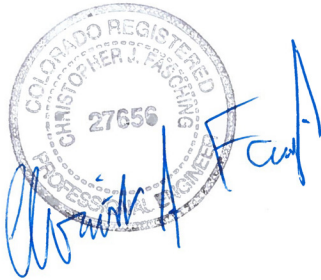


ABILENE STATION TRANSIT ORIENTED DEVELOPMENT

Traffic Impact Study



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I. INTRODUCTION

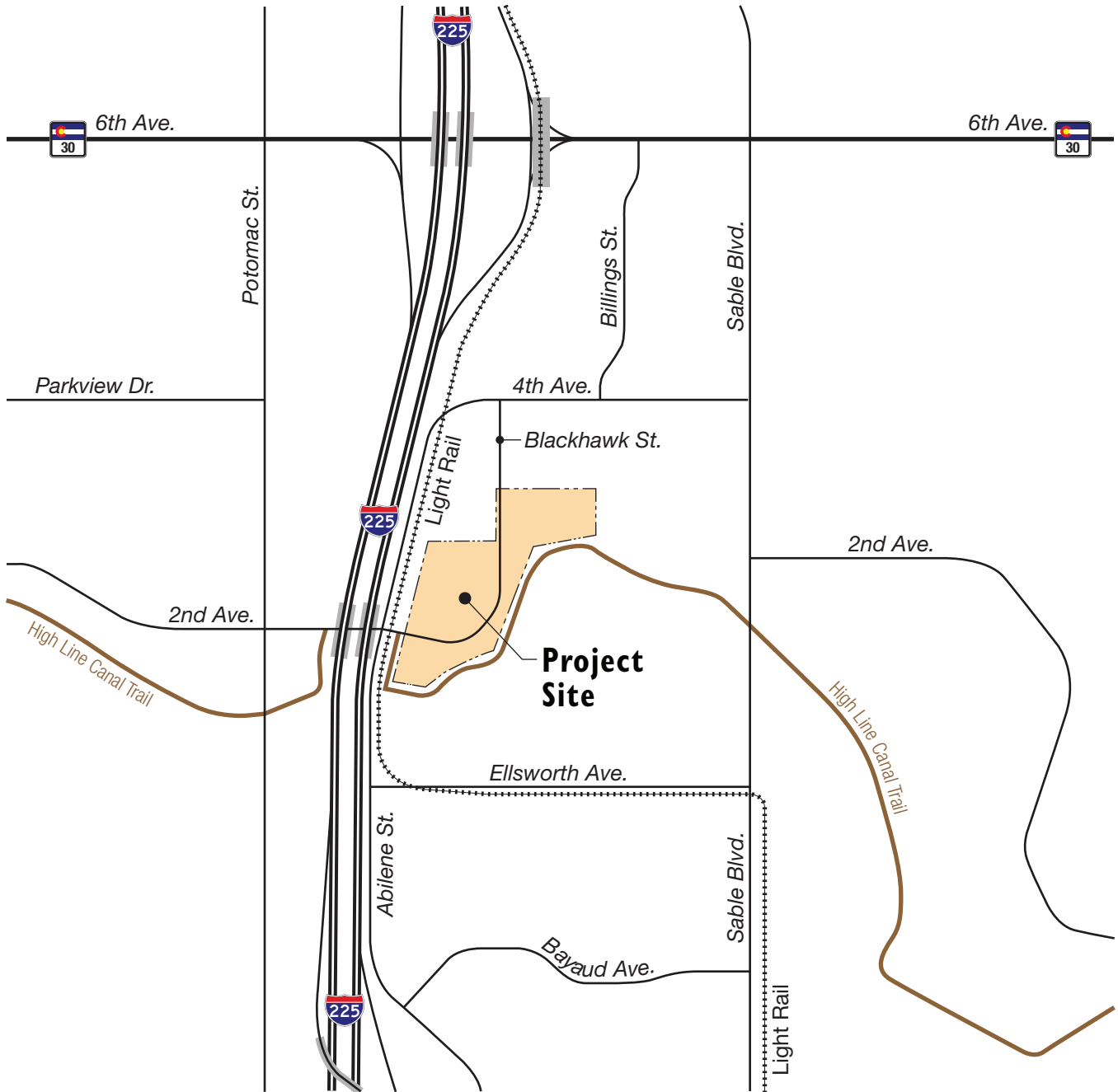
The Abilene Station Transit-Oriented Development (TOD) is a proposed 8-acre development located on the east side of I-225 in the city of Aurora, Colorado. Specifically, the site is located on the northeast corner of 2nd Avenue and Abilene Street as shown on **Figure 1**. The development is planned for multifamily residential and retail uses as part of a TOD. Access to the development is planned to be provided via Blackhawk Street to 4th Avenue (which Cambridge College currently uses) and 2nd Avenue onto Abilene Street. **Figure 2** shows the Site Plan.

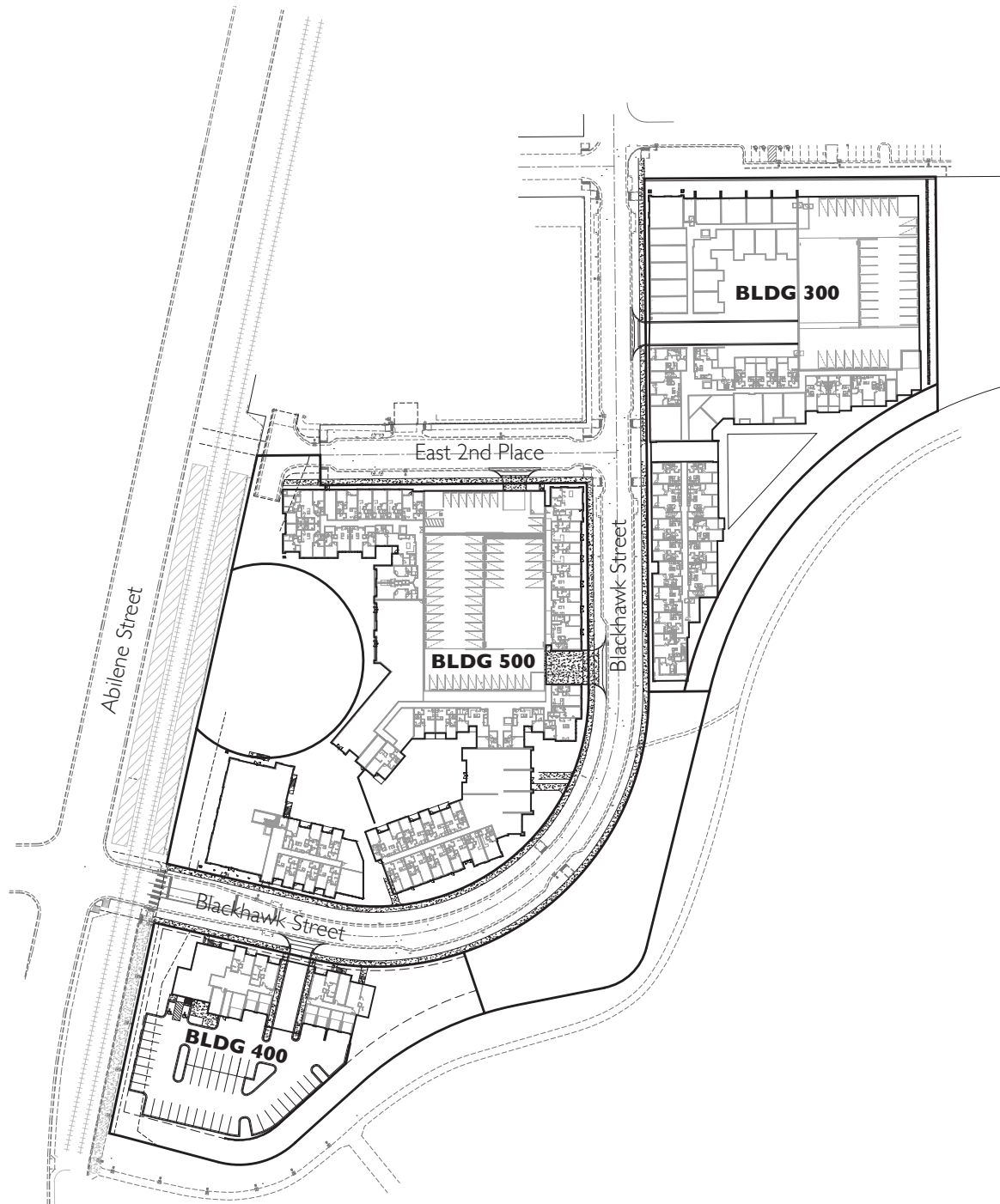
Light rail currently serves the site with a station located immediately adjacent. This development is designed to take advantage of this infrastructure, likely resulting in reduced trip generation potential due to the station's proximity.

This report was prepared to address the potential traffic impact on the adjacent roadways due to traffic generated by this proposed development and to identify the need for the appropriate traffic and roadway control improvements. In addition, traffic calming options along Blackhawk Street through the site are assessed, and a pedestrian accommodation assessment of Blackhawk Street is also provided.

This analysis considered two possible future scenarios:

- **Short-Range Future:** This scenario focuses on the traffic impact at the planned buildout of the site for the year 2025.
- **Long-Range Future:** This scenario analyses the traffic impact of the proposed site for the year 2045.





II. EXISTING CONDITIONS

II.A. Land Use

The site is currently undeveloped. Residential uses exist to the east and south (across the Highline Canal) of the proposed development. Cambridge College, located to the development's northeast, currently uses Blackhawk Street for access, and the Courtyard by Marriott is north of the proposed site. Other commercial development exists north of 4th Avenue, and I-225 is located west of the development (across Abilene Street and across the light rail line).

II.B. Roadway Network

Nearby roadways that could be most impacted by this development are described as follows:

- **Abilene Street:** This two-lane collector street is located along the site's west side. It has a 50-foot-wide pavement and is striped for two through lanes of traffic. To the south, Abilene serves a bit of a frontage road role serving retail and restaurant uses as far south as Iliff Avenue. North of 2nd Avenue, this road turns east into 4th Avenue at the north end of the development.
- **4th Avenue:** This two-lane minor arterial along the site's north side extends from Abilene Street to Sable Boulevard. Its current width is 68 feet, having been built to the older minor-arterial standards, and the road is striped to accommodate two lanes of traffic. While the width is more consistent with a minor arterial cross-section, the roadway's "role" is more in line with a collector classification with on-street parking.
- **2nd Avenue:** This roadway is grade-separated with I-225 located equidistant from 6th Avenue and Alameda Avenue interchanges. It crosses under the freeway and connects with Potomac Street. The road is 50 feet in width and provides two through lanes and bike lanes. 2nd Avenue crosses the light-rail line at grade just west of Abilene Street, where railroad crossing gates have been installed.
- **Blackhawk Street:** This short local road extends into the site from 4th Avenue along the western frontage of Cambridge College. The road extends south and curves into Abilene Street opposite 2nd Avenue.
- **Potomac Street:** This north-south roadway provides four through lanes as an arterial road extending north from 2nd Avenue to Colfax Avenue, where it is renamed Fitzsimons Parkway and continues north and west tying into MLK Boulevard at Peoria Street. To the south, Potomac Street extends to Alameda Parkway as a four-lane arterial, transitioning to a two-lane collector road through the residential area and eventually through the Aurora Medical Center campus area south of Mississippi Avenue. Its intersection with 2nd Avenue is signalized.
- **Sable Boulevard:** This north-south roadway provides four through lanes as a minor arterial road extending north to 6th Avenue where it "jogs" to the east and becomes a two-lane collector road through a residential area up to and beyond Colfax Avenue. To the south, Sable Boulevard continues as a four-lane minor arterial as far south as Mississippi Avenue, where it transitions to a two-lane collector passing through primarily residential development down to Iliff Avenue.

II.C. Traffic Volumes

Recent AM and PM peak hour turning movement data were collected at the intersections of Abilene Street with 2nd Avenue and E 4th Avenue with Blackhawk Street, as shown on **Figure 3**. Turning movement counts are included in **Appendix A**.

The immediate surrounding area roadways do not carry much traffic. From the turning movement counts, Abilene Street is estimated to carry approximately 7,400 vehicles per day (vpd) south of 2nd Avenue. 2nd Avenue is anticipated to carry about 8,600 vpd and 4th Avenue is estimated to have about 5,100 vpd.

The predominant traffic pattern adjacent to the site entails the interaction of trips between 2nd Avenue (under I-225) and the south leg of Abilene Street. Approximately 60 percent of the peak hour traffic passing through this intersection consists of movements between the south and west legs. Blackhawk Street, which runs through the site, serves approximately 50 vehicles per hour at its south end and approximately 180 vehicles per hour at its north end onto 4th Avenue. The existing Courtyard by Marriot, as well as the Academy of Advance Learning, generates most of the traffic using this road today.

The traffic levels along Sable Boulevard and along Potomac Street are noticeably greater than those along the road adjacent to the site. The peak hour turning movement counts at Potomac Street/2nd Avenue show a PM peak hour demand of approximately 1,700 vehicles per hour (both directions combined) along Potomac Street north of 2nd Avenue. The north-south through traffic is the predominant pattern through this intersection, but a rival pattern is the interaction of trips between the north and east legs of that intersection.

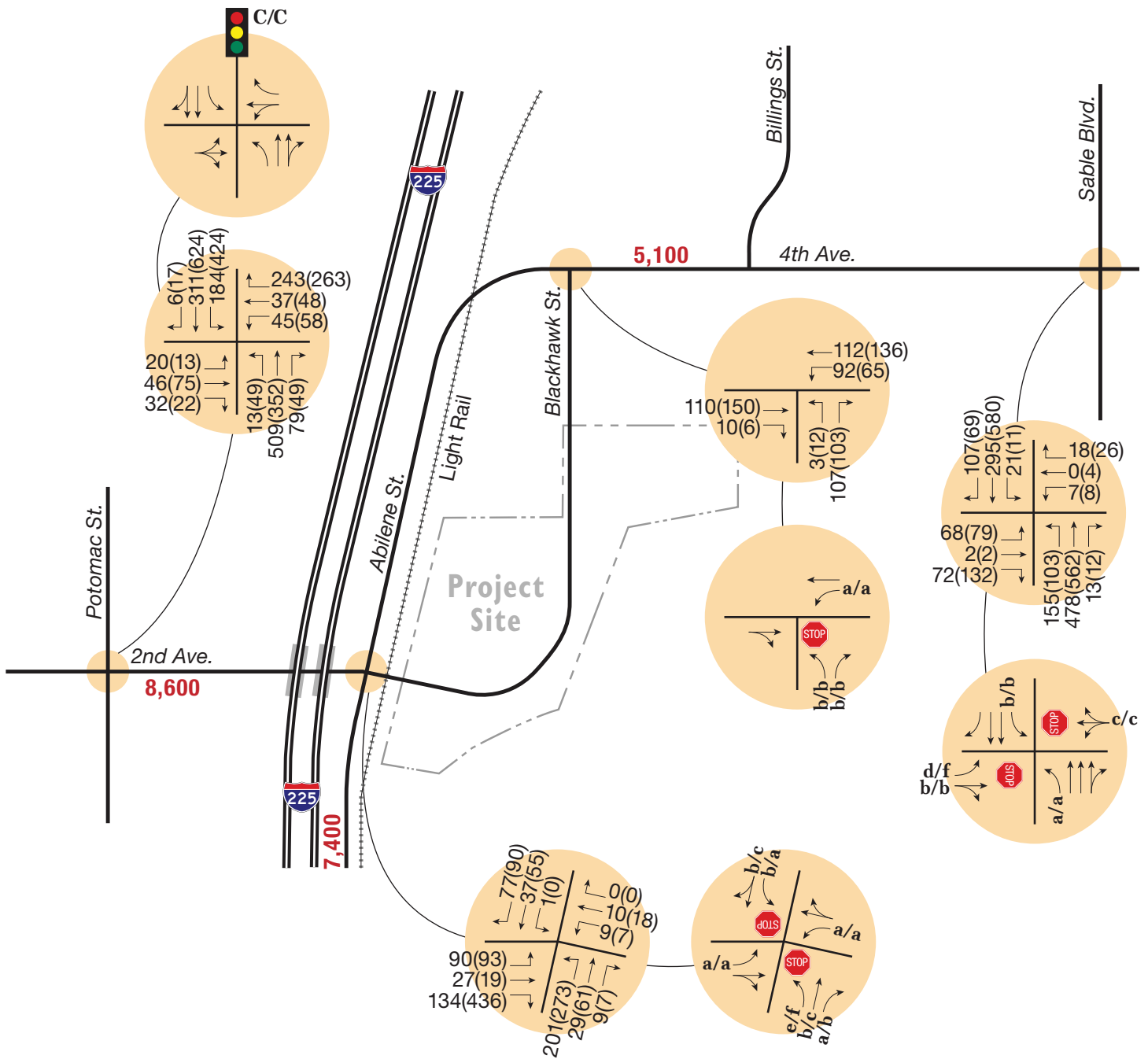
Sable Boulevard serves a PM peak hour traffic demand of approximately 1,400 vehicles per hour (both directions combined) south of 4th Avenue. The most significant pattern passing through this intersection is north-south through traffic.

II.D. Traffic Operations

Intersection Levels of Service (LOS) were calculated for the two study intersections. LOS is a qualitative assessment of the traffic flow characteristics described by a letter designation ranging from “A” to “F.” LOS A represents traffic conditions with essentially uninterrupted flow and minimal delay, whereas LOS F represents the breakdown of traffic flow with excessive congestion and delay. Unsignalized intersection analyses result in a LOS designation for each non-free-flow intersection movement, whereas an overall LOS is reported for signalized intersections. LOS is technically defined by driver delay in seconds per vehicle, and a table that defines each LOS range and the LOS worksheets are contained in **Appendix B**.

Figure 3 shows that all movements operate at LOS C or better with the exception of the northbound left turn at the intersection of Abilene Street/2nd Avenue, which is anticipated to operate at LOS E in the AM and LOS F in the PM peak hour. This left turn movement represents the major traffic pattern passing through the intersection, and subjecting it to a stop produces long delays at peak hours. The stop-sign orientation at this intersection has been established as a result of the light-rail line passing across the east leg of the intersection.

The Potomac Street/2nd Avenue intersection is signalized, and overall operations show a LOS no worse than LOS C today during peak hours. The Sable Boulevard/4th Avenue intersection is side-street-stop controlled. The minor street left turn movement (eastbound to northbound left turn) operates the poorest at a LOS F during the PM peak hour. Side-street minor-left turn delay is common during peak hour where the main roadway is relatively busy.



LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

x/x = AM/PM Peak Hour Unsignalized Intersection Level of Service

STOP = Stop Sign

III. PROPOSED DEVELOPMENT

III.A. Site Access

Access to the site will be provided entirely by Blackhawk Street, which, in turn, connects to 4th Avenue north of the site and to Abilene Street at the south end of the site. A total of four access points are proposed onto 2nd Avenue/Blackhawk Street serving the development along both sides of the roadway. One access, located just north of the curve and entering 2nd Avenue/Blackhawk Street from the west, will be limited to three-quarter movement. The left out from this access will be prohibited due to driver sight distance limitation along the curvature of the roadway.

III.B. Land Use

The proposed development would include a total of 582 multifamily residential units and 10,000 square feet of retail space. For purposes of this report, it was assumed full buildout of the proposed redevelopment would occur by year 2025.

III.C. Trip Generation

The number of vehicle trips generated by the proposed development was estimated based on the generation equations documented in *Trip Generation Manual*, by the Institute of Transportation Engineers (ITE), 10th Edition, 2017, as shown in **Table 1**.

Table 1. Trip Generation Equations

Land Use	Daily	AM	PM	Distribution
Multifamily (Mid-rise)	$T=5.45 \times x - 1.75$	$\ln(T)=0.98 \times \ln(x) - 0.98$	$\ln(T)=0.96 \times \ln(x) - 0.63$	AM: 26% in/74% out PM: 61% in/39% out
Commercial	$\ln(T)=0.68 \times \ln(x) + 5.57$	$T=0.5 \times x + 151.78$	$\ln(T)=0.74 \times \ln(x) + 2.89$	AM: 62% in/38% out PM: 48% in/52% out

These trip generation equations were compared with the 11th Edition of the *Trip Generation Manual* and were found to be slightly higher creating a more conservative approach. **Table 2** presents the estimated daily and peak hour vehicle-trips generated by the proposed development. Because this is a TOD and mixed uses are proposed, a 15 percent reduction was applied “across the board” to the trip estimates. The ITE *Trip Generation Handbook* showed a range of rates from 15 to 20 percent for existing sites with similar light-rail proximity; therefore, a conservative assumption of 15 percent was used.

Table 2. Estimated Trip Generation

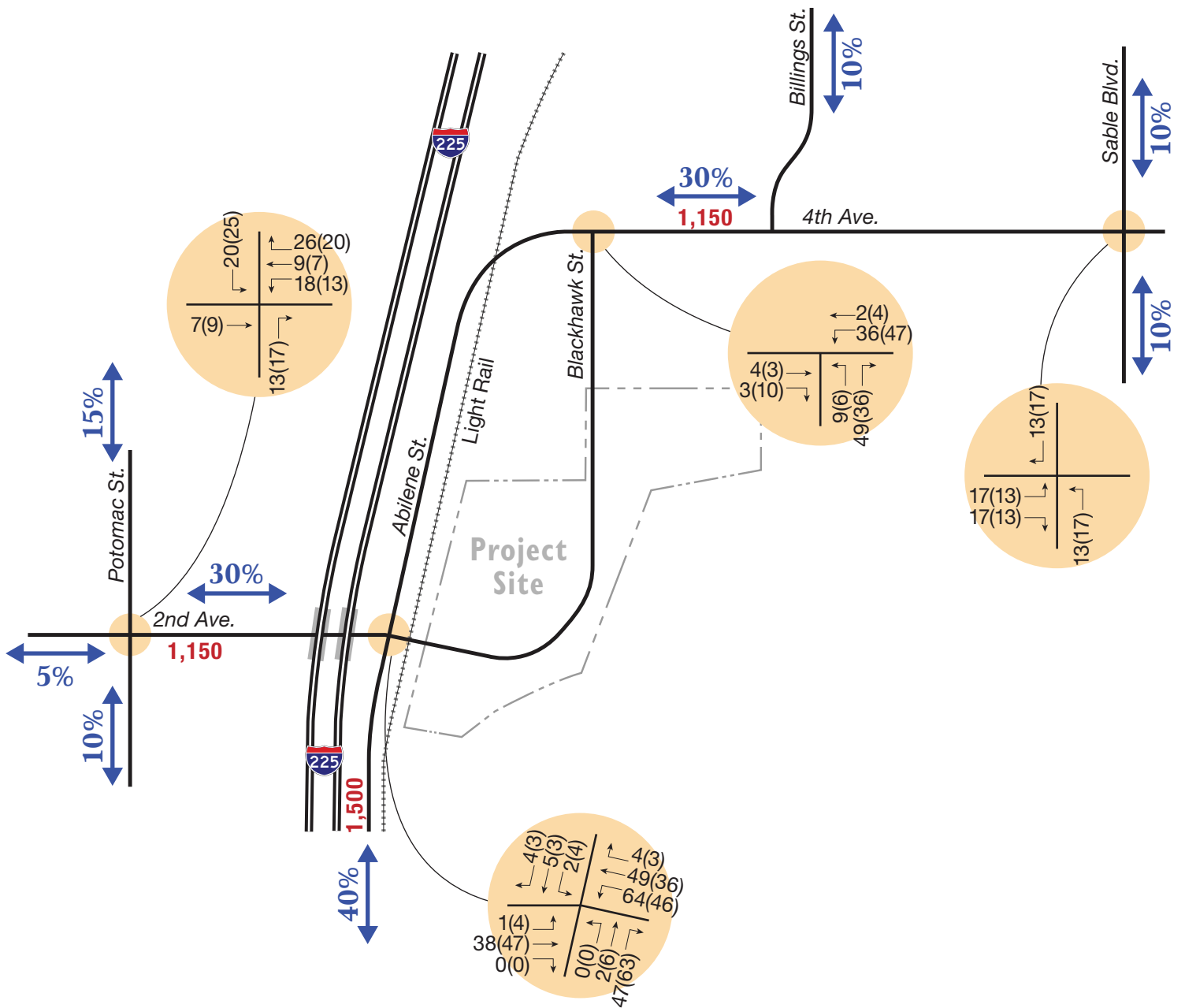
Building #	Land Use	ITE Code	Unit	Quantity	Daily	AM Peak			PM Peak		
						In	Out	Total	In	Out	Total
300	Multifamily (Mid-rise)	221	DU	204	1,111	18	51	69	54	34	88
400	Multifamily (Mid-rise)	221	DU	78	424	7	20	27	21	14	35
500	Multifamily (Mid-rise)	221	DU	300	1,634	26	75	101	78	50	128
	Commercial	820	KSF	10	1,257	97	60	157	48	51	99
Building 5 Total					2,891	123	135	258	126	101	227
Grand Total					4,426	148	206	354	201	149	350
15% Alternative Mode and Internal Trip Reduction					664	22	31	53	30	22	53
Total External Trips					3,762	126	175	301	171	127	297

As shown in **Table 2**, the development is expected to generate approximately 3,760 vehicle-trips per day, with approximately 300 vehicle-trips during the AM and PM peak hours.

III.D. Site Generated Traffic

The site trip distribution estimates, shown on **Figure 4**, are based on the accessibility to major roadways, the development's location relative to other major areas, and existing traffic patterns. The largest component of traffic is estimated to be oriented to/from the south along Abilene Street. The following distribution percentages were used to assign the vehicle trips to the roadway network for both the Short-Range and Long-Range Future:

- 40 percent oriented to/from the south on Abilene Street
- 30 percent oriented to/from the east on the 4th Avenue (in which 10 percent is oriented north along Billings Street, 10 percent north along Sable Boulevard, and 10 percent south along Sable Boulevard).
- 30 percent oriented to/from the west on the 2nd Avenue (in which 15 percent is oriented north along Potomac Street, 5 percent west along 2nd Avenue, and 10 percent south along Potomac Street).



LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

XX% = Site Trip Distribution

IV. BACKGROUND TRAFFIC CONDITIONS

Background traffic is defined as that element of traffic volume making use of the surrounding roadway system that is not associated with the proposed site development.

IV.A. Traffic Control

The intersection of 2nd Avenue with Abilene Street is anticipated to meet signal warrant criteria in both the Short- and Long-Range total traffic scenarios (discussed in the next section). As such, this intersection was analyzed under signalized control for background traffic purposes, affording a fair comparison between LOS results. Even background conditions may warrant signalization anyway due to the proximity of light rail.

IV.B. Roadway Network

The fundamental roadway network will not change from existing conditions.

IV.C. Traffic Forecasts

The existing traffic volumes shown on **Figure 3** and the Year 2045 Denver Regional Council of Governments (DRCOG) Travel Demand Model were used as the basis for developing background traffic forecasts. The DRCOG model showed an average annual growth rate of about 3 percent on Abilene north of 2nd Avenue and along 4th Avenue. The model also showed a 1.5 percent annual growth rate on 2nd Avenue west of Abilene Street and along Abilene Street south of 2nd Avenue. Along Sable Boulevard and Potomac Street, the DRCOG model suggests an average of 2 percent annual growth. These growth rates were applied to the existing peak hour counts to develop future volume forecasts for both the Short- and Long-Range planning horizon years.

The 2045 timeframe also incorporated trips from potential future development located immediately north of the Courtyard by Marriott site. From a previous development proposal, up to 90 multifamily units could occur on that property, which was used to estimate additional 2045 background traffic.

IV.D. Traffic Operations

The following subsections describe the impacts future growth would have on traffic operations in the study area.

Short-Range Future (Year 2025)

Figure 5 illustrates the traffic forecasts, geometry, traffic control, and capacity analysis for the Short-Range future background condition, and **Appendix C** contains LOS worksheets. The Abilene Street/2nd Avenue intersection signalized analyses incorporated an exclusive phase for the light rail train passing through.

The unsignalized intersection movements will operate at LOS C or better in most cases; the eastbound left turn movement at 4th/Sable operates at LOS F. The overall LOS for signalized intersections will operate at LOS B or better. These operational results are subject to the implementation of a signal at the intersection of Abilene Street with 2nd Avenue. Signal warrant worksheets are contained in **Appendix D**.

Signal progression time-space diagrams along 2nd Avenue can be found in **Appendix E**. Diagrams are provided for the Short-Range and Long-Range total conditions. The major peak hour pattern through the two-signal system of 2nd Avenue/Potomac Street and 2nd Avenue/Abilene Street consists of trip interactions between Potomac Street north of 2nd Avenue and Abilene Street south of 2nd Avenue. The time space-diagrams show the potential coordination between the two intersections such that the southbound left turn movement from Potomac Street will arrive to Abilene Street during the green, and that the northbound left turn movement from Abilene Street will arrive to Potomac Street during its green. The darker shading shown on those diagrams is specific to those two movements.

The Sable Boulevard/4th Avenue intersection's minor approach movements will experience delay during peak hour, especially the eastbound left turn movement. A brief review of the MUTCD peak hour warrant to generally assess its potential for warranting signalization and the traffic forecasts suggest that the intersection would fall short of meeting the peak hour warrant. Therefore, it is assumed that this intersection would remain unsignalized in the Short-Range timeframe.

