

Van Tuyl Village
Updated Traffic Impact Analysis Report

August 30, 2006





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August 30, 2006

West Elk Investments, LLC
c/o Mr. Robert Williams
Williams Engineering, LLC
80 Camino Del Rio, Suite 1
Gunnison, Colorado 81230

RE: Van Tuyl Village
Updated Traffic Impact Analysis Report
Gunnison, Colorado
LSC #066250

Dear Mr. Williams:

In response to your request, LSC Transportation Consultants, Inc. has prepared this updated traffic impact analysis report for the proposed Van Tuyl Village mixed-use development. The report first provides a summary of the existing street conditions and traffic volumes in the vicinity of the proposed development. Next, estimates were made regarding the amount and directional distribution of the vehicular traffic likely to be generated by the development. This information was then combined with the projected future traffic volumes in the vicinity of the site, in order to evaluate the impact of the new development on the future street system and, where appropriate, to make recommendations for the required street improvements.

We trust that our findings and recommendations will assist you in planning and gaining approval of the proposed Van Tuyl Village mixed-use development. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By 
Christopher S. McGranahan, P.E., PTOE
Senior Transportation Engineer



CSM:DCJ:rf

8-30-06

Van Tuyl Village Updated Traffic Impact Analysis Report

August 30, 2006

Prepared for:

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LSC #066250

August 30, 2006

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Executive Summary



Executive Summary

LSC Transportation Consultants, Inc. has prepared this updated traffic impact analysis report for the proposed Van Tuyl Village mixed-use development. The site is located on the west side of State Highway 135 (SH 135) between Spencer Avenue and County Road 13 (CR 13) on the north side of Gunnison, Colorado.

The site is proposed as approximately 61 single-family homes, 82 apartment units, and a maximum of 162,000 square feet of shopping center space based on the square footage to acreage ratio of 35 percent requested by the City of Gunnison staff. The amount ultimately built will likely be less than 162,000 square feet.

PROPOSED SITE ACCESS

The proposed primary site access does not meet the spacing criteria in the *Colorado State Highway Access Code* for full movement intersections, but would align with the existing Colorado Street and is supported by the City of Gunnison staff. It is unlikely that the intersection would ever be signalized due to its proximity to the existing Spencer Avenue traffic signal. For these reasons, the primary site access is proposed as a three-quarter movement with no left-turn movements allowed onto SH 135 from either the site access or Colorado Street. A review of the current traffic counts confirmed that the existing westbound left-turn traffic volumes from Colorado Street onto SH 135 are very low, and have redundant access.

Secondary SH 135 site access will be via the existing Spencer Avenue signalized intersection and the existing CR 13 unsignalized intersection.

TRAFFIC COUNTS

The traffic counts were conducted during July 2006 in order to capture the summer season peak traffic volumes. The Spencer Avenue traffic volumes were increased by approximately 50 westbound vehicles and 30 eastbound vehicles

during the morning peak hour in an attempt to approximate school traffic volumes.

TRIP GENERATION

The site is projected to generate about 8,840 new vehicle-trips on the typical weekday, with about half of the vehicles entering and half of the vehicles exiting the site in a 24-hour period. During the weekday morning peak hour, about 150 vehicles would enter and 155 vehicles would exit the site. During the weekday afternoon peak hour, about 485 vehicles would enter and 490 vehicles would exit the site.

PROJECTED LEVELS OF SERVICE

All of the movements at the analyzed intersections are projected to operate at acceptable levels of service (LOS) through the year 2026 with the addition of the site-generated traffic volumes, with the following exception. The eastbound left-turn movement from CR 13 onto SH 135 is projected to operate at LOS F during the afternoon peak hour based on the 2026 total traffic volumes. During the afternoon peak hour, it is projected that there will be sufficient capacity for this eastbound left-turn movement to be made at Spencer Avenue instead.

RECOMMENDED STREET IMPROVEMENTS

Table 3 shows the improvements required to achieve the projected levels of service, a projected timeline for each improvement, and the recommended party responsible for funding each improvement.

CDOT STATE HIGHWAY ACCESS PERMITS

The Colorado Department of Transportation (CDOT) will require CDOT State Highway Access Permits for the proposed primary site access aligning with Colorado Street and the two secondary site access points at the western Spencer Avenue and CR 13 approaches to SH 135.

RECOMMENDED SIDEWALK AND BICYCLE IMPROVEMENTS

A sidewalk is proposed for the site's internal streets and along the site perimeter. In addition, a sidewalk is proposed to connect the site perimeter to the traffic signal pedestrian crossing at SH 135 and Spencer Avenue.

On-street bicycle lanes are proposed on both sides of Vulcan Street along the site frontage.

LOCAL NEIGHBORHOOD TRAFFIC IMPACTS

The site-generated traffic volumes will increase the traffic volumes on the local streets surrounding the site. The neighborhood traffic impact is expected to be relatively minor, with most of the traffic impact occurring along Spencer Avenue and CR 13. Significant street capacity will remain after the addition of the site-generated traffic volumes. For example, the 2026 total east/west through traffic volumes projected on Spencer Avenue and CR 13 could double from the estimates and all the side roads would still be projected to operate at acceptable levels of service.

Updated Traffic Impact Analysis Report



SECTION A

Introduction

LSC Transportation Consultants, Inc. has prepared this updated traffic impact analysis report for the proposed Van Tuyl Village mixed-use development. As shown on Figure 1, the site is located on the west side of State Highway 135 (SH 135) between Spencer Avenue and County Road 13 (CR 13) on the north side of Gunnison, Colorado.

This report is being prepared as part of a submittal to the City of Gunnison and the Colorado Department of Transportation (CDOT). The report identifies the traffic impacts of the proposed development on the surrounding street system and the street system improvements needed to mitigate the traffic impacts.

The report contains the following: a determination of the existing traffic and street conditions in the vicinity of the site including the lane geometries and traffic controls; the projected weekday, morning peak-hour, and afternoon peak-hour vehicle-trips to be generated by the proposed development; the assignment of the projected traffic volumes to the surrounding street system; a projection of the future 2026 background and 2026 total traffic volumes on the street system; and the resulting traffic impacts. Based on the traffic impacts, LSC has recommended improvements to the surrounding street system, along with a projected time horizon and proposed funding responsibility for each improvement.

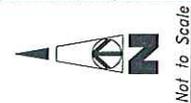
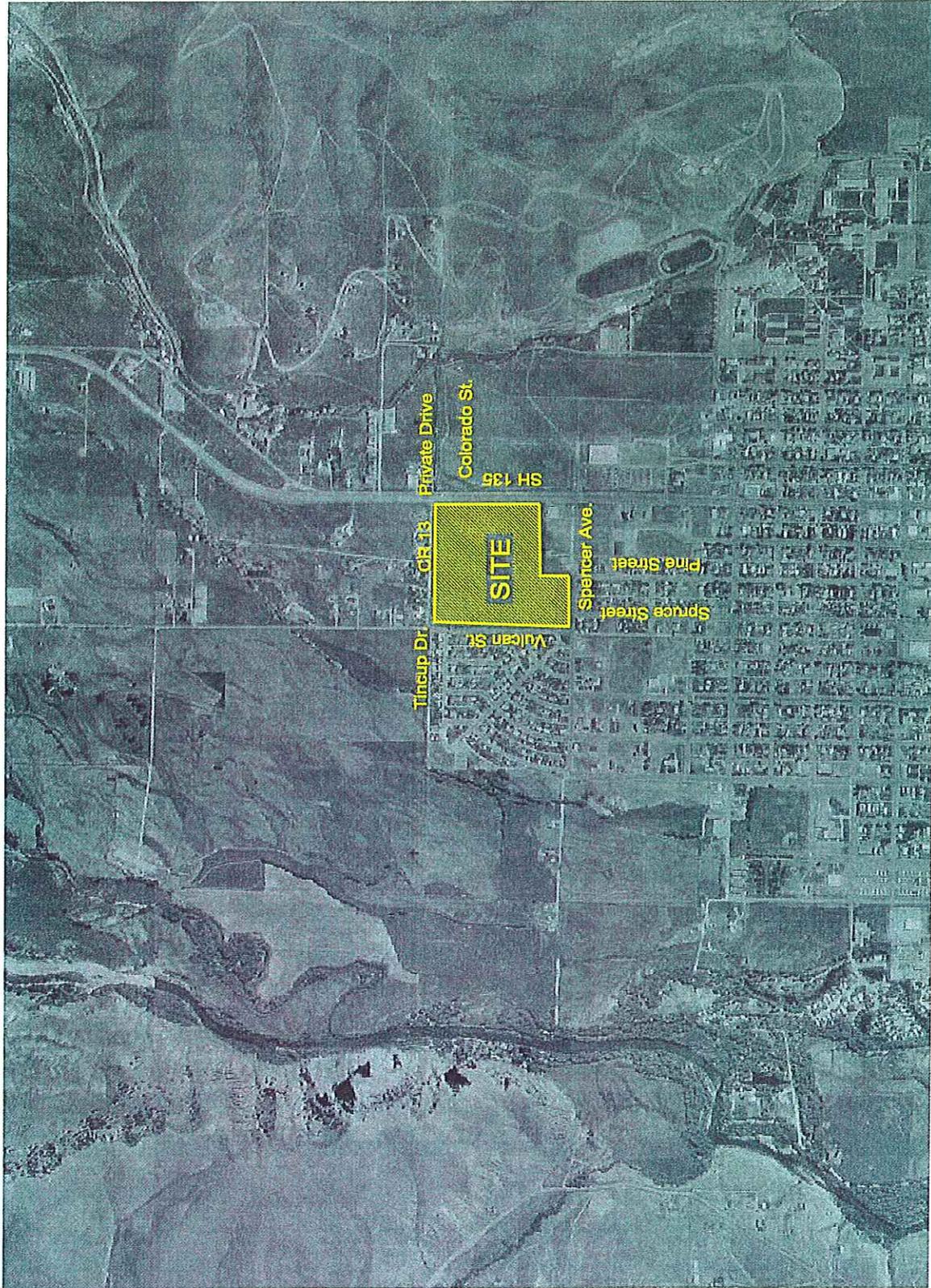


Figure 1
LSC # 066250

Vicinity Map
Van Tuyl Village

Land Use and Access

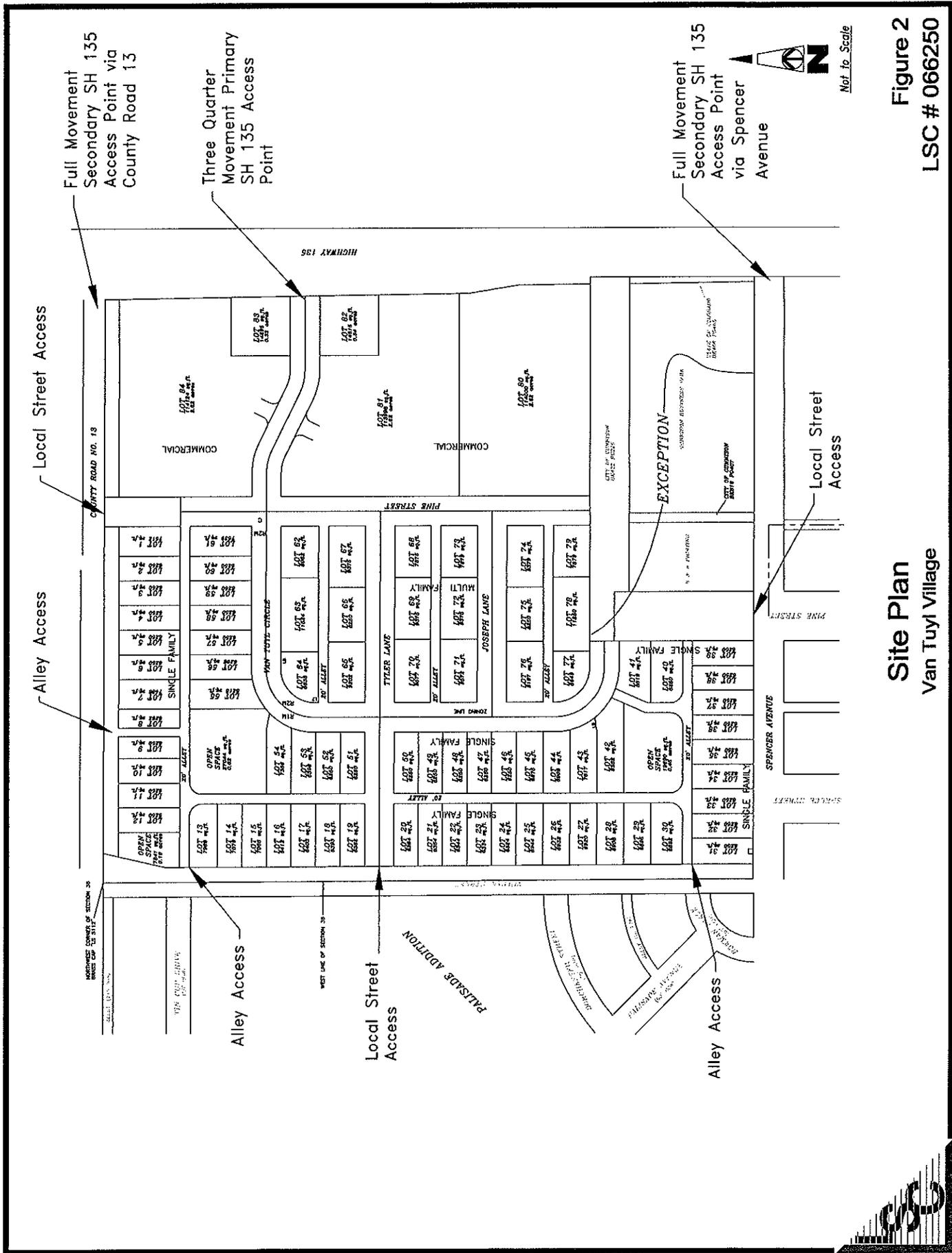
The existing land use in the vicinity of the site is agricultural.

Figure 2 shows the preliminary site plan. The site is proposed as approximately 61 single-family homes, 82 apartment units, and a maximum of 162,000 square feet of shopping center space based on the square footage to acreage ratio of 35 percent required by the City of Gunnison staff. The amount ultimately built will likely be less than 162,000 square feet.

Table 1 shows the site access points to SH 135.

The proposed primary site access does not meet the spacing criteria in the *Colorado State Highway Access Code* for full movement intersections, but would align with the existing Colorado Street and is supported by the City of Gunnison staff. It is unlikely that the intersection would ever be signalized due to its proximity to the existing Spencer Avenue traffic signal. For these reasons, the primary site access is proposed as a three-quarter movement with no left-turn movements allowed onto SH 135 from either the site access or Colorado Street. A review of the current traffic counts confirmed that the existing westbound left-turn traffic volumes from Colorado Street onto SH 135 are very low, and have redundant access.

Secondary SH 135 site access will be via the existing Spencer Avenue signalized intersection and the existing CR 13 unsignalized intersection.



Not to Scale



Figure 2
LSC # 066250

Site Plan
Van Tuyl Village



Table 1 State Highway Access Description Van Tuyl Village			
Timeline	Primary Site Access	Secondary Site Access	Secondary Site Access
2006 Total Traffic	Three-quarter movement access on State Highway 135 aligning with Colorado Street	Full-movement unsignalized access on State Highway 135 via County Road 13	Full-movement signalized access on State Highway 135 via Spencer Avenue
2026 Total Traffic	Three-quarter movement access on State Highway 135 aligning with Colorado Street	Full-movement unsignalized access on State Highway 135 via County Road 13	Full-movement signalized access on State Highway 135 via Spencer Avenue
Source: LSC Transportation Consultants, Inc.			Date: 08/30/2006

SECTION C

Area Streets

The streets adjacent to the site are shown on Figure 1, and are listed below followed by a brief description.

