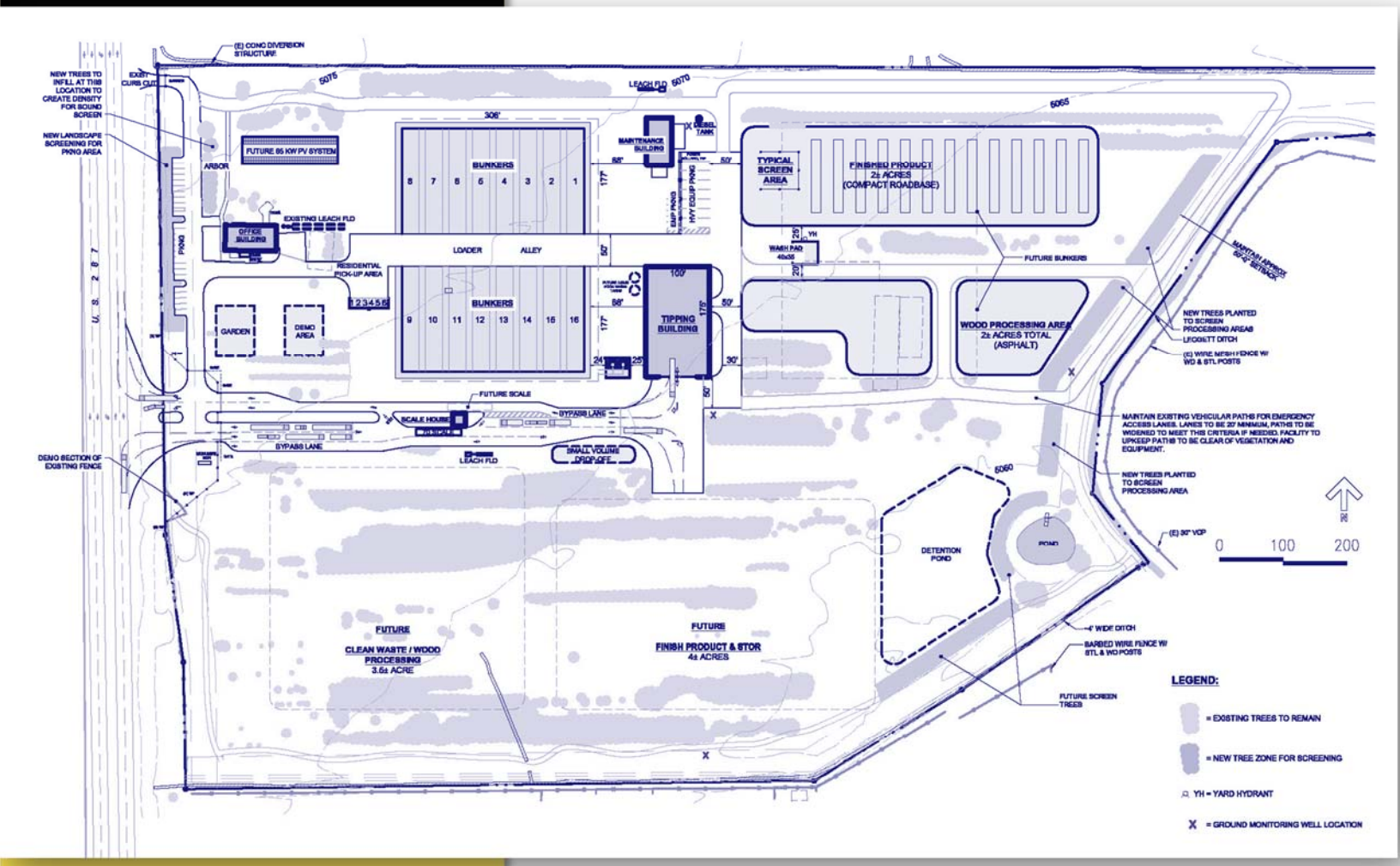
Boulder County Composting Facility

Traffic Impact Study



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BOULDER COUNTY COMPOSTING FACILITY

TRAFFIC IMPACT STUDY

1.0 Introduction

The Fox Tuttle Transportation Group has prepared this traffic impact study for the proposed Boulder County Composting Facility project northwest of Erie, Colorado. The property is located on the east side of US 287, midway between SH 52 and Lookout Road. It is understood that the project is proposing to provide a site to reduce waste in landfills by collect materials that are compostable and creating soil that can be reused by residents of the County. **Figure 1** provides a vicinity map for the proposed project, which illustrates a 1-mile study area radius around the composting site.

The purpose of this study is to assist in identifying potential traffic impacts within the study area as a result of the Boulder County Composting Facility project. The traffic study addresses existing, short-term, and long-term peak hour intersection conditions in the study area with and without the project-generated traffic. The information contained in this study is anticipated to be used by Boulder County and CDOT staff in identifying any intersection or roadway deficiencies and potential improvements for the build-out condition and long-term future scenarios. This study focused on the weekday AM and PM peak hours which represents the periods of highest volumes on the adjacent streets.