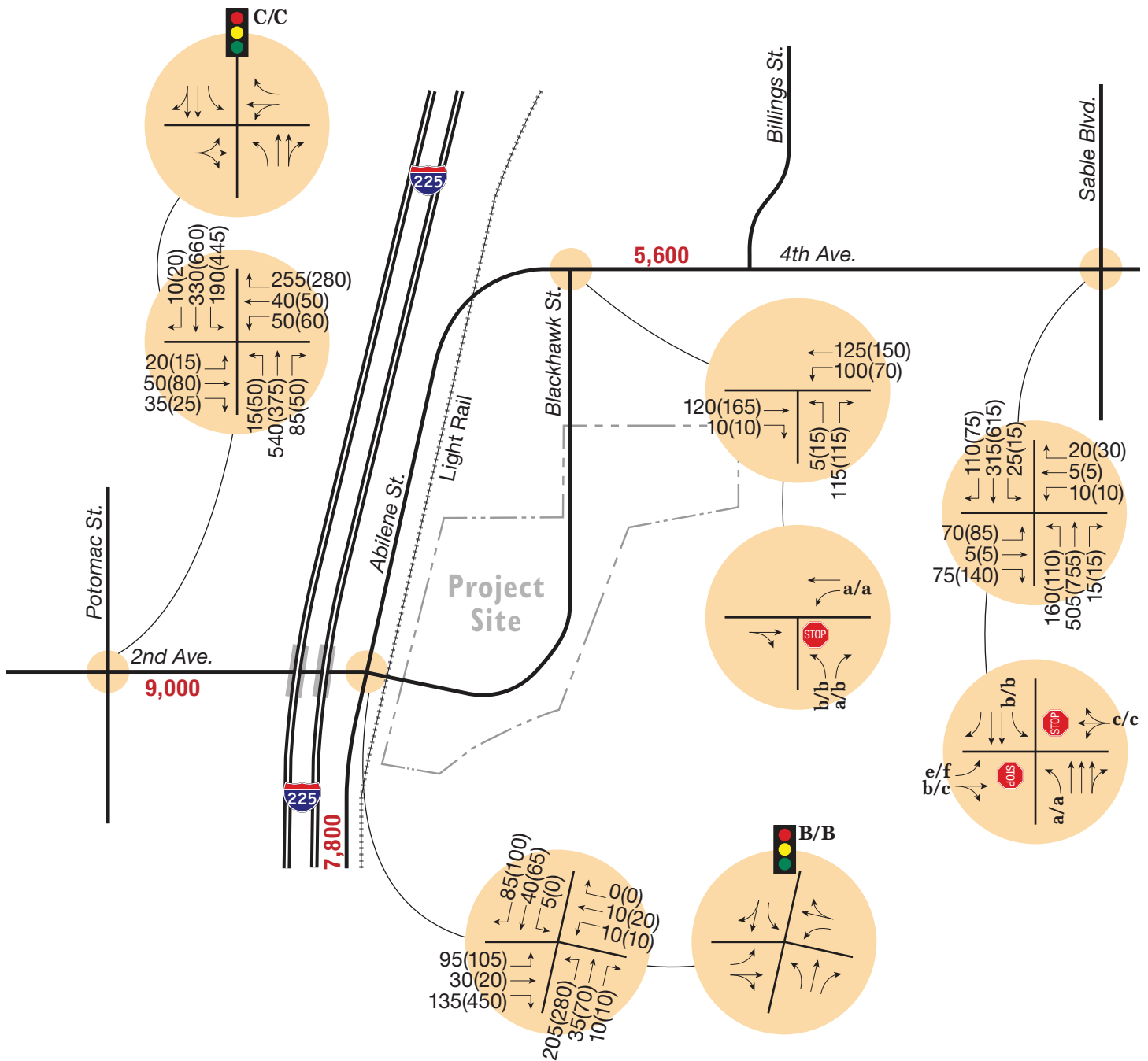
The Potomac Street/2nd Avenue, being signalized, will continue to function at LOS C during the peak hours.

Long-Range Future (Year 2045)

Figure 6 illustrates the traffic forecasts, geometry, traffic control, and capacity analyses for the Long-Range future background condition. Traffic demands are anticipated to increase along all study area roadways and intersections. Directly below I-225, 2nd Avenue is projected to serve 12,400 vpd of background traffic. 4th Avenue background traffic northeast of the site is projected to reach 10,400 vpd. Potomac Street and Sable Boulevard traffic is projected to reach 2,600 vehicles per hour and approximately 2,100 vehicles per hour, respectively.

Appendix C contains the total traffic LOS worksheets. All unsignalized movements are anticipated to operate at LOS C or better, and the signalized intersection is anticipated to operate at LOS C during both the AM and PM peak hours. These results are subject to the implementation of a signal at the intersection of Abilene Street with 2nd Avenue, with a phasing element to account for the light rail.

Sable Boulevard and 4th Avenue would warrant signalization by 2045 given background traffic. The LOS results under signalized control are LOS B for both peak hours given the 2045 background traffic projections. **Appendix D** shows signal warrant worksheets. Potomac Street and 2nd Avenue intersection will continue to function at a LOS C given the 2045 traffic projections.



LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

X/X = AM/PM Peak Hour Signalized Intersection Level of Service

x/x = AM/PM Peak Hour Unsignalized Intersection Level of Service

= Stop Sign

= Traffic Signal

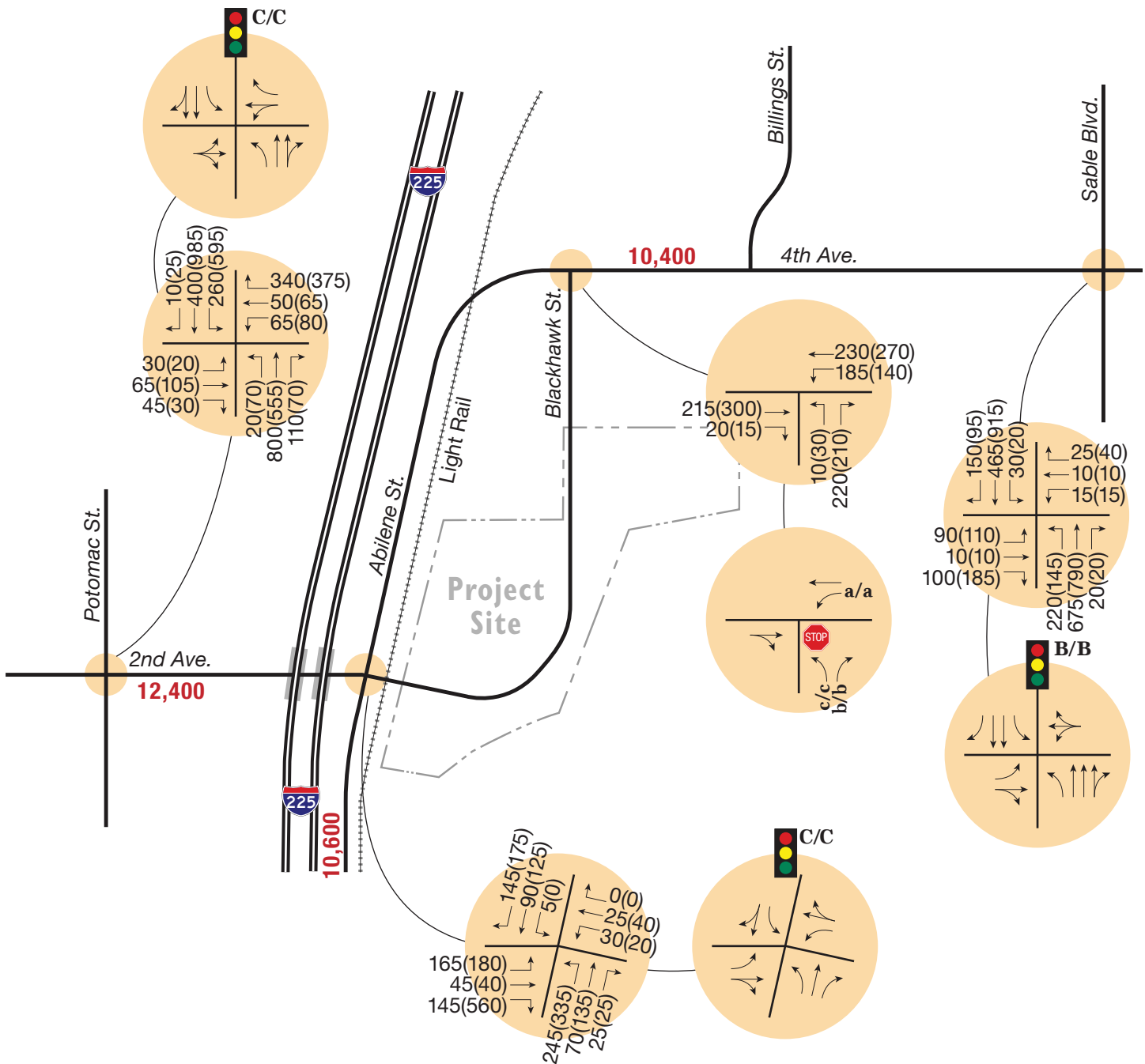


FIGURE 6

Long-Range Background Traffic Conditions

Abilene Station TOD 122-031-01 3/29/22

V. TOTAL CONDITIONS

V.A. Traffic Volumes

Site-generated traffic volumes were added to the background traffic volumes for both future scenarios to calculate total traffic volumes. **Figure 7** presents the projected Short-Range future total traffic volumes, and **Figure 8** presents the projected Long-Range future total traffic volumes.

V.B. Traffic Control

No intersections are anticipated to require traffic control changes as a result of the development. With the notable increase that will occur on the east leg of that intersection and the at-grade light-rail crossing, signalization should be implemented for safety reasons. A properly configured signal will help prevent traffic queues from sitting on the rail line and prevent movements from turning onto the rail line when a train is approaching. One other variation in traffic control is at Sable Boulevard/4th Avenue with the additional of a traffic signal, but this is more due to regional growth in traffic rather than the Abilene Station development.

V.C. Traffic Operations

LOS analyses were conducted to compare the existing and projected background operational conditions to the anticipated LOS with the addition of site-generated traffic. The following subsections describe the impacts that the proposed redevelopment would have on traffic operations in the study area.

Short-Range Future (Year 2025)

Figure 7 illustrates geometry, traffic control, and capacity analysis for the Short-Range future total conditions, and **Appendix F** contains LOS worksheets.

As shown, the signalized intersections are anticipated to operate at LOS C or better during the AM and PM peak hours. The 4th Avenue/Sable Boulevard unsignalized minor approach eastbound left turn movement is projected to continue to operate at LOS F during the PM peak hour under the current side-street-stop control. Because warranting signalization will be borderline, **Figure 7** also presents the LOS results for signalized condition, which show an overall result of LOS B.

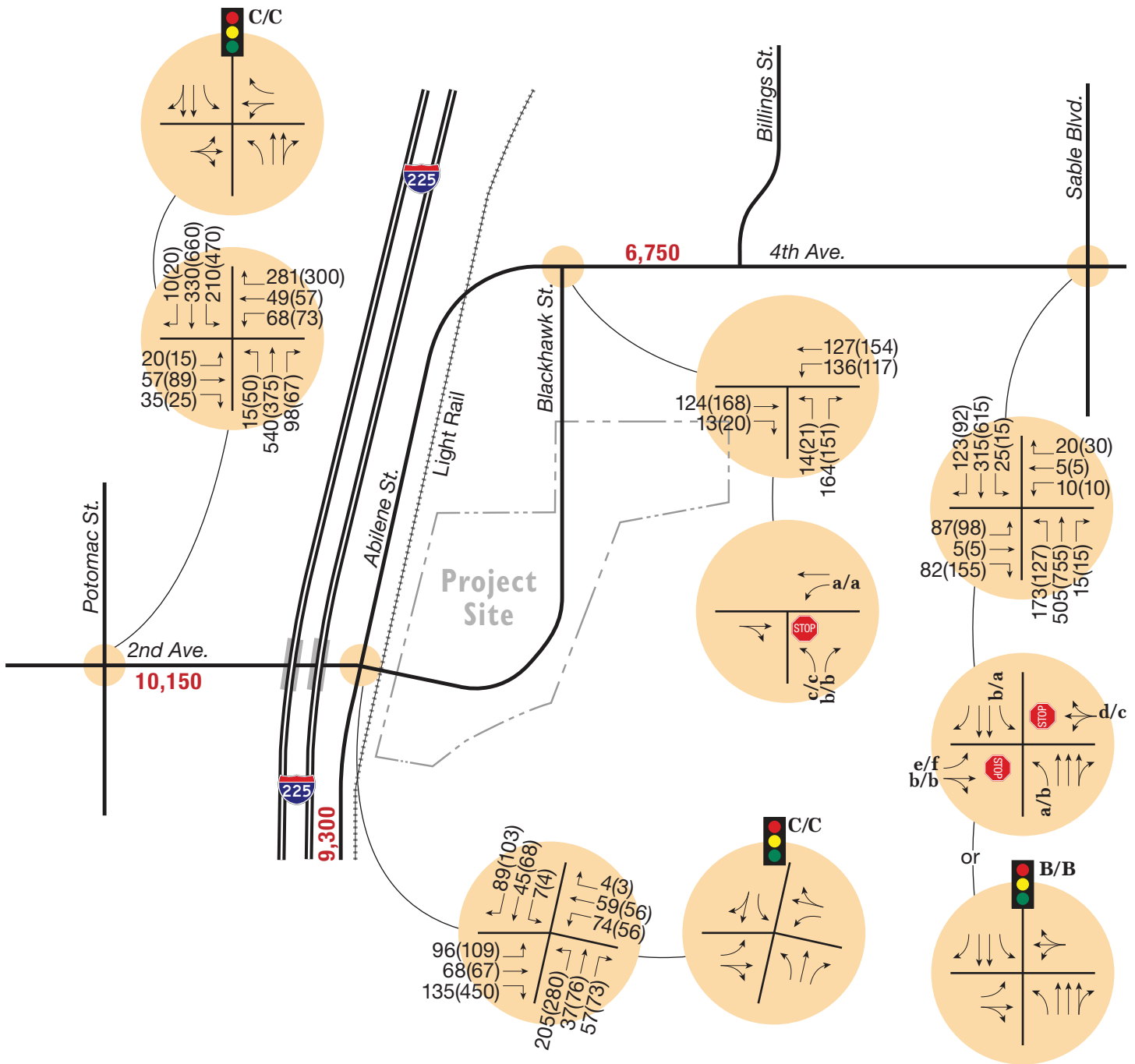
Long-Range Future (Year 2045)

Operational analyses were conducted to quantify the impact of site traffic on Long-Range future total traffic operations at the study area intersections. **Figure 8** illustrates geometry, traffic control, and capacity analyses for the Long-Range future condition. **Appendix F** contains the total traffic LOS.

The signalized intersections are anticipated to operate at LOS C or better during the AM peak hour and LOS D or better during the PM peak hour, incorporating the effect of light rail. The site's traffic will make up approximately 13 to 21 percent of the total 2045 peak hour traffic passing through the Abilene Street/2nd Avenue intersection. All unsignalized movements will operate at LOS D or better.

The site's impact at the Potomac Street/2nd Avenue and Sable Boulevard/4th Avenue will be less on a percentage make-up standpoint. Given year 2045 traffic projections, the Abilene Station development would constitute 2.5 to 3.0 percent of the PM peak hour traffic passing through the Potomac Street/2nd intersection and passing through the Sable Boulevard/4th Avenue intersection.

Along Blackhawk Street within the development, detailed LOS calculations were not conducted. Daily traffic projections along this roadway are anticipated to be 3,000 to 4,000 vpd adjacent to the Abilene Station buildings, and two-lane collector roadway can accommodate 7,000 vpd. Given this and the level of traffic projected from each parcel along Blackhawk Street, access intersections should not experience any operational issues. Auxiliary lanes along Blackhawk Street will not be needed.



LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

X/X = AM/PM Peak Hour Signalized Intersection Level of Service

x/x = AM/PM Peak Hour Unsignalized Intersection Level of Service

STOP = Stop Sign

Traffic Signal = Traffic Signal

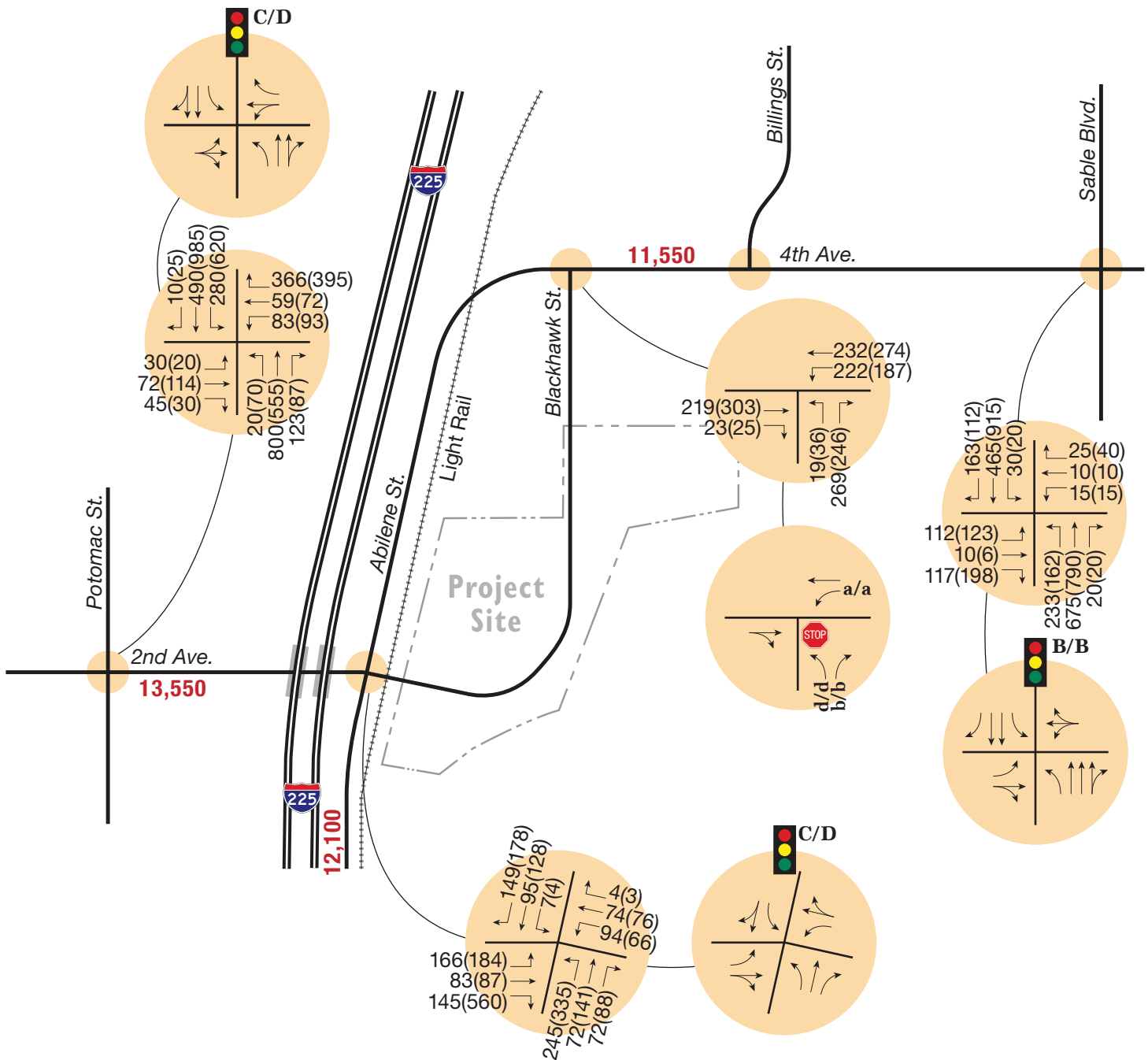


FIGURE 8

Long-Range Total Traffic Conditions

Abilene Station TOD 122-031-01 3/29/22

Queueing Analysis

Queueing at the study intersections was analyzed to recommend appropriate turn bay storage lengths.

Appendix G contains a table outlining the existing storage length, 95th percentile storage length for each study scenario, recommended State Highway Access Code (SHAC) storage length, and overall recommended storage length for each turn bay.

Although the northbound left turn movement at the intersection of E 2nd Avenue with Abilene Street is anticipated to exceed the current provided storage length, this problem arises in background conditions and is more of a result of future growth in the area than it is the additional development. While the proposed Abilene Station development will not directly add traffic to the northbound left turn movement, this movement will be affected by the development's impact on other intersection movements. There is limited width between I-225 and the light-rail line to widen Abilene Street where additional length is needed; however, the current roadway has excess pavement width in the area and could provide up to a 2,400-foot left turn lane without widening (but with enhanced striping). The future extension of the westbound left turn lane at the intersection of 2nd Avenue with Abilene Street is anticipated to be required as a result of the expected development.

Also shown in **Appendix G** are significant queues for the westbound right turn movement at Potomac Street/2nd Avenue. The results shown in the table reflect a general signal phasing plan, and a right-turn overlap phase with the southbound left turn phase will aid this condition significantly. A sensitivity analysis suggests that the queues would be up to 40 to 50 percent less than that shown in **Appendix G**. Much of this projected condition is due to existing traffic and the regional growth that has been forecast.

A comprehensive reporting of the intersection LOS, including existing, Short-Range background, Short-Range total, Long-Range background, and Long-Range total, is provided in **Table 3**.

Table 3. Comprehensive LOS and Delay (seconds per vehicle) Results

Intersection	Movement	Existing		Short-Range BG		Long-Range BG		Short-Range Total		Long-Range Total	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1. 2nd Avenue & Abilene Street (Table shows results of signalized intersection for all but existing conditions; unsignalized for existing)	Overall	N/A	N/A	C (22.3)	B (19.6)	C (26.3)	C (24.6)	C (29.3)	C (29.84)	C (30.7)	D (44.1)
	EBL	a (7.4)	a (7.5)	e (62.4)	d (49.7)	d (54.9)	d (36.9)	c (32.9)	c (19.0)	c (33.2)	b (15.4)
	EBT/R	N/A	N/A	c (30.8)	b (18.8)	d (35.9)	c (20.2)	d (45.8)	c (33.9)	d (49.3)	d (51.37)
	WBL	a (7.7)	a (8.7)	e (57)	e (56.8)	e (56.3)	e (56)	e (61.9)	e (62.5)	e (58.6)	e (66.9)
	WBT/R	N/A	N/A	e (57.9)	d (51.2)	d (53.8)	d (41)	d (44.1)	c (28.2)	d (44.3)	c (28.8)
	NBL	e (41.5)	f (312)	a (5.3)	a (9.2)	a (8.5)	b (18.4)	b (12.1)	c (25.8)	b (14.7)	d (50.3)
	NBT	b (13.4)	c (17.4)	a (4.7)	a (7.3)	a (6.9)	b (12.5)	b (10.8)	b (19.2)	b (11.8)	b (18.7)
	NBR	a (9)	b (10.1)	a (0)	a (0)	a (0.1)	a (0.1)	a (3)	a (7.1)	a (4.7)	a (6.5)
	SBL	b (13)	a (0)	c (24.4)	a (0)	c (31.2)	a (0)	d (40.4)	d (48)	d (38.9)	d (40.0)
2. 4th Avenue & Blackhawk Street	WBL	a (7.8)	a (7.9)	a (7.8)	a (7.9)	a (8.4)	a (8.5)	a (7.9)	a (8)	a (8.5)	a (8.8)
	NBL	b (13.6)	b (12.7)	b (13.2)	b (13.4)	c (21.2)	c (23.5)	c (15)	c (15.8)	d (25.6)	d (30.5)
	NBR	b (10.5)	b (10.6)	a (9.8)	b (10.2)	b (11.9)	b (13.2)	b (10.3)	b (10.7)	b (12.9)	b (14.2)
3. Potomac Street & 2nd Avenue	Overall	C (21.3)	C (20.9)	C (21.1)	C (21.1)	C (25.4)	C (28.5)	C (22.5)	C (22.3)	C (28.5)	D (35.8)
	EB	c (29.5)	c (33.6)	c (31.2)	d (35.6)	d (37.9)	d (40.9)	c (30.7)	d (35.9)	d (44.3)	d (37.3)
	WBT/L	c (29)	c (33.7)	c (30.7)	d (35.6)	d (37.1)	d (42)	c (30.9)	d (36.6)	d (43.5)	d (38.7)
	WBR	d (35.9)	d (44)	d (38.8)	d (48.3)	e (60.5)	e (73.4)	d (39.2)	d (50.4)	e (69.3)	e (77.5)
	NBL	b (16.3)	c (21.2)	b (15.3)	c (20.4)	b (14.1)	c (26.3)	b (16.3)	c (21.3)	b (14.5)	d (37.5)
	NBT/R	c (20.7)	c (22.6)	b (19.8)	c (21.8)	c (20.9)	c (27)	c (21.3)	c (23)	c (21.8)	d (40.5)
	SBL	b (14.1)	b (14.1)	b (13.4)	b (13.5)	b (16.2)	c (31.6)	b (14.4)	b (14.3)	b (17.6)	d (42.6)
	SBT/R	b (11.1)	b (10.4)	b (10.6)	a (9.7)	a (8.9)	a (9.6)	b (10.8)	a (9.7)	a (8.9)	b (11.6)

Intersection	Movement	Existing		Short-Range BG		Long-Range BG		Short-Range Total		Long-Range Total	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
4. Sable Boulevard/4th Avenue (Table shows results of signalized intersection for Long-Range; unsignalized for existing and Short-Range)	Overall	N/A	N/A	N/A	N/A	B (12)	B (14.3)	N/A	N/A	B (11.9)	B (14.3)
	EBL	d (30.3)	f (55.7)	e (37.1)	f (113.9)	d (48.4)	d (46.9)	e (47)	f (175.4)	d (48.5)	d (46.9)
	EBT/R	b (10.3)	b (12.4)	b (11.7)	c (15.2)	d (47.4)	d (51)	b (11.8)	c (15.7)	d (47.5)	d (51)
	WB	c (16.5)	c (22.7)	c (23.7)	e (37.1)	e (58.5)	e (58.4)	d (25.1)	e (41.6)	e (58.5)	e (58.4)
	NBL	a (8.8)	a (9.6)	a (8.9)	a (9.9)	a (4.6)	a (7.3)	a (9)	b (10.1)	a (5.2)	a (7.6)
	NBT/R	N/A	N/A	N/A	N/A	a (4.1)	a (4.8)	N/A	N/A	a (4.1)	a (4.9)
	SBL	b (10.7)	b (11.2)	b (12)	b (13)	a (6.3)	a (7.1)	b (13)	b (13)	a (7.2)	a (7.3)
	SBT	N/A	N/A	N/A	N/A	a (6.9)	a (9.8)	N/A	N/A	a (8)	b (10.1)
	SBR	N/A	N/A	N/A	N/A	a (6.7)	a (7.3)	N/A	N/A	a (7.9)	a (7.6)
Shaded cells reflect LOS E or LOS F results.											

VI. TRAFFIC CALMING

Due to the straight geometry of Blackhawk Street south of 4th Avenue, the city is concerned with possible speeding along this roadway, especially realizing that there will be pedestrian activity crossing the road. The development is planned to include curb extensions and on-street parking, both of which are known to decrease speeds on roadways. One other measure that should be considered in conjunction with this development is raised marked pedestrian crossings at those locations where pedestrians are being accommodated. This would facilitate safer crossings for pedestrians and slow drivers through this stretch of roadway, particularly at those locations.

VII. PEDESTRIAN ACCOMMODATIONS AND OPERATIONS

The city requested an analysis of pedestrian accommodation along Blackhawk Street. Pedestrian LOS measures have been developed as part of other city projections. However, these other analyses have been more focused on pedestrian LOS at intersections as opposed to along a corridor.

Consequently, other resources were researched. The *Boulder Low-Stress Walk and Bike Network Plan* outlines a Level of Traffic Stress (LTS) for pedestrians based on pedestrian and vehicle features along a roadway. The LTS of pedestrians is based on several factors, including the existence of a sidewalk and buffer, number of travel lanes, posted speed limit on the adjacent road, and existence of driveways along the roadway. The plan outlines four stress levels, with Level 1 cultivating the least amount of stress for pedestrians and Level 4 representing the most stressful conditions.

Blackhawk Street has, or will have, the following features relating to pedestrian stress:

1. The provision of sidewalks (some of which exist)
2. A sidewalk buffer of approximately 13.5 ft
3. 2 travel lanes
4. 25 mile per hour speed limit

Given the above features of the redeveloped Blackhawk Street, the roadway is estimated to have the lowest level of stress, LTS 1. LTS 1 is defined as highly comfortable and easily navigable for pedestrian users of all ages and abilities. **Figure 9** presents the pedestrian stress level analysis.

With respect to regional multimodal connectivity, several facilities will serve this development. Bike lanes exist along 2nd Avenue west of the site and along Abilene Street adjacent to the site. Future plans entail the eventual addition of bike lanes along 4th Avenue and extending east to Sable Boulevard. The Highline Canal Trail runs along the south end and part of the east side of the Abilene Station site. The trail is across the actual canal from the site, but a bridge spanning the canal exists about 300 feet east of Abilene Street. These existing and planned facilities are primarily intended to provide alternative mode connectivity to the light rail station, but these facilities will also serve future residents of Abilene Station.

Figure 9. Pedestrian Stress Level Analysis

Widths of Buffer	Input	Low-Stress		High-Stress	
		1	2	3	4
< 8 feet	Number of Travel Lanes	2 to 3 lanes	4 to 5 lanes	(no effect)	6+ lanes
	Posted Speed Limit	≤ 25 mph	30-35 mph	40-45 mph	≥ 50 mph
	Driveway Inventory	(no effect)	(no effect)	Curb cut intersects sidewalk	(no effect)
≥ 8 feet	Number of Travel Lanes	2 to 3 lanes	4+ lanes	(no effect)	(no effect)
	Posted Speed Limit	≤ 35 mph	≥ 40 mph	(no effect)	(no effect)
	Driveway Inventory	(no effect)	(no effect)	Curb cut intersects sidewalk	(no effect)

VIII. SUMMARY

The Abilene Station TOD entails developing approximately 8 acres of property on the east side of I-225 in the city of Aurora, Colorado, to include a total of 582 multifamily residential units and 10,000 square feet of retail space.

The mixed-use development is planned to be adjacent to an existing light-rail station, resulting in an estimated higher transit usage. Due to the proximity to the light-rail station, a 15 percent reduction was applied to the trip generation to account for transit usage and internal trips. At buildout, the development is projected to generate approximately 3,762 external trips per day.