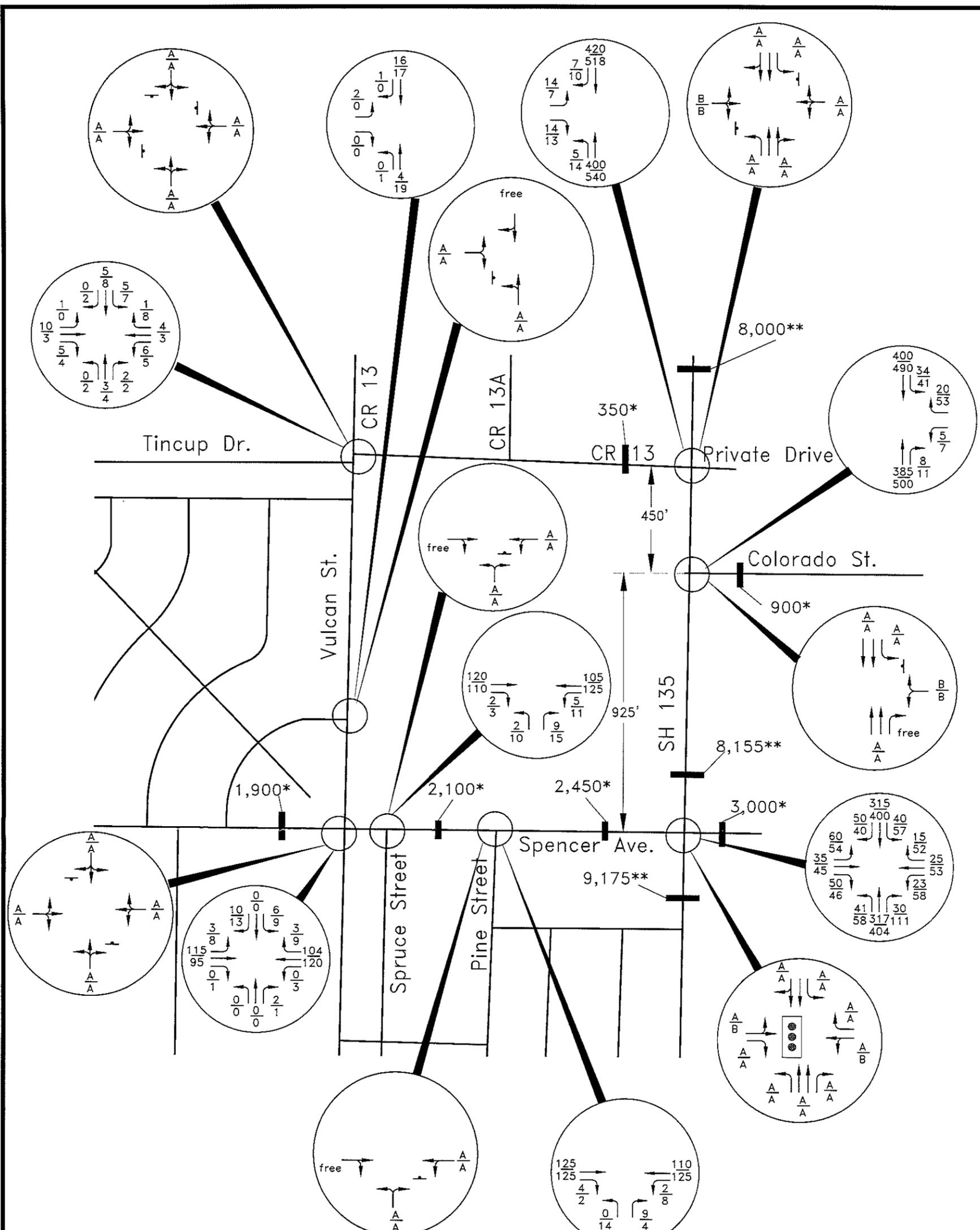
- **State Highway 135 (SH 135)** is a north/south route extending from the southern terminus at US Highway 50 (US 50) in downtown Gunnison to the northern terminus in the area of Crested Butte, Colorado. Adjacent to the site, SH 135 is a five-lane roadway classified as a Non-Rural Arterial (N-RA) by CDOT. The posted speed limit on SH 135 is 40 miles per hour (mph) in the vicinity of the site, and transitions to 55 mph just north of CR 13.
- **County Road 13 (CR 13)** is a relatively narrow paved County Road that provides access to SH 135 on the north side of the site. The posted speed limit on CR 13 is 25 mph in the vicinity of the site.
- **Colorado Street** is a city street accessing SH 135 from the east. The primary site access is proposed to align with Colorado Street.
- **Pine Street** is a city street extending south from Spencer Avenue through the City of Gunnison's grid system to US 50. The site's primary north/south street is proposed to align with Pine Street at Spencer Avenue.
- **Spencer Avenue** is a city street located south of the site. Spencer Avenue is improved with curb and gutter, and has signalized access to SH 135. The posted speed limit on Spencer Avenue is 30 mph in the vicinity of the site. To the east of SH 135, Spencer Avenue accesses the north end of the WalMart and City Market development.
- **Spruce Street** is a city street extending south from Spencer Avenue through the City of Gunnison's grid system to US 50.
- **Vulcan Street** is a city street extending south from CR 13 on the west side of the site. Unlike Pine Street and Spruce Street, Vulcan Street does not extend south all the way to US 50, but rather terminates at Arthur Avenue.

SECTION D

Existing Traffic

Figure 3 shows the existing morning and afternoon peak-hour traffic volumes for the intersections in the vicinity of the site, as well as the estimated weekday traffic volumes on the streets surrounding the site. Figure 3 also shows the existing lane geometries, traffic controls, and levels of service for the intersections surrounding the site.

The traffic counts were conducted during July 2006 in order to capture the summer season peak traffic volumes. The Spencer Avenue traffic volumes were increased by approximately 50 westbound vehicles and 30 eastbound vehicles during the morning peak hour in an attempt to approximate school traffic volumes.



Legend:

$\frac{xxx}{xxx} \frac{am}{pm}$ - Weekday peak-hour traffic (vehicles per hour)

XX,XXX - Average weekday traffic (vehicles per day)

* Estimated by LSC from the peak hour counts

** Based on information obtained from the CDOT website

$\frac{x}{x} \frac{am}{pm}$ - Individual movement peak-hour Level of Service

T - Stop sign

●●● - Traffic Signal



Existing Traffic, Lane Geometry, Traffic Control and Level of Service Figure 3
 Van Tuyl Village LSC # 066250



SECTION E

Trip Generation

Estimates of the traffic volumes expected to be generated by the development have been made using the nationally published trip generation rates found in *Trip Generation, 6th Edition, 1997* by the Institute of Transportation Engineers (ITE). Table 2 shows the results of the trip generation estimates for the site assuming a maximum shopping center floor area to acreage ratio of 35 percent, as required by the City of Gunnison staff. The amount ultimately built will likely be less than 162,000 square feet.

A pass-by trip is one made by a motorist who would already be on an adjacent street regardless of this development, but who stops in at the site while passing by. The motorist would then continue on his or her way to a final destination in the original direction. To be conservative, the pass-by trips assumed for the site are half of those recommended by the "Trip Generation Handbook - An ITE Proposed Recommended Practice, October 1998" by ITE.

The site is projected to generate about 8,840 new vehicle-trips on the typical weekday, with about half of the vehicles entering and half of the vehicles exiting the site in a 24-hour period. During the weekday morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 150 vehicles would enter and 155 vehicles would exit the site. During the weekday afternoon peak hour, which generally occurs for one hour between 4:30 and 6:30 p.m., about 485 vehicles would enter and 490 vehicles would exit the site.

**Table 2
Trip Generation Estimates
Van Tuyl Village**

Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates ⁽¹⁾						Total Trips Generated						Trips Generated	
			Average Weekday Traffic		Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic		Morning Peak Hour		Afternoon Peak Hour		Percentage of Pass-By Trips ⁽²⁾	Average New Weekday Traffic
			In	Out	In	Out	In	Out	In	Out	In	Out				
210	Single-Family Detached Housing	61 DU ⁽³⁾	9.57	0.19	0.56	0.65	0.36	584	11	34	39	22	0%	584		
220	Apartment	82 DU	6.63	0.08	0.43	0.42	0.20	544	7	35	34	17	0%	544		
820	Shopping Center ⁽⁴⁾	162 KSF ⁽⁵⁾	57.38	0.80	0.51	2.56	2.77	9,296	130	83	414	449	17%	7,716		
Total								10,423	148	152	487	488		8,843		

Notes:

- (1) Source: "Trip Generation, 6th Edition, 1997" by the Institute of Transportation Engineers (ITE)
- (2) Source: "Trip Generation Handbook - An ITE Proposed Recommended Practice, October 1998" by ITE
- (3) DU = dwelling unit
- (4) Assumes the shopping center at a 35 percent floor area ratio, as required by the City of Gunnison staff. The amount ultimately built will likely be less than 162,000 square feet.
- (5) KSF = thousand square feet

Source: LSC Transportation Consultants, Inc.

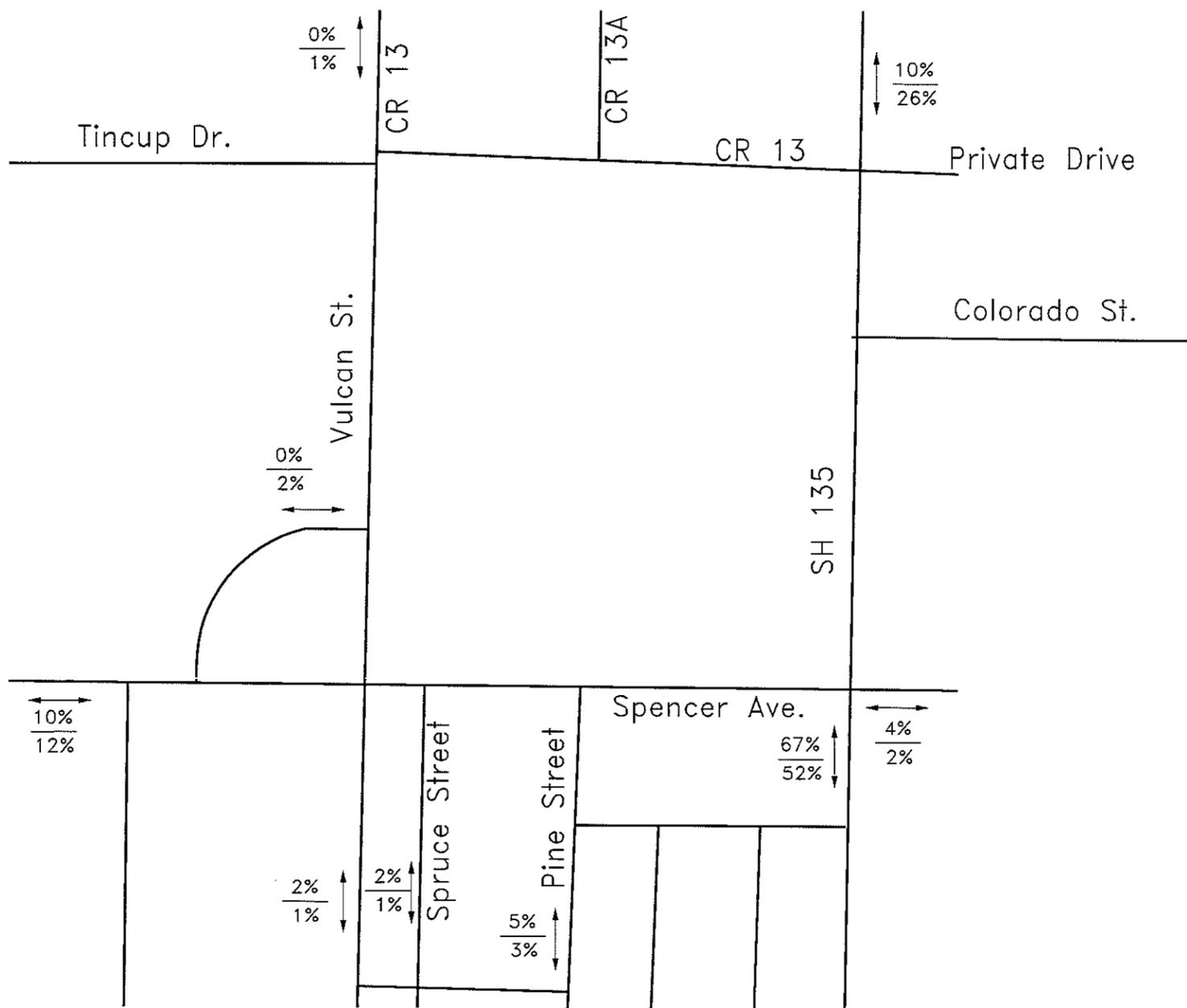
Date: 08/30/06

Trip Distribution and Assignment

The directional distribution of the traffic volumes to be generated by the development is an important factor in determining the site's traffic impacts. There are many factors that determine the distribution including: the location of the site with respect to the residential, employment, and activity centers and the balance of the City of Gunnison area; the land uses proposed for the site; and the street system serving the site.

Figure 4 shows the projected weekday, morning peak-hour, and afternoon peak-hour site-generated traffic distribution for the residential and commercial portions of the site.

The site-generated traffic volumes on the adjacent street system were determined by applying the distribution percentages (from Figure 4) to the trip generation estimates (from Table 2). Figure 5 shows the site-generated traffic volumes.



Legend:

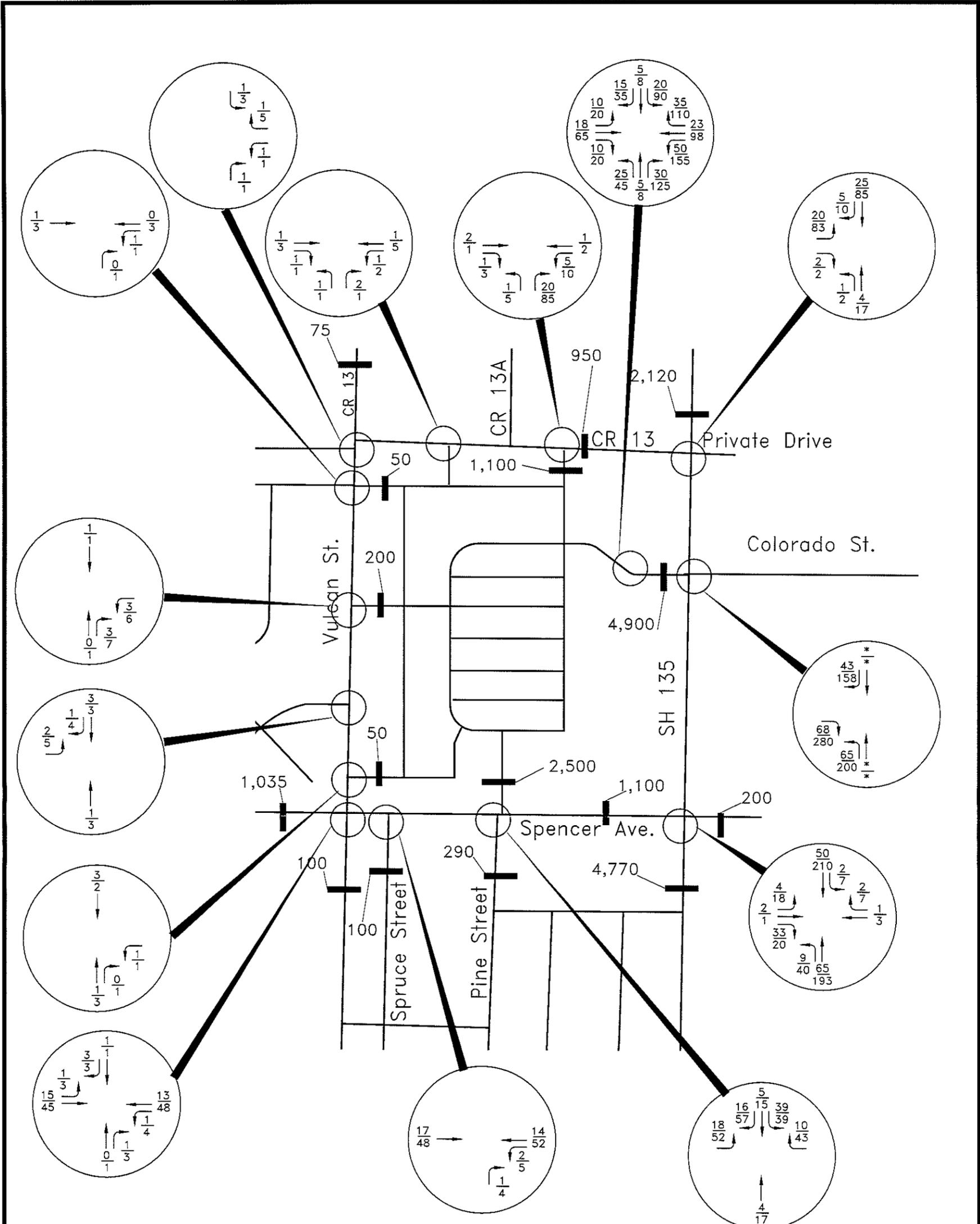
- XX -Residential directional distribution of site-generated traffic
- XX -Commercial directional distribution of site-generated traffic



Not to Scale

Directional Distribution
Van Tuyl Village

Figure 4
LSC # 066250



Legend:

- $\frac{xxx}{xxx}$ $\frac{am}{pm}$ -Weekday peak-hour traffic (vehicles per hour)
- XX,XXX -Average weekday traffic (vehicles per day)
- * -Includes Pass-by Trips

NOTE:
 City of Gunnison staff required a very conservative 35% commercial floor area to acreage ratio.



Site-Generated Traffic
 Van Tuyl Village

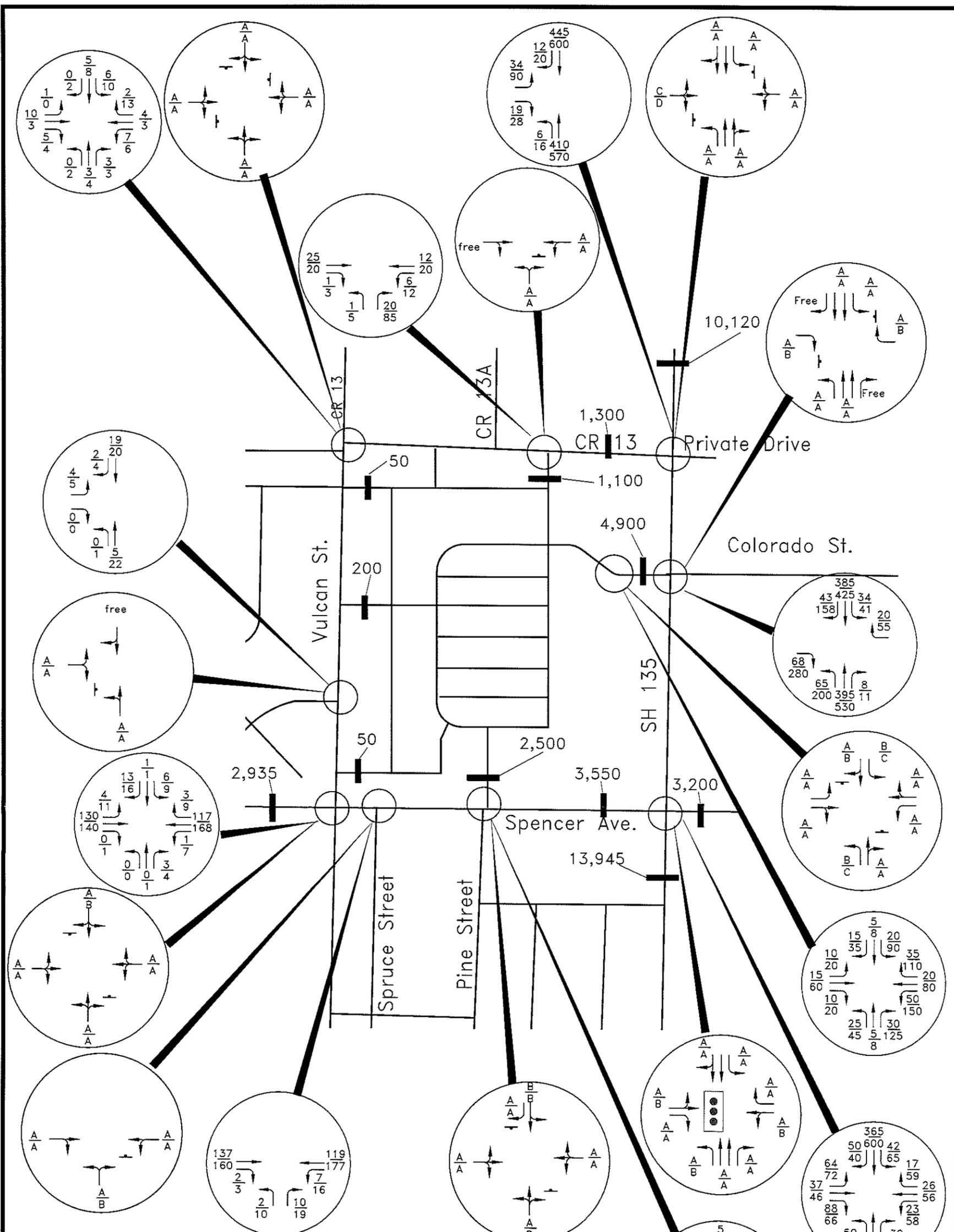
Figure 5
 LSC # 066250



SECTION G

2006 Total Traffic

Figure 6 shows the sum of the existing traffic volumes (from Figure 3) plus the site-generated traffic volumes (from Figure 5). The 2006 total traffic volumes represents the site's short-term traffic impacts on the surrounding street system. Figure 6 also shows the proposed lane geometries, traffic controls, and projected levels of service for the intersections surrounding the site.