2.0 Project Description

The Boulder County Composting Facility site currently has one single-family home and 1,000s of trees that are left-over from the previous tree farm. It is proposed that the tree farm site be repurposed as a composting site that will serve the County and nearby communities. The project proposes to maintain the two existing accesses on US 287 with the south access as the primary driveway and the north access as emergency only. The primary access is proposed to remain full-movement with side-street stop-control. The site plan and accesses are provided on **Figure 2**.

3.0 Study Considerations

3.1 Data Collection

Intersection turning movement volumes were collected in September 2020 at two (2) existing intersections during the weekday AM and PM peak hours, including pedestrians and bicyclists. Daily traffic volumes were gathered from the Colorado Department of Transportation's (CDOT) Transportation Data Management System along US 287, State Highway (SH) 52, and Lookout Road. The intersection counts were collected during to the COVID-19 pandemic; therefore, the data was compared to CDOT's daily volume data between Years 2017 and 2019 and recent counts from July 2020. Refer to **Section 4.3** for details on adjustments made to the existing counts.

Signal-related information for the existing signalized intersections were provided by the CDOT staff and utilized within the analysis. Historic daily volumes are provided in the **Appendix**.

3.2 Evaluation Methodology

The traffic operations analysis addressed the signalized and unsignalized intersection operations using the procedures and methodologies set forth by the *Highway Capacity Manual (HCM)*[1]. Existing peak hour factor were applied to the intersections for the existing, short-term, and long-term scenarios. Study intersections were evaluated using Synchro software (v10).

3.3 Level of Service Capacity Analysis

A Level of Service analysis was conducted to determine the existing and future performance of the study area intersections and accesses to determine the most appropriate intersection traffic controls and auxiliary lanes for future conditions.

To measure and describe the operational status of the study intersections, transportation engineers and planners commonly use a grading system referred to as "Level of Service" (LOS) that is defined by the *HCM*. LOS characterizes the operational conditions of an intersections traffic flow, ranging from LOS A (indicating very good, free flow operations) and LOS F (indicating congested and sometimes oversaturated conditions). These grades represent the perspective of drivers and are an indication of the comfort and

[1] Highway Capacity Manual, Highway Research Board Special Report 209, Transportation Research Board, National Research Council, 6th Edition (2016).

convenience associated with traveling through the intersections. The intersection LOS is represented as a delay in seconds per vehicle for the intersection as a whole and for each turning movement.

Typically, LOS A through C is considered to be acceptable for the overall intersection operations and LOS D overall during peak hours is acceptable. Individual movements may be allowed to fall to LOS E at signalized intersections. Minor movements at unsignalized intersections, such as left turns onto a major arterial, may be allowed to fall below LOS D. Criteria contained in the *HCM* was applied for these analyses in order to determine peak hour LOS for each scenario. A more detailed discussion of LOS methodology is contained in the **Appendix** for reference.

4.0 Existing Conditions

4.1 Roadways

The study area boundaries are based on the amount of traffic to be generated by the project and potential impact to the existing roadway network. The primary public roadways that serve the project site are discussed in the following text and illustrated on **Figure 1**.

US Highway 287 (107th Street) is a four-lane, north-south highway (CDOT Classification of R-A: Regional Highway) that provides access through Boulder County, stretching from Fort Collins to Broomfield. Adjacent to the project site, US 287 has an 84-foot wide paved section that includes 12-foot through lanes (two per direction); 16-foot center left-turn lane; and 10-foot shoulders. The highway has an ADT of 27,500 vehicles per day (vpd) south of Lookout Road and 25,000 vpd south of SH 52 (Year 2019, CDOT)[2]. The posted speed limit on US 287 is 60 miles per hour (mph) within the vicinity of the study area. The highway is the western boundary of the proposed site. US 287 is straight and relatively flat in this area, and there is excellent sight distance from the proposed Boulder County Composting Facility driveway.

State Highway 52 (Mineral Road) is an east-west, two-lane highway (CDOT Classification of R-A: Regional Highway) and extends from the Diagonal Highway north of Boulder to Dacono east of I-25. Within the study area, SH 52 has a 44-foot wide paved section that includes 12-foot through lanes (one per direction) and 10-foot shoulders. This roadway currently serves approximately

[2] Source: Colorado Department of Transportation's Transportation Data Management System (TDMS).

15,600 vpd east of US 287 (Year 2019, CDOT). The posted speed limit is 55 mph within the study area and 35 mph approaching the intersection with US 287. At the intersection with US 287, SH 52 widens to two through lanes and one left-turn and one right-turn lane. SH 52 provides right-turn acceleration lanes for those turning off of US 287.

Lookout Road is an east-west arterial that provides local and regional access beyond the Boulder County Composting Facility study area. In this area Lookout Road has a single through lane in each direction that serves as access to rural residential properties and into north Boulder. The posted speed limit in the area is 35 miles per hour east of US 287 and 50 mph west of US 287. Lookout Road currently serves approximately 2,100 vpd east of US 287 (Year 2019, CDOT).

4.2 Intersections

The study area includes two existing intersections that are listed below with the current traffic control and were analyzed for existing and future year traffic operations:

1. US 287 at SH 52 [signalized]
2. US 287 at Lookout Road [signalized]

The existing lane configuration at each of the study locations are illustrated on **Figure 3**.