The greatest traffic increase will occur onto Abilene Street with 1,500 vpd south of 2nd Avenue added by the site. An estimated 1,150 vpd will be added onto 2nd Avenue west of Abilene Street, as well as onto 4th Avenue east of Blackhawk Street with development of the site.

Other key findings and recommendations include:

- The intersection of Abilene Street with 2nd Avenue is anticipated to meet signal warrant criteria by the Short-Range background scenario based on projected volumes and proximity to the rail.
- The Abilene Street/2nd Avenue intersection will function acceptably during the AM peak hour at LOS C and LOS D during the PM peak hour for the Long-Range total scenario.
- The site's traffic will make up approximately 13 to 21 percent of the total 2045 peak hour traffic passing through the Abilene Street/2nd Avenue intersection.
- All unsignalized movements are anticipated to operate at LOS D or better at the adjacent site accesses. Because Short-Range conditions at Sable Boulevard/4th Avenue will not quite meet signal warrant criteria, the eastbound left turn movement will experience some delay during peak hours. However, the surrounding area has the option of using Billings Street to reach 6th Avenue; drivers have a reasonable option to making this left turn.
- The Potomac Street/2nd Avenue intersection will continue to operate acceptably given signalized control (which exists). No lane additions improvements are needed, and the development would constitute 2.5 to 3.0 percent of the total traffic projected to pass through this intersection in 2045. The southbound left turn lane should be lengthened to the extent possible via striping; a private access on the east side of Potomac Street will restrict limit the length of this southbound left turn lane.
- The Sable Boulevard/4th Avenue intersection will likely warrant signalization with regional growth. The Abilene Station development will incrementally add to this need representing 2.5 to 3.0 percent of the total 2045 peak hour traffic projected to use the intersection. Installation of a signal at this location is not critical in serving the Abilene Station development as much as it is in serving existing and area/regional traffic growth.
- Blackhawk Street will function adequately without the need for auxiliary turn lanes at the access points. The center access just north of the curve should be restricted to $\frac{3}{4}$ movement due to sight distance limitations.
- The development is anticipated to include on-street parking and curb extensions, which are expected to reduce speeds along Blackhawk Street. However, to increase pedestrian safety and further reduce vehicle speeds along this roadway, unique crosswalk treatments should be considered as a traffic calming measure.
- Given the planned redevelopment of Blackhawk Street with large sidewalk buffers, low vehicle speeds, and a small number of travel lanes, this roadway is anticipated to produce high pedestrian comfort levels according to the *Boulder Low-Stress Walk and Bike Network Plan*.

APPENDIX A. TRAFFIC COUNTS



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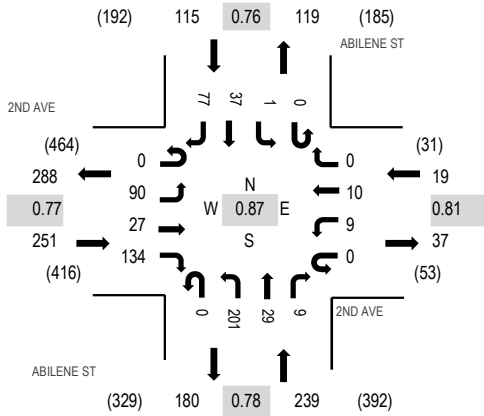
Location: 1 ABILENE ST & 2ND AVE AM

Date: Wednesday, January 26, 2022

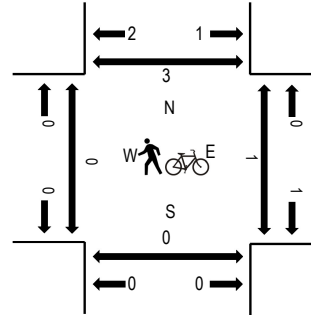
Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	2ND AVE Eastbound				2ND AVE Westbound				ABILENE ST Northbound				ABILENE ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	10	4	18	0	1	0	0	0	28	6	3	0	0	4	8	82	550	0	0	0	1
7:15 AM	0	14	3	23	0	4	4	0	0	37	4	3	0	0	7	16	115	601	0	0	0	0
7:30 AM	0	28	9	37	0	2	2	0	0	66	9	2	0	0	9	16	180	624	0	1	0	1
7:45 AM	0	31	13	38	0	3	4	0	0	45	8	3	0	1	9	18	173	560	0	0	0	0
8:00 AM	0	17	3	24	0	3	4	0	0	53	5	0	0	0	6	18	133	481	0	0	0	0
8:15 AM	0	14	2	35	0	1	0	0	0	37	7	4	0	0	13	25	138		0	0	0	2
8:30 AM	0	12	0	42	0	2	0	0	0	33	7	2	0	0	8	10	116		0	0	0	4
8:45 AM	0	10	1	28	0	0	1	0	0	27	3	0	0	0	12	12	94		0	0	0	0
Count Total	0	136	35	245	0	16	15	0	0	326	49	17	0	1	68	123	1,031		0	1	0	8
Peak Hour	0	90	27	134	0	9	10	0	0	201	29	9	0	1	37	77	624		0	1	0	3



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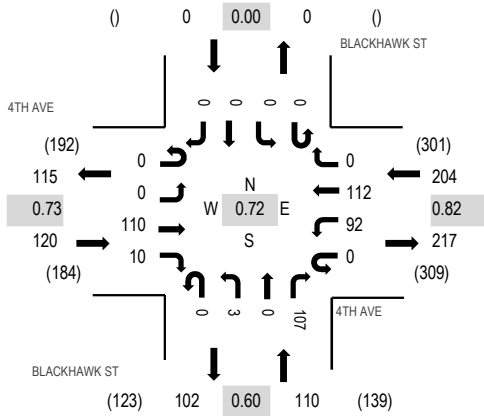
Location: 2 BLACKHAWK ST & 4TH AVE AM

Date: Wednesday, January 26, 2022

Peak Hour: 07:30 AM - 08:30 AM

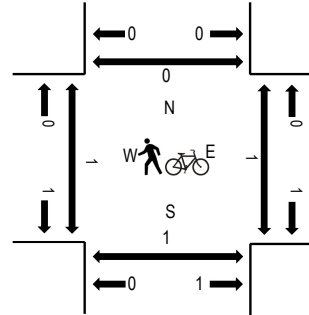
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	4TH AVE Eastbound				4TH AVE Westbound				BLACKHAWK ST Northbound				BLACKHAWK ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	15	1	0	5	12	0	0	0	0	11	0	0	0	0	44	376	0	0	0	0
7:15 AM	0	0	16	0	0	11	23	0	0	1	0	13	0	0	0	0	64	422	1	0	0	0
7:30 AM	0	0	33	4	0	31	23	0	0	1	0	25	0	0	0	0	117	434	1	0	0	0
7:45 AM	0	0	37	4	0	35	27	0	0	2	0	46	0	0	0	0	151	359	0	0	0	0
8:00 AM	0	0	17	2	0	20	24	0	0	0	0	27	0	0	0	0	90	248	0	1	0	0
8:15 AM	0	0	23	0	0	6	38	0	0	0	0	9	0	0	0	0	76		0	0	1	0
8:30 AM	0	0	19	0	0	1	18	0	0	0	0	4	0	0	0	0	42		0	0	0	0
8:45 AM	0	0	13	0	1	3	23	0	0	0	0	0	0	0	0	0	40		1	1	0	0
Count Total	0	0	173	11	1	112	188	0	0	4	0	135	0	0	0	0	624		3	2	1	0
Peak Hour	0	0	110	10	0	92	112	0	0	3	0	107	0	0	0	0	434		1	1	1	0



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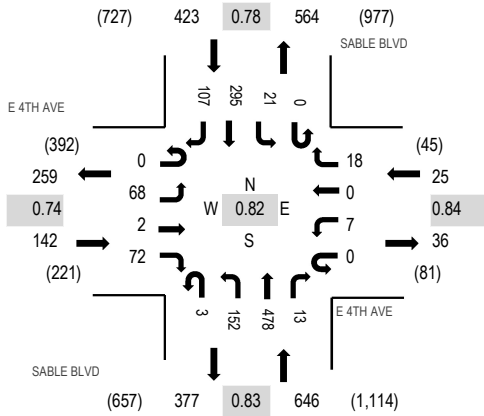
Location: 1 SABLE BLVD & E 4TH AVE AM

Date: Wednesday, March 23, 2022

Peak Hour: 07:30 AM - 08:30 AM

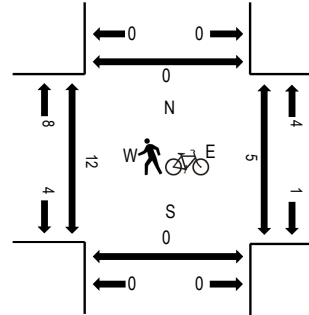
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	E 4TH AVE Eastbound				E 4TH AVE Westbound				SABLE BLVD Northbound				SABLE BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	12	0	11	0	0	0	6	0	21	95	9	0	7	42	10	213	1,120	2	4	0	0
7:15 AM	0	6	1	7	0	1	0	1	0	25	114	5	1	8	47	16	232	1,188	0	0	0	0
7:30 AM	0	15	0	17	0	3	0	6	0	32	122	2	0	6	56	38	297	1,236	4	1	0	0
7:45 AM	0	18	2	28	0	0	0	1	0	64	125	5	0	5	83	47	378	1,172	2	1	0	0
8:00 AM	0	21	0	18	0	2	0	5	3	30	105	3	0	7	77	10	281	987	3	2	0	0
8:15 AM	0	14	0	9	0	2	0	6	0	26	126	3	0	3	79	12	280		3	1	0	0
8:30 AM	0	8	0	15	0	2	2	0	2	16	91	4	0	4	76	13	233		3	1	0	0
8:45 AM	0	7	0	12	0	5	0	3	2	12	69	3	0	4	58	18	193		3	0	0	0
Count Total	0	101	3	117	0	15	2	28	7	226	847	34	1	44	518	164	2,107		20	10	0	0
Peak Hour	0	68	2	72	0	7	0	18	3	152	478	13	0	21	295	107	1,236		12	5	0	0



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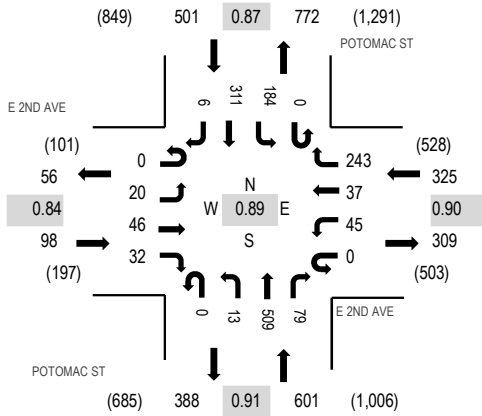
Location: 2 POTOMAC ST & E 2ND AVE AM

Date: Wednesday, March 23, 2022

Peak Hour: 07:30 AM - 08:30 AM

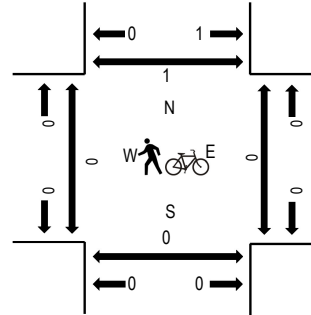
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	E 2ND AVE Eastbound				E 2ND AVE Westbound				POTOMAC ST Northbound				POTOMAC ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	6	10	8	0	7	2	41	0	2	105	16	0	15	57	2	271	1,389	0	0	0	1
7:15 AM	0	4	18	10	0	12	6	47	0	3	98	7	0	24	52	0	281	1,471	1	0	0	0
7:30 AM	0	5	11	6	0	13	3	63	0	2	142	21	0	45	97	2	410	1,525	0	0	0	1
7:45 AM	0	4	17	12	0	14	10	66	0	4	129	27	0	56	86	2	427	1,377	0	0	0	0
8:00 AM	0	6	8	7	0	10	13	53	0	5	139	16	0	34	61	1	353	1,191	0	0	0	0
8:15 AM	0	5	10	7	0	8	11	61	0	2	99	15	0	49	67	1	335		0	0	0	0
8:30 AM	0	8	7	6	0	10	8	34	0	5	64	12	0	40	61	7	262		0	0	0	0
8:45 AM	0	5	8	9	0	3	4	29	0	6	78	9	0	28	62	0	241		0	0	0	0
Count Total	0	43	89	65	0	77	57	394	0	29	854	123	0	291	543	15	2,580		1	0	0	2
Peak Hour	0	20	46	32	0	45	37	243	0	13	509	79	0	184	311	6	1,525		0	0	0	1



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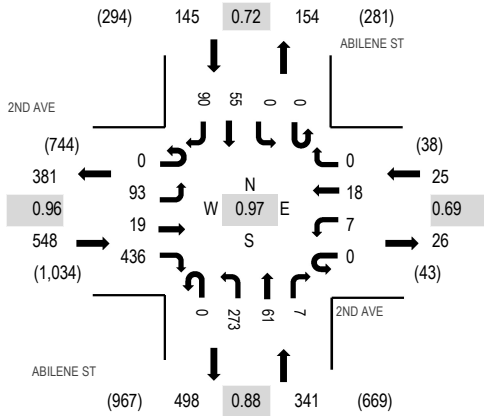
Location: 1 ABILENE ST & 2ND AVE PM

Date: Wednesday, January 26, 2022

Peak Hour: 04:00 PM - 05:00 PM

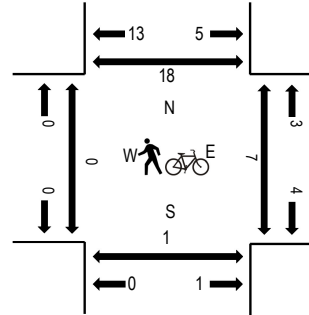
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	2ND AVE Eastbound				2ND AVE Westbound				ABILENE ST Northbound				ABILENE ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	29	7	99	0	2	6	0	0	75	19	3	0	0	14	19	273	1,059	0	2	0	8
4:15 PM	0	23	8	96	0	3	6	0	0	61	18	0	0	0	14	29	258	1,037	0	3	0	2
4:30 PM	0	15	3	127	0	1	4	0	0	71	11	1	0	0	9	21	263	1,037	0	2	1	5
4:45 PM	0	26	1	114	0	1	2	0	0	66	13	3	0	0	18	21	265	1,045	0	0	0	3
5:00 PM	0	20	3	107	0	0	2	0	0	79	10	1	0	0	12	17	251	976	0	0	2	4
5:15 PM	0	24	2	117	0	5	1	0	0	60	15	1	0	0	14	19	258		0	0	0	1
5:30 PM	0	18	3	109	0	1	0	0	0	72	14	0	0	0	20	34	271		0	5	3	4
5:45 PM	0	13	5	65	0	4	0	0	0	61	13	2	0	0	15	18	196		0	0	1	1
Count Total	0	168	32	834	0	17	21	0	0	545	113	11	0	0	116	178	2,035		0	12	7	28
Peak Hour	0	93	19	436	0	7	18	0	0	273	61	7	0	0	55	90	1,059		0	7	1	18



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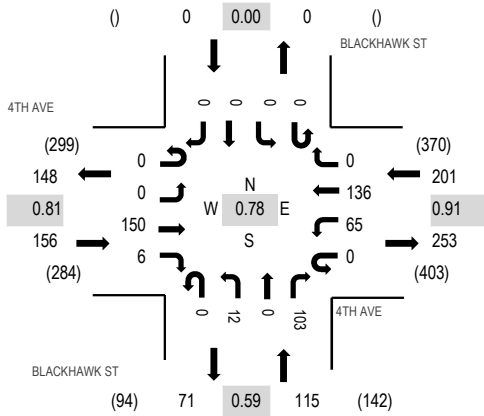
Location: 2 BLACKHAWK ST & 4TH AVE PM

Date: Wednesday, January 26, 2022

Peak Hour: 04:00 PM - 05:00 PM

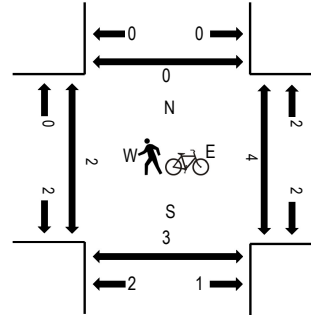
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	4TH AVE Eastbound				4TH AVE Westbound				BLACKHAWK ST Northbound				BLACKHAWK ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	47	1	0	19	36	0	0	3	0	46	0	0	0	0	152	472	0	2	3	0
4:15 PM	0	0	42	3	0	18	35	0	0	3	0	21	0	0	0	0	122	397	1	2	0	0
4:30 PM	0	0	23	0	0	15	29	0	0	2	0	17	0	0	0	0	86	343	1	0	0	0
4:45 PM	0	0	38	2	0	13	36	0	0	4	0	19	0	0	0	0	112	359	0	0	0	0
5:00 PM	0	0	31	1	0	4	32	0	0	1	0	8	0	0	0	0	77	324	1	5	0	0
5:15 PM	0	0	36	1	0	2	28	0	0	1	0	0	0	0	0	0	68		1	0	0	0
5:30 PM	0	0	33	0	0	6	56	0	0	1	0	6	0	0	0	0	102		1	0	0	0
5:45 PM	0	0	26	0	0	9	32	0	0	0	0	10	0	0	0	0	77		0	0	5	0
Count Total	0	0	276	8	0	86	284	0	0	15	0	127	0	0	0	0	796		5	9	8	0
Peak Hour	0	0	150	6	0	65	136	0	0	12	0	103	0	0	0	0	472		2	4	3	0



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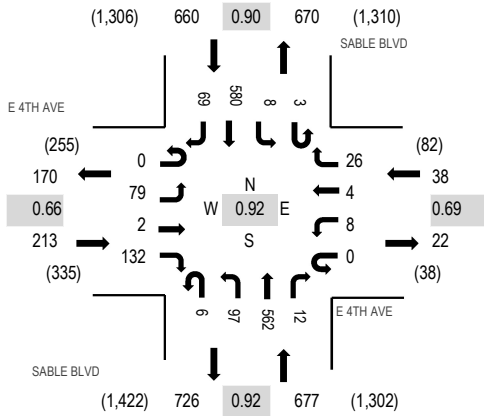
Location: 1 SABLE BLVD & E 4TH AVE PM

Date: Wednesday, March 23, 2022

Peak Hour: 04:00 PM - 05:00 PM

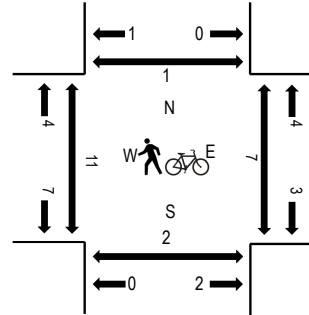
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	E 4TH AVE Eastbound				E 4TH AVE Westbound				SABLE BLVD Northbound				SABLE BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	33	1	47	0	2	0	9	2	36	125	4	0	3	136	33	431	1,588	5	0	1	1
4:15 PM	0	15	1	29	0	2	1	3	1	18	141	1	1	1	169	15	398	1,552	1	3	0	0
4:30 PM	0	10	0	33	0	1	1	6	2	21	159	2	1	3	129	10	378	1,520	4	3	1	0
4:45 PM	0	21	0	23	0	3	2	8	1	22	137	5	1	1	146	11	381	1,468	1	1	0	0
5:00 PM	0	7	0	22	0	3	0	13	3	14	149	2	0	1	164	17	395	1,437	2	2	1	0
5:15 PM	1	17	1	18	0	3	0	4	3	14	145	1	1	4	151	3	366		3	0	0	0
5:30 PM	0	16	1	12	0	5	0	3	4	8	139	2	2	2	127	5	326		1	1	1	0
5:45 PM	0	10	0	17	0	7	1	5	2	10	128	1	1	1	155	12	350		3	0	0	0
Count Total	1	129	4	201	0	26	5	51	18	143	1,123	18	7	16	1,177	106	3,025		20	10	4	1
Peak Hour	0	79	2	132	0	8	4	26	6	97	562	12	3	8	580	69	1,588		11	7	2	1



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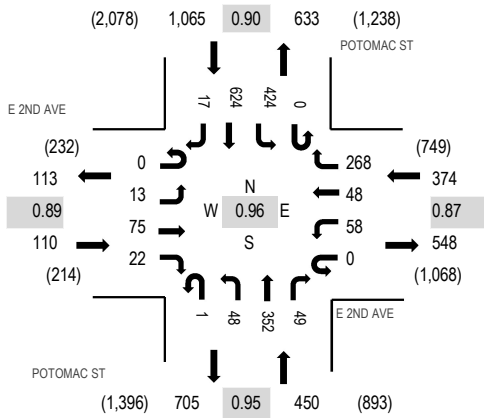
Location: 2 POTOMAC ST & E 2ND AVE PM

Date: Wednesday, March 23, 2022

Peak Hour: 04:30 PM - 05:30 PM

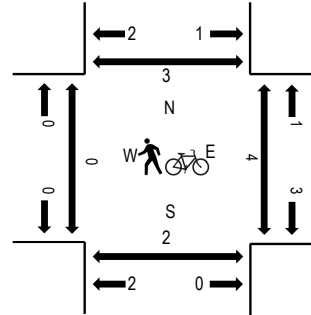
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	E 2ND AVE Eastbound				E 2ND AVE Westbound				POTOMAC ST Northbound				POTOMAC ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	6	16	9	0	20	13	54	0	14	83	23	0	108	160	6	512	1,987	1	0	0	2
4:15 PM	0	4	16	7	0	24	7	79	0	14	72	13	0	112	130	3	481	1,958	0	0	0	3
4:30 PM	0	3	14	7	0	9	12	64	0	17	96	17	0	97	153	3	492	1,999	0	1	0	1
4:45 PM	0	3	20	3	0	15	7	70	0	8	73	7	0	117	174	5	502	1,978	0	0	0	0
5:00 PM	0	5	19	7	0	16	13	67	1	10	87	14	0	92	146	6	483	1,947	0	0	0	0
5:15 PM	0	2	22	5	0	18	16	67	0	13	96	11	0	118	151	3	522		0	3	2	2
5:30 PM	0	1	11	2	0	15	14	58	1	14	89	12	0	86	164	4	471		0	1	0	1
5:45 PM	0	10	17	5	0	10	19	62	0	5	87	16	0	90	144	6	471		0	0	0	1
Count Total	0	34	135	45	0	127	101	521	2	95	683	113	0	820	1,222	36	3,934		1	5	2	10
Peak Hour	0	13	75	22	0	58	48	268	1	48	352	49	0	424	624	17	1,999		0	4	2	3










APPENDIX B. EXISTING LOS WORKSHEETS

Intersection LOS Definition – Average Delay in Seconds Per Vehicle

LOS	Signalized Intersection	Unsignalized Intersection
A	≤10 sec	≤10 sec
B	10–20 sec	10–15 sec
C	20–35 sec	15–25 sec
D	35–55 sec	25–35 sec
E	55–80 sec	35–50 sec
F	>80 sec	>50 sec






HCM 6th TWSC
1: Abilene Street & E 2nd Avenue

Existing Conditions
AM Peak

Intersection												
Int Delay, s/veh	17.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	90	27	134	9	10	0	201	29	9	1	37	77
Future Vol, veh/h	90	27	134	9	10	0	201	29	9	1	37	77
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	-	50	-	-	100	-	100	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	69	69	69	71	71	71	76	76	76
Heavy Vehicles, %	1	1	1	0	0	0	6	6	6	0	0	0
Mvmt Flow	127	38	189	13	14	0	283	41	13	1	49	101
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	14	0	0	227	0	0	502	427	133	454	521	14
Stage 1	-	-	-	-	-	-	387	387	-	40	40	-
Stage 2	-	-	-	-	-	-	115	40	-	414	481	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.16	6.56	6.26	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.56	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.56	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.554	4.054	3.354	3.5	4	3.3
Pot Cap-1 Maneuver	1611	-	-	1353	-	-	473	514	906	520	463	1072
Stage 1	-	-	-	-	-	-	629	603	-	980	866	-
Stage 2	-	-	-	-	-	-	880	854	-	620	557	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1611	-	-	1353	-	-	365	469	906	447	422	1072
Mov Cap-2 Maneuver	-	-	-	-	-	-	365	469	-	447	422	-
Stage 1	-	-	-	-	-	-	579	555	-	903	857	-
Stage 2	-	-	-	-	-	-	744	845	-	522	513	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.7			3.6			37.1			11.4		
HCM LOS							E			B		
Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	365	469	906	1611	-	-	1353	-	-	447	715	
HCM Lane V/C Ratio	0.776	0.087	0.014	0.079	-	-	0.01	-	-	0.003	0.21	
HCM Control Delay (s)	41.8	13.4	9	7.4	-	-	7.7	-	-	13.1	11.4	
HCM Lane LOS	E	B	A	A	-	-	A	-	-	B	B	
HCM 95th %tile Q(veh)	6.4	0.3	0	0.3	-	-	0	-	-	0	0.8	









HCM 6th TWSC
2: Blackhawk Street & Abilene Street/E 4th Avenue

Existing Conditions
AM Peak

Intersection						
Int Delay, s/veh	4.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	110	10	92	112	3	107
Future Vol, veh/h	110	10	92	112	3	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	70	70	48	48
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	162	15	131	160	6	223
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	177	0	592	170
Stage 1	-	-	-	-	170	-
Stage 2	-	-	-	-	422	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1405	-	471	876
Stage 1	-	-	-	-	862	-
Stage 2	-	-	-	-	664	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1405	-	427	876
Mov Cap-2 Maneuver	-	-	-	-	427	-
Stage 1	-	-	-	-	862	-
Stage 2	-	-	-	-	602	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	3.5	10.6			
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	427	876	-	-	1405	-
HCM Lane V/C Ratio	0.015	0.254	-	-	0.094	-
HCM Control Delay (s)	13.6	10.5	-	-	7.8	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0	1	-	-	0.3	-

HCM 6th TWSC
3: Sable Blvd & E 4th Avenue

Existing Conditions
AM Peak

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	68	2	72	7	0	18	155	478	13	21	295	107
Future Vol, veh/h	68	2	72	7	0	18	155	478	13	21	295	107
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	-	75	-	-	75	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	74	2	78	8	0	20	168	520	14	23	321	116

















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	911	1237	161	1071	1346	267	437	0	0	534	0	0
Stage 1	367	367	-	863	863	-	-	-	-	-	-	-
Stage 2	544	870	-	208	483	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	257	175	855	201	150	623	1119	-	-	653	-	-
Stage 1	604	621	-	254	370	-	-	-	-	-	-	-
Stage 2	462	367	-	746	551	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	215	144	855	156	123	623	1119	-	-	653	-	-
Mov Cap-2 Maneuver	215	144	-	156	123	-	-	-	-	-	-	-
Stage 1	513	599	-	216	315	-	-	-	-	-	-	-
Stage 2	380	312	-	651	532	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	19.9		16.5		2.1		0.5	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1119	-	-	215	754	339	653	-	-
HCM Lane V/C Ratio	0.151	-	-	0.344	0.107	0.08	0.035	-	-
HCM Control Delay (s)	8.8	-	-	30.3	10.3	16.5	10.7	-	-
HCM Lane LOS	A	-	-	D	B	C	B	-	-
HCM 95th %tile Q(veh)	0.5	-	-	1.5	0.4	0.3	0.1	-	-

Timings
4: Potomac St & E 2nd Avenue

Existing Conditions
AM Peak

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	20	46	45	37	243	13	509	184	311
Future Volume (vph)	20	46	45	37	243	13	509	184	311
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	44.0	44.0	44.0	44.0	44.0	47.0	47.0	29.0	76.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	39.2%	39.2%	24.2%	63.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	Max
Act Effect Green (s)		39.5		39.5	39.5	55.3	55.3	71.5	71.5
Actuated g/C Ratio		0.33		0.33	0.33	0.46	0.46	0.60	0.60
v/c Ratio		0.19		0.18	0.38	0.03	0.40	0.44	0.16
Control Delay		23.8		29.9	5.1	19.3	22.1	14.2	11.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		23.8		29.9	5.1	19.3	22.1	14.2	11.0
LOS		C		C	A	B	C	B	B
Approach Delay		23.8		11.4			22.0		12.2
Approach LOS		C		B			C		B

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 16.6
Intersection Capacity Utilization 50.2%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service A

Splits and Phases: 4: Potomac St & E 2nd Avenue






















HCM 6th Signalized Intersection Summary

4: Potomac St & E 2nd Avenue

Existing Conditions

AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	46	32	45	37	243	13	509	79	184	311	6
Future Volume (veh/h)	20	46	32	45	37	243	13	509	79	184	311	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	50	35	49	40	264	14	553	86	200	338	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	267	171	315	244	522	561	1492	231	485	2121	44
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.48	0.48	0.48	0.07	0.60	0.60
Sat Flow, veh/h	256	812	519	815	743	1585	1036	3083	478	1781	3560	74
Grp Volume(v), veh/h	107	0	0	89	0	264	14	318	321	200	168	177
Grp Sat Flow(s),veh/h/ln	1588	0	0	1558	0	1585	1036	1777	1784	1781	1777	1857
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	16.1	0.8	13.5	13.6	6.5	5.1	5.1
Cycle Q Clear(g_c), s	5.2	0.0	0.0	4.1	0.0	16.1	0.8	13.5	13.6	6.5	5.1	5.1
Prop In Lane	0.21		0.33	0.55		1.00	1.00		0.27	1.00		0.04
Lane Grp Cap(c), veh/h	559	0	0	559	0	522	561	860	864	485	1059	1107
V/C Ratio(X)	0.19	0.00	0.00	0.16	0.00	0.51	0.02	0.37	0.37	0.41	0.16	0.16
Avail Cap(c_a), veh/h	559	0	0	559	0	522	561	860	864	716	1059	1107
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	0.0	0.0	28.4	0.0	32.4	16.2	19.5	19.5	13.6	10.8	10.8
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.6	0.0	3.5	0.1	1.2	1.2	0.6	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	0.0	0.0	3.4	0.0	10.9	0.4	9.8	9.9	4.7	3.7	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5	0.0	0.0	29.0	0.0	35.9	16.3	20.7	20.7	14.1	11.1	11.1
LnGrp LOS	C	A	A	C	A	D	B	C	C	B	B	B
Approach Vol, veh/h		107			353			653			545	
Approach Delay, s/veh		29.5			34.1			20.6			12.2	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	13.4	62.6		44.0		76.0		44.0				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	24.5	42.5		39.5		71.5		39.5				
Max Q Clear Time (g_c+I1), s	8.5	15.6		7.2		7.1		18.1				
Green Ext Time (p_c), s	0.5	4.3		0.7		2.2		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				21.3								
HCM 6th LOS				C								