Legend:

- $\frac{xxx}{xxx} \frac{am}{pm}$ -Weekday peak-hour traffic (vehicles per hour)
- XX,XXX -Average weekday traffic (vehicles per day)
- * Estimated by LSC from the peak hour counts
- ** Based on information obtained from the CDOT website
- $\frac{x}{x} \frac{am}{pm}$ -Individual movement peak-hour Level of Service
- † -Stop sign
- Traffic Signal



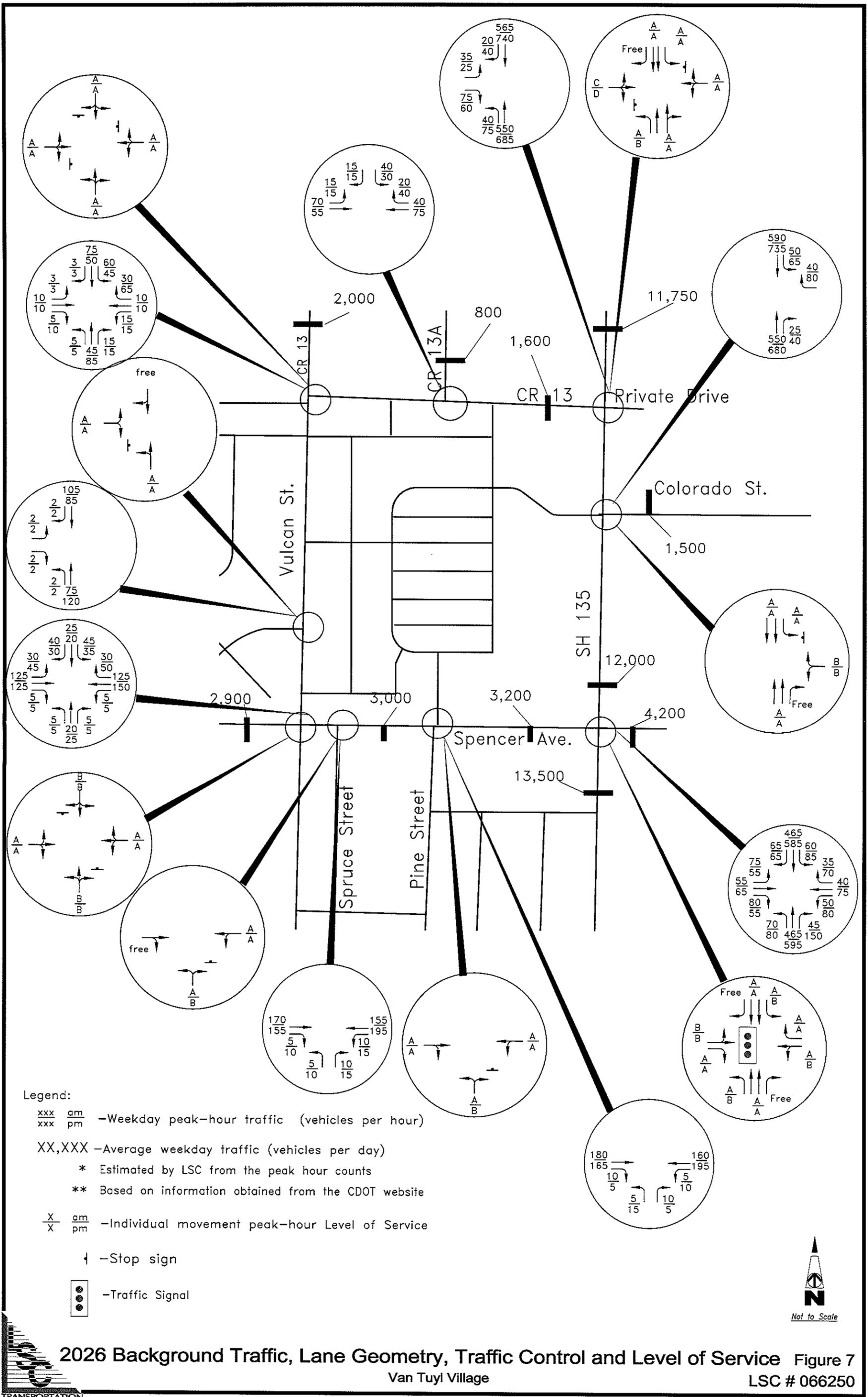
2006 Total Traffic, Lane Geometry, Traffic Control and Level of Service Figure 6
 Van Tuyl Village LSC # 066250



2026 Background Traffic

Figure 7 shows the background traffic volume estimates for the year 2026. Background traffic is the traffic estimated to be on the street system without consideration of the site-generated traffic volumes. The background traffic volumes include the traffic generated by future surrounding developments and the through traffic on the area streets. Figure 7 also shows the proposed lane geometries, traffic controls, and projected levels of service for the intersections surrounding the site.

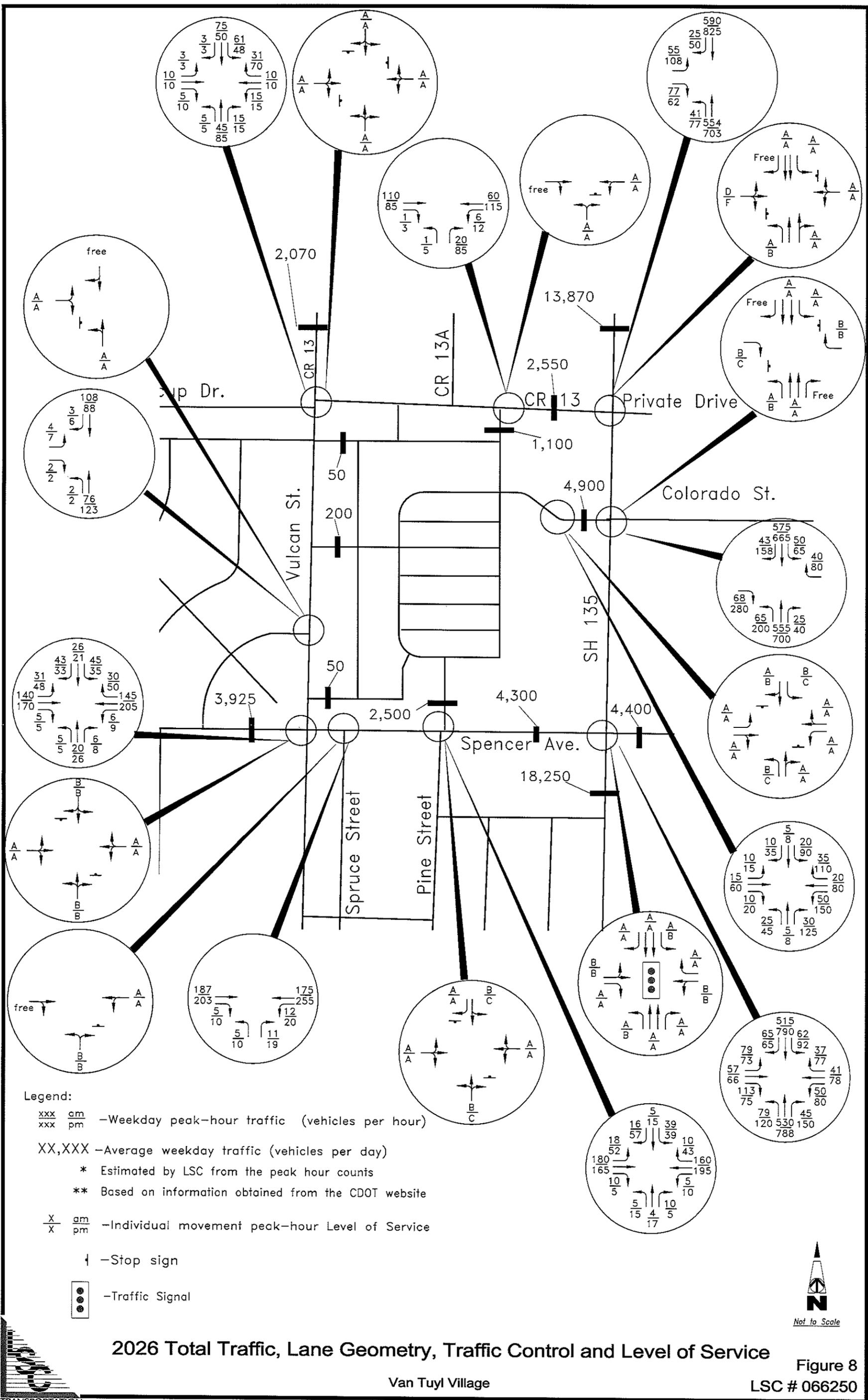
The 2026 background traffic volumes were based on the SH 135 growth rates obtained from CDOT's website and on rough future land use assumptions obtained from the City of Gunnison staff.



SECTION I

2026 Total Traffic

Figure 8 shows the total traffic volumes for the year 2026. The 2026 total traffic volumes are the sum of the 2026 background traffic volumes (from Figure 7) plus the site-generated traffic volumes (from Figure 5). Figure 8 also shows the proposed lane geometries, traffic controls, and projected levels of service for the intersections surrounding the site.



Legend:

xxx am -Weekday peak-hour traffic (vehicles per hour)
 xxx pm

XX,XXX -Average weekday traffic (vehicles per day)

* Estimated by LSC from the peak hour counts

** Based on information obtained from the CDOT website

X / X am -Individual movement peak-hour Level of Service
 pm

† -Stop sign

● ● ● -Traffic Signal



Not to Scale

2026 Total Traffic, Lane Geometry, Traffic Control and Level of Service

Van Tuyl Village

Figure 8

LSC # 066250



Projected Levels of Service

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from “A” to “F.” LOS A is indicative of very little congestion or delay. LOS F is indicative of a high level of congestion or delay.

The Synchro Version 6 software package was used to determine the projected levels of service for the intersections in the vicinity of the site based on the 2006 total, 2026 background, and 2026 total traffic volumes. Figures 6, 7, and 8 show the level of service analysis results. The level of service reports are attached in the Appendix.

All of the movements at the analyzed intersections are projected to operate at acceptable levels of service through the year 2026 with the addition of the site-generated traffic volumes, with the following exception. The eastbound left-turn movement from CR 13 onto SH 135 is projected to operate at LOS F during the afternoon peak hour based on the 2026 total traffic volumes. During the afternoon peak hour, it is projected that there will be sufficient capacity for this eastbound left-turn movement to be made at Spencer Avenue instead.

Table 3 shows the improvements required to achieve the projected levels of service, a projected timeline for each improvement, and the recommended party responsible for funding each improvement.

**Table 3
Time Horizon For Improvements
Van Tuyl Village**

Time Horizon	Improvements	Responsibility
2006 Total Traffic	State Highway 135 (SH 135) Improvements: A three-quarter movement access, including a raised median on SH 135 to align with Colorado Street, should be constructed. The following auxiliary lanes are required: a 40 mile per hour (mph) southbound right-turn deceleration lane (a 226-foot lane plus a 144-foot transition taper), a 40 mph northbound left-turn deceleration lane (a 426-foot lane plus a 144-foot transition taper), and a 40 mph eastbound right-turn acceleration lane (a 236-foot lane plus a 144-foot transition taper).	Van Tuyl Village
	Local Street Improvements: The proposed site access points should be located as shown on the report figures. The southbound approach to Spencer Avenue aligning with Pine Street should have a shared through/left-turn lane and a short dedicated right-turn lane. The internal intersection located west of the three-quarter movement access to SH 135 should have a shared through/right-turn lane and a dedicated left-turn lane for each approach, in order to avoid queuing and stacking issues.	
2026 Background Traffic	A potential improvement would be mitigation of the eastbound movement's failing level of service at the SH 135/County Road 13 (CR 13) intersection. A traffic signal warrant is unlikely to be met, based on the traffic volumes.	City of Gunnison, Gunnison County, or future development
	A potential improvement would be adding a 40 mph southbound right-turn deceleration lane (a 226-foot lane plus a 144-foot transition taper) on SH 135 at Spencer Avenue.	City of Gunnison, Gunnison County, or future development
2026 Total Traffic	A potential improvement would be adding a 55 mph southbound right-turn deceleration lane (a 378-foot lane plus a 222-foot transition taper) on SH 135 at CR 13. No additional improvements beyond those recommended for the 2026 Background Traffic.	City of Gunnison, Gunnison County, or future development N/A
Source: LSC Transportation Consultants, Inc.		
		Date: 08/30/06

Conclusions and Recommendations

Van Tuyl Village is proposed as approximately 61 single-family homes, 82 apartment units, and a maximum of 162,000 square feet of shopping center space based on the square footage to acreage ratio of 35 percent required by the City of Gunnison staff. The amount ultimately built will likely be less than 162,000 square feet.

PROPOSED SITE ACCESS

The proposed primary site access does not meet the spacing criteria in the *Colorado State Highway Access Code* for full movement intersections, but would align with the existing Colorado Street and is supported by the City of Gunnison staff. It is unlikely that the intersection would ever be signalized due to its proximity to the existing Spencer Avenue traffic signal. For these reasons, the primary site access is proposed as a three-quarter movement with no left-turn movements allowed onto SH 135 from either the site access or Colorado Street. A review of the current traffic counts confirmed that the existing westbound left-turn traffic volumes from Colorado Street onto SH 135 are very low, and have redundant access.

Secondary SH 135 site access will be via the existing Spencer Avenue signalized intersection and the existing CR 13 unsignalized intersection.

TRAFFIC COUNTS

The traffic counts were conducted during July 2006 in order to capture the summer season peak traffic volumes. The Spencer Avenue traffic volumes were increased by approximately 50 westbound vehicles and 30 eastbound vehicles during the morning peak hour in an attempt to approximate school traffic volumes.

TRIP GENERATION

The site is projected to generate about 8,840 new vehicle-trips on the typical weekday, with about half of the vehicles entering and half of the vehicles exiting the site in a 24-hour period. During the weekday morning peak hour, about 150 vehicles would enter and about 155 vehicles would exit the site. During the weekday afternoon peak hour, about 485 vehicles would enter and 490 vehicles would exit the site.

PROJECTED LEVELS OF SERVICE

All of the movements at the analyzed intersections are projected to operate at acceptable levels of service through the year 2026 with the addition of the site-generated traffic volumes, with the following exception. The eastbound left-turn movement from CR 13 onto SH 135 is projected to operate at LOS F during the afternoon peak hour based on the 2026 total traffic volumes. During the afternoon peak hour, it is projected that there will be sufficient capacity for this eastbound left-turn movement to be made at Spencer Avenue instead.

RECOMMENDED STREET IMPROVEMENTS

Table 3 shows the improvements required to achieve the projected levels of service, a projected timeline for each improvement, and the recommended party responsible for funding each improvement.

CDOT STATE HIGHWAY ACCESS PERMITS

CDOT will require CDOT State Highway Access Permits for the proposed primary site access aligning with Colorado Street and the two secondary site access points at the western Spencer Avenue and CR 13 approaches to SH 135.

RECOMMENDED SIDEWALK AND BICYCLE IMPROVEMENTS

A sidewalk is proposed for the site's internal streets and along the site perimeter. In addition, a sidewalk is proposed to connect the site perimeter to the traffic signal pedestrian crossing at SH 135 and Spencer Avenue.

On-street bicycle lanes are proposed on both sides of Vulcan Street along the site frontage.

LOCAL NEIGHBORHOOD TRAFFIC IMPACTS

The site-generated traffic volumes will increase the traffic volumes on the local streets surrounding the site. The neighborhood traffic impact is expected to be relatively minor, with most of the traffic impact occurring along Spencer Avenue and CR 13. Significant street capacity will remain after the addition of the site-generated traffic volumes. For example, the 2026 total east/west through traffic volumes projected on Spencer Avenue and CR 13 could double from the estimates and all the side roads would still be projected to operate at acceptable levels of service.