4.3 Adjustments to Existing Volumes

As discussed previously, new existing traffic volumes were collected during the COVID-19 pandemic; therefore, the collected intersection volumes were adjusted based on CDOT's daily count data taken in recent years and in July 2020. It was calculated that the Year 2020 daily volumes on US 287 are approximately 23% lower than pre-COVID volumes. Daily volumes on SH 52 are approximately 14% lower and the daily volumes on Lookout Road are approximately 32% lower. The intersection turning movement counts collected for this project were adjusted by the listed percentage per roadway. The adjusted existing volumes at each of the study locations are included on **Figure 3**.

4.4 Pedestrian and Bicycle

Currently, there are no sidewalks or multi-use paths along the study roadways or within the study area. There are no on-street bike facilities; however, the shoulders on US 287 and SH 52 are bikeable due to the large widths but bicyclists must transition over the turn lanes at intersections.

4.5 Transit

Currently, there are two bus routes that serve the study area. Boulder County is serviced by Regional Transportation District (RTD). Routes LD and LX (Longmont/Denver) travel along US 287 from the Longmont park-n-rides, through Lafayette, into Broomfield, and then into Downtown Denver. There are two northbound bus stops on US 287: one north of Lookout Road and one north of SH 52. There are two southbound bus stops on US 287: one south of SH 52 and one south of Lookout Road.

4.6 Existing Intersection Capacity Analysis

The existing volumes, lane configuration, and traffic control are illustrated on **Figure 3**. The results of the LOS calculations for the intersections are summarized in **Table 1**. The average and 95th percentile queues are summarized in **Table 2**. The intersection Level of Service worksheets are attached in the **Appendix**.

Both of the study intersections currently operate overall at LOS D or better in both peak hours. The intersection of US 287 at SH 52 currently has movements that operate at LOS E/F during the one of the peak hours:

- ***US 287 at SH 52:*** During the AM peak hour the westbound left-turn operates at LOS E with an estimated 95th percentile queue[3] of approximately 189 feet (about eight vehicles), which is contained within the existing storage length. During the PM peak hour, the southbound left-turn operates at LOS F and the 95th percentile queue was estimated to be approximately 457 feet (about 19 vehicles) which extends beyond the existing storage length. Since the southbound delay is estimated to be greater than the cycle length of 100 seconds, it is anticipated that some left-turn drivers wait for more than one cycle to turn onto east SH 52.

  Recommendations: To reduce the delay on the westbound left-turn movement in the AM peak hour, consider adding four (4) seconds of green time by taking from the eastbound through phase. This mitigation improves the westbound left-turn movement to LOS D.

  The southbound left-turn storage should be increased by reconstructing the raised median and extending the deceleration lane by at least 150 feet; however, this does not improve the level of service. To reduce the delay on the southbound left-turn and maintain the queue within the

[3] It should be noted that the 95th percentile queue length is a theoretical queue that is 1.65 standard deviations above the average queue length. In theory, the 95th percentile queue would be exceeded 5% of the time based on the average queue length, but it is also possible that a queue this long may not occur.

deceleration length, consider constructing a second southbound left-turn lane. This additional capacity improves the westbound left-turn to LOS C in the PM peak hour and overall performance to LOS C, with a reduction in queuing.

5.0 Future Conditions

5.1 Annual Growth Factor and Future Volume Methodology

In order to forecast the future peak hour traffic volumes, the 20-year factors from CDOT's traffic data was utilized. The 20-year factor within the study area ranges from 1.31 to 1.39 with an average of 1.33, which equates to an annual growth rate of 1.4%. This rate was applied to the traffic at the two existing study intersections to estimate future short-term and long-term volumes. The Year 2025 background volumes are summarized on **Figure 4** and the Year 2040 background volumes are summarized on **Figure 5**.

5.2 Year 2025 Background Intersection Capacity Analysis

The study area intersections were evaluated to determine baseline operations for the Year 2025 background scenario and to identify any capacity constraints associated with background traffic. The background volumes, lane configuration, and traffic control are illustrated on **Figure 4**. Two scenarios were evaluated for the Year 2025 background scenario: (1) with existing lane configurations and (2) with recommended mitigation measures from the existing analysis.

The Level of Service criteria discussed previously was applied to the study area intersections to determine the impacts with the short-term background volumes. The details of LOS for each movement are provided in **Table 1**. The average and 95th percentile queues are summarized in **Table 2**. The intersection Level of Service worksheets are attached in the **Appendix**. This analysis assumed the existing signal timing at all signalized intersections would remain.

In summary, the study intersections operate similarly to the existing conditions with the exception of US 287 at SH 52 which is anticipated to begin to operate at LOS E in the PM peak hour. Without the recommended mitigation measures from the existing conditions, the intersection of US 287 at SH 52 will continue to have the westbound left-turn operate at LOS E in the AM peak hour and the southbound left-turn operate at LOS F in the PM peak hour with queues extending into the through lane. With the previously recommended mitigation measures (adjusted signal timing and dual southbound left-turn), the intersection of US 287 at SH 52 will have all movements operating at LOS D or better in both peak hours and the PM peak hour will improve to LOS D overall.