HCM 6th TWSC
1: Abilene Street & E 2nd Avenue

Existing Conditions
PM Peak

Intersection												
Int Delay, s/veh	83.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱	↰	↱	↰	↱
Traffic Vol, veh/h	93	19	436	7	18	0	273	61	7	0	55	90
Future Vol, veh/h	93	19	436	7	18	0	273	61	7	0	55	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	275	-	-	50	-	-	100	-	100	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	67	67	67	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	0	0	0	5	5	5	0	0	0
Mvmt Flow	124	25	581	10	27	0	355	79	9	0	71	117

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	27	0	0	606	0	0	705	611	316	655	901	27
Stage 1	-	-	-	-	-	-	564	564	-	47	47	-
Stage 2	-	-	-	-	-	-	141	47	-	608	854	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.15	6.55	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.1	5.5	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.545	4.045	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	1587	-	-	982	-	-	~ 347	405	718	382	280	1054
Stage 1	-	-	-	-	-	-	505	504	-	972	860	-
Stage 2	-	-	-	-	-	-	855	850	-	486	378	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1587	-	-	982	-	-	~ 227	370	718	295	256	1054
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 227	370	-	295	256	-
Stage 1	-	-	-	-	-	-	466	465	-	896	851	-
Stage 2	-	-	-	-	-	-	689	842	-	367	349	-






Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	2.4	253.1	17.1
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	227	370	718	1587	-	-	982	-	-	-	483
HCM Lane V/C Ratio	1.562	0.214	0.013	0.078	-	-	0.011	-	-	-	0.39
HCM Control Delay (s)	\$ 312	17.4	10.1	7.5	-	-	8.7	-	-	0	17.1
HCM Lane LOS	F	C	B	A	-	-	A	-	-	A	C
HCM 95th %tile Q(veh)	22	0.8	0	0.3	-	-	0	-	-	-	1.8

Notes											
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon			









HCM 6th TWSC
2: Blackhawk Street & Abilene Street/E 4th Avenue

Existing Conditions
PM Peak

Intersection						
Int Delay, s/veh	3.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	150	6	65	136	12	103
Future Vol, veh/h	150	6	65	136	12	103
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	65	65	90	90	65	65
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	231	9	72	151	18	158
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	240	0	531	236
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	295	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1327	-	511	805
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	758	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1327	-	483	805
Mov Cap-2 Maneuver	-	-	-	-	483	-
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	717	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	2.5	10.8			
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	483	805	-	-	1327	-
HCM Lane V/C Ratio	0.038	0.197	-	-	0.054	-
HCM Control Delay (s)	12.7	10.6	-	-	7.9	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.7	-	-	0.2	-

HCM 6th TWSC
3: Sable Blvd & E 4th Avenue

Existing Conditions
PM Peak

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	79	2	132	8	4	26	103	562	12	11	580	69
Future Vol, veh/h	79	2	132	8	4	26	103	562	12	11	580	69
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	-	75	-	-	75	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	86	2	143	9	4	28	112	611	13	12	630	75

















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1124	1502	315	1182	1571	312	705	0	0	624	0	0
Stage 1	654	654	-	842	842	-	-	-	-	-	-	-
Stage 2	470	848	-	340	729	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	186	121	681	170	109	583	889	-	-	592	-	-
Stage 1	410	461	-	263	378	-	-	-	-	-	-	-
Stage 2	512	376	-	626	426	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	152	104	681	117	93	583	889	-	-	592	-	-
Mov Cap-2 Maneuver	152	104	-	117	93	-	-	-	-	-	-	-
Stage 1	358	452	-	230	330	-	-	-	-	-	-	-
Stage 2	420	329	-	482	417	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	28.5		22.7		1.5		0.2	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	889	-	-	152	629	244	592	-	-
HCM Lane V/C Ratio	0.126	-	-	0.565	0.232	0.169	0.02	-	-
HCM Control Delay (s)	9.6	-	-	55.7	12.4	22.7	11.2	-	-
HCM Lane LOS	A	-	-	F	B	C	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-	2.9	0.9	0.6	0.1	-	-

Timings 4: Potomac St & E 2nd Avenue

Existing Conditions
PM Peak

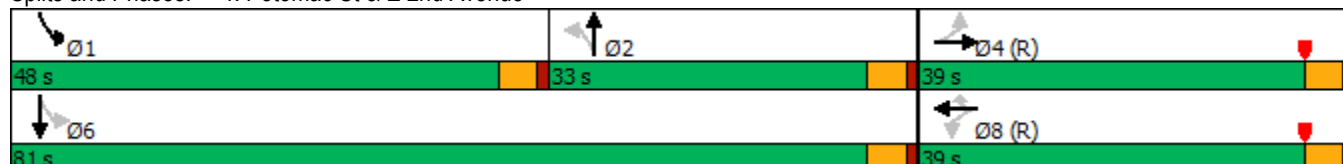
									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	13	75	58	48	268	49	352	424	624
Future Volume (vph)	13	75	58	48	268	49	352	424	624
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	39.0	39.0	39.0	39.0	39.0	33.0	33.0	48.0	81.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	32.5%	27.5%	27.5%	40.0%	67.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	Max
Act Effect Green (s)		34.5		34.5	34.5	50.4	50.4	76.5	76.5
Actuated g/C Ratio		0.29		0.29	0.29	0.42	0.42	0.64	0.64
v/c Ratio		0.23		0.26	0.44	0.18	0.30	0.69	0.31
Control Delay		31.1		35.0	5.9	26.5	24.2	16.8	10.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		31.1		35.0	5.9	26.5	24.2	16.8	10.2
LOS		C		D	A	C	C	B	B
Approach Delay		31.1		14.2			24.4		12.8
Approach LOS		C		B			C		B

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 16.7
 Intersection Capacity Utilization 58.7%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 4: Potomac St & E 2nd Avenue






















HCM 6th Signalized Intersection Summary

4: Potomac St & E 2nd Avenue

Existing Conditions

PM Peak






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	75	22	58	48	268	49	352	49	424	624	17
Future Volume (veh/h)	13	75	22	58	48	268	49	352	49	424	624	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	82	24	63	52	291	53	383	53	461	678	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	369	101	275	214	456	387	1372	188	691	2254	60
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.44	0.44	0.44	0.16	0.64	0.64
Sat Flow, veh/h	124	1284	352	794	745	1585	749	3138	431	1781	3536	94
Grp Volume(v), veh/h	120	0	0	115	0	291	53	216	220	461	341	355
Grp Sat Flow(s),veh/h/ln	1760	0	0	1539	0	1585	749	1777	1793	1781	1777	1853
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	19.2	5.1	9.3	9.5	16.1	10.3	10.3
Cycle Q Clear(g_c), s	6.1	0.0	0.0	6.1	0.0	19.2	5.1	9.3	9.5	16.1	10.3	10.3
Prop In Lane	0.12		0.20	0.55		1.00	1.00		0.24	1.00		0.05
Lane Grp Cap(c), veh/h	539	0	0	489	0	456	387	777	784	691	1133	1182
V/C Ratio(X)	0.22	0.00	0.00	0.24	0.00	0.64	0.14	0.28	0.28	0.67	0.30	0.30
Avail Cap(c_a), veh/h	539	0	0	489	0	456	387	777	784	1047	1133	1182
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	0.0	0.0	32.6	0.0	37.3	20.5	21.6	21.7	13.0	9.8	9.8
Incr Delay (d2), s/veh	1.0	0.0	0.0	1.1	0.0	6.7	0.7	0.9	0.9	1.1	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.1	0.0	0.0	4.9	0.0	13.0	1.8	7.4	7.5	10.5	7.3	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.6	0.0	0.0	33.7	0.0	44.0	21.2	22.5	22.6	14.1	10.4	10.4
LnGrp LOS	C	A	A	C	A	D	C	C	C	B	B	B
Approach Vol, veh/h		120			406			489			1157	
Approach Delay, s/veh		33.6			41.1			22.4			11.9	
Approach LOS		C			D			C			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	24.1	56.9		39.0		81.0		39.0				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	43.5	28.5		34.5		76.5		34.5				
Max Q Clear Time (g_c+I1), s	18.1	11.5		8.1		12.3		21.2				
Green Ext Time (p_c), s	1.5	2.8		0.6		5.0		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				20.9								
HCM 6th LOS				C								

APPENDIX C. BACKGROUND LOS WORKSHEETS

Timings

1: Abilene Street & E 2nd Avenue

2025 Background
AM Peak










												
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	Ø5	Ø10	Ø14
Lane Configurations												
Traffic Volume (vph)	95	30	10	10	205	35	10	5	40			
Future Volume (vph)	95	30	10	10	205	35	10	5	40			
Turn Type	pm+pt	NA	Prot	NA	custom	NA	custom	Perm	NA			
Protected Phases	7	4	3	8	5 10	2 10			6	5	10	14
Permitted Phases	4				2		2	6				
Detector Phase	7	4	3	8	5 10	2 10	2	6	6			
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5			22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.0	30.0	22.0	30.0			48.0	28.0	28.0	20.0	20.0	20.0
Total Split (%)	18.3%	25.0%	18.3%	25.0%			40.0%	23.3%	23.3%	17%	17%	17%
Yellow Time (s)	3.5	3.5	3.5	3.5			3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0			0.0	0.0	0.0			
Total Lost Time (s)	4.5	4.5	4.5	4.5			4.5	4.5	4.5			
Lead/Lag	Lead	Lag	Lead	Lag				Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				Yes	Yes	Yes		
Recall Mode	None	None	None	None			C-Max	C-Max	C-Max	None	None	None
Act Effect Green (s)	17.5	12.8	6.4	6.4	93.5	93.5	78.3	67.5	67.5			
Actuated g/C Ratio	0.15	0.11	0.05	0.05	0.78	0.78	0.65	0.56	0.56			
v/c Ratio	0.52	0.63	0.14	0.13	0.27	0.03	0.01	0.09	0.16			
Control Delay	62.4	30.8	57.0	57.9	5.3	4.7	0.0	23.6	9.0			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay	62.4	30.8	57.0	57.9	5.3	4.7	0.0	23.6	9.0			
LOS	E	C	E	E	A	A	A	C	A			
Approach Delay		42.3		57.5		5.0			9.6			
Approach LOS		D		E		A			A			

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 22.3
 Intersection Capacity Utilization 41.9%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 1: Abilene Street & E 2nd Avenue

 Ø2 (R)	 Ø3	 Ø4	 Ø10
48 s	22 s	30 s	20 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
20 s	28 s	22 s	30 s
			 Ø14
			20 s

Queues
1: Abilene Street & E 2nd Avenue

2025 Background
AM Peak








Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	119	207	13	13	256	44	13	6	156
v/c Ratio	0.52	0.63	0.14	0.13	0.27	0.03	0.01	0.09	0.16
Control Delay	62.4	30.8	57.0	57.9	5.3	4.7	0.0	23.6	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.4	30.8	57.0	57.9	5.3	4.7	0.0	23.6	9.0
Queue Length 50th (ft)	98	62	10	10	34	5	0	2	23
Queue Length 95th (ft)	102	56	m27	m27	87	19	0	12	65
Internal Link Dist (ft)		553		400		668			1185
Turn Bay Length (ft)	275		50		100		100	150	
Base Capacity (vph)	293	484	263	403	1000	1390	1027	66	994
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.43	0.05	0.03	0.26	0.03	0.01	0.09	0.16









Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th TWSC
2: Blackhawk Street & Abilene Street/E 4th Avenue

2025 Background
AM Peak

Intersection						
Int Delay, s/veh	4.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	120	10	100	125	5	115
Future Vol, veh/h	120	10	100	125	5	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	150	13	125	156	6	144
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	163	0	563	157
Stage 1	-	-	-	-	157	-
Stage 2	-	-	-	-	406	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1422	-	489	891
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	675	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1422	-	446	891
Mov Cap-2 Maneuver	-	-	-	-	446	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	616	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.5		9.9	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	446	891	-	-	1422	-
HCM Lane V/C Ratio	0.014	0.161	-	-	0.088	-
HCM Control Delay (s)	13.2	9.8	-	-	7.8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0.6	-	-	0.3	-

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	5	75	10	5	20	160	505	15	25	315	110
Future Vol, veh/h	70	5	75	10	5	20	160	505	15	25	315	110
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	-	75	-	-	75	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	5	82	11	5	22	174	549	16	27	342	120


















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	966	1309	171	1133	1421	283	462	0	0	565	0	0
Stage 1	396	396	-	905	905	-	-	-	-	-	-	-
Stage 2	570	913	-	228	516	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	236	158	843	183	135	609	1095	-	-	631	-	-
Stage 1	581	602	-	237	353	-	-	-	-	-	-	-
Stage 2	445	350	-	727	533	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	186	127	843	136	109	609	1095	-	-	631	-	-
Mov Cap-2 Maneuver	186	127	-	136	109	-	-	-	-	-	-	-
Stage 1	489	576	-	199	297	-	-	-	-	-	-	-
Stage 2	354	294	-	623	510	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	23.6		23.7		2.1		0.6	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1095	-	-	186	623	230	631	-	-
HCM Lane V/C Ratio	0.159	-	-	0.409	0.14	0.165	0.043	-	-
HCM Control Delay (s)	8.9	-	-	37.1	11.7	23.7	11	-	-
HCM Lane LOS	A	-	-	E	B	C	B	-	-
HCM 95th %tile Q(veh)	0.6	-	-	1.8	0.5	0.6	0.1	-	-

Timings 3: Sable Blvd & E 4th Avenue

2025 Background
AM Peak

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	70	5	10	5	160	505	25	315	110
Future Volume (vph)	70	5	10	5	160	505	25	315	110
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	39.0	39.0	39.0	39.0	35.0	81.0	46.0	46.0	46.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	29.2%	67.5%	38.3%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead		Lag	Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	12.1	12.1		12.1	98.9	98.9	86.5	86.5	86.5
Actuated g/C Ratio	0.10	0.10		0.10	0.82	0.82	0.72	0.72	0.72
v/c Ratio	0.49	0.37		0.22	0.20	0.14	0.05	0.13	0.10
Control Delay	61.6	21.2		28.9	3.0	2.4	6.4	5.9	1.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.6	21.2		28.9	3.0	2.4	6.4	5.9	1.4
LOS	E	C		C	A	A	A	A	A
Approach Delay		40.1		28.9		2.5		4.8	
Approach LOS		D		C		A		A	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 8.3

Intersection LOS: A

Intersection Capacity Utilization 39.4%

ICU Level of Service A

Analysis Period (min) 15






















Splits and Phases: 3: Sable Blvd & E 4th Avenue



HCM 6th Signalized Intersection Summary

















3: Sable Blvd & E 4th Avenue

2025 Background
AM Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	70	5	75	10	5	20	160	505	15	25	315	110	
Future Volume (veh/h)	70	5	75	10	5	20	160	505	15	25	315	110	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	76	5	82	11	5	22	174	549	16	27	342	120	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	165	8	126	52	30	60	900	4291	125	705	2710	1209	
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.04	0.84	0.84	0.76	0.76	0.76	
Sat Flow, veh/h	1383	92	1507	162	360	719	1781	5100	148	846	3554	1585	
Grp Volume(v), veh/h	76	0	87	38	0	0	174	366	199	27	342	120	
Grp Sat Flow(s),veh/h/ln	1383	0	1599	1241	0	0	1781	1702	1844	846	1777	1585	
Q Serve(g_s), s	0.9	0.0	6.3	0.1	0.0	0.0	2.3	2.3	2.3	0.9	3.0	2.3	
Cycle Q Clear(g_c), s	7.3	0.0	6.3	6.4	0.0	0.0	2.3	2.3	2.3	0.9	3.0	2.3	
Prop In Lane	1.00		0.94	0.29		0.58	1.00		0.08	1.00		1.00	
Lane Grp Cap(c), veh/h	165	0	134	142	0	0	900	2865	1551	705	2710	1209	
V/C Ratio(X)	0.46	0.00	0.65	0.27	0.00	0.00	0.19	0.13	0.13	0.04	0.13	0.10	
Avail Cap(c_a), veh/h	447	0	460	453	0	0	1278	2865	1551	705	2710	1209	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	53.8	0.0	53.3	51.6	0.0	0.0	2.3	1.7	1.7	3.5	3.7	3.7	
Incr Delay (d2), s/veh	2.0	0.0	5.3	1.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(95%),veh/ln	4.2	0.0	4.9	2.0	0.0	0.0	1.1	1.0	1.1	0.3	1.8	1.3	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	55.8	0.0	58.6	52.6	0.0	0.0	2.4	1.8	1.9	3.6	3.8	3.8	
LnGrp LOS	E	A	E	D	A	A	A	A	A	A	A	A	
Approach Vol, veh/h	163			38			739			489			
Approach Delay, s/veh	57.3			52.6			1.9			3.8			
Approach LOS	E			D			A			A			
Timer - Assigned Phs	2			4		5	6	8					
Phs Duration (G+Y+Rc), s	105.5			14.5		9.5	96.0	14.5					
Change Period (Y+Rc), s	4.5			4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	76.5			34.5		30.5	41.5	34.5					
Max Q Clear Time (g_c+I1), s	4.3			9.3		4.3	5.0	8.4					
Green Ext Time (p_c), s	4.1			0.7		0.5	3.0	0.1					
Intersection Summary													
HCM 6th Ctrl Delay	10.2												
HCM 6th LOS	B												

Timings 4: Potomac St & E 2nd Avenue

2025 Background
AM Peak

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	20	50	50	40	255	15	540	190	380
Future Volume (vph)	20	50	50	40	255	15	540	190	380
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	42.0	42.0	42.0	42.0	42.0	48.0	48.0	30.0	78.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%	40.0%	40.0%	25.0%	65.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	Max
Act Effect Green (s)		37.5		37.5	37.5	57.3	57.3	73.5	73.5
Actuated g/C Ratio		0.31		0.31	0.31	0.48	0.48	0.61	0.61
v/c Ratio		0.21		0.21	0.40	0.04	0.41	0.45	0.20
Control Delay		25.6		26.6	8.2	18.2	21.1	13.6	10.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		25.6		26.6	8.2	18.2	21.1	13.6	10.4
LOS		C		C	A	B	C	B	B
Approach Delay		25.6		13.0			21.0		11.5
Approach LOS		C		B			C		B

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 16.3
Intersection Capacity Utilization 52.0%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service A


Splits and Phases: 4: Potomac St & E 2nd Avenue



HCM 6th Signalized Intersection Summary

4: Potomac St & E 2nd Avenue

















2025 Background
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Traffic Volume (veh/h)	20	50	35	50	40	255	15	540	85	190	380	10
Future Volume (veh/h)	20	50	35	50	40	255	15	540	85	190	380	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	54	38	54	43	277	16	587	92	207	413	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	260	166	302	228	495	542	1541	241	484	2166	58
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.50	0.50	0.50	0.07	0.61	0.61
Sat Flow, veh/h	233	831	532	818	731	1585	963	3079	481	1781	3536	94
Grp Volume(v), veh/h	114	0	0	97	0	277	16	338	341	207	207	217
Grp Sat Flow(s),veh/h/ln	1596	0	0	1549	0	1585	963	1777	1784	1781	1777	1853
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	17.5	1.0	14.1	14.2	6.4	6.1	6.2
Cycle Q Clear(g_c), s	5.7	0.0	0.0	4.7	0.0	17.5	1.0	14.1	14.2	6.4	6.1	6.2
Prop In Lane	0.19		0.33	0.56		1.00	1.00		0.27	1.00		0.05
Lane Grp Cap(c), veh/h	535	0	0	531	0	495	542	889	893	484	1088	1135
V/C Ratio(X)	0.21	0.00	0.00	0.18	0.00	0.56	0.03	0.38	0.38	0.43	0.19	0.19
Avail Cap(c_a), veh/h	535	0	0	531	0	495	542	889	893	729	1088	1135
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.98	0.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	0.0	30.0	0.0	34.4	15.2	18.5	18.5	12.8	10.2	10.2
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.7	0.0	4.4	0.1	1.2	1.2	0.6	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	0.0	0.0	3.9	0.0	11.7	0.4	10.1	10.2	4.6	4.4	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	0.0	0.0	30.7	0.0	38.8	15.3	19.7	19.8	13.4	10.6	10.6
LnGrp LOS	C	A	A	C	A	D	B	B	B	B	B	B
Approach Vol, veh/h		114			374			695			631	
Approach Delay, s/veh		31.2			36.7			19.6			11.5	
Approach LOS		C			D			B			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	13.4	64.6		42.0		78.0		42.0				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	25.5	43.5		37.5		73.5		37.5				
Max Q Clear Time (g_c+I1), s	8.4	16.2		7.7		8.2		19.5				
Green Ext Time (p_c), s	0.5	4.7		0.7		2.8		1.4				
Intersection Summary												
HCM 6th Ctrl Delay			21.1									
HCM 6th LOS			C									

Timings

1: Abilene Street & E 2nd Avenue









2025 Background
PM Peak

											
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	Ø5	Ø10	Ø14
Lane Configurations											
Traffic Volume (vph)	105	20	10	20	280	70	10	65			
Future Volume (vph)	105	20	10	20	280	70	10	65			
Turn Type	pm+pt	NA	Prot	NA	custom	NA	custom	NA			
Protected Phases	7	4	3	8	5 10	2 10		6	5	10	14
Permitted Phases	4				2		2				
Detector Phase	7	4	3	8	5 10	2 10	2	6			
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5			22.5	22.5	9.5	22.5	22.5
Total Split (s)	24.0	35.0	24.0	35.0			41.0	25.0	16.0	20.0	20.0
Total Split (%)	20.0%	29.2%	20.0%	29.2%			34.2%	20.8%	13%	17%	17%
Yellow Time (s)	3.5	3.5	3.5	3.5			3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0			0.0	0.0			
Total Lost Time (s)	4.5	4.5	4.5	4.5			4.5	4.5			
Lead/Lag	Lead	Lag	Lead	Lag				Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				Yes	Yes		
Recall Mode	None	None	None	None			C-Max	C-Max	None	None	None
Act Effect Green (s)	23.6	18.8	6.4	10.0	87.4	87.4	66.4	55.3			
Actuated g/C Ratio	0.20	0.16	0.05	0.08	0.73	0.73	0.55	0.46			
v/c Ratio	0.48	0.81	0.14	0.16	0.40	0.07	0.01	0.25			
Control Delay	49.7	18.6	56.8	51.2	9.2	7.3	0.0	20.5			
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay	49.7	18.8	56.8	51.2	9.2	7.3	0.0	20.5			
LOS	D	B	E	D	A	A	A	C			
Approach Delay		24.4		53.1		8.6		20.5			
Approach LOS		C		D		A		C			

Intersection Summary









Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 19.6
Intersection Capacity Utilization 65.2%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service C

Splits and Phases: 1: Abilene Street & E 2nd Avenue

 Ø2 (R)	 Ø3	 Ø4	 Ø10
41 s	24 s	35 s	20 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
16 s	25 s	24 s	35 s
			20 s






Queues
1: Abilene Street & E 2nd Avenue

2025 Background
PM Peak

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	131	588	13	25	350	88	13	206
v/c Ratio	0.48	0.81	0.14	0.16	0.40	0.07	0.01	0.25
Control Delay	49.7	18.6	56.8	51.2	9.2	7.3	0.0	20.5
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.7	18.8	56.8	51.2	9.2	7.3	0.0	20.5
Queue Length 50th (ft)	86	53	10	19	88	18	0	71
Queue Length 95th (ft)	88	29	m27	38	173	47	0	152
Internal Link Dist (ft)		553		400		668		1185
Turn Bay Length (ft)	275		50		100		100	
Base Capacity (vph)	345	825	293	482	906	1317	893	825
Starvation Cap Reductn	0	22	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.73	0.04	0.05	0.39	0.07	0.01	0.25
Intersection Summary								
m Volume for 95th percentile queue is metered by upstream signal.								










HCM 6th TWSC
2: Blackhawk Street & Abilene Street/E 4th Avenue

2025 Background
PM Peak

Intersection						
Int Delay, s/veh	3.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	165	10	70	150	15	115
Future Vol, veh/h	165	10	70	150	15	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	206	13	88	188	19	144
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	219	0	577	213
Stage 1	-	-	-	-	213	-
Stage 2	-	-	-	-	364	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1350	-	480	830
Stage 1	-	-	-	-	825	-
Stage 2	-	-	-	-	705	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1350	-	449	830
Mov Cap-2 Maneuver	-	-	-	-	449	-
Stage 1	-	-	-	-	825	-
Stage 2	-	-	-	-	659	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	2.5		10.6		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	449	830	-	-	1350	-
HCM Lane V/C Ratio	0.042	0.173	-	-	0.065	-
HCM Control Delay (s)	13.4	10.2	-	-	7.9	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.6	-	-	0.2	-


















HCM 6th TWSC
3: Sable Blvd & E 4th Avenue

2025 Background
PM Peak

Intersection												
Int Delay, s/veh	8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	85	5	140	10	5	30	110	755	15	15	615	75
Future Vol, veh/h	85	5	140	10	5	30	110	755	15	15	615	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	-	75	-	-	75	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	92	5	152	11	5	33	120	821	16	16	668	82
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1271	1777	334	1438	1851	419	750	0	0	837	0	0
Stage 1	700	700	-	1069	1069	-	-	-	-	-	-	-
Stage 2	571	1077	-	369	782	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	148	82	662	115	73	498	855	-	-	469	-	-
Stage 1	385	440	-	182	296	-	-	-	-	-	-	-
Stage 2	444	293	-	602	403	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	112	68	662	72	61	498	855	-	-	469	-	-
Mov Cap-2 Maneuver	112	68	-	72	61	-	-	-	-	-	-	-
Stage 1	331	425	-	157	255	-	-	-	-	-	-	-
Stage 2	349	252	-	442	389	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	51.7		37.1		1.2		0.3					
HCM LOS	F		E									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	855	-	-	112	509	160	469	-	-			
HCM Lane V/C Ratio	0.14	-	-	0.825	0.31	0.306	0.035	-	-			
HCM Control Delay (s)	9.9	-	-	113.9	15.2	37.1	13	-	-			
HCM Lane LOS	A	-	-	F	C	E	B	-	-			
HCM 95th %tile Q(veh)	0.5	-	-	4.8	1.3	1.2	0.1	-	-			

Timings 3: Sable Blvd & E 4th Avenue

2025 Background
PM Peak

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	85	5	10	5	110	755	15	615	75
Future Volume (vph)	85	5	10	5	110	755	15	615	75
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	36.0	36.0	36.0	36.0	23.0	84.0	61.0	61.0	61.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	19.2%	70.0%	50.8%	50.8%	50.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead		Lag	Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	13.1	13.1		13.1	97.9	97.9	86.2	86.2	86.2
Actuated g/C Ratio	0.11	0.11		0.11	0.82	0.82	0.72	0.72	0.72
v/c Ratio	0.59	0.51		0.28	0.20	0.20	0.04	0.26	0.07
Control Delay	59.6	12.4		26.0	3.3	2.8	6.6	6.7	1.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	12.4		26.0	3.3	2.8	6.6	6.7	1.6
LOS	E	B		C	A	A	A	A	A
Approach Delay		29.9		26.0		2.9		6.1	
Approach LOS		C		C		A		A	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 56.5 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.59
 Intersection Signal Delay: 8.0
 Intersection Capacity Utilization 46.0%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A
























Splits and Phases: 3: Sable Blvd & E 4th Avenue



HCM 6th Signalized Intersection Summary

















3: Sable Blvd & E 4th Avenue

2025 Background
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			 	
Traffic Volume (veh/h)	85	5	140	10	5	30	110	755	15	15	615	75
Future Volume (veh/h)	85	5	140	10	5	30	110	755	15	15	615	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	5	152	11	5	33	120	821	16	16	668	82
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	7	207	50	33	97	593	4077	79	528	2531	1129
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.04	0.79	0.79	0.71	0.71	0.71
Sat Flow, veh/h	1370	51	1542	100	249	720	1781	5156	100	657	3554	1585
Grp Volume(v), veh/h	92	0	157	49	0	0	120	542	295	16	668	82
Grp Sat Flow(s),veh/h/ln	1370	0	1593	1069	0	0	1781	1702	1852	657	1777	1585
Q Serve(g_s), s	1.5	0.0	11.4	0.2	0.0	0.0	2.0	4.8	4.8	0.9	8.0	1.9
Cycle Q Clear(g_c), s	13.0	0.0	11.4	11.5	0.0	0.0	2.0	4.8	4.8	0.9	8.0	1.9
Prop In Lane	1.00		0.97	0.22		0.67	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	185	0	214	180	0	0	593	2692	1465	528	2531	1129
V/C Ratio(X)	0.50	0.00	0.73	0.27	0.00	0.00	0.20	0.20	0.20	0.03	0.26	0.07
Avail Cap(c_a), veh/h	360	0	418	374	0	0	794	2692	1465	528	2531	1129
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.1	0.0	49.9	46.5	0.0	0.0	3.9	3.1	3.1	5.1	6.1	5.2
Incr Delay (d2), s/veh	2.1	0.0	4.8	0.8	0.0	0.0	0.2	0.2	0.3	0.1	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.1	0.0	8.4	2.4	0.0	0.0	1.1	2.5	2.8	0.2	5.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.2	0.0	54.7	47.3	0.0	0.0	4.1	3.3	3.4	5.2	6.4	5.4
LnGrp LOS	D	A	D	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h	249			49			957			766		
Approach Delay, s/veh	54.1			47.3			3.4			6.2		
Approach LOS	D			D			A			A		
Timer - Assigned Phs	2			4		5		6		8		
Phs Duration (G+Y+Rc), s	99.4			20.6		9.4		90.0		20.6		
Change Period (Y+Rc), s	4.5			4.5		4.5		4.5		4.5		
Max Green Setting (Gmax), s	79.5			31.5		18.5		56.5		31.5		
Max Q Clear Time (g_c+I1), s	6.8			15.0		4.0		10.0		13.5		
Green Ext Time (p_c), s	6.7			1.1		0.2		5.9		0.2		
Intersection Summary												
HCM 6th Ctrl Delay	11.8											
HCM 6th LOS	B											