Appendix: Level of Service Reports



HCM Unsignalized Intersection Capacity Analysis
 3: Colorado St. & SH 135

Existing Traffic
 AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↑↑	↗	↘	↑↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	5	20	385	8	34	400
Peak Hour Factor	0.60	0.75	0.95	0.65	0.80	0.95
Hourly flow rate (vph)	8	27	405	12	42	421
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	924					
pX, platoon unblocked						
vC, conflicting volume	701	203			418	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	701	203			418	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	97			96	
cM capacity (veh/h)	361	808			1145	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	35	203	203	12	42	211	211
Volume Left	8	0	0	0	42	0	0
Volume Right	27	0	0	12	0	0	0
cSH	624	1700	1700	1700	1145	1700	1700
Volume to Capacity	0.06	0.12	0.12	0.01	0.04	0.12	0.12
Queue Length 95th (ft)	4	0	0	0	3	0	0
Control Delay (s)	11.1	0.0	0.0	0.0	8.3	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	11.1	0.0			0.8		
Approach LOS	B						

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	27.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 3: Colorado St. & SH 135

Existing Traffic
 PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↑↑	↗	↘	↑↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	7	53	500	11	41	490
Peak Hour Factor	0.65	0.85	0.95	0.70	0.85	0.95
Hourly flow rate (vph)	11	62	526	16	48	516
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)	924					
pX, platoon unblocked						
vC, conflicting volume	881	263			542	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	881	263			542	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	92			95	
cM capacity (veh/h)	275	738			1030	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	73	263	263	16	48	258	258
Volume Left	11	0	0	0	48	0	0
Volume Right	62	0	0	16	0	0	0
cSH	591	1700	1700	1700	1030	1700	1700
Volume to Capacity	0.12	0.15	0.15	0.01	0.05	0.15	0.15
Queue Length 95th (ft)	11	0	0	0	4	0	0
Control Delay (s)	11.9	0.0	0.0	0.0	8.7	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	11.9	0.0			0.7		
Approach LOS	B						

Intersection Summary			
Average Delay		1.1	
Intersection Capacity Utilization	30.8%		ICU Level of Service A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 3: Main Access & SH 135

2006 Total Traffic
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	68	0	0	20	65	395	8	34	385	43
Peak Hour Factor	0.50	0.50	0.85	0.50	0.50	0.75	0.85	0.95	0.65	0.85	0.95	0.85
Hourly flow rate (vph)	0	0	80	0	0	27	76	416	12	40	405	51
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)								924				
pX, platoon unblocked												
vC, conflicting volume	873	1066	203	931	1105	208	456			428		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	873	1066	203	931	1105	208	456			428		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	90	100	100	97	93			96		
cM capacity (veh/h)	219	200	808	185	190	801	1108			1135		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4		
Volume Total	80	27	76	208	208	12	40	203	203	51		
Volume Left	0	0	76	0	0	0	40	0	0	0		
Volume Right	80	27	0	0	0	12	0	0	0	51		
cSH	808	801	1108	1700	1700	1700	1135	1700	1700	1700		
Volume to Capacity	0.10	0.03	0.07	0.12	0.12	0.01	0.04	0.12	0.12	0.03		
Queue Length 95th (ft)	8	3	6	0	0	0	3	0	0	0		
Control Delay (s)	9.9	9.6	8.5	0.0	0.0	0.0	8.3	0.0	0.0	0.0		
Lane LOS	A	A	A				A					
Approach Delay (s)	9.9	9.6	1.3				0.7					
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			21.5%	ICU Level of Service						A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 3: Main Access & SH 135

2006 Total Traffic
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↖	↕	↗	↖	↕	↖
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	280	0	0	55	200	530	11	41	425	158
Peak Hour Factor	0.60	0.60	0.95	0.60	0.60	0.85	0.95	0.95	0.70	0.85	0.95	0.95
Hourly flow rate (vph)	0	0	295	0	0	65	211	558	16	48	447	166
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)								924				
pX, platoon unblocked												
vC, conflicting volume	1309	1539	224	1594	1689	279	614			574		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1309	1539	224	1594	1689	279	614			574		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	62	100	100	91	78			95		
cM capacity (veh/h)	86	86	783	36	70	721	969			1002		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4		
Volume Total	295	65	211	279	279	16	48	224	224	166		
Volume Left	0	0	211	0	0	0	48	0	0	0		
Volume Right	295	65	0	0	0	16	0	0	0	166		
cSH	783	721	969	1700	1700	1700	1002	1700	1700	1700		
Volume to Capacity	0.38	0.09	0.22	0.16	0.16	0.01	0.05	0.13	0.13	0.10		
Queue Length 95th (ft)	44	7	21	0	0	0	4	0	0	0		
Control Delay (s)	12.3	10.5	9.7	0.0	0.0	0.0	8.8	0.0	0.0	0.0		
Lane LOS	B	B	A				A					
Approach Delay (s)	12.3	10.5	2.6				0.6					
Approach LOS	B	B										

Intersection Summary		
Average Delay		3.8
Intersection Capacity Utilization	35.8%	ICU Level of Service A
Analysis Period (min)		15

HCM Unsignalized Intersection Capacity Analysis
 3: Colorado St. & SH 135

2026 Background Traffic
 AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↖	↘	↕
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	40	550	25	50	590
Peak Hour Factor	0.60	0.85	0.95	0.75	0.85	0.95
Hourly flow rate (vph)	0	47	579	33	59	621
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)			924			
pX, platoon unblocked						
vC, conflicting volume	1007	289			612	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1007	289			612	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	93			94	
cM capacity (veh/h)	224	710			970	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	47	289	289	33	59	311	311
Volume Left	0	0	0	0	59	0	0
Volume Right	47	0	0	33	0	0	0
cSH	710	1700	1700	1700	970	1700	1700
Volume to Capacity	0.07	0.17	0.17	0.02	0.06	0.18	0.18
Queue Length 95th (ft)	5	0	0	0	5	0	0
Control Delay (s)	10.4	0.0	0.0	0.0	9.0	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	10.4	0.0			0.8		
Approach LOS	B						

Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization	25.2%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
3: Colorado St. & SH 135

2026 Background Traffic
PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗	↖	↕
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	80	680	40	65	735
Peak Hour Factor	0.60	0.90	0.95	0.85	0.85	0.95
Hourly flow rate (vph)	0	89	716	47	76	774
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)	924					
pX, platoon unblocked						
vC, conflicting volume	1256	358			763	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1256	358			763	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	86			91	
cM capacity (veh/h)	150	642			852	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	89	358	358	47	76	387	387
Volume Left	0	0	0	0	76	0	0
Volume Right	89	0	0	47	0	0	0
cSH	642	1700	1700	1700	852	1700	1700
Volume to Capacity	0.14	0.21	0.21	0.03	0.09	0.23	0.23
Queue Length 95th (ft)	12	0	0	0	7	0	0
Control Delay (s)	11.5	0.0	0.0	0.0	9.6	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	11.5	0.0			0.9		
Approach LOS	B						

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization	30.4%		ICU Level of Service A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 3: Main Access & SH 135

2026 Total Traffic
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↘	↑↑	↗	↘	↑↑	↗
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	68	0	0	40	65	555	25	50	575	43
Peak Hour Factor	0.60	0.60	0.85	0.60	0.60	0.85	0.85	0.95	0.75	0.85	0.95	0.85
Hourly flow rate (vph)	0	0	80	0	0	47	76	584	33	59	605	51
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)								924				
pX, platoon unblocked												
vC, conflicting volume	1215	1493	303	1237	1511	292	656			618		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1215	1493	303	1237	1511	292	656			618		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	89	100	100	93	92			94		
cM capacity (veh/h)	115	106	696	105	104	707	934			965		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4		
Volume Total	80	47	76	292	292	33	59	303	303	51		
Volume Left	0	0	76	0	0	0	59	0	0	0		
Volume Right	80	47	0	0	0	33	0	0	0	51		
cSH	696	707	934	1700	1700	1700	965	1700	1700	1700		
Volume to Capacity	0.11	0.07	0.08	0.17	0.17	0.02	0.06	0.18	0.18	0.03		
Queue Length 95th (ft)	10	5	7	0	0	0	5	0	0	0		
Control Delay (s)	10.8	10.5	9.2	0.0	0.0	0.0	9.0	0.0	0.0	0.0		
Lane LOS	B	B	A				A					
Approach Delay (s)	10.8	10.5	1.0				0.7					
Approach LOS	B	B										
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			26.8%								A	
ICU Level of Service												
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 3: Main Access & SH 135

2026 Total Traffic
 PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Volume (veh/h)	0	0	280	0	0	80	200	700	40	65	665	158	
Peak Hour Factor	0.60	0.60	0.95	0.60	0.60	0.90	0.95	0.95	0.85	0.85	0.95	0.95	
Hourly flow rate (vph)	0	0	295	0	0	89	211	737	47	76	700	166	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type		None			None								
Median storage (veh)													
Upstream signal (ft)								924					
pX, platoon unblocked													
vC, conflicting volume	1731	2058	350	1956	2177	368	866			784			
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1731	2058	350	1956	2177	368	866			784			
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1			
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2			
p0 queue free %	100	100	55	100	100	86	73			91			
cM capacity (veh/h)	36	37	649	16	31	632	779			837			
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4			
Volume Total	295	89	211	368	368	47	76	350	350	166			
Volume Left	0	0	211	0	0	0	76	0	0	0			
Volume Right	295	89	0	0	0	47	0	0	0	166			
cSH	649	632	779	1700	1700	1700	837	1700	1700	1700			
Volume to Capacity	0.45	0.14	0.27	0.22	0.22	0.03	0.09	0.21	0.21	0.10			
Queue Length 95th (ft)	59	12	27	0	0	0	8	0	0	0			
Control Delay (s)	15.1	11.6	11.3	0.0	0.0	0.0	9.7	0.0	0.0	0.0			
Lane LOS	C	B	B				A						
Approach Delay (s)	15.1	11.6	2.4				0.8						
Approach LOS	C	B											
Intersection Summary													
Average Delay			3.7										
Intersection Capacity Utilization			42.4%	ICU Level of Service						A			
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis
 2: CR 13 & SH 135

Existing Traffic
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	14	0	14	0	0	0	5	400	0	0	420	7
Peak Hour Factor	0.70	0.60	0.70	0.60	0.60	0.60	0.60	0.95	0.60	0.60	0.95	0.65
Hourly flow rate (vph)	20	0	20	0	0	0	8	421	0	0	442	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	675	885	226	679	891	211	453			421		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	675	885	226	679	891	211	453			421		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	97	100	100	100	99			100		
cM capacity (veh/h)	340	282	780	329	280	798	1111			1142		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	40	0	8	281	140	0	295	158
Volume Left	20	0	8	0	0	0	0	0
Volume Right	20	0	0	0	0	0	0	11
cSH	473	1700	1111	1700	1700	1700	1700	1700
Volume to Capacity	0.08	0.00	0.01	0.17	0.08	0.00	0.17	0.09
Queue Length 95th (ft)	7	0	1	0	0	0	0	0
Control Delay (s)	13.3	0.0	8.3	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A	A					
Approach Delay (s)	13.3	0.0	0.2			0.0		
Approach LOS	B	A						

Intersection Summary		
Average Delay		0.7
Intersection Capacity Utilization	21.8%	ICU Level of Service A
Analysis Period (min)		15

HCM Unsignalized Intersection Capacity Analysis
 2: CR 13 & SH 135

Existing Traffic
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	7	0	13	0	0	0	14	540	0	0	518	10
Peak Hour Factor	0.65	0.60	0.70	0.60	0.60	0.60	0.75	0.95	0.60	0.60	0.95	0.70
Hourly flow rate (vph)	11	0	19	0	0	0	19	568	0	0	545	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	874	1158	280	897	1165	284	560			568		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	874	1158	280	897	1165	284	560			568		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	100	97	100	100	100	98			100		
cM capacity (veh/h)	242	193	720	227	191	716	1015			1007		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	29	0	19	379	189	0	364	196				
Volume Left	11	0	19	0	0	0	0	0				
Volume Right	19	0	0	0	0	0	0	14				
cSH	418	1700	1015	1700	1700	1700	1700	1700				
Volume to Capacity	0.07	0.00	0.02	0.22	0.11	0.00	0.21	0.12				
Queue Length 95th (ft)	6	0	1	0	0	0	0	0				
Control Delay (s)	14.3	0.0	8.6	0.0	0.0	0.0	0.0	0.0				
Lane LOS	B	A	A									
Approach Delay (s)	14.3	0.0	0.3				0.0					
Approach LOS	B	A										
Intersection Summary												
Average Delay			0.5									
Intersection Capacity Utilization			24.9%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 2: CR 13 & SH 135

2006 Total Traffic
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	34	0	19	0	0	0	6	410	0	0	445	12
Peak Hour Factor	0.85	0.60	0.75	0.60	0.60	0.60	0.65	0.95	0.60	0.60	0.95	0.75
Hourly flow rate (vph)	40	0	25	0	0	0	9	432	0	0	468	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	711	926	242	710	934	216	484			432		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	711	926	242	710	934	216	484			432		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	88	100	97	100	100	100	99			100		
cM capacity (veh/h)	320	267	762	310	264	792	1082			1132		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	65	0	9	288	144	0	312	172				
Volume Left	40	0	9	0	0	0	0	0				
Volume Right	25	0	0	0	0	0	0	16				
cSH	413	1700	1082	1700	1700	1700	1700	1700				
Volume to Capacity	0.16	0.00	0.01	0.17	0.08	0.00	0.18	0.10				
Queue Length 95th (ft)	14	0	1	0	0	0	0	0				
Control Delay (s)	15.4	0.0	8.4	0.0	0.0	0.0	0.0	0.0				
Lane LOS	C	A	A									
Approach Delay (s)	15.4	0.0	0.2				0.0					
Approach LOS	C	A										
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			22.7%			ICU Level of Service					A	
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 2: CR 13 & SH 135

2006 Total Traffic
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	90	0	28	0	0	0	16	570	0	0	600	20
Peak Hour Factor	0.95	0.60	0.85	0.60	0.60	0.60	0.75	0.95	0.60	0.60	0.95	0.85
Hourly flow rate (vph)	95	0	33	0	0	0	21	600	0	0	632	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	986	1286	328	991	1298	300	655			600		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	986	1286	328	991	1298	300	655			600		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	53	100	95	100	100	100	98			100		
cM capacity (veh/h)	200	161	671	188	158	699	935			980		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	128	0	21	400	200	0	421	234
Volume Left	95	0	21	0	0	0	0	0
Volume Right	33	0	0	0	0	0	0	24
cSH	244	1700	935	1700	1700	1700	1700	1700
Volume to Capacity	0.52	0.00	0.02	0.24	0.12	0.00	0.25	0.14
Queue Length 95th (ft)	69	0	2	0	0	0	0	0
Control Delay (s)	34.8	0.0	8.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	A	A					
Approach Delay (s)	34.8	0.0	0.3			0.0		
Approach LOS	D	A						

Intersection Summary			
Average Delay		3.3	
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
2: CR 13 & SH 135

2026 Background Traffic
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	↙
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	35	0	75	0	0	0	40	550	0	0	565	20
Peak Hour Factor	0.85	0.60	0.90	0.60	0.60	0.60	0.85	0.95	0.60	0.60	0.95	0.75
Hourly flow rate (vph)	41	0	83	0	0	0	47	579	0	0	595	27
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	978	1268	297	1054	1294	289	621			579		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	978	1268	297	1054	1294	289	621			579		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	79	100	88	100	100	100	95			100		
cM capacity (veh/h)	198	160	702	154	155	710	962			998		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4			
Volume Total	125	0	47	386	193	0	297	297	27			
Volume Left	41	0	47	0	0	0	0	0	0			
Volume Right	83	0	0	0	0	0	0	0	27			
cSH	382	1700	962	1700	1700	1700	1700	1700	1700			
Volume to Capacity	0.33	0.00	0.05	0.23	0.11	0.00	0.17	0.17	0.02			
Queue Length 95th (ft)	35	0	4	0	0	0	0	0	0			
Control Delay (s)	18.9	0.0	8.9	0.0	0.0	0.0	0.0	0.0	0.0			
Lane LOS	C	A	A									
Approach Delay (s)	18.9	0.0	0.7			0.0						
Approach LOS	C	A										
Intersection Summary												
Average Delay			2.0									
Intersection Capacity Utilization			35.5%		ICU Level of Service						A	
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
2: CR 13 & SH 135

2026 Background Traffic
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	↗
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	25	0	60	0	0	0	75	685	0	0	740	40
Peak Hour Factor	0.80	0.60	0.85	0.60	0.60	0.60	0.85	0.95	0.60	0.60	0.95	0.85
Hourly flow rate (vph)	31	0	71	0	0	0	88	721	0	0	779	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1316	1676	389	1358	1724	361	826			721		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1316	1676	389	1358	1724	361	826			721		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	71	100	88	100	100	100	89			100		
cM capacity (veh/h)	107	85	612	88	79	639	807			883		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4			
Volume Total	102	0	88	481	240	0	389	389	47			
Volume Left	31	0	88	0	0	0	0	0	0			
Volume Right	71	0	0	0	0	0	0	0	47			
cSH	250	1700	807	1700	1700	1700	1700	1700	1700			
Volume to Capacity	0.41	0.00	0.11	0.28	0.14	0.00	0.23	0.23	0.03			
Queue Length 95th (ft)	47	0	9	0	0	0	0	0	0			
Control Delay (s)	29.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0			
Lane LOS	D	A	B									
Approach Delay (s)	29.0	0.0	1.1			0.0						
Approach LOS	D	A										
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			39.7%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
2: CR 13 & SH 135