5.3 Year 2040 Background Intersection Capacity Analysis

The study area intersections were evaluated to determine baseline operations for the Year 2040 background scenario and to identify any capacity constraints associated with background traffic in the long-term scenario. The long-term background volumes, lane configuration, and traffic control are illustrated on **Figure 5**. It was assumed that the recommended mitigation measures from the existing condition were implemented. Signal timing and cycle lengths were adjusted for future conditions.

The Level of Service criteria discussed previously was applied to the study area intersections to determine the impacts with the long-term background volumes. The results of capacity analysis is shown in **Table 1** with the overall LOS and for each movement. The average and 95th percentile queues are summarized in **Table 2**. The intersection Level of Service worksheets are attached in the **Appendix**.

In summary, the study intersections are anticipated to have additional delay associated with higher background volumes and both intersections are estimated to have movements operating at LOS E/F during one or more peak hours. The following summarizes the movements that were estimated to operate at LOS E/F at one of the study intersections:

- ***US 287 at SH 52:*** During both peak hours, the westbound left-turn was estimated to operate at LOS F. The 95th percentile queues in each peak hour was estimated to extend beyond the existing storage length by one (1) to seven (7) vehicles. During the PM peak hour, the eastbound through and southbound left-turn were calculated to operate at LOS F, which contributes to the overall performance changing to LOS E.

  Recommendations: Consider constructing dual westbound left-turn lane, which improves the movement's performance to LOS D in both peak hours. This mitigation measure reduces the overall delay in both peak hours, however, the PM peak hour will continue to operate are LOS E without increasing through capacity on US 287.

- ***US 287 at Lookout Road:*** During the AM peak hour, the westbound approach was estimated to operate at LOS E. The 95th percentile queue for this approach was calculated to extend up to 1,000 feet (about 40 vehicles). During the PM peak hour, the eastbound approach was estimated to operate at LOS F. The 95th percentile queue for this approach was calculated to extend up to 350 feet (about 14 vehicles).

  Recommendations: Consider constructing one eastbound left-turn lane and one westbound left-turn lane, which significantly reduces the queues and reduces the approach delays.

6.0 Future Conditions with the Boulder County Composting Facility

6.1 Trip Generation

A trip generation estimate was performed to determine the traffic characteristics of the proposed development of the Boulder County Composting Facility. There are no applicable land use codes available in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*[4] to estimate the project trips. Therefore, the anticipated facility operations were utilized to estimate the daily and peak hour trips. The estimated truck loads, passenger car/pick-up loads, and staffing for a typical weekday are as follows:

- 7 on-site employee vehicles
- 37 trucks operating per day for food waste, green waste and finished project removal
    - For the purpose of accounting for slower speeds and slower acceleration of heavy trucks, each truck trip was equated to two (2) or three (3) passenger cars ("passenger car equivalents" or PCE), based on truck size.
    - Maximum of 192 daily PCE trips, 24 AM peak hour trips and 38 PM peak hour trips
- 80 vehicles for landscaper drop-offs, residential compost pick-up and drop-off, and general public access
    - Maximum of 174 daily trips, 31 AM peak hour trips and 55 PM peak hour trips

Table 3 provides the detailed trip generation estimates for the project. The project is estimated to generate approximately 366 daily trips (PCE) with about 55 trips (PCE) occurring in the AM peak hour and 93 trips (PCE) occurring in the PM peak hour.

6.2 Trip Distribution and Assignment

The estimated trip volumes were distributed onto the study area street network based on existing traffic characteristics, land uses, and traffic patterns in the area, as well as regional growth and future roadway infrastructure. The assumed distributions are listed in **Table 4** and on **Figure 6**.

[4] *Trip Generation Handbook, 10th Edition*, Institute of Transportation Engineers, 2017.

Table 4: Trip Distribution Summary

To/From	Distribution	To/From	Distribution
North US 287	30%	East SH 52	10%
South US 287	40%	West Lookout Road	5%
West SH 52	10%	East Lookout Road	5%

Using these distribution assumptions, the projected site traffic was assigned to the study area roadway network and appropriate accesses for the weekday AM and PM peak hour periods. The site-generated volumes are shown on **Figure 7.**

6.3 Proposed Roadway Network and Access

There are two existing accesses to the project site that served the previous tree farm. The Boulder County Composting Facility plans to maintain both accesses. The south access is proposed to become the primary access with full-movement and side-street stop-control. The north access is proposed to be an emergency access only. The proposed accesses locations are illustrated on **Figure 7** with the proposed lane configurations and traffic control.

6.4 Year 2025 Background + Project Intersection Capacity Analysis

This section discusses impacts associated with the addition of the Boulder County Composting Facility trips in the near-term scenario. The site-generated volumes were added to the Year 2025 background volumes and are illustrated on **Figure 8**. Since it is unlikely that the dual southbound left-turn lanes at US 287 and SH 52 will be constructed by Year 2025, the analysis maintained existing lane configuration for comparison purposes. The details of the LOS for each movement are listed in **Table 1**. The average and 95th percentile queues are summarized in **Table 2**. The intersection Level of Service worksheets are attached in the **Appendix**.

