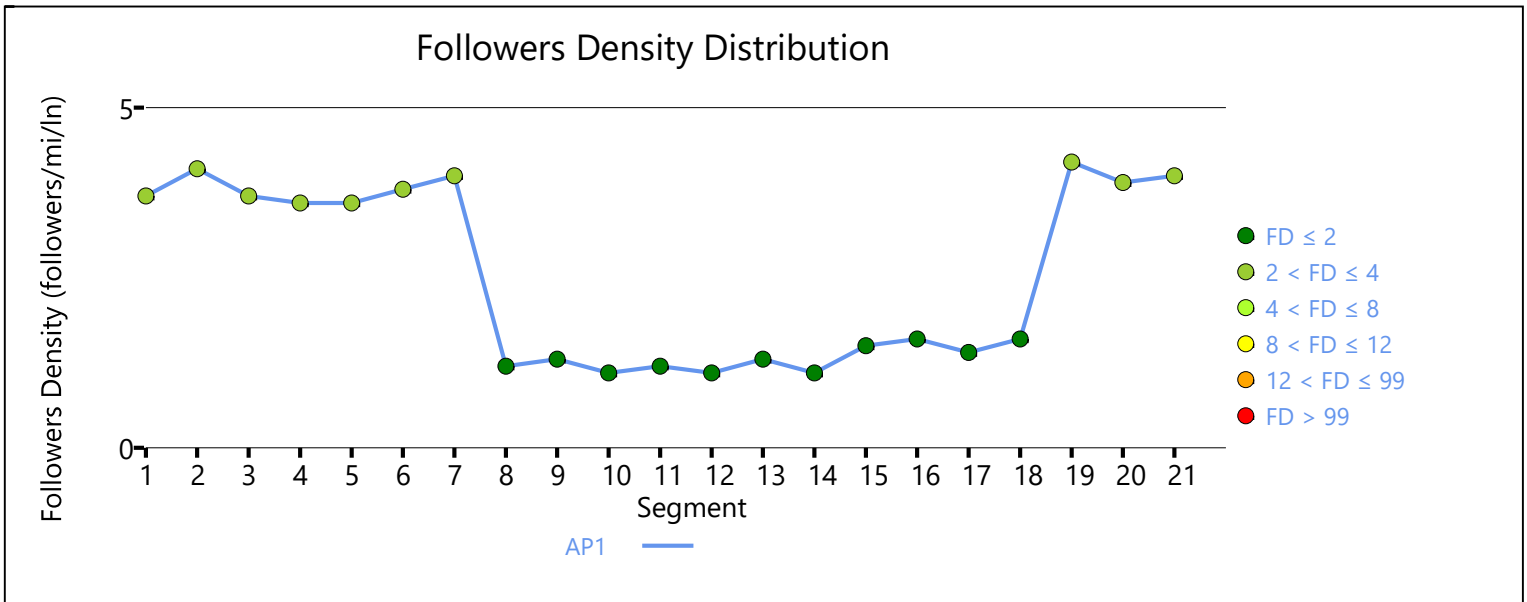
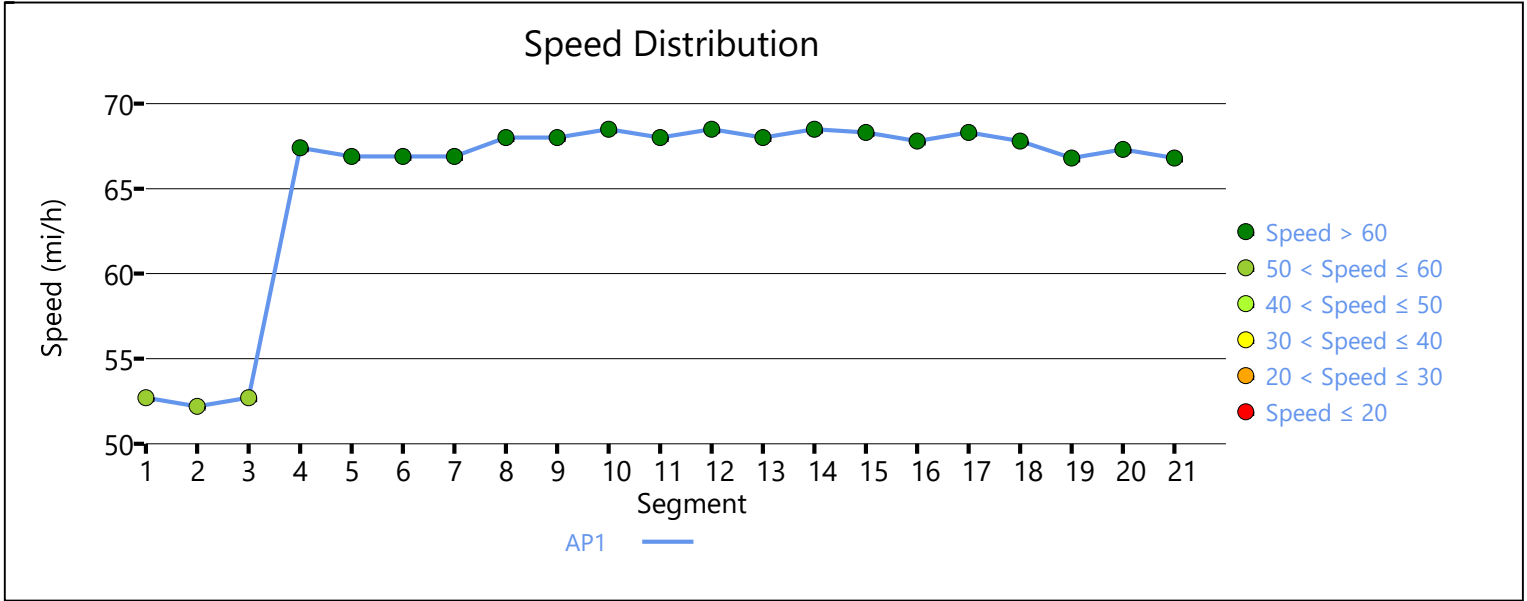
Average Speed, mi/h	66.8	Percent Followers, %	52.2
Segment Travel Time, minutes	0.49	Follower Density (FD), followers/mi/ln	4.0
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	516	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

# Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	508	0.29	2.5	B



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2029 NB
Jurisdiction	SDDOT	Time Analyzed	PM PEAK
Project Description	EB SD38 Corridor Study	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1084
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	249	Opposing Demand Flow Rate, veh/h	457
Peak Hour Factor	0.90	Total Trucks, %	2.16
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0
Speed Slope Coefficient (m)	4.39377	Speed Power Coefficient (p)	0.48810
PF Slope Coefficient (m)	-1.37630	PF Power Coefficient (p)	0.75567
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1084	-	-	53.3

### Vehicle Results

Average Speed, mi/h	53.3	Percent Followers, %	38.2
Segment Travel Time, minutes	0.23	Follower Density (FD), followers/mi/ln	1.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	249	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.50	Bicycle Effective Speed Factor	4.62
Bicycle LOS	B		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1014
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	249	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.90	Total Trucks, %	2.16		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.43973	PF Power Coefficient (p)	0.72475		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	507	-	-	52.9
2	Horizontal Curve	507	3000	0.0	52.9
<b>Vehicle Results</b>					
Average Speed, mi/h	52.9	Percent Followers, %	40.9		
Segment Travel Time, minutes	0.22	Follower Density (FD), followers/mi/ln	1.9		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	249	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.50	Bicycle Effective Speed Factor	4.62		
Bicycle LOS	B				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	535		
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	249	Opposing Demand Flow Rate, veh/h	457		
Peak Hour Factor	0.90	Total Trucks, %	2.16		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0		
Speed Slope Coefficient (m)	4.39377	Speed Power Coefficient (p)	0.48810		
PF Slope Coefficient (m)	-1.37630	PF Power Coefficient (p)	0.75567		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	535	-	-	53.3

Vehicle Results			
Average Speed, mi/h	53.3	Percent Followers, %	38.2
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	1.8
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	249	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.50	Bicycle Effective Speed Factor	4.62
Bicycle LOS	B		

### Segment 4

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1494
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	259	Opposing Demand Flow Rate, veh/h	574
Peak Hour Factor	0.90	Total Trucks, %	1.63
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.42398	Speed Power Coefficient (p)	0.47280
PF Slope Coefficient (m)	-1.27644	PF Power Coefficient (p)	0.79034
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1494	-	-	68.1

Vehicle Results			
Average Speed, mi/h	68.1	Percent Followers, %	35.5
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	259	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.52	Bicycle Effective Speed Factor	5.07

Bicycle LOS	C		
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## Segment 5

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5762
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	259	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.90	Total Trucks, %	1.63
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.62977	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.20069	PF Power Coefficient (p)	0.78591
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5762	-	-	67.8

### Vehicle Results

Average Speed, mi/h	67.8	Percent Followers, %	34.0
Segment Travel Time, minutes	0.97	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	259	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.52	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	383
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	262	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.90	Total Trucks, %	1.89
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

### Intermediate Results



Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29361	PF Power Coefficient (p)	0.75772
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	383	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	37.4
Segment Travel Time, minutes	0.06	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	262	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.59	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1485
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	288	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.90	Total Trucks, %	3.19
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57684	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28453	PF Power Coefficient (p)	0.76145
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1485	-	-	67.7

### Vehicle Results

Average Speed, mi/h	67.7	Percent Followers, %	39.2
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	1.7

Vehicle LOS	A		
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### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	288	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.99	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 8

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	426
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	214	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.90	Total Trucks, %	6.47
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29307	PF Power Coefficient (p)	0.75839
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	426	-	-	68.1

### Vehicle Results

Average Speed, mi/h	68.1	Percent Followers, %	33.1
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	214	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.87	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 9

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1212
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	208	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.90	Total Trucks, %	5.26		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29321	PF Power Coefficient (p)	0.75821		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1212	-	-	68.2
<b>Vehicle Results</b>					
Average Speed, mi/h	68.2	Percent Followers, %	32.5		
Segment Travel Time, minutes	0.20	Follower Density (FD), followers/mi/ln	1.0		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	208	Bicycle Effective Width, ft	24		
Bicycle LOS Score	3.45	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
<b>Segment 10</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	1877		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	208	Opposing Demand Flow Rate, veh/h	281		
Peak Hour Factor	0.90	Total Trucks, %	5.26		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.35595	Speed Power Coefficient (p)	0.51922		
PF Slope Coefficient (m)	-1.22813	PF Power Coefficient (p)	0.81248		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1877	-	-	68.6

### Vehicle Results

Average Speed, mi/h	68.6	Percent Followers, %	29.0
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	0.9
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	208	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.45	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1872
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	208	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.90	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58354	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.26676	PF Power Coefficient (p)	0.76864
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1872	-	-	68.2

### Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	31.5
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	208	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.45	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 12

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3603
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	208	Opposing Demand Flow Rate, veh/h	281
Peak Hour Factor	0.90	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.37960	Speed Power Coefficient (p)	0.51922
PF Slope Coefficient (m)	-1.18421	PF Power Coefficient (p)	0.82919
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3603	-	-	68.6

### Vehicle Results

Average Speed, mi/h	68.6	Percent Followers, %	27.5
Segment Travel Time, minutes	0.60	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	208	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.45	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 13

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1053
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	208	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.90	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29321	PF Power Coefficient (p)	0.75821
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1053	-	-	68.2

### Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	32.5
Segment Travel Time, minutes	0.18	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	208	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.45	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1120
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	208	Opposing Demand Flow Rate, veh/h	281
Peak Hour Factor	0.90	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.34605	Speed Power Coefficient (p)	0.51922
PF Slope Coefficient (m)	-1.25395	PF Power Coefficient (p)	0.80148
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1120	-	-	68.6

### Vehicle Results

Average Speed, mi/h	68.6	Percent Followers, %	29.9
Segment Travel Time, minutes	0.19	Follower Density (FD), followers/mi/ln	0.9
Vehicle LOS	A		

<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	208	Bicycle Effective Width, ft	24		
Bicycle LOS Score	3.45	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
<b>Segment 15</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	1272		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	250	Opposing Demand Flow Rate, veh/h	328		
Peak Hour Factor	0.90	Total Trucks, %	5.09		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.35992	Speed Power Coefficient (p)	0.50965		
PF Slope Coefficient (m)	-1.26111	PF Power Coefficient (p)	0.79874		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1272	-	-	68.3
<b>Vehicle Results</b>					
Average Speed, mi/h	68.3	Percent Followers, %	34.1		
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	1.2		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	250	Bicycle Effective Width, ft	24		
Bicycle LOS Score	3.49	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
<b>Segment 16</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	625		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					

Directional Demand Flow Rate, veh/h	250	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.90	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29323	PF Power Coefficient (p)	0.75819
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	625	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	36.4
Segment Travel Time, minutes	0.10	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	250	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.49	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 17

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1995
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	250	Opposing Demand Flow Rate, veh/h	328
Peak Hour Factor	0.90	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.37172	Speed Power Coefficient (p)	0.50965
PF Slope Coefficient (m)	-1.23065	PF Power Coefficient (p)	0.81147
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1995	-	-	68.3
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### Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	32.9
Segment Travel Time, minutes	0.33	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	250	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.49	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 18

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1399
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	250	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.90	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57524	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28884	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1399	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	36.2
Segment Travel Time, minutes	0.23	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	250	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.49	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 19

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1254
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	248	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.90	Total Trucks, %	1.51
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29366	PF Power Coefficient (p)	0.75766
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1254	-	-	67.9

Vehicle Results			
Average Speed, mi/h	67.9	Percent Followers, %	36.2
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	248	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.47	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

## Segment 20

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1108
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	248	Opposing Demand Flow Rate, veh/h	522
Peak Hour Factor	0.90	Total Trucks, %	1.51
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.40913	Speed Power Coefficient (p)	0.47917
PF Slope Coefficient (m)	-1.28208	PF Power Coefficient (p)	0.78876

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1108	-	-	68.2

### Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	34.7
Segment Travel Time, minutes	0.18	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	248	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.47	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

## Segment 21

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2901
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	248	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.90	Total Trucks, %	1.51
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.59854	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.23554	PF Power Coefficient (p)	0.77974
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2901	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	34.1
Segment Travel Time, minutes	0.49	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

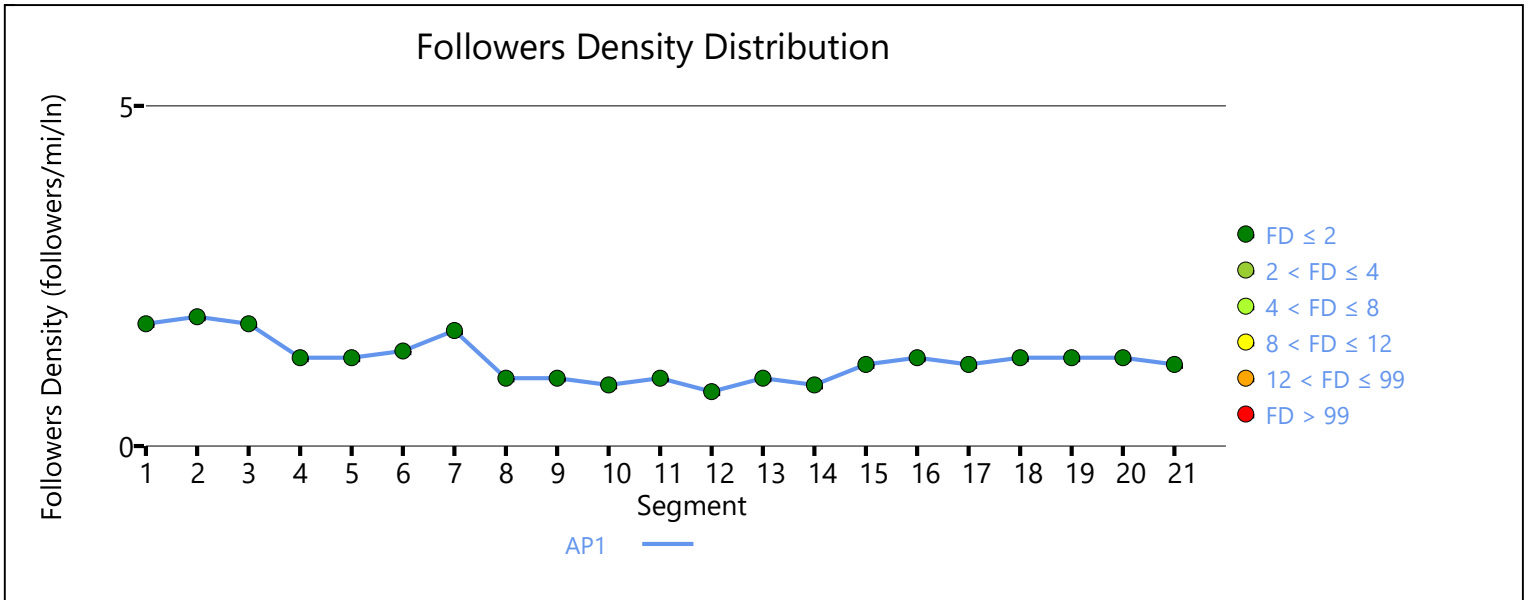
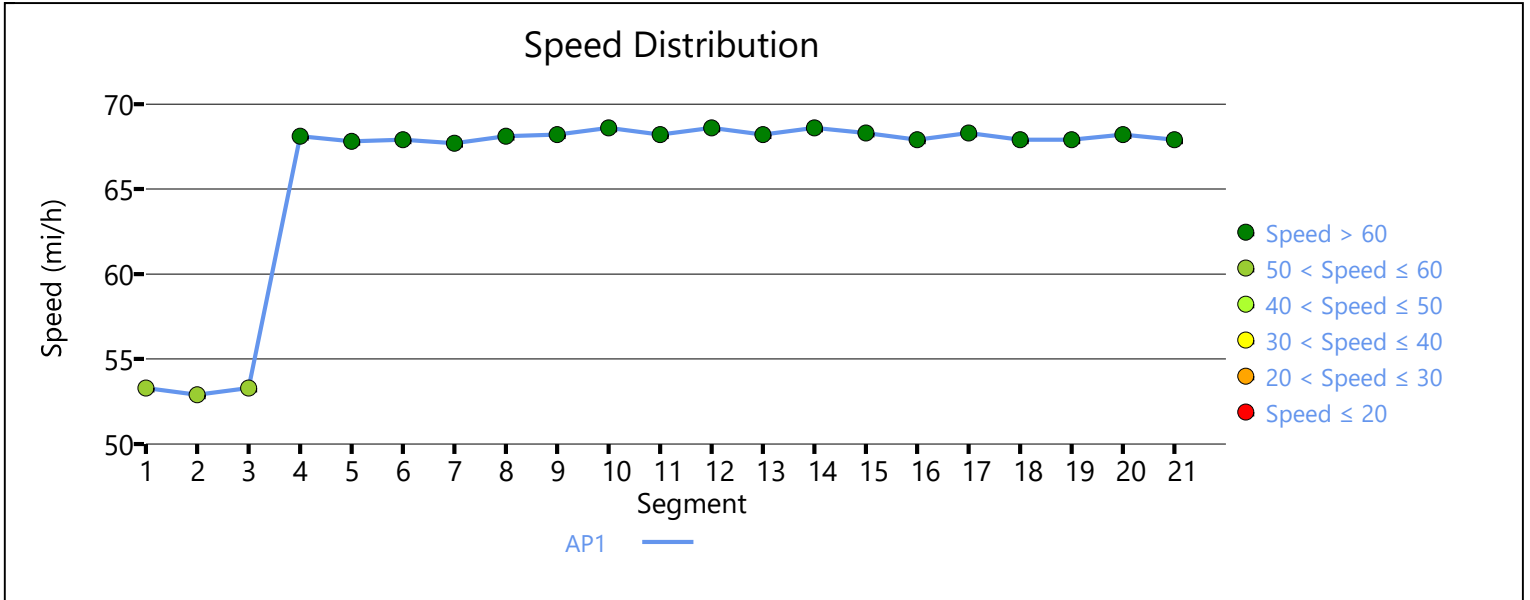
### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	248	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.47	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

### Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	341	0.14	1.2	A



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2029 NB
Jurisdiction	SDDOT	Time Analyzed	AM Peak
Project Description	SD 38 WB East of Hartford	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1727
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	177	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	8.97
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58112	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27241	PF Power Coefficient (p)	0.76681
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1727	-	-	68.4

### Vehicle Results

Average Speed, mi/h	68.4	Percent Followers, %	28.7
Segment Travel Time, minutes	0.29	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	177	Bicycle Effective Width, ft	28
Bicycle LOS Score	3.69	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1676
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	177	Opposing Demand Flow Rate, veh/h	516		
Peak Hour Factor	0.88	Total Trucks, %	8.97		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.41422	Speed Power Coefficient (p)	0.47998		
PF Slope Coefficient (m)	-1.26276	PF Power Coefficient (p)	0.79739		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1676	-	-	68.7
<b>Vehicle Results</b>					
Average Speed, mi/h	68.7	Percent Followers, %	27.2		
Segment Travel Time, minutes	0.28	Follower Density (FD), followers/mi/ln	0.7		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	177	Bicycle Effective Width, ft	28		
Bicycle LOS Score	3.69	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	D				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	1864		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	188	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	17.04		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.58341	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.26572	PF Power Coefficient (p)	0.77025		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1864	-	-	68.3

### Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	29.4
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	188	Bicycle Effective Width, ft	24
Bicycle LOS Score	8.75	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	718
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	188	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29182	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	718	-	-	68.3

### Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	30.4
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	188	Bicycle Effective Width, ft	24
Bicycle LOS Score	8.75	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1738
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	188	Opposing Demand Flow Rate, veh/h	278
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.35280	Speed Power Coefficient (p)	0.51981
PF Slope Coefficient (m)	-1.23200	PF Power Coefficient (p)	0.81205
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1738	-	-	68.8

### Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	27.1
Segment Travel Time, minutes	0.29	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	188	Bicycle Effective Width, ft	24
Bicycle LOS Score	8.75	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	579
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	188	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29182	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	579	-	-	68.3

### Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	30.4
Segment Travel Time, minutes	0.10	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	188	Bicycle Effective Width, ft	24
Bicycle LOS Score	8.75	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2262
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	172	Opposing Demand Flow Rate, veh/h	242
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.34942	Speed Power Coefficient (p)	0.52824
PF Slope Coefficient (m)	-1.20658	PF Power Coefficient (p)	0.82267
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2262	-	-	68.9

### Vehicle Results

Average Speed, mi/h	68.9	Percent Followers, %	24.6
Segment Travel Time, minutes	0.37	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	172	Bicycle Effective Width, ft	28		
Bicycle LOS Score	8.50	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	F				
<b>Segment 8</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	980		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	172	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	18.44		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	980	-	-	68.5
<b>Vehicle Results</b>					
Average Speed, mi/h	68.5	Percent Followers, %	28.7		
Segment Travel Time, minutes	0.16	Follower Density (FD), followers/mi/ln	0.7		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	172	Bicycle Effective Width, ft	28		
Bicycle LOS Score	8.50	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	F				
<b>Segment 9</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	3667		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					

Directional Demand Flow Rate, veh/h	172	Opposing Demand Flow Rate, veh/h	242
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.36783	Speed Power Coefficient (p)	0.52824
PF Slope Coefficient (m)	-1.17532	PF Power Coefficient (p)	0.83427
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3667	-	-	68.9

### Vehicle Results

Average Speed, mi/h	68.9	Percent Followers, %	23.7
Segment Travel Time, minutes	0.60	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	172	Bicycle Effective Width, ft	28
Bicycle LOS Score	8.50	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1846
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	172	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58311	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.26629	PF Power Coefficient (p)	0.77017
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1846	-	-	68.5
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### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	27.8
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	172	Bicycle Effective Width, ft	28
Bicycle LOS Score	8.50	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2174
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	172	Opposing Demand Flow Rate, veh/h	242
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.34810	Speed Power Coefficient (p)	0.52824
PF Slope Coefficient (m)	-1.20938	PF Power Coefficient (p)	0.82151
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2174	-	-	68.9

### Vehicle Results

Average Speed, mi/h	68.9	Percent Followers, %	24.7
Segment Travel Time, minutes	0.36	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	172	Bicycle Effective Width, ft	28
Bicycle LOS Score	8.50	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 12

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1277
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	172	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1277	-	-	68.5

Vehicle Results			
Average Speed, mi/h	68.5	Percent Followers, %	28.7
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	172	Bicycle Effective Width, ft	28
Bicycle LOS Score	8.50	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	779
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	172	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	779	-	-	68.5

### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	28.7
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	172	Bicycle Effective Width, ft	28
Bicycle LOS Score	8.50	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	422
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	192	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	13.95
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29219	PF Power Coefficient (p)	0.75948
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	422	-	-	68.3

### Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	30.9
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	0.9
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	192	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.06	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 15

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1478
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	177	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	19.53
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57671	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28298	PF Power Coefficient (p)	0.76370
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1478	-	-	68.4

### Vehicle Results

Average Speed, mi/h	68.4	Percent Followers, %	29.0
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	177	Bicycle Effective Width, ft	28
Bicycle LOS Score	9.19	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 16

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	384
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	265	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.76
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29233	PF Power Coefficient (p)	0.75931
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	384	-	-	67.8

Vehicle Results			
Average Speed, mi/h	67.8	Percent Followers, %	37.6
Segment Travel Time, minutes	0.06	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	265	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.63	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 17

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	3732
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	256	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.21
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.60878	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.21846	PF Power Coefficient (p)	0.78615
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3732	-	-	67.9

Vehicle Results			
Average Speed, mi/h	67.9	Percent Followers, %	34.1



Segment Travel Time, minutes	0.62	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	256	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.34	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 18

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1360
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	256	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.21
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57450	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29014	PF Power Coefficient (p)	0.76012
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1360	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	36.7
Segment Travel Time, minutes	0.23	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	256	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.34	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 19

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1595
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	256	Opposing Demand Flow Rate, veh/h	483		
Peak Hour Factor	0.88	Total Trucks, %	12.21		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.40516	Speed Power Coefficient (p)	0.48439		
PF Slope Coefficient (m)	-1.26342	PF Power Coefficient (p)	0.79785		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1595	-	-	68.2
<b>Vehicle Results</b>					
Average Speed, mi/h	68.2	Percent Followers, %	34.7		
Segment Travel Time, minutes	0.27	Follower Density (FD), followers/mi/ln	1.3		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	256	Bicycle Effective Width, ft	24		
Bicycle LOS Score	6.34	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	F				
<b>Segment 20</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	595		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	256	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	12.21		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29239	PF Power Coefficient (p)	0.75923		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.4		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	595	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	36.8
Segment Travel Time, minutes	0.10	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	256	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.34	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 21

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	958
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	245	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	10.81
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.43859	PF Power Coefficient (p)	0.72596
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	958	-	-	53.0

### Vehicle Results

Average Speed, mi/h	53.0	Percent Followers, %	40.5
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	245	Bicycle Effective Width, ft	24
Bicycle LOS Score	5.27	Bicycle Effective Speed Factor	4.62
Bicycle LOS	E		

## Segment 22

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1659
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	245	Opposing Demand Flow Rate, veh/h	405
Peak Hour Factor	0.88	Total Trucks, %	10.81
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0
Speed Slope Coefficient (m)	4.38697	Speed Power Coefficient (p)	0.49609
PF Slope Coefficient (m)	-1.34857	PF Power Coefficient (p)	0.76529
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1659	-	-	53.3

### Vehicle Results

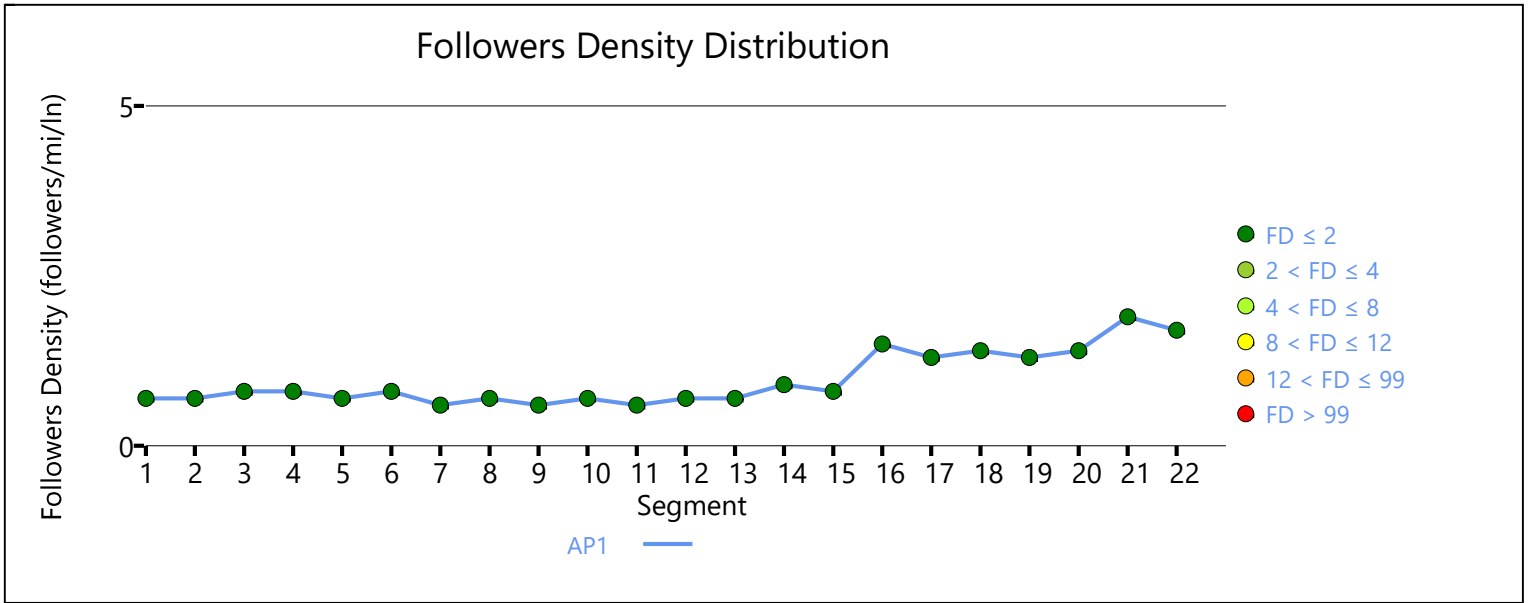
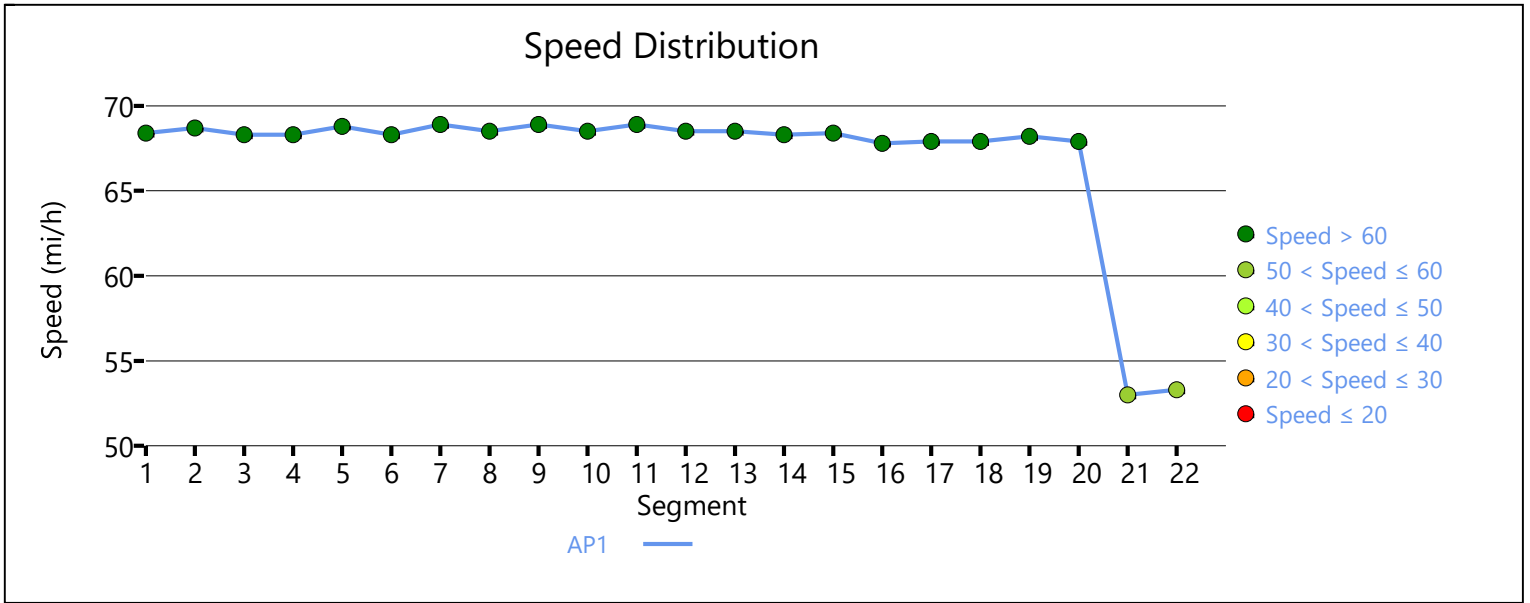
Average Speed, mi/h	53.3	Percent Followers, %	36.9
Segment Travel Time, minutes	0.35	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	245	Bicycle Effective Width, ft	24
Bicycle LOS Score	5.27	Bicycle Effective Speed Factor	4.62
Bicycle LOS	E		

### Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	279	0.10	0.9	A



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2029 NB
Jurisdiction	SDDOT	Time Analyzed	PM Peak
Project Description	SD 38 WB East of Hartford	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1727
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	534	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	8.97
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.31

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58112	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27241	PF Power Coefficient (p)	0.76681
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1727	-	-	66.8

### Vehicle Results

Average Speed, mi/h	66.8	Percent Followers, %	54.5
Segment Travel Time, minutes	0.29	Follower Density (FD), followers/mi/ln	4.4
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	534	Bicycle Effective Width, ft	24
Bicycle LOS Score	5.29	Bicycle Effective Speed Factor	5.07
Bicycle LOS	E		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1676
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	534	Opposing Demand Flow Rate, veh/h	253		
Peak Hour Factor	0.88	Total Trucks, %	8.97		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.31		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.34379	Speed Power Coefficient (p)	0.52551		
PF Slope Coefficient (m)	-1.23127	PF Power Coefficient (p)	0.81132		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.2		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1676	-	-	67.2
<b>Vehicle Results</b>					
Average Speed, mi/h	67.2	Percent Followers, %	52.3		
Segment Travel Time, minutes	0.28	Follower Density (FD), followers/mi/ln	4.2		
Vehicle LOS	C				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	534	Bicycle Effective Width, ft	24		
Bicycle LOS Score	5.29	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	E				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	1864		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	335	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	17.04		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.58341	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.26572	PF Power Coefficient (p)	0.77025		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.1		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1864	-	-	67.5

### Vehicle Results

Average Speed, mi/h	67.5	Percent Followers, %	42.0
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	2.1
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	335	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.04	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	718
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	335	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29182	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	718	-	-	67.5

### Vehicle Results

Average Speed, mi/h	67.5	Percent Followers, %	43.0
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	2.1
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	335	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.04	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		



## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1738
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	335	Opposing Demand Flow Rate, veh/h	256
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.34559	Speed Power Coefficient (p)	0.52497
PF Slope Coefficient (m)	-1.22813	PF Power Coefficient (p)	0.81352
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1738	-	-	68.0

### Vehicle Results

Average Speed, mi/h	68.0	Percent Followers, %	39.6
Segment Travel Time, minutes	0.29	Follower Density (FD), followers/mi/ln	2.0
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	335	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.04	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	579
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	335	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29182	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	579	-	-	67.5

### Vehicle Results

Average Speed, mi/h	67.5	Percent Followers, %	43.0
Segment Travel Time, minutes	0.10	Follower Density (FD), followers/mi/ln	2.1
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	335	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.04	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2262
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	288	Opposing Demand Flow Rate, veh/h	213
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.33926	Speed Power Coefficient (p)	0.53581
PF Slope Coefficient (m)	-1.20084	PF Power Coefficient (p)	0.82484
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2262	-	-	68.2

### Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	34.9
Segment Travel Time, minutes	0.38	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	288	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.80	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 8

<b>Vehicle Inputs</b>			
Segment Type	Passing Constrained	Length, ft	980
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>			
Directional Demand Flow Rate, veh/h	288	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

<b>Intermediate Results</b>			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	980	-	-	67.7

<b>Vehicle Results</b>			
Average Speed, mi/h	67.7	Percent Followers, %	39.4
Segment Travel Time, minutes	0.16	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	288	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.80	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 9

<b>Vehicle Inputs</b>			
Segment Type	Passing Zone	Length, ft	3667
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>			
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Directional Demand Flow Rate, veh/h	288	Opposing Demand Flow Rate, veh/h	213
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.35766	Speed Power Coefficient (p)	0.53581
PF Slope Coefficient (m)	-1.16975	PF Power Coefficient (p)	0.83655
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3667	-	-	68.2

### Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	33.8
Segment Travel Time, minutes	0.61	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	288	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.80	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1846
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	288	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58311	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.26629	PF Power Coefficient (p)	0.77017
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1846	-	-	67.7
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### Vehicle Results

Average Speed, mi/h	67.7	Percent Followers, %	38.4
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	288	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.80	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2174
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	288	Opposing Demand Flow Rate, veh/h	213
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.33794	Speed Power Coefficient (p)	0.53581
PF Slope Coefficient (m)	-1.20363	PF Power Coefficient (p)	0.82367
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2174	-	-	68.2

### Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	35.0
Segment Travel Time, minutes	0.36	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	288	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.80	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 12

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1277
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	288	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1277	-	-	67.7

Vehicle Results			
Average Speed, mi/h	67.7	Percent Followers, %	39.4
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	288	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.80	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	779
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	288	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	779	-	-	67.7

### Vehicle Results

Average Speed, mi/h	67.7	Percent Followers, %	39.4
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	288	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.80	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	422
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	327	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	13.95
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29219	PF Power Coefficient (p)	0.75948
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	422	-	-	67.5

### Vehicle Results

Average Speed, mi/h	67.5	Percent Followers, %	42.5
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	2.1
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	327	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.33	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 15

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1478
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	297	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	19.53
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57671	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28298	PF Power Coefficient (p)	0.76370
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1478	-	-	67.7

### Vehicle Results

Average Speed, mi/h	67.7	Percent Followers, %	39.8
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	297	Bicycle Effective Width, ft	24
Bicycle LOS Score	10.50	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 16

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	384
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	585	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.76
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.34



Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29233	PF Power Coefficient (p)	0.75931
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	384	-	-	66.6

Vehicle Results			
Average Speed, mi/h	66.6	Percent Followers, %	57.7
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	5.1
Vehicle LOS	C		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	585	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.03	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 17

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	3732
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	588	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.21
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.35

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.60878	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.21846	PF Power Coefficient (p)	0.78615
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3732	-	-	66.6

Vehicle Results			
Average Speed, mi/h	66.6	Percent Followers, %	55.2

Segment Travel Time, minutes	0.64	Follower Density (FD), followers/mi/ln	4.9
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	588	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.77	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 18

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1360
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	588	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.21
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.35

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57450	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29014	PF Power Coefficient (p)	0.76012
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1360	-	-	66.6

### Vehicle Results

Average Speed, mi/h	66.6	Percent Followers, %	57.7
Segment Travel Time, minutes	0.23	Follower Density (FD), followers/mi/ln	5.1
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	588	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.77	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 19

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1595
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	588	Opposing Demand Flow Rate, veh/h	265		
Peak Hour Factor	0.88	Total Trucks, %	12.21		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.35		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.34603	Speed Power Coefficient (p)	0.52287		
PF Slope Coefficient (m)	-1.23654	PF Power Coefficient (p)	0.80951		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.8		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1595	-	-	67.0
<b>Vehicle Results</b>					
Average Speed, mi/h	67.0	Percent Followers, %	55.2		
Segment Travel Time, minutes	0.27	Follower Density (FD), followers/mi/ln	4.8		
Vehicle LOS	C				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	588	Bicycle Effective Width, ft	24		
Bicycle LOS Score	6.77	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	F				
<b>Segment 20</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	595		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	588	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	12.21		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.35		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29239	PF Power Coefficient (p)	0.75923		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.1		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	595	-	-	66.6

### Vehicle Results

Average Speed, mi/h	66.6	Percent Followers, %	57.8
Segment Travel Time, minutes	0.10	Follower Density (FD), followers/mi/ln	5.1
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	588	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.77	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 21

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	958
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	467	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	10.81
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.43859	PF Power Coefficient (p)	0.72596
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	958	-	-	52.0

### Vehicle Results

Average Speed, mi/h	52.0	Percent Followers, %	56.3
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	5.1
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	467	Bicycle Effective Width, ft	24
Bicycle LOS Score	5.60	Bicycle Effective Speed Factor	4.62
Bicycle LOS	F		

## Segment 22

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1659
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	467	Opposing Demand Flow Rate, veh/h	255
Peak Hour Factor	0.88	Total Trucks, %	10.81
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.34386	Speed Power Coefficient (p)	0.52524
PF Slope Coefficient (m)	-1.29711	PF Power Coefficient (p)	0.78647
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1659	-	-	57.4

### Vehicle Results

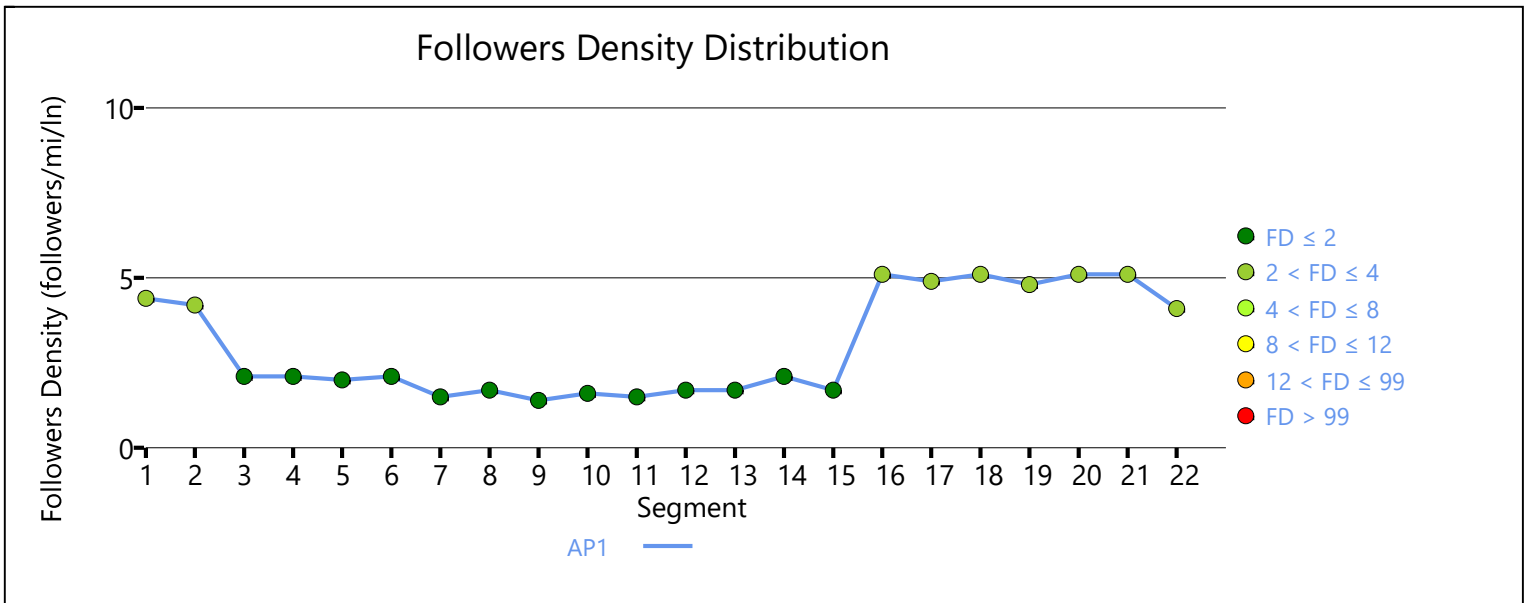
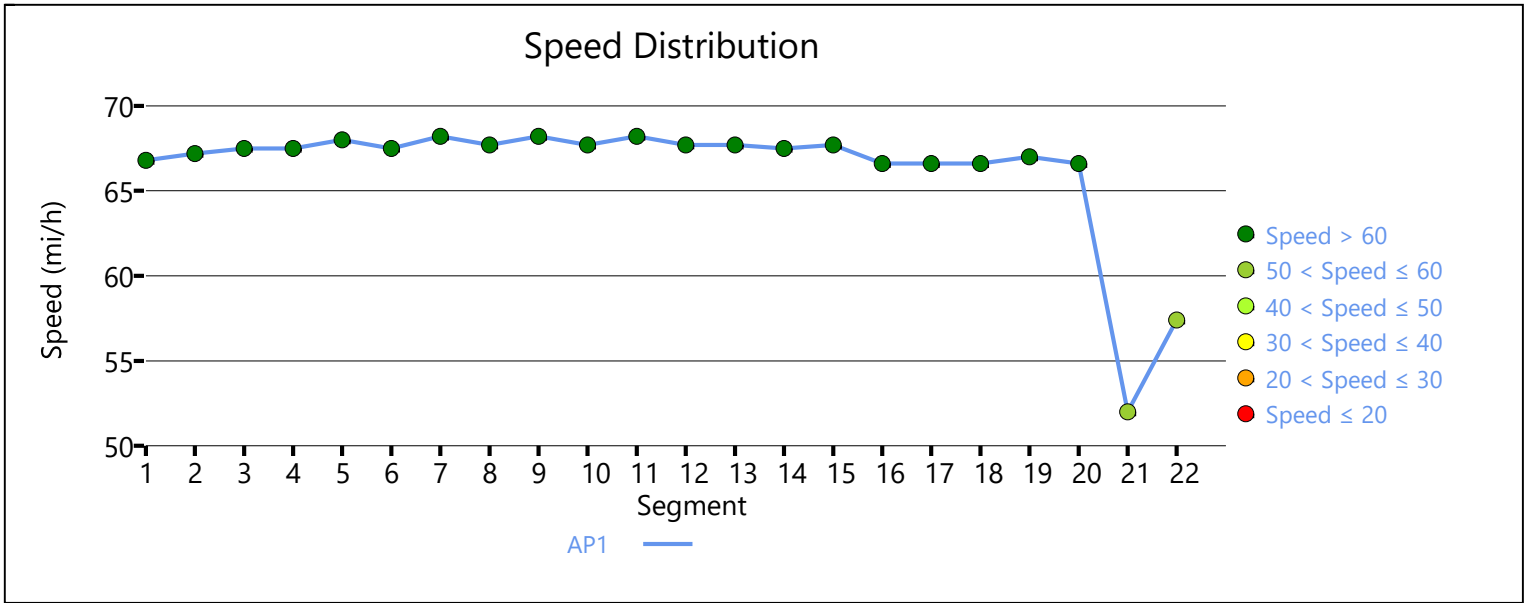
Average Speed, mi/h	57.4	Percent Followers, %	51.0
Segment Travel Time, minutes	0.33	Follower Density (FD), followers/mi/ln	4.1
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	467	Bicycle Effective Width, ft	24
Bicycle LOS Score	5.60	Bicycle Effective Speed Factor	4.62
Bicycle LOS	F		

### Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	562	0.34	2.9	B



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2029 NB
Jurisdiction	SDDOT	Time Analyzed	AM Peak
Project Description	West of Hartford SD 38 EB	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1069
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	161	Opposing Demand Flow Rate, veh/h	111
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.28164	Speed Power Coefficient (p)	0.56932
PF Slope Coefficient (m)	-1.21358	PF Power Coefficient (p)	0.81482
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1069	-	-	69.1

### Vehicle Results

Average Speed, mi/h	69.1	Percent Followers, %	24.0
Segment Travel Time, minutes	0.18	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	161	Bicycle Effective Width, ft	29
Bicycle LOS Score	2.17	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	664
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	161	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	5.79		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	664	-	-	68.6
<b>Vehicle Results</b>					
Average Speed, mi/h	68.6	Percent Followers, %	27.7		
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	0.7		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	161	Bicycle Effective Width, ft	29		
Bicycle LOS Score	2.17	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	B				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	1871		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	161	Opposing Demand Flow Rate, veh/h	111		
Peak Hour Factor	0.88	Total Trucks, %	5.79		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.29144	Speed Power Coefficient (p)	0.56932		
PF Slope Coefficient (m)	-1.18894	PF Power Coefficient (p)	0.82627		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					



#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1871	-	-	69.1

### Vehicle Results

Average Speed, mi/h	69.1	Percent Followers, %	23.2
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	161	Bicycle Effective Width, ft	29
Bicycle LOS Score	2.17	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	925
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	161	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	925	-	-	68.6

### Vehicle Results

Average Speed, mi/h	68.6	Percent Followers, %	27.7
Segment Travel Time, minutes	0.15	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	161	Bicycle Effective Width, ft	29
Bicycle LOS Score	2.17	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4476
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	161	Opposing Demand Flow Rate, veh/h	111
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.32493	Speed Power Coefficient (p)	0.56932
PF Slope Coefficient (m)	-1.13549	PF Power Coefficient (p)	0.84699
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4476	-	-	69.1

### Vehicle Results

Average Speed, mi/h	69.1	Percent Followers, %	21.5
Segment Travel Time, minutes	0.74	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	161	Bicycle Effective Width, ft	29
Bicycle LOS Score	2.17	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	896
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	161	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	896	-	-	68.6

### Vehicle Results

Average Speed, mi/h	68.6	Percent Followers, %	27.7
Segment Travel Time, minutes	0.15	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	161	Bicycle Effective Width, ft	29
Bicycle LOS Score	2.17	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	743
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	161	Opposing Demand Flow Rate, veh/h	111
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.28164	Speed Power Coefficient (p)	0.56932
PF Slope Coefficient (m)	-1.21358	PF Power Coefficient (p)	0.81482
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	743	-	-	69.1

### Vehicle Results

Average Speed, mi/h	69.1	Percent Followers, %	24.0
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	161	Bicycle Effective Width, ft	29		
Bicycle LOS Score	2.17	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	B				
<b>Segment 8</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	2717		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	163	Opposing Demand Flow Rate, veh/h	110		
Peak Hour Factor	0.88	Total Trucks, %	3.28		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.30345	Speed Power Coefficient (p)	0.56980		
PF Slope Coefficient (m)	-1.16341	PF Power Coefficient (p)	0.83725		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2717	-	-	69.1
<b>Vehicle Results</b>					
Average Speed, mi/h	69.1	Percent Followers, %	22.4		
Segment Travel Time, minutes	0.45	Follower Density (FD), followers/mi/ln	0.5		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	162	Bicycle Effective Width, ft	29		
Bicycle LOS Score	1.40	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	A				
<b>Segment 9</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	1013		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					

Directional Demand Flow Rate, veh/h	163	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.28
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29345	PF Power Coefficient (p)	0.75792
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1013	-	-	68.6

### Vehicle Results

Average Speed, mi/h	68.6	Percent Followers, %	27.8
Segment Travel Time, minutes	0.17	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	162	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.40	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4569
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	163	Opposing Demand Flow Rate, veh/h	110
Peak Hour Factor	0.88	Total Trucks, %	3.28
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.32535	Speed Power Coefficient (p)	0.56980
PF Slope Coefficient (m)	-1.13449	PF Power Coefficient (p)	0.84688
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	4569	-	-	69.1
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### Vehicle Results

Average Speed, mi/h	69.1	Percent Followers, %	21.6
Segment Travel Time, minutes	0.75	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	162	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.40	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	5676
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	175	Opposing Demand Flow Rate, veh/h	110
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.33632	Speed Power Coefficient (p)	0.56980
PF Slope Coefficient (m)	-1.12701	PF Power Coefficient (p)	0.84661
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5676	-	-	69.0

### Vehicle Results

Average Speed, mi/h	69.0	Percent Followers, %	22.7
Segment Travel Time, minutes	0.93	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	175	Bicycle Effective Width, ft	28
Bicycle LOS Score	1.59	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

## Segment 12

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	657
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	175	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29350	PF Power Coefficient (p)	0.75785
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	657	-	-	68.4

Vehicle Results			
Average Speed, mi/h	68.4	Percent Followers, %	29.2
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	175	Bicycle Effective Width, ft	28
Bicycle LOS Score	1.59	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	6009
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	175	Opposing Demand Flow Rate, veh/h	110
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.33941	Speed Power Coefficient (p)	0.56980
PF Slope Coefficient (m)	-1.12571	PF Power Coefficient (p)	0.84594

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6009	-	-	69.0

### Vehicle Results

Average Speed, mi/h	69.0	Percent Followers, %	22.7
Segment Travel Time, minutes	0.99	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	175	Bicycle Effective Width, ft	28
Bicycle LOS Score	1.59	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	891
Measured FFS	Measured	Free-Flow Speed, mi/h	50.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	175	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.47375	PF Power Coefficient (p)	0.71164
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	891	-	-	48.4

### Vehicle Results

Average Speed, mi/h	48.4	Percent Followers, %	34.7
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