2026 Total Traffic
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	↗
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	55	0	77	0	0	0	41	554	0	0	590	25
Peak Hour Factor	0.85	0.60	0.90	0.60	0.60	0.60	0.85	0.95	0.60	0.60	0.95	0.80
Hourly flow rate (vph)	65	0	86	0	0	0	48	583	0	0	621	31
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1009	1301	311	1076	1332	292	652			583		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1009	1301	311	1076	1332	292	652			583		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	66	100	88	100	100	100	95			100		
cM capacity (veh/h)	188	153	688	147	146	708	937			994		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4			
Volume Total	150	0	48	389	194	0	311	311	31			
Volume Left	65	0	48	0	0	0	0	0	0			
Volume Right	86	0	0	0	0	0	0	0	31			
cSH	321	1700	937	1700	1700	1700	1700	1700	1700			
Volume to Capacity	0.47	0.00	0.05	0.23	0.11	0.00	0.18	0.18	0.02			
Queue Length 95th (ft)	59	0	4	0	0	0	0	0	0			
Control Delay (s)	25.7	0.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0			
Lane LOS	D	A	A									
Approach Delay (s)	25.7	0.0	0.7			0.0						
Approach LOS	D	A										
Intersection Summary												
Average Delay			3.0									
Intersection Capacity Utilization			37.4%			ICU Level of Service					A	
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 2: CR 13 & SH 135

2026 Total Traffic
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	↙
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	108	0	62	0	0	0	77	703	0	0	825	50
Peak Hour Factor	0.95	0.60	0.90	0.60	0.60	0.60	0.90	0.98	0.60	0.60	0.98	0.90
Hourly flow rate (vph)	114	0	69	0	0	0	86	717	0	0	842	56
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1372	1730	421	1378	1786	359	897			717		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1372	1730	421	1378	1786	359	897			717		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	88	100	100	100	89			100		
cM capacity (veh/h)	97	78	584	84	72	641	759			886		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4			
Volume Total	183	0	86	478	239	0	421	421	56			
Volume Left	114	0	86	0	0	0	0	0	0			
Volume Right	69	0	0	0	0	0	0	0	56			
cSH	141	1700	759	1700	1700	1700	1700	1700	1700			
Volume to Capacity	1.29	0.00	0.11	0.28	0.14	0.00	0.25	0.25	0.03			
Queue Length 95th (ft)	281	0	9	0	0	0	0	0	0			
Control Delay (s)	234.6	0.0	10.3	0.0	0.0	0.0	0.0	0.0	0.0			
Lane LOS	F	A	B									
Approach Delay (s)	234.6	0.0	1.1			0.0						
Approach LOS	F	A										
Intersection Summary												
Average Delay			23.2									
Intersection Capacity Utilization			46.8%		ICU Level of Service		A					
Analysis Period (min)			15									

Lanes, Volumes, Timings
5: Spencer Ave. & SH 135

Existing Traffic
AM Peak Hour

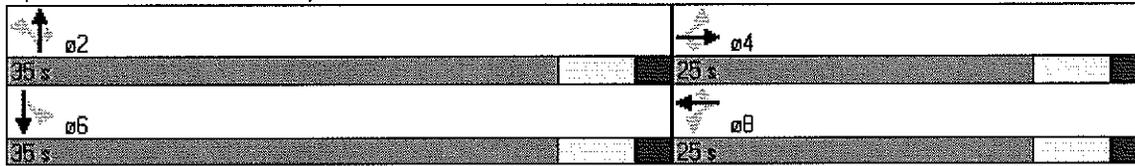


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕	↖	↖	↕	↖
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	1825	1599	0	1838	1599	1787	3539	1599	1787	3456	0
Flt Permitted		0.811			0.863		0.517			0.550		
Satd. Flow (perm)	0	1526	1599	0	1623	1599	973	3539	1599	1035	3456	0
Satd. Flow (RTOR)			59			20			38		58	
Volume (vph)	60	35	50	23	25	15	41	317	30	40	315	50
Peak Hour Factor	0.85	0.80	0.85	0.80	0.75	0.75	0.75	0.95	0.80	0.85	0.95	0.75
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	71	44	59	29	33	20	55	334	38	47	332	67
Lane Group Flow (vph)	0	115	59	0	62	20	55	334	38	47	399	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phases	4	4	4	8	8	8	2	2	2	6	6	
Minimum Initial (s)	2.0	2.0	2.0	2.0	2.0	2.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	
Total Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	35.0	35.0	35.0	35.0	35.0	0.0
Total Split (%)	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	58.3%	58.3%	58.3%	58.3%	58.3%	0.0%
Maximum Green (s)	19.0	19.0	19.0	19.0	19.0	19.0	29.0	29.0	29.0	29.0	29.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min	Min	None	None	None	None	None	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)		9.6	9.6		9.6	9.6	10.3	10.3	10.3	10.3	10.3	
Actuated g/C Ratio		0.34	0.34		0.34	0.34	0.37	0.37	0.37	0.37	0.37	
v/c Ratio		0.22	0.10		0.11	0.04	0.15	0.26	0.06	0.12	0.31	
Control Delay		8.2	3.1		7.3	3.9	7.5	7.0	3.1	7.2	6.2	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		8.2	3.1		7.3	3.9	7.5	7.0	3.1	7.2	6.2	
LOS		A	A		A	A	A	A	A	A	A	
Approach Delay		6.5			6.5			6.7			6.3	
Approach LOS		A			A			A			A	

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 28
 Natural Cycle: 45
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.31
 Intersection Signal Delay: 6.5
 Intersection LOS: A
 Intersection Capacity Utilization 35.5%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 5: Spencer Ave. & SH 135



Lanes, Volumes, Timings
5: Spencer Ave. & SH 135

Existing Traffic
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕↕	↗	↖	↕↕	↗
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	1830	1599	0	1834	1599	1787	3539	1599	1787	3539	1599
Flt Permitted		0.812			0.820		0.505			0.502		
Satd. Flow (perm)	0	1528	1599	0	1543	1599	950	3539	1599	944	3539	1599
Satd. Flow (RTOR)			54			61			117			47
Volume (vph)	54	45	46	58	53	52	58	404	111	57	400	40
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.95	0.95	0.85	0.95	0.85
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	64	53	54	68	62	61	68	425	117	67	421	47
Lane Group Flow (vph)	0	117	54	0	130	61	68	425	117	67	421	47
Turn Type	Perm		Perm									
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%
Maximum Green (s)	21.0	21.0	21.0	21.0	21.0	21.0	31.0	31.0	31.0	31.0	31.0	31.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		21.0	21.0		21.0	21.0	31.0	31.0	31.0	31.0	31.0	31.0
Actuated g/C Ratio		0.35	0.35		0.35	0.35	0.52	0.52	0.52	0.52	0.52	0.52
v/c Ratio		0.22	0.09		0.24	0.10	0.14	0.23	0.13	0.14	0.23	0.06
Control Delay		15.1	5.0		15.4	4.8	8.5	8.4	2.2	8.5	8.4	2.8
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		15.1	5.0		15.4	4.8	8.5	8.4	2.2	8.5	8.4	2.8
LOS		B	A		B	A	A	A	A	A	A	A
Approach Delay		11.9			12.0			7.2			7.9	
Approach LOS		B			B			A			A	

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 40
 Control Type: Pretimed
 Maximum v/c Ratio: 0.24
 Intersection Signal Delay: 8.6
 Intersection Capacity Utilization 37.2%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 5: Spencer Ave. & SH 135

 02	 04
05 s	25 s
 06	 08
05 s	25 s

Lanes, Volumes, Timings
5: Spencer Ave. & SH 135

2006 Total Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↘	↕↕	↗	↘	↕↗	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	1823	1599	0	1838	1599	1787	3539	1599	1787	3473	0
Flt Permitted		0.805			0.860		0.490			0.515		
Satd. Flow (perm)	0	1514	1599	0	1618	1599	922	3539	1599	969	3473	0
Satd. Flow (RTOR)			98			23			38		42	
Volume (vph)	64	37	83	23	26	17	50	382	30	42	365	50
Peak Hour Factor	0.85	0.85	0.85	0.80	0.80	0.75	0.85	0.95	0.80	0.85	0.95	0.85
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	75	44	98	29	32	23	59	402	38	49	384	59
Lane Group Flow (vph)	0	119	98	0	61	23	59	402	38	49	443	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phases	4	4	4	8	8	8	2	2	2	6	6	
Minimum Initial (s)	2.0	2.0	2.0	2.0	2.0	2.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	
Total Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	35.0	35.0	35.0	35.0	35.0	0.0
Total Split (%)	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	58.3%	58.3%	58.3%	58.3%	58.3%	0.0%
Maximum Green (s)	19.0	19.0	19.0	19.0	19.0	19.0	29.0	29.0	29.0	29.0	29.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min	Min	None	None	None	None	None	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)		9.8	9.8		9.8	9.8	11.1	11.1	11.1	11.1	11.1	
Actuated g/C Ratio		0.34	0.34		0.34	0.34	0.38	0.38	0.38	0.38	0.38	
v/c Ratio		0.23	0.16		0.11	0.04	0.17	0.30	0.06	0.13	0.33	
Control Delay		8.8	3.1		7.8	4.2	7.6	7.1	3.1	7.2	6.6	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		8.8	3.1		7.8	4.2	7.6	7.1	3.1	7.2	6.6	
LOS		A	A		A	A	A	A	A	A	A	
Approach Delay		6.2			6.8			6.9			6.7	
Approach LOS		A			A			A			A	

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 29
 Natural Cycle: 45
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.33
 Intersection Signal Delay: 6.7
 Intersection Capacity Utilization 37.2%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 5: Spencer Ave. & SH 135

 ø2 35 s	 ø4 25 s
 ø5 35 s	 ø6 25 s

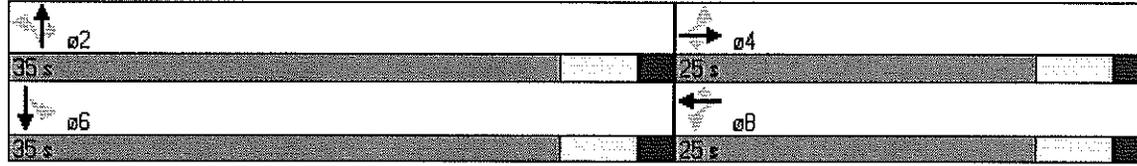


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↘	↕↕	↗	↘	↕↗	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	1829	1599	0	1834	1599	1787	3539	1599	1787	3506	0
Flt Permitted		0.781			0.811		0.353			0.378		
Satd. Flow (perm)	0	1469	1599	0	1526	1599	664	3539	1599	711	3506	0
Satd. Flow (RTOR)			78			69			123		19	
Volume (vph)	72	46	66	58	56	59	98	600	111	65	600	40
Peak Hour Factor	0.95	0.85	0.85	0.85	0.85	0.85	0.90	0.95	0.90	0.85	0.95	0.85
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	76	54	78	68	66	69	109	632	123	76	632	47
Lane Group Flow (vph)	0	130	78	0	134	69	109	632	123	76	679	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phases	4	4	4	8	8	8	2	2	2	6	6	
Minimum Initial (s)	2.0	2.0	2.0	2.0	2.0	2.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	
Total Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	35.0	35.0	35.0	35.0	35.0	0.0
Total Split (%)	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	58.3%	58.3%	58.3%	58.3%	58.3%	0.0%
Maximum Green (s)	19.0	19.0	19.0	19.0	19.0	19.0	29.0	29.0	29.0	29.0	29.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min	Min	None	None	None	None	None	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)		10.7	10.7		10.7	10.7	15.3	15.3	15.3	15.3	15.3	
Actuated g/C Ratio		0.31	0.31		0.31	0.31	0.44	0.44	0.44	0.44	0.44	
v/c Ratio		0.29	0.14		0.28	0.13	0.37	0.40	0.16	0.24	0.43	
Control Delay		12.5	4.5		12.4	4.6	10.8	7.3	2.1	8.4	7.3	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		12.5	4.5		12.4	4.6	10.8	7.3	2.1	8.4	7.3	
LOS		B	A		B	A	B	A	A	A	A	
Approach Delay		9.5			9.7			7.0			7.4	
Approach LOS		A			A			A			A	

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 34.5
 Natural Cycle: 45
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.43
 Intersection Signal Delay: 7.7
 Intersection LOS: A
 Intersection Capacity Utilization 46.4%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 5: Spencer Ave. & SH 135



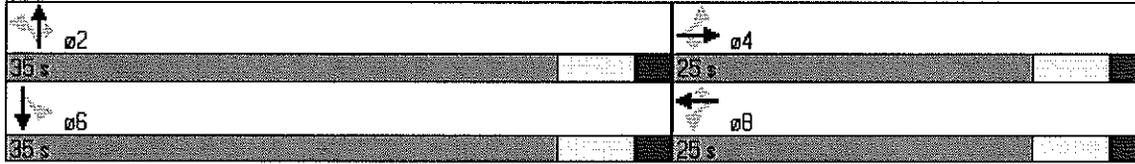


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕	↗	↖	↕	↖
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	1830	1599	0	1830	1599	1787	3539	1599	1787	3473	0
Flt Permitted		0.797			0.796		0.415			0.461		
Satd. Flow (perm)	0	1499	1599	0	1497	1599	781	3539	1599	867	3473	0
Satd. Flow (RTOR)			89			41			53		43	
Volume (vph)	75	55	80	50	40	35	70	465	45	60	465	65
Peak Hour Factor	0.90	0.85	0.90	0.85	0.85	0.85	0.85	0.95	0.85	0.85	0.95	0.85
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	83	65	89	59	47	41	82	489	53	71	489	76
Lane Group Flow (vph)	0	148	89	0	106	41	82	489	53	71	565	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phases	4	4	4	8	8	8	2	2	2	6	6	
Minimum Initial (s)	2.0	2.0	2.0	2.0	2.0	2.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	
Total Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	35.0	35.0	35.0	35.0	35.0	0.0
Total Split (%)	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	58.3%	58.3%	58.3%	58.3%	58.3%	0.0%
Maximum Green (s)	19.0	19.0	19.0	19.0	19.0	19.0	29.0	29.0	29.0	29.0	29.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min	Min	None	None	None	None	None	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)		10.6	10.6		10.6	10.6	12.6	12.6	12.6	12.6	12.6	
Actuated g/C Ratio		0.34	0.34		0.34	0.34	0.40	0.40	0.40	0.40	0.40	
v/c Ratio		0.29	0.15		0.21	0.07	0.26	0.34	0.08	0.20	0.40	
Control Delay		10.4	3.6		9.6	4.2	9.2	7.5	2.8	8.3	7.3	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		10.4	3.6		9.6	4.2	9.2	7.5	2.8	8.3	7.3	
LOS		B	A		A	A	A	A	A	A	A	
Approach Delay		7.8			8.1			7.3			7.4	
Approach LOS		A			A			A			A	

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 31.5
 Natural Cycle: 45
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.40
 Intersection Signal Delay: 7.5
 Intersection Capacity Utilization 42.5%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 5: Spencer Ave. & SH 135



Lanes, Volumes, Timings
5: Spencer Ave. & SH 135

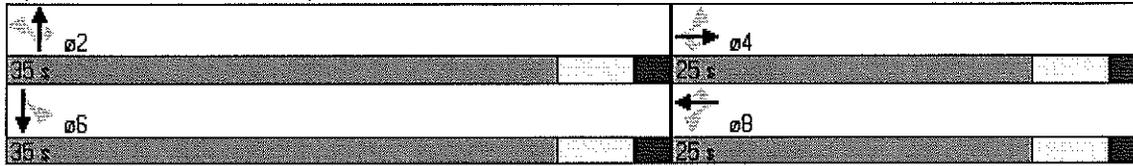
2026 Background Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	1838	1599	0	1834	1599	1787	3539	1599	1787	3486	0
Flt Permitted		0.806			0.788		0.346			0.381		
Satd. Flow (perm)	0	1516	1599	0	1482	1599	651	3539	1599	717	3486	0
Satd. Flow (RTOR)			65			82			158		33	
Volume (vph)	55	65	55	80	75	70	80	595	150	85	585	65
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.95	0.95	0.85	0.95	0.85
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	65	76	65	94	88	82	94	626	158	100	616	76
Lane Group Flow (vph)	0	141	65	0	182	82	94	626	158	100	692	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phases	4	4	4	8	8	8	2	2	2	6	6	
Minimum Initial (s)	2.0	2.0	2.0	2.0	2.0	2.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	
Total Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	35.0	35.0	35.0	35.0	35.0	0.0
Total Split (%)	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	58.3%	58.3%	58.3%	58.3%	58.3%	0.0%
Maximum Green (s)	19.0	19.0	19.0	19.0	19.0	19.0	29.0	29.0	29.0	29.0	29.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min	Min	None	None	None	None	None	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)		11.9	11.9		11.9	11.9	15.5	15.5	15.5	15.5	15.5	
Actuated g/C Ratio		0.33	0.33		0.33	0.33	0.43	0.43	0.43	0.43	0.43	
v/c Ratio		0.28	0.11		0.37	0.14	0.33	0.41	0.20	0.32	0.45	
Control Delay		11.7	4.2		12.8	4.0	11.2	8.1	2.4	10.6	8.1	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		11.7	4.2		12.8	4.0	11.2	8.1	2.4	10.6	8.1	
LOS		B	A		B	A	B	A	A	B	A	
Approach Delay		9.4			10.0			7.4			8.4	
Approach LOS		A			B			A			A	

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 35.8
 Natural Cycle: 45
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.45
 Intersection Signal Delay: 8.3
 Intersection Capacity Utilization 47.7%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 5: Spencer Ave. & SH 135