Timings 4: Potomac St & E 2nd Avenue

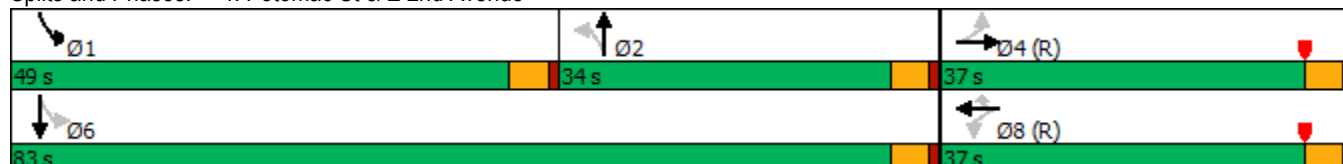
2025 Background
PM Peak

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	15	80	60	50	280	50	375	445	660
Future Volume (vph)	15	80	60	50	280	50	375	445	660
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	37.0	37.0	37.0	37.0	37.0	34.0	34.0	49.0	83.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	28.3%	28.3%	40.8%	69.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	Max
Act Effect Green (s)		32.5		32.5	32.5	51.4	51.4	78.5	78.5
Actuated g/C Ratio		0.27		0.27	0.27	0.43	0.43	0.65	0.65
v/c Ratio		0.27		0.30	0.47	0.18	0.31	0.72	0.32
Control Delay		33.3		29.7	8.5	26.5	24.0	16.6	9.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		33.3		29.7	8.5	26.5	24.0	16.6	9.5
LOS		C		C	A	C	C	B	A
Approach Delay		33.3		14.5			24.2		12.3
Approach LOS		C		B			C		B

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 16.6
Intersection Capacity Utilization 61.1%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service B


Splits and Phases: 4: Potomac St & E 2nd Avenue



HCM 6th Signalized Intersection Summary

4: Potomac St & E 2nd Avenue






















2025 Background
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Traffic Volume (veh/h)	15	80	25	60	50	280	50	375	50	445	660	20
Future Volume (veh/h)	15	80	25	60	50	280	50	375	50	445	660	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	87	27	65	54	304	54	408	54	484	717	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	341	99	257	201	429	384	1421	187	699	2303	71
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.45	0.45	0.45	0.17	0.65	0.65
Sat Flow, veh/h	130	1260	364	778	742	1585	720	3157	415	1781	3520	108
Grp Volume(v), veh/h	130	0	0	119	0	304	54	229	233	484	362	377
Grp Sat Flow(s),veh/h/ln	1755	0	0	1520	0	1585	720	1777	1796	1781	1777	1851
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	20.8	5.4	9.7	9.9	16.4	10.6	10.6
Cycle Q Clear(g_c), s	6.8	0.0	0.0	6.9	0.0	20.8	5.4	9.7	9.9	16.4	10.6	10.6
Prop In Lane	0.12		0.21	0.55		1.00	1.00		0.23	1.00		0.06
Lane Grp Cap(c), veh/h	509	0	0	458	0	429	384	800	808	699	1162	1211
V/C Ratio(X)	0.26	0.00	0.00	0.26	0.00	0.71	0.14	0.29	0.29	0.69	0.31	0.31
Avail Cap(c_a), veh/h	509	0	0	458	0	429	384	800	808	1063	1162	1211
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.93	0.00	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	0.0	0.0	34.3	0.0	39.5	19.6	20.8	20.9	12.3	9.0	9.0
Incr Delay (d2), s/veh	1.2	0.0	0.0	1.3	0.0	8.9	0.8	0.9	0.9	1.2	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.7	0.0	0.0	5.2	0.0	13.9	1.8	7.6	7.8	10.6	7.5	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.6	0.0	0.0	35.6	0.0	48.3	20.4	21.7	21.8	13.5	9.7	9.7
LnGrp LOS	D	A	A	D	A	D	C	C	C	B	A	A
Approach Vol, veh/h		130			423			516			1223	
Approach Delay, s/veh		35.6			44.8			21.6			11.2	
Approach LOS		D			D			C			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	24.5	58.5		37.0		83.0		37.0				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	44.5	29.5		32.5		78.5		32.5				
Max Q Clear Time (g_c+I1), s	18.4	11.9		8.8		12.6		22.8				
Green Ext Time (p_c), s	1.6	3.0		0.7		5.4		1.3				
Intersection Summary												
HCM 6th Ctrl Delay			21.1									
HCM 6th LOS			C									

Timings

1: Abilene Street & E 2nd Avenue

2045 Background
AM Peak









												
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	Ø5	Ø10	Ø14
Lane Configurations												
Traffic Volume (vph)	165	45	30	25	245	70	25	5	90			
Future Volume (vph)	165	45	30	25	245	70	25	5	90			
Turn Type	pm+pt	NA	Prot	NA	custom	NA	custom	Perm	NA			
Protected Phases	7	4	3	8	5 10	2 10			6	5	10	14
Permitted Phases	4				2		2	6				
Detector Phase	7	4	3	8	5 10	2 10	2	6	6			
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5			22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.0	27.0	22.0	27.0			51.0	33.0	33.0	18.0	20.0	20.0
Total Split (%)	18.3%	22.5%	18.3%	22.5%			42.5%	27.5%	27.5%	15%	17%	17%
Yellow Time (s)	3.5	3.5	3.5	3.5			3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0			0.0	0.0	0.0			
Total Lost Time (s)	4.5	4.5	4.5	4.5			4.5	4.5	4.5			
Lead/Lag	Lead	Lag	Lead	Lag				Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				Yes	Yes	Yes		
Recall Mode	None	None	None	None			C-Max	C-Max	C-Max	None	None	None
Act Effect Green (s)	24.6	16.5	7.8	8.3	86.4	86.4	68.7	57.8	57.8			
Actuated g/C Ratio	0.20	0.14	0.06	0.07	0.72	0.72	0.57	0.48	0.48			
v/c Ratio	0.66	0.68	0.30	0.22	0.37	0.06	0.03	0.09	0.32			
Control Delay	54.9	35.9	56.3	53.8	8.5	6.9	0.1	31.2	18.9			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay	54.9	35.9	56.3	53.8	8.5	6.9	0.1	31.2	18.9			
LOS	D	D	E	D	A	A	A	C	B			
Approach Delay		44.7		55.1		7.6			19.2			
Approach LOS		D		E		A			B			

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 26.3
 Intersection Capacity Utilization 57.7%
 Analysis Period (min) 15










Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 1: Abilene Street & E 2nd Avenue

 Ø2 (R)	 Ø3	 Ø4	 Ø10
51 s	22 s	27 s	20 s
 Ø5	 Ø7	 Ø8	 Ø14
18 s	33 s	22 s	20 s






Queues
1: Abilene Street & E 2nd Avenue

2045 Background
AM Peak

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	194	224	35	29	288	82	29	6	277
v/c Ratio	0.66	0.68	0.30	0.22	0.37	0.06	0.03	0.09	0.32
Control Delay	54.9	35.9	56.3	53.8	8.5	6.9	0.1	31.2	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	35.9	56.3	53.8	8.5	6.9	0.1	31.2	18.9
Queue Length 50th (ft)	118	59	27	22	76	19	0	3	99
Queue Length 95th (ft)	144	94	m54	m47	132	41	0	15	176
Internal Link Dist (ft)		553		400		668			1185
Turn Bay Length (ft)	275		50		100		100	150	
Base Capacity (vph)	317	408	263	356	817	1271	912	64	862
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.55	0.13	0.08	0.35	0.06	0.03	0.09	0.32
Intersection Summary									
m Volume for 95th percentile queue is metered by upstream signal.									


















HCM 6th TWSC
2: Blackhawk Street & Abilene Street/E 4th Avenue

2045 Background
AM Peak

Intersection						
Int Delay, s/veh	5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	215	20	185	230	10	220
Future Vol, veh/h	215	20	185	230	10	220
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	253	24	218	271	12	259
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	277	0	972	265
Stage 1	-	-	-	-	265	-
Stage 2	-	-	-	-	707	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1292	-	281	776
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	491	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1292	-	234	776
Mov Cap-2 Maneuver	-	-	-	-	234	-
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	408	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.7		12.3	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	234	776	-	-	1292	-
HCM Lane V/C Ratio	0.05	0.334	-	-	0.168	-
HCM Control Delay (s)	21.2	11.9	-	-	8.3	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	1.5	-	-	0.6	-

Timings 3: Sable Blvd & E 4th Avenue

2045 Background
AM Peak

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	95	10	15	10	110	675	30	465	150
Future Volume (vph)	95	10	15	10	110	675	30	465	150
Turn Type	pm+pt	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases	7	4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	20.0	48.0	28.0	28.0	21.0	72.0	51.0	51.0	51.0
Total Split (%)	16.7%	40.0%	23.3%	23.3%	17.5%	60.0%	42.5%	42.5%	42.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	22.4	22.4		7.9	88.6	88.6	76.0	76.0	76.0
Actuated g/C Ratio	0.19	0.19		0.07	0.74	0.74	0.63	0.63	0.63
v/c Ratio	0.39	0.31		0.44	0.19	0.20	0.08	0.23	0.15
Control Delay	47.3	16.3		42.4	6.4	5.7	12.2	11.1	2.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.3	16.3		42.4	6.4	5.7	12.2	11.1	2.3
LOS	D	B		D	A	A	B	B	A
Approach Delay		30.6		42.4		5.8		9.1	
Approach LOS		C		D		A		A	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 11.1

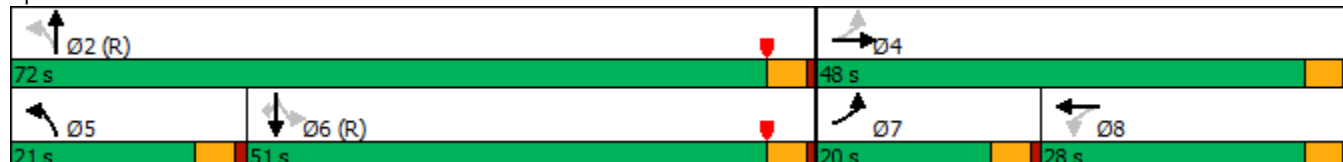
Intersection LOS: B

Intersection Capacity Utilization 42.1%

ICU Level of Service A

Analysis Period (min) 15





















Splits and Phases: 3: Sable Blvd & E 4th Avenue



HCM 6th Signalized Intersection Summary

















3: Sable Blvd & E 4th Avenue

2045 Background
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	10	100	15	10	25	110	675	20	30	465	150
Future Volume (veh/h)	95	10	100	15	10	25	110	675	20	30	465	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	11	109	16	11	27	120	734	22	33	505	163
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	269	23	230	57	23	40	703	3912	117	548	2450	1093
Arrive On Green	0.07	0.16	0.16	0.05	0.05	0.05	0.04	0.77	0.77	0.69	0.69	0.69
Sat Flow, veh/h	1781	147	1460	344	439	784	1781	5095	152	708	3554	1585
Grp Volume(v), veh/h	103	0	120	54	0	0	120	490	266	33	505	163
Grp Sat Flow(s),veh/h/ln	1781	0	1608	1567	0	0	1781	1702	1843	708	1777	1585
Q Serve(g_s), s	6.4	0.0	8.2	2.5	0.0	0.0	2.2	4.7	4.7	1.8	6.2	4.3
Cycle Q Clear(g_c), s	6.4	0.0	8.2	4.0	0.0	0.0	2.2	4.7	4.7	1.8	6.2	4.3
Prop In Lane	1.00		0.91	0.30		0.50	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	269	0	253	119	0	0	703	2614	1415	548	2450	1093
V/C Ratio(X)	0.38	0.00	0.47	0.45	0.00	0.00	0.17	0.19	0.19	0.06	0.21	0.15
Avail Cap(c_a), veh/h	377	0	583	339	0	0	875	2614	1415	548	2450	1093
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	46.1	55.8	0.0	0.0	4.4	3.8	3.8	6.1	6.7	6.5
Incr Delay (d2), s/veh	0.9	0.0	1.4	2.7	0.0	0.0	0.1	0.2	0.3	0.2	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.2	0.0	6.1	3.1	0.0	0.0	1.3	2.6	2.9	0.5	4.1	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	0.0	47.4	58.5	0.0	0.0	4.6	3.9	4.1	6.3	6.9	6.7
LnGrp LOS	D	A	D	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h	223			54			876			701		
Approach Delay, s/veh	47.9			58.5			4.1			6.9		
Approach LOS	D			E			A			A		
Timer - Assigned Phs	2			4		5	6	7	8			
Phs Duration (G+Y+Rc), s	96.6			23.4		9.4	87.2	12.7	10.7			
Change Period (Y+Rc), s	4.5			4.5		4.5	4.5	4.5	4.5			
Max Green Setting (Gmax), s	67.5			43.5		16.5	46.5	15.5	23.5			
Max Q Clear Time (g_c+I1), s	6.7			10.2		4.2	8.2	8.4	6.0			
Green Ext Time (p_c), s	5.9			0.7		0.2	4.7	0.1	0.2			
Intersection Summary												
HCM 6th Ctrl Delay	12.0											
HCM 6th LOS	B											

Timings 4: Potomac St & E 2nd Avenue


2045 Background
AM Peak

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	30	65	65	50	340	20	800	260	490
Future Volume (vph)	30	65	65	50	340	20	800	260	490
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	37.0	37.0	37.0	37.0	37.0	51.0	51.0	32.0	83.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	42.5%	42.5%	26.7%	69.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	Max
Act Effect Green (s)		32.5		32.5	32.5	57.5	57.5	78.5	78.5
Actuated g/C Ratio		0.27		0.27	0.27	0.48	0.48	0.65	0.65
v/c Ratio		0.33		0.33	0.53	0.06	0.59	0.70	0.24
Control Delay		33.0		29.0	8.2	19.9	25.1	20.6	8.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		33.0		29.0	8.2	19.9	25.1	20.6	8.7
LOS		C		C	A	B	C	C	A
Approach Delay		33.0		13.5			25.0		12.8
Approach LOS		C		B			C		B

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 19.1
Intersection Capacity Utilization 65.8%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service C






















Splits and Phases: 4: Potomac St & E 2nd Avenue

 Ø1	 Ø2	 Ø4 (R)
32 s	51 s	37 s
 Ø6		 Ø8 (R)
83 s		37 s

HCM 6th Signalized Intersection Summary

4: Potomac St & E 2nd Avenue

















2045 Background
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	65	45	65	50	340	20	800	110	260	490	10
Future Volume (veh/h)	30	65	45	65	50	340	20	800	110	260	490	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	71	49	71	54	370	22	870	120	283	533	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	197	121	241	171	429	512	1645	227	419	2329	48
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.52	0.52	0.52	0.09	0.65	0.65
Sat Flow, veh/h	216	729	445	717	633	1585	862	3137	433	1781	3561	73
Grp Volume(v), veh/h	153	0	0	125	0	370	22	493	497	283	266	278
Grp Sat Flow(s),veh/h/ln	1390	0	0	1350	0	1585	862	1777	1792	1781	1777	1857
Q Serve(g_s), s	1.8	0.0	0.0	0.0	0.0	26.6	1.5	21.9	21.9	8.3	7.3	7.3
Cycle Q Clear(g_c), s	12.3	0.0	0.0	10.6	0.0	26.6	1.5	21.9	21.9	8.3	7.3	7.3
Prop In Lane	0.22		0.32	0.57		1.00	1.00		0.24	1.00		0.04
Lane Grp Cap(c), veh/h	413	0	0	413	0	429	512	932	940	419	1162	1215
V/C Ratio(X)	0.37	0.00	0.00	0.30	0.00	0.86	0.04	0.53	0.53	0.68	0.23	0.23
Avail Cap(c_a), veh/h	413	0	0	413	0	429	512	932	940	663	1162	1215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.94	0.00	0.94	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	0.0	35.4	0.0	41.6	13.9	18.8	18.8	14.3	8.4	8.4
Incr Delay (d2), s/veh	2.5	0.0	0.0	1.8	0.0	18.9	0.2	2.1	2.1	1.9	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.3	0.0	0.0	5.7	0.0	18.2	0.6	14.4	14.5	6.0	5.1	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.9	0.0	0.0	37.1	0.0	60.5	14.1	20.9	20.9	16.2	8.9	8.9
LnGrp LOS	D	A	A	D	A	E	B	C	C	B	A	A
Approach Vol, veh/h		153			495			1012			827	
Approach Delay, s/veh		37.9			54.6			20.8			11.4	
Approach LOS		D			D			C			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	15.6	67.4		37.0		83.0		37.0				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	27.5	46.5		32.5		78.5		32.5				
Max Q Clear Time (g_c+I1), s	10.3	23.9		14.3		9.3		28.6				
Green Ext Time (p_c), s	0.8	7.1		0.8		3.7		0.8				
Intersection Summary												
HCM 6th Ctrl Delay			25.4									
HCM 6th LOS			C									

Timings

1: Abilene Street & E 2nd Avenue

2045 Background
PM Peak

											
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	Ø5	Ø10	Ø14
Lane Configurations											
Traffic Volume (vph)	180	40	20	40	335	135	25	125			
Future Volume (vph)	180	40	20	40	335	135	25	125			
Turn Type	pm+pt	NA	Prot	NA	custom	NA	custom	NA			
Protected Phases	7	4	3	8	5 10	2 10		6	5	10	14
Permitted Phases	4				2		2				
Detector Phase	7	4	3	8	5 10	2 10	2	6			
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5			22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.0	35.0	22.0	35.0			43.0	29.0	14.0	20.0	20.0
Total Split (%)	18.3%	29.2%	18.3%	29.2%			35.8%	24.2%	12%	17%	17%
Yellow Time (s)	3.5	3.5	3.5	3.5			3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0			0.0	0.0			
Total Lost Time (s)	4.5	4.5	4.5	4.5			4.5	4.5			
Lead/Lag	Lead	Lag	Lead	Lag				Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				Yes	Yes		
Recall Mode	None	None	None	None			C-Max	C-Max	None	None	None
Act Effect Green (s)	35.2	27.7	7.1	16.5	75.8	75.8	51.9	39.0			
Actuated g/C Ratio	0.29	0.23	0.06	0.14	0.63	0.63	0.43	0.32			
v/c Ratio	0.52	0.88	0.22	0.18	0.61	0.14	0.04	0.59			
Control Delay	36.9	19.6	56.0	41.0	18.4	12.5	0.1	36.0			
Queue Delay	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay	36.9	20.2	56.0	41.0	18.4	12.5	0.1	36.0			
LOS	D	C	E	D	B	B	A	D			
Approach Delay		24.0		46.0		15.9		36.0			
Approach LOS		C		D		B		D			

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 24.6

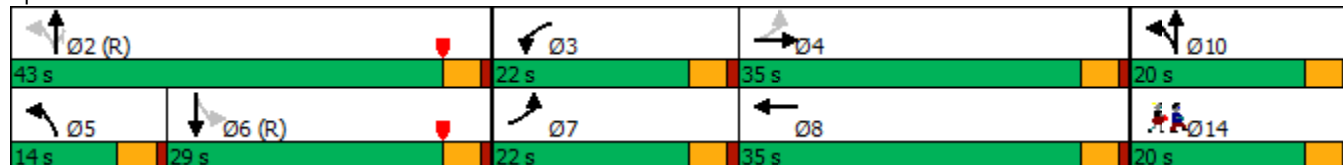
Intersection LOS: C

Intersection Capacity Utilization 83.8%

ICU Level of Service E

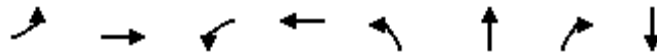
Analysis Period (min) 15

Splits and Phases: 1: Abilene Street & E 2nd Avenue



Queues
1: Abilene Street & E 2nd Avenue

2045 Background
PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	212	706	24	47	394	159	29	353
v/c Ratio	0.52	0.88	0.22	0.18	0.61	0.14	0.04	0.59
Control Delay	36.9	19.6	56.0	41.0	18.4	12.5	0.1	36.0
Queue Delay	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	20.2	56.0	41.0	18.4	12.5	0.1	36.0
Queue Length 50th (ft)	117	84	18	34	139	48	0	180
Queue Length 95th (ft)	m105	53	m40	59	262	103	0	#352
Internal Link Dist (ft)		553		400		668		1185
Turn Bay Length (ft)	275		50		100		100	
Base Capacity (vph)	423	848	263	482	658	1142	718	599
Starvation Cap Reductn	0	22	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.85	0.09	0.10	0.60	0.14	0.04	0.59

Intersection Summary






95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.


















HCM 6th TWSC
2: Blackhawk Street & Abilene Street/E 4th Avenue

2045 Background
PM Peak

Intersection						
Int Delay, s/veh	4.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	300	15	140	270	30	210
Future Vol, veh/h	300	15	140	270	30	210
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	353	18	165	318	35	247
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	371	0	1010	362
Stage 1	-	-	-	-	362	-
Stage 2	-	-	-	-	648	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1188	-	267	685
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	523	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1188	-	230	685
Mov Cap-2 Maneuver	-	-	-	-	230	-
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	450	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	2.9	14.5			
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	230	685	-	-	1188	-
HCM Lane V/C Ratio	0.153	0.361	-	-	0.139	-
HCM Control Delay (s)	23.5	13.2	-	-	8.5	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	1.6	-	-	0.5	-

Timings 3: Sable Blvd & E 4th Avenue

2045 Background
PM Peak

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	110	10	15	10	145	790	20	915	95
Future Volume (vph)	110	10	15	10	145	790	20	915	95
Turn Type	pm+pt	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases	7	4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	16.0	40.0	24.0	24.0	19.0	80.0	61.0	61.0	61.0
Total Split (%)	13.3%	33.3%	20.0%	20.0%	15.8%	66.7%	50.8%	50.8%	50.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	21.4	21.4		8.1	89.6	89.6	76.3	76.3	76.3
Actuated g/C Ratio	0.18	0.18		0.07	0.75	0.75	0.64	0.64	0.64
v/c Ratio	0.52	0.47		0.51	0.39	0.23	0.06	0.44	0.10
Control Delay	48.9	12.7		37.6	7.9	5.4	11.5	13.0	2.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	12.7		37.6	7.9	5.4	11.5	13.0	2.6
LOS	D	B		D	A	A	B	B	A
Approach Delay		25.8		37.6		5.8		12.1	
Approach LOS		C		D		A		B	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 12.0
Intersection Capacity Utilization 61.9%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service B






















Splits and Phases: 3: Sable Blvd & E 4th Avenue



HCM 6th Signalized Intersection Summary

















3: Sable Blvd & E 4th Avenue

2045 Background
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	10	185	15	10	40	145	790	20	20	915	95
Future Volume (veh/h)	110	10	185	15	10	40	145	790	20	20	915	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	11	201	16	11	43	158	859	22	22	995	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	285	15	267	52	22	59	416	3834	98	480	2367	1056
Arrive On Green	0.08	0.18	0.18	0.06	0.06	0.06	0.05	0.75	0.75	0.67	0.67	0.67
Sat Flow, veh/h	1781	83	1515	243	356	954	1781	5120	131	630	3554	1585
Grp Volume(v), veh/h	120	0	212	70	0	0	158	571	310	22	995	103
Grp Sat Flow(s),veh/h/ln	1781	0	1598	1553	0	0	1781	1702	1847	630	1777	1585
Q Serve(g_s), s	7.3	0.0	15.1	3.1	0.0	0.0	3.2	6.1	6.1	1.4	15.6	2.8
Cycle Q Clear(g_c), s	7.3	0.0	15.1	5.2	0.0	0.0	3.2	6.1	6.1	1.4	15.6	2.8
Prop In Lane	1.00		0.95	0.23		0.61	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	285	0	282	133	0	0	416	2549	1383	480	2367	1056
V/C Ratio(X)	0.42	0.00	0.75	0.53	0.00	0.00	0.38	0.22	0.22	0.05	0.42	0.10
Avail Cap(c_a), veh/h	319	0	473	284	0	0	551	2549	1383	480	2367	1056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	0.0	46.9	55.2	0.0	0.0	6.7	4.5	4.6	6.9	9.3	7.2
Incr Delay (d2), s/veh	1.0	0.0	4.1	3.2	0.0	0.0	0.6	0.2	0.4	0.2	0.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.0	0.0	10.4	4.0	0.0	0.0	2.0	3.5	3.9	0.4	9.8	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.9	0.0	51.0	58.4	0.0	0.0	7.3	4.8	4.9	7.1	9.8	7.3
LnGrp LOS	D	A	D	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h	332			70			1039			1120		
Approach Delay, s/veh	49.5			58.4			5.2			9.6		
Approach LOS	D			E			A			A		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	94.4			25.6			9.9			84.4		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	75.5			35.5			14.5			56.5		
Max Q Clear Time (g_c+I1), s	8.1			17.1			5.2			17.6		
Green Ext Time (p_c), s	7.2			1.2			0.3			9.8		
Intersection Summary												
HCM 6th Ctrl Delay	14.3											
HCM 6th LOS	B											

Timings 4: Potomac St & E 2nd Avenue

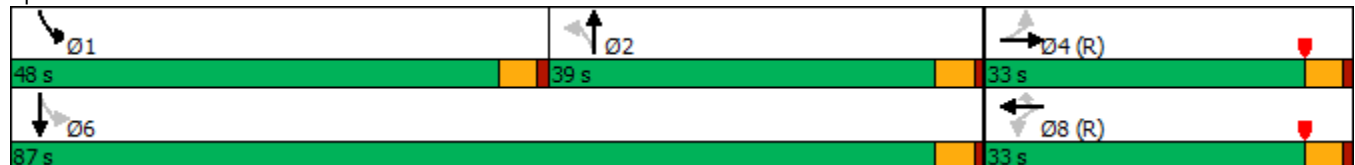
2045 Background
PM Peak

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	20	105	80	65	325	70	555	595	985
Future Volume (vph)	20	105	80	65	325	70	555	595	985
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	33.0	33.0	33.0	33.0	33.0	39.0	39.0	48.0	87.0
Total Split (%)	27.5%	27.5%	27.5%	27.5%	27.5%	32.5%	32.5%	40.0%	72.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	Max
Act Effct Green (s)		28.5		28.5	28.5	39.8	39.8	82.5	82.5
Actuated g/C Ratio		0.24		0.24	0.24	0.33	0.33	0.69	0.69
v/c Ratio		0.41		0.55	0.55	0.47	0.58	0.91	0.45
Control Delay		39.7		37.6	7.7	46.7	36.4	38.8	9.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		39.7		37.6	7.7	46.7	36.4	38.8	9.2
LOS		D		D	A	D	D	D	A
Approach Delay		39.7		16.9			37.4		20.2
Approach LOS		D		B			D		C

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 24.8
Intersection Capacity Utilization 81.8%
Analysis Period (min) 15
Intersection LOS: C
ICU Level of Service D