### Bicycle Results

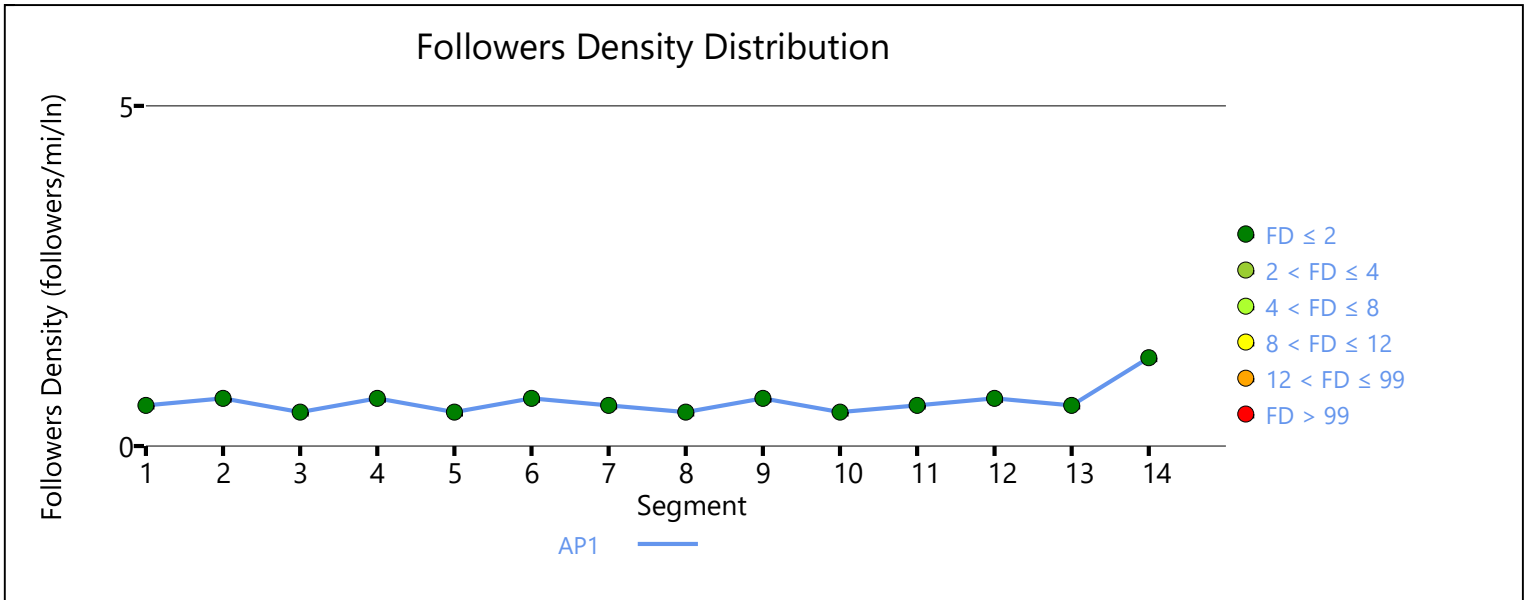
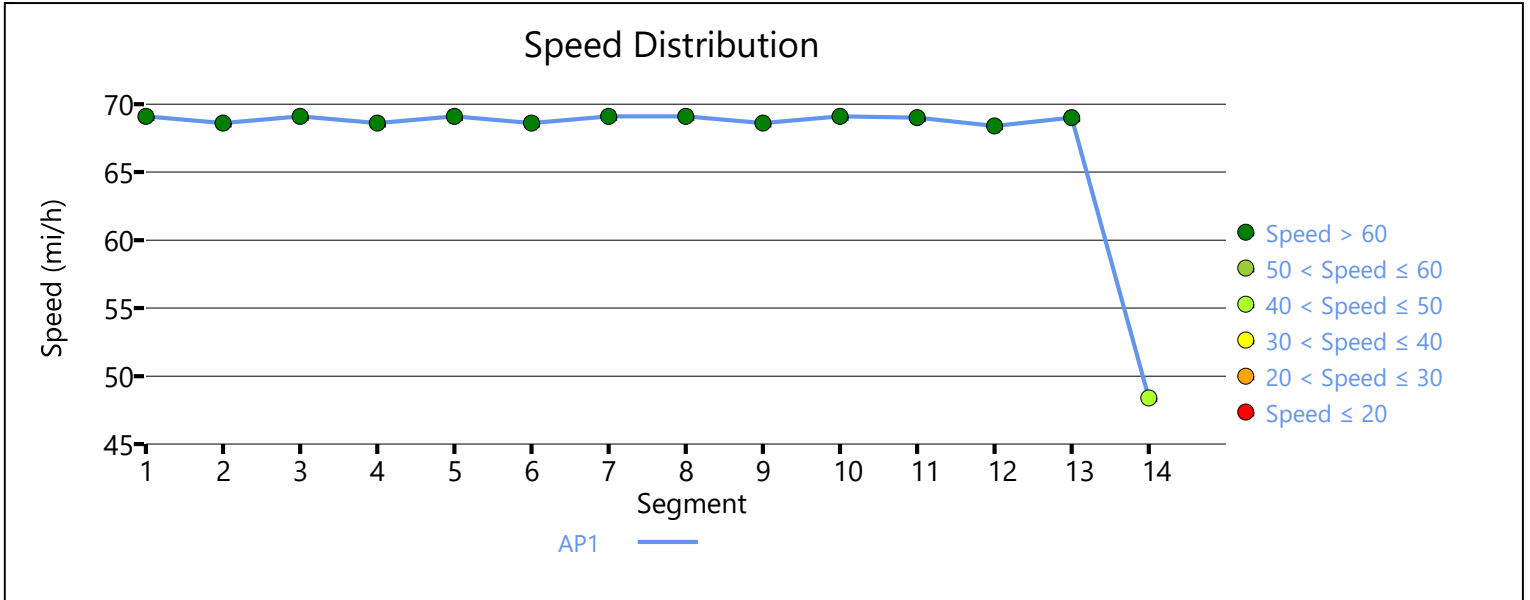
Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	175	Bicycle Effective Width, ft	28
Bicycle LOS Score	1.38	Bicycle Effective Speed Factor	4.42
Bicycle LOS	A		

### Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	224	0.05	0.6	A



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2029 NB
Jurisdiction	SDDOT	Time Analyzed	PM Peak
Project Description	West of Hartford SD 38 EB	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1069
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	100	Opposing Demand Flow Rate, veh/h	184
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.31290	Speed Power Coefficient (p)	0.54385
PF Slope Coefficient (m)	-1.23457	PF Power Coefficient (p)	0.80823
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1069	-	-	70.0

### Vehicle Results

Average Speed, mi/h	70.0	Percent Followers, %	17.5
Segment Travel Time, minutes	0.17	Follower Density (FD), followers/mi/ln	0.2
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	100	Bicycle Effective Width, ft	34
Bicycle LOS Score	0.35	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	664
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	100	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	5.79		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	664	-	-	70.0
<b>Vehicle Results</b>					
Average Speed, mi/h	70.0	Percent Followers, %	20.2		
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	0.3		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	100	Bicycle Effective Width, ft	34		
Bicycle LOS Score	0.35	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	A				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	1871		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	100	Opposing Demand Flow Rate, veh/h	184		
Peak Hour Factor	0.88	Total Trucks, %	5.79		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.32270	Speed Power Coefficient (p)	0.54385		
PF Slope Coefficient (m)	-1.20944	PF Power Coefficient (p)	0.81940		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1871	-	-	70.0

### Vehicle Results

Average Speed, mi/h	70.0	Percent Followers, %	16.7
Segment Travel Time, minutes	0.30	Follower Density (FD), followers/mi/ln	0.2
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	100	Bicycle Effective Width, ft	34
Bicycle LOS Score	0.35	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	925
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	100	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	925	-	-	70.0

### Vehicle Results

Average Speed, mi/h	70.0	Percent Followers, %	20.2
Segment Travel Time, minutes	0.15	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	100	Bicycle Effective Width, ft	34
Bicycle LOS Score	0.35	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4476
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	100	Opposing Demand Flow Rate, veh/h	184
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.35619	Speed Power Coefficient (p)	0.54385
PF Slope Coefficient (m)	-1.15496	PF Power Coefficient (p)	0.83947
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4476	-	-	70.0

### Vehicle Results

Average Speed, mi/h	70.0	Percent Followers, %	15.4
Segment Travel Time, minutes	0.73	Follower Density (FD), followers/mi/ln	0.2
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	100	Bicycle Effective Width, ft	34
Bicycle LOS Score	0.35	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	896
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	100	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	896	-	-	70.0

### Vehicle Results

Average Speed, mi/h	70.0	Percent Followers, %	20.2
Segment Travel Time, minutes	0.15	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	100	Bicycle Effective Width, ft	34
Bicycle LOS Score	0.35	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	743
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	100	Opposing Demand Flow Rate, veh/h	184
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.31290	Speed Power Coefficient (p)	0.54385
PF Slope Coefficient (m)	-1.23457	PF Power Coefficient (p)	0.80823
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	743	-	-	70.0

### Vehicle Results

Average Speed, mi/h	70.0	Percent Followers, %	17.5
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	0.2
Vehicle LOS	A		

<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	100	Bicycle Effective Width, ft	34		
Bicycle LOS Score	0.35	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	A				
<b>Segment 8</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	2717		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	105	Opposing Demand Flow Rate, veh/h	0		
Peak Hour Factor	0.88	Total Trucks, %	3.28		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.19461	Speed Power Coefficient (p)	0.67576		
PF Slope Coefficient (m)	-1.07584	PF Power Coefficient (p)	0.86675		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2717	-	-	69.9
<b>Vehicle Results</b>					
Average Speed, mi/h	69.9	Percent Followers, %	14.1		
Segment Travel Time, minutes	0.44	Follower Density (FD), followers/mi/ln	0.2		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	105	Bicycle Effective Width, ft	34		
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	A				
<b>Segment 9</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	1013		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					

Directional Demand Flow Rate, veh/h	105	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.28
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29345	PF Power Coefficient (p)	0.75792
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1013	-	-	69.5

### Vehicle Results

Average Speed, mi/h	69.5	Percent Followers, %	20.8
Segment Travel Time, minutes	0.17	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	105	Bicycle Effective Width, ft	34
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4569
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	105	Opposing Demand Flow Rate, veh/h	180
Peak Hour Factor	0.88	Total Trucks, %	3.28
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.35542	Speed Power Coefficient (p)	0.54521
PF Slope Coefficient (m)	-1.15329	PF Power Coefficient (p)	0.83962
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	4569	-	-	69.8
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### Vehicle Results

Average Speed, mi/h	69.8	Percent Followers, %	15.9
Segment Travel Time, minutes	0.74	Follower Density (FD), followers/mi/ln	0.2
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	105	Bicycle Effective Width, ft	34
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	5676
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	118	Opposing Demand Flow Rate, veh/h	189
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.36986	Speed Power Coefficient (p)	0.54251
PF Slope Coefficient (m)	-1.14767	PF Power Coefficient (p)	0.83845
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5676	-	-	69.5

### Vehicle Results

Average Speed, mi/h	69.5	Percent Followers, %	17.4
Segment Travel Time, minutes	0.93	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	118	Bicycle Effective Width, ft	33
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 12

Vehicle Inputs					
Segment Type		Passing Constrained	Length, ft		657
Measured FFS		Measured	Free-Flow Speed, mi/h		70.0
Demand and Capacity					
Directional Demand Flow Rate, veh/h		118	Opposing Demand Flow Rate, veh/h		-
Peak Hour Factor		0.88	Total Trucks, %		2.82
Segment Capacity, veh/h		1700	Demand/Capacity (D/C)		0.07
Intermediate Results					
Segment Vertical Class		1	Free-Flow Speed, mi/h		70.0
Speed Slope Coefficient (m)		4.57372	Speed Power Coefficient (p)		0.41674
PF Slope Coefficient (m)		-1.29350	PF Power Coefficient (p)		0.75785
In Passing Lane Effective Length?		No	Total Segment Density, veh/mi/ln		0.4
%Improvement to Percent Followers		0.0	%Improvement to Speed		0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	657	-	-	69.1
Vehicle Results					
Average Speed, mi/h		69.1	Percent Followers, %		22.6
Segment Travel Time, minutes		0.11	Follower Density (FD), followers/mi/ln		0.4
Vehicle LOS		A			
Bicycle Results					
Percent Occupied Parking		0	Pavement Condition Rating		4
Flow Rate Outside Lane, veh/h		118	Bicycle Effective Width, ft		33
Bicycle LOS Score		0.00	Bicycle Effective Speed Factor		5.07
Bicycle LOS		A			
Segment 13					
Vehicle Inputs					
Segment Type		Passing Zone	Length, ft		6009
Measured FFS		Measured	Free-Flow Speed, mi/h		70.0
Demand and Capacity					
Directional Demand Flow Rate, veh/h		118	Opposing Demand Flow Rate, veh/h		189
Peak Hour Factor		0.88	Total Trucks, %		2.82
Segment Capacity, veh/h		1700	Demand/Capacity (D/C)		0.07
Intermediate Results					
Segment Vertical Class		1	Free-Flow Speed, mi/h		70.0
Speed Slope Coefficient (m)		4.37295	Speed Power Coefficient (p)		0.54251
PF Slope Coefficient (m)		-1.14633	PF Power Coefficient (p)		0.83776

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6009	-	-	69.5

### Vehicle Results

Average Speed, mi/h	69.5	Percent Followers, %	17.4
Segment Travel Time, minutes	0.98	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	118	Bicycle Effective Width, ft	33
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	891
Measured FFS	Measured	Free-Flow Speed, mi/h	50.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	118	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.47375	PF Power Coefficient (p)	0.71164
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	891	-	-	49.1

### Vehicle Results

Average Speed, mi/h	49.1	Percent Followers, %	27.6
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

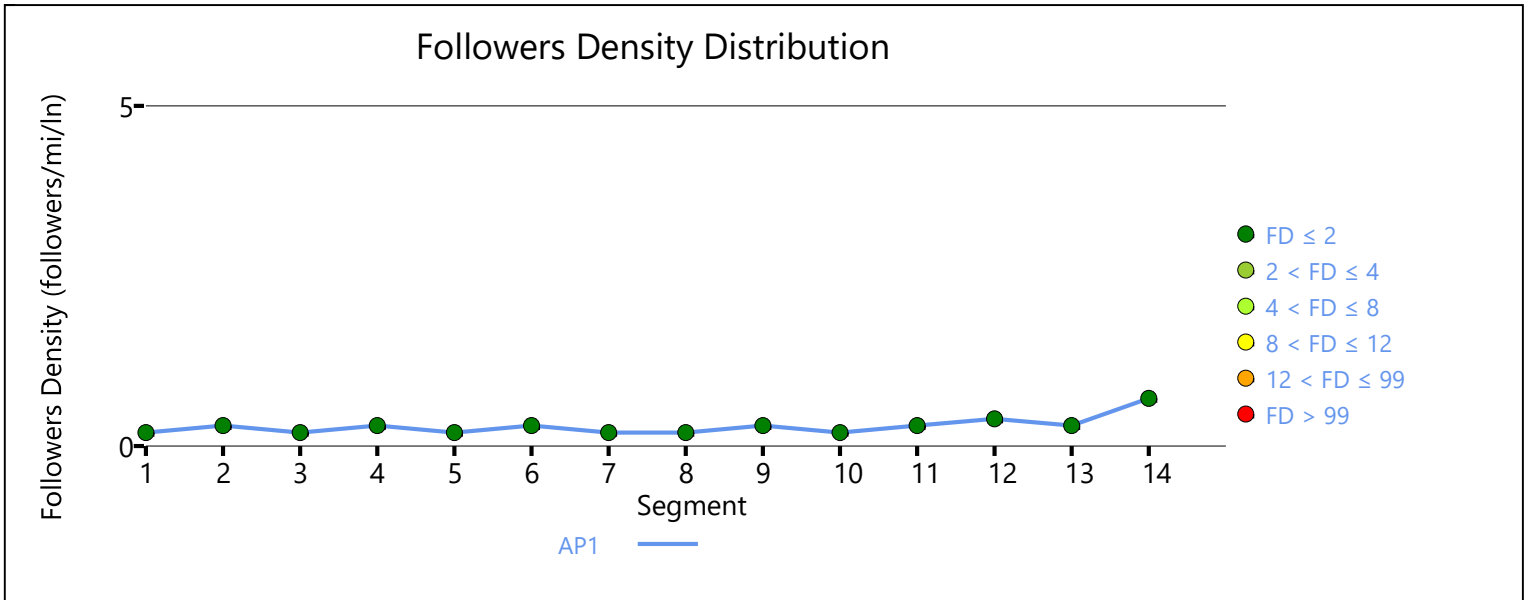
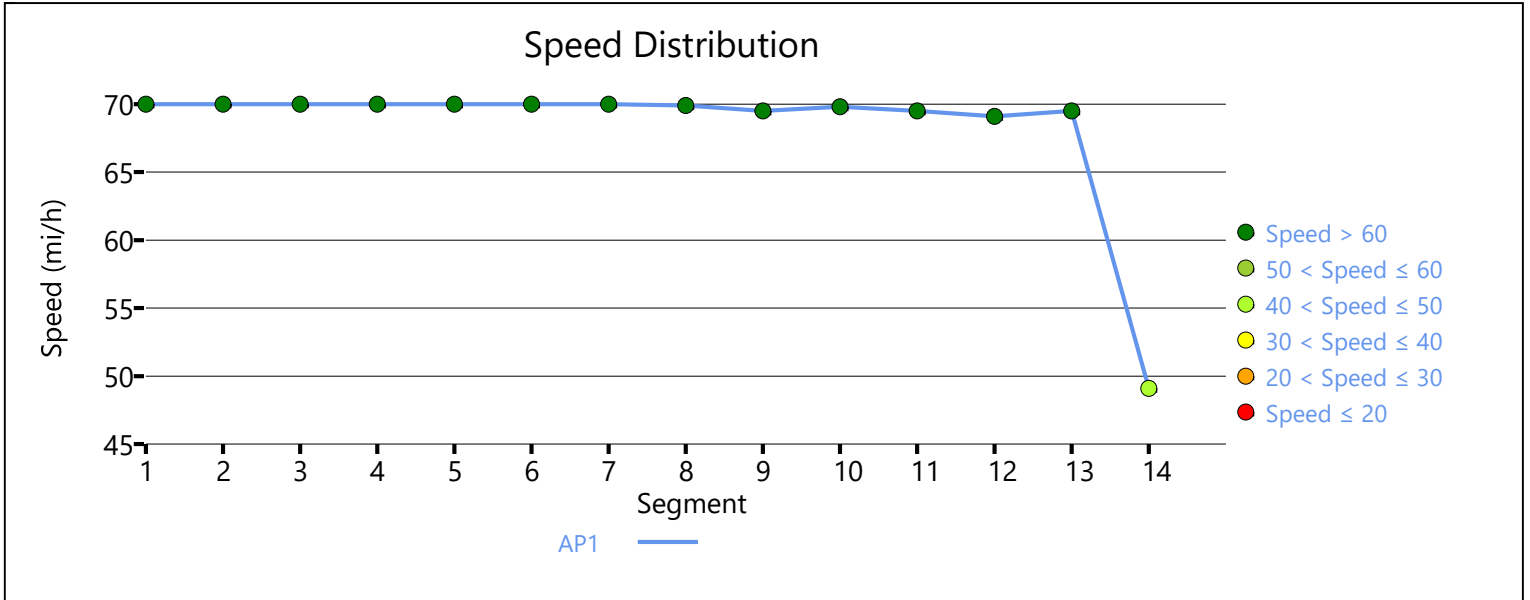
### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	118	Bicycle Effective Width, ft	33
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	4.42
Bicycle LOS	A		

### Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	146	0.01	0.3	A



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/17/2023
Agency	HRG	Analysis Year	2029 NB
Jurisdiction	SDDOT	Time Analyzed	AM Peak
Project Description	WB 38 West of Hartford	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	10549
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	110	Opposing Demand Flow Rate, veh/h	175
Peak Hour Factor	0.88	Total Trucks, %	12.50
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.40338	Speed Power Coefficient (p)	0.54661
PF Slope Coefficient (m)	-1.15301	PF Power Coefficient (p)	0.81301
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	10549	-	-	69.6

### Vehicle Results

Average Speed, mi/h	69.6	Percent Followers, %	17.5
Segment Travel Time, minutes	1.72	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	110	Bicycle Effective Width, ft	33
Bicycle LOS Score	3.49	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2793
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	110	Opposing Demand Flow Rate, veh/h	175		
Peak Hour Factor	0.88	Total Trucks, %	12.50		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.33277	Speed Power Coefficient (p)	0.54661		
PF Slope Coefficient (m)	-1.17889	PF Power Coefficient (p)	0.83286		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2793	-	-	69.6
<b>Vehicle Results</b>					
Average Speed, mi/h	69.6	Percent Followers, %	17.1		
Segment Travel Time, minutes	0.46	Follower Density (FD), followers/mi/ln	0.3		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	110	Bicycle Effective Width, ft	33		
Bicycle LOS Score	3.49	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	3825		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	110	Opposing Demand Flow Rate, veh/h	163		
Peak Hour Factor	0.88	Total Trucks, %	2.40		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.34052	Speed Power Coefficient (p)	0.55056		
PF Slope Coefficient (m)	-1.15802	PF Power Coefficient (p)	0.83912		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3825	-	-	69.7

### Vehicle Results

Average Speed, mi/h	69.7	Percent Followers, %	16.6
Segment Travel Time, minutes	0.62	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	110	Bicycle Effective Width, ft	33
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	791
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	110	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.40
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29355	PF Power Coefficient (p)	0.75779
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	791	-	-	69.3

### Vehicle Results

Average Speed, mi/h	69.3	Percent Followers, %	21.6
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	110	Bicycle Effective Width, ft	33
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3414
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	110	Opposing Demand Flow Rate, veh/h	163
Peak Hour Factor	0.88	Total Trucks, %	2.40
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.33568	Speed Power Coefficient (p)	0.55056
PF Slope Coefficient (m)	-1.16442	PF Power Coefficient (p)	0.83709
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3414	-	-	69.7

### Vehicle Results

Average Speed, mi/h	69.7	Percent Followers, %	16.8
Segment Travel Time, minutes	0.56	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	110	Bicycle Effective Width, ft	33
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	286
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	110	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.40
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29355	PF Power Coefficient (p)	0.75779
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	286	-	-	69.3

### Vehicle Results

Average Speed, mi/h	69.3	Percent Followers, %	21.6
Segment Travel Time, minutes	0.05	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	110	Bicycle Effective Width, ft	33
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	463
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	111	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29353	PF Power Coefficient (p)	0.75782
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	463	-	-	69.3

### Vehicle Results

Average Speed, mi/h	69.3	Percent Followers, %	21.7
Segment Travel Time, minutes	0.08	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	111	Bicycle Effective Width, ft	33
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

### Segment 8

#### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4822
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

#### Demand and Capacity

Directional Demand Flow Rate, veh/h	111	Opposing Demand Flow Rate, veh/h	161
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

#### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.35081	Speed Power Coefficient (p)	0.55093
PF Slope Coefficient (m)	-1.14681	PF Power Coefficient (p)	0.84146
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

#### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4822	-	-	69.6

#### Vehicle Results

Average Speed, mi/h	69.6	Percent Followers, %	16.5
Segment Travel Time, minutes	0.79	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

#### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	111	Bicycle Effective Width, ft	33
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

### Segment 9

#### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	861
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

#### Demand and Capacity

Directional Demand Flow Rate, veh/h	111	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29353	PF Power Coefficient (p)	0.75782
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	861	-	-	69.3

### Vehicle Results

Average Speed, mi/h	69.3	Percent Followers, %	21.7
Segment Travel Time, minutes	0.14	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	111	Bicycle Effective Width, ft	33
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1556
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	111	Opposing Demand Flow Rate, veh/h	161
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.30834	Speed Power Coefficient (p)	0.55093
PF Slope Coefficient (m)	-1.21738	PF Power Coefficient (p)	0.81494
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1556	-	-	69.6
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### Vehicle Results

Average Speed, mi/h	69.6	Percent Followers, %	18.4
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	111	Bicycle Effective Width, ft	33
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	799
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	111	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29353	PF Power Coefficient (p)	0.75782
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	799	-	-	69.3

### Vehicle Results

Average Speed, mi/h	69.3	Percent Followers, %	21.7
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	111	Bicycle Effective Width, ft	33
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 12

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	857
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	111	Opposing Demand Flow Rate, veh/h	161
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.30393	Speed Power Coefficient (p)	0.55093
PF Slope Coefficient (m)	-1.22917	PF Power Coefficient (p)	0.80961
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	857	-	-	69.6

Vehicle Results			
Average Speed, mi/h	69.6	Percent Followers, %	18.8
Segment Travel Time, minutes	0.14	Follower Density (FD), followers/mi/ln	0.3
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	111	Bicycle Effective Width, ft	33
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1288
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	111	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.39677	PF Power Coefficient (p)	0.73640

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

**Subsegment Data**

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1288	-	-	59.3

**Vehicle Results**

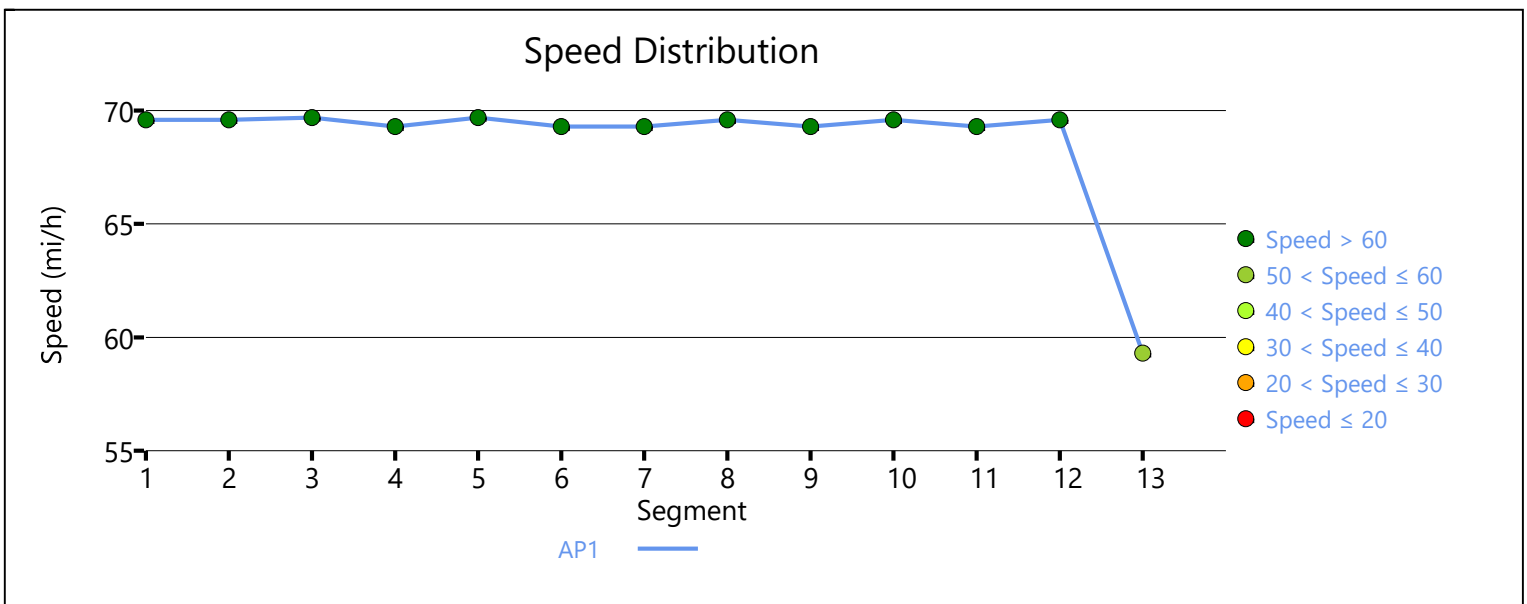
Average Speed, mi/h	59.3	Percent Followers, %	24.2
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

**Bicycle Results**

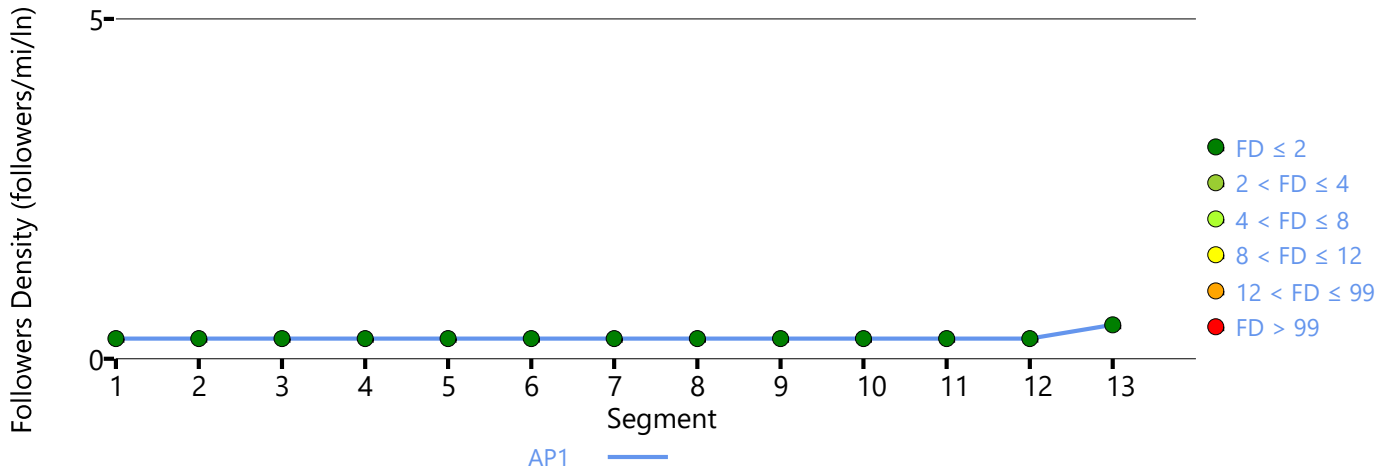
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	111	Bicycle Effective Width, ft	33
Bicycle LOS Score	0.00	Bicycle Effective Speed Factor	4.79
Bicycle LOS	A		

**Facility Results**

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	149	0.01	0.3	A



# Followers Density Distribution



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2029 NB
Jurisdiction	SDDOT	Time Analyzed	PM Peak
Project Description	WB 38 West of Hartford	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	10549
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	189	Opposing Demand Flow Rate, veh/h	118
Peak Hour Factor	0.88	Total Trucks, %	1.94
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.37894	Speed Power Coefficient (p)	0.56653
PF Slope Coefficient (m)	-1.13897	PF Power Coefficient (p)	0.81724
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	10549	-	-	68.9

### Vehicle Results

Average Speed, mi/h	68.9	Percent Followers, %	25.3
Segment Travel Time, minutes	1.74	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	189	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.44	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2793
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0



<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	189	Opposing Demand Flow Rate, veh/h	118		
Peak Hour Factor	0.88	Total Trucks, %	1.94		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.30833	Speed Power Coefficient (p)	0.56653		
PF Slope Coefficient (m)	-1.16438	PF Power Coefficient (p)	0.83687		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2793	-	-	68.9
<b>Vehicle Results</b>					
Average Speed, mi/h	68.9	Percent Followers, %	25.0		
Segment Travel Time, minutes	0.46	Follower Density (FD), followers/mi/ln	0.7		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	189	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.44	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	B				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	3825		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	180	Opposing Demand Flow Rate, veh/h	105		
Peak Hour Factor	0.88	Total Trucks, %	2.19		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.31437	Speed Power Coefficient (p)	0.57223		
PF Slope Coefficient (m)	-1.14124	PF Power Coefficient (p)	0.84536		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3825	-	-	69.0

### Vehicle Results

Average Speed, mi/h	69.0	Percent Followers, %	23.5
Segment Travel Time, minutes	0.63	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	180	Bicycle Effective Width, ft	28
Bicycle LOS Score	1.44	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	791
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	180	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.19
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29358	PF Power Coefficient (p)	0.75776
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	791	-	-	68.4

### Vehicle Results

Average Speed, mi/h	68.4	Percent Followers, %	29.7
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	180	Bicycle Effective Width, ft	28
Bicycle LOS Score	1.44	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3414
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	180	Opposing Demand Flow Rate, veh/h	105
Peak Hour Factor	0.88	Total Trucks, %	2.19
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.30953	Speed Power Coefficient (p)	0.57223
PF Slope Coefficient (m)	-1.14753	PF Power Coefficient (p)	0.84327
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3414	-	-	69.0

### Vehicle Results

Average Speed, mi/h	69.0	Percent Followers, %	23.6
Segment Travel Time, minutes	0.56	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	180	Bicycle Effective Width, ft	28
Bicycle LOS Score	1.44	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	286
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	180	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.19
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29358	PF Power Coefficient (p)	0.75776
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	286	-	-	68.4

### Vehicle Results

Average Speed, mi/h	68.4	Percent Followers, %	29.7
Segment Travel Time, minutes	0.05	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	180	Bicycle Effective Width, ft	28
Bicycle LOS Score	1.44	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	463
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	184	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29347	PF Power Coefficient (p)	0.75789
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	463	-	-	68.4

### Vehicle Results

Average Speed, mi/h	68.4	Percent Followers, %	30.1
Segment Travel Time, minutes	0.08	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	184	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.73	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

### Segment 8

<b>Vehicle Inputs</b>			
Segment Type	Passing Zone	Length, ft	4822
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>			
Directional Demand Flow Rate, veh/h	184	Opposing Demand Flow Rate, veh/h	100
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

<b>Intermediate Results</b>			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.32280	Speed Power Coefficient (p)	0.57423
PF Slope Coefficient (m)	-1.12885	PF Power Coefficient (p)	0.84841
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4822	-	-	69.0

<b>Vehicle Results</b>			
Average Speed, mi/h	69.0	Percent Followers, %	23.6
Segment Travel Time, minutes	0.79	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	184	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.73	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

### Segment 9

<b>Vehicle Inputs</b>			
Segment Type	Passing Constrained	Length, ft	861
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>			
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Directional Demand Flow Rate, veh/h	184	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29347	PF Power Coefficient (p)	0.75789
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	861	-	-	68.4

### Vehicle Results

Average Speed, mi/h	68.4	Percent Followers, %	30.1
Segment Travel Time, minutes	0.14	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	184	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.73	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1556
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	184	Opposing Demand Flow Rate, veh/h	100
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.28032	Speed Power Coefficient (p)	0.57423
PF Slope Coefficient (m)	-1.19816	PF Power Coefficient (p)	0.82111
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1556	-	-	69.0
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### Vehicle Results

Average Speed, mi/h	69.0	Percent Followers, %	25.8
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	184	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.73	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	799
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	184	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29347	PF Power Coefficient (p)	0.75789
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	799	-	-	68.4

### Vehicle Results

Average Speed, mi/h	68.4	Percent Followers, %	30.1
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	184	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.73	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 12

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	857
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	184	Opposing Demand Flow Rate, veh/h	100
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.27591	Speed Power Coefficient (p)	0.57423
PF Slope Coefficient (m)	-1.20974	PF Power Coefficient (p)	0.81565
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	857	-	-	69.0

Vehicle Results			
Average Speed, mi/h	69.0	Percent Followers, %	26.2
Segment Travel Time, minutes	0.14	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	184	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.73	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1288
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	184	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.39671	PF Power Coefficient (p)	0.73647



In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

**Subsegment Data**

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1288	-	-	58.4

**Vehicle Results**

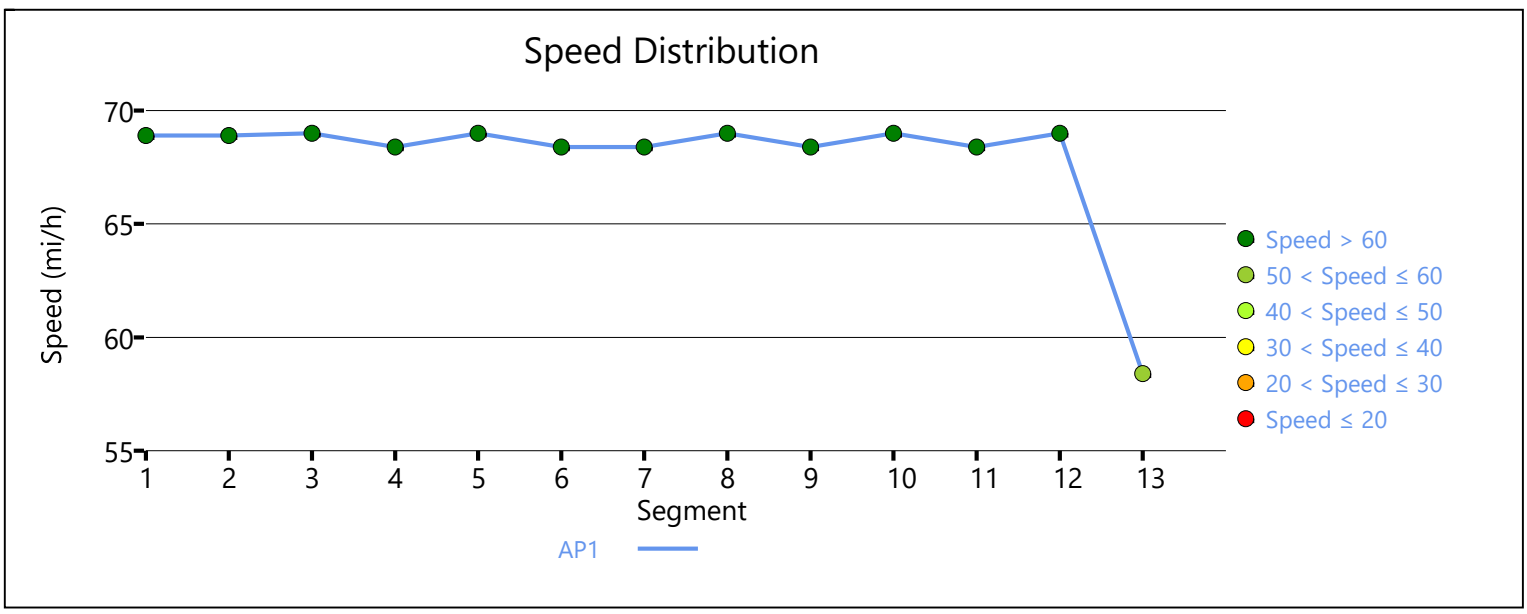
Average Speed, mi/h	58.4	Percent Followers, %	33.1
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

**Bicycle Results**

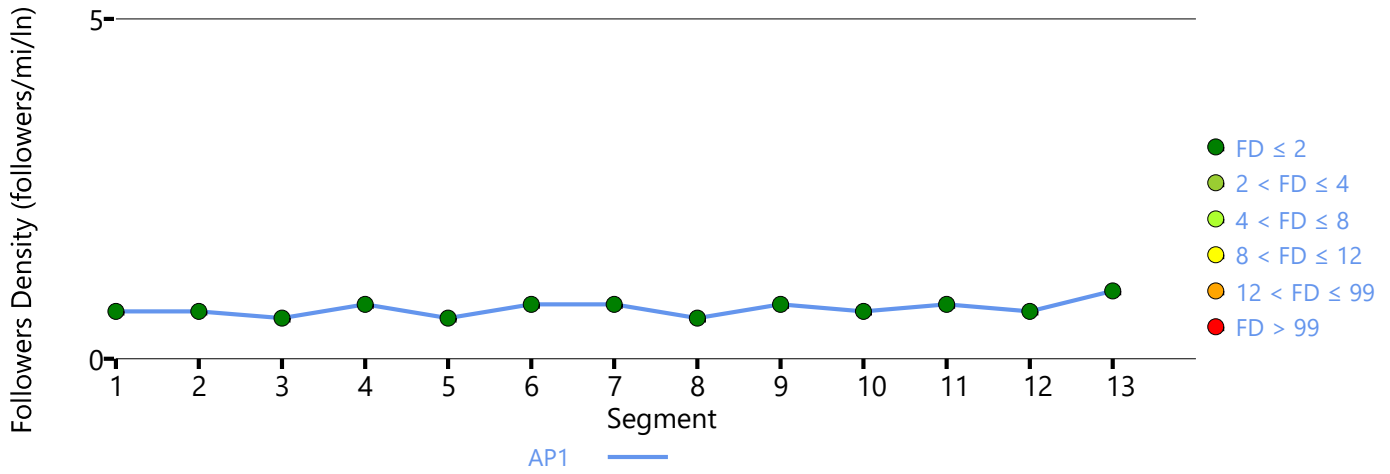
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	184	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.63	Bicycle Effective Speed Factor	4.79
Bicycle LOS	C		

**Facility Results**

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	249	0.06	0.7	A



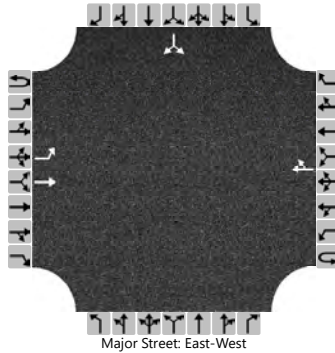
# Followers Density Distribution



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & SD 19		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	SD 19		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		45	135				100	40						55		75
Percent Heavy Vehicles (%)		30												9		11
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.40												6.49		6.31
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.47												3.58		3.40

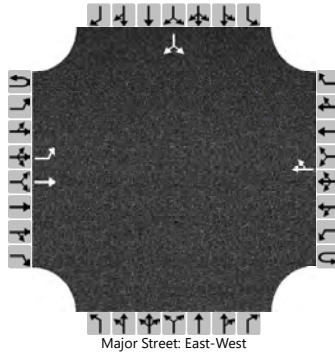
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		49													141		
Capacity, c (veh/h)		1274													734		
v/c Ratio		0.04													0.19		
95% Queue Length, Q <sub>95</sub> (veh)		0.1													0.7		
Control Delay (s/veh)		7.9													11.1		
Level of Service (LOS)		A													B		
Approach Delay (s/veh)		2.0												11.1			
Approach LOS		A												B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & SD 19		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	SD 19		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		70	100				140	65						30		40
Percent Heavy Vehicles (%)		2												10		14
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.50		6.34
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.59		3.43

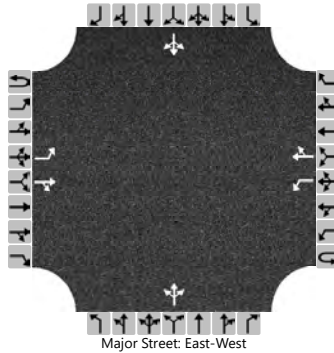
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		76													76		
Capacity, c (veh/h)		1345													661		
v/c Ratio		0.06													0.12		
95% Queue Length, Q <sub>95</sub> (veh)		0.2													0.4		
Control Delay (s/veh)		7.8													11.2		
Level of Service (LOS)		A													B		
Approach Delay (s/veh)		3.2												11.2			
Approach LOS		A												B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 459th		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	459th Ave		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		0	180	6		1	130	0		10	0	6		7	0	0
Percent Heavy Vehicles (%)		3				3				13	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1					7.1	6.5	6.2			7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13					7.23	6.50	6.20			7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2					3.5	4.0	3.3			3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23					3.62	4.00	3.30			3.50	4.00	3.30

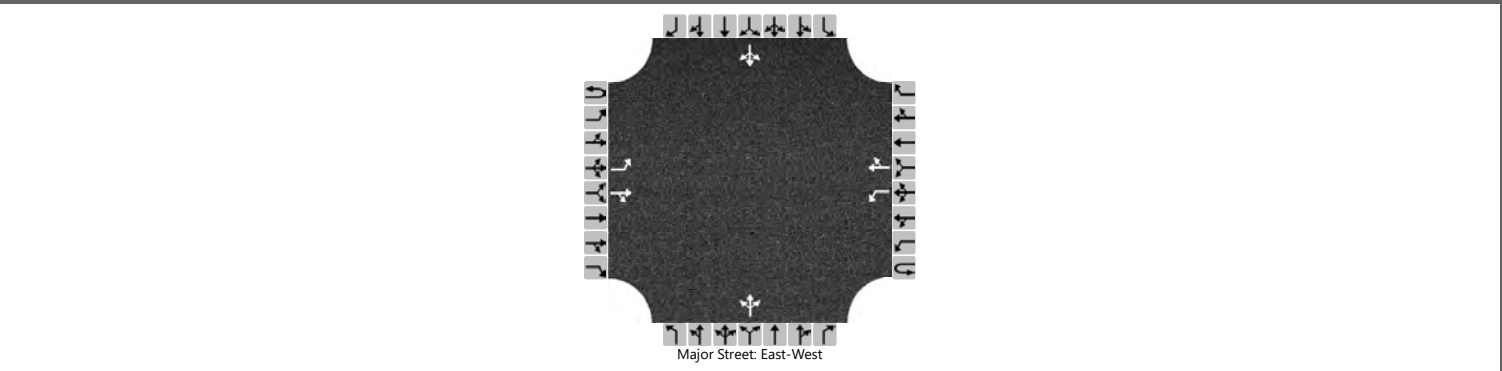
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				1					17					8	
Capacity, c (veh/h)		1436				1364					667					613	
v/c Ratio		0.00				0.00					0.03					0.01	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.1					0.0	
Control Delay (s/veh)		7.5				7.6					10.5					10.9	
Level of Service (LOS)		A				A					B					B	
Approach Delay (s/veh)		0.0				0.1				10.5				10.9			
Approach LOS		A				A				B				B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 459th		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	459th Ave		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		0	120	7		10	205	1		10	0	3		1	1	0
Percent Heavy Vehicles (%)		0				0				13	0	0		0	100	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.23	6.50	6.20		7.10	7.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.62	4.00	3.30		3.50	4.90	3.30

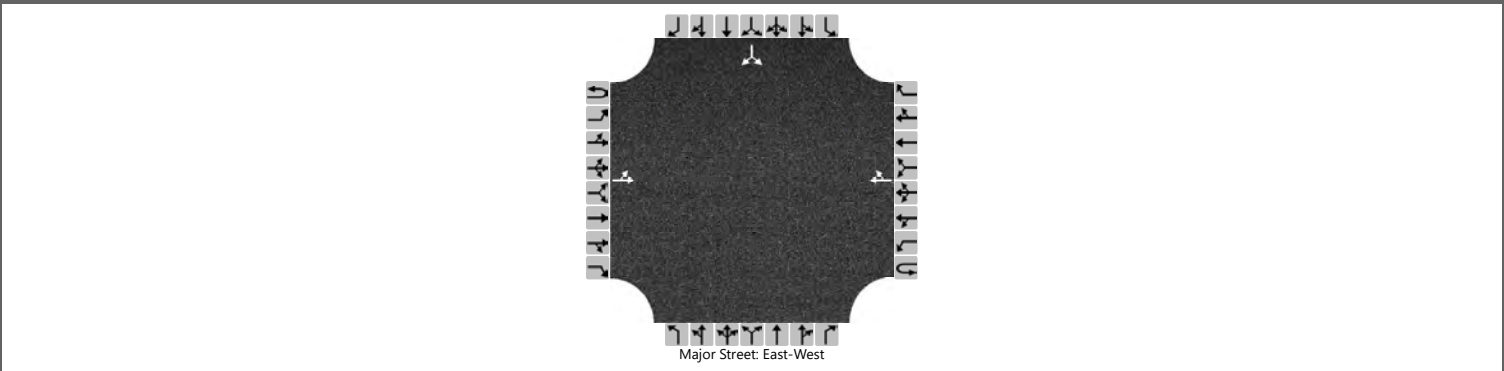
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				11				14				2		
Capacity, c (veh/h)		1357				1458				609				488		
v/c Ratio		0.00				0.01				0.02				0.00		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0				0.1				0.0		
Control Delay (s/veh)		7.7				7.5				11.0				12.4		
Level of Service (LOS)		A				A				B				B		
Approach Delay (s/veh)	0.0				0.3				11.0				12.4			
Approach LOS	A				A				B				B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 Expressway		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	I-90 Expressway		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		0	190				140	0						0		0
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

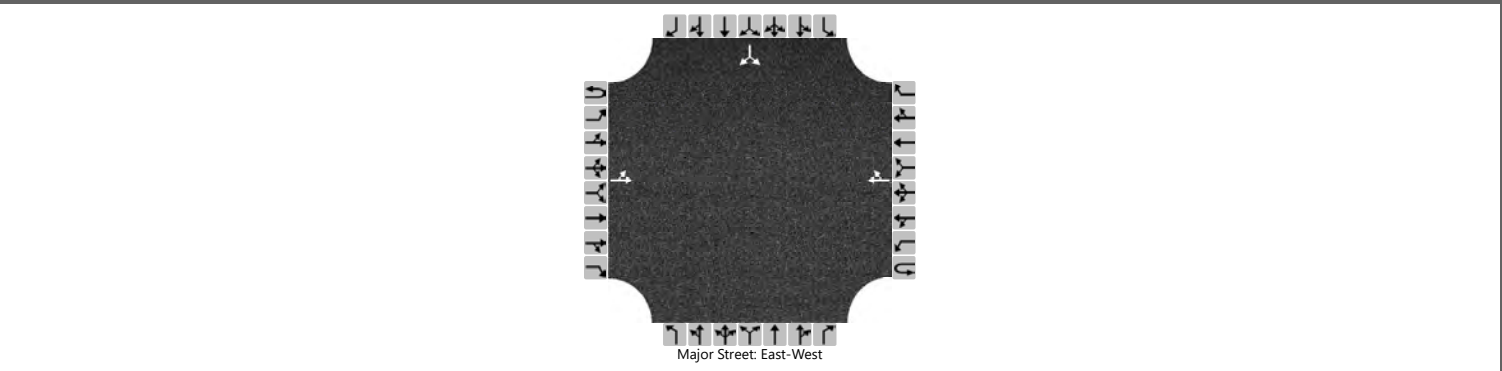
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													0	
Capacity, c (veh/h)		1422													0	
v/c Ratio		0.00														
95% Queue Length, Q <sub>95</sub> (veh)		0.0														
Control Delay (s/veh)		7.5	0.0													
Level of Service (LOS)		A	A													
Approach Delay (s/veh)		0.0														
Approach LOS		A														

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 Expressway		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	I-90 Expressway		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		0	135				215	0						0		0
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

## Delay, Queue Length, and Level of Service

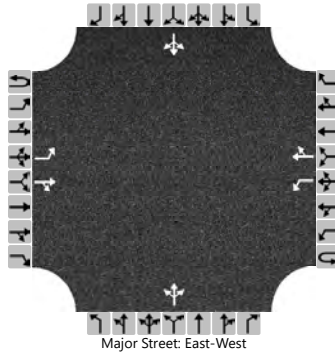
Flow Rate, v (veh/h)		0														0
Capacity, c (veh/h)		1328														0
v/c Ratio		0.00														
95% Queue Length, Q <sub>95</sub> (veh)		0.0														
Control Delay (s/veh)		7.7	0.0													
Level of Service (LOS)		A	A													
Approach Delay (s/veh)		0.0														
Approach LOS		A														



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 463rd Ave / Western Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	463rd Ave / Western Ave		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		7	150	65		50	95	25		50	65	75		35	65	4
Percent Heavy Vehicles (%)		3				3				14	2	6		0	7	33
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.24	6.52	6.26		7.10	6.57	6.53
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.63	4.02	3.35		3.50	4.06	3.60

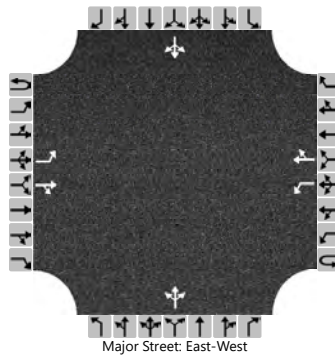
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		8				54					207					113	
Capacity, c (veh/h)		1449				1328					541					442	
v/c Ratio		0.01				0.04					0.38					0.26	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.1					1.8					1.0	
Control Delay (s/veh)		7.5				7.8					15.7					15.9	
Level of Service (LOS)		A				A					C					C	
Approach Delay (s/veh)		0.2				2.3				15.7				15.9			
Approach LOS		A				A				C				C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 463rd Ave / Western Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	463rd Ave / Western Ave		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		15	105	45		95	165	50		55	70	125		45	80	20
Percent Heavy Vehicles (%)		22				3				0	11	4		0	4	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.32				4.13				7.10	6.61	6.24		7.10	6.54	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.40				2.23				3.50	4.10	3.34		3.50	4.04	3.30

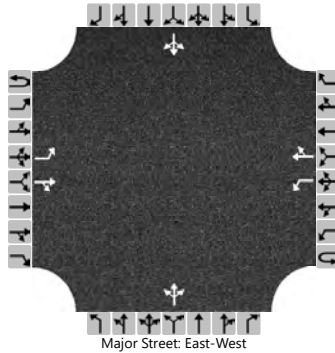
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		16				103					272				158		
Capacity, c (veh/h)		1225				1410					480				353		
v/c Ratio		0.01				0.07					0.57				0.45		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.2					3.5				2.2		
Control Delay (s/veh)		8.0				7.8					21.9				23.2		
Level of Service (LOS)		A				A					C				C		
Approach Delay (s/veh)		0.7				2.4				21.9				23.2			
Approach LOS		A				A				C				C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Main Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	Main Ave (9th St)		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0	
Configuration		L		TR		L		TR			LTR				LTR		
Volume (veh/h)		1	215	25		35	165	15		30	4	70		5	9	3	
Percent Heavy Vehicles (%)		0				11				5	0	2		0	17	0	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized																	
Median Type   Storage	Undivided																

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.21				7.15	6.50	6.22		7.10	6.67	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.30				3.55	4.00	3.32		3.50	4.15	3.30

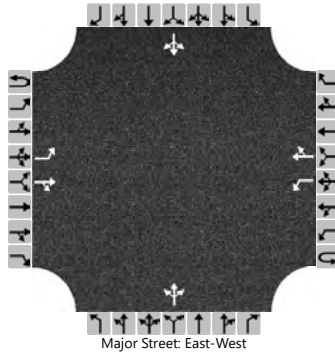
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1				38					113				18		
Capacity, c (veh/h)		1389				1253					630				463		
v/c Ratio		0.00				0.03					0.18				0.04		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.1					0.6				0.1		
Control Delay (s/veh)		7.6				8.0					12.0				13.1		
Level of Service (LOS)		A				A					B				B		
Approach Delay (s/veh)		0.0				1.3				12.0				13.1			
Approach LOS		A				A				B				B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Main Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/4/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	Main Ave (9th St)		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0	
Configuration		L		TR		L		TR			LTR				LTR		
Volume (veh/h)		9	210	40		55	275	50		30	15	45		35	25	6	
Percent Heavy Vehicles (%)		0				0				5	0	0		0	0	0	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized																	
Median Type   Storage	Undivided																

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.15	6.50	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.55	4.00	3.30		3.50	4.00	3.30

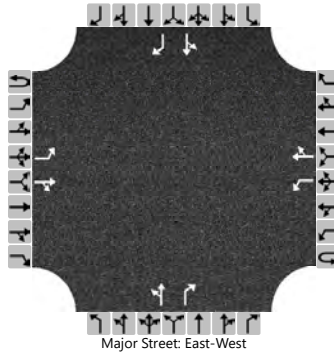
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				60					98				72		
Capacity, c (veh/h)		1217				1303					446				329		
v/c Ratio		0.01				0.05					0.22				0.22		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.1					0.8				0.8		
Control Delay (s/veh)		8.0				7.9					15.3				19.0		
Level of Service (LOS)		A				A					C				C		
Approach Delay (s/veh)		0.3				1.1				15.3				19.0			
Approach LOS		A				A				C				C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Vandemark Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	Vandemark Avenue		
Time Analyzed	AM			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	0	0	1	1		0	1	1	
Configuration		L		TR		L		TR		LT		R		LT		R
Volume (veh/h)		20	310	9		7	210	20		7	4	10		35	1	20
Percent Heavy Vehicles (%)		0				0				40	0	0		0	0	7
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized									No				No			
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.20		7.10	6.50	6.27
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.86	4.00	3.30		3.50	4.00	3.36