The project trips are anticipated to have little to no impact on the operations at the existing study intersections. All overall and movement Levels of Service are the same as Year 2025 background, including the movements that were calculated to operate at LOS E/F. No additional mitigation measures are recommended. It should be noted that the traffic accessing the composting facility does not added to the southbound left-turn congestion at the intersection of US 287 and SH 52.

The proposed access is anticipated to operate overall at LOS A in both peak hours; however, the westbound left-turn movement was estimated to operate at LOS F in both peak hours due to the high volumes on US 287. The 95th percentile queue for this movement was calculated to be one vehicle or less in the AM peak hour and up to four (4) vehicles in the PM peak hour. Note that the truck traffic for the Boulder County Composting Facility were equated to passenger car equivalents, therefore, the calculated delays and queuing at the proposed access account for slower truck acceleration and need for a larger gap in traffic. No additional mitigation measures are recommended since these delays are expected on a Regional highway, the delay is on the side-street approach, and the queues are minimal.

6.5 Year 2040 Background + Project Intersection Capacity Analysis

This section discusses impacts associated with the addition of the Boulder County Composting Facility trips in the long-term scenario. The site-generated volumes were added to the Year 2040 background volumes and are illustrated on **Figure 9**. The recommended mitigation measures from existing and background conditions were assumed to be implemented before this scenario. The figure illustrates the anticipated and proposed traffic control and lane configurations for all of the study intersection and proposed access. The details of the LOS for each movement are listed in **Table 1**. The average and 95th percentile queues are summarized in **Table 2**. The intersection Level of Service worksheets are attached in the **Appendix**.

The project trips are anticipated to have little to no impact on the operations at the existing study intersections. All overall and movement Levels of Service are the same as Year 2040 background with improvements scenario, including the movements that were calculated to operate at LOS E/F. No additional mitigation measures are recommended.

The proposed access is anticipated to operate overall at LOS A in the AM peak hour and LOS B in the PM peak hour; however, the westbound left-turn movement was estimated to operate at LOS F in both peak hours due to the high volumes on US 287. The 95th percentile queue for this movement was calculated to be two vehicles or less in the AM peak hour and up to five (5) vehicles in the PM peak hour. Note that the truck traffic for the Boulder County Composting Facility were equated to passenger car equivalents, therefore, the calculated delays and queuing at the proposed access account for slower truck acceleration and need for a larger gap in traffic. No additional mitigation measures are recommended since these delays are expected on a Regional highway, the delay is on the side-street approach, and the queues are minimal.

7.0 Queuing Analysis

A queuing analysis was performed to determine if the average and 95th percentile queues would be accommodated by the existing storage length, to determine the storage lengths for future auxiliary lanes, and if any of the queues would impact an upstream intersection/access. **Table 2** provides the existing and proposed storage lengths, as well as the average and 95th percentile queues for each existing and future scenario as calculated by Synchro (assuming each vehicle utilizes 25 feet of space). It should be noted that the 95th percentile queue length is a theoretical queue that is 1.65 standard deviations above the average queue length. In theory, the 95th percentile queue would be exceeded 5% of the time based on the average queue length, but it is also possible that a queue this long may not occur.

As shown in **Table 2**, the majority of the queues are shorter than the provided storage length in all scenarios. As discussed previously, the 95th percentile queue at southbound left-turn at US 287 at SH 52 was calculated to extend beyond the existing storage length by approximately 147 feet. It was previously recommended that the southbound left-turn be reconstructed to have dual turn lanes to minimize impacts to the adjacent through lanes. By Year 2040, the westbound left-turn at US 287 at SH 52 should also become dual turn lanes to accommodate the estimated queue. To reduce the queue lengths on Lookout Road at US 287, it was recommended to construct left-turn lanes on the Lookout Road.

8.0 Auxiliary Lane Analysis

US 287 is maintained and operated by CDOT, which requires compliance with the current *State Highway Access Code*[5] auxiliary lane criteria. The purpose of the criteria is to enhance safety and access along state facilities. The existing and forecasted volumes on US 287 at the proposed access were reviewed to determine if auxiliary lane requirement thresholds are met. Currently, there is an existing southbound two-way left-turn lane that can be utilized by the proposed Boulder County Composting Facility. The upstream access that would share this lane is approximately 1,400 feet north which provides adequate storage for the estimated queuing at the proposed access (one vehicle or less).

Within the study area, US 287 is classified as R-A (Regional Highway) and has a posted speed limit of 60 mph. Per the *Access Code* requirements, a left-turn deceleration lane is required if the volume is greater

[5] *State Highway Access Code*, State of Colorado, August 31, 1998, updated March 2002.

than 10 vph, a right-turn deceleration lane is required if the volume is greater than 25 vph, and a right-turn acceleration lane is required if the volume is greater than 50 vph. The *Access Code* requires a deceleration length of 700 feet that includes the taper (25:1), which equates to a full width length of 400 feet and a taper length of 300 feet. **Table 5** summarizes the auxiliary lane needs and analysis.

Table 5. Auxiliary Lane Evaluation

Movement	Highest Hourly Volume (PCE)	Volume Threshold Met?	CDOT Design Criteria		
			Storage Length	Taper Length	Total
Proposed Access					
NB Right Decel	20	✗	n/a	n/a	n/a
NB Right Accel	26	✗	n/a	n/a	n/a
SB Left Decel	21	✓	400’	TWLTL	700’ +

As shown in **Table 5**, the only auxiliary lane that is required at the proposed access is the southbound left-turn lane, which currently has a TWLTL that permits left-turning vehicles to turn from the center median instead of the through lane. If desired, the TWLTL can be restriped to better define the left-turn for the proposed access.