Splits and Phases: 4: Potomac St & E 2nd Avenue



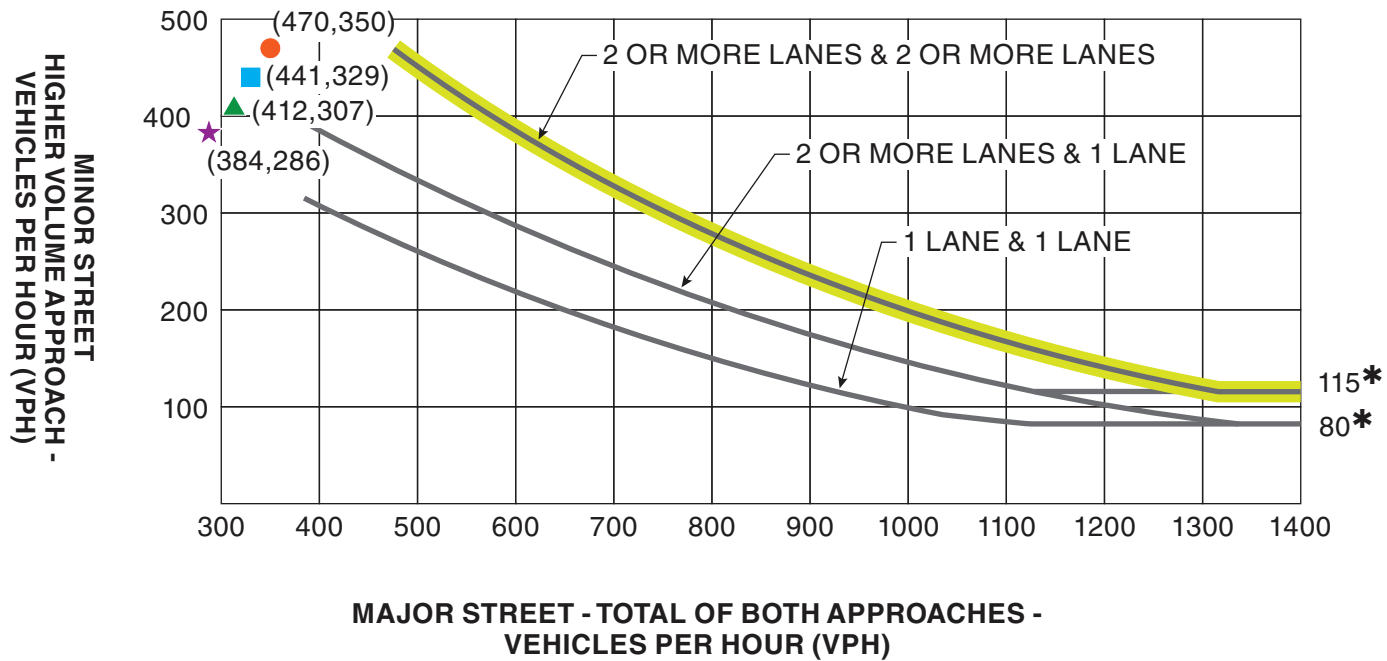
HCM 6th Signalized Intersection Summary

4: Potomac St & E 2nd Avenue

2045 Background
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Traffic Volume (veh/h)	20	105	30	80	65	325	70	555	70	595	985	25
Future Volume (veh/h)	20	105	30	80	65	325	70	555	70	595	985	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	114	33	87	71	353	76	603	76	647	1071	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	304	81	218	165	376	275	1330	167	686	2435	61
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.42	0.42	0.42	0.23	0.69	0.69
Sat Flow, veh/h	134	1281	343	720	695	1585	514	3176	399	1781	3542	89
Grp Volume(v), veh/h	169	0	0	158	0	353	76	337	342	647	537	561
Grp Sat Flow(s),veh/h/ln	1757	0	0	1415	0	1585	514	1777	1798	1781	1777	1854
Q Serve(g_s), s	0.0	0.0	0.0	2.7	0.0	26.2	12.1	16.3	16.4	23.6	16.3	16.3
Cycle Q Clear(g_c), s	9.4	0.0	0.0	12.1	0.0	26.2	12.1	16.3	16.4	23.6	16.3	16.3
Prop In Lane	0.13		0.20	0.55		1.00	1.00		0.22	1.00		0.05
Lane Grp Cap(c), veh/h	451	0	0	382	0	376	275	744	753	686	1222	1275
V/C Ratio(X)	0.37	0.00	0.00	0.41	0.00	0.94	0.28	0.45	0.45	0.94	0.44	0.44
Avail Cap(c_a), veh/h	451	0	0	382	0	376	275	744	753	921	1222	1275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.80	0.00	0.80	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	0.0	0.0	39.4	0.0	44.9	23.8	25.0	25.0	16.9	8.4	8.4
Incr Delay (d2), s/veh	2.4	0.0	0.0	2.6	0.0	28.5	2.5	2.0	2.0	14.6	1.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.0	0.0	0.0	7.4	0.0	18.5	3.0	11.7	11.8	17.1	10.3	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.9	0.0	0.0	42.0	0.0	73.4	26.3	27.0	27.0	31.6	9.6	9.5
LnGrp LOS	D	A	A	D	A	E	C	C	C	C	A	A
Approach Vol, veh/h		169			511			755			1745	
Approach Delay, s/veh		40.9			63.7			26.9			17.7	
Approach LOS		D			E			C			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	32.2	54.8		33.0		87.0		33.0				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	43.5	34.5		28.5		82.5		28.5				
Max Q Clear Time (g_c+I1), s	25.6	18.4		11.4		18.3		28.2				
Green Ext Time (p_c), s	2.2	4.7		0.8		9.7		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			28.5									
HCM 6th LOS			C									

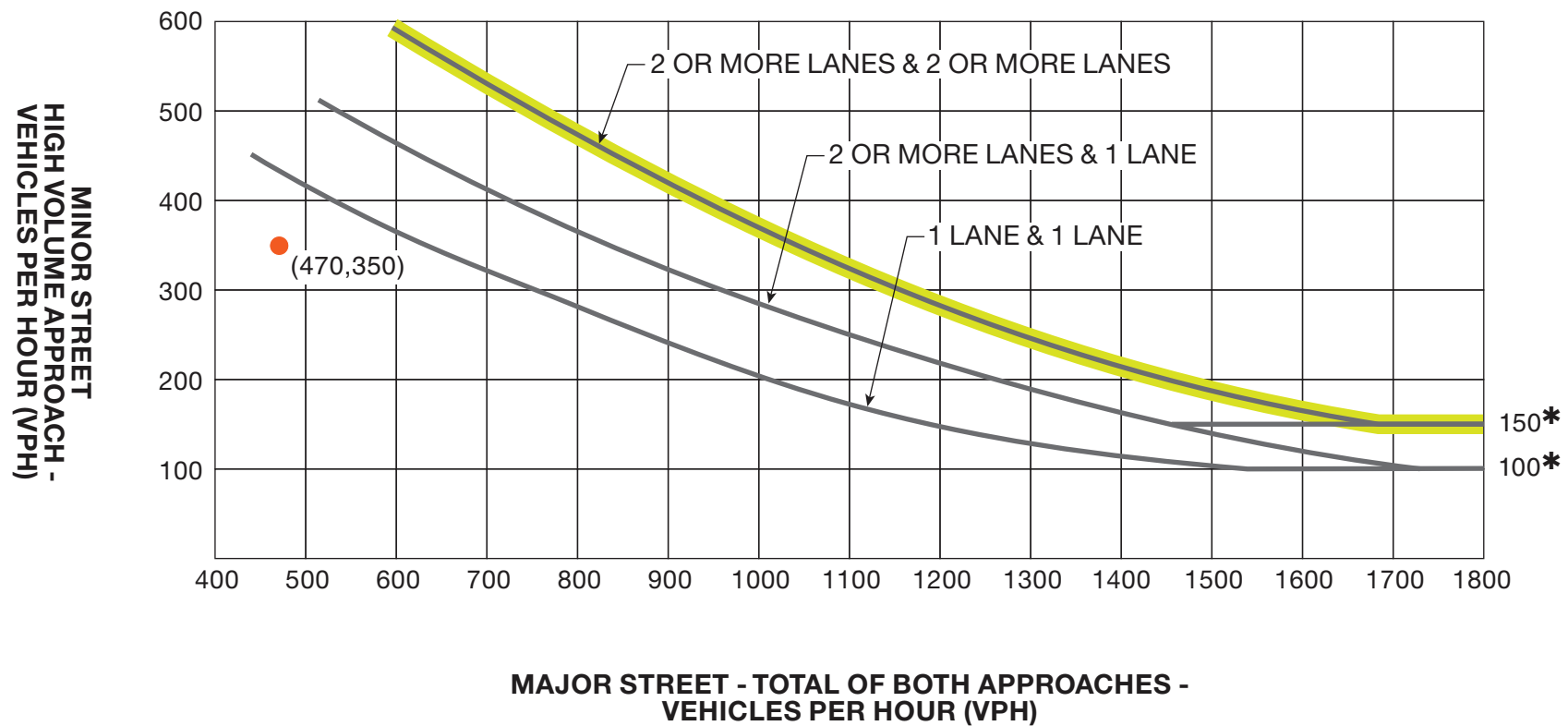
APPENDIX D. SIGNAL WARRANT WORKSHEETS



* Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor street approach with one lane.

LEGEND

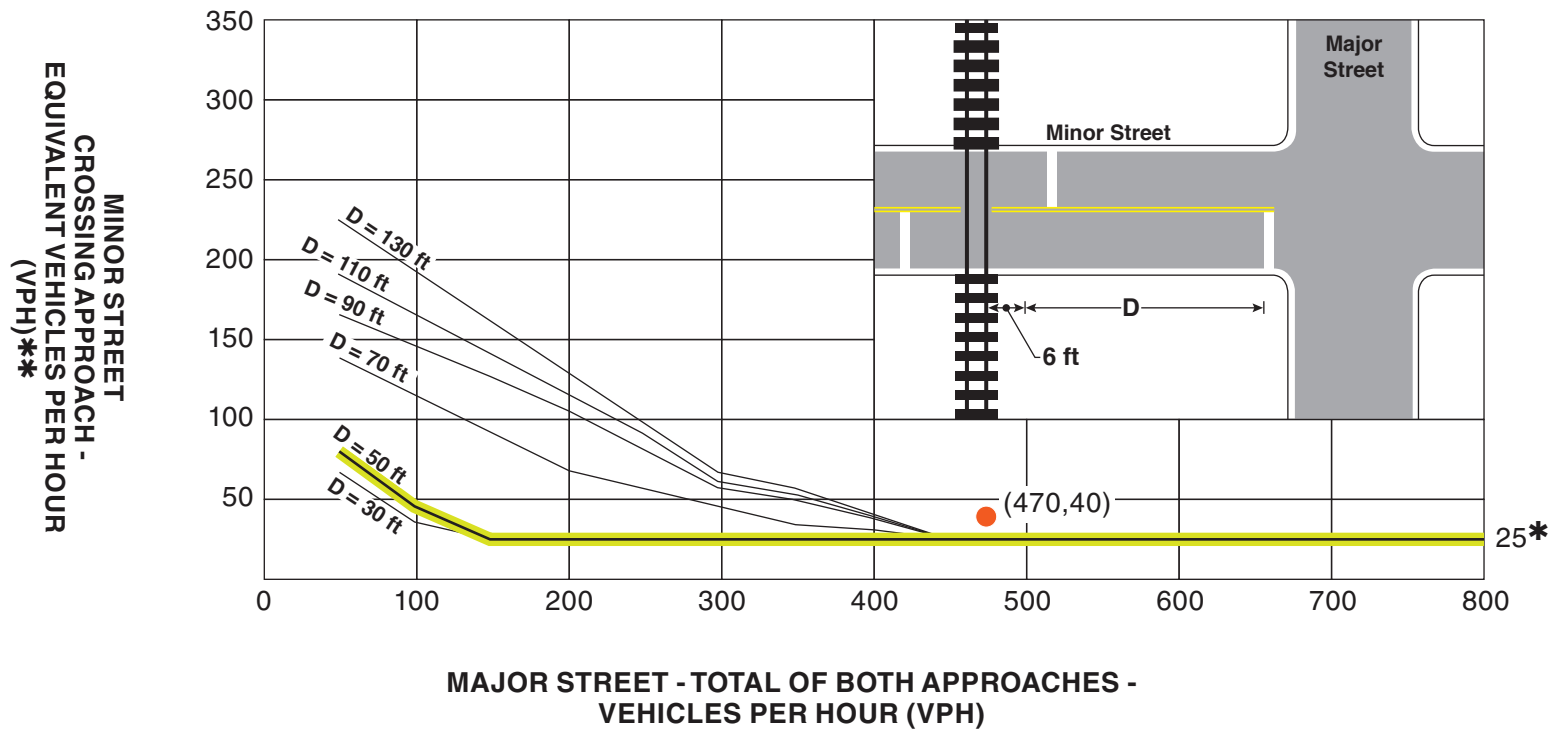
- = 7:00am-8:00am
- = 5:00pm-6:00pm
- ▲ = 4:00pm-5:00pm
- ★ = 3:00pm-4:00pm



* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

LEGEND

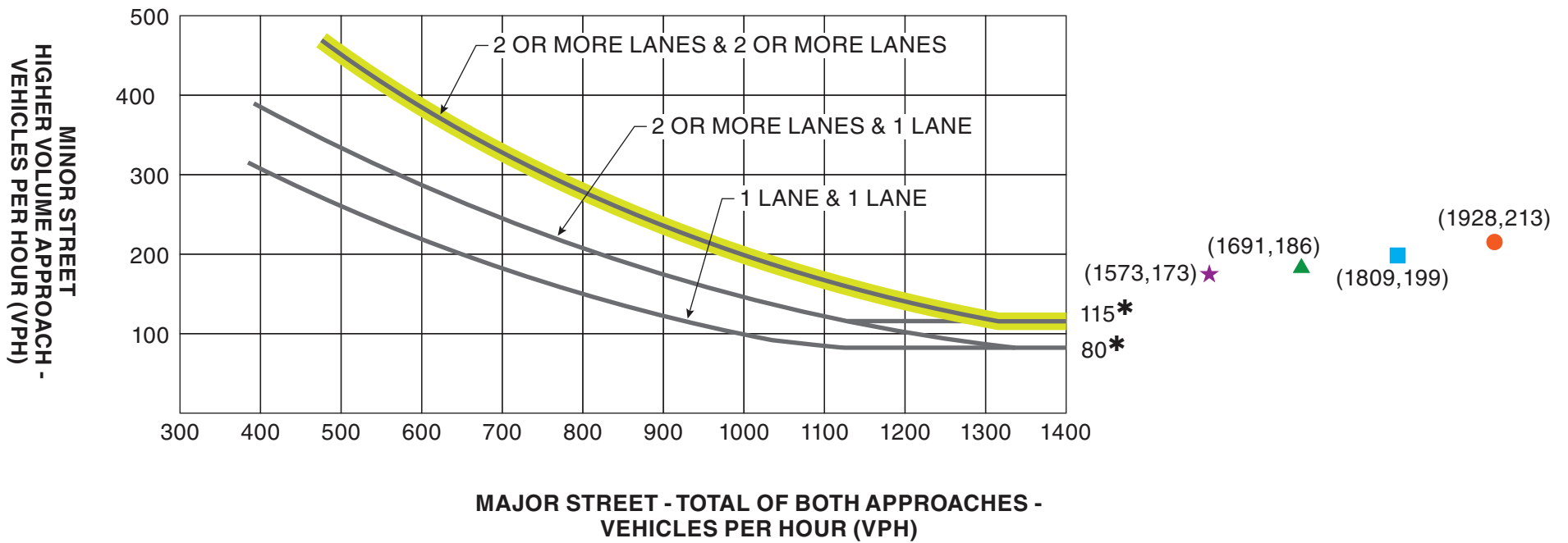
● = 7:00pm - 8:00pm



- * 25 vph applies as the lower threshold volume
- ** VPH after applying the adjustment factors in Tables 4C-2, 4C-3, and/or 4C-4, if appropriate

LEGEND

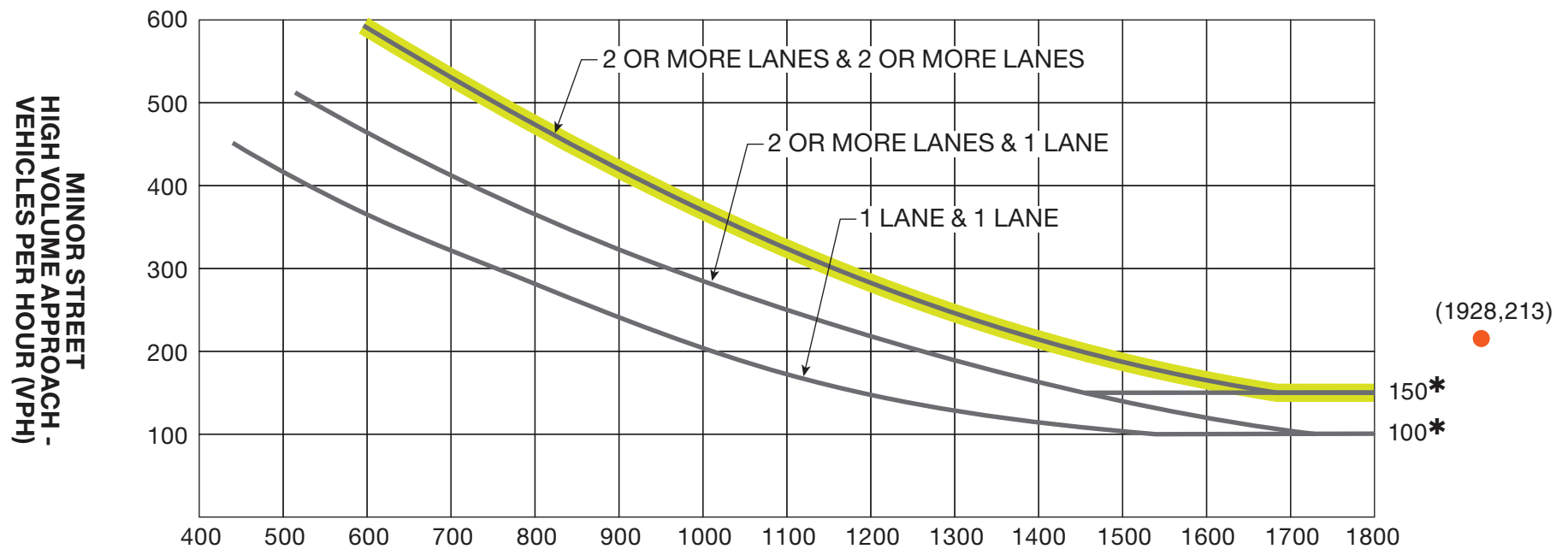
● = 7:00pm - 8:00pm



* Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor street approach with one lane.

LEGEND

- = 7:00am-8:00am
- = 5:00pm-6:00pm
- ▲ = 4:00pm-5:00pm
- ★ = 3:00pm-4:00pm

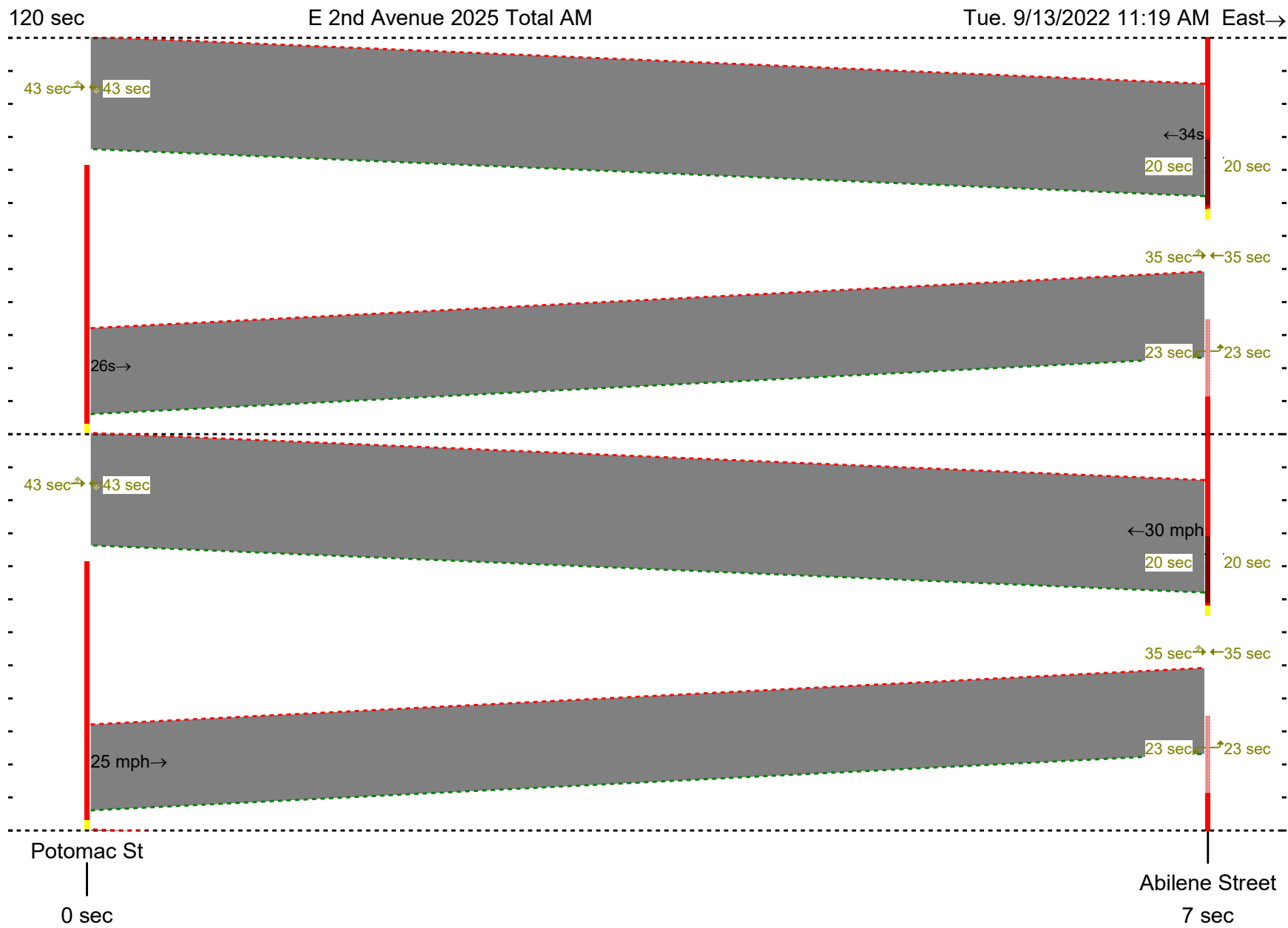


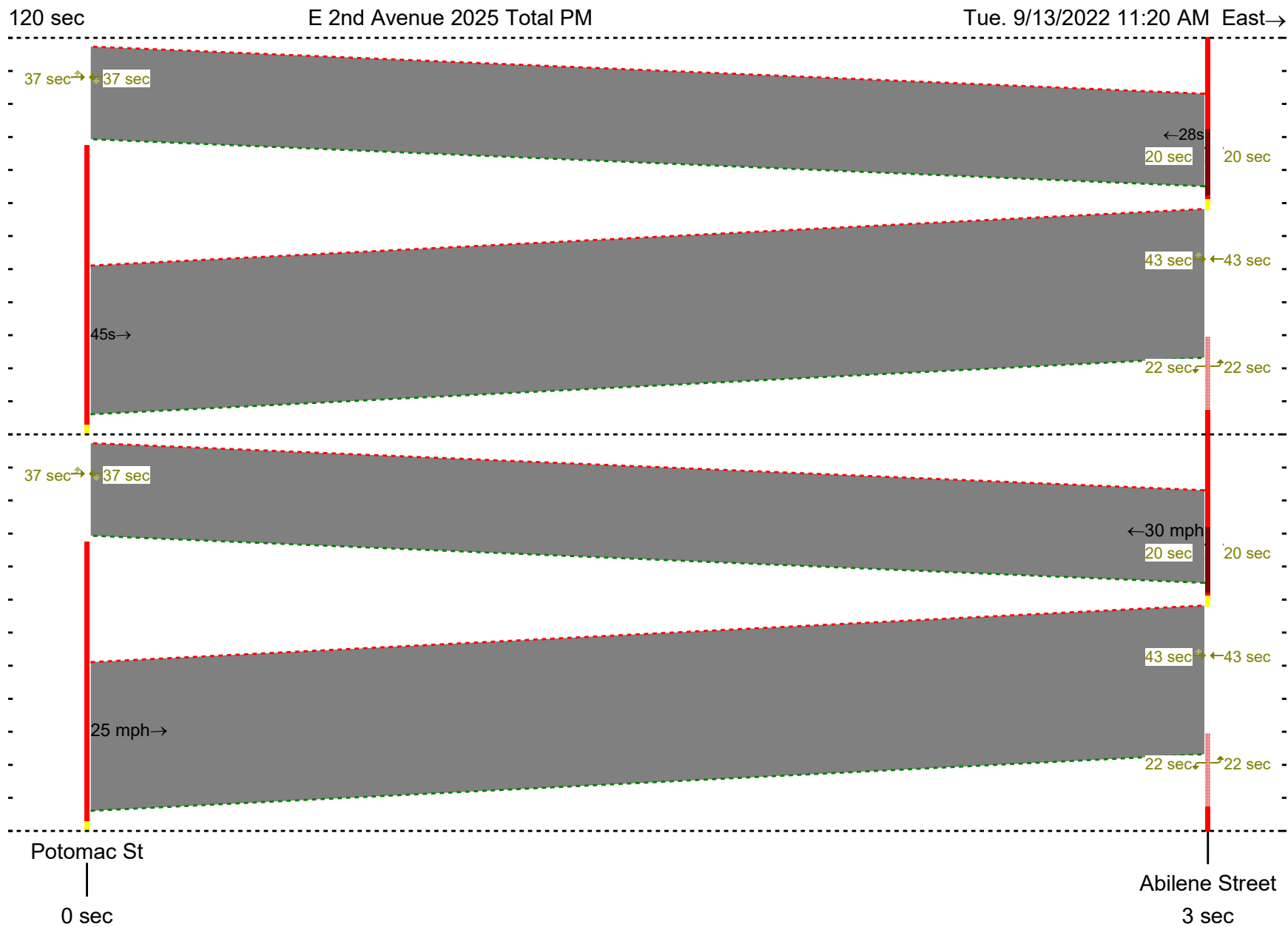
* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

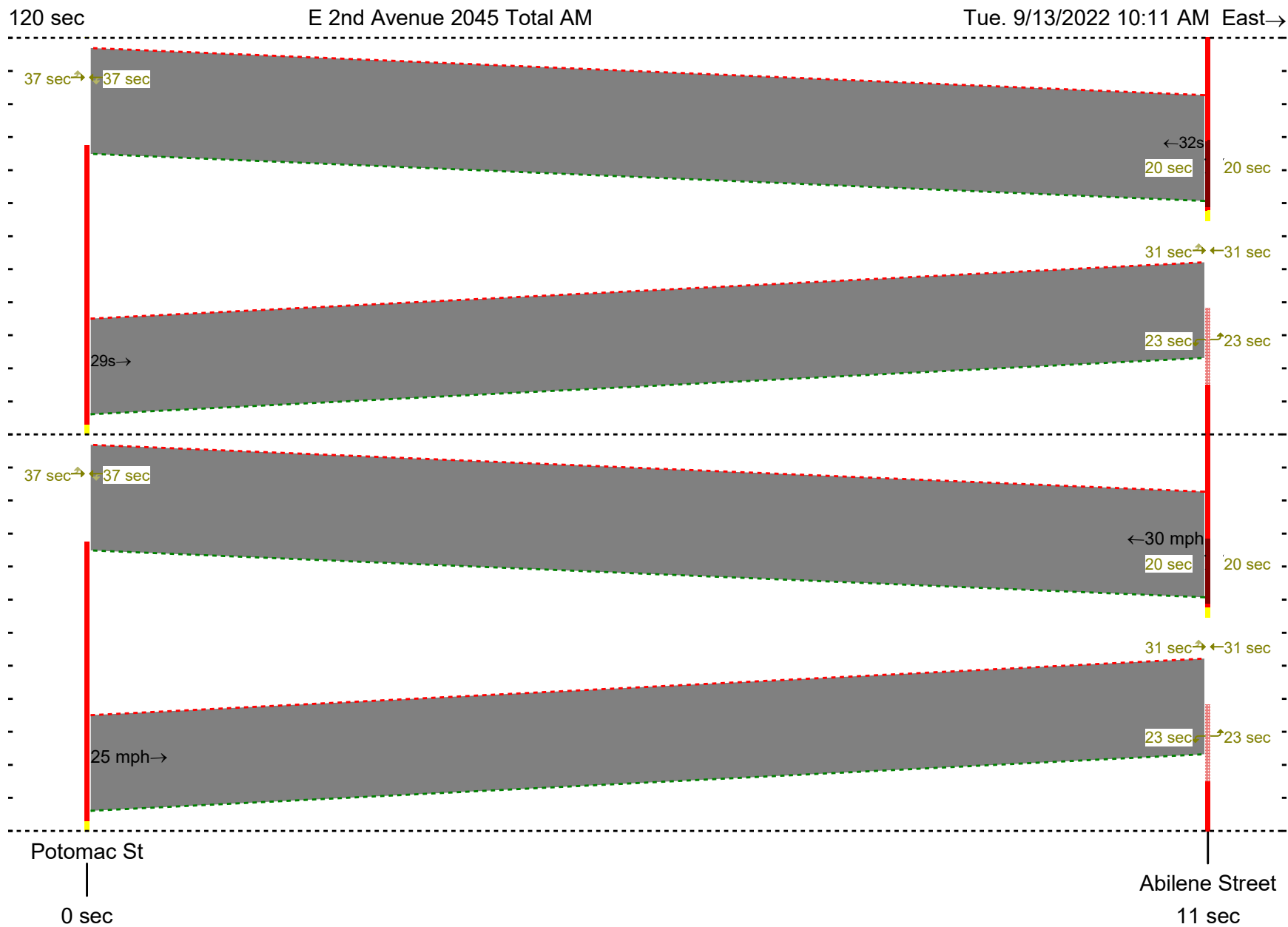
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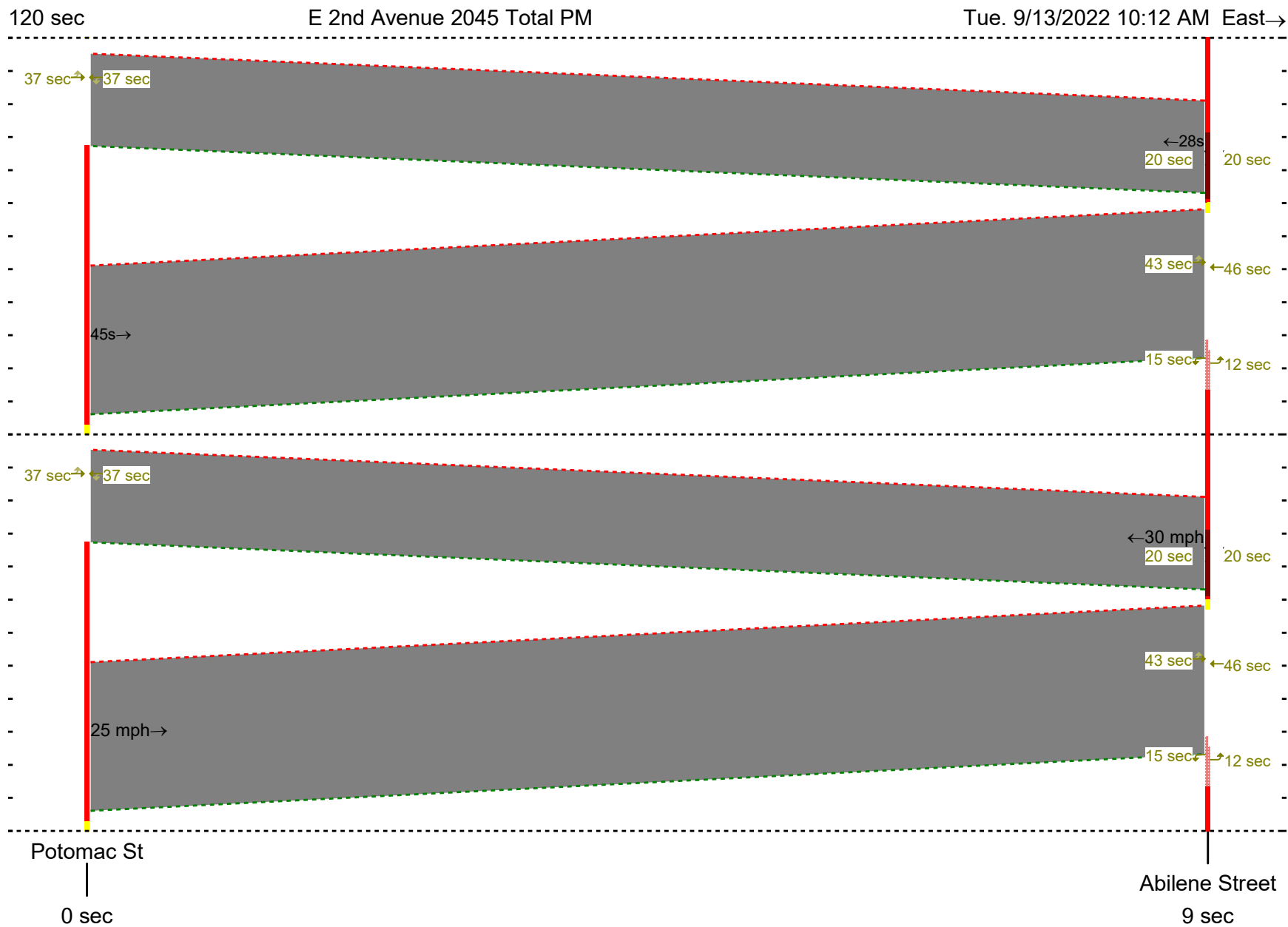
● = 7:00pm - 8:00pm