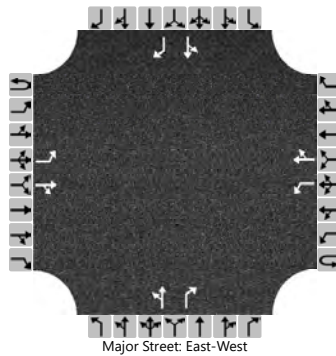
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		22				8				12		11		39		22
Capacity, c (veh/h)		1327				1223				345		705		374		788
v/c Ratio		0.02				0.01				0.03		0.02		0.10		0.03
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0				0.1		0.0		0.3		0.1
Control Delay (s/veh)		7.8				8.0				15.8		10.2		15.7		9.7
Level of Service (LOS)		A				A				C		B		C		A
Approach Delay (s/veh)	0.5				0.2				13.1				13.6			
Approach LOS	A				A				B				B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Vandemark Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	Vandemark Avenue		
Time Analyzed	PM			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	1	1	0	0	1	1	0		0	1	1		0	1	1	
Configuration		L		TR		L		TR		LT		R		LT		R	
Volume (veh/h)		20	220	3		5	400	35		0	0	8		25	0	20	
Percent Heavy Vehicles (%)		0				0				0	0	100		0	0	7	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized										No				No			
Median Type   Storage	Undivided																

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	7.20		7.10	6.50	6.27
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	4.20		3.50	4.00	3.36

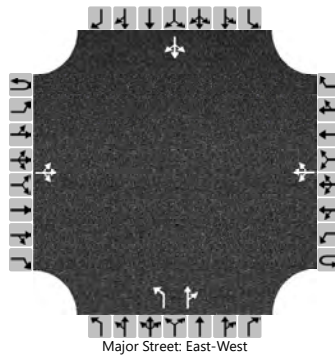
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		22				5				0		9		27		22
Capacity, c (veh/h)		1100				1336				0		607		319		596
v/c Ratio		0.02				0.00						0.01		0.09		0.04
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.0						0.0		0.3		0.1
Control Delay (s/veh)		8.3				7.7						11.0		17.3		11.3
Level of Service (LOS)		A				A						B		C		B
Approach Delay (s/veh)		0.7				0.1						14.6				
Approach LOS		A				A						B				

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 2nd St		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	2nd St		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	0	1	0	0	0	1	0		1	1	0		0	1	0	
Configuration			LTR				LTR			L		TR			LTR		
Volume (veh/h)		15	275	9		80	175	15		4	20	130		30	40	20	
Percent Heavy Vehicles (%)		10				16				33	8	5		0	4	8	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized																	
Median Type   Storage	Undivided																

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.20				4.26				7.43	6.58	6.25		7.10	6.54	6.28
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.29				2.34				3.80	4.07	3.35		3.50	4.04	3.37

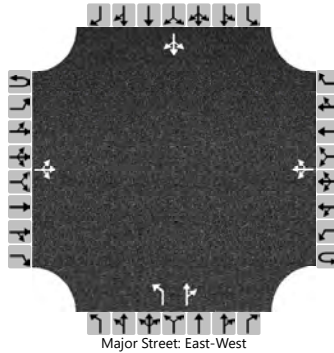
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		16				87				4		163			98	
Capacity, c (veh/h)		1292				1177				234		616			320	
v/c Ratio		0.01				0.07				0.02		0.26			0.31	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.2				0.1		1.1			1.3	
Control Delay (s/veh)		7.8	0.1	0.1		8.3	0.7	0.7		20.7		12.9			21.2	
Level of Service (LOS)		A	A	A		A	A	A		C		B			C	
Approach Delay (s/veh)		0.5				2.9				13.1				21.2		
Approach LOS		A				A				B				C		

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 2nd St		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	2nd St		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	0	1	0	0	0	1	0		1	1	0		0	1	0	
Configuration			LTR				LTR			L		TR			LTR		
Volume (veh/h)		20	200	7		110	415	20		10	20	55		15	25	15	
Percent Heavy Vehicles (%)		0				0				0	0	6		0	6	0	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized																	
Median Type   Storage	Undivided																

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.26		7.10	6.56	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.35		3.50	4.05	3.30

## Delay, Queue Length, and Level of Service

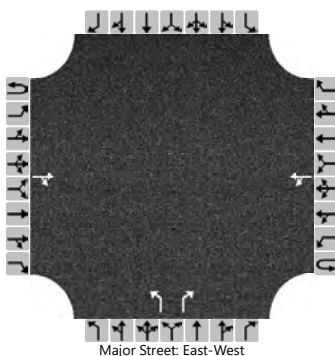
Flow Rate, v (veh/h)		22				120				11		82			60	
Capacity, c (veh/h)		1078				1356				174		462			234	
v/c Ratio		0.02				0.09				0.06		0.18			0.26	
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.3				0.2		0.6			1.0	
Control Delay (s/veh)		8.4	0.2	0.2		7.9	0.9	0.9		27.1		14.5			25.6	
Level of Service (LOS)		A	A	A		A	A	A		D		B			D	
Approach Delay (s/veh)		0.9				2.4				15.9				25.6		
Approach LOS		A				A				C				D		



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & West Central HS Entrance		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	West Central HS Entrance		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			360	75		45	245			30		40				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized									No							
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

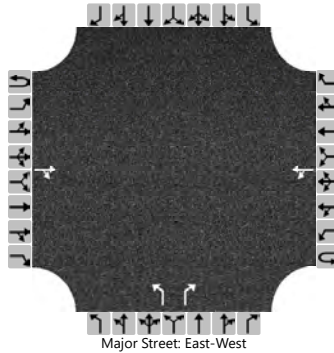
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						49					33		43			
Capacity, c (veh/h)						1100					340		628			
v/c Ratio						0.04					0.10		0.07			
95% Queue Length, Q <sub>95</sub> (veh)						0.1					0.3		0.2			
Control Delay (s/veh)						8.4	0.4				16.7		11.2			
Level of Service (LOS)						A	A				C		B			
Approach Delay (s/veh)					1.7				13.5							
Approach LOS					A				B							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & West Central HS Entrance		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	West Central HS Entrance		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			265	3		3	525			10		10				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized									No							
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

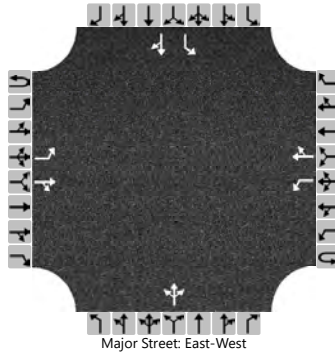
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					3					11		11				
Capacity, c (veh/h)					1282					325		754				
v/c Ratio					0.00					0.03		0.01				
95% Queue Length, Q <sub>95</sub> (veh)					0.0					0.1		0.0				
Control Delay (s/veh)					7.8	0.0				16.5		9.8				
Level of Service (LOS)					A	A				C		A				
Approach Delay (s/veh)					0.1				13.2							
Approach LOS					A				B							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Railroad Street		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	Railroad St		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		3	390	0		15	235	80		1	0	25		125	3	4
Percent Heavy Vehicles (%)		0				0				0	0	15		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.35		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.44		3.50	4.00	3.30

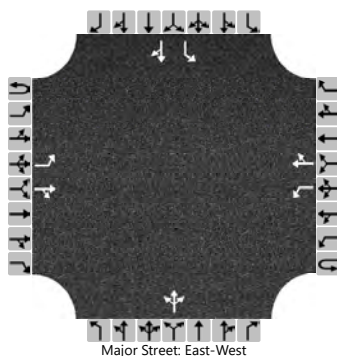
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3				16				28				136		8
Capacity, c (veh/h)		1228				1146				585				304		485
v/c Ratio		0.00				0.01				0.05				0.45		0.02
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0				0.2				2.2		0.0
Control Delay (s/veh)		7.9				8.2				11.5				26.0		12.5
Level of Service (LOS)		A				A				B				D		B
Approach Delay (s/veh)	0.1				0.4				11.5				25.3			
Approach LOS	A				A				B				D			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Railroad Street		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/5/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	Railroad St		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0	
Configuration		L		TR		L		TR			LTR			L		TR	
Volume (veh/h)		3	295	3		10	475	130		1	1	10		70	7	4	
Percent Heavy Vehicles (%)		0				40				0	0	15		5	0	0	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized																	
Median Type   Storage	Undivided																

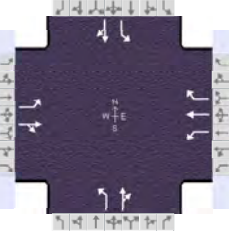
## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.50				7.10	6.50	6.35		7.15	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.56				3.50	4.00	3.44		3.55	4.00	3.30

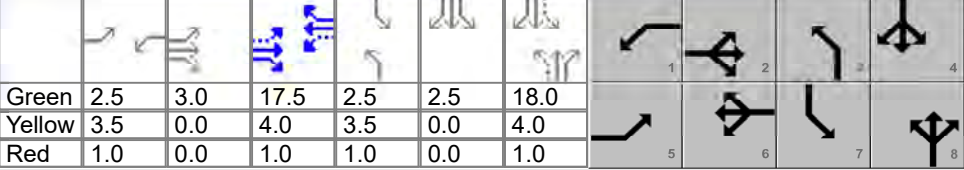
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3				11					13			76		12	
Capacity, c (veh/h)		940				1050					533			234		319	
v/c Ratio		0.00				0.01					0.02			0.33		0.04	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.1			1.4		0.1	
Control Delay (s/veh)		8.8				8.5					11.9			27.6		16.7	
Level of Service (LOS)		A				A					B			D		C	
Approach Delay (s/veh)		0.1				0.1				11.9				26.2			
Approach LOS		A				A				B				D			

## HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	HRG			Duration, h	0.250	
Analyst	NM	Analysis Date	May 8, 2023	Area Type	Other	
Jurisdiction	SDDOT	Time Period	AM Peak	PHF	0.92	
Urban Street	SD 38	Analysis Year	2040	Analysis Period	1 > 7:15	
Intersection	SD 38 & Mickelson Roa...	File Name	(10) SD38&Mickelson_AM.xus			
Project Description						

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( $v$ ), veh/h	135	355	30	35	140	190	35	55	50	215	20	195

Signal Information												
Cycle, s	65.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	2.5	3.0	17.5	2.5	2.5	18.0						
Yellow	3.5	0.0	4.0	3.5	0.0	4.0						
Red	1.0	0.0	1.0	1.0	0.0	1.0						

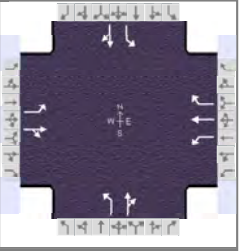
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	4.0	1.1	4.0
Phase Duration, s	10.0	25.5	7.0	22.5	7.0	23.0	9.5	25.5
Change Period, ( $Y+R_c$ ), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0
Max Allow Headway ( $MAH$ ), s	3.1	0.0	3.1	0.0	3.1	3.3	3.1	3.3
Queue Clearance Time ( $g_s$ ), s	6.0		3.0		3.0	20.0	7.0	22.5
Green Extension Time ( $g_e$ ), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase Call Probability	0.93		0.50		0.50	1.00	0.99	1.00
Max Out Probability	1.00		1.00		1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( $v$ ), veh/h	147	418		38	152	207	38	114		234	234	
Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln	1688	1747		1688	1772	1323	1688	1632		1688	1523	
Queue Service Time ( $g_s$ ), s	4.0	14.0		1.0	4.5	8.8	1.0	3.5		5.0	8.1	
Cycle Queue Clearance Time ( $g_c$ ), s	4.0	14.0		1.0	4.5	8.8	1.0	3.5		5.0	8.1	
Green Ratio ( $g/C$ )	0.36	0.32		0.31	0.27	0.27	0.32	0.28		0.35	0.32	
Capacity ( $c$ ), veh/h	501	552		175	477	356	175	452		241	481	
Volume-to-Capacity Ratio ( $X$ )	0.293	0.759		0.217	0.319	0.580	0.217	0.253		0.971	0.486	
Back of Queue ( $Q$ ), ft/ln ( 95 th percentile)												
Back of Queue ( $Q$ ), veh/ln ( 95 th percentile)	2.4	10.7		0.7	3.4	5.6	0.7	2.2		9.5	4.7	
Queue Storage Ratio ( $RQ$ ) ( 95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay ( $d_1$ ), s/veh	14.7	20.0		18.3	19.0	20.6	18.1	18.3		21.1	18.0	
Incremental Delay ( $d_2$ ), s/veh	0.1	9.4		0.2	1.8	6.7	0.2	0.1		49.6	0.3	
Initial Queue Delay ( $d_3$ ), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay ( $d$ ), s/veh	14.8	29.5		18.5	20.7	27.3	18.3	18.4		70.7	18.3	
Level of Service (LOS)	B	C		B	C	C	B	B		E	B	
Approach Delay, s/veh / LOS	25.7		C	23.9		C	18.4		B	44.5		D
Intersection Delay, s/veh / LOS	30.1						C					

Multimodal Results	EB		WB		NB		SB	
	Score	LOS	Score	LOS	Score	LOS	Score	LOS
Pedestrian LOS Score / LOS	1.91	B	1.91	B	2.10	B	1.91	B
Bicycle LOS Score / LOS	1.42	A	1.14	A	0.74	A	1.26	A

## HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	HRG			Duration, h	0.250		
Analyst	NM	Analysis Date	May 8, 2023		Area Type	Other	
Jurisdiction	SDDOT	Time Period	AM Peak		PHF	0.92	
Urban Street	SD 38	Analysis Year	2040		Analysis Period	1 > 7:15	
Intersection	SD 38 & Mickelson Roa...	File Name	(10) SD38&Mickelson_PM.xus				
Project Description							



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( $v$ ), veh/h	160	165	20	110	425	225	15	65	35	210	15	185

Signal Information				Signal Timing (s)											
Cycle, s	70.0	Reference Phase	2												
Offset, s	0	Reference Point	End	Green	4.8	1.7	21.0	1.4	0.6	17.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	0.0	4.0	3.5	3.5	4.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	0.0	1.0	1.0	1.0	1.0					

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	4.0	1.1	4.0
Phase Duration, s	11.0	27.7	9.3	26.0	5.9	22.0	11.0	27.1
Change Period, ( $Y+R_c$ ), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0
Max Allow Headway ( $MAH$ ), s	3.1	0.0	3.1	0.0	3.1	3.3	3.1	3.3
Queue Clearance Time ( $g_s$ ), s	6.9		5.4		2.5	19.0	8.5	24.1
Green Extension Time ( $g_e$ ), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase Call Probability	0.97		0.90		0.27	1.00	0.99	1.00
Max Out Probability	1.00		1.00		1.00	1.00	1.00	1.00

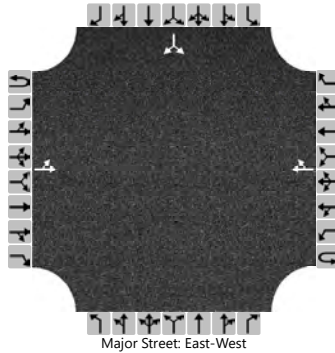
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( $v$ ), veh/h	174	201		120	462	245	16	109		228	217	
Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln	1688	1738		1688	1772	1323	1688	1667		1688	1519	
Queue Service Time ( $g_s$ ), s	4.9	6.2		3.4	17.3	11.1	0.5	3.7		6.5	8.0	
Cycle Queue Clearance Time ( $g_c$ ), s	4.9	6.2		3.4	17.3	11.1	0.5	3.7		6.5	8.0	
Green Ratio ( $g/C$ )	0.39	0.32		0.37	0.30	0.30	0.26	0.24		0.36	0.32	
Capacity ( $c$ ), veh/h	309	563		220	532	397	136	405		260	480	
Volume-to-Capacity Ratio ( $X$ )	0.563	0.357		0.544	0.869	0.616	0.120	0.268		0.879	0.452	
Back of Queue ( $Q$ ), ft/ln ( 95 th percentile)												
Back of Queue ( $Q$ ), veh/ln ( 95 th percentile)	3.2	4.6		2.2	14.1	7.0	0.3	2.5		7.8	4.7	
Queue Storage Ratio ( $RQ$ ) ( 95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay ( $d_1$ ), s/veh	17.0	18.1		18.1	23.2	21.0	21.3	21.5		19.7	19.1	
Incremental Delay ( $d_2$ ), s/veh	1.5	1.8		0.9	17.4	7.0	0.1	0.1		26.4	0.2	
Initial Queue Delay ( $d_3$ ), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay ( $d$ ), s/veh	18.5	19.9		19.1	40.6	28.0	21.4	21.6		46.2	19.3	
Level of Service (LOS)	B	B		B	D	C	C	C		D	B	
Approach Delay, s/veh / LOS	19.2		B	33.7		C	21.6		C	33.1		C
Intersection Delay, s/veh / LOS	29.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.91	B	1.91	B	2.11	B	1.91	B
Bicycle LOS Score / LOS	1.11	A	1.85	B	0.69	A	1.22	A

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD38 & 466th Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	466th Ave		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		1	650				370	4						3		0
Percent Heavy Vehicles (%)		0												50		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage					Undivided											

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.90		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.95		3.33

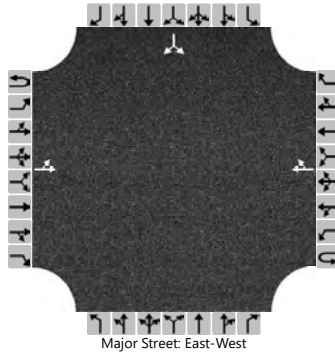
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1													3		
Capacity, c (veh/h)		1163													187		
v/c Ratio		0.00													0.02		
95% Queue Length, Q <sub>95</sub> (veh)		0.0													0.1		
Control Delay (s/veh)		8.1	0.0												24.6		
Level of Service (LOS)		A	A												C		
Approach Delay (s/veh)		0.0												24.6			
Approach LOS		A												C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM	Intersection	SD38 & 466th Ave				
Agency/Co.	HRG	Jurisdiction	SDDOT				
Date Performed	5/8/2023	East/West Street	SD 38				
Analysis Year	2040	North/South Street	466th Ave				
Time Analyzed	PM Peak	Peak Hour Factor	0.92				
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25				
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		0	380				770	1						4		1
Percent Heavy Vehicles (%)		0												33		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.73		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.80		3.30

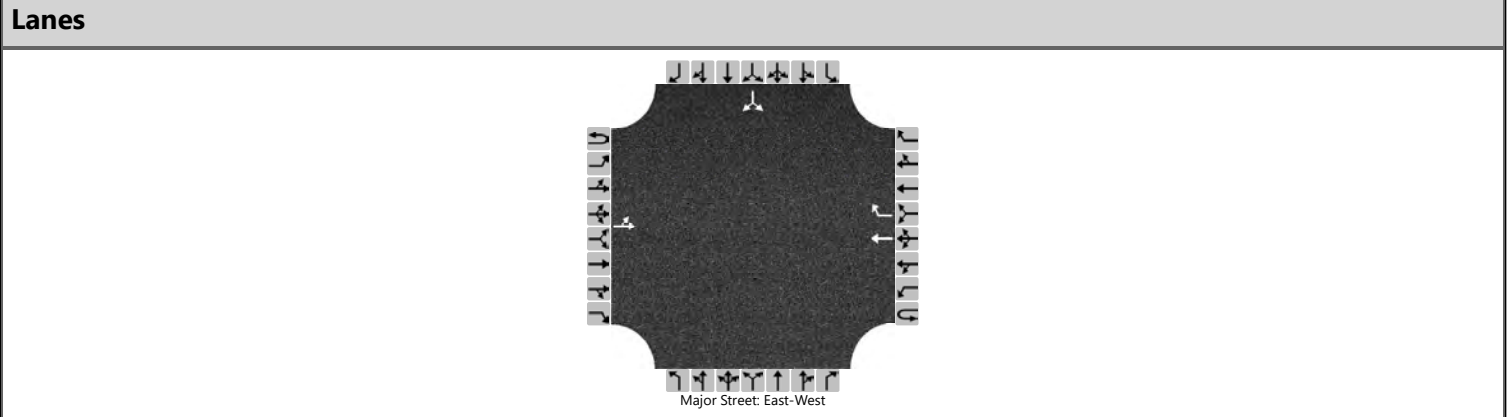
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													5	
Capacity, c (veh/h)		805													185	
v/c Ratio		0.00													0.03	
95% Queue Length, Q <sub>95</sub> (veh)		0.0													0.1	
Control Delay (s/veh)		9.5	0.0												25.0	
Level of Service (LOS)		A	A												D	
Approach Delay (s/veh)	0.0												25.0			
Approach LOS	A												D			



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 WB Terminal		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	I-90 WB Terminal		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	1		0	0	0		0	1	0
Configuration		LT					T	R							LR	
Volume (veh/h)		35	615				215	15						15		165
Percent Heavy Vehicles (%)		0												56		12
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized							No									
Median Type   Storage							Undivided									

**Critical and Follow-up Headways**

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.96		6.32
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												4.00		3.41

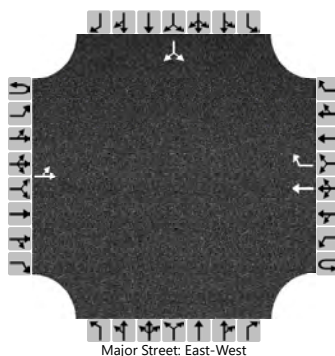
**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		38														196	
Capacity, c (veh/h)		1327														639	
v/c Ratio		0.03														0.31	
95% Queue Length, Q <sub>95</sub> (veh)		0.1														1.3	
Control Delay (s/veh)		7.8	0.4													13.1	
Level of Service (LOS)		A	A													B	
Approach Delay (s/veh)		0.8												13.1			
Approach LOS		A												B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 WB Terminal		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	I-90 WB Terminal		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	0	1	0	0	0	1	1		0	0	0		0	1	0	
Configuration		LT					T	R							LR		
Volume (veh/h)		25	355				355	30						25		415	
Percent Heavy Vehicles (%)		0												6		2	
Proportion Time Blocked																	
Percent Grade (%)														0			
Right Turn Channelized							No										
Median Type   Storage		Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.46		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.55		3.32

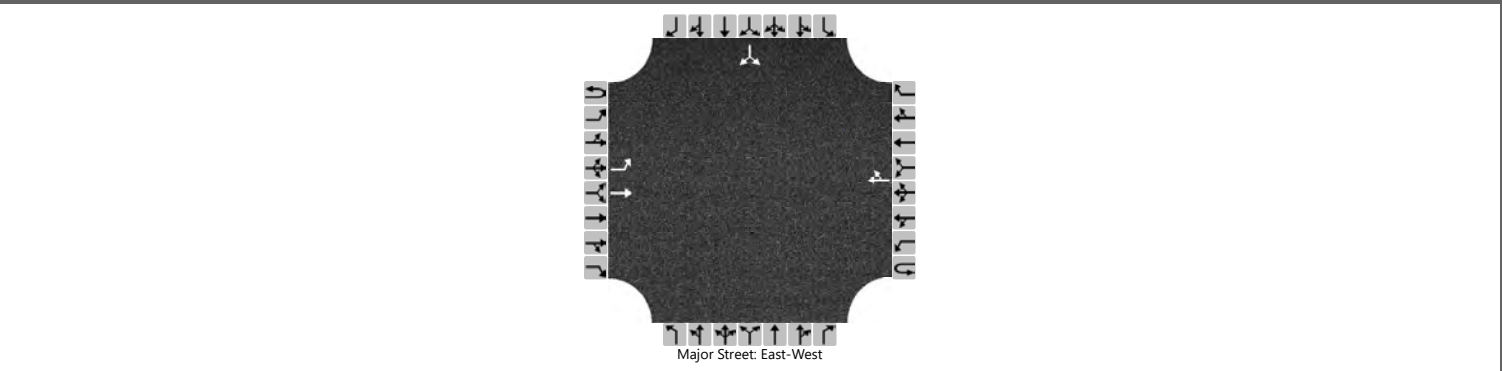
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		27														478	
Capacity, c (veh/h)		1151														625	
v/c Ratio		0.02														0.76	
95% Queue Length, Q <sub>95</sub> (veh)		0.1														7.0	
Control Delay (s/veh)		8.2	0.2													27.0	
Level of Service (LOS)		A	A													D	
Approach Delay (s/veh)		0.8												27.0			
Approach LOS		A												D			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 EB Ramp Terminal		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	I-90 EB Ramp Terminal		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		365	265				210	20						4		25
Percent Heavy Vehicles (%)		1												33		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.11												6.73		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.21												3.80		3.33

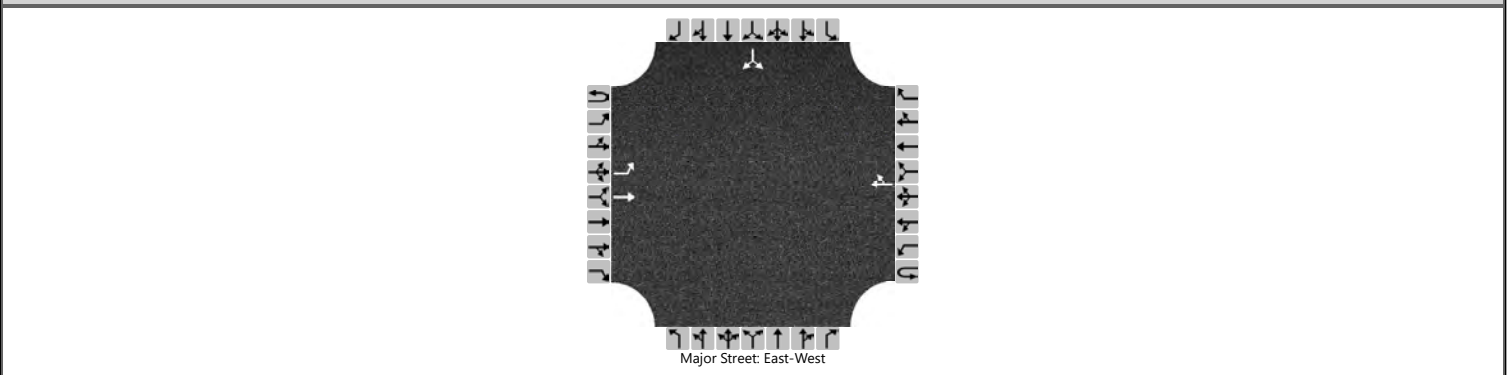
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		397													32		
Capacity, c (veh/h)		1321													416		
v/c Ratio		0.30													0.08		
95% Queue Length, Q <sub>95</sub> (veh)		1.3													0.2		
Control Delay (s/veh)		8.9													14.4		
Level of Service (LOS)		A													B		
Approach Delay (s/veh)		5.1												14.4			
Approach LOS		A												B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 EB Ramp Terminal		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	I-90 EB Ramp Terminal		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		165	225				355	25						35		35
Percent Heavy Vehicles (%)		12												36		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.22												6.76		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.31												3.82		3.33

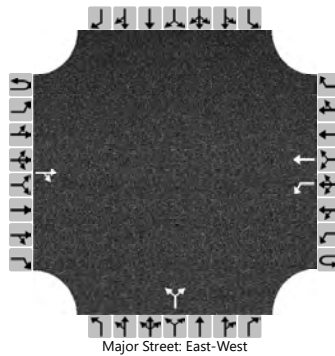
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		179													76		
Capacity, c (veh/h)		1094													299		
v/c Ratio		0.16													0.25		
95% Queue Length, Q <sub>95</sub> (veh)		0.6													1.0		
Control Delay (s/veh)		8.9													21.1		
Level of Service (LOS)		A													C		
Approach Delay (s/veh)		3.8												21.1			
Approach LOS		A												C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 466th Ave (South)		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	466th Ave (South)		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			260	15		15	200			20		15				
Percent Heavy Vehicles (%)						20				33		60				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.30					6.73		6.80			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.38					3.80		3.84			

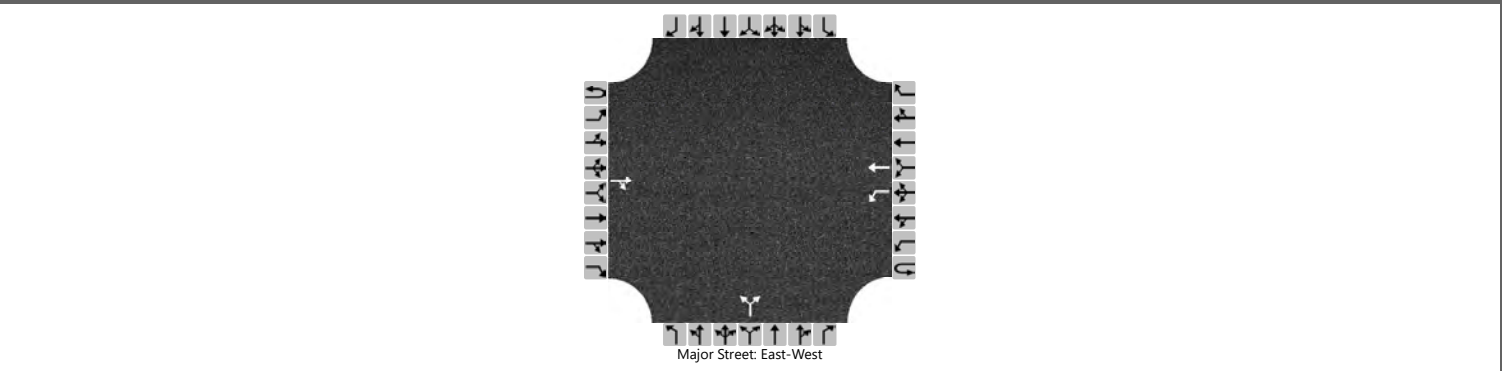
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						16						38				
Capacity, c (veh/h)						1166						510				
v/c Ratio						0.01						0.07				
95% Queue Length, Q <sub>95</sub> (veh)						0.0						0.2				
Control Delay (s/veh)						8.1						12.6				
Level of Service (LOS)						A						B				
Approach Delay (s/veh)					0.6				12.6							
Approach LOS					A				B							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 466th Ave (South)		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	466th Ave (South)		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			235	20		15	340			35		20				
Percent Heavy Vehicles (%)						11				20		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.21					6.60		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.30					3.68		3.30			

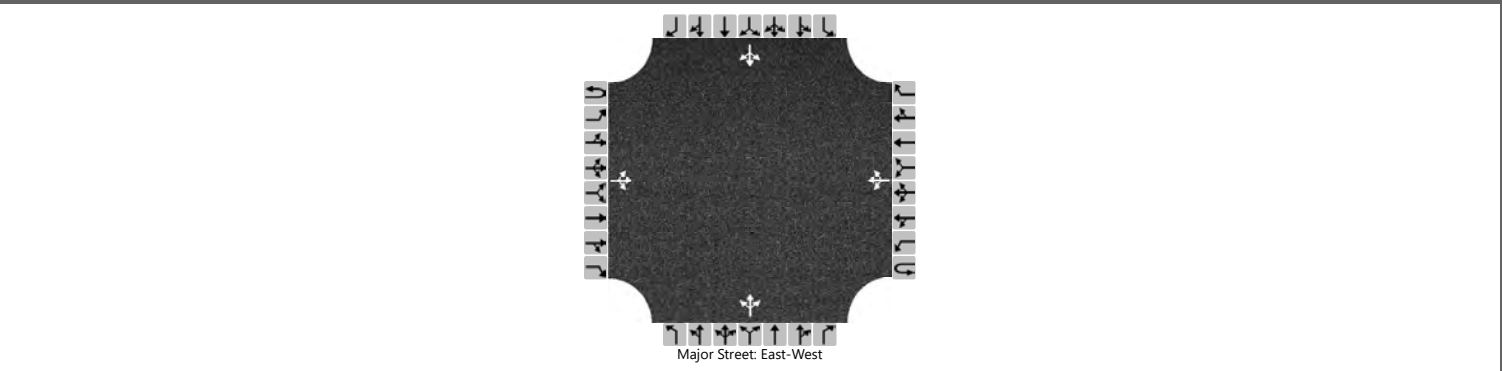
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						16						60				
Capacity, c (veh/h)						1236						477				
v/c Ratio						0.01						0.13				
95% Queue Length, Q <sub>95</sub> (veh)						0.0						0.4				
Control Delay (s/veh)						8.0						13.6				
Level of Service (LOS)						A						B				
Approach Delay (s/veh)							0.3					13.6				
Approach LOS							A					B				

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 468th Avenue		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	468th Ave / County Highway 141		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		3	300	0		0	190	40		1	1	0		40	0	6
Percent Heavy Vehicles (%)		0				0				0	100	0		4	0	50
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	7.50	6.20		7.14	6.50	6.70
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.90	3.30		3.54	4.00	3.75

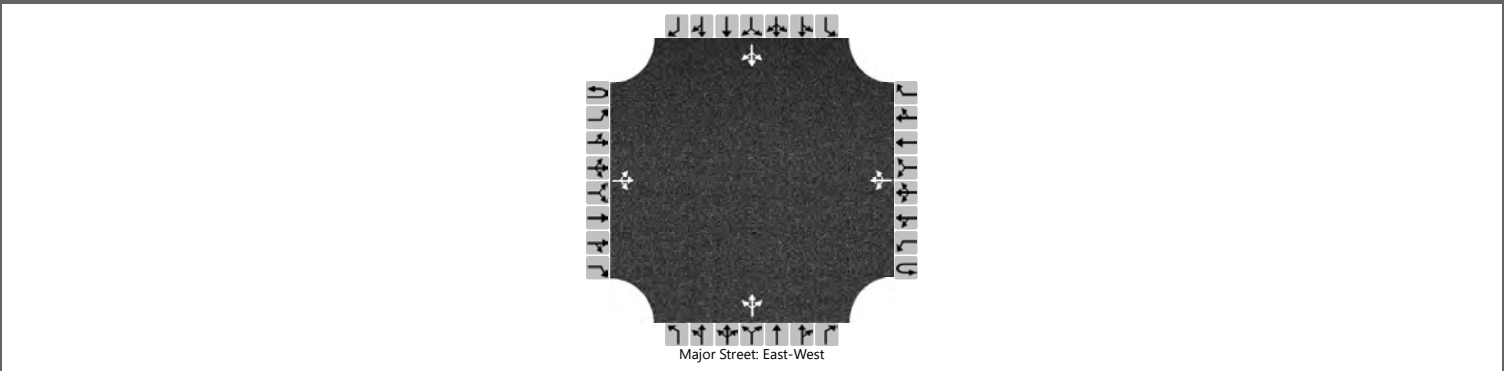
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3				0					2					50
Capacity, c (veh/h)		1327				1245					371					455
v/c Ratio		0.00				0.00					0.01					0.11
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.0					0.4
Control Delay (s/veh)		7.7	0.0	0.0		7.9	0.0	0.0			14.8					13.9
Level of Service (LOS)		A	A	A		A	A	A			B					B
Approach Delay (s/veh)		0.1				0.0				14.8				13.9		
Approach LOS		A				A				B				B		

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 468th Avenue		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	468th Ave / County Highway 141		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	260	1		4	350	45		1	1	0		45	3	3
Percent Heavy Vehicles (%)		0				0				0	0	0		4	100	50
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.20		7.14	7.50	6.70
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.54	4.90	3.75

## Delay, Queue Length, and Level of Service

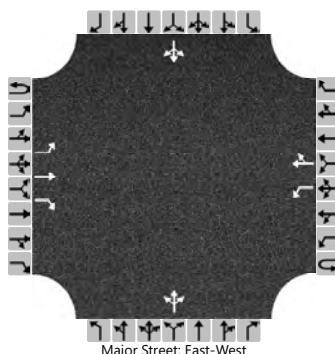
Flow Rate, v (veh/h)		0				4					2					55	
Capacity, c (veh/h)		1141				1290					358					351	
v/c Ratio		0.00				0.00					0.01					0.16	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.0					0.6	
Control Delay (s/veh)		8.2	0.0	0.0		7.8	0.0	0.0			15.1					17.2	
Level of Service (LOS)		A	A	A		A	A	A			C					C	
Approach Delay (s/veh)	0.0				0.1				15.1				17.2				
Approach LOS	A				A				C				C				



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 469th Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	469th Ave / Co Hwy 139		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	1	0	1	1	0	0	1	0		0	1	0	
Configuration		L	T	R		L		TR			LTR				LTR	
Volume (veh/h)		5	275	60		65	140	5		90	5	230		15	5	5
Percent Heavy Vehicles (%)		3				5				13	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No															
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.15				7.23	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.25				3.62	4.03	3.33		3.53	4.03	3.33

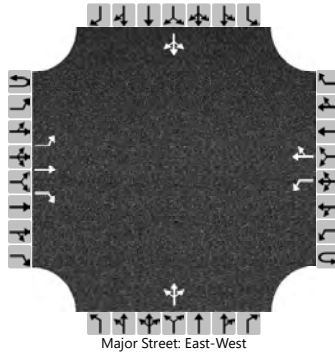
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5				71				353				27		
Capacity, c (veh/h)		1416				1178				566				311		
v/c Ratio		0.00				0.06				0.62				0.09		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.2				4.3				0.3		
Control Delay (s/veh)		7.6				8.3				21.3				17.7		
Level of Service (LOS)		A				A				C				C		
Approach Delay (s/veh)	0.1				2.6				21.3				17.7			
Approach LOS	A				A				C				C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 469th Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	469th Ave / Co Hwy 139		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	1	0	1	1	0		0	1	0		0	1	0
Configuration		L	T	R		L		TR			LTR				LTR	
Volume (veh/h)		5	210	100		235	320	5		80	5	100		20	5	10
Percent Heavy Vehicles (%)		3				5				2	3	15		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No															
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.15				7.12	6.53	6.35		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.25				3.52	4.03	3.44		3.53	4.03	3.33

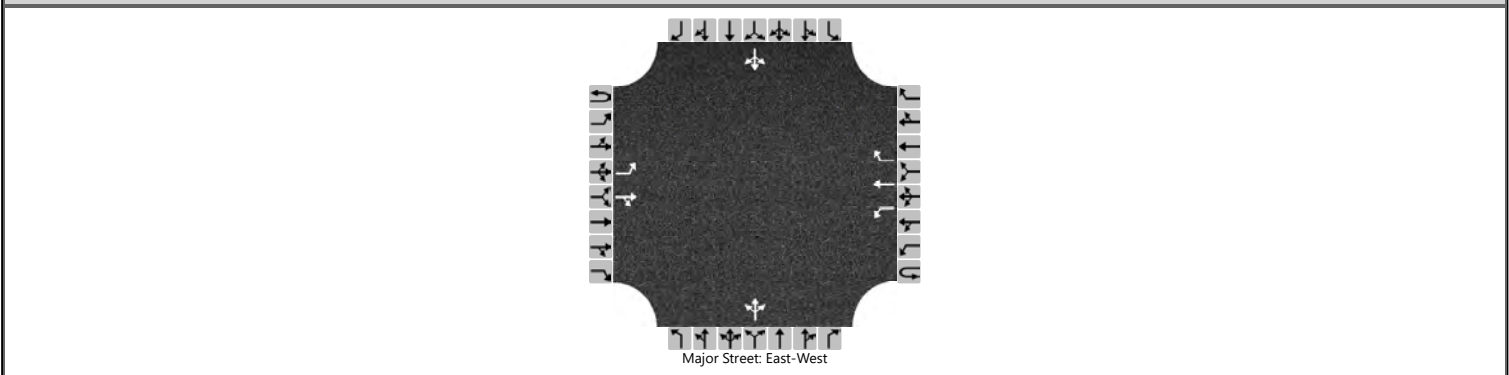
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5				255					201					38	
Capacity, c (veh/h)		1200				1206					256					166	
v/c Ratio		0.00				0.21					0.79					0.23	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.8					5.9					0.8	
Control Delay (s/veh)		8.0				8.8					56.2					33.1	
Level of Service (LOS)		A				A					F					D	
Approach Delay (s/veh)	0.1				3.7				56.2				33.1				
Approach LOS	A				A				F				D				

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & La Mesa		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	La Mesa		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	1		0	1	0		0	1	0
Configuration		L		TR		L	T	R			LTR				LTR	
Volume (veh/h)		25	585	3		0	195	15		0	10	4		65	3	25
Percent Heavy Vehicles (%)		0				0				0	13	0		0	50	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized					No											
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1					7.1	6.5	6.2			7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10					7.10	6.63	6.20			7.10	7.00	6.20
Base Follow-Up Headway (sec)		2.2				2.2					3.5	4.0	3.3			3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20					3.50	4.12	3.30			3.50	4.45	3.30

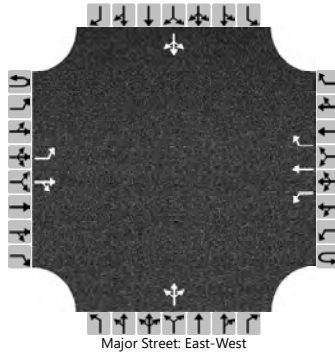
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		27				0					15					101	
Capacity, c (veh/h)		1352				955					294					297	
v/c Ratio		0.02				0.00					0.05					0.34	
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.0					0.2					1.5	
Control Delay (s/veh)		7.7				8.8					17.9					23.3	
Level of Service (LOS)		A				A					C					C	
Approach Delay (s/veh)		0.3				0.0				17.9				23.3			
Approach LOS		A				A				C				C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & La Mesa		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2040			North/South Street	La Mesa		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	1		0	1	0		0	1	0
Configuration		L		TR		L	T	R			LTR				LTR	
Volume (veh/h)		20	275	0		7	610	85		3	4	0		65	10	25
Percent Heavy Vehicles (%)		0				0				0	0	0		9	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized					No											
Median Type   Storage	Undivided															

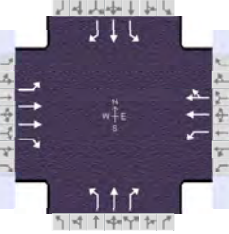
## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.20		7.19	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.58	4.00	3.30

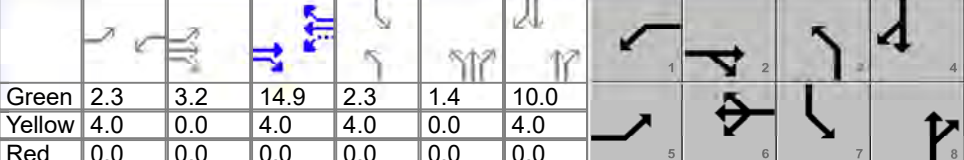
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		22				8				8					109	
Capacity, c (veh/h)		864				1274				196					234	
v/c Ratio		0.03				0.01				0.04					0.46	
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.0				0.1					2.3	
Control Delay (s/veh)		9.3				7.8				24.1					33.0	
Level of Service (LOS)		A				A				C					D	
Approach Delay (s/veh)	0.6				0.1				24.1				33.0			
Approach LOS	A				A				C				D			

## HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	HRG			Duration, h	0.250		
Analyst	NM	Analysis Date	May 8, 2023		Area Type		Other
Jurisdiction	SDDOT	Time Period	AM Peak		PHF		0.92
Urban Street	SD 38	Analysis Year	2040		Analysis Period		1 > 7:15
Intersection	SD 38 & Marion Street	File Name	(18) SD38&Marion_AM.xus				
Project Description							

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( $v$ ), veh/h	135	285	85	40	105	60	90	190	100	40	120	35

Signal Information																								
Cycle, s	50.0	Reference Phase	2	Green	2.3	3.2	14.9	2.3	1.4	10.0	Yellow	4.0	0.0	4.0	4.0	0.0	4.0	Red	0.0	0.0	0.0	0.0	0.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

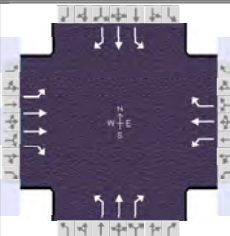
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	1.1	4.0	2.0	3.0	2.0	3.0
Phase Duration, s	9.4	22.0	6.3	18.9	7.7	15.4	6.3	14.0
Change Period, ( $Y+R_c$ ), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway ( $MAH$ ), s	2.9	0.0	2.9	0.0	2.9	2.9	2.9	2.9
Queue Clearance Time ( $g_s$ ), s	6.2		2.9		4.9	7.4	3.4	5.2
Green Extension Time ( $g_e$ ), s	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5
Phase Call Probability	0.87		0.45		0.74	1.00	0.45	1.00
Max Out Probability	1.00		0.01		1.00	0.10	1.00	0.06

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( $v$ ), veh/h	147	310	92	43	92	88	98	207	109	43	130	38
Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln	1701	1674	1525	1714	1772	1563	1647	1674	1502	1554	1758	1466
Queue Service Time ( $g_s$ ), s	4.2	3.3	2.1	0.9	1.9	2.1	2.9	5.4	3.0	1.4	3.2	1.1
Cycle Queue Clearance Time ( $g_c$ ), s	4.2	3.3	2.1	0.9	1.9	2.1	2.9	5.4	3.0	1.4	3.2	1.1
Green Ratio ( $g/C$ )	0.11	0.36	0.36	0.34	0.30	0.30	0.07	0.23	0.23	0.05	0.20	0.20
Capacity ( $c$ ), veh/h	185	1207	550	499	526	464	122	383	344	70	351	293
Volume-to-Capacity Ratio ( $X$ )	0.794	0.257	0.168	0.087	0.174	0.189	0.799	0.539	0.316	0.617	0.371	0.130
Back of Queue ( $Q$ ), ft/ln ( 95 th percentile)												
Back of Queue ( $Q$ ), veh/ln ( 95 th percentile)	2.8	1.6	1.0	0.4	1.2	1.2	2.2	2.9	1.4	0.9	1.8	0.5
Queue Storage Ratio ( $RQ$ ) ( 95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay ( $d_1$ ), s/veh	21.7	11.3	10.9	11.1	13.0	13.1	22.8	17.0	16.0	23.4	17.3	16.4
Incremental Delay ( $d_2$ ), s/veh	4.2	0.5	0.7	0.0	0.7	0.9	8.2	0.4	0.2	3.2	0.2	0.1
Initial Queue Delay ( $d_3$ ), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay ( $d$ ), s/veh	25.9	11.8	11.5	11.2	13.7	14.0	31.0	17.4	16.2	26.7	17.5	16.5
Level of Service (LOS)	C	B	B	B	B	B	C	B	B	C	B	B
Approach Delay, s/veh / LOS	15.5		B	13.3		B	20.3		C	19.2		B
Intersection Delay, s/veh / LOS	17.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.08	B	2.09	B	2.27	B	2.42	B
Bicycle LOS Score / LOS	0.94	A	0.67	A	1.17	A	0.84	A

## HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	HRG			Duration, h	0.250		
Analyst	NM	Analysis Date	May 8, 2023		Area Type	Other	
Jurisdiction	SDDOT	Time Period	PM Peak		PHF	0.90	
Urban Street	SD 38	Analysis Year	2040		Analysis Period	1 > 16:45	
Intersection	SD 38 & Marion Street	File Name	(18) SD38&Marion_PM.xus				
Project Description							



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( v ), veh/h	55	190	90	140	300	45	150	170	105	70	295	170

Signal Information				Signal Timing (s)										
Cycle, s	50.0	Reference Phase	2											
Offset, s	0	Reference Point	End	Green	2.9	2.7	12.0	3.3	2.2	10.9				
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	0.0	4.0	4.0	0.0	4.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	0.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0
Phase Duration, s	6.9	16.0	9.6	18.7	9.5	17.1	7.3	14.9
Change Period, ( Y+R <sub>c</sub> ), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway ( MAH ), s	2.9	0.0	2.9	0.0	2.9	3.0	2.9	3.0
Queue Clearance Time ( g <sub>s</sub> ), s	4.0		6.5		6.8	6.4	4.3	10.9
Green Extension Time ( g <sub>e</sub> ), s	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Phase Call Probability	0.57		0.88		0.90	1.00	0.66	1.00
Max Out Probability	1.00		1.00		1.00	0.18	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( v ), veh/h	61	211	100	156	333	50	167	189	117	78	328	189
Adjusted Saturation Flow Rate ( s ), veh/h/ln	1474	1660	1490	1688	1772	1406	1714	1772	1478	1688	1772	1478
Queue Service Time ( g <sub>s</sub> ), s	2.0	2.6	2.7	4.5	8.2	1.3	4.8	4.4	3.2	2.3	8.9	5.7
Cycle Queue Clearance Time ( g <sub>c</sub> ), s	2.0	2.6	2.7	4.5	8.2	1.3	4.8	4.4	3.2	2.3	8.9	5.7
Green Ratio ( g/C )	0.06	0.24	0.24	0.11	0.29	0.29	0.11	0.26	0.26	0.07	0.22	0.22
Capacity ( c ), veh/h	84	797	358	189	522	414	189	464	387	111	387	322
Volume-to-Capacity Ratio ( X )	0.725	0.265	0.280	0.824	0.638	0.121	0.884	0.407	0.301	0.698	0.848	0.586
Back of Queue ( Q ), ft/ln ( 95 th percentile)												
Back of Queue ( Q ), veh/ln ( 95 th percentile)	1.2	1.5	1.6	4.8	5.8	0.7	6.0	2.4	1.4	1.5	7.8	3.0
Queue Storage Ratio ( RQ ) ( 95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay ( d <sub>1</sub> ), s/veh	23.2	15.4	15.5	21.7	15.3	12.9	21.9	15.2	14.8	22.9	18.8	17.5
Incremental Delay ( d <sub>2</sub> ), s/veh	4.4	0.8	1.9	23.3	5.9	0.6	34.4	0.2	0.2	2.9	15.1	1.8
Initial Queue Delay ( d <sub>3</sub> ), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay ( d ), s/veh	27.5	16.2	17.4	45.0	21.2	13.5	56.4	15.5	14.9	25.8	33.8	19.3
Level of Service ( LOS )	C	B	B	D	C	B	E	B	B	C	C	B
Approach Delay, s/veh / LOS	18.4		B	27.4		C	29.8		C	28.2		C
Intersection Delay, s/veh / LOS	26.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.09	B	2.26	B	2.27	B
Bicycle LOS Score / LOS	0.79	A	1.38	A	1.27	A	1.47	A

# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2040 NB
Jurisdiction	SDDOT	Time Analyzed	AM PEAK
Project Description	EB SD38 Corridor Study	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1084
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	480	Opposing Demand Flow Rate, veh/h	289
Peak Hour Factor	0.88	Total Trucks, %	2.16
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.28

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0
Speed Slope Coefficient (m)	4.34836	Speed Power Coefficient (p)	0.51760
PF Slope Coefficient (m)	-1.34657	PF Power Coefficient (p)	0.76322
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1084	-	-	52.4

### Vehicle Results

Average Speed, mi/h	52.4	Percent Followers, %	53.6
Segment Travel Time, minutes	0.24	Follower Density (FD), followers/mi/ln	4.9
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	480	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	507
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	480	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	2.16		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.28		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.43973	PF Power Coefficient (p)	0.72475		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.3		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	507	-	-	51.9
<b>Vehicle Results</b>					
Average Speed, mi/h	51.9	Percent Followers, %	57.1		
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	5.3		
Vehicle LOS	C				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	480	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	4.62		
Bicycle LOS	C				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	535		
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	480	Opposing Demand Flow Rate, veh/h	289		
Peak Hour Factor	0.88	Total Trucks, %	2.16		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.28		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0		
Speed Slope Coefficient (m)	4.34836	Speed Power Coefficient (p)	0.51760		
PF Slope Coefficient (m)	-1.34657	PF Power Coefficient (p)	0.76322		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.9		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					



#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	535	-	-	52.4

### Vehicle Results

Average Speed, mi/h	52.4	Percent Followers, %	53.6
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	4.9
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	480	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1494
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	609	Opposing Demand Flow Rate, veh/h	323
Peak Hour Factor	0.88	Total Trucks, %	1.63
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.36176	Speed Power Coefficient (p)	0.51063
PF Slope Coefficient (m)	-1.25164	PF Power Coefficient (p)	0.80237
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1494	-	-	66.9

### Vehicle Results

Average Speed, mi/h	66.9	Percent Followers, %	56.9
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	5.2
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	609	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.96	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5762
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	609	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.63
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.62977	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.20069	PF Power Coefficient (p)	0.78591
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5762	-	-	66.5

### Vehicle Results

Average Speed, mi/h	66.5	Percent Followers, %	55.7
Segment Travel Time, minutes	0.98	Follower Density (FD), followers/mi/ln	5.1
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	609	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.96	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	383
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	614	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.89
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29361	PF Power Coefficient (p)	0.75772
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	383	-	-	66.5

### Vehicle Results

Average Speed, mi/h	66.5	Percent Followers, %	59.1
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	5.4
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	614	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.03	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1485
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	642	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.19
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.38

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57684	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28453	PF Power Coefficient (p)	0.76145
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1485	-	-	66.5

### Vehicle Results

Average Speed, mi/h	66.5	Percent Followers, %	60.0
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	5.8
Vehicle LOS	C		

<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	642	Bicycle Effective Width, ft	24		
Bicycle LOS Score	3.39	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
<b>Segment 8</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	426		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	306	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	6.47		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29307	PF Power Coefficient (p)	0.75839		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	426	-	-	67.6
<b>Vehicle Results</b>					
Average Speed, mi/h	67.6	Percent Followers, %	40.9		
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	1.8		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	306	Bicycle Effective Width, ft	24		
Bicycle LOS Score	4.06	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	D				
<b>Segment 9</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	1212		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					

Directional Demand Flow Rate, veh/h	291	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29321	PF Power Coefficient (p)	0.75821
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1212	-	-	67.7

### Vehicle Results

Average Speed, mi/h	67.7	Percent Followers, %	39.8
Segment Travel Time, minutes	0.20	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	291	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.62	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1877
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	291	Opposing Demand Flow Rate, veh/h	207
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.33123	Speed Power Coefficient (p)	0.53735
PF Slope Coefficient (m)	-1.21436	PF Power Coefficient (p)	0.81762
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1877	-	-	68.2
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### Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	35.8
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	291	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.62	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1872
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	291	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58354	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.26676	PF Power Coefficient (p)	0.76864
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1872	-	-	67.7