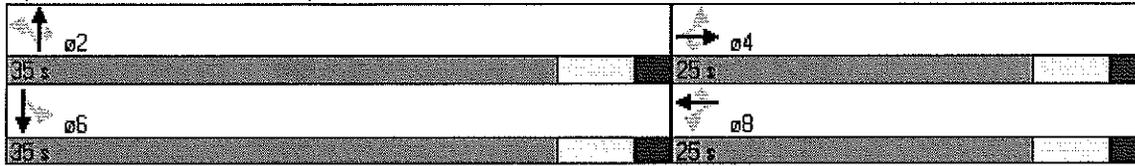


												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	1829	1599	0	1830	1599	1787	3539	1599	1787	3480	0
Flt Permitted		0.791			0.795		0.385			0.419		
Satd. Flow (perm)	0	1488	1599	0	1496	1599	724	3539	1599	788	3480	0
Satd. Flow (RTOR)			119			44			53		38	
Volume (vph)	79	57	113	50	41	37	79	530	45	62	515	65
Peak Hour Factor	0.90	0.85	0.95	0.85	0.85	0.85	0.90	0.95	0.85	0.85	0.95	0.85
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	88	67	119	59	48	44	88	558	53	73	542	76
Lane Group Flow (vph)	0	155	119	0	107	44	88	558	53	73	618	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phases	4	4	4	8	8	8	2	2	2	6	6	
Minimum Initial (s)	2.0	2.0	2.0	2.0	2.0	2.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	
Total Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	35.0	35.0	35.0	35.0	35.0	0.0
Total Split (%)	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	58.3%	58.3%	58.3%	58.3%	58.3%	0.0%
Maximum Green (s)	19.0	19.0	19.0	19.0	19.0	19.0	29.0	29.0	29.0	29.0	29.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min	Min	None	None	None	None	None	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)		10.9	10.9		10.9	10.9	13.6	13.6	13.6	13.6	13.6	
Actuated g/C Ratio		0.33	0.33		0.33	0.33	0.41	0.41	0.41	0.41	0.41	
v/c Ratio		0.31	0.20		0.22	0.08	0.29	0.38	0.08	0.22	0.42	
Control Delay		11.1	3.5		10.1	4.2	9.9	7.7	2.8	8.7	7.5	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		11.1	3.5		10.1	4.2	9.9	7.7	2.8	8.7	7.5	
LOS		B	A		B	A	A	A	A	A	A	
Approach Delay		7.8			8.4			7.6			7.7	
Approach LOS		A			A			A			A	

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 32.9
 Natural Cycle: 45
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.42
 Intersection Signal Delay: 7.7
 Intersection LOS: A
 Intersection Capacity Utilization 44.7%
 ICU Level of Service A
 Analysis Period (min) 15

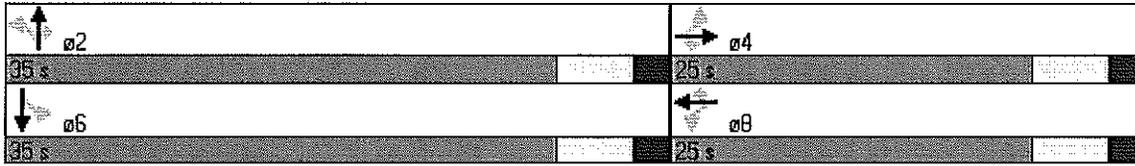
Splits and Phases: 5: Spencer Ave. & SH 135



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	1836	1599	0	1834	1599	1787	3539	1599	1787	3496	0
Flt Permitted		0.789			0.787		0.248			0.282		
Satd. Flow (perm)	0	1484	1599	0	1480	1599	467	3539	1599	530	3496	0
Satd. Flow (RTOR)			83			86			158		23	
Volume (vph)	73	66	75	80	78	77	120	788	150	92	790	65
Peak Hour Factor	0.95	0.85	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.90	0.95	0.85
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	77	78	83	89	87	86	126	829	158	102	832	76
Lane Group Flow (vph)	0	155	83	0	176	86	126	829	158	102	908	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phases	4	4	4	8	8	8	2	2	2	6	6	
Minimum Initial (s)	2.0	2.0	2.0	2.0	2.0	2.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	
Total Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	35.0	35.0	35.0	35.0	35.0	0.0
Total Split (%)	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	58.3%	58.3%	58.3%	58.3%	58.3%	0.0%
Maximum Green (s)	19.0	19.0	19.0	19.0	19.0	19.0	29.0	29.0	29.0	29.0	29.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	Min	Min	Min	None	None	None	None	None	None
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		12.5	12.5		12.5	12.5	20.3	20.3	20.3	20.3	20.3	
Actuated g/C Ratio		0.30	0.30		0.30	0.30	0.49	0.49	0.49	0.49	0.49	
v/c Ratio		0.35	0.15		0.39	0.16	0.55	0.48	0.18	0.39	0.53	
Control Delay		15.8	4.9		16.4	4.9	18.8	8.1	2.0	12.4	8.3	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		15.8	4.9		16.4	4.9	18.8	8.1	2.0	12.4	8.3	
LOS		B	A		B	A	B	A	A	B	A	
Approach Delay		12.0			12.6			8.5			8.8	
Approach LOS		B			B			A			A	

Intersection Summary
 Cycle Length: 60
 Actuated Cycle Length: 41.5
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 9.3
 Intersection Capacity Utilization 55.8%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 5: Spencer Ave. & SH 135



HCM Unsignalized Intersection Capacity Analysis
 6: Spencer Ave. & Pine St.

Existing Traffic
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	125	4	2	110	0	9
Peak Hour Factor	0.95	0.60	0.60	0.65	0.60	0.85
Hourly flow rate (vph)	132	7	3	169	0	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	751					
pX, platoon unblocked						
vC, conflicting volume			138		311	135
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			138		311	135
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1452		682	917

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	138	173	11
Volume Left	0	3	0
Volume Right	7	0	11
cSH	1700	1452	917
Volume to Capacity	0.08	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.2	9.0
Lane LOS		A	A
Approach Delay (s)	0.0	0.2	9.0
Approach LOS			A

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization	17.4%		ICU Level of Service A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 6: Spencer Ave. & Pine St.

Existing Traffic
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↖			↗	↖	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	125	2	8	125	14	4
Peak Hour Factor	0.95	0.60	0.65	0.95	0.70	0.60
Hourly flow rate (vph)	132	3	12	132	20	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)	751					
pX, platoon unblocked						
vC, conflicting volume			135		289	133
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			135		289	133
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		97	99
cM capacity (veh/h)			1456		697	919

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	135	144	27
Volume Left	0	12	20
Volume Right	3	0	7
cSH	1700	1456	742
Volume to Capacity	0.08	0.01	0.04
Queue Length 95th (ft)	0	1	3
Control Delay (s)	0.0	0.7	10.0
Lane LOS		A	B
Approach Delay (s)	0.0	0.7	10.0
Approach LOS			B

Intersection Summary			
Average Delay		1.2	
Intersection Capacity Utilization	23.1%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 6: Spencer Ave. & South Access

2006 Total Traffic
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Sign Control		Free			Free			Stop			Stop	Stop
Grade		0%			0%			0%			0%	0%
Volume (veh/h)	18	125	4	2	110	10	0	4	9	39	5	16
Peak Hour Factor	0.75	0.95	0.60	0.60	0.90	0.65	0.60	0.65	0.65	0.80	0.65	0.75
Hourly flow rate (vph)	24	132	7	3	122	15	0	6	14	49	8	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)					751							
pX, platoon unblocked												
vC, conflicting volume	138			138			345	327	135	336	323	130
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	138			138			345	327	135	336	323	130
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			100	99	98	92	99	98
cM capacity (veh/h)	1452			1452			583	582	917	596	585	922

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	162	141	20	56	21
Volume Left	24	3	0	49	0
Volume Right	7	15	14	0	21
cSH	1452	1452	779	595	922
Volume to Capacity	0.02	0.00	0.03	0.09	0.02
Queue Length 95th (ft)	1	0	2	8	2
Control Delay (s)	1.2	0.2	9.7	11.7	9.0
Lane LOS	A	A	A	B	A
Approach Delay (s)	1.2	0.2	9.7	10.9	
Approach LOS			A	B	

Intersection Summary	
Average Delay	3.2
Intersection Capacity Utilization	30.2%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 6: Spencer Ave. & South Access

2006 Total Traffic
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↗
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	52	125	2	8	125	43	14	17	4	39	15	57
Peak Hour Factor	0.85	0.95	0.60	0.65	0.95	0.80	0.70	0.75	0.60	0.80	0.75	0.85
Hourly flow rate (vph)	61	132	3	12	132	54	20	23	7	49	20	67
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)					751							
pX, platoon unblocked												
vC, conflicting volume	185			135			516	466	133	457	440	158
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	185			135			516	466	133	457	440	158
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			99			95	95	99	90	96	92
cM capacity (veh/h)	1395			1456			405	470	919	474	486	889

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	196	198	49	69	67
Volume Left	61	12	20	49	0
Volume Right	3	54	7	0	67
cSH	1395	1456	471	477	889
Volume to Capacity	0.04	0.01	0.10	0.14	0.08
Queue Length 95th (ft)	3	1	9	13	6
Control Delay (s)	2.7	0.5	13.5	13.8	9.4
Lane LOS	A	A	B	B	A
Approach Delay (s)	2.7	0.5	13.5	11.6	
Approach LOS			B	B	

Intersection Summary	
Average Delay	5.0
Intersection Capacity Utilization	37.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 6: Spencer Ave. & Pine St.

2026 Background Traffic
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↕			↕	↕	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	180	10	5	160	5	10
Peak Hour Factor	0.95	0.70	0.65	0.95	0.65	0.70
Hourly flow rate (vph)	189	14	8	168	8	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	751					
pX, platoon unblocked						
vC, conflicting volume			204		380	197
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			204		380	197
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	98
cM capacity (veh/h)			1374		620	847

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	204	176	22
Volume Left	0	8	8
Volume Right	14	0	14
cSH	1700	1374	751
Volume to Capacity	0.12	0.01	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.4	9.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.4	9.9
Approach LOS			A

Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 6: Spencer Ave. & Pine St.

2026 Background Traffic
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↖			↗	↘	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	165	5	10	195	15	5
Peak Hour Factor	0.95	0.65	0.70	0.95	0.70	0.65
Hourly flow rate (vph)	174	8	14	205	21	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	751					
pX, platoon unblocked						
vC, conflicting volume			181		411	178
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			181		411	178
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		96	99
cM capacity (veh/h)			1400		593	868

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	181	220	29
Volume Left	0	14	21
Volume Right	8	0	8
cSH	1700	1400	647
Volume to Capacity	0.11	0.01	0.05
Queue Length 95th (ft)	0	1	4
Control Delay (s)	0.0	0.6	10.8
Lane LOS		A	B
Approach Delay (s)	0.0	0.6	10.8
Approach LOS			B

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
6: Spencer Ave. & South Access

2026 Total Traffic
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	18	180	10	5	160	10	5	4	10	39	5	16
Peak Hour Factor	0.75	0.95	0.70	0.65	0.95	0.65	0.65	0.60	0.70	0.75	0.65	0.70
Hourly flow rate (vph)	24	189	14	8	168	15	8	7	14	52	8	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)					751							
pX, platoon unblocked												
vC, conflicting volume	184			204			463	444	197	454	443	176
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	184			204			463	444	197	454	443	176
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			98	99	98	90	98	97
cM capacity (veh/h)	1397			1374			483	499	847	495	499	870
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2							
Volume Total	228	191	29	60	23							
Volume Left	24	8	8	52	0							
Volume Right	14	15	14	0	23							
cSH	1397	1374	621	496	870							
Volume to Capacity	0.02	0.01	0.05	0.12	0.03							
Queue Length 95th (ft)	1	0	4	10	2							
Control Delay (s)	0.9	0.4	11.1	13.3	9.3							
Lane LOS	A	A	B	B	A							
Approach Delay (s)	0.9	0.4	11.1	12.1								
Approach LOS			B	B								
Intersection Summary												
Average Delay			3.0									
Intersection Capacity Utilization			31.9%			ICU Level of Service				A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 6: Spencer Ave. & South Access

2026 Total Traffic
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	52	165	5	10	195	43	15	17	5	39	15	57
Peak Hour Factor	0.85	0.95	0.65	0.70	0.95	0.80	0.75	0.75	0.65	0.80	0.75	0.85
Hourly flow rate (vph)	61	174	8	14	205	54	20	23	8	49	20	67
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)					751							
pX, platoon unblocked												
vC, conflicting volume	259			181			638	587	178	580	564	232
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	259			181			638	587	178	580	564	232
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			99			94	94	99	87	95	92
cM capacity (veh/h)	1311			1400			331	399	868	388	411	809

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	243	273	50	69	67
Volume Left	61	14	20	49	0
Volume Right	8	54	8	0	67
cSH	1311	1400	399	394	809
Volume to Capacity	0.05	0.01	0.13	0.17	0.08
Queue Length 95th (ft)	4	1	11	16	7
Control Delay (s)	2.3	0.5	15.3	16.0	9.8
Lane LOS	A	A	C	C	A
Approach Delay (s)	2.3	0.5	15.3	13.0	
Approach LOS			C	B	

Intersection Summary	
Average Delay	4.6
Intersection Capacity Utilization	44.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 8: Spencer Ave. & Spruce St.

Existing Traffic
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	↑
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	120	2	5	105	2	9
Peak Hour Factor	0.95	0.60	0.85	0.60	0.60	0.65
Hourly flow rate (vph)	126	3	6	175	3	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)				1108		
pX, platoon unblocked						
vC, conflicting volume			130		315	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			130		315	128
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1462		677	925

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	130	181	17
Volume Left	0	6	3
Volume Right	3	0	14
cSH	1700	1462	864
Volume to Capacity	0.08	0.00	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.3	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	0.3	9.3
Approach LOS			A

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization	19.6%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
8: Spencer Ave. & Spruce St.

Existing Traffic
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	110	3	11	125	10	15
Peak Hour Factor	0.90	0.60	0.70	0.95	0.70	0.70
Hourly flow rate (vph)	122	5	16	132	14	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	1108					
pX, platoon unblocked						
vC, conflicting volume			127		288	125
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			127		288	125
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	98
cM capacity (veh/h)			1465		697	929

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	127	147	36
Volume Left	0	16	14
Volume Right	5	0	21
cSH	1700	1465	820
Volume to Capacity	0.07	0.01	0.04
Queue Length 95th (ft)	0	1	3
Control Delay (s)	0.0	0.9	9.6
Lane LOS		A	A
Approach Delay (s)	0.0	0.9	9.6
Approach LOS			A

Intersection Summary		
Average Delay		1.5
Intersection Capacity Utilization	23.9%	ICU Level of Service A
Analysis Period (min)		15

HCM Unsignalized Intersection Capacity Analysis
 8: Spencer Ave. & Spruce St.

2006 Total Traffic
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	↑
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	137	2	7	119	2	10
Peak Hour Factor	0.95	0.60	0.65	0.95	0.60	0.70
Hourly flow rate (vph)	144	3	11	125	3	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)				1108		
pX, platoon unblocked						
vC, conflicting volume			148		293	146
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			148		293	146
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	98
cM capacity (veh/h)			1440		695	904

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	148	136	18
Volume Left	0	11	3
Volume Right	3	0	14
cSH	1700	1440	855
Volume to Capacity	0.09	0.01	0.02
Queue Length 95th (ft)	0	1	2
Control Delay (s)	0.0	0.7	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	0.7	9.3
Approach LOS			A

Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization	22.0%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 8: Spencer Ave. & Spruce St.

2006 Total Traffic
 PM Peak Hour



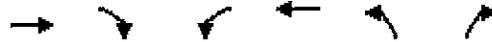
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↕			↕		↕
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	160	3	16	177	10	19
Peak Hour Factor	0.95	0.60	0.75	0.95	0.70	0.75
Hourly flow rate (vph)	168	5	21	186	14	25
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	1108					
pX, platoon unblocked						
vC, conflicting volume			173		400	171
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			173		400	171
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	97
cM capacity (veh/h)			1409		599	875

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	173	208	40
Volume Left	0	21	14
Volume Right	5	0	25
cSH	1700	1409	750
Volume to Capacity	0.10	0.02	0.05
Queue Length 95th (ft)	0	1	4
Control Delay (s)	0.0	0.9	10.1
Lane LOS		A	B
Approach Delay (s)	0.0	0.9	10.1
Approach LOS			B

Intersection Summary			
Average Delay		1.4	
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 8: Spencer Ave. & Spruce St.

2026 Background Traffic
 AM Peak Hour



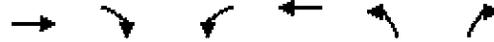
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	↑
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	170	5	10	155	5	10
Peak Hour Factor	0.95	0.65	0.70	0.95	0.65	0.70
Hourly flow rate (vph)	179	8	14	163	8	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)				1108		
pX, platoon unblocked						
vC, conflicting volume			187		375	183
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			187		375	183
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	98
cM capacity (veh/h)			1394		622	862

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	187	177	22
Volume Left	0	14	8
Volume Right	8	0	14
cSH	1700	1394	760
Volume to Capacity	0.11	0.01	0.03
Queue Length 95th (ft)	0	1	2
Control Delay (s)	0.0	0.7	9.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.7	9.9
Approach LOS			A

Intersection Summary			
Average Delay		0.9	
Intersection Capacity Utilization	26.4%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 8: Spencer Ave. & Spruce St.

2026 Background Traffic
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	155	10	15	195	10	15
Peak Hour Factor	0.95	0.70	0.70	0.95	0.70	0.70
Hourly flow rate (vph)	163	14	21	205	14	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	1108					
pX, platoon unblocked						
vC, conflicting volume			177		418	170
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			177		418	170
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	98
cM capacity (veh/h)			1405		584	876

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	177	227	36
Volume Left	0	21	14
Volume Right	14	0	21
cSH	1700	1405	730
Volume to Capacity	0.10	0.02	0.05
Queue Length 95th (ft)	0	1	4
Control Delay (s)	0.0	0.8	10.2
Lane LOS		A	B
Approach Delay (s)	0.0	0.8	10.2
Approach LOS			B

Intersection Summary		
Average Delay		1.3
Intersection Capacity Utilization	32.6%	ICU Level of Service A
Analysis Period (min)		15

HCM Unsignalized Intersection Capacity Analysis
8: Spencer Ave. & Spruce St.

2026 Total Traffic
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↕			↕		↕
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	187	5	12	175	5	11
Peak Hour Factor	0.95	0.65	0.70	0.95	0.65	0.70
Hourly flow rate (vph)	197	8	17	184	8	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	1108					
pX, platoon unblocked						
vC, conflicting volume			205		419	201
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			205		419	201
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	98
cM capacity (veh/h)			1373		585	843

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	205	201	23
Volume Left	0	17	8
Volume Right	8	0	16
cSH	1700	1373	736
Volume to Capacity	0.12	0.01	0.03
Queue Length 95th (ft)	0	1	2
Control Delay (s)	0.0	0.7	10.1
Lane LOS		A	B
Approach Delay (s)	0.0	0.7	10.1
Approach LOS			B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	29.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
8: Spencer Ave. & Spruce St.