9.0 Conclusions

The Boulder County Composting Facility project proposes to provide a site to reduce waste in landfills by collect materials that are compostable and creating soil that can be reused by residents of the County The project property is located on the east side of US 287 midway between the intersections with SH 52 and Lookout Road. The project includes two existing access locations along US 287 with the south access as the primary access and the north access as emergency only.

The project is estimated to generate approximately 366 daily trips (PCE) with about 55 trips occurring in the AM peak hour and 93 trips occurring in the PM peak hour. **It was determined that the existing roadway system can adequately accommodate the projected traffic volumes (PCE).**

The following mitigations measures should be considered to improve the existing and background traffic deficiencies:

- **US 287 at SH 52 (Mineral Road):**
    - Consider reconstructing the southbound left-turn median to extend the storage length to accommodate the queue *(Existing and Future Background Condition) [not influenced by Composting Facility traffic]*
    - Consider constructing a second southbound left-turn lane *(Existing and Future Background Condition) [not influenced by Composting Facility traffic]*
    - Consider constructing a second westbound left-turn lane *(Future Background Condition) [minimally influenced by Composting Facility traffic]*
    - Adjust signal timing as necessary *(Existing and Future Background Condition)*
- **US 287 at Lookout Road:**
    - Consider constructing an eastbound left-turn lane *(Future Background Condition) [minimally influenced by Composting Facility traffic]*
    - Consider constructing a westbound left-turn lane *(Future Background Condition) [not influenced by Composting Facility traffic]*

Tables and Figures:

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Table 1 - Peak Hour Intersection Level of Service Summary

Intersection and Cricital Lane Groups	Year 2020 Existing AM Peak Delay	Year 2020 Existing AM Peak LOS	Year 2020 Existing PM Peak Delay	Year 2020 Existing PM Peak LOS	Mitigation	Year 2020 Existing with Improvements AM Peak Delay	Year 2020 Existing with Improvements AM Peak LOS	Year 2020 Existing with Improvements PM Peak Delay	Year 2020 Existing with Improvements PM Peak LOS	Year 2025 Background AM Peak Delay	Year 2025 Background AM Peak LOS	Year 2025 Background PM Peak Delay	Year 2025 Background PM Peak LOS	Mitigation	Year 2025 Background with Improvements AM Peak Delay	Year 2025 Background with Improvements AM Peak LOS	Year 2025 Background with Improvements PM Peak Delay	Year 2025 Background with Improvements PM Peak LOS	2025 Background + Project Trips AM Peak Delay	2025 Background + Project Trips AM Peak LOS	2025 Background + Project Trips PM Peak Delay	2025 Background + Project Trips PM Peak LOS
STOP SIGN CONTROL																						
#3. US 287 & Project Access																			1	A	5	A
Westbound Left																			*112*	*F*	*>120*	*F*
Westbound Right																			*14*	*B*	*19*	*C*
Northbound Through+Right																			*0*	*A*	*0*	*A*
Southbound Left																			*12*	*B*	*16*	*C*
Southbound Through																			*0*	*A*	*0*	*A*
SIGNAL CONTROL																						
#1. US 287 & SH 52 (Mineral Rd)	31	C	53	D		30	C	34	C	34	C	68	E		32	C	40	D	34	C	68	E
Eastbound Left	*35*	*C*	*28*	*C*	*Dual SB Left-Turns; AM +4 sec to WB Left from EBT*	*38*	*D*	*28*	*C*	*34*	*C*	*27*	*C*	*Dual SB Left-Turns; PM +1 sec to NBT from E/WBL; AM +5 sec to WBL from EBT*	*37*	*D*	*27*	*C*	*34*	*C*	*27*	*C*
Eastbound Through	*39*	*D*	*45*	*D*		*44*	*D*	*45*	*D*	*38*	*D*	*46*	*D*		*44*	*D*	*46*	*D*	*38*	*D*	*46*	*D*
Eastbound Right	*0*	*A*	*0*	*A*		*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*		*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*
Westbound Left	*67*	*E*	*34*	*C*		*54*	*D*	*34*	*C*	*70*	*E*	*37*	*D*		*53*	*D*	*37*	*D*	*73*	*E*	*37*	*D*
Westbound Through	*42*	*D*	*33*	*C*		*42*	*D*	*33*	*C*	*43*	*D*	*33*	*C*		*43*	*D*	*33*	*C*	*43*	*D*	*33*	*C*
Westbound Right	*0*	*A*	*0*	*A*		*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*		*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*
Northbound Left	*17*	*B*	*20*	*B*		*17*	*B*	*20*	*B*	*19*	*B*	*22*	*C*		*19*	*B*	*22*	*C*	*19*	*B*	*22*	*C*
Northbound Through	*23*	*C*	*36*	*D*		*23*	*C*	*36*	*D*	*25*	*C*	*47*	*D*		*25*	*C*	*47*	*D*	*25*	*C*	*47*	*D*
Northbound Right	*0*	*A*	*0*	*A*		*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*		*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*
Southbound Left	*19*	*B*	*>120*	*F*		*15*	*B*	*28*	*C*	*26*	*C*	*>120*	*F*		*17*	*B*	*38*	*D*	*26*	*C*	*>120*	*F*
Southbound Through	*25*	*C*	*30*	*C*		*25*	*C*	*30*	*C*	*29*	*C*	*35*	*C*		*29*	*C*	*35*	*C*	*30*	*C*	*35*	*C*
Southbound Right	*0*	*A*	*0*	*A*		*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*		*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*
#2. US 287 & Lookout Rd	14	B	23	C						15	B	27	C						15	B	28	C
Eastbound Left+Through+Right	*45*	*D*	*46*	*D*						*45*	*D*	*46*	*D*						*46*	*D*	*46*	*D*
Eastbound Left																						
Eastbound Through+Right																						
Westbound Left+Through+Right	*55*	*D*	*31*	*C*						*55*	*D*	*30*	*C*						*55*	*D*	*30*	*C*
Westbound Left																						
Westbound Through+Right																						
Northbound Left	*18*	*B*	*14*	*B*						*24*	*C*	*16*	*B*						*24*	*C*	*17*	*B*
Northbound Through	*8*	*A*	*23*	*C*						*8*	*A*	*28*	*C*						*8*	*A*	*30*	*C*
Northbound Right	*5*	*A*	*11*	*B*						*5*	*A*	*12*	*B*						*5*	*A*	*12*	*B*
Southbound Left	*6*	*A*	*16*	*B*						*6*	*A*	*20*	*C*						*6*	*A*	*21*	*C*
Southbound Through	*13*	*B*	*20*	*B*						*14*	*B*	*23*	*C*						*15*	*B*	*23*	*C*
Southbound Right	*7*	*A*	*12*	*B*						*8*	*A*	*13*	*B*						*8*	*A*	*13*	*B*