### Vehicle Results

Average Speed, mi/h	67.7	Percent Followers, %	38.8
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	291	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.62	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 12

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	3603
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	291	Opposing Demand Flow Rate, veh/h	207
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.35488	Speed Power Coefficient (p)	0.53735
PF Slope Coefficient (m)	-1.17100	PF Power Coefficient (p)	0.83467
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3603	-	-	68.2

Vehicle Results			
Average Speed, mi/h	68.2	Percent Followers, %	34.2
Segment Travel Time, minutes	0.60	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	291	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.62	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1053
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	291	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29321	PF Power Coefficient (p)	0.75821

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1053	-	-	67.7

### Vehicle Results

Average Speed, mi/h	67.7	Percent Followers, %	39.8
Segment Travel Time, minutes	0.18	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	291	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.62	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1120
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	291	Opposing Demand Flow Rate, veh/h	207
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.32132	Speed Power Coefficient (p)	0.53735
PF Slope Coefficient (m)	-1.23984	PF Power Coefficient (p)	0.80643
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1120	-	-	68.2

### Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	36.7
Segment Travel Time, minutes	0.19	Follower Density (FD), followers/mi/ln	1.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	291	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.62	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 15

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1272
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	347	Opposing Demand Flow Rate, veh/h	233
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.33046	Speed Power Coefficient (p)	0.53049
PF Slope Coefficient (m)	-1.24528	PF Power Coefficient (p)	0.80456
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1272	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	41.2
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	2.1
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	347	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.65	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 16

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	625
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	347	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29323	PF Power Coefficient (p)	0.75819
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	625	-	-	67.4

Vehicle Results			
Average Speed, mi/h	67.4	Percent Followers, %	44.0
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	2.3
Vehicle LOS	B		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	347	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.65	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 17

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1995
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	347	Opposing Demand Flow Rate, veh/h	233
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.34227	Speed Power Coefficient (p)	0.53049
PF Slope Coefficient (m)	-1.21527	PF Power Coefficient (p)	0.81755
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1995	-	-	67.9

Vehicle Results			
Average Speed, mi/h	67.9	Percent Followers, %	40.0

Segment Travel Time, minutes	0.33	Follower Density (FD), followers/mi/ln	2.0
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	347	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.65	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 18

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1399
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	347	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57524	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28884	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1399	-	-	67.4

### Vehicle Results

Average Speed, mi/h	67.4	Percent Followers, %	43.8
Segment Travel Time, minutes	0.24	Follower Density (FD), followers/mi/ln	2.3
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	347	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.65	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 19

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1254
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	625	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	1.51		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.37		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29366	PF Power Coefficient (p)	0.75766		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.6		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1254	-	-	66.5
<b>Vehicle Results</b>					
Average Speed, mi/h	66.5	Percent Followers, %	59.6		
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	5.6		
Vehicle LOS	C				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	625	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.94	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
<b>Segment 20</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	1108		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	625	Opposing Demand Flow Rate, veh/h	216		
Peak Hour Factor	0.88	Total Trucks, %	1.51		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.37		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.32457	Speed Power Coefficient (p)	0.53490		
PF Slope Coefficient (m)	-1.24221	PF Power Coefficient (p)	0.80521		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.3		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1108	-	-	66.9

### Vehicle Results

Average Speed, mi/h	66.9	Percent Followers, %	57.3
Segment Travel Time, minutes	0.19	Follower Density (FD), followers/mi/ln	5.3
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	625	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.94	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 21

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2901
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	625	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.51
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.37

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.59854	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.23554	PF Power Coefficient (p)	0.77974
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2901	-	-	66.5

### Vehicle Results

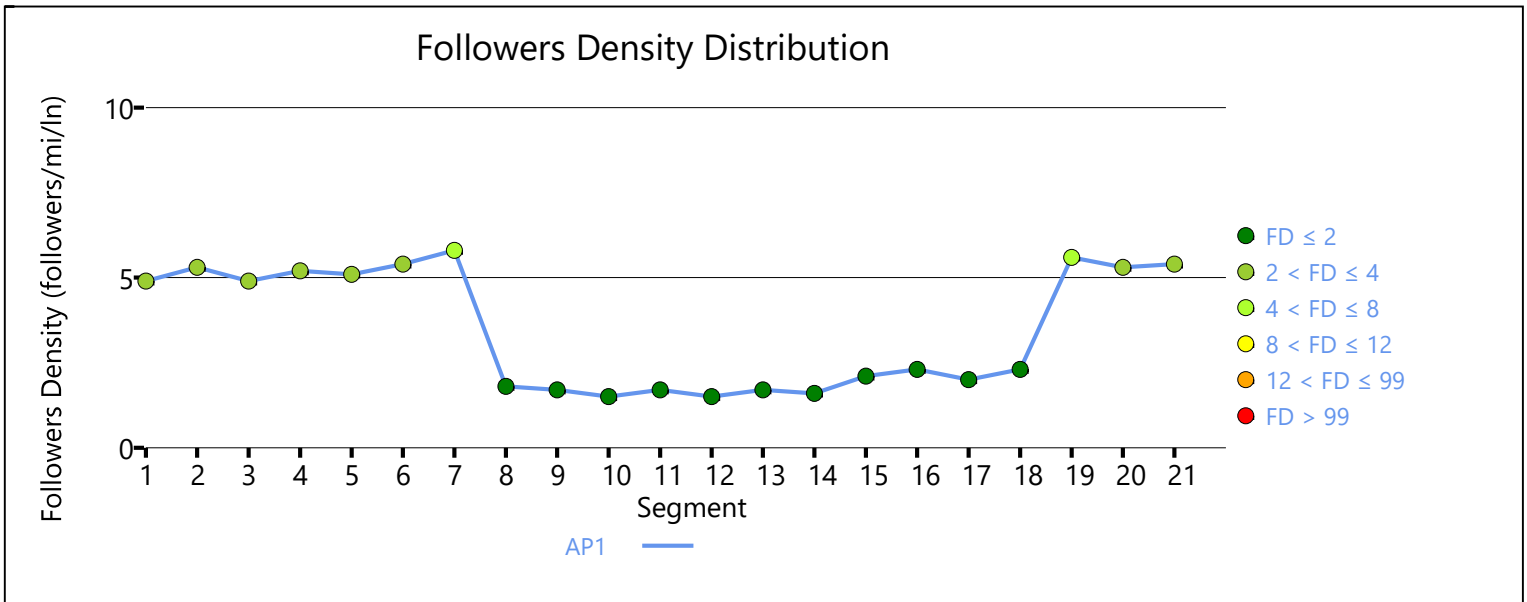
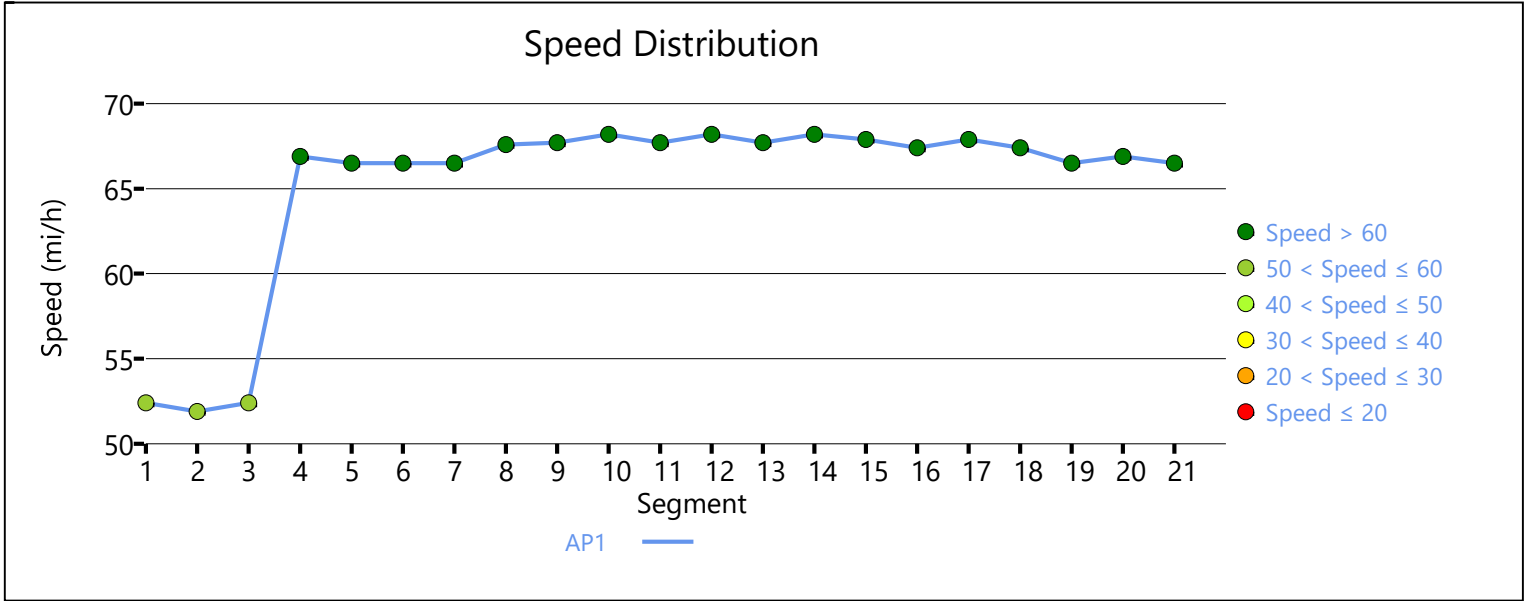
Average Speed, mi/h	66.5	Percent Followers, %	57.5
Segment Travel Time, minutes	0.50	Follower Density (FD), followers/mi/ln	5.4
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	625	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.94	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

# Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	625	0.41	3.5	B



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2040 NB
Jurisdiction	SDDOT	Time Analyzed	PM PEAK
Project Description	EB SD38 Corridor Study	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1084
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	299	Opposing Demand Flow Rate, veh/h	551
Peak Hour Factor	0.88	Total Trucks, %	2.16
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0
Speed Slope Coefficient (m)	4.41560	Speed Power Coefficient (p)	0.47557
PF Slope Coefficient (m)	-1.38878	PF Power Coefficient (p)	0.75207
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1084	-	-	53.0

### Vehicle Results

Average Speed, mi/h	53.0	Percent Followers, %	42.9
Segment Travel Time, minutes	0.23	Follower Density (FD), followers/mi/ln	2.4
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	299	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.60	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1014
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	299	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	2.16		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.43973	PF Power Coefficient (p)	0.72475		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.6		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	507	-	-	52.7
2	Horizontal Curve	507	3000	0.0	52.7
<b>Vehicle Results</b>					
Average Speed, mi/h	52.7	Percent Followers, %	45.1		
Segment Travel Time, minutes	0.22	Follower Density (FD), followers/mi/ln	2.6		
Vehicle LOS	B				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	299	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.60	Bicycle Effective Speed Factor	4.62		
Bicycle LOS	C				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	535		
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	299	Opposing Demand Flow Rate, veh/h	551		
Peak Hour Factor	0.88	Total Trucks, %	2.16		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0		
Speed Slope Coefficient (m)	4.41560	Speed Power Coefficient (p)	0.47557		
PF Slope Coefficient (m)	-1.38878	PF Power Coefficient (p)	0.75207		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.4		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		



Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	535	-	-	53.0

### Vehicle Results

Average Speed, mi/h	53.0	Percent Followers, %	42.9
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	2.4
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	299	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.60	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1494
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	333	Opposing Demand Flow Rate, veh/h	735
Peak Hour Factor	0.88	Total Trucks, %	1.63
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.45661	Speed Power Coefficient (p)	0.45644
PF Slope Coefficient (m)	-1.28454	PF Power Coefficient (p)	0.78414
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1494	-	-	67.7

### Vehicle Results

Average Speed, mi/h	67.7	Percent Followers, %	41.9
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	2.1
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	333	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.65	Bicycle Effective Speed Factor	5.07

Bicycle LOS	C		
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## Segment 5

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5762
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	333	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.63
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.62977	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.20069	PF Power Coefficient (p)	0.78591
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5762	-	-	67.5

### Vehicle Results

Average Speed, mi/h	67.5	Percent Followers, %	39.7
Segment Travel Time, minutes	0.97	Follower Density (FD), followers/mi/ln	2.0
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	333	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.65	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	383
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	340	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.89
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29361	PF Power Coefficient (p)	0.75772
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	383	-	-	67.5

### Vehicle Results

Average Speed, mi/h	67.5	Percent Followers, %	43.5
Segment Travel Time, minutes	0.06	Follower Density (FD), followers/mi/ln	2.2
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	340	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.73	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1485
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	380	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.19
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57684	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28453	PF Power Coefficient (p)	0.76145
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1485	-	-	67.3

### Vehicle Results

Average Speed, mi/h	67.3	Percent Followers, %	45.9
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	2.6

Vehicle LOS	B		
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### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	380	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.13	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 8

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	426
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	289	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	6.47
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29307	PF Power Coefficient (p)	0.75839
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	426	-	-	67.7

### Vehicle Results

Average Speed, mi/h	67.7	Percent Followers, %	39.6
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	289	Bicycle Effective Width, ft	24
Bicycle LOS Score	4.03	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 9

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1212
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	251	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	5.26		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29321	PF Power Coefficient (p)	0.75821		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1212	-	-	67.9
<b>Vehicle Results</b>					
Average Speed, mi/h	67.9	Percent Followers, %	36.5		
Segment Travel Time, minutes	0.20	Follower Density (FD), followers/mi/ln	1.3		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	251	Bicycle Effective Width, ft	24		
Bicycle LOS Score	3.55	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	D				
<b>Segment 10</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	1877		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	251	Opposing Demand Flow Rate, veh/h	344		
Peak Hour Factor	0.88	Total Trucks, %	5.26		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.37450	Speed Power Coefficient (p)	0.50652		
PF Slope Coefficient (m)	-1.23731	PF Power Coefficient (p)	0.80872		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1877	-	-	68.3

### Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	33.3
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	251	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.55	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1872
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	251	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58354	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.26676	PF Power Coefficient (p)	0.76864
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1872	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	35.5
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	251	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.55	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 12

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3603
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	251	Opposing Demand Flow Rate, veh/h	344
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.39815	Speed Power Coefficient (p)	0.50652
PF Slope Coefficient (m)	-1.19302	PF Power Coefficient (p)	0.82521
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3603	-	-	68.3

### Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	31.7
Segment Travel Time, minutes	0.60	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	251	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.55	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 13

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1053
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	251	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29321	PF Power Coefficient (p)	0.75821
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1053	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	36.5
Segment Travel Time, minutes	0.18	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	251	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.55	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1120
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	251	Opposing Demand Flow Rate, veh/h	344
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.36460	Speed Power Coefficient (p)	0.50652
PF Slope Coefficient (m)	-1.26336	PF Power Coefficient (p)	0.79785
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1120	-	-	68.3

### Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	34.3
Segment Travel Time, minutes	0.19	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		



<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	251	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.55	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

### Segment 15

#### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1272
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

#### Demand and Capacity

Directional Demand Flow Rate, veh/h	316	Opposing Demand Flow Rate, veh/h	411
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

#### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.38249	Speed Power Coefficient (p)	0.49499
PF Slope Coefficient (m)	-1.27147	PF Power Coefficient (p)	0.79437
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

#### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1272	-	-	67.9

#### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	39.9
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

#### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	316	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

### Segment 16

#### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	625
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

#### Demand and Capacity

Directional Demand Flow Rate, veh/h	316	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29323	PF Power Coefficient (p)	0.75819
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	625	-	-	67.6

### Vehicle Results

Average Speed, mi/h	67.6	Percent Followers, %	41.7
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	316	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 17

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1995
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	316	Opposing Demand Flow Rate, veh/h	411
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.39429	Speed Power Coefficient (p)	0.49499
PF Slope Coefficient (m)	-1.24073	PF Power Coefficient (p)	0.80695
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1995	-	-	67.9
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### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	38.7
Segment Travel Time, minutes	0.33	Follower Density (FD), followers/mi/ln	1.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	316	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 18

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1399
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	316	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57524	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28884	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1399	-	-	67.6

### Vehicle Results

Average Speed, mi/h	67.6	Percent Followers, %	41.5
Segment Travel Time, minutes	0.24	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	316	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 19

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1254
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.51
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29366	PF Power Coefficient (p)	0.75766
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1254	-	-	67.6

Vehicle Results			
Average Speed, mi/h	67.6	Percent Followers, %	41.2
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	309	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.58	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 20

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1108
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	659
Peak Hour Factor	0.88	Total Trucks, %	1.51
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.43837	Speed Power Coefficient (p)	0.46364
PF Slope Coefficient (m)	-1.29067	PF Power Coefficient (p)	0.78323

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1108	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	40.2
Segment Travel Time, minutes	0.19	Follower Density (FD), followers/mi/ln	1.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	309	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.58	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 21

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2901
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	309	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.51
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.59854	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.23554	PF Power Coefficient (p)	0.77974
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2901	-	-	67.6

### Vehicle Results

Average Speed, mi/h	67.6	Percent Followers, %	39.0
Segment Travel Time, minutes	0.49	Follower Density (FD), followers/mi/ln	1.8
Vehicle LOS	A		

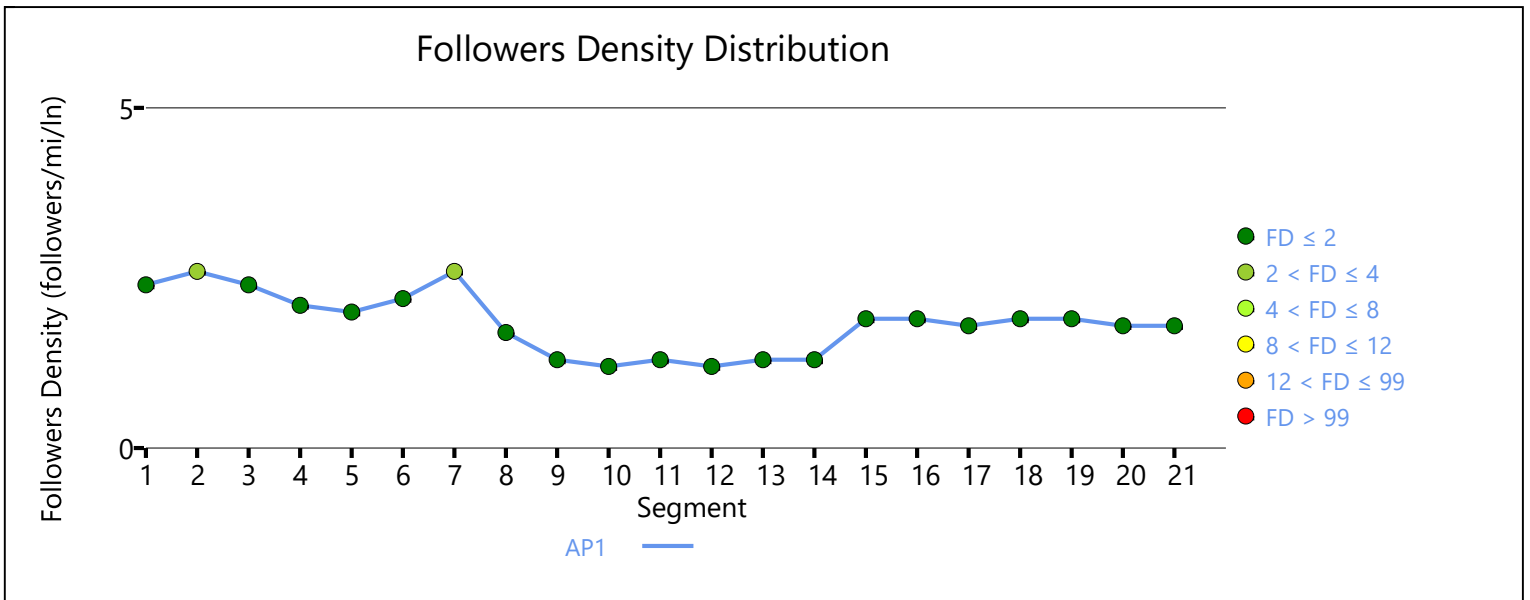
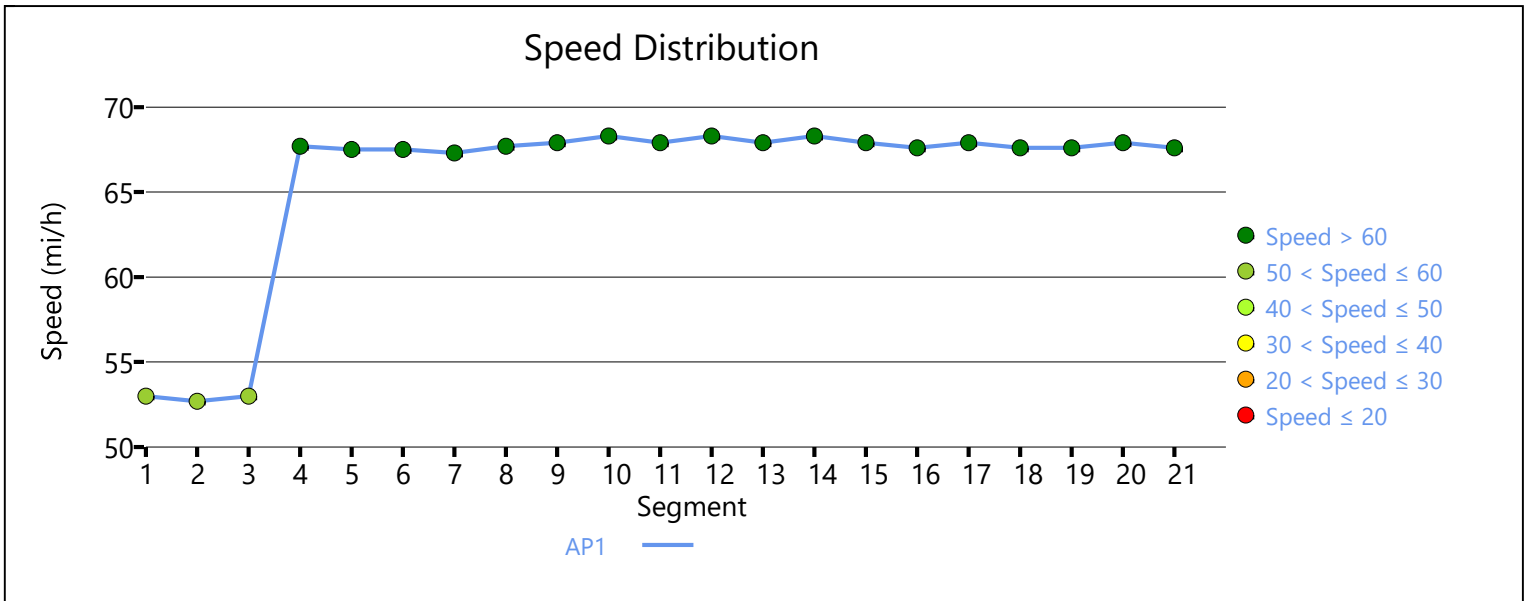
### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	309	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.58	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

### Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	417	0.20	1.8	A



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2040 NB
Jurisdiction	SDDOT	Time Analyzed	AM Peak
Project Description	SD 38 WB East of Hartford	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1727
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	216	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	8.97
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58112	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27241	PF Power Coefficient (p)	0.76681
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1727	-	-	68.1

### Vehicle Results

Average Speed, mi/h	68.1	Percent Followers, %	32.5
Segment Travel Time, minutes	0.29	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	216	Bicycle Effective Width, ft	24
Bicycle LOS Score	4.83	Bicycle Effective Speed Factor	5.07
Bicycle LOS	E		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1676
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	216	Opposing Demand Flow Rate, veh/h	625		
Peak Hour Factor	0.88	Total Trucks, %	8.97		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.43792	Speed Power Coefficient (p)	0.46717		
PF Slope Coefficient (m)	-1.26992	PF Power Coefficient (p)	0.79284		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1676	-	-	68.4
<b>Vehicle Results</b>					
Average Speed, mi/h	68.4	Percent Followers, %	31.4		
Segment Travel Time, minutes	0.28	Follower Density (FD), followers/mi/ln	1.0		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	216	Bicycle Effective Width, ft	24		
Bicycle LOS Score	4.83	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	E				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	1864		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	233	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	17.04		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.58341	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.26572	PF Power Coefficient (p)	0.77025		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					



#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1864	-	-	68.0

### Vehicle Results

Average Speed, mi/h	68.0	Percent Followers, %	33.8
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	233	Bicycle Effective Width, ft	24
Bicycle LOS Score	8.85	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	718
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	233	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29182	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	718	-	-	68.0

### Vehicle Results

Average Speed, mi/h	68.0	Percent Followers, %	34.8
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	233	Bicycle Effective Width, ft	24
Bicycle LOS Score	8.85	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1738
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	233	Opposing Demand Flow Rate, veh/h	347
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.37282	Speed Power Coefficient (p)	0.50610
PF Slope Coefficient (m)	-1.24196	PF Power Coefficient (p)	0.80802
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1738	-	-	68.4

### Vehicle Results

Average Speed, mi/h	68.4	Percent Followers, %	31.8
Segment Travel Time, minutes	0.29	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	233	Bicycle Effective Width, ft	24
Bicycle LOS Score	8.85	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	579
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	233	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29182	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	579	-	-	68.0

### Vehicle Results

Average Speed, mi/h	68.0	Percent Followers, %	34.8
Segment Travel Time, minutes	0.10	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	233	Bicycle Effective Width, ft	24
Bicycle LOS Score	8.85	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2262
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	207	Opposing Demand Flow Rate, veh/h	291
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.36495	Speed Power Coefficient (p)	0.51711
PF Slope Coefficient (m)	-1.21478	PF Power Coefficient (p)	0.81940
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2262	-	-	68.6

### Vehicle Results

Average Speed, mi/h	68.6	Percent Followers, %	28.4
Segment Travel Time, minutes	0.37	Follower Density (FD), followers/mi/ln	0.9
Vehicle LOS	A		

<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	207	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.63	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 8

<b>Vehicle Inputs</b>			
Segment Type	Passing Constrained	Length, ft	980
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>			
Directional Demand Flow Rate, veh/h	207	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

<b>Intermediate Results</b>			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	980	-	-	68.2

<b>Vehicle Results</b>			
Average Speed, mi/h	68.2	Percent Followers, %	32.3
Segment Travel Time, minutes	0.16	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	207	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.63	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 9

<b>Vehicle Inputs</b>			
Segment Type	Passing Zone	Length, ft	3667
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>			
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Directional Demand Flow Rate, veh/h	207	Opposing Demand Flow Rate, veh/h	291
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.38336	Speed Power Coefficient (p)	0.51711
PF Slope Coefficient (m)	-1.18328	PF Power Coefficient (p)	0.83086
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3667	-	-	68.6

### Vehicle Results

Average Speed, mi/h	68.6	Percent Followers, %	27.3
Segment Travel Time, minutes	0.61	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	207	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.63	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1846
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	207	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58311	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.26629	PF Power Coefficient (p)	0.77017
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1846	-	-	68.2
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### Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	31.4
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	207	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.63	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2174
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	207	Opposing Demand Flow Rate, veh/h	291
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.36363	Speed Power Coefficient (p)	0.51711
PF Slope Coefficient (m)	-1.21761	PF Power Coefficient (p)	0.81825
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2174	-	-	68.6

### Vehicle Results

Average Speed, mi/h	68.6	Percent Followers, %	28.5
Segment Travel Time, minutes	0.36	Follower Density (FD), followers/mi/ln	0.9
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	207	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.63	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 12

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1277
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	207	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1277	-	-	68.2

Vehicle Results			
Average Speed, mi/h	68.2	Percent Followers, %	32.3
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	207	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.63	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	779
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	207	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	779	-	-	68.2

### Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	32.3
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	207	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.63	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	422
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	13.95
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29219	PF Power Coefficient (p)	0.75948
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	422	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	36.7
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	255	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.20	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 15

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1478
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	224	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	19.53
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57671	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28298	PF Power Coefficient (p)	0.76370
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1478	-	-	68.1

### Vehicle Results

Average Speed, mi/h	68.1	Percent Followers, %	33.6
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	224	Bicycle Effective Width, ft	24
Bicycle LOS Score	10.35	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 16

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	384
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	333	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.76
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29233	PF Power Coefficient (p)	0.75931
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	384	-	-	67.5

Vehicle Results			
Average Speed, mi/h	67.5	Percent Followers, %	42.9
Segment Travel Time, minutes	0.06	Follower Density (FD), followers/mi/ln	2.1
Vehicle LOS	B		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	333	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.74	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 17

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	3732
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	323	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.21
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.60878	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.21846	PF Power Coefficient (p)	0.78615
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3732	-	-	67.5

Vehicle Results			
Average Speed, mi/h	67.5	Percent Followers, %	39.4

Segment Travel Time, minutes	0.63	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	323	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.46	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 18

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1360
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	323	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.21
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57450	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29014	PF Power Coefficient (p)	0.76012
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1360	-	-	67.6

### Vehicle Results

Average Speed, mi/h	67.6	Percent Followers, %	42.1
Segment Travel Time, minutes	0.23	Follower Density (FD), followers/mi/ln	2.0
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	323	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.46	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 19

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1595
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	323	Opposing Demand Flow Rate, veh/h	609		
Peak Hour Factor	0.88	Total Trucks, %	12.21		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.43319	Speed Power Coefficient (p)	0.46889		
PF Slope Coefficient (m)	-1.27240	PF Power Coefficient (p)	0.79247		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1595	-	-	67.8
<b>Vehicle Results</b>					
Average Speed, mi/h	67.8	Percent Followers, %	40.5		
Segment Travel Time, minutes	0.27	Follower Density (FD), followers/mi/ln	1.9		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	323	Bicycle Effective Width, ft	24		
Bicycle LOS Score	6.46	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	F				
<b>Segment 20</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	595		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	323	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	12.21		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29239	PF Power Coefficient (p)	0.75923		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.0		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	595	-	-	67.6

### Vehicle Results

Average Speed, mi/h	67.6	Percent Followers, %	42.2
Segment Travel Time, minutes	0.10	Follower Density (FD), followers/mi/ln	2.0
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	323	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.46	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 21

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	958
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	289	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	10.81
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.43859	PF Power Coefficient (p)	0.72596
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	958	-	-	52.7

### Vehicle Results

Average Speed, mi/h	52.7	Percent Followers, %	44.2
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	2.4
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	289	Bicycle Effective Width, ft	24
Bicycle LOS Score	5.35	Bicycle Effective Speed Factor	4.62
Bicycle LOS	E		

## Segment 22

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1659
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	289	Opposing Demand Flow Rate, veh/h	480
Peak Hour Factor	0.88	Total Trucks, %	10.81
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0
Speed Slope Coefficient (m)	4.40548	Speed Power Coefficient (p)	0.48486
PF Slope Coefficient (m)	-1.35962	PF Power Coefficient (p)	0.76214
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1659	-	-	53.0

### Vehicle Results

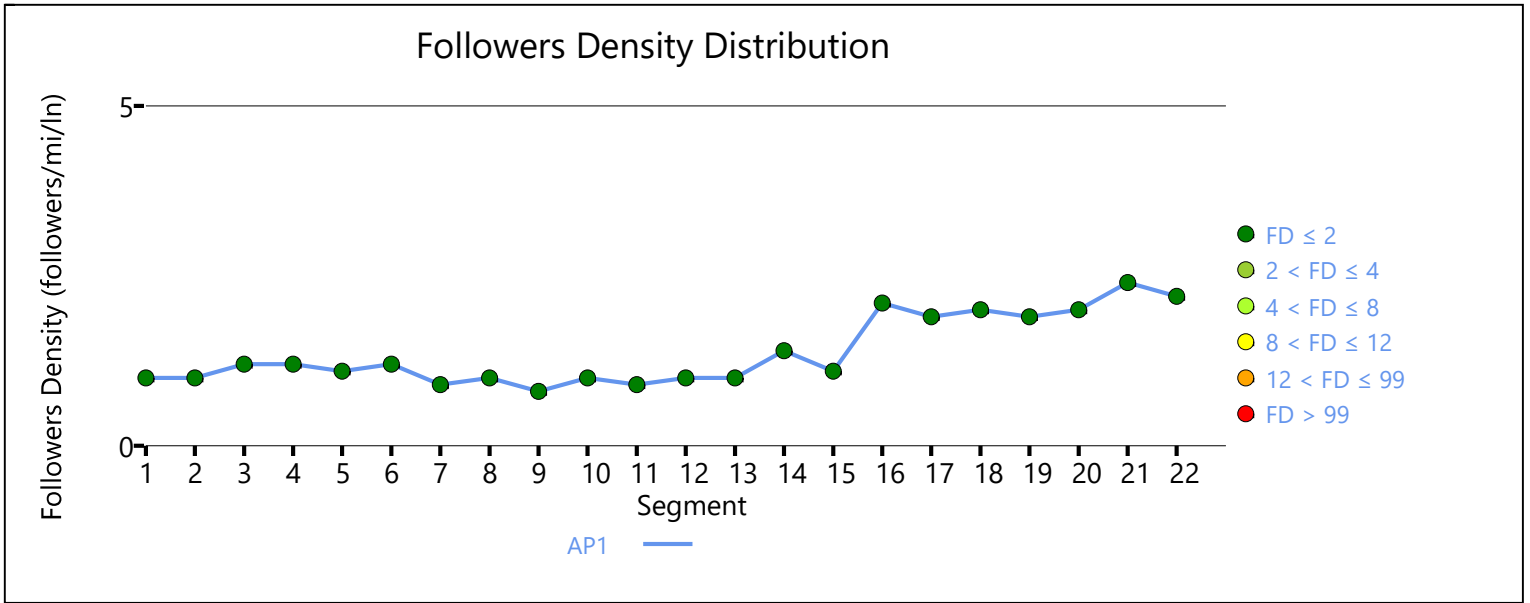
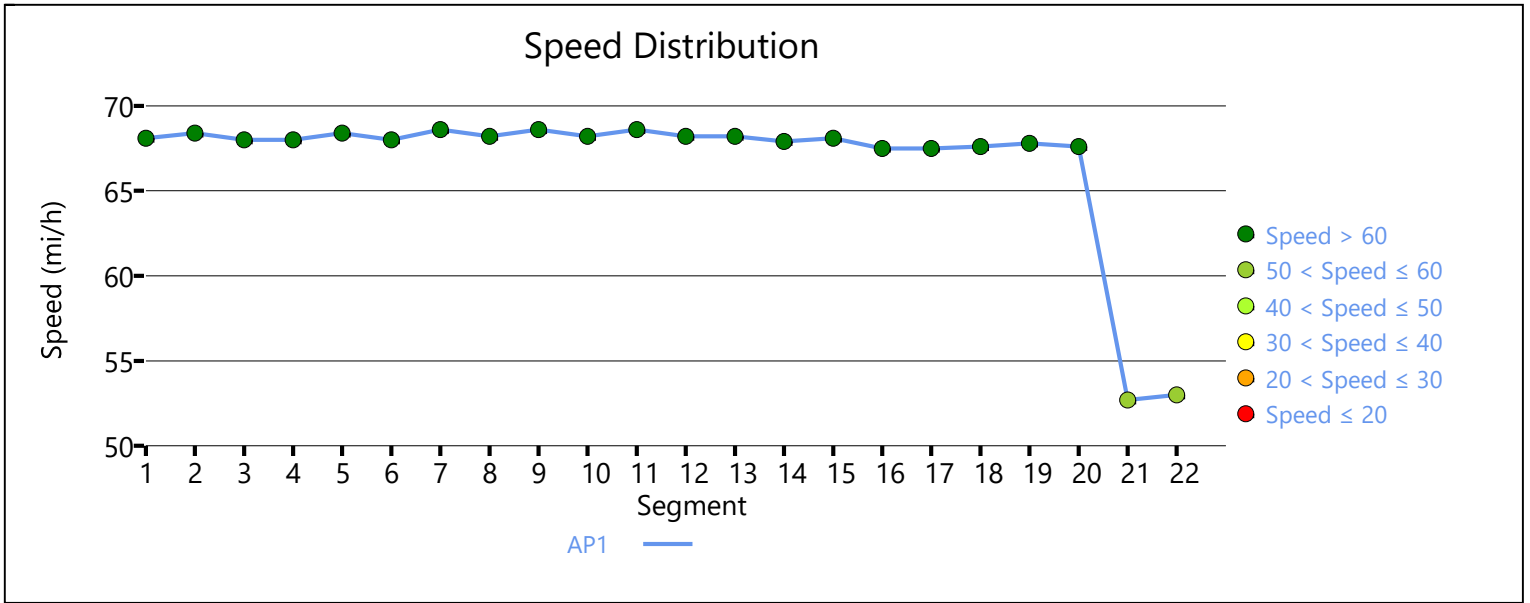
Average Speed, mi/h	53.0	Percent Followers, %	41.0
Segment Travel Time, minutes	0.36	Follower Density (FD), followers/mi/ln	2.2
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	289	Bicycle Effective Width, ft	24
Bicycle LOS Score	5.35	Bicycle Effective Speed Factor	4.62
Bicycle LOS	E		

### Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	343	0.15	1.3	A



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2040 NB
Jurisdiction	SDDOT	Time Analyzed	PM Peak
Project Description	SD 38 WB East of Hartford	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1727
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	659	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	8.97
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58112	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27241	PF Power Coefficient (p)	0.76681
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	6.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1727	-	-	66.4

### Vehicle Results

Average Speed, mi/h	66.4	Percent Followers, %	60.3
Segment Travel Time, minutes	0.30	Follower Density (FD), followers/mi/ln	6.0
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	659	Bicycle Effective Width, ft	24
Bicycle LOS Score	5.39	Bicycle Effective Speed Factor	5.07
Bicycle LOS	E		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1676
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0



<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	659	Opposing Demand Flow Rate, veh/h	309		
Peak Hour Factor	0.88	Total Trucks, %	8.97		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.36102	Speed Power Coefficient (p)	0.51334		
PF Slope Coefficient (m)	-1.24034	PF Power Coefficient (p)	0.80784		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.8		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1676	-	-	66.8
<b>Vehicle Results</b>					
Average Speed, mi/h	66.8	Percent Followers, %	58.8		
Segment Travel Time, minutes	0.29	Follower Density (FD), followers/mi/ln	5.8		
Vehicle LOS	C				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	659	Bicycle Effective Width, ft	24		
Bicycle LOS Score	5.39	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	E				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	1864		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	411	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	17.04		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.58341	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.26572	PF Power Coefficient (p)	0.77025		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.9		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1864	-	-	67.2

### Vehicle Results

Average Speed, mi/h	67.2	Percent Followers, %	47.2
Segment Travel Time, minutes	0.32	Follower Density (FD), followers/mi/ln	2.9
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	411	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.14	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	718
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	411	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29182	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	718	-	-	67.2

### Vehicle Results

Average Speed, mi/h	67.2	Percent Followers, %	48.2
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	3.0
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	411	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.14	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1738
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	411	Opposing Demand Flow Rate, veh/h	316
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.36408	Speed Power Coefficient (p)	0.51197
PF Slope Coefficient (m)	-1.23776	PF Power Coefficient (p)	0.80977
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1738	-	-	67.6

### Vehicle Results

Average Speed, mi/h	67.6	Percent Followers, %	45.3
Segment Travel Time, minutes	0.29	Follower Density (FD), followers/mi/ln	2.8
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	411	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.14	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	579
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	411	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29182	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	579	-	-	67.2

### Vehicle Results

Average Speed, mi/h	67.2	Percent Followers, %	48.2
Segment Travel Time, minutes	0.10	Follower Density (FD), followers/mi/ln	3.0
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	411	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.14	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2262
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	344	Opposing Demand Flow Rate, veh/h	251
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.35242	Speed Power Coefficient (p)	0.52604
PF Slope Coefficient (m)	-1.20821	PF Power Coefficient (p)	0.82203
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2262	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	39.5
Segment Travel Time, minutes	0.38	Follower Density (FD), followers/mi/ln	2.0
Vehicle LOS	B		

<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	344	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.89	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 8

#### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	980
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

#### Demand and Capacity

Directional Demand Flow Rate, veh/h	344	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

#### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

#### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	980	-	-	67.5

#### Vehicle Results

Average Speed, mi/h	67.5	Percent Followers, %	43.7
Segment Travel Time, minutes	0.17	Follower Density (FD), followers/mi/ln	2.2
Vehicle LOS	B		

#### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	344	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.89	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 9

#### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3667
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

#### Demand and Capacity

Directional Demand Flow Rate, veh/h	344	Opposing Demand Flow Rate, veh/h	251
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.37083	Speed Power Coefficient (p)	0.52604
PF Slope Coefficient (m)	-1.17691	PF Power Coefficient (p)	0.83360
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3667	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	38.4
Segment Travel Time, minutes	0.61	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	344	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.89	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1846
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	344	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58311	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.26629	PF Power Coefficient (p)	0.77017
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1846	-	-	67.5
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### Vehicle Results

Average Speed, mi/h	67.5	Percent Followers, %	42.7
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	2.2
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	344	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.89	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2174
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	344	Opposing Demand Flow Rate, veh/h	251
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.35110	Speed Power Coefficient (p)	0.52604
PF Slope Coefficient (m)	-1.21102	PF Power Coefficient (p)	0.82087
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2174	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	39.6
Segment Travel Time, minutes	0.36	Follower Density (FD), followers/mi/ln	2.0
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	344	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.89	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 12

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1277
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	344	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1277	-	-	67.5

Vehicle Results			
Average Speed, mi/h	67.5	Percent Followers, %	43.7
Segment Travel Time, minutes	0.22	Follower Density (FD), followers/mi/ln	2.2
Vehicle LOS	B		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	344	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.89	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	779
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	344	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014



In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	779	-	-	67.5

### Vehicle Results

Average Speed, mi/h	67.5	Percent Followers, %	43.7
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	2.2
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	344	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.89	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	422
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	430	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	13.95
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29219	PF Power Coefficient (p)	0.75948
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	422	-	-	67.1

### Vehicle Results

Average Speed, mi/h	67.1	Percent Followers, %	49.3
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	3.2
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	430	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.47	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 15

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1478
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	382	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	19.53
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57671	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28298	PF Power Coefficient (p)	0.76370
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1478	-	-	67.3

### Vehicle Results

Average Speed, mi/h	67.3	Percent Followers, %	45.9
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	2.6
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	382	Bicycle Effective Width, ft	24
Bicycle LOS Score	10.62	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 16

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	384
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	740	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.76
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.44

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29233	PF Power Coefficient (p)	0.75931
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	7.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	384	-	-	66.2

### Vehicle Results

Average Speed, mi/h	66.2	Percent Followers, %	64.2
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	7.2
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	740	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.15	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 17

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3732
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	735	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.21
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.60878	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.21846	PF Power Coefficient (p)	0.78615
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	6.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3732	-	-	66.2

### Vehicle Results

Average Speed, mi/h	66.2	Percent Followers, %	61.6
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Segment Travel Time, minutes	0.64	Follower Density (FD), followers/mi/ln	6.8
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	735	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.88	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 18

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1360
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	735	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.21
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57450	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29014	PF Power Coefficient (p)	0.76012
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	7.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1360	-	-	66.2

### Vehicle Results

Average Speed, mi/h	66.2	Percent Followers, %	64.0
Segment Travel Time, minutes	0.23	Follower Density (FD), followers/mi/ln	7.1
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	735	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.88	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 19

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1595
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	735	Opposing Demand Flow Rate, veh/h	333		
Peak Hour Factor	0.88	Total Trucks, %	12.21		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.36650	Speed Power Coefficient (p)	0.50865		
PF Slope Coefficient (m)	-1.24703	PF Power Coefficient (p)	0.80540		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	6.9		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1595	-	-	66.5
<b>Vehicle Results</b>					
Average Speed, mi/h	66.5	Percent Followers, %	62.2		
Segment Travel Time, minutes	0.27	Follower Density (FD), followers/mi/ln	6.9		
Vehicle LOS	C				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	735	Bicycle Effective Width, ft	24		
Bicycle LOS Score	6.88	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	F				
<b>Segment 20</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	595		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	735	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	12.21		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29239	PF Power Coefficient (p)	0.75923		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	7.1		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	595	-	-	66.2

### Vehicle Results

Average Speed, mi/h	66.2	Percent Followers, %	64.1
Segment Travel Time, minutes	0.10	Follower Density (FD), followers/mi/ln	7.1
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	735	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.88	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 21

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	958
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	551	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	10.81
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.32

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.43859	PF Power Coefficient (p)	0.72596
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	6.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	958	-	-	51.7

### Vehicle Results

Average Speed, mi/h	51.7	Percent Followers, %	60.7
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	6.5
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	551	Bicycle Effective Width, ft	24
Bicycle LOS Score	5.68	Bicycle Effective Speed Factor	4.62
Bicycle LOS	F		

## Segment 22

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1659
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	551	Opposing Demand Flow Rate, veh/h	299
Peak Hour Factor	0.88	Total Trucks, %	10.81
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.32

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.35768	Speed Power Coefficient (p)	0.51544
PF Slope Coefficient (m)	-1.30606	PF Power Coefficient (p)	0.78393
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1659	-	-	57.1

### Vehicle Results

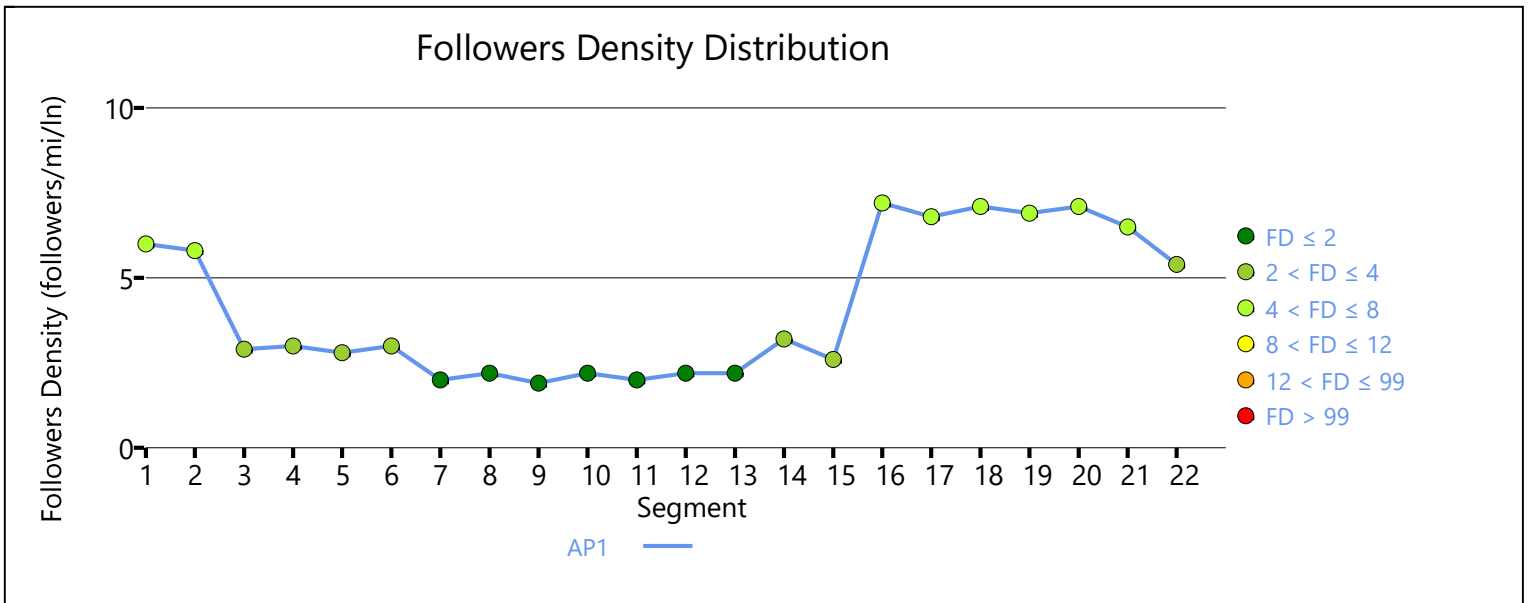
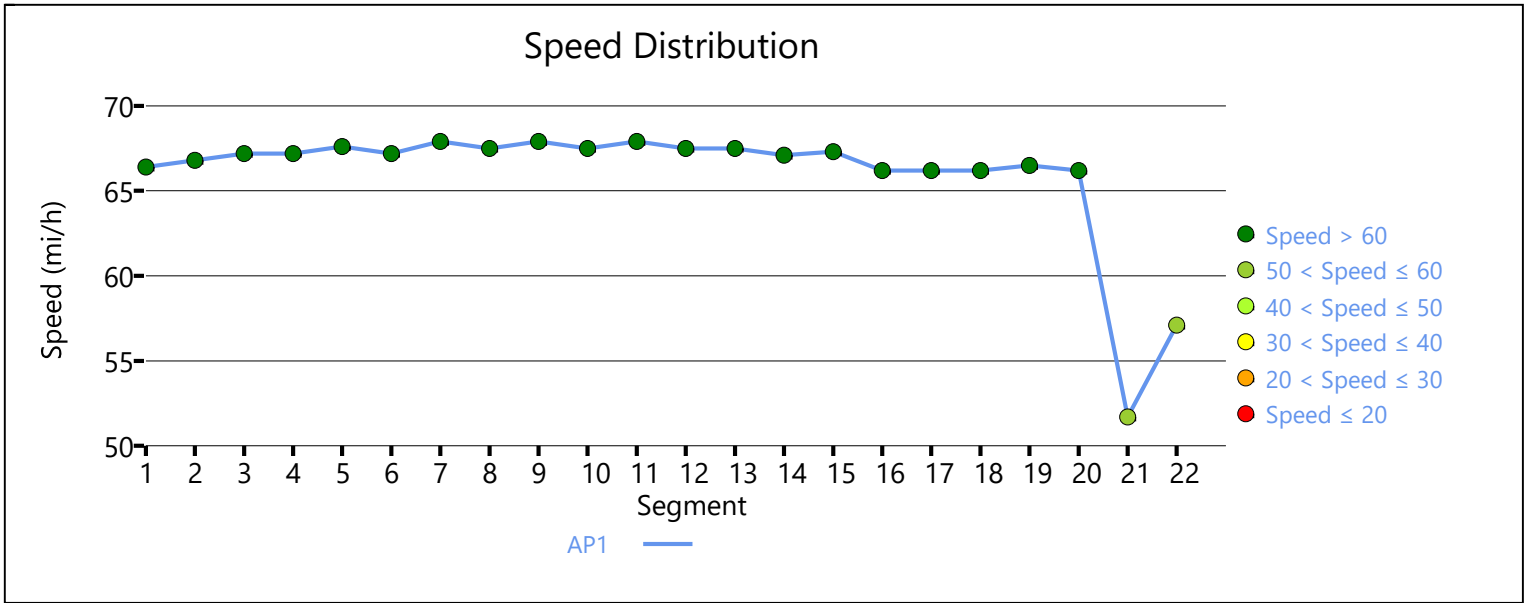
Average Speed, mi/h	57.1	Percent Followers, %	55.9
Segment Travel Time, minutes	0.33	Follower Density (FD), followers/mi/ln	5.4
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	551	Bicycle Effective Width, ft	24
Bicycle LOS Score	5.68	Bicycle Effective Speed Factor	4.62
Bicycle LOS	F		

### Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	690	0.47	4.0	C





# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2040 NB
Jurisdiction	SDDOT	Time Analyzed	AM Peak
Project Description	West of Hartford SD 38 EB	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1069
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	202	Opposing Demand Flow Rate, veh/h	142
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.29579	Speed Power Coefficient (p)	0.55752
PF Slope Coefficient (m)	-1.22341	PF Power Coefficient (p)	0.81179
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1069	-	-	68.8

### Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	28.4
Segment Travel Time, minutes	0.18	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	202	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	664
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	202	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	5.79		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	664	-	-	68.2
<b>Vehicle Results</b>					
Average Speed, mi/h	68.2	Percent Followers, %	31.9		
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	0.9		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	202	Bicycle Effective Width, ft	24		
Bicycle LOS Score	3.61	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	D				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	1871		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	202	Opposing Demand Flow Rate, veh/h	142		
Peak Hour Factor	0.88	Total Trucks, %	5.79		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.30560	Speed Power Coefficient (p)	0.55752		
PF Slope Coefficient (m)	-1.19854	PF Power Coefficient (p)	0.82311		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1871	-	-	68.8

### Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	27.5
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	202	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	925
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	202	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	925	-	-	68.2

### Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	31.9
Segment Travel Time, minutes	0.15	Follower Density (FD), followers/mi/ln	0.9
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	202	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4476
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	202	Opposing Demand Flow Rate, veh/h	142
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.33909	Speed Power Coefficient (p)	0.55752
PF Slope Coefficient (m)	-1.14461	PF Power Coefficient (p)	0.84352
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4476	-	-	68.8

### Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	25.7
Segment Travel Time, minutes	0.74	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	202	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	896
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	202	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	896	-	-	68.2

### Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	31.9
Segment Travel Time, minutes	0.15	Follower Density (FD), followers/mi/ln	0.9
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	202	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	743
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	202	Opposing Demand Flow Rate, veh/h	142
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.29579	Speed Power Coefficient (p)	0.55752
PF Slope Coefficient (m)	-1.22341	PF Power Coefficient (p)	0.81179
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	743	-	-	68.8

### Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	28.4
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	202	Bicycle Effective Width, ft	24		
Bicycle LOS Score	3.61	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	D				
<b>Segment 8</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	2717		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	203	Opposing Demand Flow Rate, veh/h	138		
Peak Hour Factor	0.88	Total Trucks, %	3.28		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.31617	Speed Power Coefficient (p)	0.55915		
PF Slope Coefficient (m)	-1.17188	PF Power Coefficient (p)	0.83428		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2717	-	-	68.8
<b>Vehicle Results</b>					
Average Speed, mi/h	68.8	Percent Followers, %	26.7		
Segment Travel Time, minutes	0.45	Follower Density (FD), followers/mi/ln	0.8		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	203	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
<b>Segment 9</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	1013		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					

Directional Demand Flow Rate, veh/h	203	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.28
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29345	PF Power Coefficient (p)	0.75792
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1013	-	-	68.2

### Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	32.1
Segment Travel Time, minutes	0.17	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	203	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4569
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	203	Opposing Demand Flow Rate, veh/h	138
Peak Hour Factor	0.88	Total Trucks, %	3.28
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.33807	Speed Power Coefficient (p)	0.55915
PF Slope Coefficient (m)	-1.14272	PF Power Coefficient (p)	0.84376
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	4569	-	-	68.8
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### Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	25.8
Segment Travel Time, minutes	0.75	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	203	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	5676
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	203	Opposing Demand Flow Rate, veh/h	138
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.34904	Speed Power Coefficient (p)	0.55915
PF Slope Coefficient (m)	-1.13517	PF Power Coefficient (p)	0.84345
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5676	-	-	68.8

### Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	25.6
Segment Travel Time, minutes	0.94	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	203	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.71	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 12



Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	657
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	203	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29350	PF Power Coefficient (p)	0.75785
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	657	-	-	68.2

Vehicle Results			
Average Speed, mi/h	68.2	Percent Followers, %	32.1
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	203	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.71	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	6009
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	203	Opposing Demand Flow Rate, veh/h	138
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.35213	Speed Power Coefficient (p)	0.55915
PF Slope Coefficient (m)	-1.13386	PF Power Coefficient (p)	0.84277

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6009	-	-	68.8

### Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	25.6
Segment Travel Time, minutes	0.99	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	203	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.71	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	891
Measured FFS	Measured	Free-Flow Speed, mi/h	50.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	203	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.47375	PF Power Coefficient (p)	0.71164
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	891	-	-	48.2

### Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	37.8
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	1.6
Vehicle LOS	A		

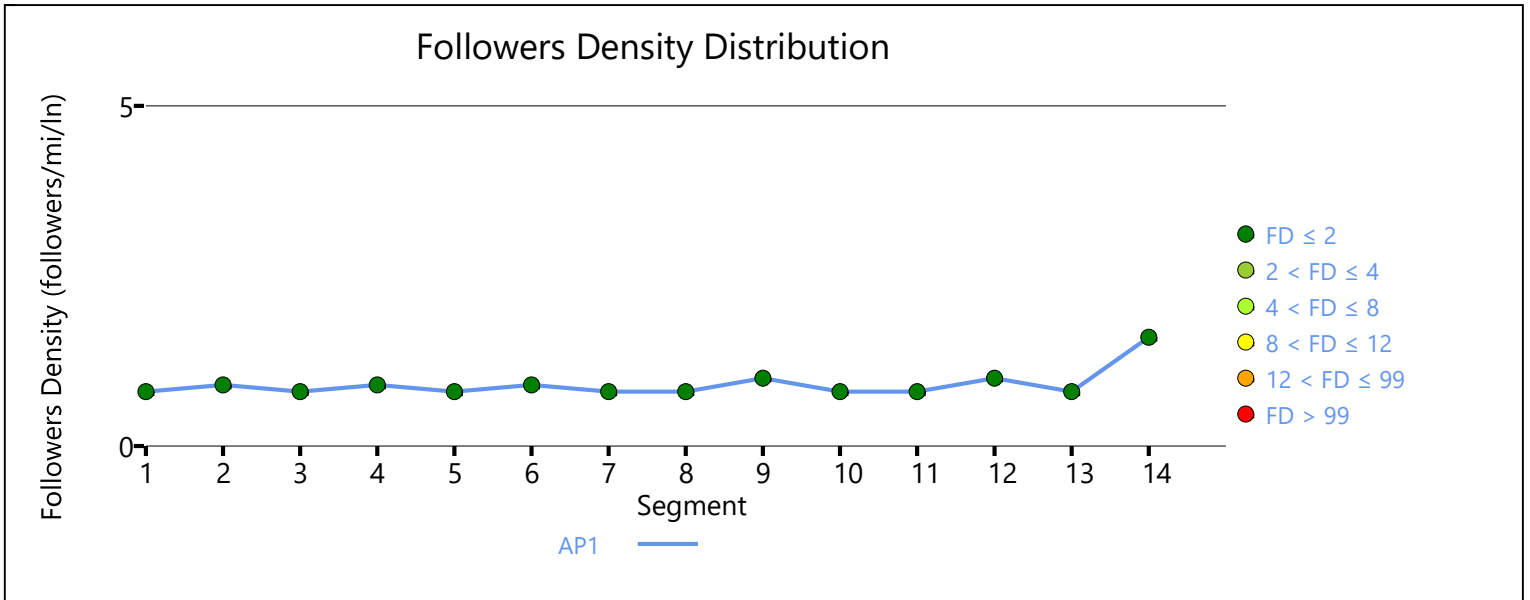
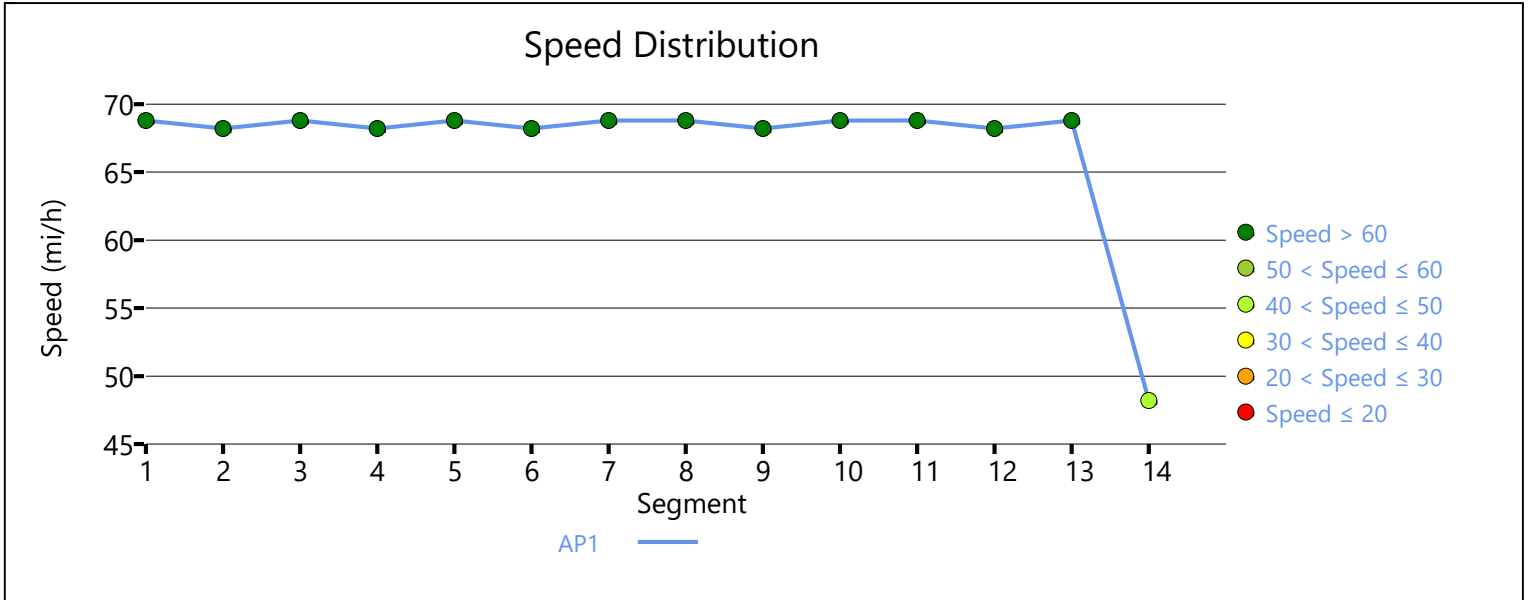
### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	203	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.49	Bicycle Effective Speed Factor	4.42
Bicycle LOS	B		

### Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	272	0.08	0.8	A



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2040 NB
Jurisdiction	SDDOT	Time Analyzed	PM Peak
Project Description	West of Hartford SD 38 EB	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1069
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	127	Opposing Demand Flow Rate, veh/h	227
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.32852	Speed Power Coefficient (p)	0.53193
PF Slope Coefficient (m)	-1.24407	PF Power Coefficient (p)	0.80506
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1069	-	-	69.4

### Vehicle Results

Average Speed, mi/h	69.4	Percent Followers, %	21.1
Segment Travel Time, minutes	0.18	Follower Density (FD), followers/mi/ln	0.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	127	Bicycle Effective Width, ft	32
Bicycle LOS Score	1.14	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	664
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	127	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	5.79		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	664	-	-	69.0
<b>Vehicle Results</b>					
Average Speed, mi/h	69.0	Percent Followers, %	23.7		
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	0.4		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	127	Bicycle Effective Width, ft	32		
Bicycle LOS Score	1.14	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	A				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	1871		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	127	Opposing Demand Flow Rate, veh/h	227		
Peak Hour Factor	0.88	Total Trucks, %	5.79		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.33833	Speed Power Coefficient (p)	0.53193		
PF Slope Coefficient (m)	-1.21872	PF Power Coefficient (p)	0.81609		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1871	-	-	69.4

### Vehicle Results

Average Speed, mi/h	69.4	Percent Followers, %	20.3
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	0.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	127	Bicycle Effective Width, ft	32
Bicycle LOS Score	1.14	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	925
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	127	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	925	-	-	69.0

### Vehicle Results

Average Speed, mi/h	69.0	Percent Followers, %	23.7
Segment Travel Time, minutes	0.15	Follower Density (FD), followers/mi/ln	0.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	127	Bicycle Effective Width, ft	32
Bicycle LOS Score	1.14	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4476
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	139	Opposing Demand Flow Rate, veh/h	227
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.37181	Speed Power Coefficient (p)	0.53193
PF Slope Coefficient (m)	-1.16375	PF Power Coefficient (p)	0.83587
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4476	-	-	69.2

### Vehicle Results

Average Speed, mi/h	69.2	Percent Followers, %	20.0
Segment Travel Time, minutes	0.73	Follower Density (FD), followers/mi/ln	0.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	139	Bicycle Effective Width, ft	31
Bicycle LOS Score	1.50	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	896
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	127	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	896	-	-	69.0

### Vehicle Results

Average Speed, mi/h	69.0	Percent Followers, %	23.7
Segment Travel Time, minutes	0.15	Follower Density (FD), followers/mi/ln	0.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	127	Bicycle Effective Width, ft	32
Bicycle LOS Score	1.14	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	743
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	127	Opposing Demand Flow Rate, veh/h	227
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.32852	Speed Power Coefficient (p)	0.53193
PF Slope Coefficient (m)	-1.24407	PF Power Coefficient (p)	0.80506
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	743	-	-	69.4

### Vehicle Results

Average Speed, mi/h	69.4	Percent Followers, %	21.1
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	0.4
Vehicle LOS	A		



<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	127	Bicycle Effective Width, ft	32		
Bicycle LOS Score	1.14	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	A				
<b>Segment 8</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	2717		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	134	Opposing Demand Flow Rate, veh/h	0		
Peak Hour Factor	0.88	Total Trucks, %	3.28		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.19461	Speed Power Coefficient (p)	0.67576		
PF Slope Coefficient (m)	-1.07584	PF Power Coefficient (p)	0.86675		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2717	-	-	69.6
<b>Vehicle Results</b>					
Average Speed, mi/h	69.6	Percent Followers, %	17.2		
Segment Travel Time, minutes	0.44	Follower Density (FD), followers/mi/ln	0.3		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	134	Bicycle Effective Width, ft	31		
Bicycle LOS Score	0.70	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	A				
<b>Segment 9</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	1013		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					

Directional Demand Flow Rate, veh/h	134	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.28
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29345	PF Power Coefficient (p)	0.75792
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1013	-	-	68.9

### Vehicle Results

Average Speed, mi/h	68.9	Percent Followers, %	24.6
Segment Travel Time, minutes	0.17	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	134	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.70	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4569
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	134	Opposing Demand Flow Rate, veh/h	230
Peak Hour Factor	0.88	Total Trucks, %	3.28
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.37357	Speed Power Coefficient (p)	0.53135
PF Slope Coefficient (m)	-1.16352	PF Power Coefficient (p)	0.83544
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	4569	-	-	69.3
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### Vehicle Results

Average Speed, mi/h	69.3	Percent Followers, %	19.5
Segment Travel Time, minutes	0.75	Follower Density (FD), followers/mi/ln	0.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	134	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.70	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	5676
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	136	Opposing Demand Flow Rate, veh/h	230
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.38454	Speed Power Coefficient (p)	0.53135
PF Slope Coefficient (m)	-1.15581	PF Power Coefficient (p)	0.83503
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5676	-	-	69.2

### Vehicle Results

Average Speed, mi/h	69.2	Percent Followers, %	19.7
Segment Travel Time, minutes	0.93	Follower Density (FD), followers/mi/ln	0.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	136	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.58	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 12

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	657
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	136	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29350	PF Power Coefficient (p)	0.75785
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	657	-	-	68.9

Vehicle Results			
Average Speed, mi/h	68.9	Percent Followers, %	24.9
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	136	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.58	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	6009
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	136	Opposing Demand Flow Rate, veh/h	230
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.38763	Speed Power Coefficient (p)	0.53135
PF Slope Coefficient (m)	-1.15447	PF Power Coefficient (p)	0.83434

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6009	-	-	69.2

### Vehicle Results

Average Speed, mi/h	69.2	Percent Followers, %	19.7
Segment Travel Time, minutes	0.99	Follower Density (FD), followers/mi/ln	0.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	136	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.58	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	891
Measured FFS	Measured	Free-Flow Speed, mi/h	50.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	136	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.47375	PF Power Coefficient (p)	0.71164
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	891	-	-	48.9

### Vehicle Results

Average Speed, mi/h	48.9	Percent Followers, %	30.0
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	0.8
Vehicle LOS	A		

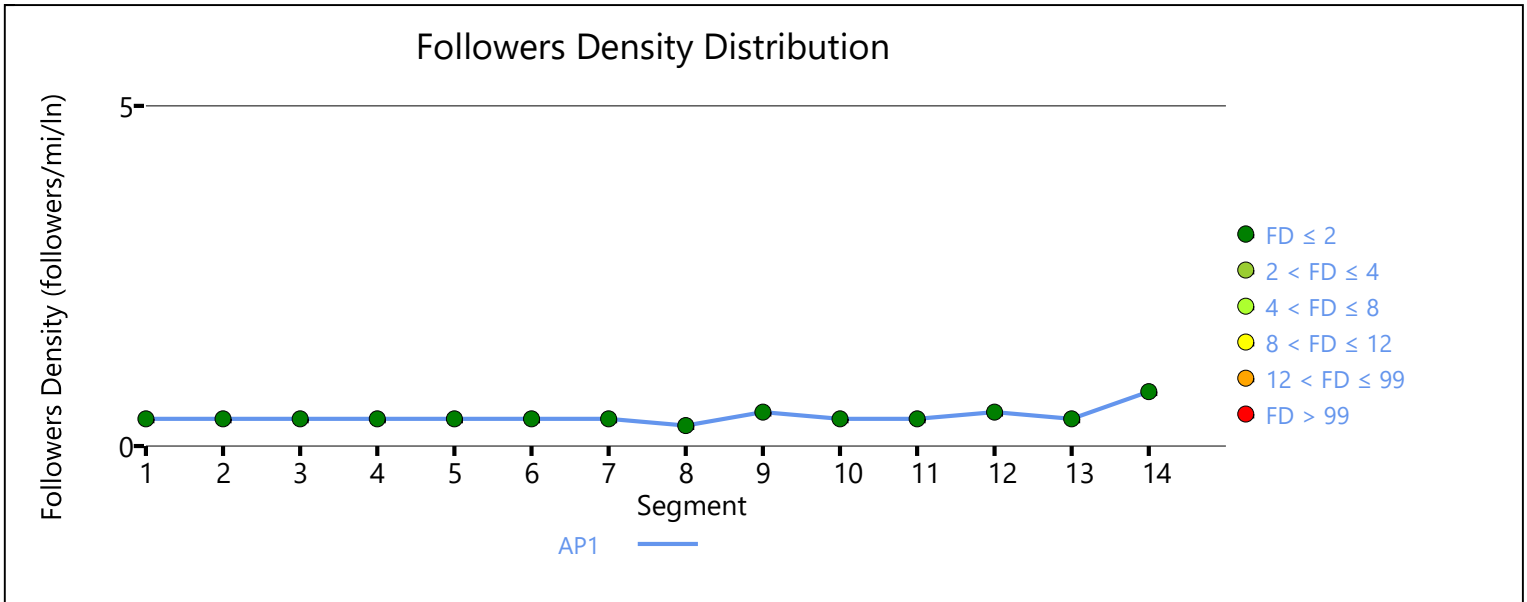
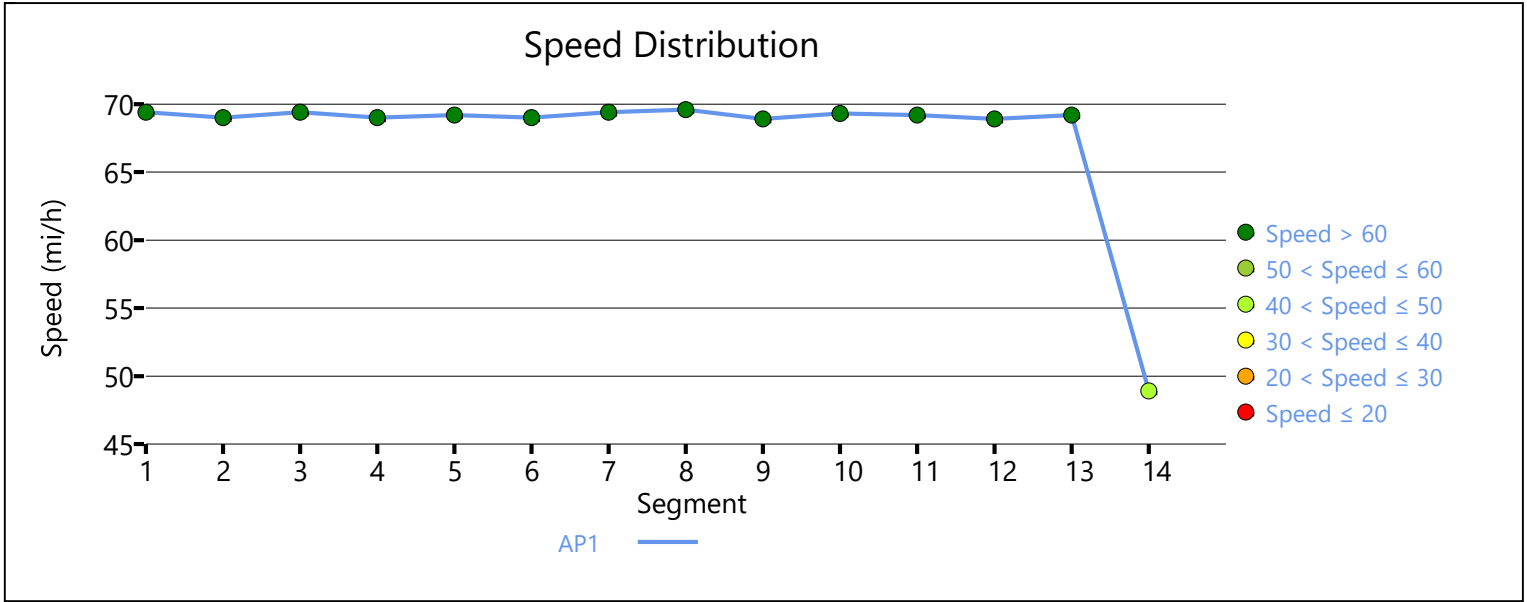
### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	136	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.36	Bicycle Effective Speed Factor	4.42
Bicycle LOS	A		

### Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	180	0.03	0.4	A



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2040 NB
Jurisdiction	SDDOT	Time Analyzed	AM Peak
Project Description	WB 38 West of Hartford	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	10549
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	138	Opposing Demand Flow Rate, veh/h	203
Peak Hour Factor	0.88	Total Trucks, %	12.50
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.41409	Speed Power Coefficient (p)	0.53829
PF Slope Coefficient (m)	-1.15918	PF Power Coefficient (p)	0.81052
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	10549	-	-	69.2

### Vehicle Results

Average Speed, mi/h	69.2	Percent Followers, %	20.7
Segment Travel Time, minutes	1.73	Follower Density (FD), followers/mi/ln	0.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	138	Bicycle Effective Width, ft	31
Bicycle LOS Score	4.24	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2793
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	138	Opposing Demand Flow Rate, veh/h	203		
Peak Hour Factor	0.88	Total Trucks, %	12.50		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.34348	Speed Power Coefficient (p)	0.53829		
PF Slope Coefficient (m)	-1.18524	PF Power Coefficient (p)	0.83047		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2793	-	-	69.3
<b>Vehicle Results</b>					
Average Speed, mi/h	69.3	Percent Followers, %	20.4		
Segment Travel Time, minutes	0.46	Follower Density (FD), followers/mi/ln	0.4		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	138	Bicycle Effective Width, ft	31		
Bicycle LOS Score	4.24	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	D				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	3825		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	138	Opposing Demand Flow Rate, veh/h	203		
Peak Hour Factor	0.88	Total Trucks, %	2.40		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.35622	Speed Power Coefficient (p)	0.53829		
PF Slope Coefficient (m)	-1.16728	PF Power Coefficient (p)	0.83549		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					



#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3825	-	-	69.3

### Vehicle Results

Average Speed, mi/h	69.3	Percent Followers, %	19.9
Segment Travel Time, minutes	0.63	Follower Density (FD), followers/mi/ln	0.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	138	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.48	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	791
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	138	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.40
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29355	PF Power Coefficient (p)	0.75779
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	791	-	-	68.8

### Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	25.0
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	138	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.48	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3414
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	138	Opposing Demand Flow Rate, veh/h	203
Peak Hour Factor	0.88	Total Trucks, %	2.40
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.35138	Speed Power Coefficient (p)	0.53829
PF Slope Coefficient (m)	-1.17373	PF Power Coefficient (p)	0.83350
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3414	-	-	69.3

### Vehicle Results

Average Speed, mi/h	69.3	Percent Followers, %	20.1
Segment Travel Time, minutes	0.56	Follower Density (FD), followers/mi/ln	0.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	138	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.48	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	286
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	138	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.40
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29355	PF Power Coefficient (p)	0.75779
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	286	-	-	68.8

### Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	25.0
Segment Travel Time, minutes	0.05	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	138	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.48	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	463
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	142	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29353	PF Power Coefficient (p)	0.75782
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	463	-	-	68.8

### Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	25.5
Segment Travel Time, minutes	0.08	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	142	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.54	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

### Segment 8

<b>Vehicle Inputs</b>			
Segment Type	Passing Zone	Length, ft	4822
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>			
Directional Demand Flow Rate, veh/h	142	Opposing Demand Flow Rate, veh/h	202
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

<b>Intermediate Results</b>			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.36656	Speed Power Coefficient (p)	0.53861
PF Slope Coefficient (m)	-1.15601	PF Power Coefficient (p)	0.83777
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4822	-	-	69.2

<b>Vehicle Results</b>			
Average Speed, mi/h	69.2	Percent Followers, %	20.2
Segment Travel Time, minutes	0.79	Follower Density (FD), followers/mi/ln	0.4
Vehicle LOS	A		

<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	142	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.54	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

### Segment 9

<b>Vehicle Inputs</b>			
Segment Type	Passing Constrained	Length, ft	861
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>			
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Directional Demand Flow Rate, veh/h	142	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29353	PF Power Coefficient (p)	0.75782
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	861	-	-	68.8

### Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	25.5
Segment Travel Time, minutes	0.14	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	142	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.54	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1556
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	142	Opposing Demand Flow Rate, veh/h	202
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.32409	Speed Power Coefficient (p)	0.53861
PF Slope Coefficient (m)	-1.22723	PF Power Coefficient (p)	0.81163
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1556	-	-	69.2
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### Vehicle Results

Average Speed, mi/h	69.2	Percent Followers, %	22.3
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	142	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.54	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	799
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	142	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29353	PF Power Coefficient (p)	0.75782
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	799	-	-	68.8

### Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	25.5
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	142	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.54	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 12

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	857
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	142	Opposing Demand Flow Rate, veh/h	2026
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.63885	Speed Power Coefficient (p)	0.40883
PF Slope Coefficient (m)	-1.27385	PF Power Coefficient (p)	0.74571
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	857	-	-	68.7

Vehicle Results			
Average Speed, mi/h	68.7	Percent Followers, %	25.7
Segment Travel Time, minutes	0.14	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	142	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.54	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1288
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	142	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.39677	PF Power Coefficient (p)	0.73640

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

**Subsegment Data**

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1288	-	-	58.8

**Vehicle Results**

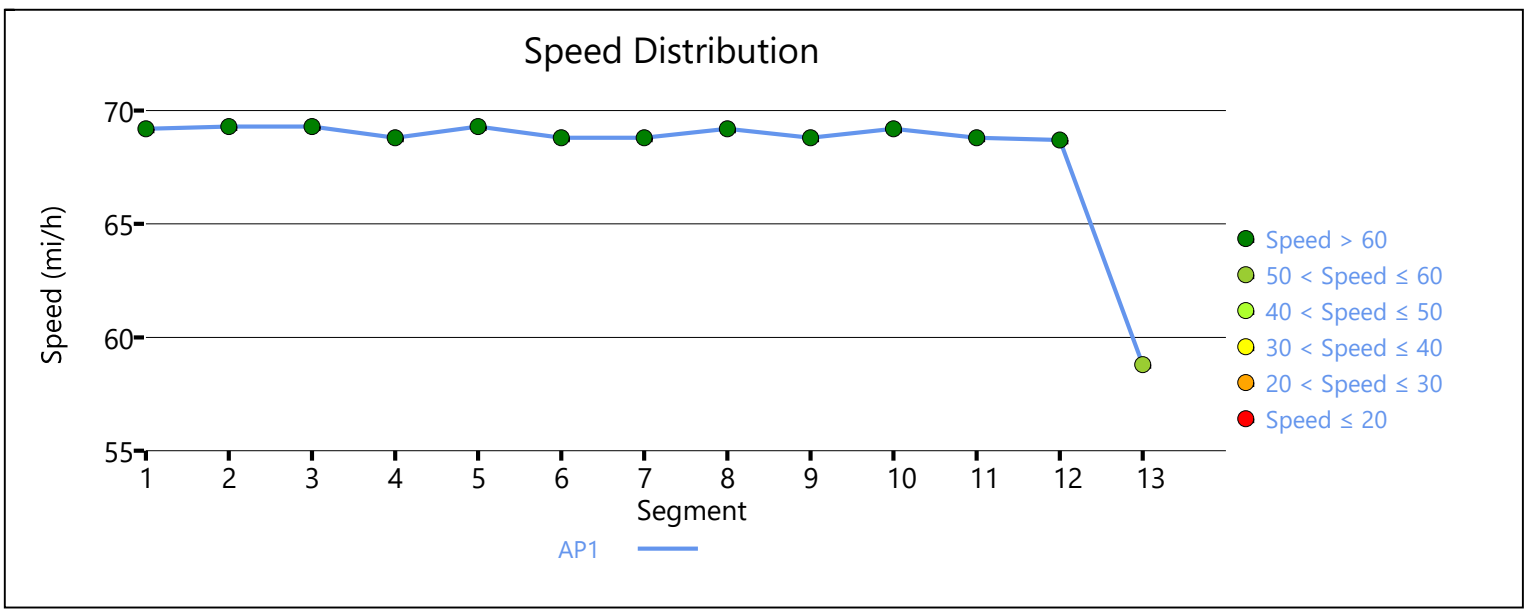
Average Speed, mi/h	58.8	Percent Followers, %	28.2
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

**Bicycle Results**

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	142	Bicycle Effective Width, ft	31
Bicycle LOS Score	0.45	Bicycle Effective Speed Factor	4.79
Bicycle LOS	A		

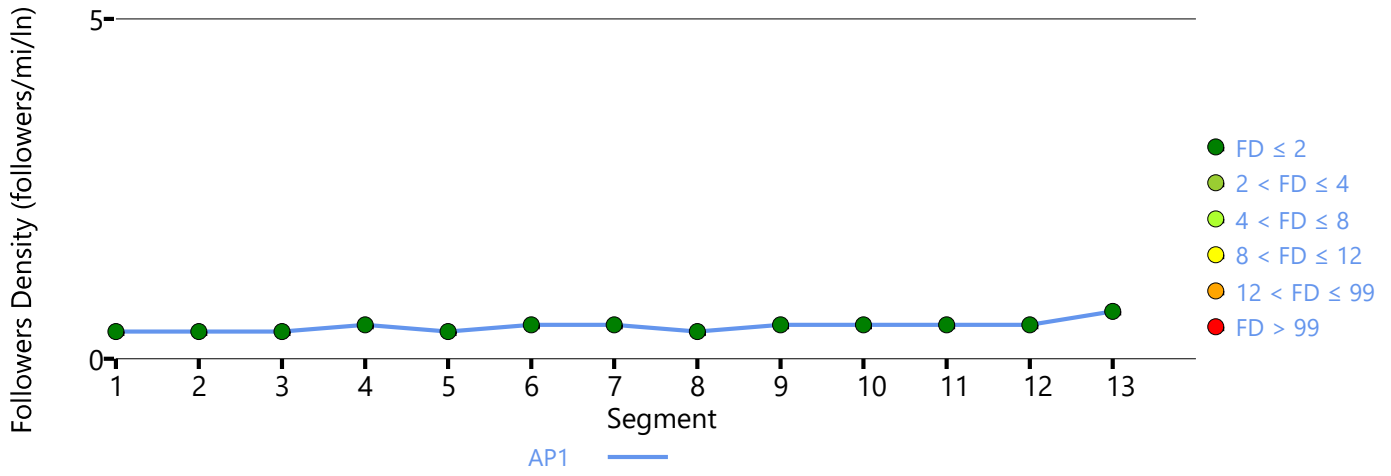
**Facility Results**

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	187	0.03	0.4	A





# Followers Density Distribution



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2040 NB
Jurisdiction	SDDOT	Time Analyzed	PM Peak
Project Description	WB 38 West of Hartford	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	10549
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	230	Opposing Demand Flow Rate, veh/h	136
Peak Hour Factor	0.88	Total Trucks, %	1.94
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.38729	Speed Power Coefficient (p)	0.55957
PF Slope Coefficient (m)	-1.14432	PF Power Coefficient (p)	0.81520
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	10549	-	-	68.6

### Vehicle Results

Average Speed, mi/h	68.6	Percent Followers, %	29.2
Segment Travel Time, minutes	1.75	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	230	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.54	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2793
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	230	Opposing Demand Flow Rate, veh/h	136		
Peak Hour Factor	0.88	Total Trucks, %	1.94		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.31669	Speed Power Coefficient (p)	0.55957		
PF Slope Coefficient (m)	-1.16990	PF Power Coefficient (p)	0.83492		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2793	-	-	68.6
<b>Vehicle Results</b>					
Average Speed, mi/h	68.6	Percent Followers, %	29.0		
Segment Travel Time, minutes	0.46	Follower Density (FD), followers/mi/ln	1.0		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	230	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.54	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	3825		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	230	Opposing Demand Flow Rate, veh/h	134		
Peak Hour Factor	0.88	Total Trucks, %	2.19		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.32842	Speed Power Coefficient (p)	0.56040		
PF Slope Coefficient (m)	-1.15048	PF Power Coefficient (p)	0.84195		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3825	-	-	68.6

### Vehicle Results

Average Speed, mi/h	68.6	Percent Followers, %	28.3
Segment Travel Time, minutes	0.63	Follower Density (FD), followers/mi/ln	0.9
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	230	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	791
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	230	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.19
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29358	PF Power Coefficient (p)	0.75776
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	791	-	-	68.0

### Vehicle Results

Average Speed, mi/h	68.0	Percent Followers, %	34.6
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	230	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3414
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	230	Opposing Demand Flow Rate, veh/h	134
Peak Hour Factor	0.88	Total Trucks, %	2.19
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.32358	Speed Power Coefficient (p)	0.56040
PF Slope Coefficient (m)	-1.15683	PF Power Coefficient (p)	0.83989
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3414	-	-	68.6

### Vehicle Results

Average Speed, mi/h	68.6	Percent Followers, %	28.5
Segment Travel Time, minutes	0.57	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	230	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	286
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	230	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.19
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29358	PF Power Coefficient (p)	0.75776
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	286	-	-	68.0

### Vehicle Results

Average Speed, mi/h	68.0	Percent Followers, %	34.6
Segment Travel Time, minutes	0.05	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	230	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	463
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	227	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29347	PF Power Coefficient (p)	0.75789
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	463	-	-	68.1

### Vehicle Results

Average Speed, mi/h	68.1	Percent Followers, %	34.3
Segment Travel Time, minutes	0.08	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	227	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
<b>Segment 8</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	4822		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	227	Opposing Demand Flow Rate, veh/h	127		
Peak Hour Factor	0.88	Total Trucks, %	3.08		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.33608	Speed Power Coefficient (p)	0.56297		
PF Slope Coefficient (m)	-1.13758	PF Power Coefficient (p)	0.84510		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4822	-	-	68.6
<b>Vehicle Results</b>					
Average Speed, mi/h	68.6	Percent Followers, %	27.8		
Segment Travel Time, minutes	0.80	Follower Density (FD), followers/mi/ln	0.9		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	227	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
<b>Segment 9</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	861		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					

Directional Demand Flow Rate, veh/h	227	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29347	PF Power Coefficient (p)	0.75789
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	861	-	-	68.1

### Vehicle Results

Average Speed, mi/h	68.1	Percent Followers, %	34.3
Segment Travel Time, minutes	0.14	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	227	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1556
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	227	Opposing Demand Flow Rate, veh/h	127
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.29360	Speed Power Coefficient (p)	0.56297
PF Slope Coefficient (m)	-1.20750	PF Power Coefficient (p)	0.81818
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1556	-	-	68.7
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### Vehicle Results

Average Speed, mi/h	68.7	Percent Followers, %	30.2
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	1.0
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	227	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	799
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	227	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29347	PF Power Coefficient (p)	0.75789
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	799	-	-	68.1

### Vehicle Results

Average Speed, mi/h	68.1	Percent Followers, %	34.3
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	227	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 12

Vehicle Inputs					
Segment Type	Passing Zone	Length, ft	857		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
Demand and Capacity					
Directional Demand Flow Rate, veh/h	227	Opposing Demand Flow Rate, veh/h	127		
Peak Hour Factor	0.88	Total Trucks, %	3.08		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13		
Intermediate Results					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.28919	Speed Power Coefficient (p)	0.56297		
PF Slope Coefficient (m)	-1.21919	PF Power Coefficient (p)	0.81279		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.0		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	857	-	-	68.7
Vehicle Results					
Average Speed, mi/h	68.7	Percent Followers, %	30.6		
Segment Travel Time, minutes	0.14	Follower Density (FD), followers/mi/ln	1.0		
Vehicle LOS	A				
Bicycle Results					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	227	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.84	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
Segment 13					
Vehicle Inputs					
Segment Type	Passing Constrained	Length, ft	1288		
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0		
Demand and Capacity					
Directional Demand Flow Rate, veh/h	227	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	3.08		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13		
Intermediate Results					
Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.39671	PF Power Coefficient (p)	0.73647		

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

**Subsegment Data**

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1288	-	-	58.1

**Vehicle Results**

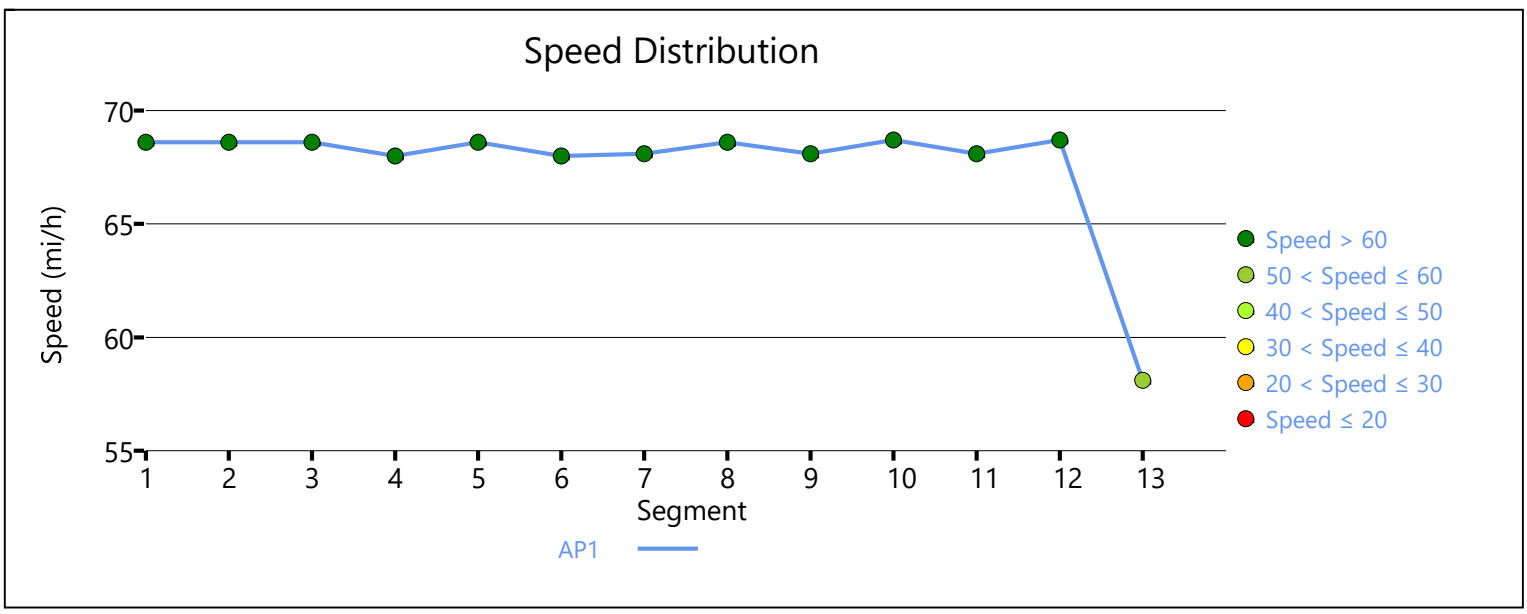
Average Speed, mi/h	58.1	Percent Followers, %	37.4
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

**Bicycle Results**

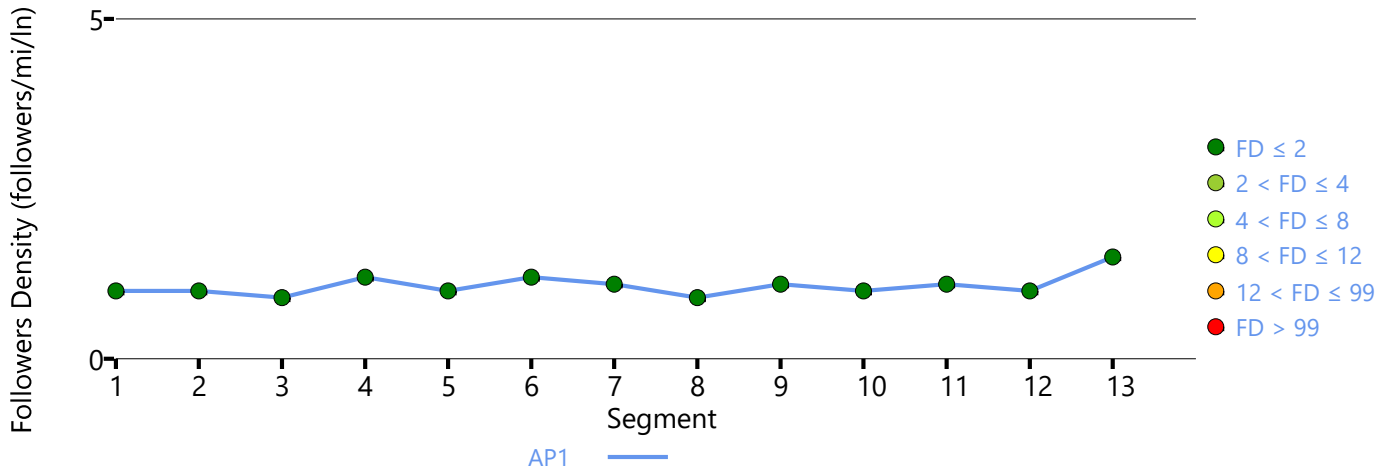
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	227	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.74	Bicycle Effective Speed Factor	4.79
Bicycle LOS	C		

**Facility Results**

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	308	0.10	1.0	A



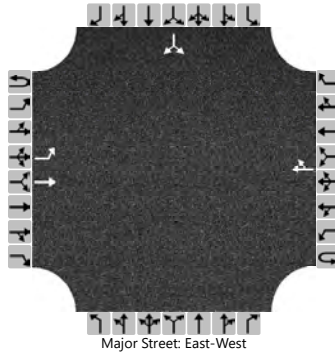
# Followers Density Distribution



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & SD 19		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	SD 19		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		55	165				120	50						70		95
Percent Heavy Vehicles (%)		30												9		11
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.40												6.49		6.31
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.47												3.58		3.40

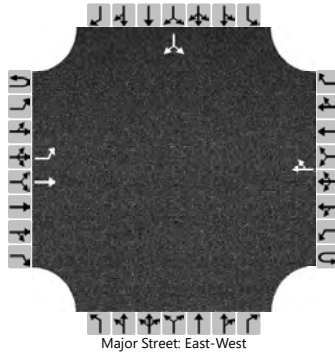
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		60														179	
Capacity, c (veh/h)		1238														677	
v/c Ratio		0.05														0.26	
95% Queue Length, Q <sub>95</sub> (veh)		0.2														1.1	
Control Delay (s/veh)		8.1														12.2	
Level of Service (LOS)		A														B	
Approach Delay (s/veh)		2.0												12.2			
Approach LOS		A												B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & SD 19		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	SD 19		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		85	115				170	80						40		50
Percent Heavy Vehicles (%)		2												10		14
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.50		6.34
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.59		3.43

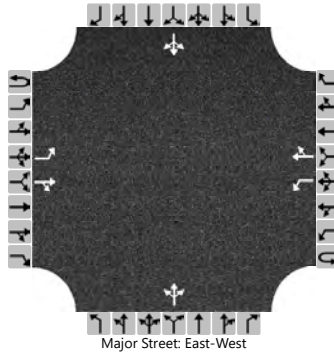
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		92													98		
Capacity, c (veh/h)		1291													593		
v/c Ratio		0.07													0.16		
95% Queue Length, Q <sub>95</sub> (veh)		0.2													0.6		
Control Delay (s/veh)		8.0													12.3		
Level of Service (LOS)		A													B		
Approach Delay (s/veh)		3.4												12.3			
Approach LOS		A												B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 459th		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	459th Ave		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6	7	8	9		10	11	12	
Priority																
Number of Lanes	0	1	1	0	0	1	1	0	0	1	0		0	1	0	
Configuration		L		TR		L		TR		LTR				LTR		
Volume (veh/h)		0	215	7		2	155	0		15	0	7		9	0	0
Percent Heavy Vehicles (%)		3				3				13	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.23	6.50	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.62	4.00	3.30		3.50	4.00	3.30

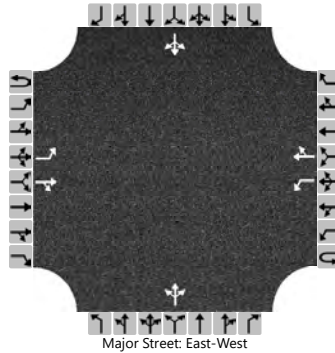
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				2				24				10		
Capacity, c (veh/h)		1403				1319				596				552		
v/c Ratio		0.00				0.00				0.04				0.02		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0				0.1				0.1		
Control Delay (s/veh)		7.6				7.7				11.3				11.6		
Level of Service (LOS)		A				A				B				B		
Approach Delay (s/veh)	0.0				0.1				11.3				11.6			
Approach LOS	A				A				B				B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 459th		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	459th Ave		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		0	145	9		15	245	2		15	0	4		2	2	0
Percent Heavy Vehicles (%)		0				0				13	0	0		0	100	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.23	6.50	6.20		7.10	7.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.62	4.00	3.30		3.50	4.90	3.30

## Delay, Queue Length, and Level of Service

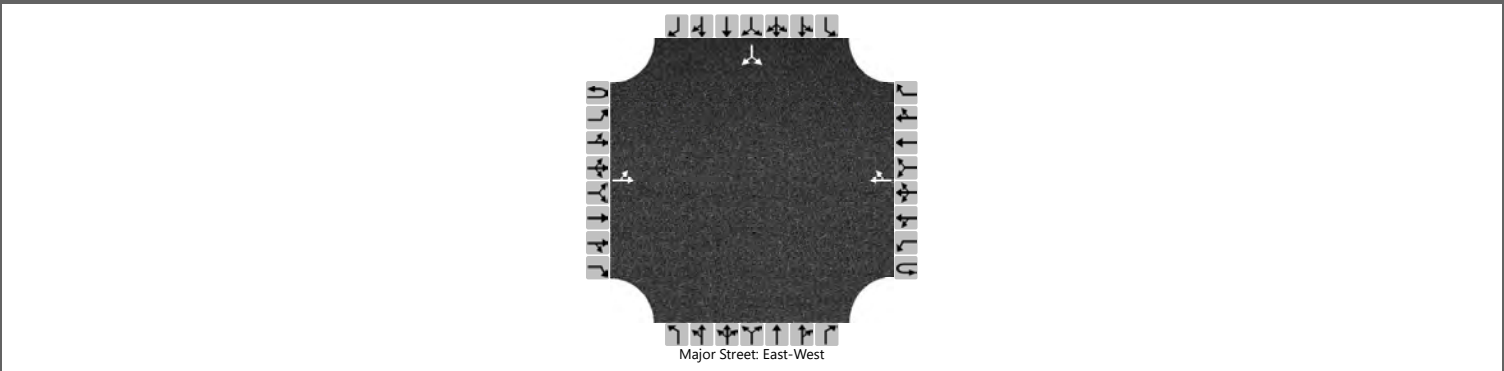
Flow Rate, v (veh/h)		0				16					21				4		
Capacity, c (veh/h)		1307				1423					534				429		
v/c Ratio		0.00				0.01					0.04				0.01		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.1				0.0		
Control Delay (s/veh)		7.8				7.6					12.0				13.5		
Level of Service (LOS)		A				A					B				B		
Approach Delay (s/veh)		0.0				0.4				12.0				13.5			
Approach LOS		A				A				B				B			



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 Speedway		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	I-90 Expressway		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		0	230				165	0						0		0
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

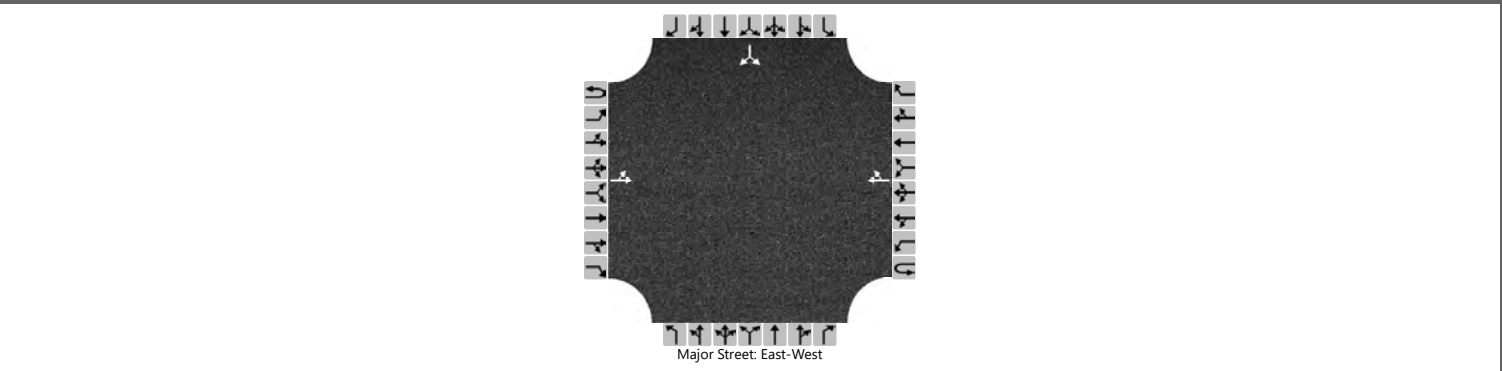
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													0	
Capacity, c (veh/h)		1390													0	
v/c Ratio		0.00														
95% Queue Length, Q <sub>95</sub> (veh)		0.0														
Control Delay (s/veh)		7.6	0.0													
Level of Service (LOS)		A	A													
Approach Delay (s/veh)		0.0														
Approach LOS		A														

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 Speedway		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	I-90 Expressway		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		0	165				260	0						0		0
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

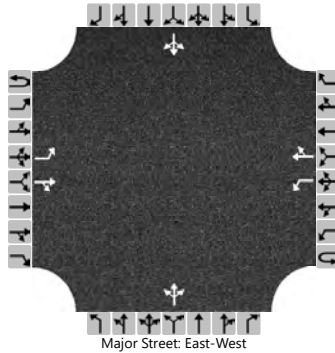
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													0	
Capacity, c (veh/h)		1274													0	
v/c Ratio		0.00														
95% Queue Length, Q <sub>95</sub> (veh)		0.0														
Control Delay (s/veh)		7.8	0.0													
Level of Service (LOS)		A	A													
Approach Delay (s/veh)		0.0														
Approach LOS		A														

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 463rd Ave / Western Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	463rd Ave / Western Ave		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		9	180	80		60	110	30		65	75	90		40	80	5
Percent Heavy Vehicles (%)		3				3				14	2	6		0	7	33
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.24	6.52	6.26		7.10	6.57	6.53
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.63	4.02	3.35		3.50	4.06	3.60

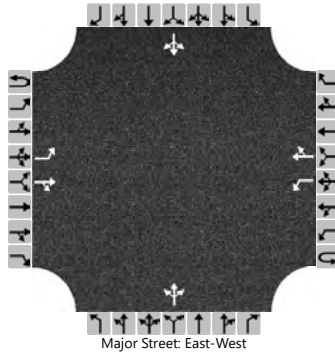
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				65					250					136	
Capacity, c (veh/h)		1422				1274					463					376	
v/c Ratio		0.01				0.05					0.54					0.36	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.2					3.2					1.6	
Control Delay (s/veh)		7.5				8.0					21.5					19.9	
Level of Service (LOS)		A				A					C					C	
Approach Delay (s/veh)		0.3				2.4				21.5				19.9			
Approach LOS		A				A				C				C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 463rd Ave / Western Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	463rd Ave / Western Ave		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0	
Configuration		L		TR		L		TR			LTR				LTR		
Volume (veh/h)		15	125	55		120	200	60		70	85	155		55	100	25	
Percent Heavy Vehicles (%)		22				3				0	11	4		0	4	0	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized																	
Median Type   Storage	Undivided																

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.32				4.13				7.10	6.61	6.24		7.10	6.54	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.40				2.23				3.50	4.10	3.34		3.50	4.04	3.30

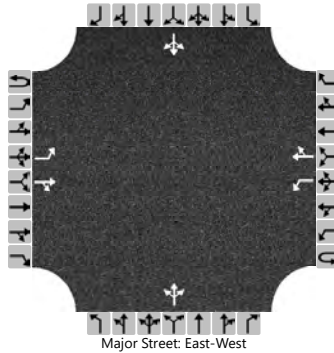
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		16				130					337				196		
Capacity, c (veh/h)		1173				1371					378				268		
v/c Ratio		0.01				0.10					0.89				0.73		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.3					9.0				5.2		
Control Delay (s/veh)		8.1				7.9					56.5				47.6		
Level of Service (LOS)		A				A					F				E		
Approach Delay (s/veh)		0.6				2.5				56.5				47.6			
Approach LOS		A				A				F				E			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Main Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	Main Ave (9th St)		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		2	260	30		40	195	20		40	5	85		6	10	4
Percent Heavy Vehicles (%)		0				11				5	0	2		0	17	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1					7.1	6.5	6.2			7.1	6.5	6.2
Critical Headway (sec)		4.10				4.21					7.15	6.50	6.22			7.10	6.67	6.20
Base Follow-Up Headway (sec)		2.2				2.2					3.5	4.0	3.3			3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.30					3.55	4.00	3.32			3.50	4.15	3.30

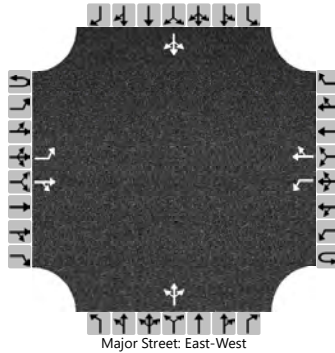
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				43						141					22	
Capacity, c (veh/h)		1346				1196						555					403	
v/c Ratio		0.00				0.04						0.25					0.05	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.1						1.0					0.2	
Control Delay (s/veh)		7.7				8.1						13.7					14.4	
Level of Service (LOS)		A				A						B					B	
Approach Delay (s/veh)		0.1				1.3				13.7				14.4				
Approach LOS		A				A				B				B				

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Main Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	Main Ave (9th St)		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		10	250	45		65	335	60		35	20	55		40	30	7
Percent Heavy Vehicles (%)		0				0				5	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.15	6.50	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.55	4.00	3.30		3.50	4.00	3.30

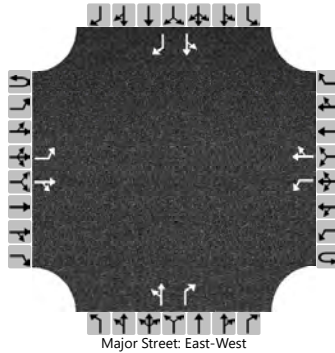
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				71					120					84	
Capacity, c (veh/h)		1141				1251					366					258	
v/c Ratio		0.01				0.06					0.33					0.32	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.2					1.4					1.4	
Control Delay (s/veh)		8.2				8.1					19.5					25.5	
Level of Service (LOS)		A				A					C					D	
Approach Delay (s/veh)		0.3				1.1				19.5				25.5			
Approach LOS		A				A				C				D			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Vandemark Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	Vandemark Avenue		
Time Analyzed	AM			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	1	1	0	0	1	1	0		0	1	1		0	1	1	
Configuration		L		TR		L		TR		LT		R		LT		R	
Volume (veh/h)		25	370	10		8	240	25		9	5	10		40	2	25	
Percent Heavy Vehicles (%)		0				0				40	0	0		0	0	7	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized										No				No			
Median Type   Storage	Undivided																

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.50	6.50	6.20		7.10	6.50	6.27
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.86	4.00	3.30		3.50	4.00	3.36