2026 Total Traffic
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	203	10	20	255	10	19
Peak Hour Factor	0.95	0.70	0.75	0.95	0.70	0.75
Hourly flow rate (vph)	214	14	27	268	14	25
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)	1108					
pX, platoon unblocked						
vC, conflicting volume			228		543	221
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			228		543	221
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	97
cM capacity (veh/h)			1346		493	821

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	228	295	40
Volume Left	0	27	14
Volume Right	14	0	25
cSH	1700	1346	662
Volume to Capacity	0.13	0.02	0.06
Queue Length 95th (ft)	0	2	5
Control Delay (s)	0.0	0.9	10.8
Lane LOS		A	B
Approach Delay (s)	0.0	0.9	10.8
Approach LOS			B

Intersection Summary			
Average Delay		1.2	
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 10: Spencer Ave. & Vulcan St.

Existing Traffic
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	3	115	0	0	104	3	0	0	2	6	0	10
Peak Hour Factor	0.60	0.90	0.60	0.60	0.85	0.60	0.60	0.60	0.60	0.65	0.60	0.70
Hourly flow rate (vph)	5	128	0	0	122	5	0	0	3	9	0	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)					1255							
pX, platoon unblocked												
vC, conflicting volume	127			128			277	265	128	266	263	125
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	127			128			277	265	128	266	263	125
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	99	100	98
cM capacity (veh/h)	1465			1464			665	640	925	684	642	928
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	133	127	3	24								
Volume Left	5	0	0	9								
Volume Right	0	5	3	14								
cSH	1465	1464	925	814								
Volume to Capacity	0.00	0.00	0.00	0.03								
Queue Length 95th (ft)	0	0	0	2								
Control Delay (s)	0.3	0.0	8.9	9.6								
Lane LOS	A		A	A								
Approach Delay (s)	0.3	0.0	8.9	9.6								
Approach LOS			A	A								
Intersection Summary												
Average Delay			1.0									
Intersection Capacity Utilization			21.6%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 10: Spencer Ave. & Vulcan St.

Existing Traffic
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	8	95	1	3	120	9	0	0	1	9	0	13
Peak Hour Factor	0.65	0.90	0.60	0.60	0.95	0.70	0.60	0.60	0.60	0.65	0.60	0.70
Hourly flow rate (vph)	12	106	2	5	126	13	0	0	2	14	0	19
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)					1255							
pX, platoon unblocked												
vC, conflicting volume	139			107			292	280	106	275	275	133
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	139			107			292	280	106	275	275	133
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	100	98	100	98
cM capacity (veh/h)	1450			1490			643	622	951	672	627	919
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	120	144	2	32								
Volume Left	12	5	0	14								
Volume Right	2	13	2	19								
cSH	1450	1490	951	794								
Volume to Capacity	0.01	0.00	0.00	0.04								
Queue Length 95th (ft)	1	0	0	3								
Control Delay (s)	0.8	0.3	8.8	9.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	0.8	0.3	8.8	9.7								
Approach LOS			A	A								
Intersection Summary												
Average Delay			1.6									
Intersection Capacity Utilization			23.8%				ICU Level of Service		A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 10: Spencer Ave. & Vulcan St.

2006 Total Traffic
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	4	130	0	1	117	3	0	0	3	6	1	13
Peak Hour Factor	0.60	0.95	0.60	0.60	0.90	0.60	0.60	0.60	0.60	0.65	0.60	0.70
Hourly flow rate (vph)	7	137	0	2	130	5	0	0	5	9	2	19
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)					1255							
pX, platoon unblocked												
vC, conflicting volume	135			137			305	289	137	291	286	132
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	135			137			305	289	137	291	286	132
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	99	100	98
cM capacity (veh/h)	1456			1453			632	620	914	657	622	919

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	144	137	5	29
Volume Left	7	2	0	9
Volume Right	0	5	5	19
cSH	1456	1453	914	798
Volume to Capacity	0.00	0.00	0.01	0.04
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	0.4	0.1	9.0	9.7
Lane LOS	A	A	A	A
Approach Delay (s)	0.4	0.1	9.0	9.7
Approach LOS			A	A

Intersection Summary			
Average Delay		1.3	
Intersection Capacity Utilization	22.8%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 10: Spencer Ave. & Vulcan St.

2006 Total Traffic
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	140	1	7	168	9	0	1	4	9	1	16
Peak Hour Factor	0.70	0.95	0.60	0.65	0.95	0.65	0.60	0.60	0.65	0.65	0.60	0.75
Hourly flow rate (vph)	16	147	2	11	177	14	0	2	6	14	2	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)					1255							
pX, platoon unblocked												
vC, conflicting volume	191			149			407	392	148	392	386	184
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	191			149			407	392	148	392	386	184
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			100	100	99	98	100	98
cM capacity (veh/h)	1389			1439			533	535	901	556	540	861

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	165	201	8	37
Volume Left	16	11	0	14
Volume Right	2	14	6	21
cSH	1389	1439	787	698
Volume to Capacity	0.01	0.01	0.01	0.05
Queue Length 95th (ft)	1	1	1	4
Control Delay (s)	0.8	0.5	9.6	10.4
Lane LOS	A	A	A	B
Approach Delay (s)	0.8	0.5	9.6	10.4
Approach LOS			A	B

Intersection Summary			
Average Delay		1.7	
Intersection Capacity Utilization	26.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 10: Spencer Ave. & Vulcan St.

2026 Background Traffic
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	30	125	5	5	125	30	5	20	5	45	25	40
Peak Hour Factor	0.80	0.95	0.65	0.65	0.95	0.80	0.65	0.75	0.65	0.85	0.80	0.85
Hourly flow rate (vph)	38	132	8	8	132	38	8	27	8	53	31	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)					1255							
pX, platoon unblocked												
vC, conflicting volume	169			139			439	395	135	397	380	150
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	169			139			439	395	135	397	380	150
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			98	95	99	90	94	95
cM capacity (veh/h)	1415			1450			468	526	916	525	536	899

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	177	177	42	131
Volume Left	38	8	8	53
Volume Right	8	38	8	47
cSH	1415	1450	557	621
Volume to Capacity	0.03	0.01	0.08	0.21
Queue Length 95th (ft)	2	0	6	20
Control Delay (s)	1.8	0.4	12.0	12.3
Lane LOS	A	A	B	B
Approach Delay (s)	1.8	0.4	12.0	12.3
Approach LOS			B	B

Intersection Summary			
Average Delay		4.8	
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 10: Spencer Ave. & Vulcan St.

2026 Background Traffic
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	45	125	5	5	150	50	5	25	5	35	20	30
Peak Hour Factor	0.80	0.65	0.65	0.65	0.85	0.80	0.65	0.75	0.65	0.85	0.75	0.85
Hourly flow rate (vph)	56	192	8	8	176	62	8	33	8	41	27	35
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)					1255							
pX, platoon unblocked												
vC, conflicting volume	239			200			580	563	196	556	536	208
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	239			200			580	563	196	556	536	208
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			99			98	92	99	90	94	96
cM capacity (veh/h)	1334			1378			376	416	848	397	431	835
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	256	247	49	103								
Volume Left	56	8	8	41								
Volume Right	8	62	8	35								
cSH	1334	1378	444	497								
Volume to Capacity	0.04	0.01	0.11	0.21								
Queue Length 95th (ft)	3	0	9	19								
Control Delay (s)	2.0	0.3	14.1	14.1								
Lane LOS	A	A	B	B								
Approach Delay (s)	2.0	0.3	14.1	14.1								
Approach LOS			B	B								
Intersection Summary												
Average Delay			4.2									
Intersection Capacity Utilization			41.6%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 10: Spencer Ave. & Vulcan St.

2026 Total Traffic
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	31	140	5	6	145	30	5	20	6	45	26	43
Peak Hour Factor	0.80	0.95	0.65	0.65	0.95	0.85	0.65	0.75	0.65	0.85	0.80	0.85
Hourly flow rate (vph)	39	147	8	9	153	35	8	27	9	53	32	51
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None				None	
Median storage veh												
Upstream signal (ft)					1255							
pX, platoon unblocked												
vC, conflicting volume	188			155			484	435	151	440	421	170
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	188			155			484	435	151	440	421	170
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			98	95	99	89	94	94
cM capacity (veh/h)	1392			1431			432	498	898	489	507	876

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	194	197	44	136
Volume Left	39	9	8	53
Volume Right	8	35	9	51
cSH	1392	1431	534	591
Volume to Capacity	0.03	0.01	0.08	0.23
Queue Length 95th (ft)	2	0	7	22
Control Delay (s)	1.7	0.4	12.3	12.9
Lane LOS	A	A	B	B
Approach Delay (s)	1.7	0.4	12.3	12.9
Approach LOS			B	B

Intersection Summary			
Average Delay		4.7	
Intersection Capacity Utilization	42.0%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 10: Spencer Ave. & Vulcan St.

2026 Total Traffic
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	48	170	5	9	205	50	5	26	8	35	21	33
Peak Hour Factor	0.85	0.95	0.65	0.70	0.95	0.85	0.65	0.75	0.65	0.85	0.75	0.80
Hourly flow rate (vph)	56	179	8	13	216	59	8	35	12	41	28	41
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)					1255							
pX, platoon unblocked												
vC, conflicting volume	275			187			622	596	183	596	570	245
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	275			187			622	596	183	596	570	245
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			99			98	91	99	89	93	95
cM capacity (veh/h)	1294			1394			346	396	862	368	410	796

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	243	287	55	110
Volume Left	56	13	8	41
Volume Right	8	59	12	41
cSH	1294	1394	441	476
Volume to Capacity	0.04	0.01	0.12	0.23
Queue Length 95th (ft)	3	1	11	22
Control Delay (s)	2.1	0.4	14.3	14.8
Lane LOS	A	A	B	B
Approach Delay (s)	2.1	0.4	14.3	14.8
Approach LOS			B	B

Intersection Summary			
Average Delay		4.4	
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 1: Tincup Dr. & CR 13

Existing Traffic
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	10	5	6	4	1	0	3	2	5	5	0
Peak Hour Factor	0.60	0.70	0.60	0.65	0.60	0.60	0.60	0.60	0.60	0.65	0.65	0.60
Hourly flow rate (vph)	2	14	8	9	7	2	0	5	3	8	8	0
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	24	18	8	15								
Volume Left (vph)	2	9	0	8								
Volume Right (vph)	8	2	3	0								
Hadj (s)	-0.18	0.07	-0.22	0.12								
Departure Headway (s)	3.8	4.0	3.8	4.1								
Degree Utilization, x	0.03	0.02	0.01	0.02								
Capacity (veh/h)	936	881	928	862								
Control Delay (s)	6.9	7.1	6.8	7.2								
Approach Delay (s)	6.9	7.1	6.8	7.2								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			7.0									
HCM Level of Service			A									
Intersection Capacity Utilization			14.7%		ICU Level of Service	A						
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 1: Tincup Dr. & CR 13

Existing Traffic
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕				↕				↕		
Sign Control		Stop				Stop				Stop		
Volume (vph)	0	3	4	5	3	8	2	4	2	7	8	2
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.65	0.60	0.60	0.60	0.65	0.65	0.60
Hourly flow rate (vph)	0	5	7	8	5	12	3	7	3	11	12	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	12	26	13	26
Volume Left (vph)	0	8	3	11
Volume Right (vph)	7	12	3	3
Hadj (s)	-0.33	-0.21	-0.08	0.02
Departure Headway (s)	3.7	3.8	3.9	4.0
Degree Utilization, x	0.01	0.03	0.01	0.03
Capacity (veh/h)	959	935	896	884
Control Delay (s)	6.7	6.9	7.0	7.1
Approach Delay (s)	6.7	6.9	7.0	7.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay		7.0	
HCM Level of Service		A	
Intersection Capacity Utilization	15.4%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 1: Tincup Dr. & CR 13

2006 Total Traffic
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	10	5	7	4	2	0	3	3	6	5	0
Peak Hour Factor	0.60	0.70	0.65	0.65	0.60	0.60	0.60	0.60	0.60	0.65	0.65	0.60
Hourly flow rate (vph)	2	14	8	11	7	3	0	5	5	9	8	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	24	21	10	17
Volume Left (vph)	2	11	0	9
Volume Right (vph)	8	3	5	0
Hadj (s)	-0.16	0.02	-0.28	0.13
Departure Headway (s)	3.8	4.0	3.7	4.1
Degree Utilization, x	0.03	0.02	0.01	0.02
Capacity (veh/h)	930	887	941	858
Control Delay (s)	6.9	7.1	6.8	7.2
Approach Delay (s)	6.9	7.1	6.8	7.2
Approach LOS	A	A	A	A

Intersection Summary			
Delay		7.0	
HCM Level of Service		A	
Intersection Capacity Utilization	15.6%		ICU Level of Service A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 1: Tincup Dr. & CR 13

2006 Total Traffic
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	3	4	6	3	13	2	4	3	10	8	2
Peak Hour Factor	0.60	0.60	0.65	0.65	0.60	0.60	0.60	0.60	0.60	0.65	0.65	0.60
Hourly flow rate (vph)	0	5	6	9	5	22	3	7	5	15	12	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	11	36	15	31
Volume Left (vph)	0	9	3	15
Volume Right (vph)	6	22	5	3
Hadj (s)	-0.31	-0.29	-0.14	0.05
Departure Headway (s)	3.7	3.7	3.9	4.1
Degree Utilization, x	0.01	0.04	0.02	0.03
Capacity (veh/h)	949	952	902	872
Control Delay (s)	6.8	6.9	6.9	7.2
Approach Delay (s)	6.8	6.9	6.9	7.2
Approach LOS	A	A	A	A

Intersection Summary			
Delay		7.0	
HCM Level of Service		A	
Intersection Capacity Utilization	16.7%		ICU Level of Service A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 1: Tincup Dr. & CR 13

2026 Background Traffic
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	3	10	5	15	10	30	5	45	15	60	75	3
Peak Hour Factor	0.60	0.70	0.65	0.70	0.70	0.80	0.65	0.85	0.70	0.85	0.85	0.60
Hourly flow rate (vph)	5	14	8	21	14	38	8	53	21	71	88	5
Direction Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	27	73	82	164								
Volume Left (vph)	5	21	8	71								
Volume Right (vph)	8	38	21	5								
Hadj (s)	-0.12	-0.23	-0.12	0.08								
Departure Headway (s)	4.4	4.2	4.2	4.3								
Degree Utilization, x	0.03	0.09	0.10	0.20								
Capacity (veh/h)	755	790	826	816								
Control Delay (s)	7.6	7.7	7.6	8.3								
Approach Delay (s)	7.6	7.7	7.6	8.3								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.0									
HCM Level of Service			A									
Intersection Capacity Utilization			26.0%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 1: Tincup Dr. & CR 13

2026 Background Traffic
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	3	10	10	15	10	65	5	85	15	45	50	3
Peak Hour Factor	0.60	0.70	0.65	0.70	0.70	0.80	0.65	0.85	0.70	0.85	0.85	0.60
Hourly flow rate (vph)	5	14	15	21	14	81	8	100	21	53	59	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	35	117	129	117
Volume Left (vph)	5	21	8	53
Volume Right (vph)	15	81	21	5
Hadj (s)	-0.22	-0.36	-0.07	0.08
Departure Headway (s)	4.4	4.1	4.3	4.5
Degree Utilization, x	0.04	0.13	0.15	0.14
Capacity (veh/h)	769	812	800	766
Control Delay (s)	7.6	7.8	8.1	8.2
Approach Delay (s)	7.6	7.8	8.1	8.2
Approach LOS	A	A	A	A

Intersection Summary			
Delay		8.0	
HCM Level of Service		A	
Intersection Capacity Utilization	26.4%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 1: Tincup Dr. & CR 13

2026 Total Traffic
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	3	10	5	15	10	31	5	45	15	61	75	3
Peak Hour Factor	0.60	0.70	0.65	0.70	0.70	0.80	0.65	0.85	0.70	0.85	0.85	0.60
Hourly flow rate (vph)	5	14	8	21	14	39	8	53	21	72	88	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	27	74	82	165
Volume Left (vph)	5	21	8	72
Volume Right (vph)	8	39	21	5
Hadj (s)	-0.12	-0.24	-0.12	0.09
Departure Headway (s)	4.4	4.2	4.2	4.3
Degree Utilization, x	0.03	0.09	0.10	0.20
Capacity (veh/h)	754	790	825	815
Control Delay (s)	7.6	7.7	7.6	8.4
Approach Delay (s)	7.6	7.7	7.6	8.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay		8.0	
HCM Level of Service		A	
Intersection Capacity Utilization	26.1%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 1: Tincup Dr. & CR 13

2026 Total Traffic
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	3	10	10	15	10	70	5	85	15	48	50	3
Peak Hour Factor	0.60	0.70	0.65	0.70	0.70	0.85	0.65	0.85	0.75	0.85	0.85	0.60
Hourly flow rate (vph)	5	14	15	21	14	82	8	100	20	56	59	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	35	118	128	120
Volume Left (vph)	5	21	8	56
Volume Right (vph)	15	82	20	5
Hadj (s)	-0.22	-0.37	-0.06	0.09
Departure Headway (s)	4.4	4.1	4.3	4.5
Degree Utilization, x	0.04	0.14	0.15	0.15
Capacity (veh/h)	757	811	797	766
Control Delay (s)	7.6	7.8	8.1	8.2
Approach Delay (s)	7.6	7.8	8.1	8.2
Approach LOS	A	A	A	A

Intersection Summary

Delay	8.0
HCM Level of Service	A
Intersection Capacity Utilization	26.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 16: Dorchester Ave. & Vulcan St.