APPENDIX E. TIME SPACE DIAGRAMMS FOR 2ND AVENUE



























APPENDIX F. TOTAL LOS WORKSHEETS

Timings

1: Abilene Street & E 2nd Avenue









2025 Total
AM Peak

												
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	Ø5	Ø10	Ø14
Lane Configurations												
Traffic Volume (vph)	96	68	74	59	205	37	57	7	45			
Future Volume (vph)	96	68	74	59	205	37	57	7	45			
Turn Type	pm+pt	NA	Prot	NA	custom	NA	custom	Perm	NA			
Protected Phases	7	4	3	8	5 10	2 10			6	5	10	14
Permitted Phases	4				2		2	6				
Detector Phase	7	4	3	8	5 10	2 10	2	6	6			
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5			22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	23.0	35.0	23.0	35.0			42.0	24.0	24.0	18.0	20.0	20.0
Total Split (%)	19.2%	29.2%	19.2%	29.2%			35.0%	20.0%	20.0%	15%	17%	17%
Yellow Time (s)	3.5	3.5	3.5	3.5			3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0			0.0	0.0	0.0			
Total Lost Time (s)	4.5	4.5	4.5	4.5			4.5	4.5	4.5			
Lead/Lag	Lead	Lag	Lead	Lag				Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				Yes	Yes	Yes		
Recall Mode	None	None	None	None			C-Max	C-Max	C-Max	None	None	None
Act Effect Green (s)	30.4	18.2	11.5	17.7	76.8	76.8	58.5	47.7	47.7			
Actuated g/C Ratio	0.25	0.15	0.10	0.15	0.64	0.64	0.49	0.40	0.40			
v/c Ratio	0.33	0.78	0.54	0.28	0.33	0.04	0.09	0.14	0.23			
Control Delay	36.6	49.9	61.9	44.1	12.1	10.8	3.0	40.4	18.2			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay	36.6	49.9	61.9	44.1	12.1	10.8	3.0	40.4	18.2			
LOS	D	D	E	D	B	B	A	D	B			
Approach Delay		45.6		53.8		10.2			19.4			
Approach LOS		D		D		B			B			

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 30.6	Intersection LOS: C
Intersection Capacity Utilization 50.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Abilene Street & E 2nd Avenue

 Ø2 (R)	 Ø3	 Ø4	 Ø10
42 s	23 s	35 s	20 s
 Ø5	 Ø7	 Ø8	 Ø14
18 s	24 s	35 s	20 s

Queues

2025 Total

1: Abilene Street & E 2nd Avenue






AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	120	254	93	79	256	46	71	9	167
v/c Ratio	0.33	0.78	0.54	0.28	0.33	0.04	0.09	0.14	0.23
Control Delay	36.6	49.9	61.9	44.1	12.1	10.8	3.0	40.4	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	49.9	61.9	44.1	12.1	10.8	3.0	40.4	18.2
Queue Length 50th (ft)	67	101	70	53	78	12	0	4	46
Queue Length 95th (ft)	78	171	106	81	136	31	12	21	104
Internal Link Dist (ft)		553		400		668			1185
Turn Bay Length (ft)	275		50		100		100	150	
Base Capacity (vph)	422	489	278	480	818	1140	791	64	722
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.52	0.33	0.16	0.31	0.04	0.09	0.14	0.23
Intersection Summary									









HCM 6th TWSC
2: Blackhawk Street & Abilene Street/E 4th Avenue

2025 Total
AM Peak

Intersection								
Int Delay, s/veh	5.2							
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Vol, veh/h	124	13	136	127	14	164		
Future Vol, veh/h	124	13	136	127	14	164		
Conflicting Peds, #/hr	0	0	0	0	0	0		
Sign Control	Free	Free	Free	Free	Stop	Stop		
RT Channelized	-	None	-	None	-	None		
Storage Length	-	-	100	-	50	0		
Veh in Median Storage, #	0	-	-	0	0	-		
Grade, %	0	-	-	0	0	-		
Peak Hour Factor	80	80	80	80	80	80		
Heavy Vehicles, %	1	1	1	1	1	1		
Mvmt Flow	155	16	170	159	18	205		
Major/Minor	Major1		Major2		Minor1			
Conflicting Flow All	0	0	171	0	662	163		
Stage 1	-	-	-	-	163	-		
Stage 2	-	-	-	-	499	-		
Critical Hdwy	-	-	4.11	-	6.41	6.21		
Critical Hdwy Stg 1	-	-	-	-	5.41	-		
Critical Hdwy Stg 2	-	-	-	-	5.41	-		
Follow-up Hdwy	-	-	2.209	-	3.509	3.309		
Pot Cap-1 Maneuver	-	-	1412	-	428	884		
Stage 1	-	-	-	-	869	-		
Stage 2	-	-	-	-	612	-		
Platoon blocked, %	-	-		-				
Mov Cap-1 Maneuver	-	-	1412	-	377	884		
Mov Cap-2 Maneuver	-	-	-	-	377	-		
Stage 1	-	-	-	-	869	-		
Stage 2	-	-	-	-	539	-		
Approach	EB		WB		NB			
HCM Control Delay, s	0		4.1		10.7			
HCM LOS	B							
Minor Lane/Major Mvmt	NBLn1		NBLn2		EBT	EBR	WBL	WBT
Capacity (veh/h)	377		884		-	-	1412	-
HCM Lane V/C Ratio	0.046		0.232		-	-	0.12	-
HCM Control Delay (s)	15		10.3		-	-	7.9	-
HCM Lane LOS	C		B		-	-	A	-
HCM 95th %tile Q(veh)	0.1		0.9		-	-	0.4	-

HCM 6th TWSC
3: Sable Blvd & E 4th Avenue

2025 Total
AM Peak

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	5	82	10	5	20	173	505	15	25	315	123
Future Vol, veh/h	87	5	82	10	5	20	173	505	15	25	315	123
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	-	75	-	-	75	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	95	5	89	11	5	22	188	549	16	27	342	134


















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	994	1337	171	1161	1463	283	476	0	0	565	0	0
Stage 1	396	396	-	933	933	-	-	-	-	-	-	-
Stage 2	598	941	-	228	530	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	226	152	843	176	127	609	1082	-	-	631	-	-
Stage 1	581	602	-	227	343	-	-	-	-	-	-	-
Stage 2	428	340	-	727	525	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	176	120	843	128	100	609	1082	-	-	631	-	-
Mov Cap-2 Maneuver	176	120	-	128	100	-	-	-	-	-	-	-
Stage 1	480	576	-	188	283	-	-	-	-	-	-	-
Stage 2	334	281	-	616	502	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	29.4		25.1		2.3		0.6	
HCM LOS	D		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1082	-	-	176	626	217	631	-	-
HCM Lane V/C Ratio	0.174	-	-	0.537	0.151	0.175	0.043	-	-
HCM Control Delay (s)	9	-	-	47	11.8	25.1	11	-	-
HCM Lane LOS	A	-	-	E	B	D	B	-	-
HCM 95th %tile Q(veh)	0.6	-	-	2.7	0.5	0.6	0.1	-	-

Timings 3: Sable Blvd & E 4th Avenue

2025 Total
AM Peak

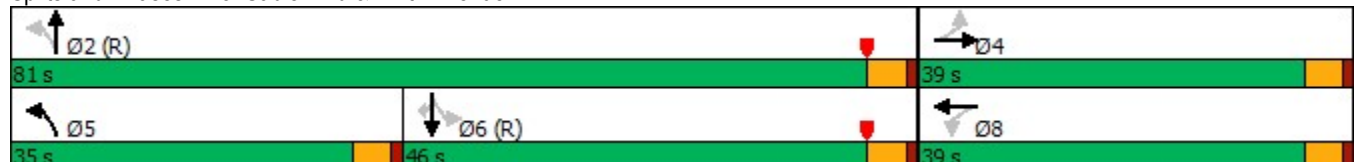
									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	87	5	10	5	173	505	25	315	123
Future Volume (vph)	87	5	10	5	173	505	25	315	123
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	39.0	39.0	39.0	39.0	35.0	81.0	46.0	46.0	46.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	29.2%	67.5%	38.3%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead		Lag	Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	13.7	13.7		13.7	97.3	97.3	84.4	84.4	84.4
Actuated g/C Ratio	0.11	0.11		0.11	0.81	0.81	0.70	0.70	0.70
v/c Ratio	0.54	0.36		0.19	0.22	0.14	0.05	0.14	0.12
Control Delay	60.0	16.7		27.2	3.5	2.7	7.3	6.7	1.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.0	16.7		27.2	3.5	2.7	7.3	6.7	1.6
LOS	E	B		C	A	A	A	A	A
Approach Delay		38.5		27.2		2.9		5.4	
Approach LOS		D		C		A		A	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 8.9
 Intersection Capacity Utilization 41.0%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A






















Splits and Phases: 3: Sable Blvd & E 4th Avenue



HCM 6th Signalized Intersection Summary

















3: Sable Blvd & E 4th Avenue

2025 Total
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	5	82	10	5	20	173	505	15	25	315	123
Future Volume (veh/h)	87	5	82	10	5	20	173	505	15	25	315	123
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	5	89	11	5	22	188	549	16	27	342	134
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	9	152	58	34	74	882	4205	122	688	2641	1178
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.04	0.82	0.82	0.74	0.74	0.74
Sat Flow, veh/h	1383	85	1513	194	342	736	1781	5100	148	846	3554	1585
Grp Volume(v), veh/h	95	0	94	38	0	0	188	366	199	27	342	134
Grp Sat Flow(s),veh/h/ln	1383	0	1598	1271	0	0	1781	1702	1844	846	1777	1585
Q Serve(g_s), s	2.5	0.0	6.7	0.1	0.0	0.0	2.8	2.5	2.5	1.0	3.3	2.8
Cycle Q Clear(g_c), s	9.3	0.0	6.7	6.8	0.0	0.0	2.8	2.5	2.5	1.0	3.3	2.8
Prop In Lane	1.00		0.95	0.29		0.58	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	185	0	160	166	0	0	882	2807	1520	688	2641	1178
V/C Ratio(X)	0.51	0.00	0.59	0.23	0.00	0.00	0.21	0.13	0.13	0.04	0.13	0.11
Avail Cap(c_a), veh/h	444	0	459	451	0	0	1256	2807	1520	688	2641	1178
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.9	0.0	51.6	49.7	0.0	0.0	2.7	2.1	2.1	4.1	4.4	4.3
Incr Delay (d2), s/veh	2.2	0.0	3.4	0.7	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.2	0.0	5.1	2.0	0.0	0.0	1.4	1.2	1.3	0.3	2.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	0.0	55.0	50.4	0.0	0.0	2.8	2.2	2.2	4.2	4.5	4.5
LnGrp LOS	E	A	D	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h	189			38			753			503		
Approach Delay, s/veh	55.0			50.4			2.4			4.5		
Approach LOS	E			D			A			A		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	103.5			16.5		9.8	93.7		16.5			
Change Period (Y+Rc), s	4.5			4.5		4.5	4.5		4.5			
Max Green Setting (Gmax), s	76.5			34.5		30.5	41.5		34.5			
Max Q Clear Time (g_c+I1), s	4.5			11.3		4.8	5.3		8.8			
Green Ext Time (p_c), s	4.1			0.8		0.5	3.1		0.1			
Intersection Summary												
HCM 6th Ctrl Delay	11.0											
HCM 6th LOS	B											

Timings 4: Potomac St & E 2nd Avenue


2025 Total
AM Peak

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	20	57	68	49	281	15	540	210	330
Future Volume (vph)	20	57	68	49	281	15	540	210	330
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	43.0	43.0	43.0	43.0	43.0	47.0	47.0	30.0	77.0
Total Split (%)	35.8%	35.8%	35.8%	35.8%	35.8%	39.2%	39.2%	25.0%	64.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	Max
Act Effect Green (s)		38.5		38.5	38.5	55.4	55.4	72.5	72.5
Actuated g/C Ratio		0.32		0.32	0.32	0.46	0.46	0.60	0.60
v/c Ratio		0.22		0.27	0.43	0.04	0.43	0.51	0.17
Control Delay		26.0		24.8	6.1	19.4	22.5	15.1	10.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		26.0		24.8	6.1	19.4	22.5	15.1	10.6
LOS		C		C	A	B	C	B	B
Approach Delay		26.0		11.6			22.5		12.3
Approach LOS		C		B			C		B

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 16.9
Intersection Capacity Utilization 53.9%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service A


Splits and Phases: 4: Potomac St & E 2nd Avenue

 Ø1	 Ø2	 Ø4 (R)
30 s	47 s	43 s
 Ø6		 Ø8 (R)
77 s		43 s

HCM 6th Signalized Intersection Summary

4: Potomac St & E 2nd Avenue



















2025 Total
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Traffic Volume (veh/h)	20	57	35	68	49	281	15	540	98	210	330	10
Future Volume (veh/h)	20	57	35	68	49	281	15	540	98	210	330	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	62	38	74	53	305	16	587	107	228	359	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	285	160	318	216	509	550	1454	264	476	2127	65
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.48	0.48	0.48	0.08	0.60	0.60
Sat Flow, veh/h	215	888	499	844	674	1585	1012	3003	546	1781	3520	108
Grp Volume(v), veh/h	122	0	0	127	0	305	16	347	347	228	181	189
Grp Sat Flow(s),veh/h/ln	1602	0	0	1518	0	1585	1012	1777	1772	1781	1777	1851
Q Serve(g_s), s	0.0	0.0	0.0	0.7	0.0	19.4	1.0	15.0	15.1	7.3	5.4	5.4
Cycle Q Clear(g_c), s	6.0	0.0	0.0	6.7	0.0	19.4	1.0	15.0	15.1	7.3	5.4	5.4
Prop In Lane	0.18		0.31	0.58		1.00	1.00		0.31	1.00		0.06
Lane Grp Cap(c), veh/h	550	0	0	535	0	509	550	860	858	476	1074	1118
V/C Ratio(X)	0.22	0.00	0.00	0.24	0.00	0.60	0.03	0.40	0.40	0.48	0.17	0.17
Avail Cap(c_a), veh/h	550	0	0	535	0	509	550	860	858	707	1074	1118
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.96	0.00	0.96	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.7	0.0	0.0	29.9	0.0	34.3	16.2	19.8	19.9	13.7	10.5	10.5
Incr Delay (d2), s/veh	0.9	0.0	0.0	1.0	0.0	5.0	0.1	1.4	1.4	0.7	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.0	0.0	0.0	5.1	0.0	12.7	0.4	10.7	10.7	5.3	3.9	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.7	0.0	0.0	30.9	0.0	39.2	16.3	21.2	21.3	14.4	10.8	10.8
LnGrp LOS	C	A	A	C	A	D	B	C	C	B	B	B
Approach Vol, veh/h		122			432			710			598	
Approach Delay, s/veh		30.7			36.8			21.1			12.2	
Approach LOS		C			D			C			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	14.4	62.6		43.0		77.0		43.0				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	25.5	42.5		38.5		72.5		38.5				
Max Q Clear Time (g_c+I1), s	9.3	17.1		8.0		7.4		21.4				
Green Ext Time (p_c), s	0.6	4.7		0.8		2.4		1.7				
Intersection Summary												
HCM 6th Ctrl Delay			22.5									
HCM 6th LOS			C									

Timings

1: Abilene Street & E 2nd Avenue









2025 Total
PM Peak

												
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	Ø5	Ø10	Ø14
Lane Configurations												
Traffic Volume (vph)	109	67	56	56	280	76	73	4	68			
Future Volume (vph)	109	67	56	56	280	76	73	4	68			
Turn Type	pm+pt	NA	Prot	NA	custom	NA	custom	Perm	NA			
Protected Phases	7	4	3	8	5 10	2 10			6	5	10	14
Permitted Phases	4				2		2	6				
Detector Phase	7	4	3	8	5 10	2 10	2	6	6			
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5			22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.0	43.0	22.0	43.0			35.0	23.0	23.0	12.0	20.0	20.0
Total Split (%)	18.3%	35.8%	18.3%	35.8%			29.2%	19.2%	19.2%	10%	17%	17%
Yellow Time (s)	3.5	3.5	3.5	3.5			3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0			0.0	0.0	0.0			
Total Lost Time (s)	4.5	4.5	4.5	4.5			4.5	4.5	4.5			
Lead/Lag	Lead	Lag	Lead	Lag				Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				Yes	Yes	Yes		
Recall Mode	None	None	None	None			C-Max	C-Max	C-Max	None	None	None
Act Effect Green (s)	46.6	37.3	10.0	33.1	61.3	61.3	41.0	29.6	29.6			
Actuated g/C Ratio	0.39	0.31	0.08	0.28	0.51	0.51	0.34	0.25	0.25			
v/c Ratio	0.26	0.92	0.47	0.14	0.59	0.10	0.16	0.08	0.46			
Control Delay	20.1	34.1	62.5	28.2	25.8	19.2	7.1	48.0	36.6			
Queue Delay	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay	20.1	34.7	62.5	28.2	25.8	19.2	7.1	48.0	36.6			
LOS	C	C	E	C	C	B	A	D	D			
Approach Delay		32.2		44.9		21.4			36.9			
Approach LOS		C		D		C			D			

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 30.4	Intersection LOS: C
Intersection Capacity Utilization 75.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Abilene Street & E 2nd Avenue

 Ø2 (R)	 Ø3	 Ø4	 Ø10
35 s	22 s	43 s	20 s
 Ø5	 Ø6 (R)	 Ø7	 Ø14
12 s	23 s	22 s	43 s
			20 s

Queues

2025 Total

1: Abilene Street & E 2nd Avenue






PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	136	647	70	74	350	95	91	5	214
v/c Ratio	0.26	0.92	0.47	0.14	0.59	0.10	0.16	0.08	0.46
Control Delay	20.1	34.1	62.5	28.2	25.8	19.2	7.1	48.0	36.6
Queue Delay	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	34.7	62.5	28.2	25.8	19.2	7.1	48.0	36.6
Queue Length 50th (ft)	48	79	53	38	178	41	0	3	118
Queue Length 95th (ft)	73	360	87	63	241	70	28	14	173
Internal Link Dist (ft)		553		400		668			1185
Turn Bay Length (ft)	275		50		100		100	150	
Base Capacity (vph)	574	746	263	640	597	924	587	65	467
Starvation Cap Reductn	0	12	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.88	0.27	0.12	0.59	0.10	0.16	0.08	0.46
Intersection Summary									









HCM 6th TWSC
2: Blackhawk Street & Abilene Street/E 4th Avenue

2025 Total
PM Peak

Intersection						
Int Delay, s/veh	4.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	168	20	117	154	21	151
Future Vol, veh/h	168	20	117	154	21	151
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	210	25	146	193	26	189
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	235	0	708	223
Stage 1	-	-	-	-	223	-
Stage 2	-	-	-	-	485	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1332	-	403	819
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	621	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1332	-	359	819
Mov Cap-2 Maneuver	-	-	-	-	359	-
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	553	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	3.5		11.3		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	359	819	-	-	1332	-
HCM Lane V/C Ratio	0.073	0.23	-	-	0.11	-
HCM Control Delay (s)	15.8	10.7	-	-	8	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0.9	-	-	0.4	-

HCM 6th TWSC
3: Sable Blvd & E 4th Avenue

2025 Total
PM Peak

Intersection												
Int Delay, s/veh	12											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	98	5	155	10	5	30	127	755	15	15	615	92
Future Vol, veh/h	98	5	155	10	5	30	127	755	15	15	615	92
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	-	75	-	-	75	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	107	5	168	11	5	33	138	821	16	16	668	100

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1307	1813	334	1474	1905	419	768	0	0	837	0	0
Stage 1	700	700	-	1105	1105	-	-	-	-	-	-	-
Stage 2	607	1113	-	369	800	-	-	-	-	-	-	-
Critical Hdwy	6.99	6.54	6.94	6.99	6.54	7.14	4.14	-	-	5.34	-	-
Critical Hdwy Stg 1	6.54	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.67	4.02	3.32	3.67	4.02	3.92	2.22	-	-	3.12	-	-
Pot Cap-1 Maneuver	140	78	662	108	68	498	842	-	-	469	-	-
Stage 1	385	440	-	172	285	-	-	-	-	-	-	-
Stage 2	422	282	-	602	395	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver ~ 103	63	662	64	55	498	842	-	-	469	-	-	-
Mov Cap-2 Maneuver ~ 103	63	-	64	55	-	-	-	-	-	-	-	-
Stage 1	322	425	-	144	238	-	-	-	-	-	-	-
Stage 2	322	236	-	428	382	-	-	-	-	-	-	-


















Approach	EB	WB	NB	SB
HCM Control Delay, s	76.4	41.6	1.4	0.3
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	842	-	-	103	510	146	469	-	-
HCM Lane V/C Ratio	0.164	-	-	1.034	0.341	0.335	0.035	-	-
HCM Control Delay (s)	10.1	-	-	175.4	15.7	41.6	13	-	-
HCM Lane LOS	B	-	-	F	C	E	B	-	-
HCM 95th %tile Q(veh)	0.6	-	-	6.5	1.5	1.4	0.1	-	-

Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon						

Timings 3: Sable Blvd & E 4th Avenue

2025 Total
PM Peak

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	98	5	10	5	127	755	15	615	92
Future Volume (vph)	98	5	10	5	127	755	15	615	92
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	36.0	36.0	36.0	36.0	24.0	84.0	60.0	60.0	60.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	20.0%	70.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead		Lag	Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	14.3	14.3		14.3	96.7	96.7	84.6	84.6	84.6
Actuated g/C Ratio	0.12	0.12		0.12	0.81	0.81	0.70	0.70	0.70
v/c Ratio	0.63	0.51		0.26	0.23	0.20	0.04	0.27	0.09
Control Delay	60.0	12.3		24.8	3.8	3.1	7.3	7.4	1.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.0	12.3		24.8	3.8	3.1	7.3	7.4	1.7
LOS	E	B		C	A	A	A	A	A
Approach Delay		30.6		24.8		3.2		6.6	
Approach LOS		C		C		A		A	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 8.7

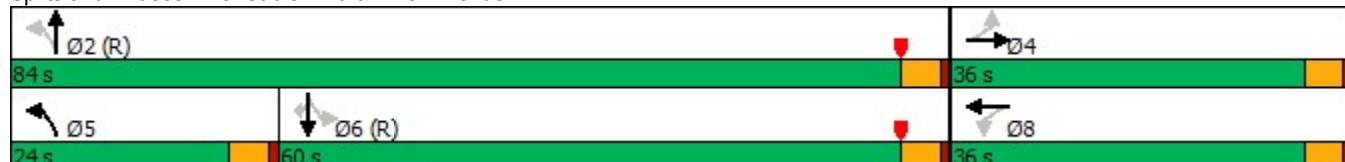
Intersection LOS: A

Intersection Capacity Utilization 47.4%

ICU Level of Service A

Analysis Period (min) 15






















Splits and Phases: 3: Sable Blvd & E 4th Avenue



HCM 6th Signalized Intersection Summary

















3: Sable Blvd & E 4th Avenue

2025 Total
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	5	155	10	5	30	127	755	15	15	615	92
Future Volume (veh/h)	98	5	155	10	5	30	127	755	15	15	615	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	107	5	168	11	5	33	138	821	16	16	668	100
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	200	7	236	53	36	108	570	3983	78	515	2465	1099
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.04	0.77	0.77	0.69	0.69	0.69
Sat Flow, veh/h	1370	46	1546	109	235	710	1781	5156	100	657	3554	1585
Grp Volume(v), veh/h	107	0	173	49	0	0	138	542	295	16	668	100
Grp Sat Flow(s),veh/h/ln	1370	0	1592	1055	0	0	1781	1702	1852	657	1777	1585
Q Serve(g_s), s	2.6	0.0	12.4	0.2	0.0	0.0	2.5	5.2	5.2	0.9	8.5	2.5
Cycle Q Clear(g_c), s	15.2	0.0	12.4	12.6	0.0	0.0	2.5	5.2	5.2	0.9	8.5	2.5
Prop In Lane	1.00		0.97	0.22		0.67	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	200	0	243	198	0	0	570	2629	1431	515	2465	1099
V/C Ratio(X)	0.53	0.00	0.71	0.25	0.00	0.00	0.24	0.21	0.21	0.03	0.27	0.09
Avail Cap(c_a), veh/h	351	0	418	363	0	0	785	2629	1431	515	2465	1099
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.3	0.0	48.3	44.6	0.0	0.0	4.6	3.7	3.7	5.8	6.9	6.0
Incr Delay (d2), s/veh	2.2	0.0	3.8	0.6	0.0	0.0	0.2	0.2	0.3	0.1	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.9	0.0	8.9	2.4	0.0	0.0	1.5	2.9	3.2	0.2	5.6	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.5	0.0	52.2	45.2	0.0	0.0	4.8	3.9	4.0	5.9	7.2	6.2
LnGrp LOS	D	A	D	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h	280			49			975			784		
Approach Delay, s/veh	52.3			45.2			4.1			7.0		
Approach LOS	D			D			A			A		
Timer - Assigned Phs	2			4		5		6		8		
Phs Duration (G+Y+Rc), s	97.2			22.8		9.4		87.7		22.8		
Change Period (Y+Rc), s	4.5			4.5		4.5		4.5		4.5		
Max Green Setting (Gmax), s	79.5			31.5		19.5		55.5		31.5		
Max Q Clear Time (g_c+I1), s	7.2			17.2		4.5		10.5		14.6		
Green Ext Time (p_c), s	6.7			1.1		0.3		6.0		0.2		
Intersection Summary												
HCM 6th Ctrl Delay	12.6											
HCM 6th LOS	B											

Timings 4: Potomac St & E 2nd Avenue






2025 Total
PM Peak

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	15	89	73	57	300	50	375	470	660
Future Volume (vph)	15	89	73	57	300	50	375	470	660
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	37.0	37.0	37.0	37.0	37.0	34.0	34.0	49.0	83.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	28.3%	28.3%	40.8%	69.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	Max
Act Effect Green (s)		32.5		32.5	32.5	49.1	49.1	78.5	78.5
Actuated g/C Ratio		0.27		0.27	0.27	0.41	0.41	0.65	0.65
v/c Ratio		0.29		0.38	0.49	0.19	0.34	0.75	0.32
Control Delay		34.1		29.3	5.5	28.9	25.9	17.9	9.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		34.1		29.3	5.5	28.9	25.9	17.9	9.5
LOS		C		C	A	C	C	B	A
Approach Delay		34.1		12.7			26.2		12.9
Approach LOS		C		B			C		B

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 17.1
Intersection Capacity Utilization 63.5%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service B


Splits and Phases: 4: Potomac St & E 2nd Avenue

 Ø1	 Ø2	 Ø4 (R)
49 s	34 s	37 s
 Ø6		 Ø8 (R)
83 s		37 s

HCM 6th Signalized Intersection Summary

4: Potomac St & E 2nd Avenue



















2025 Total
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Traffic Volume (veh/h)	15	89	25	73	57	300	50	375	67	470	660	20
Future Volume (veh/h)	15	89	25	73	57	300	50	375	67	470	660	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	97	27	79	62	326	54	408	73	511	717	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	354	92	259	191	429	375	1322	235	697	2303	71
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.44	0.44	0.44	0.18	0.65	0.65
Sat Flow, veh/h	117	1306	340	783	705	1585	720	3015	535	1781	3520	108
Grp Volume(v), veh/h	140	0	0	141	0	326	54	239	242	511	362	377
Grp Sat Flow(s),veh/h/ln	1763	0	0	1487	0	1585	720	1777	1774	1781	1777	1851
Q Serve(g_s), s	0.0	0.0	0.0	1.6	0.0	22.7	5.5	10.5	10.6	17.7	10.6	10.6
Cycle Q Clear(g_c), s	7.3	0.0	0.0	9.0	0.0	22.7	5.5	10.5	10.6	17.7	10.6	10.6
Prop In Lane	0.11		0.19	0.56		1.00	1.00		0.30	1.00		0.06
Lane Grp Cap(c), veh/h	511	0	0	450	0	429	375	779	778	697	1162	1211
V/C Ratio(X)	0.27	0.00	0.00	0.31	0.00	0.76	0.14	0.31	0.31	0.73	0.31	0.31
Avail Cap(c_a), veh/h	511	0	0	450	0	429	375	779	778	1040	1162	1211
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.85	0.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.6	0.0	0.0	35.0	0.0	40.2	20.5	21.9	21.9	12.8	9.0	9.0
Incr Delay (d2), s/veh	1.3	0.0	0.0	1.5	0.0	10.3	0.8	1.0	1.0	1.5	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.2	0.0	0.0	6.3	0.0	14.8	1.8	8.1	8.2	11.3	7.5	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.9	0.0	0.0	36.6	0.0	50.4	21.3	22.9	23.0	14.3	9.7	9.7
LnGrp LOS	D	A	A	D	A	D	C	C	C	B	A	A
Approach Vol, veh/h		140			467			535			1250	
Approach Delay, s/veh		35.9			46.3			22.8			11.6	
Approach LOS		D			D			C			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	25.9	57.1		37.0		83.0		37.0				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	44.5	29.5		32.5		78.5		32.5				
Max Q Clear Time (g_c+I1), s	19.7	12.6		9.3		12.6		24.7				
Green Ext Time (p_c), s	1.7	3.1		0.7		5.4		1.3				
Intersection Summary												
HCM 6th Ctrl Delay			22.3									
HCM 6th LOS			C									

Timings

1: Abilene Street & E 2nd Avenue









2045 Total
AM Peak

												
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	Ø5	Ø10	Ø14
Lane Configurations												
Traffic Volume (vph)	166	83	94	74	245	72	72	7	95			
Future Volume (vph)	166	83	94	74	245	72	72	7	95			
Turn Type	pm+pt	NA	Prot	NA	custom	NA	custom	Perm	NA			
Protected Phases	7	4	3	8	5 10	2 10			6	5	10	14
Permitted Phases	4				2		2	6				
Detector Phase	7	4	3	8	5 10	2 10	2	6	6			
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5			22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	23.0	31.0	23.0	31.0			46.0	30.0	30.0	16.0	20.0	20.0
Total Split (%)	19.2%	25.8%	19.2%	25.8%			38.3%	25.0%	25.0%	13%	17%	17%
Yellow Time (s)	3.5	3.5	3.5	3.5			3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0			0.0	0.0	0.0			
Total Lost Time (s)	4.5	4.5	4.5	4.5			4.5	4.5	4.5			
Lead/Lag	Lead	Lag	Lead	Lag				Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				Yes	Yes	Yes		
Recall Mode	None	None	None	None			C-Max	C-Max	C-Max	None	None	None
Act Effect Green (s)	35.1	19.9	12.7	17.3	74.0	74.0	55.5	44.0	44.0			
Actuated g/C Ratio	0.29	0.17	0.11	0.14	0.62	0.62	0.46	0.37	0.37			
v/c Ratio	0.48	0.80	0.58	0.34	0.44	0.08	0.11	0.13	0.43			
Control Delay	36.1	51.1	58.6	44.1	14.7	11.8	4.7	41.3	26.8			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay	36.1	51.1	58.6	44.1	14.7	11.8	4.7	41.3	26.8			
LOS	D	D	E	D	B	B	A	D	C			
Approach Delay		44.8		52.0		12.3			27.2			
Approach LOS		D		D		B			C			

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 31.7	Intersection LOS: C
Intersection Capacity Utilization 61.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Abilene Street & E 2nd Avenue

 Ø2 (R)	 Ø3	 Ø4	 Ø10
46 s	23 s	31 s	20 s
 Ø5	 Ø7	 Ø8	 Ø14
16 s	30 s	23 s	20 s

Queues

2045 Total

1: Abilene Street & E 2nd Avenue

AM Peak








Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	195	269	111	92	288	85	85	8	287
v/c Ratio	0.48	0.80	0.58	0.34	0.44	0.08	0.11	0.13	0.43
Control Delay	36.1	51.1	58.6	44.1	14.7	11.8	4.7	41.3	26.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	51.1	58.6	44.1	14.7	11.8	4.7	41.3	26.8
Queue Length 50th (ft)	109	115	84	65	97	25	0	4	111
Queue Length 95th (ft)	126	235	125	101	175	57	25	m18	214
Internal Link Dist (ft)		553		400		668			1185
Turn Bay Length (ft)	275		50		100		100	150	
Base Capacity (vph)	434	431	278	417	680	1089	755	63	671
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.62	0.40	0.22	0.42	0.08	0.11	0.13	0.43

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.


