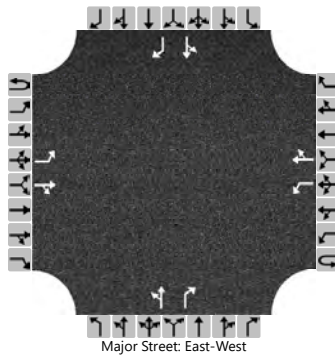
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		27				9				15		11		46		27	
Capacity, c (veh/h)		1286				1157				286		648		310		752	
v/c Ratio		0.02				0.01				0.05		0.02		0.15		0.04	
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.0				0.2		0.1		0.5		0.1	
Control Delay (s/veh)		7.9				8.1				18.3		10.7		18.6		10.0	
Level of Service (LOS)		A				A				C		B		C		A	
Approach Delay (s/veh)		0.5				0.2				15.1				15.4			
Approach LOS		A				A				C				C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Vandemark Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	Vandemark Avenue		
Time Analyzed	PM			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	0		0	1	1		0	1	1
Configuration		L		TR		L		TR		LT		R		LT		R
Volume (veh/h)		20	255	4		5	475	45		0	0	9		30	0	25
Percent Heavy Vehicles (%)		0				0				0	0	100		0	0	7
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized									No				No			
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	7.20		7.10	6.50	6.27
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	4.20		3.50	4.00	3.36

## Delay, Queue Length, and Level of Service

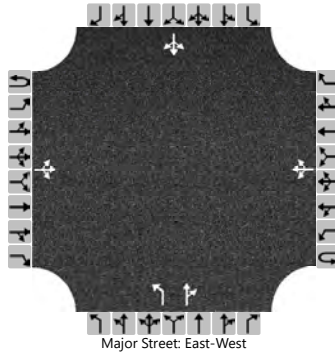
Flow Rate, v (veh/h)		22				5				0		10		33		27
Capacity, c (veh/h)		1017				1293				0		574		262		532
v/c Ratio		0.02				0.00						0.02		0.12		0.05
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.0						0.1		0.4		0.2
Control Delay (s/veh)		8.6				7.8						11.4		20.7		12.1
Level of Service (LOS)		A				A						B		C		B
Approach Delay (s/veh)		0.6				0.1					16.8					
Approach LOS		A				A					C					



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 2nd St		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	2nd St		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		1	1	0		0	1	0
Configuration			LTR				LTR			L		TR			LTR	
Volume (veh/h)		20	325	10		95	200	15		5	20	155		35	50	25
Percent Heavy Vehicles (%)		10				16				33	8	5		0	4	8
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.20				4.26				7.43	6.58	6.25		7.10	6.54	6.28
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.29				2.34				3.80	4.07	3.35		3.50	4.04	3.37

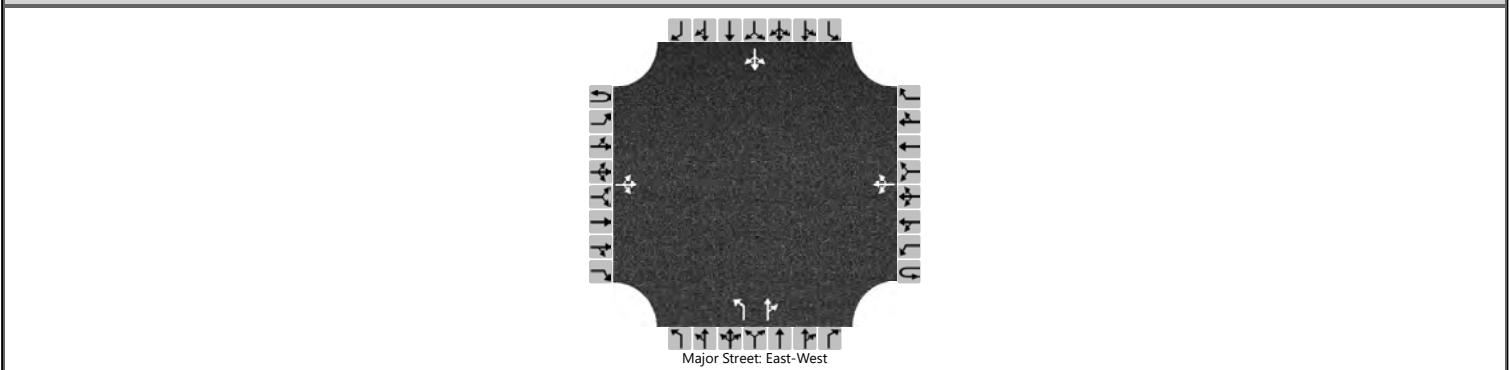
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		22				103				5		190			120	
Capacity, c (veh/h)		1263				1121				169		568			255	
v/c Ratio		0.02				0.09				0.03		0.33			0.47	
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.3				0.1		1.5			2.3	
Control Delay (s/veh)		7.9	0.2	0.2		8.5	0.9	0.9		27.0		14.5			31.1	
Level of Service (LOS)		A	A	A		A	A	A		D		B			D	
Approach Delay (s/veh)		0.6				3.2				14.8				31.1		
Approach LOS		A				A				B				D		

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 2nd St		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	2nd St		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		1	1	0		0	1	0
Configuration			LTR				LTR			L		TR			LTR	
Volume (veh/h)		25	235	9		130	490	25		15	25	65		15	30	20
Percent Heavy Vehicles (%)		0				0				0	0	6		0	6	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.26		7.10	6.56	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.35		3.50	4.05	3.30

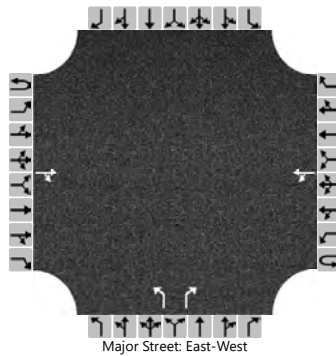
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		27				141				16		98			71	
Capacity, c (veh/h)		1001				1310				114		370			177	
v/c Ratio		0.03				0.11				0.14		0.26			0.40	
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.4				0.5		1.0			1.8	
Control Delay (s/veh)		8.7	0.3	0.3		8.1	1.3	1.3		41.7		18.2			38.3	
Level of Service (LOS)		A	A	A		A	A	A		E		C			E	
Approach Delay (s/veh)		1.1				2.6				21.6				38.3		
Approach LOS		A				A				C				E		

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & West Central HS Entrance		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	West Central HS Entrance		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			425	90		55	285			35		50				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized									No							
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

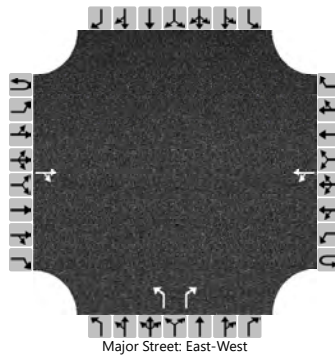
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					60					38		54				
Capacity, c (veh/h)					1021					274		567				
v/c Ratio					0.06					0.14		0.10				
95% Queue Length, Q <sub>95</sub> (veh)					0.2					0.5		0.3				
Control Delay (s/veh)					8.7	0.6				20.2		12.0				
Level of Service (LOS)					A	A				C		B				
Approach Delay (s/veh)					1.9				15.4							
Approach LOS					A				C							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & West Central HS Entrance		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	West Central HS Entrance		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0	
Configuration				TR		LT				L		R					
Volume (veh/h)			305	4		4	620			15		15					
Percent Heavy Vehicles (%)						0				0		0					
Proportion Time Blocked																	
Percent Grade (%)										0							
Right Turn Channelized										No							
Median Type   Storage	Undivided																

## Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

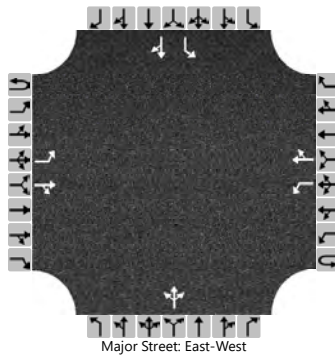
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					4					16		16				
Capacity, c (veh/h)					1235					264		713				
v/c Ratio					0.00					0.06		0.02				
95% Queue Length, Q <sub>95</sub> (veh)					0.0					0.2		0.1				
Control Delay (s/veh)					7.9	0.0				19.5		10.2				
Level of Service (LOS)					A	A				C		B				
Approach Delay (s/veh)					0.1				14.8							
Approach LOS					A				B							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Railroad Street		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	Railroad St		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0	
Configuration		L		TR		L		TR			LTR			L		TR	
Volume (veh/h)		4	465	0		15	270	95		2	0	30		145	4	5	
Percent Heavy Vehicles (%)		0				0				0	0	15		0	0	0	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized																	
Median Type   Storage	Undivided																

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.35		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.44		3.50	4.00	3.30

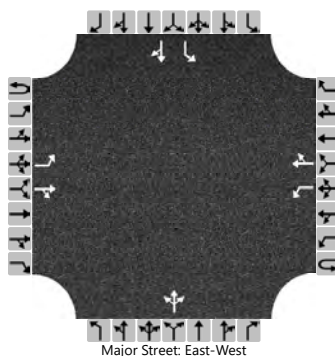
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4				16					35				158		10
Capacity, c (veh/h)		1173				1070					511				244		419
v/c Ratio		0.00				0.02					0.07				0.65		0.02
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.2				4.0		0.1
Control Delay (s/veh)		8.1				8.4					12.6				43.1		13.8
Level of Service (LOS)		A				A					B				E		B
Approach Delay (s/veh)		0.1				0.3				12.6				41.4			
Approach LOS		A				A				B				E			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & Railroad Street		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	Railroad St		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0	
Configuration		L		TR		L		TR			LTR			L		TR	
Volume (veh/h)		4	340	4		15	560	155		2	2	15		85	9	5	
Percent Heavy Vehicles (%)		0				40				0	0	15		5	0	0	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized																	
Median Type   Storage	Undivided																

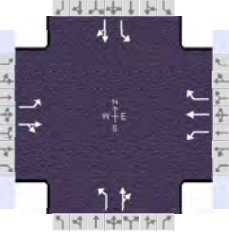
## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.50				7.10	6.50	6.35		7.15	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.56				3.50	4.00	3.44		3.55	4.00	3.30

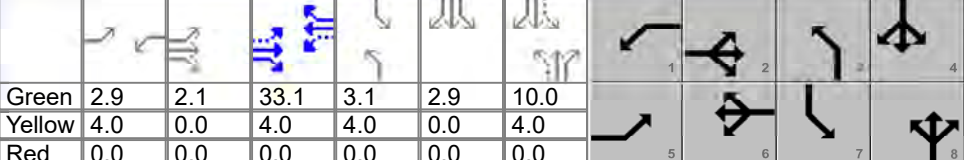
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4				16					21			92		15	
Capacity, c (veh/h)		848				1004					431			175		256	
v/c Ratio		0.01				0.02					0.05			0.53		0.06	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.2			2.7		0.2	
Control Delay (s/veh)		9.3				8.6					13.8			46.5		19.9	
Level of Service (LOS)		A				A					B			E		C	
Approach Delay (s/veh)		0.1				0.2				13.8				42.7			
Approach LOS		A				A				B				E			

## HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	HRG			Duration, h	0.250	
Analyst	NM	Analysis Date	May 8, 2023	Area Type	Other	
Jurisdiction	SDDOT	Time Period	AM Peak	PHF	0.92	
Urban Street	SD 38	Analysis Year	2050	Analysis Period	1 > 7:15	
Intersection	SD 38 & Mickelson Roa...	File Name	(10) SD38&Mickelson_AM.xus			
Project Description						

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand ( v ), veh/h	135	445	35	40	195	190	45	55	65	215	20	195

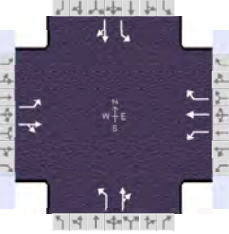
Signal Information																		
Cycle, s	70.0	Reference Phase	2	Green	2.9	2.1	33.1	3.1	2.9	10.0	Yellow	4.0	0.0	4.0	4.0	0.0	4.0	
Offset, s	0	Reference Point	End	Red	0.0	0.0	0.0	0.0	0.0	0.0	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	4.0	1.1	4.0
Phase Duration, s	8.9	39.1	6.9	37.1	7.1	14.0	10.0	16.9
Change Period, ( Y+R <sub>c</sub> ), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway ( MAH ), s	3.1	0.0	3.1	0.0	3.1	3.3	3.1	3.3
Queue Clearance Time ( g <sub>s</sub> ), s	5.0		2.9		3.7	7.3	8.0	12.3
Green Extension Time ( g <sub>e</sub> ), s	0.2	0.0	0.0	0.0	0.0	0.6	0.0	0.6
Phase Call Probability	0.94		0.57		0.61	1.00	0.99	1.00
Max Out Probability	0.00		0.00		1.00	0.00	1.00	0.01

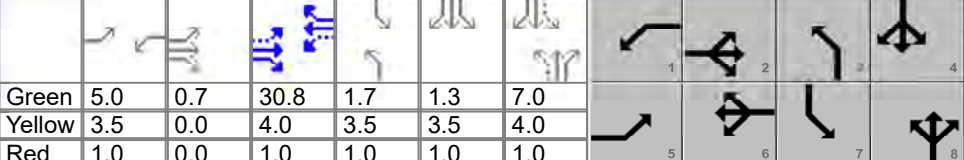
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( v ), veh/h	147	522		43	212	207	49	130		234	234	
Adjusted Saturation Flow Rate ( s ), veh/h/ln	1688	1749		1688	1772	1323	1688	1615		1688	1523	
Queue Service Time ( g <sub>s</sub> ), s	3.0	14.8		0.9	5.0	6.8	1.7	5.3		6.0	10.3	
Cycle Queue Clearance Time ( g <sub>c</sub> ), s	3.0	14.8		0.9	5.0	6.8	1.7	5.3		6.0	10.3	
Green Ratio ( g/C )	0.54	0.50		0.51	0.47	0.47	0.19	0.14		0.24	0.18	
Capacity ( c ), veh/h	690	878		402	837	625	187	231		333	282	
Volume-to-Capacity Ratio ( X )	0.213	0.594		0.108	0.253	0.330	0.262	0.565		0.702	0.830	
Back of Queue ( Q ), ft/ln ( 95 th percentile)												
Back of Queue ( Q ), veh/ln ( 95 th percentile)	1.7	9.5		0.5	3.4	3.6	1.2	3.5		2.5	6.7	
Queue Storage Ratio ( RQ ) ( 95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay ( d <sub>1</sub> ), s/veh	8.2	12.4		10.1	11.1	11.5	24.5	28.0		25.5	27.5	
Incremental Delay ( d <sub>2</sub> ), s/veh	0.1	3.0		0.0	0.7	1.4	0.3	0.8		5.5	2.4	
Initial Queue Delay ( d <sub>3</sub> ), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay ( d ), s/veh	8.2	15.3		10.2	11.8	13.0	24.8	28.8		31.1	29.9	
Level of Service ( LOS )	A	B		B	B	B	C	C		C	C	
Approach Delay, s/veh / LOS	13.8		B	12.2		B	27.7		C	30.5		C
Intersection Delay, s/veh / LOS	19.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.88	B	1.89	B	2.12	B	1.92	B
Bicycle LOS Score / LOS	1.59	B	1.25	A	0.78	A	1.26	A

## HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	HRG			Duration, h	0.250	
Analyst	NM	Analysis Date	May 8, 2023	Area Type	Other	
Jurisdiction	SDDOT	Time Period	AM Peak	PHF	0.92	
Urban Street	SD 38	Analysis Year	2050	Analysis Period	1 > 7:15	
Intersection	SD 38 & Mickelson Roa...	File Name	(10) SD38&Mickelson_PM.xus			
Project Description						

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( $v$ ), veh/h	160	220	20	135	535	225	20	65	10	215	15	185

Signal Information												
Cycle, s	70.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	5.0	0.7	30.8	1.7	1.3	7.0						
Yellow	3.5	0.0	4.0	3.5	3.5	4.0						
Red	1.0	0.0	1.0	1.0	1.0	1.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	4.0	1.1	4.0
Phase Duration, s	10.2	36.5	9.5	35.8	6.2	12.0	12.0	17.8
Change Period, ( $Y+R_c$ ), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0
Max Allow Headway ( $MAH$ ), s	3.1	0.0	3.1	0.0	3.1	3.3	3.1	3.3
Queue Clearance Time ( $g_s$ ), s	5.8		5.3		2.8	5.1	9.5	11.6
Green Extension Time ( $g_e$ ), s	0.1	0.0	0.1	0.0	0.0	0.3	0.0	0.2
Phase Call Probability	0.97		0.94		0.34	1.00	0.99	1.00
Max Out Probability	1.00		1.00		1.00	0.63	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( $v$ ), veh/h	174	261		147	582	245	22	82		234	217	
Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln	1688	1746		1688	1772	1323	1688	1730		1688	1519	
Queue Service Time ( $g_s$ ), s	3.8	6.8		3.3	19.2	8.9	0.8	3.1		7.5	9.6	
Cycle Queue Clearance Time ( $g_c$ ), s	3.8	6.8		3.3	19.2	8.9	0.8	3.1		7.5	9.6	
Green Ratio ( $g/C$ )	0.52	0.45		0.51	0.44	0.44	0.12	0.10		0.24	0.18	
Capacity ( $c$ ), veh/h	379	786		587	779	582	164	173		356	277	
Volume-to-Capacity Ratio ( $X$ )	0.459	0.332		0.250	0.746	0.420	0.132	0.472		0.656	0.785	
Back of Queue ( $Q$ ), ft/ln ( 95 th percentile)												
Back of Queue ( $Q$ ), veh/ln ( 95 th percentile)	2.2	4.6		1.9	12.8	4.8	0.6	2.3		6.3	7.1	
Queue Storage Ratio ( $RQ$ ) ( 95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay ( $d_1$ ), s/veh	12.2	12.4		9.7	16.3	13.5	27.4	29.8		24.6	27.3	
Incremental Delay ( $d_2$ ), s/veh	0.3	1.1		0.1	6.4	2.2	0.1	0.7		3.4	8.9	
Initial Queue Delay ( $d_3$ ), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay ( $d$ ), s/veh	12.6	13.6		9.8	22.8	15.7	27.6	30.5		28.0	36.2	
Level of Service (LOS)	B	B		A	C	B	C	C		C	D	
Approach Delay, s/veh / LOS	13.2		B	19.0		B	29.9		C	32.0		C
Intersection Delay, s/veh / LOS	21.3						C					

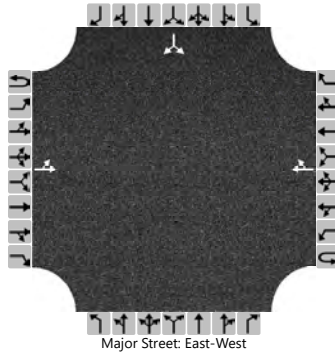
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.89	B	1.89	B	2.12	B	1.92	B
Bicycle LOS Score / LOS	1.20	A	2.09	B	0.66	A	1.23	A



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD38 & 466th Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	466th Ave		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		2	765				430	5						4		0
Percent Heavy Vehicles (%)		0												50		3
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

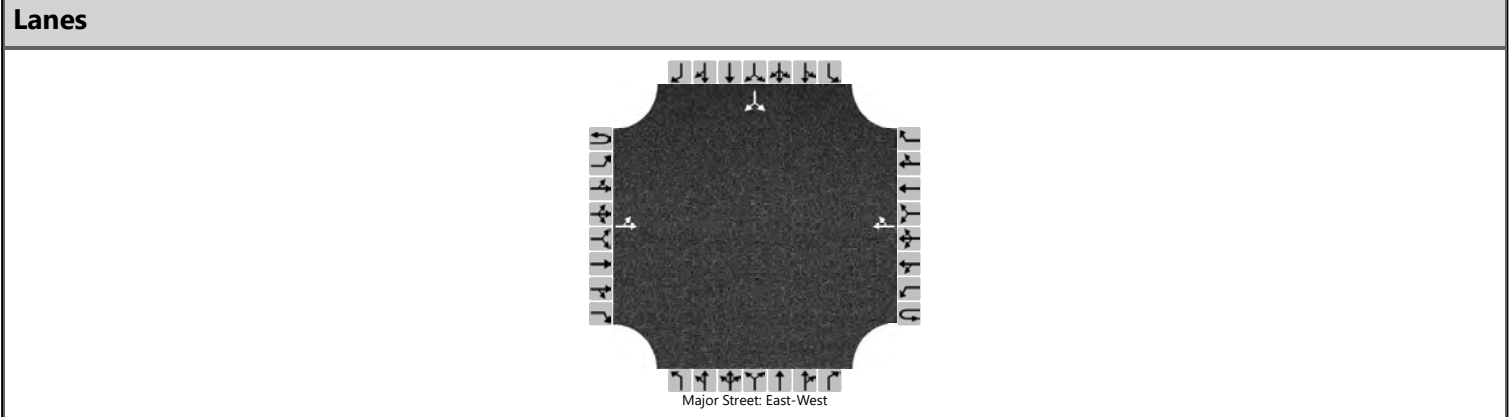
Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.90		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.95		3.33

## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2													4	
Capacity, c (veh/h)		1100													140	
v/c Ratio		0.00													0.03	
95% Queue Length, Q <sub>95</sub> (veh)		0.0													0.1	
Control Delay (s/veh)		8.3	0.0												31.6	
Level of Service (LOS)		A	A												D	
Approach Delay (s/veh)	0.1												31.6			
Approach LOS	A												D			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD38 & 466th Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	466th Ave		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		0	445				910	2						5		2
Percent Heavy Vehicles (%)		0												33		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.73		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.80		3.30

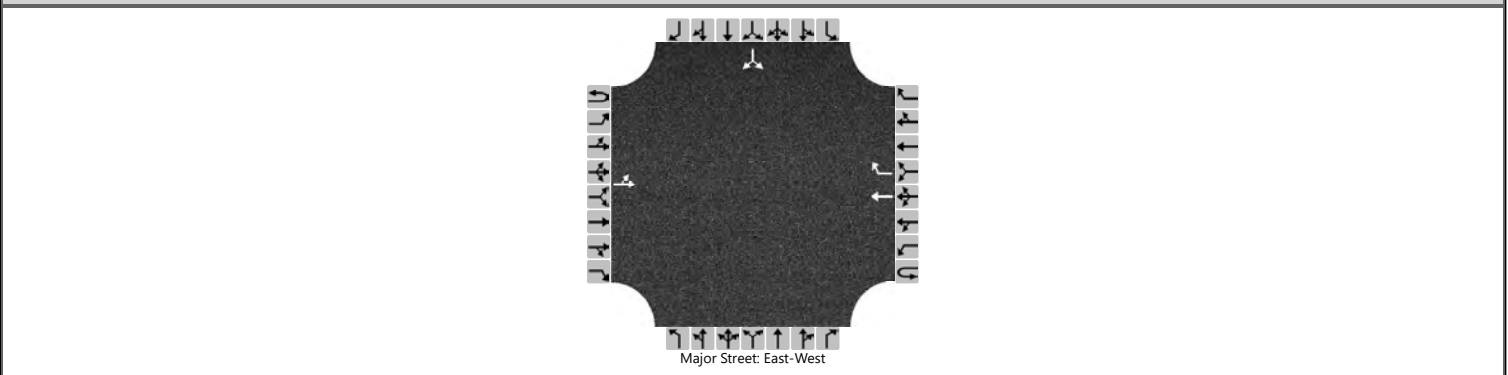
**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		0													8		
Capacity, c (veh/h)		705													144		
v/c Ratio		0.00													0.05		
95% Queue Length, Q <sub>95</sub> (veh)		0.0													0.2		
Control Delay (s/veh)		10.1	0.0												31.4		
Level of Service (LOS)		B	A												D		
Approach Delay (s/veh)		0.0												31.4			
Approach LOS		A												D			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 WB Terminal		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	I-90 WB Terminal		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	1		0	0	0		0	1	0
Configuration		LT					T	R							LR	
Volume (veh/h)		40	730				255	20						15		190
Percent Heavy Vehicles (%)		0												56		12
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized							No									
Median Type   Storage							Undivided									

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.96		6.32
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												4.00		3.41

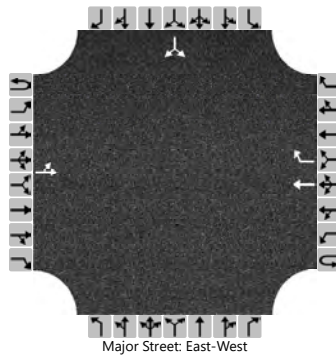
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		43														223	
Capacity, c (veh/h)		1274														584	
v/c Ratio		0.03														0.38	
95% Queue Length, Q <sub>95</sub> (veh)		0.1														1.8	
Control Delay (s/veh)		7.9	0.5													14.9	
Level of Service (LOS)		A	A													B	
Approach Delay (s/veh)		0.9												14.9			
Approach LOS		A												B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 WB Terminal		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	I-90 WB Terminal		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	1		0	0	0		0	1	0
Configuration		LT					T	R							LR	
Volume (veh/h)		25	420				415	35						30		495
Percent Heavy Vehicles (%)		0												6		2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized					No											
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.46		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.55		3.32

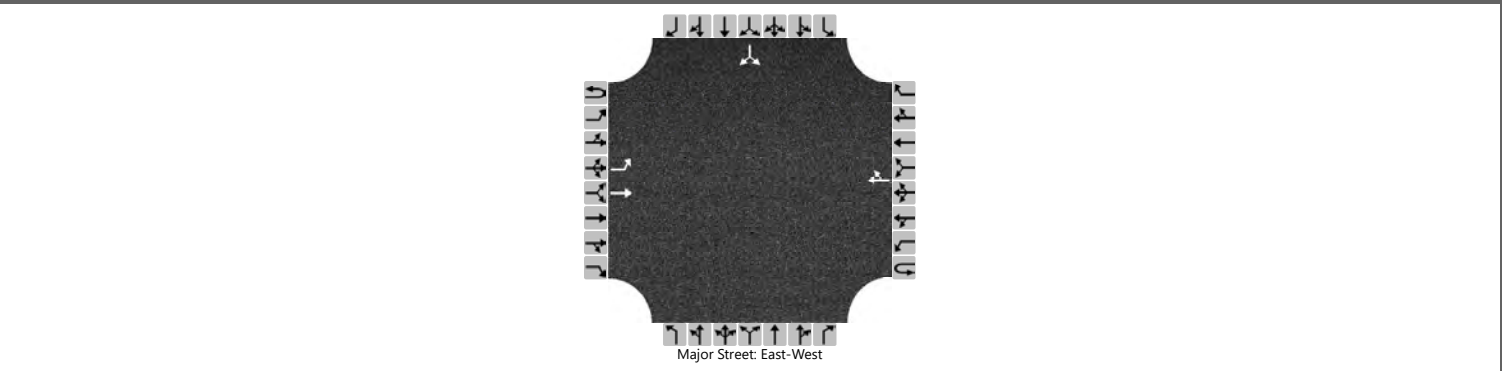
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		27													571	
Capacity, c (veh/h)		1085													568	
v/c Ratio		0.03													1.01	
95% Queue Length, Q <sub>95</sub> (veh)		0.1													14.8	
Control Delay (s/veh)		8.4	0.3												66.1	
Level of Service (LOS)		A	A												F	
Approach Delay (s/veh)	0.7												66.1			
Approach LOS	A												F			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 EB Ramp Terminal		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	I-90 EB Ramp Terminal		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		430	315				245	20						5		30
Percent Heavy Vehicles (%)		1												33		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.11												6.73		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.21												3.80		3.33

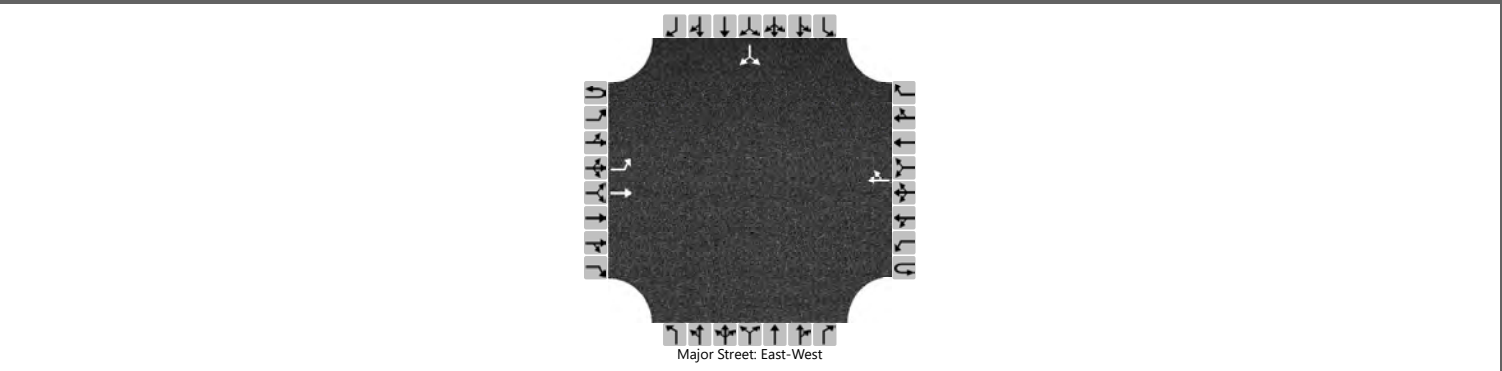
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		467														38	
Capacity, c (veh/h)		1280														307	
v/c Ratio		0.37														0.12	
95% Queue Length, Q <sub>95</sub> (veh)		1.7														0.4	
Control Delay (s/veh)		9.4														18.4	
Level of Service (LOS)		A														C	
Approach Delay (s/veh)		5.4												18.4			
Approach LOS		A												C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & I-90 EB Ramp Terminal		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	I-90 EB Ramp Terminal		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		190	265				420	30						40		35
Percent Heavy Vehicles (%)		12												36		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.22												6.76		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.31												3.82		3.33

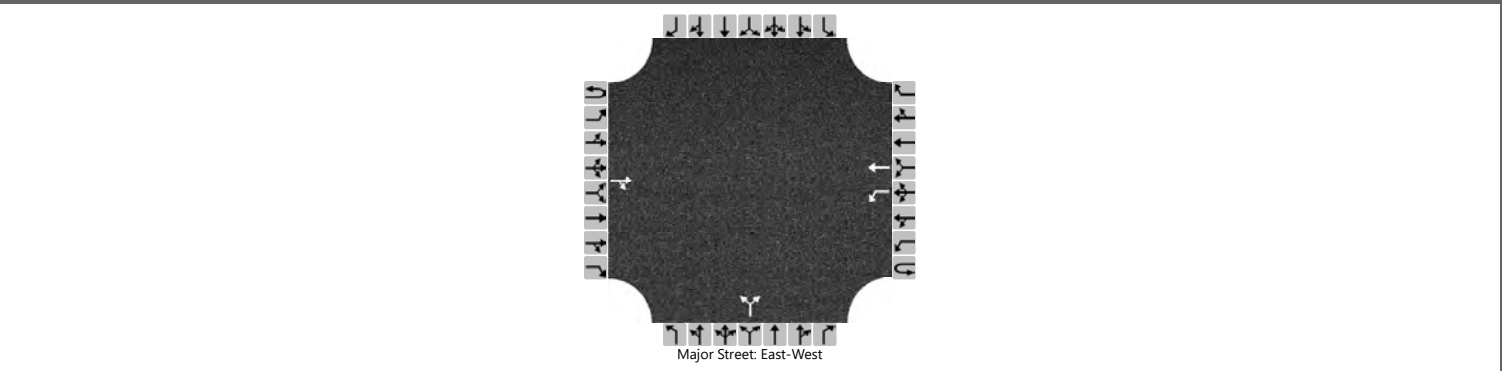
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		207														82	
Capacity, c (veh/h)		1024														224	
v/c Ratio		0.20														0.36	
95% Queue Length, Q <sub>95</sub> (veh)		0.8														1.6	
Control Delay (s/veh)		9.4														30.0	
Level of Service (LOS)		A														D	
Approach Delay (s/veh)		3.9												30.0			
Approach LOS		A												D			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 466th Ave (South)		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	466th Ave (South)		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			305	20		20	240			25		20				
Percent Heavy Vehicles (%)						20				33		60				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.30					6.73		6.80			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.38					3.80		3.84			

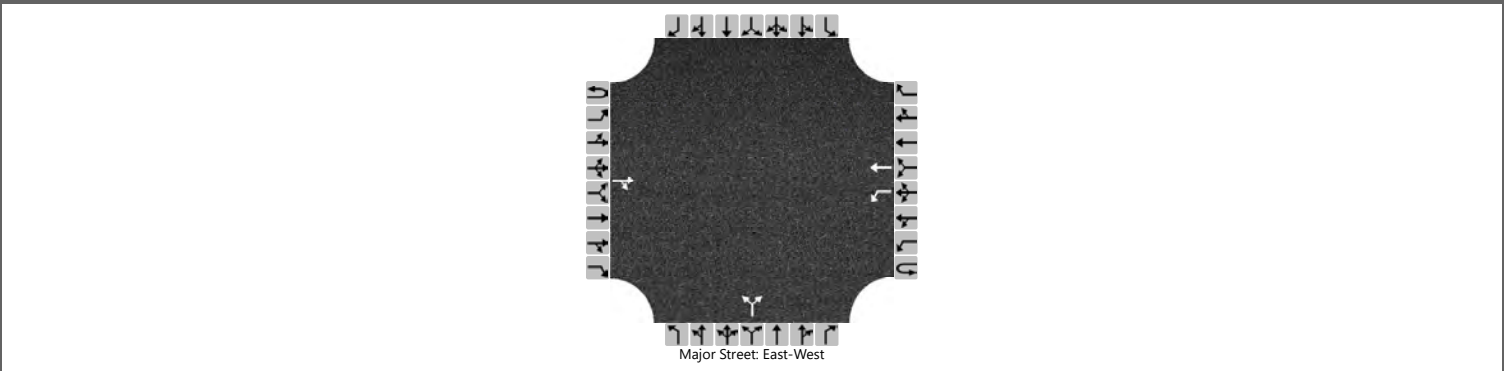
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						22						49				
Capacity, c (veh/h)						1112						453				
v/c Ratio						0.02						0.11				
95% Queue Length, Q <sub>95</sub> (veh)						0.1						0.4				
Control Delay (s/veh)						8.3						13.9				
Level of Service (LOS)						A						B				
Approach Delay (s/veh)					0.6				13.9							
Approach LOS					A				B							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 466th Ave (South)		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	466th Ave (South)		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			280	20		15	405			45		25				
Percent Heavy Vehicles (%)						11				20		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.21					6.60		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.30					3.68		3.30			

## Delay, Queue Length, and Level of Service

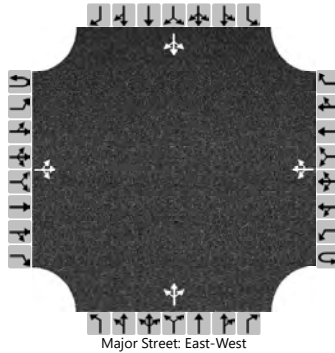
Flow Rate, v (veh/h)						16						76				
Capacity, c (veh/h)						1185						412				
v/c Ratio						0.01						0.18				
95% Queue Length, Q <sub>95</sub> (veh)						0.0						0.7				
Control Delay (s/veh)						8.1						15.7				
Level of Service (LOS)						A						C				
Approach Delay (s/veh)						0.3						15.7				
Approach LOS						A						C				



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 468th Avenue		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	468th Ave / County Highway 141		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		4	360	0		0	225	50		2	2	0		50	0	7
Percent Heavy Vehicles (%)		0				0				0	100	0		4	0	50
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	7.50	6.20		7.14	6.50	6.70
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.90	3.30		3.54	4.00	3.75

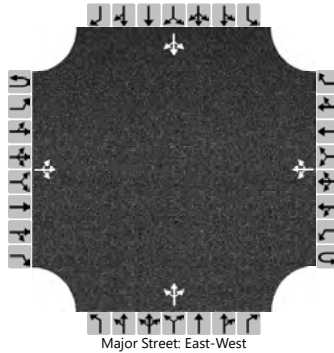
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4				0				4					62	
Capacity, c (veh/h)		1274				1178				313					383	
v/c Ratio		0.00				0.00				0.01					0.16	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0				0.0					0.6	
Control Delay (s/veh)		7.8	0.0	0.0		8.1	0.0	0.0		16.7					16.2	
Level of Service (LOS)		A	A	A		A	A	A		C					C	
Approach Delay (s/veh)	0.1				0.0				16.7				16.2			
Approach LOS	A				A				C				C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 468th Avenue		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	468th Ave / County Highway 141		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	310	2		5	420	55		2	2	0		50	4	4
Percent Heavy Vehicles (%)		0				0				0	0	0		4	100	50
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.20		7.14	7.50	6.70
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.54	4.90	3.75

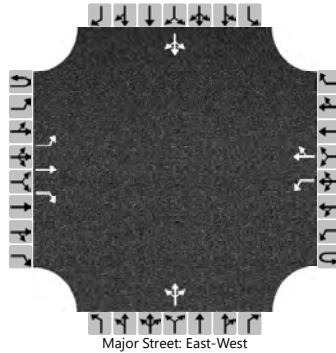
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				5					4					63
Capacity, c (veh/h)		1060				1231					292					283
v/c Ratio		0.00				0.00					0.01					0.22
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.0					0.8
Control Delay (s/veh)		8.4	0.0	0.0		7.9	0.0	0.0			17.5					21.3
Level of Service (LOS)		A	A	A		A	A	A			C					C
Approach Delay (s/veh)		0.0				0.1				17.5				21.3		
Approach LOS		A				A				C				C		

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 469th Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	469th Ave / Co Hwy 139		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	1	0	1	1	0		0	1	0		0	1	0
Configuration		L	T	R		L		TR			LTR				LTR	
Volume (veh/h)		5	330	75		75	165	5		110	5	280		15	5	5
Percent Heavy Vehicles (%)		3				5				13	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No															
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.15				7.23	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.25				3.62	4.03	3.33		3.53	4.03	3.33

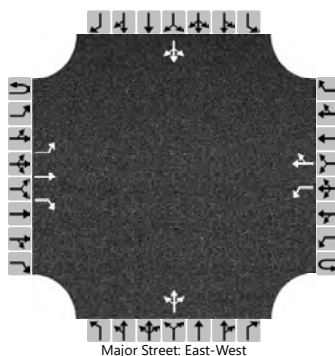
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5				82					429				27		
Capacity, c (veh/h)		1384				1104					498				228		
v/c Ratio		0.00				0.07					0.86				0.12		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.2					9.1				0.4		
Control Delay (s/veh)		7.6				8.5					42.5				22.9		
Level of Service (LOS)		A				A					E				C		
Approach Delay (s/veh)		0.1				2.6				42.5				22.9			
Approach LOS		A				A				E				C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & 469th Ave		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	469th Ave / Co Hwy 139		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	1	0	1	1	0		0	1	0		0	1	0
Configuration		L	T	R		L		TR			LTR				LTR	
Volume (veh/h)		5	245	120		285	380	5		100	5	120		20	5	10
Percent Heavy Vehicles (%)		3				5				2	3	15		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No															
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.15				7.12	6.53	6.35		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.25				3.52	4.03	3.44		3.53	4.03	3.33

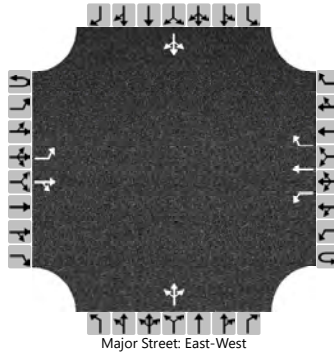
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5				310					245					38
Capacity, c (veh/h)		1135				1146					175					107
v/c Ratio		0.00				0.27					1.40					0.35
95% Queue Length, Q <sub>95</sub> (veh)		0.0				1.1					14.9					1.4
Control Delay (s/veh)		8.2				9.3					259.5					55.9
Level of Service (LOS)		A				A					F					F
Approach Delay (s/veh)		0.1				4.0				259.5				55.9		
Approach LOS		A				A				F				F		

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & La Mesa		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	La Mesa		
Time Analyzed	AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	1	1	1		0	1	0		0	1	0
Configuration		L		TR		L	T	R			LTR				LTR	
Volume (veh/h)		30	700	4		0	235	15		0	15	5		75	4	30
Percent Heavy Vehicles (%)		0				0				0	13	0		0	50	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized					No											
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

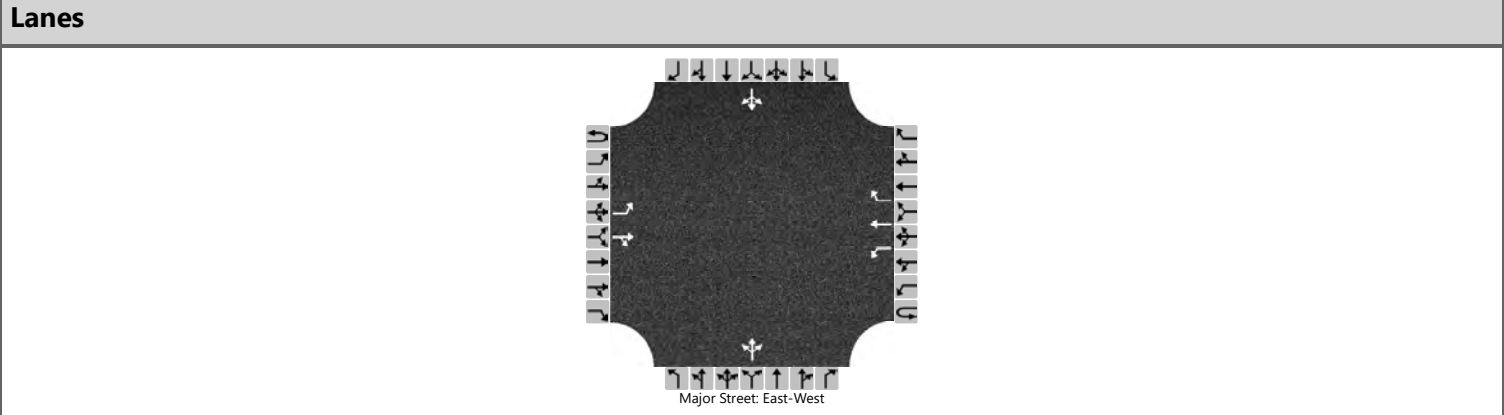
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.63	6.20		7.10	7.00	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.12	3.30		3.50	4.45	3.30

## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		33				0				22				118		
Capacity, c (veh/h)		1303				857				227				219		
v/c Ratio		0.03				0.00				0.10				0.54		
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.0				0.3				2.9		
Control Delay (s/veh)		7.8				9.2				22.5				39.2		
Level of Service (LOS)		A				A				C				E		
Approach Delay (s/veh)	0.3				0.0				22.5				39.2			
Approach LOS	A				A				C				E			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	NM			Intersection	SD 38 & La Mesa		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	5/8/2023			East/West Street	SD 38		
Analysis Year	2050			North/South Street	La Mesa		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	1	1	0	0	1	1	1		0	1	0		0	1	0	
Configuration		L		TR		L	T	R			LTR				LTR		
Volume (veh/h)		25	325	0		9	735	100		4	5	0		80	15	30	
Percent Heavy Vehicles (%)		0				0				0	0	0		9	0	0	
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized						No											
Median Type   Storage		Undivided															

**Critical and Follow-up Headways**

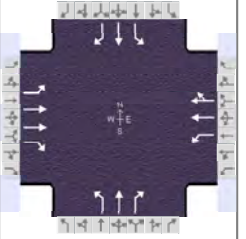
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.20		7.19	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.58	4.00	3.30

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		27				10					10					136	
Capacity, c (veh/h)		758				1217					136					168	
v/c Ratio		0.04				0.01					0.07					0.81	
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.0					0.2					5.4	
Control Delay (s/veh)		9.9				8.0					33.5					81.5	
Level of Service (LOS)		A				A					D					F	
Approach Delay (s/veh)		0.7				0.1				33.5				81.5			
Approach LOS		A				A				D				F			

## HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	HRG			Duration, h	0.250		
Analyst	NM	Analysis Date	May 8, 2023		Area Type	Other	
Jurisdiction	SDDOT	Time Period	AM Peak		PHF	0.92	
Urban Street	SD 38	Analysis Year	2050		Analysis Period	1 > 7:15	
Intersection	SD 38 & Marion Street	File Name	(18) SD38&Marion_AM.xus				
Project Description							



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( v ), veh/h	165	340	105	50	125	75	110	225	120	45	145	40

Signal Information				Phase Diagrams											
Cycle, s	50.0	Reference Phase	2												
Offset, s	0	Reference Point	End	Green	2.6	3.9	12.9	2.5	2.0	10.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	0.0	4.0	4.0	0.0	4.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	0.0	0.0	0.0	0.0					

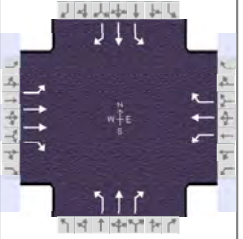
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	1.1	4.0	2.0	3.0	2.0	3.0
Phase Duration, s	10.6	20.8	6.6	16.9	8.5	16.0	6.5	14.0
Change Period, ( Y+R <sub>c</sub> ), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway ( MAH ), s	2.9	0.0	2.9	0.0	2.9	2.9	2.9	2.9
Queue Clearance Time ( g <sub>s</sub> ), s	7.1		3.1		5.6	8.5	3.5	5.9
Green Extension Time ( g <sub>e</sub> ), s	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.6
Phase Call Probability	0.92		0.53		0.81	1.00	0.49	1.00
Max Out Probability	1.00		0.04		1.00	0.21	1.00	0.15

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( v ), veh/h	179	370	114	54	112	106	120	245	130	49	158	43
Adjusted Saturation Flow Rate ( s ), veh/h/ln	1701	1674	1525	1714	1772	1556	1647	1674	1502	1554	1758	1466
Queue Service Time ( g <sub>s</sub> ), s	5.1	4.1	2.7	1.1	2.5	2.7	3.6	6.5	3.6	1.5	3.9	1.2
Cycle Queue Clearance Time ( g <sub>c</sub> ), s	5.1	4.1	2.7	1.1	2.5	2.7	3.6	6.5	3.6	1.5	3.9	1.2
Green Ratio ( g/C )	0.13	0.34	0.34	0.31	0.26	0.26	0.09	0.24	0.24	0.05	0.20	0.20
Capacity ( c ), veh/h	223	1128	514	456	459	403	148	403	361	77	352	293
Volume-to-Capacity Ratio ( X )	0.804	0.328	0.222	0.119	0.243	0.263	0.806	0.607	0.361	0.638	0.448	0.148
Back of Queue ( Q ), ft/ln ( 95 th percentile)												
Back of Queue ( Q ), veh/ln ( 95 th percentile)	4.1	2.2	1.4	0.6	1.6	1.6	3.2	3.5	1.7	1.0	2.3	0.6
Queue Storage Ratio ( RQ ) ( 95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay ( d <sub>1</sub> ), s/veh	21.1	12.4	11.9	12.3	14.7	14.7	22.3	16.9	15.8	23.3	17.6	16.5
Incremental Delay ( d <sub>2</sub> ), s/veh	11.0	0.8	1.0	0.0	1.3	1.6	15.9	0.8	0.2	3.3	0.3	0.1
Initial Queue Delay ( d <sub>3</sub> ), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay ( d ), s/veh	32.1	13.1	12.9	12.3	15.9	16.3	38.2	17.7	16.0	26.6	17.9	16.6
Level of Service ( LOS )	C	B	B	B	B	B	D	B	B	C	B	B
Approach Delay, s/veh / LOS	18.2		B	15.4		B	22.2		C	19.4		B
Intersection Delay, s/veh / LOS	19.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.08	B	2.09	B	2.26	B	2.42	B
Bicycle LOS Score / LOS	1.03	A	0.71	A	1.30	A	0.90	A

## HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	HRG			Duration, h	0.250		
Analyst	NM	Analysis Date	May 8, 2023		Area Type	Other	
Jurisdiction	SDDOT	Time Period	PM Peak		PHF	0.90	
Urban Street	SD 38	Analysis Year	2050		Analysis Period	1 > 16:45	
Intersection	SD 38 & Marion Street	File Name	(18) SD38&Marion_PM.xus				
Project Description							



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( v ), veh/h	70	230	105	170	355	55	180	205	125	85	355	205

Signal Information				Phase Timing (s)													
Cycle, s	60.0	Reference Phase	2	Green	3.7	0.4	13.3	4.2	2.8	15.5	Yellow	4.0	4.0	4.0	4.0	0.0	4.0
Offset, s	0	Reference Point	End	Red	0.0	0.0	0.0	0.0	0.0	0.0							
Uncoordinated	No	Simult. Gap E/W	On														
Force Mode	Fixed	Simult. Gap N/S	On														

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0
Phase Duration, s	7.7	17.3	12.2	21.7	11.0	22.3	8.2	19.5
Change Period, ( Y+R <sub>c</sub> ), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway ( MAH ), s	2.9	0.0	2.9	0.0	2.9	3.0	2.9	3.0
Queue Clearance Time ( g <sub>s</sub> ), s	5.1		8.5		9.0	8.1	5.3	14.7
Green Extension Time ( g <sub>e</sub> ), s	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.8
Phase Call Probability	0.73		0.96		0.96	1.00	0.79	1.00
Max Out Probability	0.55		1.00		1.00	0.03	1.00	0.89

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( v ), veh/h	78	256	117	189	394	61	200	228	139	94	394	228
Adjusted Saturation Flow Rate ( s ), veh/h/ln	1474	1660	1490	1688	1772	1406	1714	1772	1478	1688	1772	1478
Queue Service Time ( g <sub>s</sub> ), s	3.1	3.9	4.0	6.5	12.1	1.9	7.0	6.1	4.3	3.3	12.7	8.1
Cycle Queue Clearance Time ( g <sub>c</sub> ), s	3.1	3.9	4.0	6.5	12.1	1.9	7.0	6.1	4.3	3.3	12.7	8.1
Green Ratio ( g/C )	0.06	0.22	0.22	0.14	0.30	0.30	0.12	0.31	0.31	0.07	0.26	0.26
Capacity ( c ), veh/h	92	735	330	230	523	415	200	541	451	119	459	383
Volume-to-Capacity Ratio ( X )	0.845	0.347	0.354	0.822	0.754	0.147	1.000	0.421	0.308	0.797	0.859	0.595
Back of Queue ( Q ), ft/ln ( 95 th percentile)												
Back of Queue ( Q ), veh/ln ( 95 th percentile)	2.1	2.5	2.5	6.1	9.1	1.0	10.0	3.6	2.1	2.7	9.5	4.2
Queue Storage Ratio ( RQ ) ( 95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay ( d <sub>1</sub> ), s/veh	27.8	19.7	19.7	25.2	19.2	15.6	26.5	16.6	16.0	27.5	21.2	19.5
Incremental Delay ( d <sub>2</sub> ), s/veh	7.7	1.3	3.0	18.3	9.7	0.7	63.6	0.2	0.1	10.2	10.8	0.7
Initial Queue Delay ( d <sub>3</sub> ), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay ( d ), s/veh	35.6	21.0	22.7	43.5	28.9	16.3	90.1	16.8	16.1	37.7	31.9	20.2
Level of Service ( LOS )	D	C	C	D	C	B	F	B	B	D	C	C
Approach Delay, s/veh / LOS	23.9	C		32.0	C		42.5	D		29.0	C	
Intersection Delay, s/veh / LOS	32.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.10	B	2.26	B	2.27	B
Bicycle LOS Score / LOS	0.86	A	1.55	B	1.42	A	1.67	B



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2050 NB
Jurisdiction	SDDOT	Time Analyzed	AM PEAK
Project Description	EB SD38 Corridor Study	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1084
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	585	Opposing Demand Flow Rate, veh/h	350
Peak Hour Factor	0.88	Total Trucks, %	2.16
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.34

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0
Speed Slope Coefficient (m)	4.36618	Speed Power Coefficient (p)	0.50547
PF Slope Coefficient (m)	-1.35882	PF Power Coefficient (p)	0.76024
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	6.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1084	-	-	52.0

### Vehicle Results

Average Speed, mi/h	52.0	Percent Followers, %	59.5
Segment Travel Time, minutes	0.24	Follower Density (FD), followers/mi/ln	6.7
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	585	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.94	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	507
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	585	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	2.16		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.34		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.43973	PF Power Coefficient (p)	0.72475		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	7.1		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	507	-	-	51.6
<b>Vehicle Results</b>					
Average Speed, mi/h	51.6	Percent Followers, %	62.3		
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	7.1		
Vehicle LOS	C				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	585	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.94	Bicycle Effective Speed Factor	4.62		
Bicycle LOS	C				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	535		
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	585	Opposing Demand Flow Rate, veh/h	350		
Peak Hour Factor	0.88	Total Trucks, %	2.16		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.34		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0		
Speed Slope Coefficient (m)	4.36618	Speed Power Coefficient (p)	0.50547		
PF Slope Coefficient (m)	-1.35882	PF Power Coefficient (p)	0.76024		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	6.7		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	535	-	-	52.0

### Vehicle Results

Average Speed, mi/h	52.0	Percent Followers, %	59.5
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	6.7
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	585	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.94	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1494
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	816	Opposing Demand Flow Rate, veh/h	434
Peak Hour Factor	0.88	Total Trucks, %	1.63
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.48

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.39151	Speed Power Coefficient (p)	0.49146
PF Slope Coefficient (m)	-1.26499	PF Power Coefficient (p)	0.79656
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1494	-	-	66.3

### Vehicle Results

Average Speed, mi/h	66.3	Percent Followers, %	65.9
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	8.1
Vehicle LOS	D		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	816	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.11	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5762
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	816	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.63
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.48

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.62977	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.20069	PF Power Coefficient (p)	0.78591
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	7.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5762	-	-	66.0

### Vehicle Results

Average Speed, mi/h	66.0	Percent Followers, %	64.1
Segment Travel Time, minutes	0.99	Follower Density (FD), followers/mi/ln	7.9
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	816	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.11	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	383
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	816	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.89
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.48

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29361	PF Power Coefficient (p)	0.75772
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	383	-	-	66.0

### Vehicle Results

Average Speed, mi/h	66.0	Percent Followers, %	67.0
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	8.3
Vehicle LOS	D		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	816	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.17	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1485
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	883	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.19
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.52