Note: Delay represented in average seconds per vehicle.

FOX TUTTLE

Table 1 - Peak Hour Intersection Level of Service Summary

Intersection and Cricital Lane Groups	Year 2040 Background (assumes Year 2025 Imprvs.) AM Peak Delay	AM Peak LOS	PM Peak Delay	PM Peak LOS	Mitigation	Year 2040 Background with Improvements AM Peak Delay	AM Peak LOS	PM Peak Delay	PM Peak LOS	2040 Background + Project Trips AM Peak Delay	AM Peak LOS	PM Peak Delay	PM Peak LOS
STOP SIGN CONTROL													
#3. US 287 & Project Access										1	A	15	B
Westbound Left										*>120*	*F*	*>120*	*F*
Westbound Right										*16*	*C*	*25*	*C*
Northbound Through+Right										*0*	*A*	*0*	*A*
Southbound Left										*14*	*B*	*22*	*C*
Southbound Through										*0*	*A*	*0*	*A*
SIGNAL CONTROL													
#1. US 287 & SH 52 (Mineral Rd)	48	D	71	E		40	D	67	E	41	D	68	E
Eastbound Left	*41*	*D*	*37*	*D*	*Year 2025 Background Imprv. + Dual WB Left-Turns*	*40*	*D*	*37*	*D*	*40*	*D*	*37*	*D*
Eastbound Through	*46*	*D*	*>120*	*F*		*46*	*D*	*>120*	*F*	*46*	*D*	*>120*	*F*
Eastbound Right	*0*	*A*	*0*	*A*		*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*
Westbound Left	*124*	*F*	*>120*	*F*		*36*	*D*	*40*	*D*	*36*	*D*	*40*	*D*
Westbound Through	*54*	*D*	*43*	*D*		*54*	*D*	*43*	*D*	*54*	*D*	*43*	*D*
Westbound Right	*0*	*A*	*0*	*A*		*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*
Northbound Left	*29*	*C*	*24*	*C*		*29*	*C*	*24*	*C*	*29*	*C*	*25*	*C*
Northbound Through	*31*	*C*	*52*	*D*		*31*	*C*	*52*	*D*	*31*	*C*	*55*	*D*
Northbound Right	*0*	*A*	*0*	*A*		*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*
Southbound Left	*25*	*C*	*92*	*F*		*25*	*C*	*92*	*F*	*25*	*C*	*97*	*F*
Southbound Through	*44*	*D*	*33*	*C*		*44*	*D*	*33*	*C*	*45*	*D*	*33*	*C*
Southbound Right	*0*	*A*	*0*	*A*		*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*
#2. US 287 & Lookout Rd	31	C	42	D		32	C	38	D	32	C	39	D
Eastbound Left+Through+Right	*44*	*D*	*86*	*F*	*Add EBL and WBL*								
Eastbound Left						*51*	*D*	*59*	*E*	*52*	*D*	*60*	*E*
Eastbound Through+Right						*40*	*D*	*40*	*D*	*40*	*D*	*40*	*D*
Westbound Left+Through+Right	*56*	*E*	*38*	*D*									
Westbound Left						*42*	*D*	*43*	*D*	*42*	*D*	*43*	*D*
Westbound Through+Right						*51*	*D*	*37*	*D*	*51*	*D*	*37*	*D*
Northbound Left	*54*	*D*	*26*	*C*		*54*	*D*	*26*	*C*	*54*	*D*	*27*	*C*
Northbound Through	*11*	*B*	*47*	*D*		*12*	*B*	*47*	*D*	*12*	*B*	*48*	*D*
Northbound Right	*6*	*A*	*12*	*B*		*6*	*A*	*12*	*B*	*6*	*A*	*12*	*B*
Southbound Left	*9*	*A*	*31*	*C*		*10*	*A*	*31*	*C*	*10*	*A*	*31*	*C*
Southbound Through	*40*	*D*	*27*	*C*		*43*	*D*	*27*	*C*	*44*	*D*	*27*	*C*
Southbound Right	*11*	*B*	*13*	*B*		*11*	*B*	*12*	*B*	*11*	*B*	*12*	*B*