HCM 6th TWSC
2: Blackhawk Street & Abilene Street/E 4th Avenue

2045 Total
AM Peak

Intersection								
Int Delay, s/veh	5.9							
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Vol, veh/h	219	23	222	232	19	269		
Future Vol, veh/h	219	23	222	232	19	269		
Conflicting Peds, #/hr	0	0	0	0	0	0		
Sign Control	Free	Free	Free	Free	Stop	Stop		
RT Channelized	-	None	-	None	-	None		
Storage Length	-	-	100	-	50	0		
Veh in Median Storage, #	0	-	-	0	0	-		
Grade, %	0	-	-	0	0	-		
Peak Hour Factor	85	85	85	85	85	85		
Heavy Vehicles, %	1	1	1	1	1	1		
Mvmt Flow	258	27	261	273	22	316		
Major/Minor	Major1		Major2		Minor1			
Conflicting Flow All	0	0	285	0	1067	272		
Stage 1	-	-	-	-	272	-		
Stage 2	-	-	-	-	795	-		
Critical Hdwy	-	-	4.11	-	6.41	6.21		
Critical Hdwy Stg 1	-	-	-	-	5.41	-		
Critical Hdwy Stg 2	-	-	-	-	5.41	-		
Follow-up Hdwy	-	-	2.209	-	3.509	3.309		
Pot Cap-1 Maneuver	-	-	1283	-	247	769		
Stage 1	-	-	-	-	776	-		
Stage 2	-	-	-	-	446	-		
Platoon blocked, %	-	-		-				
Mov Cap-1 Maneuver	-	-	1283	-	197	769		
Mov Cap-2 Maneuver	-	-	-	-	197	-		
Stage 1	-	-	-	-	776	-		
Stage 2	-	-	-	-	355	-		
Approach	EB		WB		NB			
HCM Control Delay, s	0		4.2		13.7			
HCM LOS	B							
Minor Lane/Major Mvmt	NBLn1		NBLn2		EBT	EBR	WBL	WBT
Capacity (veh/h)	197		769		-	-	1283	-
HCM Lane V/C Ratio	0.113		0.412		-	-	0.204	-
HCM Control Delay (s)	25.6		12.9		-	-	8.5	-
HCM Lane LOS	D		B		-	-	A	-
HCM 95th %tile Q(veh)	0.4		2		-	-	0.8	-

Timings 3: Sable Blvd & E 4th Avenue

2045 Total
AM Peak

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	95	10	15	10	233	675	30	465	163
Future Volume (vph)	95	10	15	10	233	675	30	465	163
Turn Type	pm+pt	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases	7	4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	16.0	42.0	26.0	26.0	32.0	78.0	46.0	46.0	46.0
Total Split (%)	13.3%	35.0%	21.7%	21.7%	26.7%	65.0%	38.3%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	20.9	20.9		7.9	90.1	90.1	74.7	74.7	74.7
Actuated g/C Ratio	0.17	0.17		0.07	0.75	0.75	0.62	0.62	0.62
v/c Ratio	0.43	0.32		0.44	0.37	0.20	0.08	0.23	0.17
Control Delay	48.1	14.3		42.2	6.8	5.0	12.7	11.7	2.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	14.3		42.2	6.8	5.0	12.7	11.7	2.3
LOS	D	B		D	A	A	B	B	A
Approach Delay		29.9		42.2		5.5		9.4	
Approach LOS		C		D		A		A	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 10.6

Intersection LOS: B

Intersection Capacity Utilization 48.9%

ICU Level of Service A

Analysis Period (min) 15






















Splits and Phases: 3: Sable Blvd & E 4th Avenue



HCM 6th Signalized Intersection Summary

















3: Sable Blvd & E 4th Avenue

2045 Total
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	10	100	15	10	25	233	675	20	30	465	163
Future Volume (veh/h)	95	10	100	15	10	25	233	675	20	30	465	163
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	11	109	16	11	27	253	734	22	33	505	177
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	23	229	57	22	40	721	3914	117	532	2369	1057
Arrive On Green	0.07	0.16	0.16	0.05	0.05	0.05	0.06	0.77	0.77	0.67	0.67	0.67
Sat Flow, veh/h	1781	147	1460	345	439	783	1781	5095	152	708	3554	1585
Grp Volume(v), veh/h	103	0	120	54	0	0	253	490	266	33	505	177
Grp Sat Flow(s),veh/h/ln	1781	0	1608	1567	0	0	1781	1702	1843	708	1777	1585
Q Serve(g_s), s	6.4	0.0	8.2	2.6	0.0	0.0	5.0	4.7	4.7	2.0	6.6	5.0
Cycle Q Clear(g_c), s	6.4	0.0	8.2	4.0	0.0	0.0	5.0	4.7	4.7	2.0	6.6	5.0
Prop In Lane	1.00		0.91	0.30		0.50	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	268	0	252	119	0	0	721	2615	1416	532	2369	1057
V/C Ratio(X)	0.38	0.00	0.48	0.45	0.00	0.00	0.35	0.19	0.19	0.06	0.21	0.17
Avail Cap(c_a), veh/h	318	0	502	314	0	0	1015	2615	1416	532	2369	1057
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.6	0.0	46.1	55.9	0.0	0.0	4.9	3.8	3.8	7.0	7.8	7.5
Incr Delay (d2), s/veh	0.9	0.0	1.4	2.7	0.0	0.0	0.3	0.2	0.3	0.2	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.2	0.0	6.1	3.1	0.0	0.0	3.0	2.6	2.9	0.6	4.5	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.5	0.0	47.5	58.5	0.0	0.0	5.2	3.9	4.1	7.2	8.0	7.9
LnGrp LOS	D	A	D	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h	223			54			1009			715		
Approach Delay, s/veh	48.0			58.5			4.3			7.9		
Approach LOS	D			E			A			A		
Timer - Assigned Phs	2			4		5	6	7	8			
Phs Duration (G+Y+Rc), s	96.7			23.3		12.2	84.5	12.7	10.6			
Change Period (Y+Rc), s	4.5			4.5		4.5	4.5	4.5	4.5			
Max Green Setting (Gmax), s	73.5			37.5		27.5	41.5	11.5	21.5			
Max Q Clear Time (g_c+I1), s	6.7			10.2		7.0	8.6	8.4	6.0			
Green Ext Time (p_c), s	5.9			0.7		0.7	4.7	0.1	0.2			
Intersection Summary												
HCM 6th Ctrl Delay				11.9								
HCM 6th LOS				B								

Timings 4: Potomac St & E 2nd Avenue

2045 Total
AM Peak

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	30	72	83	59	366	20	800	280	490
Future Volume (vph)	30	72	83	59	366	20	800	280	490
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	37.0	37.0	37.0	37.0	37.0	50.0	50.0	33.0	83.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	41.7%	41.7%	27.5%	69.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	Max
Act Effect Green (s)		32.5		32.5	32.5	55.4	55.4	78.5	78.5
Actuated g/C Ratio		0.27		0.27	0.27	0.46	0.46	0.65	0.65
v/c Ratio		0.35		0.44	0.55	0.06	0.62	0.72	0.24
Control Delay		33.7		32.0	7.5	21.4	27.3	23.9	8.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		33.7		32.0	7.5	21.4	27.3	23.9	8.7
LOS		C		C	A	C	C	C	A
Approach Delay		33.7		14.3			27.2		14.2
Approach LOS		C		B			C		B

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 20.6

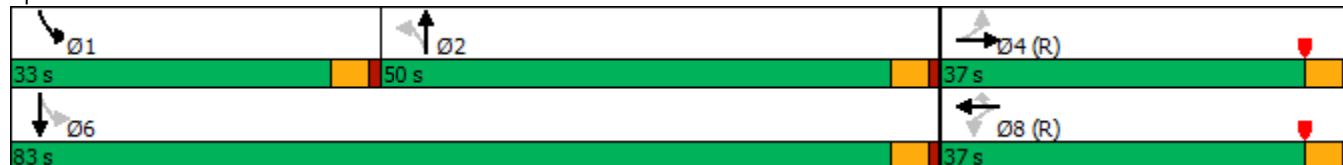
Intersection LOS: C

Intersection Capacity Utilization 68.1%

ICU Level of Service C

Analysis Period (min) 15






















Splits and Phases: 4: Potomac St & E 2nd Avenue



HCM 6th Signalized Intersection Summary



















4: Potomac St & E 2nd Avenue

2045 Total
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	72	45	83	59	366	20	800	123	280	490	10
Future Volume (veh/h)	30	72	45	83	59	366	20	800	123	280	490	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	78	49	90	64	398	22	870	134	304	533	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	149	79	190	124	429	506	1597	246	421	2329	48
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.52	0.52	0.52	0.10	0.65	0.65
Sat Flow, veh/h	112	550	292	526	456	1585	862	3086	475	1781	3561	73
Grp Volume(v), veh/h	160	0	0	154	0	398	22	501	503	304	266	278
Grp Sat Flow(s),veh/h/ln	954	0	0	982	0	1585	862	1777	1785	1781	1777	1857
Q Serve(g_s), s	3.0	0.0	0.0	0.0	0.0	29.3	1.5	22.7	22.7	9.1	7.3	7.3
Cycle Q Clear(g_c), s	23.5	0.0	0.0	20.6	0.0	29.3	1.5	22.7	22.7	9.1	7.3	7.3
Prop In Lane	0.21		0.31	0.58		1.00	1.00		0.27	1.00		0.04
Lane Grp Cap(c), veh/h	295	0	0	314	0	429	506	920	924	421	1162	1215
V/C Ratio(X)	0.54	0.00	0.00	0.49	0.00	0.93	0.04	0.54	0.54	0.72	0.23	0.23
Avail Cap(c_a), veh/h	295	0	0	314	0	429	506	920	924	667	1162	1215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	0.91	0.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	0.0	0.0	38.6	0.0	42.6	14.3	19.4	19.4	15.3	8.4	8.4
Incr Delay (d2), s/veh	7.0	0.0	0.0	4.9	0.0	26.7	0.2	2.3	2.3	2.4	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.7	0.0	0.0	7.8	0.0	20.5	0.6	14.9	15.0	6.6	5.1	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.3	0.0	0.0	43.5	0.0	69.3	14.5	21.8	21.7	17.6	8.9	8.9
LnGrp LOS	D	A	A	D	A	E	B	C	C	B	A	A
Approach Vol, veh/h		160			552			1026			848	
Approach Delay, s/veh		44.3			62.1			21.6			12.0	
Approach LOS		D			E			C			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	16.4	66.6		37.0		83.0		37.0				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	28.5	45.5		32.5		78.5		32.5				
Max Q Clear Time (g_c+I1), s	11.1	24.7		25.5		9.3		31.3				
Green Ext Time (p_c), s	0.8	7.0		0.5		3.7		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				28.5								
HCM 6th LOS				C								

Timings 1: Abilene Street & E 2nd Avenue

2045 Total
PM Peak

												
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	Ø5	Ø10	Ø14
Lane Configurations												
Traffic Volume (vph)	184	87	66	76	335	141	88	4	128			
Future Volume (vph)	184	87	66	76	335	141	88	4	128			
Turn Type	pm+pt	NA	Prot	NA	custom	NA	custom	pm+pt	NA			
Protected Phases	7	4	3	8	5 10	2 10		1	6	5	10	14
Permitted Phases	4				2		2	6				
Detector Phase	7	4	3	8	5 10	2 10	2	1	6			
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5			22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	12.0	43.0	15.0	46.0			30.0	12.0	30.0	12.0	20.0	20.0
Total Split (%)	10.0%	35.8%	12.5%	38.3%			25.0%	10.0%	25.0%	10%	17%	17%
Yellow Time (s)	3.5	3.5	3.5	3.5			3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0			0.0	0.0	0.0			
Total Lost Time (s)	4.5	4.5	4.5	4.5			4.5	4.5	4.5			
Lead/Lag	Lead	Lag	Lead	Lag			Lag	Lead	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None			C-Max	None	C-Max	None	None	None
Act Effect Green (s)	47.8	41.8	9.4	41.5	56.8	54.4	35.3	31.3	25.5			
Actuated g/C Ratio	0.40	0.35	0.08	0.35	0.47	0.45	0.29	0.26	0.21			
v/c Ratio	0.39	1.01	0.56	0.14	0.87	0.20	0.19	0.01	0.88			
Control Delay	18.9	46.7	66.9	25.4	51.1	19.1	3.6	28.2	60.3			
Queue Delay	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay	18.9	51.3	66.9	25.4	51.1	19.1	3.6	28.2	60.3			
LOS	B	D	E	C	D	B	A	C	E			
Approach Delay		44.1		44.4		35.6			59.8			
Approach LOS		D		D		D			E			

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 44.2











Intersection LOS: D

Intersection Capacity Utilization 94.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: Abilene Street & E 2nd Avenue

				
Ø1	Ø2 (R)	Ø3	Ø4	Ø10
12 s	30 s	15 s	43 s	20 s
				
Ø5	Ø6 (R)	Ø7	Ø8	Ø14
12 s	30 s	12 s	46 s	20 s

Queues

2045 Total

1: Abilene Street & E 2nd Avenue

PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	216	761	78	93	394	166	104	5	360
v/c Ratio	0.39	1.01	0.56	0.14	0.87	0.20	0.19	0.01	0.88
Control Delay	18.9	46.7	66.9	25.4	51.1	19.1	3.6	28.2	60.3
Queue Delay	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.9	51.3	66.9	25.4	51.1	19.1	3.6	28.2	60.3
Queue Length 50th (ft)	72	~152	60	48	240	72	0	2	236
Queue Length 95th (ft)	m93	m#323	105	83	#378	109	19	m9	#353
Internal Link Dist (ft)		553		400		668			1185
Turn Bay Length (ft)	275		50		100		100	150	
Base Capacity (vph)	547	750	157	654	454	821	548	376	410
Starvation Cap Reductn	0	11	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	1.03	0.50	0.14	0.87	0.20	0.19	0.01	0.88

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.






95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.


















HCM 6th TWSC
2: Blackhawk Street & Abilene Street/E 4th Avenue

2045 Total
PM Peak

Intersection						
Int Delay, s/veh	5.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	303	25	187	274	36	246
Future Vol, veh/h	303	25	187	274	36	246
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	356	29	220	322	42	289
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	385	0	1133	371
Stage 1	-	-	-	-	371	-
Stage 2	-	-	-	-	762	-
Critical Hdwy	-	-	4.12	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.218	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1173	-	225	677
Stage 1	-	-	-	-	700	-
Stage 2	-	-	-	-	463	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1173	-	183	677
Mov Cap-2 Maneuver	-	-	-	-	183	-
Stage 1	-	-	-	-	700	-
Stage 2	-	-	-	-	376	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.6		16.3	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	183	677	-	-	1173	-
HCM Lane V/C Ratio	0.231	0.427	-	-	0.188	-
HCM Control Delay (s)	30.5	14.2	-	-	8.8	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0.9	2.1	-	-	0.7	-

Timings 3: Sable Blvd & E 4th Avenue

2045 Total
PM Peak

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	110	10	15	10	162	790	20	915	112
Future Volume (vph)	110	10	15	10	162	790	20	915	112
Turn Type	pm+pt	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases	7	4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	8	8	5	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	15.0	39.0	24.0	24.0	21.0	81.0	60.0	60.0	60.0
Total Split (%)	12.5%	32.5%	20.0%	20.0%	17.5%	67.5%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	20.6	20.6		8.1	90.4	90.4	76.8	76.8	76.8
Actuated g/C Ratio	0.17	0.17		0.07	0.75	0.75	0.64	0.64	0.64
v/c Ratio	0.55	0.48		0.51	0.43	0.23	0.06	0.44	0.12
Control Delay	48.2	10.2		37.6	8.1	5.1	11.2	12.7	2.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	10.2		37.6	8.1	5.1	11.2	12.7	2.5
LOS	D	B		D	A	A	B	B	A
Approach Delay		23.9		37.6		5.6		11.6	
Approach LOS		C		D		A		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 11.4

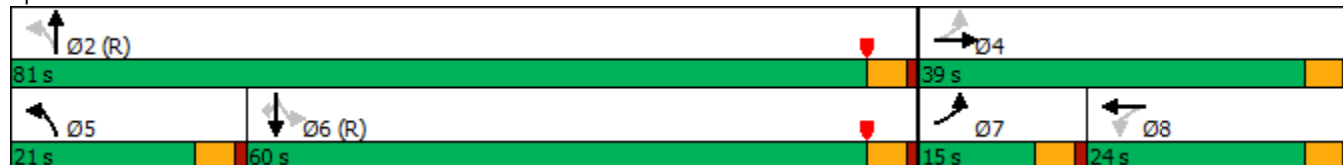
Intersection LOS: B

Intersection Capacity Utilization 62.8%

ICU Level of Service B





















Analysis Period (min) 15

Splits and Phases: 3: Sable Blvd & E 4th Avenue



















HCM 6th Signalized Intersection Summary 3: Sable Blvd & E 4th Avenue

2045 Total
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	10	185	15	10	40	162	790	20	20	915	112
Future Volume (veh/h)	110	10	185	15	10	40	162	790	20	20	915	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	11	201	16	11	43	176	859	22	22	995	122
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	285	15	267	52	22	59	415	3835	98	477	2354	1050
Arrive On Green	0.08	0.18	0.18	0.06	0.06	0.06	0.05	0.75	0.75	0.66	0.66	0.66
Sat Flow, veh/h	1781	83	1515	243	356	954	1781	5120	131	630	3554	1585
Grp Volume(v), veh/h	120	0	212	70	0	0	176	571	310	22	995	122
Grp Sat Flow(s),veh/h/ln	1781	0	1598	1553	0	0	1781	1702	1847	630	1777	1585
Q Serve(g_s), s	7.3	0.0	15.1	3.1	0.0	0.0	3.6	6.1	6.1	1.5	15.8	3.4
Cycle Q Clear(g_c), s	7.3	0.0	15.1	5.2	0.0	0.0	3.6	6.1	6.1	1.5	15.8	3.4
Prop In Lane	1.00		0.95	0.23		0.61	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	285	0	281	133	0	0	415	2549	1383	477	2354	1050
V/C Ratio(X)	0.42	0.00	0.75	0.53	0.00	0.00	0.42	0.22	0.22	0.05	0.42	0.12
Avail Cap(c_a), veh/h	304	0	459	284	0	0	573	2549	1383	477	2354	1050
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	0.0	47.0	55.2	0.0	0.0	6.9	4.5	4.5	7.1	9.5	7.4
Incr Delay (d2), s/veh	1.0	0.0	4.1	3.2	0.0	0.0	0.7	0.2	0.4	0.2	0.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.0	0.0	10.5	4.0	0.0	0.0	2.3	3.5	3.9	0.4	10.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.9	0.0	51.0	58.4	0.0	0.0	7.6	4.7	4.9	7.3	10.1	7.6
LnGrp LOS	D	A	D	E	A	A	A	A	A	A	B	A
Approach Vol, veh/h	332			70			1057			1139		
Approach Delay, s/veh	49.6			58.4			5.3			9.7		
Approach LOS	D			E			A			A		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	94.4			25.6			10.4			84.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	76.5			34.5			16.5			55.5		
Max Q Clear Time (g_c+I1), s	8.1			17.1			5.6			17.8		
Green Ext Time (p_c), s	7.2			1.2			0.3			9.8		
Intersection Summary												
HCM 6th Ctrl Delay	14.3											
HCM 6th LOS	B											

Timings
4: Potomac St & E 2nd Avenue

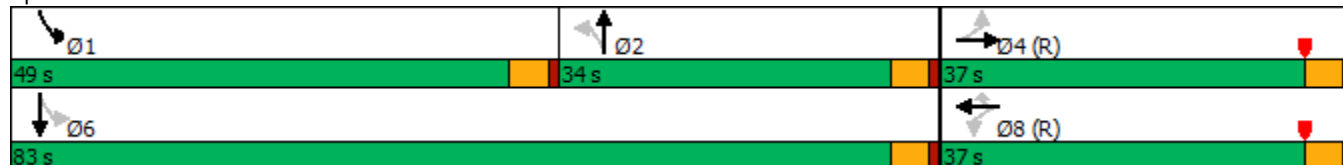
2045 Total
PM Peak

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	20	114	93	72	395	70	555	620	985
Future Volume (vph)	20	114	93	72	395	70	555	620	985
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases		4		8			2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	37.0	37.0	37.0	37.0	37.0	34.0	34.0	49.0	83.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	28.3%	28.3%	40.8%	69.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lag	Lag	Lead	
Lead-Lag Optimize?						Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	Max
Act Effect Green (s)		32.5		32.5	32.5	31.2	31.2	78.5	78.5
Actuated g/C Ratio		0.27		0.27	0.27	0.26	0.26	0.65	0.65
v/c Ratio		0.38		0.55	0.58	0.61	0.77	0.95	0.48
Control Delay		36.5		31.3	5.1	62.8	47.2	52.3	11.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		36.5		31.3	5.1	62.8	47.2	52.3	11.2
LOS		D		C	A	E	D	D	B
Approach Delay		36.5		12.8			48.8		26.8
Approach LOS		D		B			D		C

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 29.9
Intersection Capacity Utilization 85.3%
Analysis Period (min) 15
Intersection LOS: C
ICU Level of Service E




















Splits and Phases: 4: Potomac St & E 2nd Avenue



HCM 6th Signalized Intersection Summary

4: Potomac St & E 2nd Avenue

2045 Total
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	114	30	93	72	395	70	555	87	620	985	25
Future Volume (veh/h)	20	114	30	93	72	395	70	555	87	620	985	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	124	33	101	78	429	76	603	95	674	1071	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	354	88	247	178	429	221	962	151	710	2317	58
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.31	0.31	0.31	0.30	0.65	0.65
Sat Flow, veh/h	130	1307	325	738	659	1585	514	3076	484	1781	3542	89
Grp Volume(v), veh/h	179	0	0	179	0	429	76	348	350	674	537	561
Grp Sat Flow(s),veh/h/ln	1762	0	0	1396	0	1585	514	1777	1783	1781	1777	1854
Q Serve(g_s), s	0.0	0.0	0.0	4.0	0.0	32.5	14.3	20.1	20.2	32.6	18.0	18.0
Cycle Q Clear(g_c), s	9.6	0.0	0.0	13.6	0.0	32.5	14.3	20.1	20.2	32.6	18.0	18.0
Prop In Lane	0.12		0.18	0.56		1.00	1.00		0.27	1.00		0.05
Lane Grp Cap(c), veh/h	511	0	0	425	0	429	221	556	558	710	1162	1213
V/C Ratio(X)	0.35	0.00	0.00	0.42	0.00	1.00	0.34	0.63	0.63	0.95	0.46	0.46
Avail Cap(c_a), veh/h	511	0	0	425	0	429	221	556	558	829	1162	1213
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.61	0.00	0.61	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	0.0	36.8	0.0	43.7	33.3	35.2	35.3	24.0	10.3	10.3
Incr Delay (d2), s/veh	1.9	0.0	0.0	1.9	0.0	33.8	4.2	5.3	5.3	18.6	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.0	0.0	0.0	7.4	0.0	21.8	3.7	14.5	14.6	23.4	11.4	11.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	0.0	0.0	38.7	0.0	77.5	37.5	40.5	40.5	42.6	11.6	11.6
LnGrp LOS	D	A	A	D	A	E	D	D	D	D	B	B
Approach Vol, veh/h		179			608			774			1772	
Approach Delay, s/veh		37.3			66.1			40.2			23.4	
Approach LOS		D			E			D			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	41.0	42.0		37.0		83.0		37.0				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	44.5	29.5		32.5		78.5		32.5				
Max Q Clear Time (g_c+I1), s	34.6	22.2		11.6		20.0		34.5				
Green Ext Time (p_c), s	1.9	3.0		0.9		9.7		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				35.8								
HCM 6th LOS				D								

APPENDIX G. QUEUEING TABLE

Intersection	Movement	Existing Storage (ft)	2025 BG		2025 Total		2045 BG		2045 Total		SHAC Recommended Queue (ft)	Overall Recommended Queue (ft)
			AM	PM	AM	PM	AM	PM	AM	PM		
1. E 2nd Avenue & Abilene Street	EBL	275	102	88	78	73	144	105	126	93	190	275
	WBL	50	27	27	106	87	54	40	125	105	100	125
	NBL	100	87	173	136	241	132	262	175	378	340	378
	NBR	100	0	0	12	28	0	0	25	19	90	100
	SBL	150	12	152	21	14	15	0	18	9	N/A	152
2. E 4th Avenue / Abilene Street & Blackhawk Street	WBL	100	25	25	25	25	25	25	25	25	230	100
	NBL	50	0	25	25	25	25	25	25	25	40	50
	NBR	Continuous	25	25	25	25	50	50	50	75	Continuous	75
3. Potomac Street & 2nd Avenue	WBLT	Continuous	100	150	150	175	150	200	225	200	Continuous	225
	WBR	175	300	350	325	375	475	475	425	300	400	475
	EBLTR	Continuous	125	150	125	175	200	200	250	225	Continuous	250
	NBL	280	25	50	25	50	25	75	25	100	70	280
	SBL	120	125	275	150	300	150	450	175	525	620	525
4. Sable Boulevard & 4th Avenue	WBLTR	Continuous	50	75	50	75	100	100	100	100	Continuous	100
	EBL	130	125	150	150	150	150	150	150	150	110	150
	EBTR	Continuous	125	225	150	225	175	275	175	275	Continuous	275
	NBL	100	50	50	50	50	50	50	75	75	240	100
	SBL	100	25	25	25	25	25	25	25	25	30	100
	SBR	275	50	50	50	50	75	50	100	75	170	275

*Lane length should be measured from stop bar on the east side of the rail. Widening required to establish this length

**See text below