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57684	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28453	PF Power Coefficient (p)	0.76145
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1485	-	-	65.9

### Vehicle Results

Average Speed, mi/h	65.9	Percent Followers, %	68.9
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	9.2
Vehicle LOS	D		

<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	883	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.56	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

### Segment 8

<b>Vehicle Inputs</b>			
Segment Type	Passing Constrained	Length, ft	426
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>			
Directional Demand Flow Rate, veh/h	430	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	6.47
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25

<b>Intermediate Results</b>			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29307	PF Power Coefficient (p)	0.75839
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	426	-	-	67.1

<b>Vehicle Results</b>			
Average Speed, mi/h	67.1	Percent Followers, %	49.4
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	3.2
Vehicle LOS	B		

<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	430	Bicycle Effective Width, ft	24
Bicycle LOS Score	4.23	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

### Segment 9

<b>Vehicle Inputs</b>			
Segment Type	Passing Constrained	Length, ft	1212
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>			
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Directional Demand Flow Rate, veh/h	360	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29321	PF Power Coefficient (p)	0.75821
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1212	-	-	67.4

### Vehicle Results

Average Speed, mi/h	67.4	Percent Followers, %	44.9
Segment Travel Time, minutes	0.20	Follower Density (FD), followers/mi/ln	2.4
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	360	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.73	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1877
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	360	Opposing Demand Flow Rate, veh/h	263
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.35010	Speed Power Coefficient (p)	0.52339
PF Slope Coefficient (m)	-1.22503	PF Power Coefficient (p)	0.81368
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1877	-	-	67.8
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### Vehicle Results

Average Speed, mi/h	67.8	Percent Followers, %	41.4
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	2.2
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	360	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.73	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1872
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	360	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58354	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.26676	PF Power Coefficient (p)	0.76864
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1872	-	-	67.4

### Vehicle Results

Average Speed, mi/h	67.4	Percent Followers, %	43.9
Segment Travel Time, minutes	0.32	Follower Density (FD), followers/mi/ln	2.3
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	360	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.73	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 12



Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	3603
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	360	Opposing Demand Flow Rate, veh/h	263
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.37375	Speed Power Coefficient (p)	0.52339
PF Slope Coefficient (m)	-1.18124	PF Power Coefficient (p)	0.83047
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3603	-	-	67.8

Vehicle Results			
Average Speed, mi/h	67.8	Percent Followers, %	39.7
Segment Travel Time, minutes	0.60	Follower Density (FD), followers/mi/ln	2.1
Vehicle LOS	B		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	360	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.73	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1053
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	360	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29321	PF Power Coefficient (p)	0.75821

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1053	-	-	67.4

### Vehicle Results

Average Speed, mi/h	67.4	Percent Followers, %	44.9
Segment Travel Time, minutes	0.18	Follower Density (FD), followers/mi/ln	2.4
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	360	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.73	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1120
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	360	Opposing Demand Flow Rate, veh/h	263
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.34020	Speed Power Coefficient (p)	0.52339
PF Slope Coefficient (m)	-1.25077	PF Power Coefficient (p)	0.80264
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1120	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	42.4
Segment Travel Time, minutes	0.19	Follower Density (FD), followers/mi/ln	2.2
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	360	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.73	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 15

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1272
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	456	Opposing Demand Flow Rate, veh/h	306
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.35349	Speed Power Coefficient (p)	0.51403
PF Slope Coefficient (m)	-1.25787	PF Power Coefficient (p)	0.80000
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1272	-	-	67.4

### Vehicle Results

Average Speed, mi/h	67.4	Percent Followers, %	48.9
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	3.3
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	456	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.79	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 16

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	625
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	456	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29323	PF Power Coefficient (p)	0.75819
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	625	-	-	67.0

Vehicle Results			
Average Speed, mi/h	67.0	Percent Followers, %	51.0
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	3.5
Vehicle LOS	B		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	456	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.79	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 17

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1995
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	456	Opposing Demand Flow Rate, veh/h	306
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.36529	Speed Power Coefficient (p)	0.51403
PF Slope Coefficient (m)	-1.22751	PF Power Coefficient (p)	0.81278
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1995	-	-	67.4

Vehicle Results			
Average Speed, mi/h	67.4	Percent Followers, %	47.7

Segment Travel Time, minutes	0.34	Follower Density (FD), followers/mi/ln	3.2
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	456	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.79	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 18

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1399
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	456	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57524	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28884	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1399	-	-	67.0

### Vehicle Results

Average Speed, mi/h	67.0	Percent Followers, %	50.8
Segment Travel Time, minutes	0.24	Follower Density (FD), followers/mi/ln	3.5
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	456	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.79	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 19

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1254
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	811	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	1.51		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.48		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29366	PF Power Coefficient (p)	0.75766		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.2		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1254	-	-	66.0
<b>Vehicle Results</b>					
Average Speed, mi/h	66.0	Percent Followers, %	66.9		
Segment Travel Time, minutes	0.22	Follower Density (FD), followers/mi/ln	8.2		
Vehicle LOS	D				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	811	Bicycle Effective Width, ft	24		
Bicycle LOS Score	3.07	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
<b>Segment 20</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	1108		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	811	Opposing Demand Flow Rate, veh/h	280		
Peak Hour Factor	0.88	Total Trucks, %	1.51		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.48		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.34556	Speed Power Coefficient (p)	0.51956		
PF Slope Coefficient (m)	-1.25412	PF Power Coefficient (p)	0.80102		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.0		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1108	-	-	66.4

### Vehicle Results

Average Speed, mi/h	66.4	Percent Followers, %	65.4
Segment Travel Time, minutes	0.19	Follower Density (FD), followers/mi/ln	8.0
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	811	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.07	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 21

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2901
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	811	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.51
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.48

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.59854	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.23554	PF Power Coefficient (p)	0.77974
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2901	-	-	66.0

### Vehicle Results

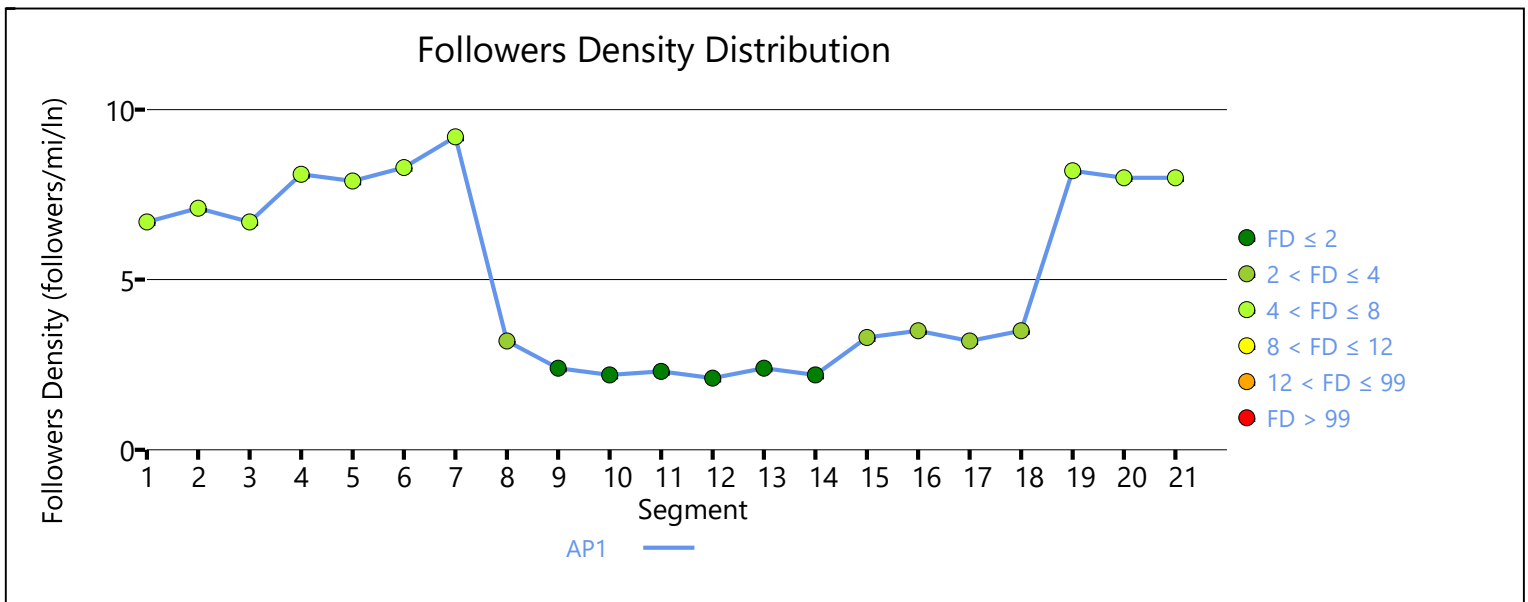
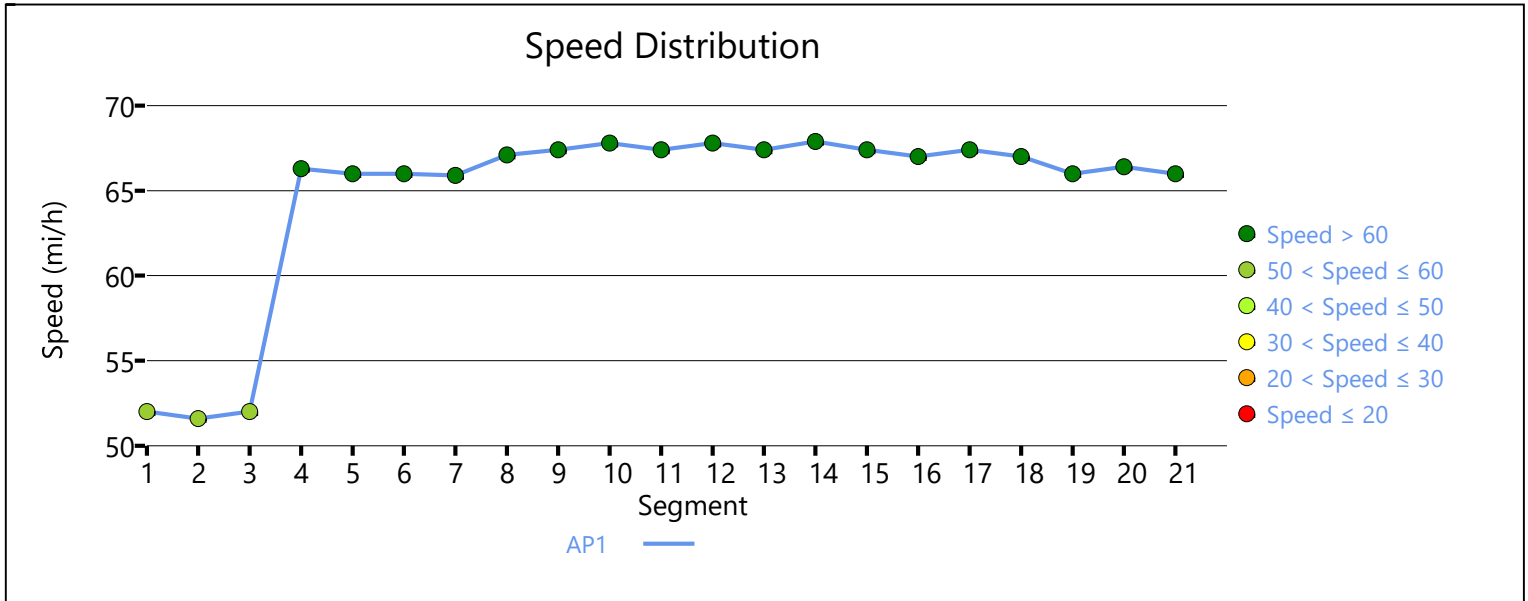
Average Speed, mi/h	66.0	Percent Followers, %	65.0
Segment Travel Time, minutes	0.50	Follower Density (FD), followers/mi/ln	8.0
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	811	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.07	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

# Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	813	0.62	5.3	C





# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2050 NB
Jurisdiction	SDDOT	Time Analyzed	PM PEAK
Project Description	EB SD38 Corridor Study	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1084
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	368	Opposing Demand Flow Rate, veh/h	674
Peak Hour Factor	0.88	Total Trucks, %	2.16
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0
Speed Slope Coefficient (m)	4.44134	Speed Power Coefficient (p)	0.46217
PF Slope Coefficient (m)	-1.40189	PF Power Coefficient (p)	0.74782
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1084	-	-	52.6

### Vehicle Results

Average Speed, mi/h	52.6	Percent Followers, %	48.5
Segment Travel Time, minutes	0.23	Follower Density (FD), followers/mi/ln	3.4
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	368	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.70	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1014
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	368	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	2.16		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.43973	PF Power Coefficient (p)	0.72475		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.5		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	507	-	-	52.4
2	Horizontal Curve	507	3000	0.0	52.4
<b>Vehicle Results</b>					
Average Speed, mi/h	52.4	Percent Followers, %	50.2		
Segment Travel Time, minutes	0.22	Follower Density (FD), followers/mi/ln	3.5		
Vehicle LOS	B				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	368	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.70	Bicycle Effective Speed Factor	4.62		
Bicycle LOS	C				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	535		
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	368	Opposing Demand Flow Rate, veh/h	674		
Peak Hour Factor	0.88	Total Trucks, %	2.16		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0		
Speed Slope Coefficient (m)	4.44134	Speed Power Coefficient (p)	0.46217		
PF Slope Coefficient (m)	-1.40189	PF Power Coefficient (p)	0.74782		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.4		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	535	-	-	52.6

Vehicle Results			
Average Speed, mi/h	52.6	Percent Followers, %	48.5
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	3.4
Vehicle LOS	B		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	368	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.70	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

### Segment 4

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1494
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	445	Opposing Demand Flow Rate, veh/h	986
Peak Hour Factor	0.88	Total Trucks, %	1.63
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.50109	Speed Power Coefficient (p)	0.43798
PF Slope Coefficient (m)	-1.28998	PF Power Coefficient (p)	0.77572
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1494	-	-	67.2

Vehicle Results			
Average Speed, mi/h	67.2	Percent Followers, %	49.8
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	3.3
Vehicle LOS	B		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	445	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.80	Bicycle Effective Speed Factor	5.07

Bicycle LOS	C		
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## Segment 5

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5762
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	445	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.63
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.62977	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.20069	PF Power Coefficient (p)	0.78591
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5762	-	-	67.0

### Vehicle Results

Average Speed, mi/h	67.0	Percent Followers, %	47.1
Segment Travel Time, minutes	0.98	Follower Density (FD), followers/mi/ln	3.1
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	445	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.80	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	383
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.89
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29361	PF Power Coefficient (p)	0.75772
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	383	-	-	67.0

### Vehicle Results

Average Speed, mi/h	67.0	Percent Followers, %	50.9
Segment Travel Time, minutes	0.06	Follower Density (FD), followers/mi/ln	3.4
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	453	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.87	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1485
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	522	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.19
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.31

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57684	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28453	PF Power Coefficient (p)	0.76145
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1485	-	-	66.8

### Vehicle Results

Average Speed, mi/h	66.8	Percent Followers, %	54.3
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	4.2

Vehicle LOS	C		
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### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	522	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.29	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 8

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	426
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	407	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	6.47
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29307	PF Power Coefficient (p)	0.75839
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	426	-	-	67.2

### Vehicle Results

Average Speed, mi/h	67.2	Percent Followers, %	48.0
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	2.9
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	407	Bicycle Effective Width, ft	24
Bicycle LOS Score	4.20	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 9

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1212
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	314	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	5.26		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29321	PF Power Coefficient (p)	0.75821		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1212	-	-	67.6
<b>Vehicle Results</b>					
Average Speed, mi/h	67.6	Percent Followers, %	41.5		
Segment Travel Time, minutes	0.20	Follower Density (FD), followers/mi/ln	1.9		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	314	Bicycle Effective Width, ft	24		
Bicycle LOS Score	3.66	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	D				
<b>Segment 10</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	1877		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	314	Opposing Demand Flow Rate, veh/h	430		
Peak Hour Factor	0.88	Total Trucks, %	5.26		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.39699	Speed Power Coefficient (p)	0.49215		
PF Slope Coefficient (m)	-1.24708	PF Power Coefficient (p)	0.80425		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1877	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	38.8
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	314	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.66	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1872
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	314	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58354	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.26676	PF Power Coefficient (p)	0.76864
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1872	-	-	67.6

### Vehicle Results

Average Speed, mi/h	67.6	Percent Followers, %	40.5
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	314	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.66	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		



## Segment 12

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3603
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	314	Opposing Demand Flow Rate, veh/h	430
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.42064	Speed Power Coefficient (p)	0.49215
PF Slope Coefficient (m)	-1.20239	PF Power Coefficient (p)	0.82051
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3603	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	37.1
Segment Travel Time, minutes	0.60	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	314	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.66	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 13

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1053
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	314	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29321	PF Power Coefficient (p)	0.75821
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1053	-	-	67.6

### Vehicle Results

Average Speed, mi/h	67.6	Percent Followers, %	41.5
Segment Travel Time, minutes	0.18	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	314	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.66	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1120
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	314	Opposing Demand Flow Rate, veh/h	430
Peak Hour Factor	0.88	Total Trucks, %	5.26
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.38709	Speed Power Coefficient (p)	0.49215
PF Slope Coefficient (m)	-1.27337	PF Power Coefficient (p)	0.79352
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1120	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	39.8
Segment Travel Time, minutes	0.19	Follower Density (FD), followers/mi/ln	1.8
Vehicle LOS	A		

<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	314	Bicycle Effective Width, ft	24		
Bicycle LOS Score	3.66	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	D				
<b>Segment 15</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	1272		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	409	Opposing Demand Flow Rate, veh/h	536		
Peak Hour Factor	0.88	Total Trucks, %	5.09		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.41232	Speed Power Coefficient (p)	0.47739		
PF Slope Coefficient (m)	-1.28274	PF Power Coefficient (p)	0.78869		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.8		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1272	-	-	67.5
<b>Vehicle Results</b>					
Average Speed, mi/h	67.5	Percent Followers, %	46.9		
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	2.8		
Vehicle LOS	B				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	409	Bicycle Effective Width, ft	24		
Bicycle LOS Score	3.74	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	D				
<b>Segment 16</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	625		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					

Directional Demand Flow Rate, veh/h	409	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29323	PF Power Coefficient (p)	0.75819
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	625	-	-	67.2

### Vehicle Results

Average Speed, mi/h	67.2	Percent Followers, %	48.1
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	2.9
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	409	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.74	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 17

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1995
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	409	Opposing Demand Flow Rate, veh/h	536
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.42412	Speed Power Coefficient (p)	0.47739
PF Slope Coefficient (m)	-1.25168	PF Power Coefficient (p)	0.80109
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1995	-	-	67.5
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### Vehicle Results

Average Speed, mi/h	67.5	Percent Followers, %	45.8
Segment Travel Time, minutes	0.34	Follower Density (FD), followers/mi/ln	2.8
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	409	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.74	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 18

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1399
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	409	Oposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57524	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28884	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1399	-	-	67.2

### Vehicle Results

Average Speed, mi/h	67.2	Percent Followers, %	48.0
Segment Travel Time, minutes	0.24	Follower Density (FD), followers/mi/ln	2.9
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	409	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.74	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 19

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1254
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	402	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.51
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29366	PF Power Coefficient (p)	0.75766
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1254	-	-	67.2

Vehicle Results			
Average Speed, mi/h	67.2	Percent Followers, %	47.7
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	2.9
Vehicle LOS	B		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	402	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.72	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

### Segment 20

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1108
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	402	Opposing Demand Flow Rate, veh/h	848
Peak Hour Factor	0.88	Total Trucks, %	1.51
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.47406	Speed Power Coefficient (p)	0.44728
PF Slope Coefficient (m)	-1.29735	PF Power Coefficient (p)	0.77650

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1108	-	-	67.4

### Vehicle Results

Average Speed, mi/h	67.4	Percent Followers, %	47.3
Segment Travel Time, minutes	0.19	Follower Density (FD), followers/mi/ln	2.8
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	402	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.72	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 21

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2901
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	402	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	1.51
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.59854	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.23554	PF Power Coefficient (p)	0.77974
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2901	-	-	67.2

### Vehicle Results

Average Speed, mi/h	67.2	Percent Followers, %	45.5
Segment Travel Time, minutes	0.49	Follower Density (FD), followers/mi/ln	2.7
Vehicle LOS	B		

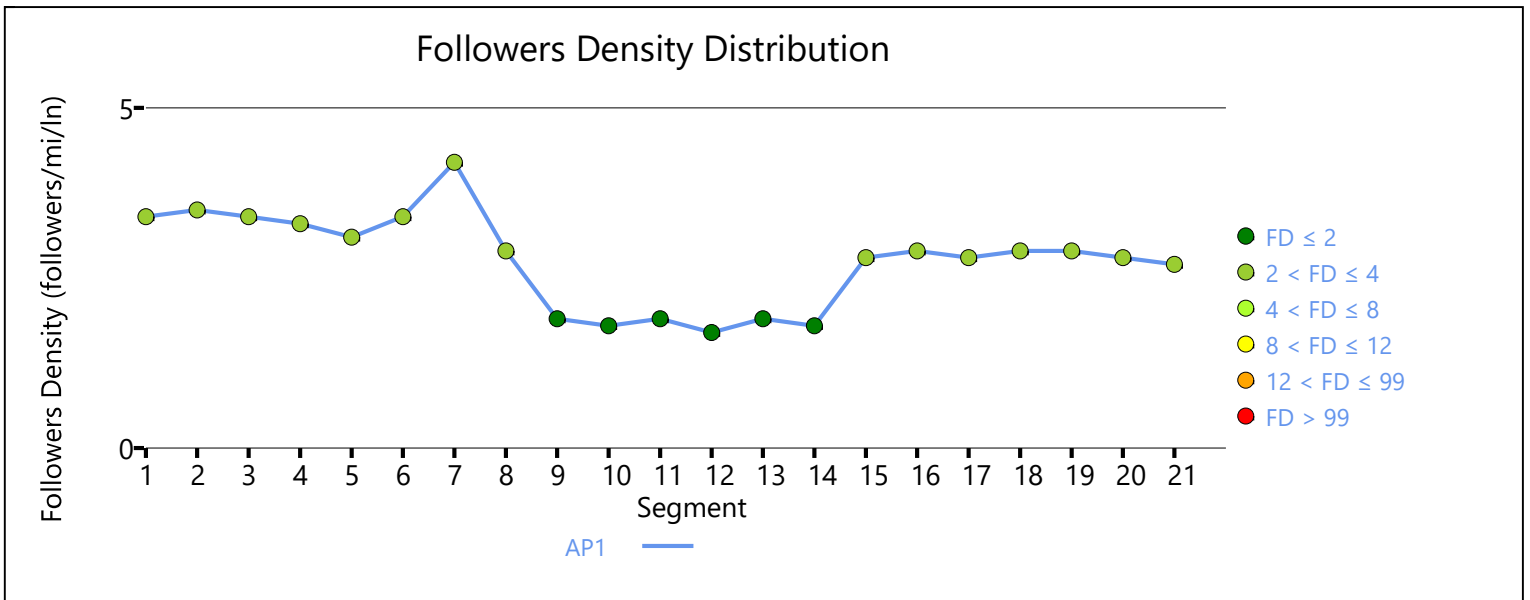
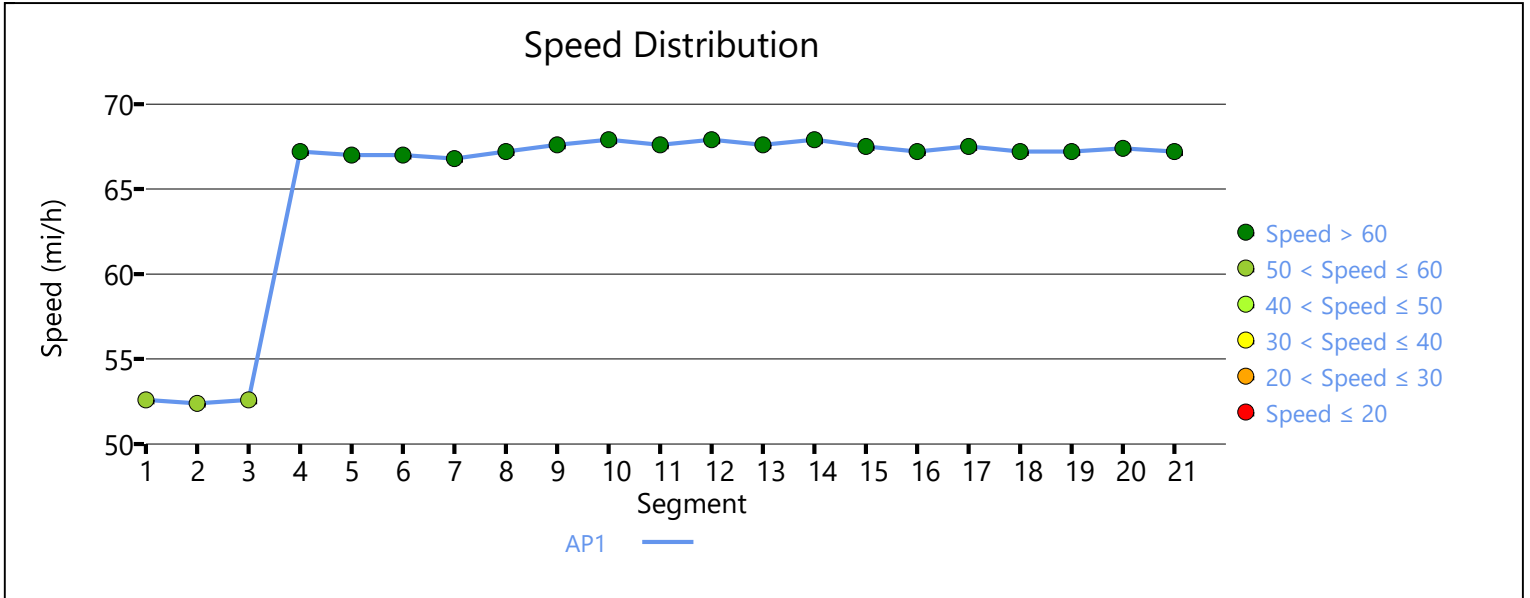
### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	402	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.72	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

### Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	541	0.32	2.7	B





# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2050 NB
Jurisdiction	SDDOT	Time Analyzed	AM Peak
Project Description	SD 38 WB East of Hartford	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1727
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	280	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	8.97
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58112	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27241	PF Power Coefficient (p)	0.76681
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1727	-	-	67.8

### Vehicle Results

Average Speed, mi/h	67.8	Percent Followers, %	38.0
Segment Travel Time, minutes	0.29	Follower Density (FD), followers/mi/ln	1.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	280	Bicycle Effective Width, ft	24
Bicycle LOS Score	4.96	Bicycle Effective Speed Factor	5.07
Bicycle LOS	E		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1676
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	280	Opposing Demand Flow Rate, veh/h	811		
Peak Hour Factor	0.88	Total Trucks, %	8.97		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.47404	Speed Power Coefficient (p)	0.45007		
PF Slope Coefficient (m)	-1.27736	PF Power Coefficient (p)	0.78596		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.5		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1676	-	-	67.9
<b>Vehicle Results</b>					
Average Speed, mi/h	67.9	Percent Followers, %	37.4		
Segment Travel Time, minutes	0.28	Follower Density (FD), followers/mi/ln	1.5		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	280	Bicycle Effective Width, ft	24		
Bicycle LOS Score	4.96	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	E				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	1864		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	306	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	17.04		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.58341	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.26572	PF Power Coefficient (p)	0.77025		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1864	-	-	67.6

### Vehicle Results

Average Speed, mi/h	67.6	Percent Followers, %	39.8
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	306	Bicycle Effective Width, ft	24
Bicycle LOS Score	8.99	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	718
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	306	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29182	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	718	-	-	67.6

### Vehicle Results

Average Speed, mi/h	67.6	Percent Followers, %	40.8
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	1.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	306	Bicycle Effective Width, ft	24
Bicycle LOS Score	8.99	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1738
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	306	Opposing Demand Flow Rate, veh/h	456
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.40112	Speed Power Coefficient (p)	0.48825
PF Slope Coefficient (m)	-1.25400	PF Power Coefficient (p)	0.80244
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1738	-	-	68.0

### Vehicle Results

Average Speed, mi/h	68.0	Percent Followers, %	38.4
Segment Travel Time, minutes	0.29	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	306	Bicycle Effective Width, ft	24
Bicycle LOS Score	8.99	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	579
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	306	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29182	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	579	-	-	67.6

### Vehicle Results

Average Speed, mi/h	67.6	Percent Followers, %	40.8
Segment Travel Time, minutes	0.10	Follower Density (FD), followers/mi/ln	1.8
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	306	Bicycle Effective Width, ft	24
Bicycle LOS Score	8.99	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2262
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	263	Opposing Demand Flow Rate, veh/h	360
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.38489	Speed Power Coefficient (p)	0.50362
PF Slope Coefficient (m)	-1.22431	PF Power Coefficient (p)	0.81530
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2262	-	-	68.2

### Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	33.7
Segment Travel Time, minutes	0.38	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	262	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.75	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 8

#### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	980
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

#### Demand and Capacity

Directional Demand Flow Rate, veh/h	263	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

#### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

#### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	980	-	-	67.9

#### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	37.3
Segment Travel Time, minutes	0.16	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

#### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	262	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.75	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 9

#### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3667
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

#### Demand and Capacity

Directional Demand Flow Rate, veh/h	263	Opposing Demand Flow Rate, veh/h	360		
Peak Hour Factor	0.88	Total Trucks, %	18.44		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.40330	Speed Power Coefficient (p)	0.50362		
PF Slope Coefficient (m)	-1.19252	PF Power Coefficient (p)	0.82659		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3667	-	-	68.2
<b>Vehicle Results</b>					
Average Speed, mi/h	68.2	Percent Followers, %	32.6		
Segment Travel Time, minutes	0.61	Follower Density (FD), followers/mi/ln	1.3		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	262	Bicycle Effective Width, ft	24		
Bicycle LOS Score	9.75	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	F				
<b>Segment 10</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	1846		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	263	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	18.44		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.58311	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.26629	PF Power Coefficient (p)	0.77017		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.4		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h

1	Tangent	1846	-	-	67.9
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### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	36.4
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	262	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.75	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2174
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	263	Opposing Demand Flow Rate, veh/h	360
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.38357	Speed Power Coefficient (p)	0.50362
PF Slope Coefficient (m)	-1.22716	PF Power Coefficient (p)	0.81417
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2174	-	-	68.2

### Vehicle Results

Average Speed, mi/h	68.2	Percent Followers, %	33.8
Segment Travel Time, minutes	0.36	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	262	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.75	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 12



Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1277
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	263	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1277	-	-	67.9

Vehicle Results			
Average Speed, mi/h	67.9	Percent Followers, %	37.3
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	262	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.75	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	779
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	263	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	779	-	-	67.9

### Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	37.3
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	262	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.75	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	422
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	358	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	13.95
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29219	PF Power Coefficient (p)	0.75948
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	422	-	-	67.4

### Vehicle Results

Average Speed, mi/h	67.4	Percent Followers, %	44.7
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	2.4
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	358	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.38	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 15

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1478
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	310	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	19.53
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57671	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28298	PF Power Coefficient (p)	0.76370
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1478	-	-	67.6

### Vehicle Results

Average Speed, mi/h	67.6	Percent Followers, %	40.8
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	1.9
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	310	Bicycle Effective Width, ft	24
Bicycle LOS Score	10.52	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 16

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	384
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	445	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.76
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29233	PF Power Coefficient (p)	0.75931
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	384	-	-	67.1

### Vehicle Results

Average Speed, mi/h	67.1	Percent Followers, %	50.3
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	3.3
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	445	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.89	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 17

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3732
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	434	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.21
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.60878	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.21846	PF Power Coefficient (p)	0.78615
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3732	-	-	67.1

### Vehicle Results

Average Speed, mi/h	67.1	Percent Followers, %	46.9
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Segment Travel Time, minutes	0.63	Follower Density (FD), followers/mi/ln	3.0
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	434	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 18

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1360
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	434	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.21
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57450	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29014	PF Power Coefficient (p)	0.76012
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1360	-	-	67.1

### Vehicle Results

Average Speed, mi/h	67.1	Percent Followers, %	49.5
Segment Travel Time, minutes	0.23	Follower Density (FD), followers/mi/ln	3.2
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	434	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 19

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1595
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	434	Opposing Demand Flow Rate, veh/h	816		
Peak Hour Factor	0.88	Total Trucks, %	12.21		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.47345	Speed Power Coefficient (p)	0.44971		
PF Slope Coefficient (m)	-1.28088	PF Power Coefficient (p)	0.78481		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.1		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1595	-	-	67.3
<b>Vehicle Results</b>					
Average Speed, mi/h	67.3	Percent Followers, %	48.6		
Segment Travel Time, minutes	0.27	Follower Density (FD), followers/mi/ln	3.1		
Vehicle LOS	B				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	434	Bicycle Effective Width, ft	24		
Bicycle LOS Score	6.61	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	F				
<b>Segment 20</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	595		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	434	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	12.21		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29239	PF Power Coefficient (p)	0.75923		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.2		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	595	-	-	67.1

### Vehicle Results

Average Speed, mi/h	67.1	Percent Followers, %	49.6
Segment Travel Time, minutes	0.10	Follower Density (FD), followers/mi/ln	3.2
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	434	Bicycle Effective Width, ft	24
Bicycle LOS Score	6.61	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 21

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	958
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	350	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	10.81
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.43859	PF Power Coefficient (p)	0.72596
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	958	-	-	52.4

### Vehicle Results

Average Speed, mi/h	52.4	Percent Followers, %	48.9
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	3.3
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	350	Bicycle Effective Width, ft	24
Bicycle LOS Score	5.45	Bicycle Effective Speed Factor	4.62
Bicycle LOS	E		

## Segment 22

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1659
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	350	Opposing Demand Flow Rate, veh/h	585
Peak Hour Factor	0.88	Total Trucks, %	10.81
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0
Speed Slope Coefficient (m)	4.42925	Speed Power Coefficient (p)	0.47156
PF Slope Coefficient (m)	-1.37257	PF Power Coefficient (p)	0.75811
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1659	-	-	52.7

### Vehicle Results

Average Speed, mi/h	52.7	Percent Followers, %	46.2
Segment Travel Time, minutes	0.36	Follower Density (FD), followers/mi/ln	3.1
Vehicle LOS	B		

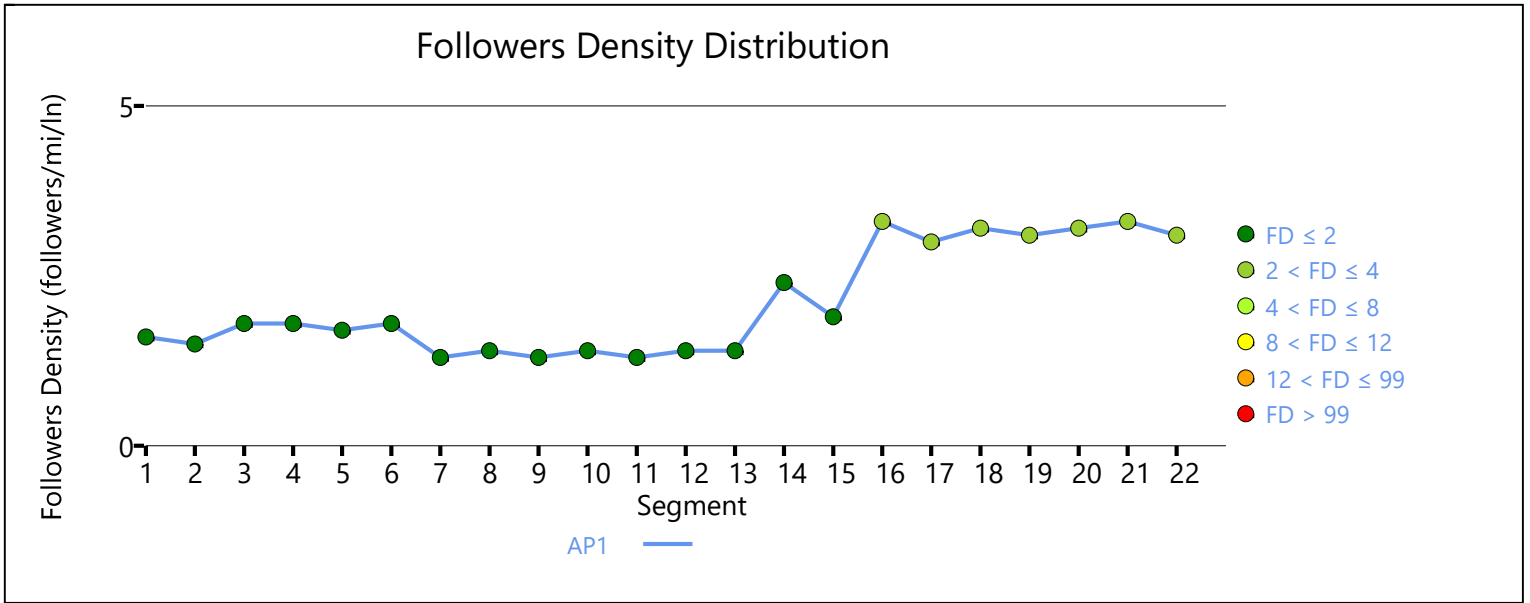
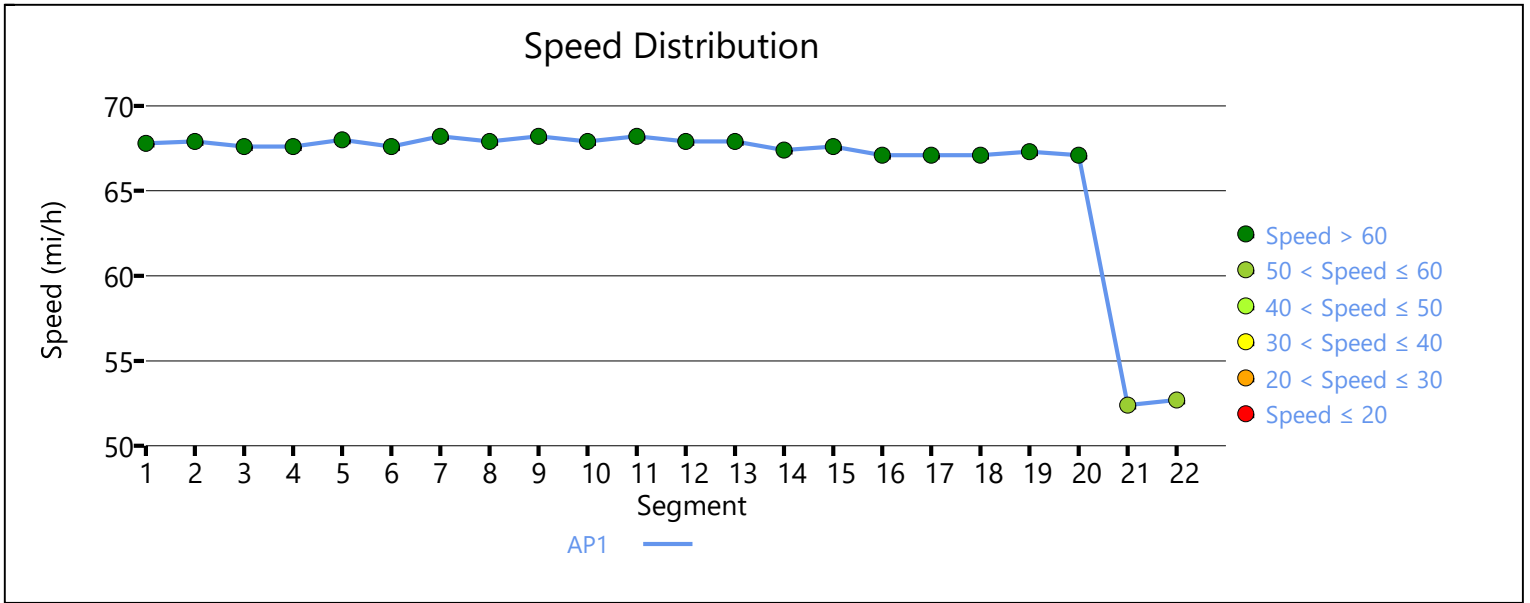
### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	350	Bicycle Effective Width, ft	24
Bicycle LOS Score	5.45	Bicycle Effective Speed Factor	4.62
Bicycle LOS	E		

### Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	446	0.23	2.0	B





# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2050 NB
Jurisdiction	SDDOT	Time Analyzed	PM Peak
Project Description	SD 38 WB East of Hartford	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1727
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	848	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	8.97
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.50

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58112	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27241	PF Power Coefficient (p)	0.76681
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1727	-	-	65.9

### Vehicle Results

Average Speed, mi/h	65.9	Percent Followers, %	67.4
Segment Travel Time, minutes	0.30	Follower Density (FD), followers/mi/ln	8.7
Vehicle LOS	D		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	848	Bicycle Effective Width, ft	24
Bicycle LOS Score	5.52	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1676
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	848	Opposing Demand Flow Rate, veh/h	402		
Peak Hour Factor	0.88	Total Trucks, %	8.97		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.50		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.38668	Speed Power Coefficient (p)	0.49646		
PF Slope Coefficient (m)	-1.25223	PF Power Coefficient (p)	0.80275		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.5		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1676	-	-	66.2
<b>Vehicle Results</b>					
Average Speed, mi/h	66.2	Percent Followers, %	66.6		
Segment Travel Time, minutes	0.29	Follower Density (FD), followers/mi/ln	8.5		
Vehicle LOS	D				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	848	Bicycle Effective Width, ft	24		
Bicycle LOS Score	5.52	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	F				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	1864		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	536	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	17.04		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.32		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.58341	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.26572	PF Power Coefficient (p)	0.77025		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.4		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1864	-	-	66.8

### Vehicle Results

Average Speed, mi/h	66.8	Percent Followers, %	54.3
Segment Travel Time, minutes	0.32	Follower Density (FD), followers/mi/ln	4.4
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	536	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.28	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	718
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	536	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.32

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29182	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	718	-	-	66.8

### Vehicle Results

Average Speed, mi/h	66.8	Percent Followers, %	55.3
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	4.4
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	536	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.28	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1738
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	536	Opposing Demand Flow Rate, veh/h	409
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.32

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.38950	Speed Power Coefficient (p)	0.49536
PF Slope Coefficient (m)	-1.24935	PF Power Coefficient (p)	0.80471
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1738	-	-	67.1

### Vehicle Results

Average Speed, mi/h	67.1	Percent Followers, %	53.1
Segment Travel Time, minutes	0.29	Follower Density (FD), followers/mi/ln	4.2
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	536	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.28	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	579
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	536	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	17.04
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.32

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29182	PF Power Coefficient (p)	0.75993
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	579	-	-	66.8

### Vehicle Results

Average Speed, mi/h	66.8	Percent Followers, %	55.3
Segment Travel Time, minutes	0.10	Follower Density (FD), followers/mi/ln	4.4
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	536	Bicycle Effective Width, ft	24
Bicycle LOS Score	9.28	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2262
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	430	Opposing Demand Flow Rate, veh/h	314
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.37173	Speed Power Coefficient (p)	0.51243
PF Slope Coefficient (m)	-1.21815	PF Power Coefficient (p)	0.81800
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2262	-	-	67.5

### Vehicle Results

Average Speed, mi/h	67.5	Percent Followers, %	45.7
Segment Travel Time, minutes	0.38	Follower Density (FD), followers/mi/ln	2.9
Vehicle LOS	B		

<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	430	Bicycle Effective Width, ft	24		
Bicycle LOS Score	10.00	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	F				
<b>Segment 8</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	980		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	430	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	18.44		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.2		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	980	-	-	67.1
<b>Vehicle Results</b>					
Average Speed, mi/h	67.1	Percent Followers, %	49.3		
Segment Travel Time, minutes	0.17	Follower Density (FD), followers/mi/ln	3.2		
Vehicle LOS	B				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	430	Bicycle Effective Width, ft	24		
Bicycle LOS Score	10.00	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	F				
<b>Segment 9</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	3667		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					

Directional Demand Flow Rate, veh/h	430	Opposing Demand Flow Rate, veh/h	314
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.39013	Speed Power Coefficient (p)	0.51243
PF Slope Coefficient (m)	-1.18655	PF Power Coefficient (p)	0.82939
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3667	-	-	67.5

### Vehicle Results

Average Speed, mi/h	67.5	Percent Followers, %	44.5
Segment Travel Time, minutes	0.62	Follower Density (FD), followers/mi/ln	2.8
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	430	Bicycle Effective Width, ft	24
Bicycle LOS Score	10.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1846
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	430	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.58311	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.26629	PF Power Coefficient (p)	0.77017
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1846	-	-	67.1
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### Vehicle Results

Average Speed, mi/h	67.1	Percent Followers, %	48.3
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	3.1
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	430	Bicycle Effective Width, ft	24
Bicycle LOS Score	10.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2174
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	430	Opposing Demand Flow Rate, veh/h	314
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.37041	Speed Power Coefficient (p)	0.51243
PF Slope Coefficient (m)	-1.22098	PF Power Coefficient (p)	0.81685
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2174	-	-	67.5

### Vehicle Results

Average Speed, mi/h	67.5	Percent Followers, %	45.8
Segment Travel Time, minutes	0.37	Follower Density (FD), followers/mi/ln	2.9
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	430	Bicycle Effective Width, ft	24
Bicycle LOS Score	10.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 12

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1277
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	430	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1277	-	-	67.1

Vehicle Results			
Average Speed, mi/h	67.1	Percent Followers, %	49.3
Segment Travel Time, minutes	0.22	Follower Density (FD), followers/mi/ln	3.2
Vehicle LOS	B		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	430	Bicycle Effective Width, ft	24
Bicycle LOS Score	10.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	779
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	430	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	18.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29166	PF Power Coefficient (p)	0.76014

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	779	-	-	67.1

### Vehicle Results

Average Speed, mi/h	67.1	Percent Followers, %	49.3
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	3.2
Vehicle LOS	B		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	430	Bicycle Effective Width, ft	24
Bicycle LOS Score	10.00	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	422
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	607	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	13.95
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29219	PF Power Coefficient (p)	0.75948
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	422	-	-	66.6

### Vehicle Results

Average Speed, mi/h	66.6	Percent Followers, %	58.7
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	5.4
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	607	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.64	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 15

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1478
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	524	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	19.53
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.31

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57671	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.28298	PF Power Coefficient (p)	0.76370
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1478	-	-	66.8

### Vehicle Results

Average Speed, mi/h	66.8	Percent Followers, %	54.3
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	4.3
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	524	Bicycle Effective Width, ft	24
Bicycle LOS Score	10.78	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 16

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	384
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	990	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.76
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.58

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29233	PF Power Coefficient (p)	0.75931
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	10.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	384	-	-	65.6

Vehicle Results			
Average Speed, mi/h	65.6	Percent Followers, %	72.3
Segment Travel Time, minutes	0.07	Follower Density (FD), followers/mi/ln	10.9
Vehicle LOS	D		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	990	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.29	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 17

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	3732
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	986	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.21
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.58

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.60878	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.21846	PF Power Coefficient (p)	0.78615
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	10.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3732	-	-	65.6

Vehicle Results			
Average Speed, mi/h	65.6	Percent Followers, %	70.0

Segment Travel Time, minutes	0.65	Follower Density (FD), followers/mi/ln	10.5
Vehicle LOS	D		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	986	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.03	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 18

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1360
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	986	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	12.21
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.58

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57450	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29014	PF Power Coefficient (p)	0.76012
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	10.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1360	-	-	65.6

### Vehicle Results

Average Speed, mi/h	65.6	Percent Followers, %	72.1
Segment Travel Time, minutes	0.24	Follower Density (FD), followers/mi/ln	10.8
Vehicle LOS	D		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	986	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.03	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 19

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1595
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>							
Directional Demand Flow Rate, veh/h		986		Opposing Demand Flow Rate, veh/h		445	
Peak Hour Factor		0.88		Total Trucks, %		12.21	
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)		0.58	
<b>Intermediate Results</b>							
Segment Vertical Class		1		Free-Flow Speed, mi/h		70.0	
Speed Slope Coefficient (m)		4.39614		Speed Power Coefficient (p)		0.48975	
PF Slope Coefficient (m)		-1.26001		PF Power Coefficient (p)		0.79959	
In Passing Lane Effective Length?		No		Total Segment Density, veh/mi/ln		10.7	
%Improvement to Percent Followers		0.0		%Improvement to Speed		0.0	
<b>Subsegment Data</b>							
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h		
1	Tangent	1595	-	-	65.9		
<b>Vehicle Results</b>							
Average Speed, mi/h		65.9		Percent Followers, %		71.2	
Segment Travel Time, minutes		0.28		Follower Density (FD), followers/mi/ln		10.7	
Vehicle LOS		D					
<b>Bicycle Results</b>							
Percent Occupied Parking		0		Pavement Condition Rating		4	
Flow Rate Outside Lane, veh/h		986		Bicycle Effective Width, ft		24	
Bicycle LOS Score		7.03		Bicycle Effective Speed Factor		5.07	
Bicycle LOS		F					
<b>Segment 20</b>							
<b>Vehicle Inputs</b>							
Segment Type		Passing Constrained		Length, ft		595	
Measured FFS		Measured		Free-Flow Speed, mi/h		70.0	
<b>Demand and Capacity</b>							
Directional Demand Flow Rate, veh/h		986		Opposing Demand Flow Rate, veh/h		-	
Peak Hour Factor		0.88		Total Trucks, %		12.21	
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)		0.58	
<b>Intermediate Results</b>							
Segment Vertical Class		1		Free-Flow Speed, mi/h		70.0	
Speed Slope Coefficient (m)		4.57372		Speed Power Coefficient (p)		0.41674	
PF Slope Coefficient (m)		-1.29239		PF Power Coefficient (p)		0.75923	
In Passing Lane Effective Length?		No		Total Segment Density, veh/mi/ln		10.8	
%Improvement to Percent Followers		0.0		%Improvement to Speed		0.0	
<b>Subsegment Data</b>							

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	595	-	-	65.7

### Vehicle Results

Average Speed, mi/h	65.7	Percent Followers, %	72.2
Segment Travel Time, minutes	0.10	Follower Density (FD), followers/mi/ln	10.8
Vehicle LOS	D		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	986	Bicycle Effective Width, ft	24
Bicycle LOS Score	7.03	Bicycle Effective Speed Factor	5.07
Bicycle LOS	F		

## Segment 21

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	958
Measured FFS	Measured	Free-Flow Speed, mi/h	55.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	674	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	10.81
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.40

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.43859	PF Power Coefficient (p)	0.72596
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	958	-	-	51.4

### Vehicle Results

Average Speed, mi/h	51.4	Percent Followers, %	66.0
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	8.7
Vehicle LOS	D		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	674	Bicycle Effective Width, ft	24
Bicycle LOS Score	5.78	Bicycle Effective Speed Factor	4.62
Bicycle LOS	F		



## Segment 22

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1659
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	674	Opposing Demand Flow Rate, veh/h	368
Peak Hour Factor	0.88	Total Trucks, %	10.81
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.40

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.37738	Speed Power Coefficient (p)	0.50221
PF Slope Coefficient (m)	-1.31799	PF Power Coefficient (p)	0.78037
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	7.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1659	-	-	56.7