Existing Traffic
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙ ↘			↑	↓	↘
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	2	0	0	4	16	1
Peak Hour Factor	0.60	0.60	0.60	0.65	0.70	0.60
Hourly flow rate (vph)	3	0	0	6	23	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	30	24	25			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	30	24	25			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	987	1056	1597			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	3	6	25
Volume Left	3	0	0
Volume Right	0	0	2
cSH	987	1597	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 16: Dorchester Ave. & Vulcan St.

Existing Traffic
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙ ↘			↑	↓	↙
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	0	1	19	17	0
Peak Hour Factor	0.60	0.60	0.60	0.70	0.75	0.60
Hourly flow rate (vph)	0	0	2	27	23	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	53	23	23			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	53	23	23			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	957	1057	1599			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	29	23
Volume Left	0	2	0
Volume Right	0	0	0
cSH	1700	1599	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.4	0.0
Lane LOS	A	A	
Approach Delay (s)	0.0	0.4	0.0
Approach LOS	A		

Intersection Summary			
Average Delay			0.2
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)			15

HCM Unsignalized Intersection Capacity Analysis
 16: Dorchester Ave. & Vulcan St.

2006 Total Traffic
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙			↑	↓	↘
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	4	0	0	5	19	2
Peak Hour Factor	0.60	0.60	0.60	0.65	0.70	0.60
Hourly flow rate (vph)	7	0	0	8	27	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	37	29	30			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	37	29	30			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	979	1049	1589			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	7	8	30
Volume Left	7	0	0
Volume Right	0	0	3
cSH	979	1589	1700
Volume to Capacity	0.01	0.00	0.02
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

Intersection Summary		
Average Delay		1.3
Intersection Capacity Utilization	13.3%	ICU Level of Service A
Analysis Period (min)		15

HCM Unsignalized Intersection Capacity Analysis
 16: Dorchester Ave. & Vulcan St.

2006 Total Traffic
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙ ↘			↑	↓	↘
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	5	0	1	22	20	4
Peak Hour Factor	0.65	0.60	0.60	0.75	0.75	0.60
Hourly flow rate (vph)	8	0	2	29	27	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	63	30	33			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	63	30	33			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	945	1047	1585			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	8	31	33
Volume Left	8	2	0
Volume Right	0	0	7
cSH	945	1585	1700
Volume to Capacity	0.01	0.00	0.02
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.8	0.4	0.0
Lane LOS	A	A	
Approach Delay (s)	8.8	0.4	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		1.1	
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 16: Dorchester Ave. & Vulcan St.

2026 Background Traffic
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘			↑	↓	↙
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	2	2	2	75	105	2
Peak Hour Factor	0.60	0.60	0.60	0.85	0.95	0.60
Hourly flow rate (vph)	3	3	3	88	111	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	207	112	114			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	207	112	114			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	782	944	1482			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	7	92	114
Volume Left	3	3	0
Volume Right	3	0	3
cSH	855	1482	1700
Volume to Capacity	0.01	0.00	0.07
Queue Length 95th (ft)	1	0	0
Control Delay (s)	9.2	0.3	0.0
Lane LOS	A	A	
Approach Delay (s)	9.2	0.3	0.0
Approach LOS	A		

Intersection Summary		
Average Delay		0.4
Intersection Capacity Utilization	15.6%	ICU Level of Service A
Analysis Period (min)		15

HCM Unsignalized Intersection Capacity Analysis
 16: Dorchester Ave. & Vulcan St.

2026 Background Traffic
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙ ↘			↑	↓	↘
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	2	2	2	120	85	2
Peak Hour Factor	0.60	0.60	0.60	0.85	0.95	0.60
Hourly flow rate (vph)	3	3	3	141	89	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	239	91	93			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	239	91	93			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	750	969	1508			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	7	145	93
Volume Left	3	3	0
Volume Right	3	0	3
cSH	845	1508	1700
Volume to Capacity	0.01	0.00	0.05
Queue Length 95th (ft)	1	0	0
Control Delay (s)	9.3	0.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.3	0.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 16: Dorchester Ave. & Vulcan St.

2026 Total Traffic
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙ ↘			↑	↓	↘
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	4	2	2	76	108	3
Peak Hour Factor	0.60	0.60	0.60	0.90	0.95	0.60
Hourly flow rate (vph)	7	3	3	84	114	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	207	116	119			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	207	116	119			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	782	939	1476			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	10	88	119			
Volume Left	7	3	0			
Volume Right	3	0	5			
cSH	828	1476	1700			
Volume to Capacity	0.01	0.00	0.07			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	9.4	0.3	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.4	0.3	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			15.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Dorchester Ave. & Vulcan St.

2026 Total Traffic
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙ ↘			↑	↓	↙
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	7	2	2	123	88	6
Peak Hour Factor	0.65	0.60	0.60	0.95	0.90	0.65
Hourly flow rate (vph)	11	3	3	129	98	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	239	102	107			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	239	102	107			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	750	955	1490			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	14	133	107
Volume Left	11	3	0
Volume Right	3	0	9
cSH	790	1490	1700
Volume to Capacity	0.02	0.00	0.06
Queue Length 95th (ft)	1	0	0
Control Delay (s)	9.6	0.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.6	0.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 25: CR 13 & Side Access

2026 Total Traffic
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↕		↕		↕	
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Volume (veh/h)	85	3	12	115	5	85
Peak Hour Factor	0.90	0.60	0.75	0.95	0.65	0.90
Hourly flow rate (vph)	94	5	16	121	8	94
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			99		250	97
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			99		250	97
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	90
cM capacity (veh/h)			1500		733	962

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	99	137	102
Volume Left	0	16	8
Volume Right	5	0	94
cSH	1700	1500	940
Volume to Capacity	0.06	0.01	0.11
Queue Length 95th (ft)	0	1	9
Control Delay (s)	0.0	0.9	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	0.9	9.3
Approach LOS			A

Intersection Summary			
Average Delay		3.2	
Intersection Capacity Utilization	25.6%	ICU Level of Service	A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 24: Main Access & Commercial Access

2006 Total Traffic
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↘		↙	↘		↙	↘		↙	↘	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	10	15	10	50	20	35	25	5	30	20	5	15
Peak Hour Factor	0.70	0.75	0.70	0.85	0.80	0.85	0.85	0.65	0.85	0.80	0.65	0.75
Hourly flow rate (vph)	14	20	14	59	25	41	29	8	35	25	8	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	66			34			222	240	27	251	226	46
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	66			34			222	240	27	251	226	46
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			96	99	97	96	99	98
cM capacity (veh/h)	1542			1584			690	633	1051	651	644	1027

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	14	34	59	66	29	43	25	28
Volume Left	14	0	59	0	29	0	25	0
Volume Right	0	14	0	41	0	35	0	20
cSH	1542	1700	1584	1700	690	940	651	881
Volume to Capacity	0.01	0.02	0.04	0.04	0.04	0.05	0.04	0.03
Queue Length 95th (ft)	1	0	3	0	3	4	3	2
Control Delay (s)	7.4	0.0	7.4	0.0	10.5	9.0	10.8	9.2
Lane LOS	A		A		B	A	B	A
Approach Delay (s)	2.2		3.5		9.6		9.9	
Approach LOS					A		A	

Intersection Summary		
Average Delay	5.9	
Intersection Capacity Utilization	24.2%	ICU Level of Service A
Analysis Period (min)	15	

HCM Unsignalized Intersection Capacity Analysis
 24: Main Access & Commercial Access

2006 Total Traffic
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SET	SBR
Lane Configurations	↙	↕		↙	↕		↙	↕		↙	↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	20	60	20	150	80	110	45	8	125	90	8	35
Peak Hour Factor	0.87	0.90	0.85	0.98	0.92	0.95	0.85	0.75	0.95	0.95	0.75	0.85
Hourly flow rate (vph)	23	67	24	153	87	116	53	11	132	95	11	41
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	203			90			564	633	78	701	587	145
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	203			90			564	633	78	701	587	145
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			90			86	97	87	65	97	95
cM capacity (veh/h)	1375			1511			373	352	985	274	374	905

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	23	90	153	203	53	142	95	52
Volume Left	23	0	153	0	53	0	95	0
Volume Right	0	24	0	116	0	132	0	41
cSH	1375	1700	1511	1700	373	868	274	700
Volume to Capacity	0.02	0.05	0.10	0.12	0.14	0.16	0.35	0.07
Queue Length 95th (ft)	1	0	8	0	12	15	37	6
Control Delay (s)	7.7	0.0	7.7	0.0	16.3	10.0	25.0	10.6
Lane LOS	A		A		C	A	C	B
Approach Delay (s)	1.6		3.3		11.7		19.9	
Approach LOS					B		C	

Intersection Summary		
Average Delay	8.1	
Intersection Capacity Utilization	39.8%	ICU Level of Service A
Analysis Period (min)	15	

HCM Unsignalized Intersection Capacity Analysis
 24: Main Access & Commercial Access

2026 Total Traffic
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗		
Sign Control	Free		Free		Stop		Stop		Stop		Stop		
Grade	0%		0%		0%		0%		0%		0%		
Volume (veh/h)	10	15	10	50	20	35	25	5	30	20	5	15	
Peak Hour Factor	0.70	0.75	0.70	0.85	0.75	0.85	0.80	0.65	0.80	0.75	0.65	0.75	
Hourly flow rate (vph)	14	20	14	59	27	41	31	8	38	27	8	20	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None						
Median storage veh													
Upstream signal (ft)													
pX, platoon unblocked													
vC, conflicting volume	68			34			224	241	27	255	228	47	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	68			34			224	241	27	255	228	47	
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	99			96			95	99	96	96	99	98	
cM capacity (veh/h)	1540			1584			688	631	1051	646	642	1025	

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	14	34	59	68	31	45	27	28
Volume Left	14	0	59	0	31	0	27	0
Volume Right	0	14	0	41	0	38	0	20
cSH	1540	1700	1584	1700	688	944	646	879
Volume to Capacity	0.01	0.02	0.04	0.04	0.05	0.05	0.04	0.03
Queue Length 95th (ft)	1	0	3	0	4	4	3	2
Control Delay (s)	7.4	0.0	7.4	0.0	10.5	9.0	10.8	9.2
Lane LOS	A		A		B	A	B	A
Approach Delay (s)	2.2	3.4		9.6		10.0		
Approach LOS			A		A		B	

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	24.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

2026 Total Traffic

24: Main Access & Commercial Access

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Free		Free		Free		Stop		Stop		Stop	
Grade	0%		0%		0%		0%		0%		0%	
Volume (veh/h)	20	60	20	150	80	110	45	8	125	90	8	35
Peak Hour Factor	0.87	0.90	0.85	0.98	0.90	0.95	0.85	0.80	0.95	0.95	0.80	0.85
Hourly flow rate (vph)	23	67	24	153	89	116	53	10	132	95	10	41
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None						None					
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	205			90			566	635	78	702	589	147
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	205			90			566	635	78	702	589	147
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			90			86	97	87	65	97	95
cM capacity (veh/h)	1373			1511			372	351	985	273	373	903
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total	23	90	153	205	53	142	95	51				
Volume Left	23	0	153	0	53	0	95	0				
Volume Right	0	24	0	116	0	132	0	41				
cSH	1373	1700	1511	1700	372	873	273	707				
Volume to Capacity	0.02	0.05	0.10	0.12	0.14	0.16	0.35	0.07				
Queue Length 95th (ft)	1	0	8	0	12	14	37	6				
Control Delay (s)	7.7	0.0	7.7	0.0	16.3	9.9	25.0	10.5				
Lane LOS	A		A		C	A	C	B				
Approach Delay (s)	1.6	3.3		11.6		19.9						
Approach LOS			B		C							
Intersection Summary												
Average Delay			8.0									
Intersection Capacity Utilization			39.8%		ICU Level of Service		A					
Analysis Period (min)			15									

**Supplementary Level of Service Table
Van Tuyl Village**

Intersection	Traffic Control	Peak Hour	Short-Term Levels of Service																							
			Existing Traffic												2006 Total Traffic											
			EB ⁽¹⁾			WB			NB			SB			EB			WB			NB			SB		
L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R			
Spencer Avenue/ SH 135	Traffic Signal	AM	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		PM	B	B	A	B	B	A	A	A	A	A	A	A	B	B	A	B	B	A	B	A	A	A	A	A
Spencer Avenue/ Pine Street	One-Way or Two-Way Stop	AM	—	free ⁽²⁾	free	A	A	—	A	—	A	—	—	—	A	A	A	A	A	A	A	A	A	B	B	A
		PM	—	free	free	A	A	—	A	—	A	—	—	—	A	A	A	A	A	A	B	B	B	B	B	A
Spencer Avenue/ Spruce Street	One-Way Stop	AM	—	free	free	A	A	—	A	—	A	—	—	—	—	free	free	A	A	—	A	—	A	—	—	—
		PM	—	free	free	A	A	—	A	—	A	—	—	—	—	free	free	A	A	—	B	—	B	—	—	—
Spencer Avenue/ Vulcan Street	Two-Way Stop	AM	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		PM	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	B	B
Dorchester Avenue/ Vulcan Street	One-Way Stop	AM	A	—	A	—	—	—	A	A	—	—	free	free	A	—	A	—	—	—	A	A	—	—	free	free
		PM	A	—	A	—	—	—	A	A	—	—	free	free	A	—	A	—	—	—	A	A	—	—	free	free
Tincup Drive/ CR 13	Three-Way Stop	AM	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		PM	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
CR 13/ Site Access	One-Way Stop	AM	—	—	—	—	—	—	—	—	—	—	—	—	—	free	free	A	A	—	A	—	A	—	—	—
		PM	—	—	—	—	—	—	—	—	—	—	—	—	—	free	free	A	A	—	A	—	A	—	—	—
CR 13/ SH 135	Two-Way Stop	AM	B	B	B	A	A	A	A	free	free	A	free	free	C	C	C	A	A	A	A	free	free	A	free	free
		PM	B	B	B	A	A	A	A	free	free	A	free	free	D	D	D	A	A	A	A	free	free	A	free	free
Colorado Street/ SH 135	One-Way or Two-Way Stop	AM	—	—	—	B	—	B	—	free	free	A	free	—	—	—	A	—	—	A	A	free	free	A	free	free
		PM	—	—	—	B	—	B	—	free	free	A	free	—	—	—	B	—	—	B	A	free	free	A	free	free
Commercial Access/ Site Access	Two-Way Stop	AM	—	—	—	—	—	—	—	—	—	—	—	—	A	A	A	A	A	A	B	A	A	B	A	A
		PM	—	—	—	—	—	—	—	—	—	—	—	—	A	A	A	A	A	A	C	A	A	C	B	B

Intersection	Traffic Control	Peak Hour	Projected Long-Term Levels of Service																							
			2026 Background Traffic												2026 Total Traffic											
			EB			WB			NB			SB			EB			WB			NB			SB		
L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R			
Spencer Avenue/ SH 135	Traffic Signal	AM	B	B	A	A	A	A	A	A	A	A	A	A	B	B	A	B	B	A	A	A	A	A	A	A
		PM	B	B	A	B	B	A	B	A	A	B	A	A	B	B	A	B	B	A	B	A	A	B	A	A
Spencer Avenue/ Pine Street	Two-Way Stop	AM	—	free	free	A	A	—	A	—	A	—	—	—	A	A	A	A	A	A	B	B	B	B	B	A
		PM	—	free	free	A	A	—	B	—	B	—	—	—	A	A	A	A	A	A	C	C	C	C	C	A
Spencer Avenue/ Spruce Street	One-Way Stop	AM	—	free	free	A	A	—	A	—	A	—	—	—	—	free	free	A	A	—	B	—	B	—	—	—
		PM	—	free	free	A	A	—	B	—	B	—	—	—	—	free	free	A	A	—	B	—	B	—	—	—
Spencer Avenue/ Vulcan Street	Two-Way Stop	AM	A	A	A	A	A	A	B	B	B	B	B	B	A	A	A	A	A	A	B	B	B	B	B	B
		PM	A	A	A	A	A	A	B	B	B	B	B	B	A	A	A	A	A	A	B	B	B	B	B	B
Dorchester Avenue/ Vulcan Street	One-Way Stop	AM	A	—	A	—	—	—	A	A	—	—	free	free	A	—	A	—	—	—	A	A	—	—	free	free
		PM	A	—	A	—	—	—	A	A	—	—	free	free	A	—	A	—	—	—	A	A	—	—	free	free
Tincup Drive/ CR 13	Three-Way Stop	AM	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		PM	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
CR 13/ Site Access	One-Way Stop	AM	—	—	—	—	—	—	—	—	—	—	—	—	—	free	free	A	A	—	A	—	A	—	—	—
		PM	—	—	—	—	—	—	—	—	—	—	—	—	—	free	free	A	A	—	A	—	A	—	—	—
CR 13/ SH 135	Two-Way Stop	AM	C	C	C	A	A	A	A	free	free	A	free	free	D	D	D	A	A	A	A	free	free	A	free	free
		PM	D	D	D	A	A	A	B	free	free	A	free	free	F	F	F	A	A	A	B	free	free	A	free	free
Colorado Street/ SH 135	Two-Way Stop	AM	—	—	—	B	—	B	—	free	free	A	free	—	—	—	B	—	—	B	A	free	free	A	free	free
		PM	—	—	—	B	—	B	—	free	free	A	free	—	—	—	C	—	—	B	B	free	free	A	free	free
Commercial Access/ Site Access	Two-Way Stop	AM	—	—	—	—	—	—	—	—	—	—	—	—	A	A	A	A	A	A	B	A	A	B	A	A
		PM	—	—	—	—	—	—	—	—	—	—	—	—	A	A	A	A	A	A	C	A	A	C	B	B

Notes:
 (1) Approaches: EB = eastbound, WB = westbound, NB = northbound, SB = southbound, L = left, T = through, R = right
 (2) Level of service free indicates the movement is not required to yield to other vehicles