### Vehicle Results

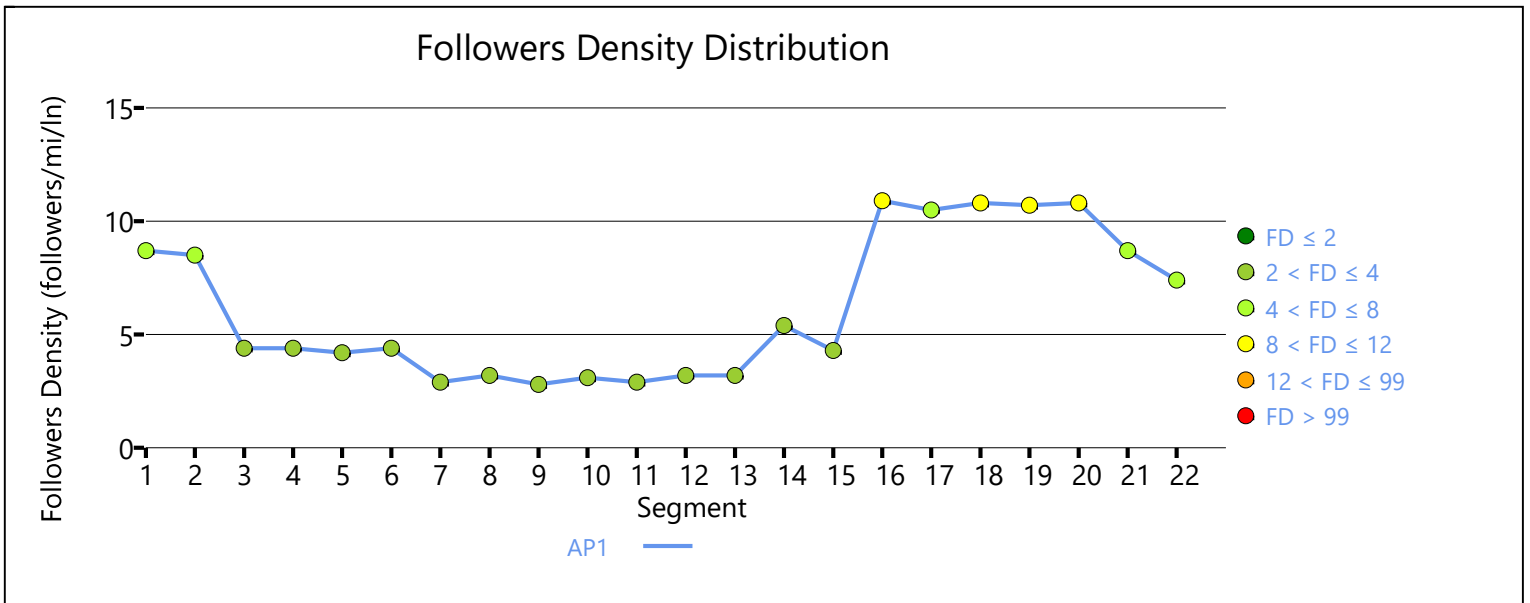
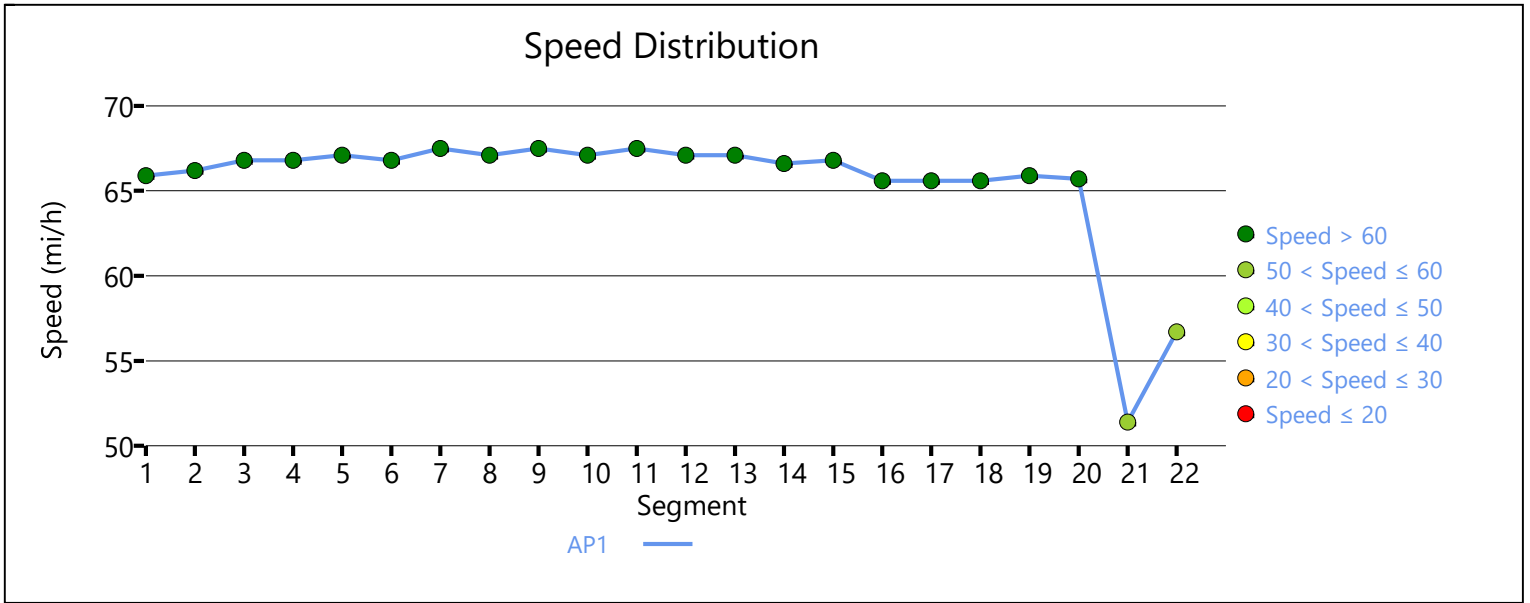
Average Speed, mi/h	56.7	Percent Followers, %	62.0
Segment Travel Time, minutes	0.33	Follower Density (FD), followers/mi/ln	7.4
Vehicle LOS	C		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	674	Bicycle Effective Width, ft	24
Bicycle LOS Score	5.78	Bicycle Effective Speed Factor	4.62
Bicycle LOS	F		

### Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	894	0.71	6.0	C



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2050 NB
Jurisdiction	SDDOT	Time Analyzed	AM Peak
Project Description	West of Hartford SD 38 EB	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1069
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	243	Opposing Demand Flow Rate, veh/h	169
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.30713	Speed Power Coefficient (p)	0.54838
PF Slope Coefficient (m)	-1.23090	PF Power Coefficient (p)	0.80942
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1069	-	-	68.5

### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	32.4
Segment Travel Time, minutes	0.18	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	243	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.70	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	664
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	243	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	5.79		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	664	-	-	68.0
<b>Vehicle Results</b>					
Average Speed, mi/h	68.0	Percent Followers, %	35.8		
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	1.3		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	243	Bicycle Effective Width, ft	24		
Bicycle LOS Score	3.70	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	D				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	1871		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	243	Opposing Demand Flow Rate, veh/h	169		
Peak Hour Factor	0.88	Total Trucks, %	5.79		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.31694	Speed Power Coefficient (p)	0.54838		
PF Slope Coefficient (m)	-1.20586	PF Power Coefficient (p)	0.82063		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1871	-	-	68.5

### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	31.5
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	243	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.70	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	925
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	243	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	925	-	-	68.0

### Vehicle Results

Average Speed, mi/h	68.0	Percent Followers, %	35.8
Segment Travel Time, minutes	0.15	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	243	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.70	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4476
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	243	Opposing Demand Flow Rate, veh/h	169
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.35043	Speed Power Coefficient (p)	0.54838
PF Slope Coefficient (m)	-1.15155	PF Power Coefficient (p)	0.84082
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4476	-	-	68.5

### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	29.6
Segment Travel Time, minutes	0.74	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	243	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.70	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	896
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	243	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	896	-	-	68.0

### Vehicle Results

Average Speed, mi/h	68.0	Percent Followers, %	35.8
Segment Travel Time, minutes	0.15	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	243	Bicycle Effective Width, ft	24
Bicycle LOS Score	3.70	Bicycle Effective Speed Factor	5.07
Bicycle LOS	D		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	743
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	243	Opposing Demand Flow Rate, veh/h	169
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.30713	Speed Power Coefficient (p)	0.54838
PF Slope Coefficient (m)	-1.23090	PF Power Coefficient (p)	0.80942
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	743	-	-	68.5

### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	32.4
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	1.2
Vehicle LOS	A		

<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	243	Bicycle Effective Width, ft	24		
Bicycle LOS Score	3.70	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	D				
<b>Segment 8</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	2717		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	245	Opposing Demand Flow Rate, veh/h	165		
Peak Hour Factor	0.88	Total Trucks, %	3.28		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.32768	Speed Power Coefficient (p)	0.54983		
PF Slope Coefficient (m)	-1.17918	PF Power Coefficient (p)	0.83165		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2717	-	-	68.5
<b>Vehicle Results</b>					
Average Speed, mi/h	68.5	Percent Followers, %	30.7		
Segment Travel Time, minutes	0.45	Follower Density (FD), followers/mi/ln	1.1		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	245	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.93	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
<b>Segment 9</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	1013		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					



Directional Demand Flow Rate, veh/h	245	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.28
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29345	PF Power Coefficient (p)	0.75792
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1013	-	-	68.0

### Vehicle Results

Average Speed, mi/h	68.0	Percent Followers, %	36.0
Segment Travel Time, minutes	0.17	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	245	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.93	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4569
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	245	Opposing Demand Flow Rate, veh/h	165
Peak Hour Factor	0.88	Total Trucks, %	3.28
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.34958	Speed Power Coefficient (p)	0.54983
PF Slope Coefficient (m)	-1.14981	PF Power Coefficient (p)	0.84100
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	4569	-	-	68.5
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### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	29.7
Segment Travel Time, minutes	0.76	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	245	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.93	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	5676
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	244	Opposing Demand Flow Rate, veh/h	165
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.36055	Speed Power Coefficient (p)	0.54983
PF Slope Coefficient (m)	-1.14222	PF Power Coefficient (p)	0.84066
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5676	-	-	68.5

### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	29.5
Segment Travel Time, minutes	0.94	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	244	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.80	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 12

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	657
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	244	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29350	PF Power Coefficient (p)	0.75785
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	657	-	-	68.0

Vehicle Results			
Average Speed, mi/h	68.0	Percent Followers, %	35.9
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	1.3
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	244	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.80	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	6009
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	244	Opposing Demand Flow Rate, veh/h	165
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.36364	Speed Power Coefficient (p)	0.54983
PF Slope Coefficient (m)	-1.14089	PF Power Coefficient (p)	0.83997

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6009	-	-	68.5

### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	29.5
Segment Travel Time, minutes	1.00	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	244	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.80	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	891
Measured FFS	Measured	Free-Flow Speed, mi/h	50.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	244	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.47375	PF Power Coefficient (p)	0.71164
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	891	-	-	48.0

### Vehicle Results

Average Speed, mi/h	48.0	Percent Followers, %	41.8
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	2.1
Vehicle LOS	B		

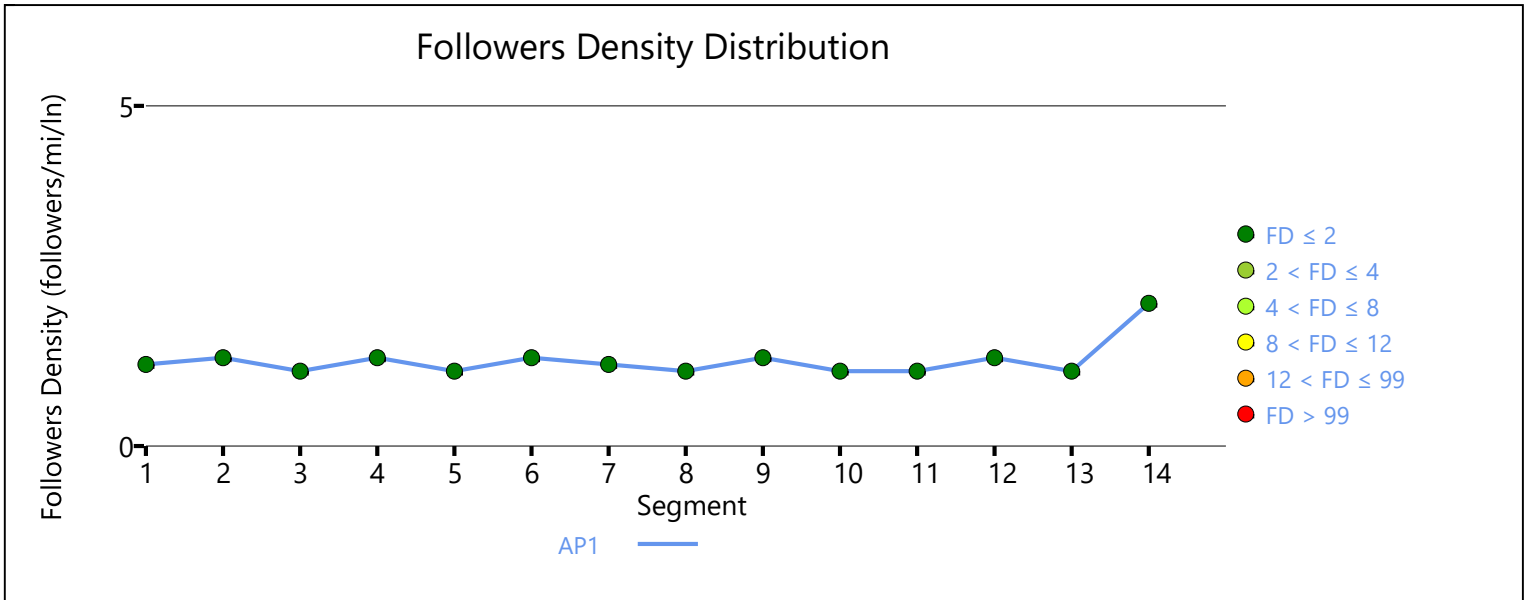
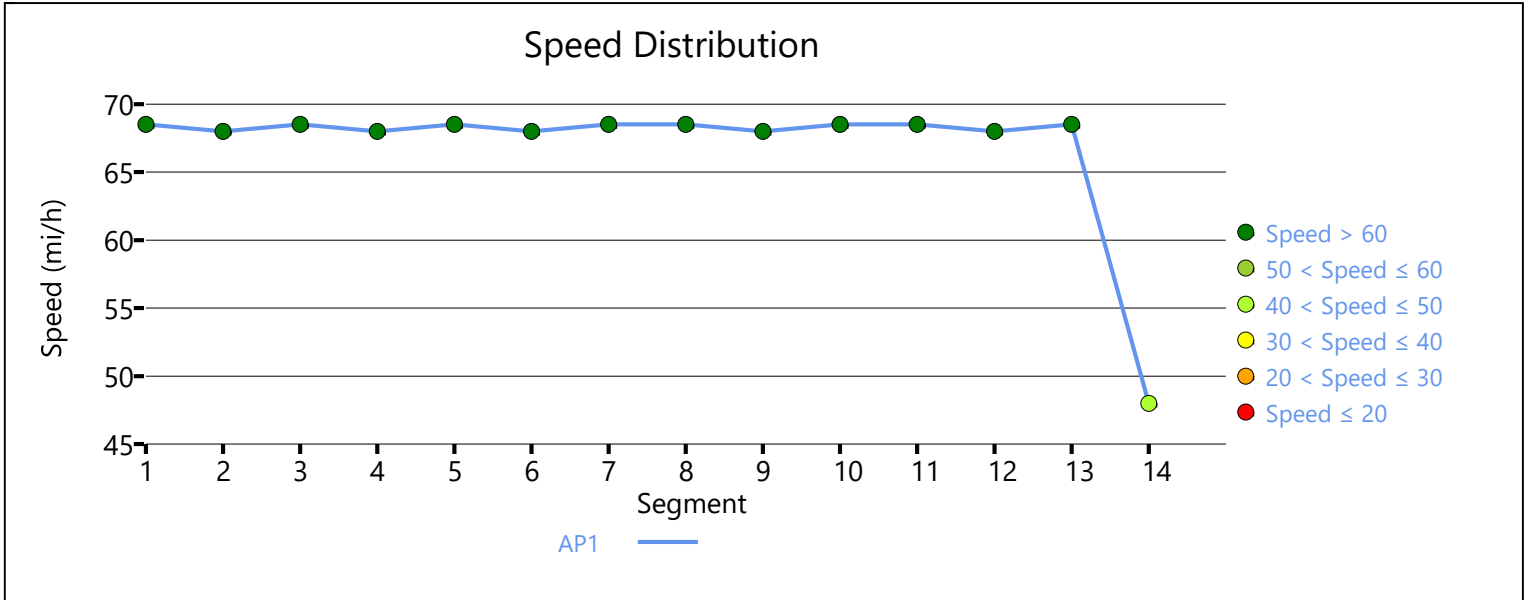
### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	244	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.59	Bicycle Effective Speed Factor	4.42
Bicycle LOS	C		

### Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	327	0.11	1.1	A



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2050 NB
Jurisdiction	SDDOT	Time Analyzed	PM Peak
Project Description	West of Hartford SD 38 EB	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1069
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	157	Opposing Demand Flow Rate, veh/h	286
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.34767	Speed Power Coefficient (p)	0.51808
PF Slope Coefficient (m)	-1.25475	PF Power Coefficient (p)	0.80124
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1069	-	-	69.0

### Vehicle Results

Average Speed, mi/h	69.0	Percent Followers, %	24.8
Segment Travel Time, minutes	0.18	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	157	Bicycle Effective Width, ft	30
Bicycle LOS Score	1.86	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	664
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	157	Opposing Demand Flow Rate, veh/h	-		
Peak Hour Factor	0.88	Total Trucks, %	5.79		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674		
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	664	-	-	68.6
<b>Vehicle Results</b>					
Average Speed, mi/h	68.6	Percent Followers, %	27.2		
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	0.6		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	157	Bicycle Effective Width, ft	30		
Bicycle LOS Score	1.86	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	B				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	1871		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	157	Opposing Demand Flow Rate, veh/h	286		
Peak Hour Factor	0.88	Total Trucks, %	5.79		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.35747	Speed Power Coefficient (p)	0.51808		
PF Slope Coefficient (m)	-1.22915	PF Power Coefficient (p)	0.81213		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1871	-	-	69.0

### Vehicle Results

Average Speed, mi/h	69.0	Percent Followers, %	23.9
Segment Travel Time, minutes	0.31	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	157	Bicycle Effective Width, ft	30
Bicycle LOS Score	1.86	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	925
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	157	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	925	-	-	68.6

### Vehicle Results

Average Speed, mi/h	68.6	Percent Followers, %	27.2
Segment Travel Time, minutes	0.15	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	157	Bicycle Effective Width, ft	30
Bicycle LOS Score	1.86	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		



## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4476
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	157	Opposing Demand Flow Rate, veh/h	286
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.39096	Speed Power Coefficient (p)	0.51808
PF Slope Coefficient (m)	-1.17364	PF Power Coefficient (p)	0.83159
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4476	-	-	69.0

### Vehicle Results

Average Speed, mi/h	69.0	Percent Followers, %	22.2
Segment Travel Time, minutes	0.74	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	157	Bicycle Effective Width, ft	30
Bicycle LOS Score	1.86	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	896
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	157	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29315	PF Power Coefficient (p)	0.75829
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	896	-	-	68.6

### Vehicle Results

Average Speed, mi/h	68.6	Percent Followers, %	27.2
Segment Travel Time, minutes	0.15	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	157	Bicycle Effective Width, ft	30
Bicycle LOS Score	1.86	Bicycle Effective Speed Factor	5.07
Bicycle LOS	B		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	743
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	157	Opposing Demand Flow Rate, veh/h	286
Peak Hour Factor	0.88	Total Trucks, %	5.79
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.34767	Speed Power Coefficient (p)	0.51808
PF Slope Coefficient (m)	-1.25475	PF Power Coefficient (p)	0.80124
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	743	-	-	69.0

### Vehicle Results

Average Speed, mi/h	69.0	Percent Followers, %	24.8
Segment Travel Time, minutes	0.12	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	157	Bicycle Effective Width, ft	30		
Bicycle LOS Score	1.86	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	B				
<b>Segment 8</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	2717		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	164	Opposing Demand Flow Rate, veh/h	289		
Peak Hour Factor	0.88	Total Trucks, %	3.28		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.37072	Speed Power Coefficient (p)	0.51760		
PF Slope Coefficient (m)	-1.20338	PF Power Coefficient (p)	0.82225		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2717	-	-	68.9
<b>Vehicle Results</b>					
Average Speed, mi/h	68.9	Percent Followers, %	23.8		
Segment Travel Time, minutes	0.45	Follower Density (FD), followers/mi/ln	0.6		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	164	Bicycle Effective Width, ft	29		
Bicycle LOS Score	1.40	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	A				
<b>Segment 9</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	1013		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					

Directional Demand Flow Rate, veh/h	164	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.28
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29345	PF Power Coefficient (p)	0.75792
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1013	-	-	68.5

### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	28.0
Segment Travel Time, minutes	0.17	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	164	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.40	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4569
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	164	Opposing Demand Flow Rate, veh/h	289
Peak Hour Factor	0.88	Total Trucks, %	3.28
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.39263	Speed Power Coefficient (p)	0.51760
PF Slope Coefficient (m)	-1.17332	PF Power Coefficient (p)	0.83118
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	4569	-	-	68.9
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### Vehicle Results

Average Speed, mi/h	68.9	Percent Followers, %	22.9
Segment Travel Time, minutes	0.75	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	164	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.40	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	5676
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	164	Opposing Demand Flow Rate, veh/h	280
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.40080	Speed Power Coefficient (p)	0.51956
PF Slope Coefficient (m)	-1.16417	PF Power Coefficient (p)	0.83135
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5676	-	-	68.9

### Vehicle Results

Average Speed, mi/h	68.9	Percent Followers, %	22.8
Segment Travel Time, minutes	0.94	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	164	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.28	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 12

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	657
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	164	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29350	PF Power Coefficient (p)	0.75785
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	657	-	-	68.5

Vehicle Results			
Average Speed, mi/h	68.5	Percent Followers, %	28.0
Segment Travel Time, minutes	0.11	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	164	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.28	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	6009
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	164	Opposing Demand Flow Rate, veh/h	280
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.40389	Speed Power Coefficient (p)	0.51956
PF Slope Coefficient (m)	-1.16281	PF Power Coefficient (p)	0.83065

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6009	-	-	68.9

### Vehicle Results

Average Speed, mi/h	68.9	Percent Followers, %	22.8
Segment Travel Time, minutes	0.99	Follower Density (FD), followers/mi/ln	0.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	164	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.28	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 14

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	891
Measured FFS	Measured	Free-Flow Speed, mi/h	50.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	164	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.82
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.47375	PF Power Coefficient (p)	0.71164
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	891	-	-	48.5

### Vehicle Results

Average Speed, mi/h	48.5	Percent Followers, %	33.4
Segment Travel Time, minutes	0.21	Follower Density (FD), followers/mi/ln	1.1
Vehicle LOS	A		

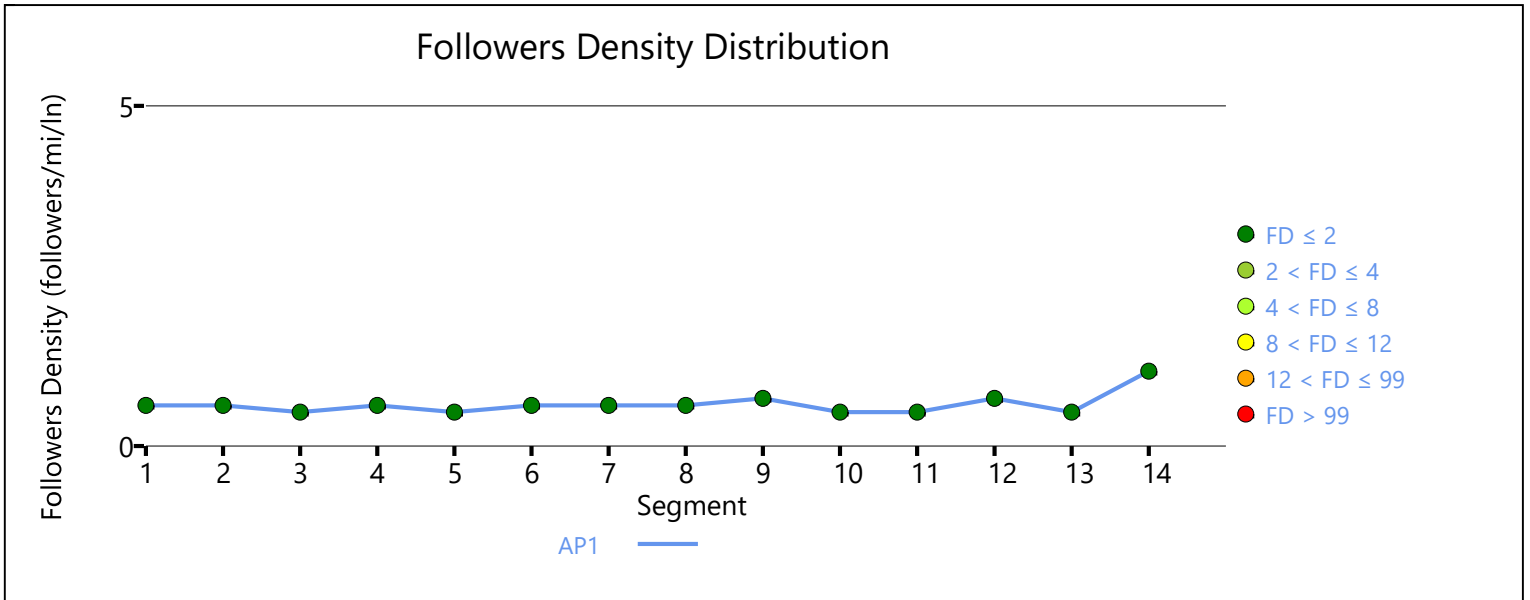
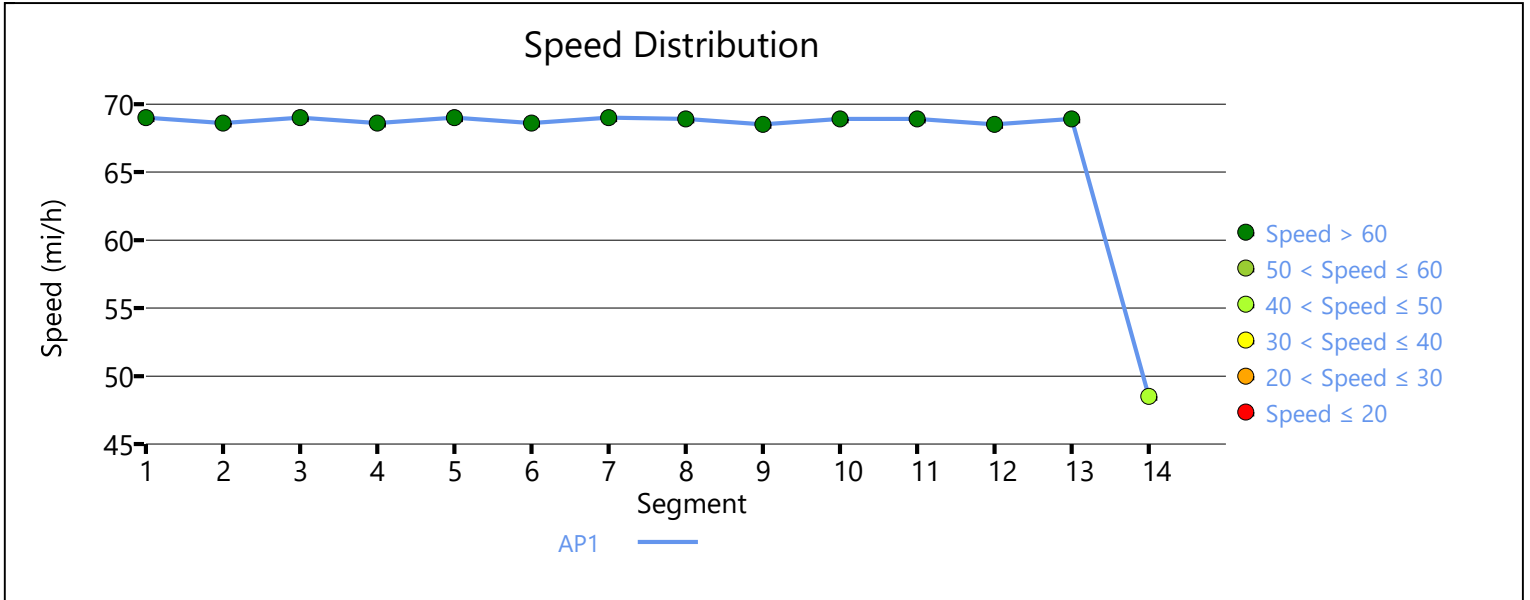
### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
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Flow Rate Outside Lane, veh/h	164	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.06	Bicycle Effective Speed Factor	4.42
Bicycle LOS	A		

### Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	216	0.05	0.6	A





# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2050 NB
Jurisdiction	SDDOT	Time Analyzed	AM Peak
Project Description	WB 38 West of Hartford	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	10549
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	165	Opposing Demand Flow Rate, veh/h	244
Peak Hour Factor	0.88	Total Trucks, %	12.50
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.42827	Speed Power Coefficient (p)	0.52768
PF Slope Coefficient (m)	-1.16689	PF Power Coefficient (p)	0.80729
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	10549	-	-	69.0

### Vehicle Results

Average Speed, mi/h	69.0	Percent Followers, %	23.8
Segment Travel Time, minutes	1.74	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	165	Bicycle Effective Width, ft	29
Bicycle LOS Score	4.94	Bicycle Effective Speed Factor	5.07
Bicycle LOS	E		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2793
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	165	Opposing Demand Flow Rate, veh/h	244		
Peak Hour Factor	0.88	Total Trucks, %	12.50		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.35767	Speed Power Coefficient (p)	0.52768		
PF Slope Coefficient (m)	-1.19319	PF Power Coefficient (p)	0.82737		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2793	-	-	69.0
<b>Vehicle Results</b>					
Average Speed, mi/h	69.0	Percent Followers, %	23.5		
Segment Travel Time, minutes	0.46	Follower Density (FD), followers/mi/ln	0.6		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	165	Bicycle Effective Width, ft	29		
Bicycle LOS Score	4.94	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	E				
<b>Segment 3</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	3825		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	165	Opposing Demand Flow Rate, veh/h	245		
Peak Hour Factor	0.88	Total Trucks, %	2.40		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.37079	Speed Power Coefficient (p)	0.52741		
PF Slope Coefficient (m)	-1.17529	PF Power Coefficient (p)	0.83222		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3825	-	-	69.0

### Vehicle Results

Average Speed, mi/h	69.0	Percent Followers, %	23.1
Segment Travel Time, minutes	0.63	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	165	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.17	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	791
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	165	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.40
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29355	PF Power Coefficient (p)	0.75779
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	791	-	-	68.5

### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	28.1
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	165	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.17	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3414
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	165	Opposing Demand Flow Rate, veh/h	245
Peak Hour Factor	0.88	Total Trucks, %	2.40
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.36595	Speed Power Coefficient (p)	0.52741
PF Slope Coefficient (m)	-1.18179	PF Power Coefficient (p)	0.83026
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3414	-	-	69.0

### Vehicle Results

Average Speed, mi/h	69.0	Percent Followers, %	23.2
Segment Travel Time, minutes	0.56	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	165	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.17	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	286
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	165	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.40
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29355	PF Power Coefficient (p)	0.75779
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	286	-	-	68.5

### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	28.1
Segment Travel Time, minutes	0.05	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	165	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.17	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	463
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	169	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29353	PF Power Coefficient (p)	0.75782
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	463	-	-	68.5

### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	28.6
Segment Travel Time, minutes	0.08	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

<b>Bicycle Results</b>			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	169	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.23	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

### Segment 8

#### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4822
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

#### Demand and Capacity

Directional Demand Flow Rate, veh/h	169	Opposing Demand Flow Rate, veh/h	243
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

#### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.38079	Speed Power Coefficient (p)	0.52796
PF Slope Coefficient (m)	-1.16377	PF Power Coefficient (p)	0.83451
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

#### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4822	-	-	68.9

#### Vehicle Results

Average Speed, mi/h	68.9	Percent Followers, %	23.2
Segment Travel Time, minutes	0.79	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

#### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	169	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.23	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

### Segment 9

#### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	861
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

#### Demand and Capacity

Directional Demand Flow Rate, veh/h	169	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29353	PF Power Coefficient (p)	0.75782
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	861	-	-	68.5

### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	28.6
Segment Travel Time, minutes	0.14	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	169	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.23	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1556
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	169	Opposing Demand Flow Rate, veh/h	243
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.33831	Speed Power Coefficient (p)	0.52796
PF Slope Coefficient (m)	-1.23554	PF Power Coefficient (p)	0.80871
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1556	-	-	68.9
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### Vehicle Results

Average Speed, mi/h	68.9	Percent Followers, %	25.5
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	169	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.23	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	799
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	169	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29353	PF Power Coefficient (p)	0.75782
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	799	-	-	68.5

### Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	28.6
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	0.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	169	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.23	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

## Segment 12



Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	857
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	169	Opposing Demand Flow Rate, veh/h	243
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.33390	Speed Power Coefficient (p)	0.52796
PF Slope Coefficient (m)	-1.24754	PF Power Coefficient (p)	0.80350
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	857	-	-	68.9

Vehicle Results			
Average Speed, mi/h	68.9	Percent Followers, %	25.9
Segment Travel Time, minutes	0.14	Follower Density (FD), followers/mi/ln	0.6
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	169	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.23	Bicycle Effective Speed Factor	5.07
Bicycle LOS	A		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1288
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	169	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.39677	PF Power Coefficient (p)	0.73640

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

**Subsegment Data**

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1288	-	-	58.5

**Vehicle Results**

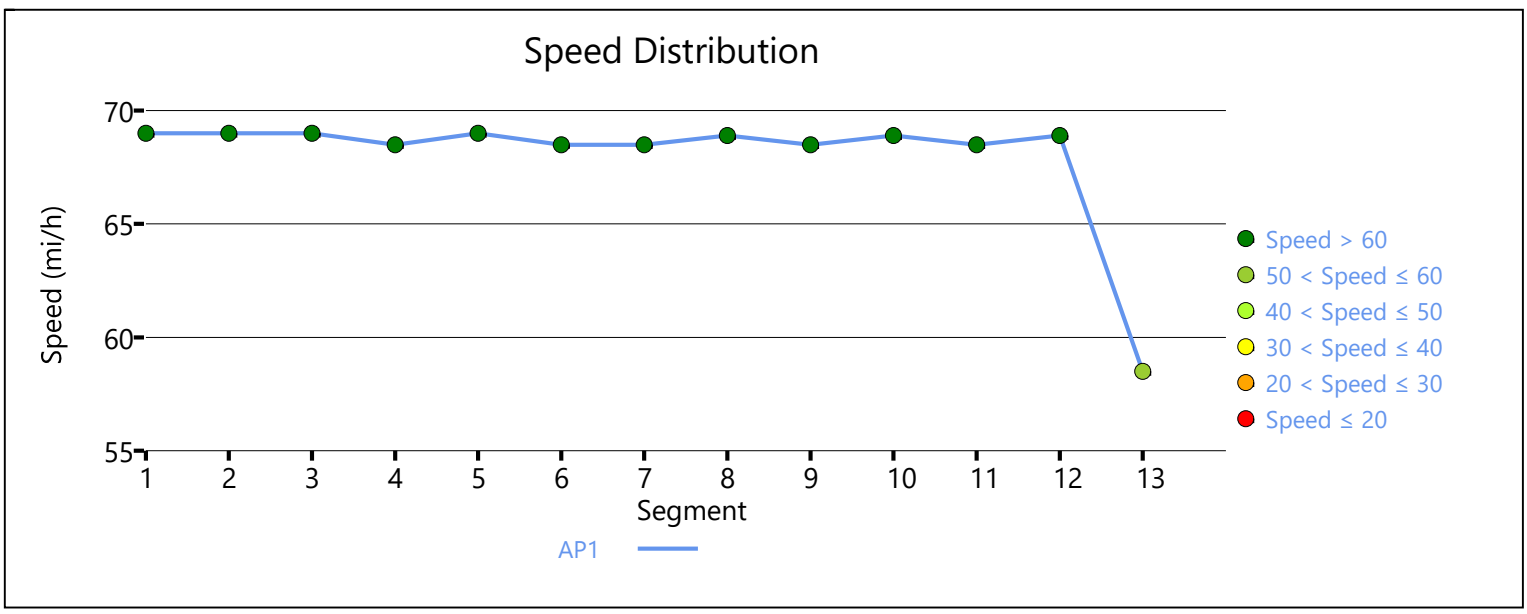
Average Speed, mi/h	58.5	Percent Followers, %	31.5
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	0.9
Vehicle LOS	A		

**Bicycle Results**

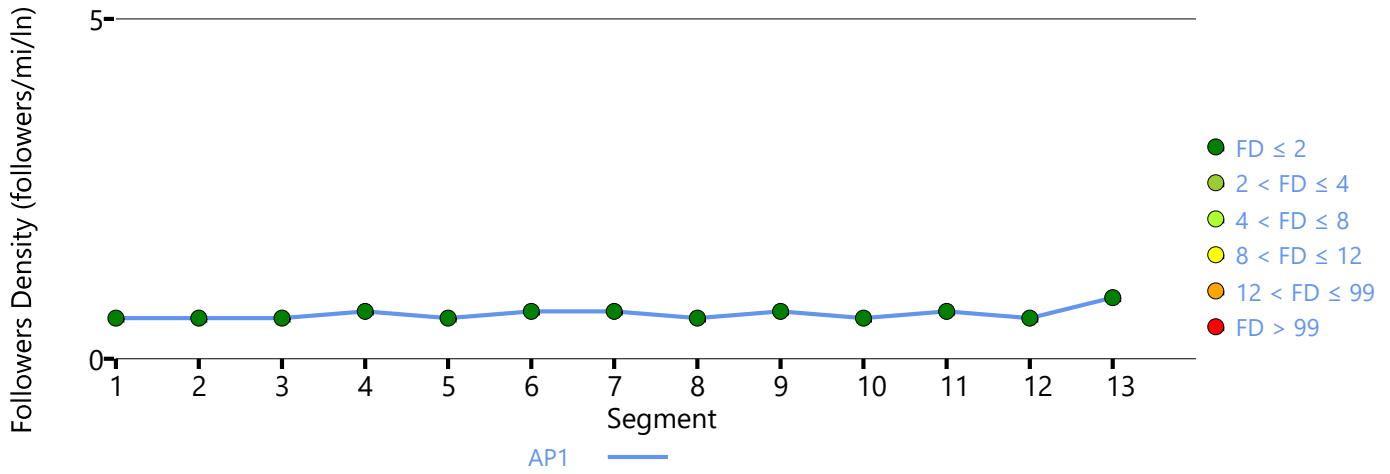
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	169	Bicycle Effective Width, ft	29
Bicycle LOS Score	1.14	Bicycle Effective Speed Factor	4.79
Bicycle LOS	A		

**Facility Results**

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	224	0.05	0.6	A



# Followers Density Distribution



# HCS Two-Lane Highway Report

## Project Information

Analyst	MJV	Date	5/11/2023
Agency	HRG	Analysis Year	2050 NB
Jurisdiction	SDDOT	Time Analyzed	PM Peak
Project Description	WB 38 West of Hartford	Units	U.S. Customary

## Segment 1

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	10549
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	280	Opposing Demand Flow Rate, veh/h	164
Peak Hour Factor	0.88	Total Trucks, %	1.94
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.16

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.39885	Speed Power Coefficient (p)	0.55020
PF Slope Coefficient (m)	-1.15143	PF Power Coefficient (p)	0.81244
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	10549	-	-	68.3

### Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	33.6
Segment Travel Time, minutes	1.76	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	280	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.64	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 2

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2793
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

<b>Demand and Capacity</b>							
Directional Demand Flow Rate, veh/h		280		Opposing Demand Flow Rate, veh/h		164	
Peak Hour Factor		0.88		Total Trucks, %		1.94	
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)		0.16	
<b>Intermediate Results</b>							
Segment Vertical Class		1		Free-Flow Speed, mi/h		70.0	
Speed Slope Coefficient (m)		4.32824		Speed Power Coefficient (p)		0.55020	
PF Slope Coefficient (m)		-1.17723		PF Power Coefficient (p)		0.83227	
In Passing Lane Effective Length?		No		Total Segment Density, veh/mi/ln		1.4	
%Improvement to Percent Followers		0.0		%Improvement to Speed		0.0	
<b>Subsegment Data</b>							
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h		
1	Tangent	2793	-	-	68.3		
<b>Vehicle Results</b>							
Average Speed, mi/h		68.3		Percent Followers, %		33.5	
Segment Travel Time, minutes		0.46		Follower Density (FD), followers/mi/ln		1.4	
Vehicle LOS		A					
<b>Bicycle Results</b>							
Percent Occupied Parking		0		Pavement Condition Rating		4	
Flow Rate Outside Lane, veh/h		280		Bicycle Effective Width, ft		24	
Bicycle LOS Score		2.64		Bicycle Effective Speed Factor		5.07	
Bicycle LOS		C					
<b>Segment 3</b>							
<b>Vehicle Inputs</b>							
Segment Type		Passing Zone		Length, ft		3825	
Measured FFS		Measured		Free-Flow Speed, mi/h		70.0	
<b>Demand and Capacity</b>							
Directional Demand Flow Rate, veh/h		289		Opposing Demand Flow Rate, veh/h		164	
Peak Hour Factor		0.88		Total Trucks, %		2.19	
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)		0.17	
<b>Intermediate Results</b>							
Segment Vertical Class		1		Free-Flow Speed, mi/h		70.0	
Speed Slope Coefficient (m)		4.34098		Speed Power Coefficient (p)		0.55020	
PF Slope Coefficient (m)		-1.15833		PF Power Coefficient (p)		0.83897	
In Passing Lane Effective Length?		No		Total Segment Density, veh/mi/ln		1.4	
%Improvement to Percent Followers		0.0		%Improvement to Speed		0.0	
<b>Subsegment Data</b>							

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3825	-	-	68.3

### Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	33.5
Segment Travel Time, minutes	0.64	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	289	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.72	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 4

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	791
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	289	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.19
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29358	PF Power Coefficient (p)	0.75776
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	791	-	-	67.7

### Vehicle Results

Average Speed, mi/h	67.7	Percent Followers, %	39.6
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	289	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.72	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 5

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3414
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	289	Opposing Demand Flow Rate, veh/h	164
Peak Hour Factor	0.88	Total Trucks, %	2.19
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.33614	Speed Power Coefficient (p)	0.55020
PF Slope Coefficient (m)	-1.16472	PF Power Coefficient (p)	0.83695
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3414	-	-	68.3

### Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	33.7
Segment Travel Time, minutes	0.57	Follower Density (FD), followers/mi/ln	1.4
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	289	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.72	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 6

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	286
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	289	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	2.19
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
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Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29358	PF Power Coefficient (p)	0.75776
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	286	-	-	67.7

### Vehicle Results

Average Speed, mi/h	67.7	Percent Followers, %	39.6
Segment Travel Time, minutes	0.05	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	289	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.72	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 7

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	463
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	286	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29347	PF Power Coefficient (p)	0.75789
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	463	-	-	67.7

### Vehicle Results

Average Speed, mi/h	67.7	Percent Followers, %	39.4
Segment Travel Time, minutes	0.08	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		



<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	286	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.95	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
<b>Segment 8</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Zone	Length, ft	4822		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					
Directional Demand Flow Rate, veh/h	286	Opposing Demand Flow Rate, veh/h	157		
Peak Hour Factor	0.88	Total Trucks, %	3.08		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17		
<b>Intermediate Results</b>					
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0		
Speed Slope Coefficient (m)	4.34895	Speed Power Coefficient (p)	0.55243		
PF Slope Coefficient (m)	-1.14563	PF Power Coefficient (p)	0.84199		
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.4		
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0		
<b>Subsegment Data</b>					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4822	-	-	68.3
<b>Vehicle Results</b>					
Average Speed, mi/h	68.3	Percent Followers, %	33.0		
Segment Travel Time, minutes	0.80	Follower Density (FD), followers/mi/ln	1.4		
Vehicle LOS	A				
<b>Bicycle Results</b>					
Percent Occupied Parking	0	Pavement Condition Rating	4		
Flow Rate Outside Lane, veh/h	286	Bicycle Effective Width, ft	24		
Bicycle LOS Score	2.95	Bicycle Effective Speed Factor	5.07		
Bicycle LOS	C				
<b>Segment 9</b>					
<b>Vehicle Inputs</b>					
Segment Type	Passing Constrained	Length, ft	861		
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0		
<b>Demand and Capacity</b>					

Directional Demand Flow Rate, veh/h	286	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29347	PF Power Coefficient (p)	0.75789
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	861	-	-	67.7

### Vehicle Results

Average Speed, mi/h	67.7	Percent Followers, %	39.4
Segment Travel Time, minutes	0.14	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	286	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.95	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 10

### Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1556
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	286	Opposing Demand Flow Rate, veh/h	157
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.30647	Speed Power Coefficient (p)	0.55243
PF Slope Coefficient (m)	-1.21611	PF Power Coefficient (p)	0.81541
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
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1	Tangent	1556	-	-	68.3
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### Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	35.5
Segment Travel Time, minutes	0.26	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	286	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.95	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 11

### Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	799
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

### Demand and Capacity

Directional Demand Flow Rate, veh/h	286	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

### Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29347	PF Power Coefficient (p)	0.75789
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	799	-	-	67.7

### Vehicle Results

Average Speed, mi/h	67.7	Percent Followers, %	39.4
Segment Travel Time, minutes	0.13	Follower Density (FD), followers/mi/ln	1.7
Vehicle LOS	A		

### Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	286	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.95	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

## Segment 12

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	857
Measured FFS	Measured	Free-Flow Speed, mi/h	70.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	286	Opposing Demand Flow Rate, veh/h	157
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	70.0
Speed Slope Coefficient (m)	4.30206	Speed Power Coefficient (p)	0.55243
PF Slope Coefficient (m)	-1.22789	PF Power Coefficient (p)	0.81007
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	857	-	-	68.3

Vehicle Results			
Average Speed, mi/h	68.3	Percent Followers, %	36.0
Segment Travel Time, minutes	0.14	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	286	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.95	Bicycle Effective Speed Factor	5.07
Bicycle LOS	C		

### Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1288
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	286	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.88	Total Trucks, %	3.08
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.57372	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.39671	PF Power Coefficient (p)	0.73647

In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

**Subsegment Data**

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1288	-	-	57.7

**Vehicle Results**

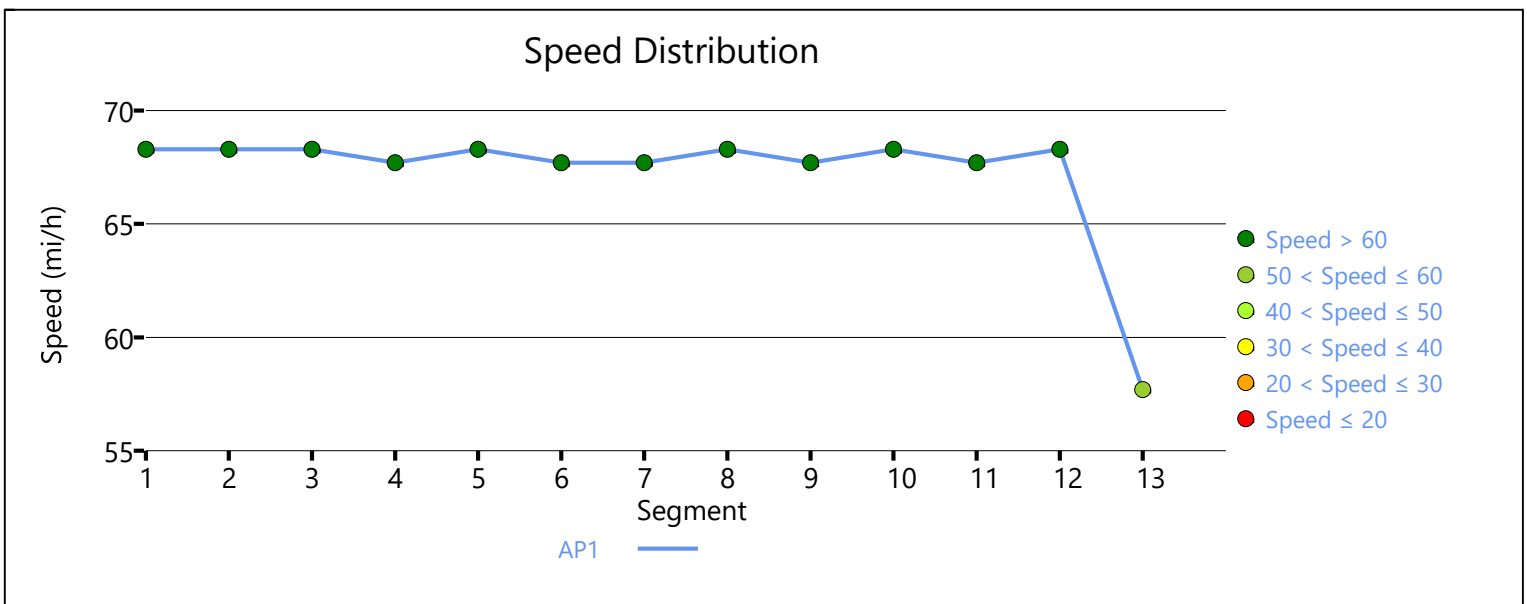
Average Speed, mi/h	57.7	Percent Followers, %	42.7
Segment Travel Time, minutes	0.25	Follower Density (FD), followers/mi/ln	2.1
Vehicle LOS	B		

**Bicycle Results**

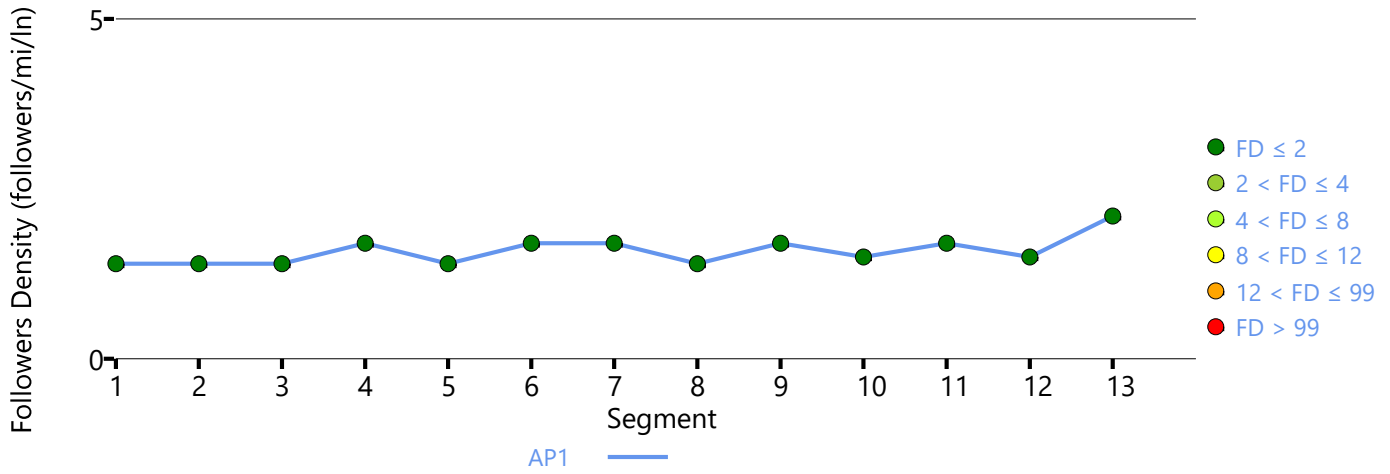
Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	286	Bicycle Effective Width, ft	24
Bicycle LOS Score	2.86	Bicycle Effective Speed Factor	4.79
Bicycle LOS	C		

**Facility Results**

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	382	0.15	1.5	A

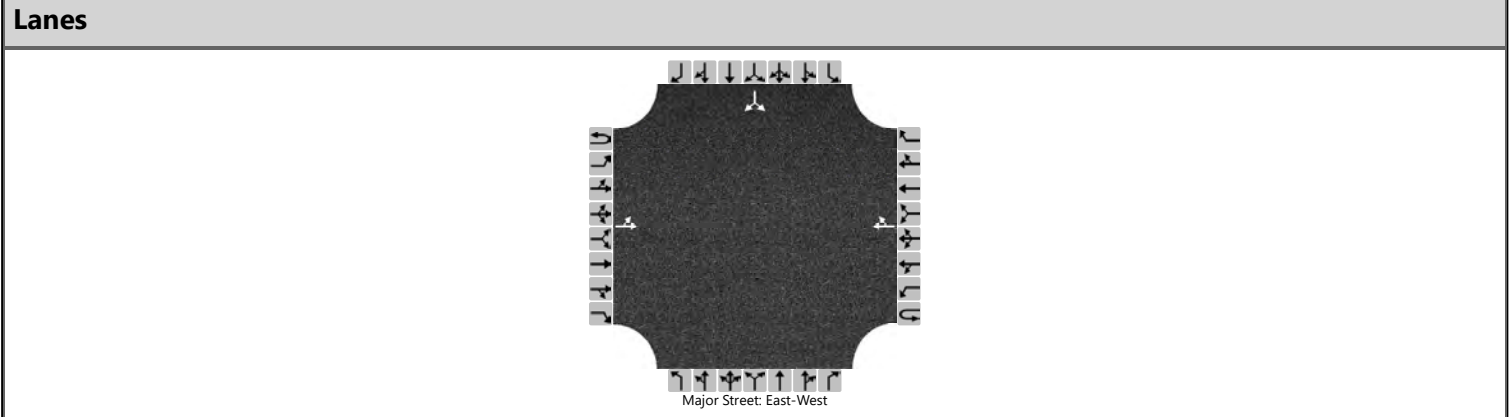


# Followers Density Distribution



# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	CEC			Intersection	SD 38 & I-90 Expressway		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	7/21/2023			East/West Street	SD 38		
Analysis Year	2023			North/South Street	I-90 Expressway		
Time Analyzed	Event Arrival			Peak Hour Factor	0.79		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		62	77				96	240						7		0
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

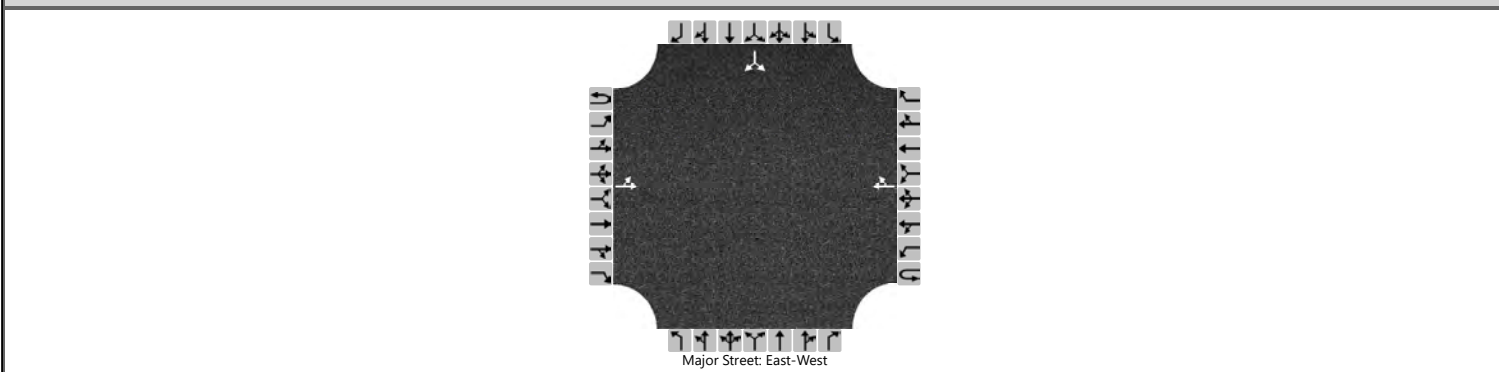
**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		78													9		
Capacity, c (veh/h)		1134													474		
v/c Ratio		0.07													0.02		
95% Queue Length, Q <sub>95</sub> (veh)		0.2													0.1		
Control Delay (s/veh)		8.4	0.6												12.7		
Level of Service (LOS)		A	A												B		
Approach Delay (s/veh)		4.1												12.7			
Approach LOS		A												B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	CEC			Intersection	SD 38 & I-90 Expressway		
Agency/Co.	HRG			Jurisdiction	SDDOT		
Date Performed	7/21/2023			East/West Street	SD 38		
Analysis Year	2023			North/South Street	I-90 Expressway		
Time Analyzed	Departure			Peak Hour Factor	0.71		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	SD 38						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		2	29				5	1						349		135
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3														682	
Capacity, c (veh/h)		1612														983	
v/c Ratio		0.00														0.69	
95% Queue Length, Q <sub>95</sub> (veh)		0.0														5.9	
Control Delay (s/veh)		7.2	0.0													16.5	
Level of Service (LOS)		A	A													C	
Approach Delay (s/veh)		0.5												16.5			
Approach LOS		A												C			