Note: Delay represented in average second

FOX TUTTLE

Table 2 - Peak Hour Estimated 95th Percentile Queue Lengths

Intersection and Cricital Lane Groups	Ex. Storage Length	Ex. Taper Length	Prop. Storage Length	CDOT SHAC Recommendations			Year 2020 Existing				Year 2020 Existing with Improvements					Year 2025 Background				Year 2025 Background with Improvements				
				Ex. Category	Decel.	Taper	AM Peak Hr		PM Peak Hr		Mitigation	AM Peak Hr		PM Peak Hr		AM Peak Hr		PM Peak Hr		Mitigation	AM Peak Hr		PM Peak Hr	
							Avg.	95th	Avg.	95th		Avg.	95th	Avg.	95th	Avg.	95th	Avg.	95th		Avg.	95th	Avg.	95th
#1. US 287 & SH 52 (Mineral Rd)							*Signalized*					*Signalized*				*Signalized*					*Signalized*			
Eastbound Left	200'	85'	-	R-A (35 mph)	190'	120'	7'	17'	41'	75'	Dual SB Left-Turns; AM +4 sec to WB Left from EBT	6'	17'	41'	75'	8'	19'	45'	81'	Dual SB Left-Turns; PM +1 sec to NBT from E/WBL; AM +5 sec to WBL from EBT	7'	19'	45'	81'
Eastbound Through	-	-	-	-	-	-	75'	94'	191'	248'		75'	100'	191'	248'	80'	99'	207'	269'		80'	106'	207'	269'
Eastbound Right	400'	270'	-	R-A (35 mph)	190'	120'	0'	34'	0'	17'		0'	36'	0'	17'	0'	38'	0'	21'		0'	41'	0'	21'
Westbound Left	250'	140'	-	R-A (35 mph)	190'	120'	158'	189'	64'	108'		148'	189'	64'	108'	170'	217'	69'	120'		157'	202'	69'	120'
Westbound Through	-	-	-	-	-	-	174'	227'	55'	87'		164'	227'	55'	87'	188'	244'	59'	92'		174'	244'	59'	92'
Westbound Right	360'	250'	-	R-A (35 mph)	190'	120'	0'	62'	0'	59'		0'	62'	0'	59'	0'	64'	0'	61'		0'	64'	0'	61'
Northbound Left	195'	145'	-	R-A (60 mph)	400'	300'	13'	29'	6'	57'		13'	45'	15'	19'	14'	47'	6'	7'		15'	53'	6'	7'
Northbound Through	-	-	-	-	-	-	245'	311'	425'	495'		234'	311'	235'	460'	283'	412'	480'	495'		264'	412'	480'	495'
Northbound Right	470'	360'	-	R-A (60 mph)	400'	300'	0'	14'	53'	58'		0'	14'	34'	43'	7'	14'	56'	58'		0'	14'	56'	58'
Southbound Left	310'	130'	-	R-A (60 mph)	400'	300'	57'	223'	271'	*457'*		30'	62'	61'	138'	76'	291'	*311'*	*493'*		34'	67'	72'	157'
Southbound Through	-	-	-	-	-	-	283'	530'	328'	446'		307'	530'	328'	446'	317'	589'	366'	503'		351'	589'	366'	503'
Southbound Right	480'	220'	-	R-A (60 mph)	400'	300'	0'	0'	0'	0'		0'	0'	0'	0'	0'	0'	0'	0'		0'	0'	0'	0'
#2. US 287 & Lookout Rd							*Signalized*									*Signalized*								
Eastbound Left+Through+Right	-	-	-	-	-	-	82'	166'	386'	540'						98'	195'	450'	606'					
Eastbound Left			325'	-	-	-																		
Eastbound Through+Right			-	-	-	-																		
Westbound Left+Through+Right	-	-	-	-	-	-	115'	243'	29'	67'						128'	257'	31'	69'					
Westbound Left			150'	-	-	-																		
Westbound Through+Right			-	-	-	-																		
Northbound Left	470'	150'	-	R-A (60 mph)	400'	300'	45'	116'	19'	38'						72'	148'	21'	44'					
Northbound Through	-	-	-	-	-	-	115'	241'	470'	634'						128'	267'	548'	713'					
Northbound Right	470'	300'	-	R-A (60 mph)	400'	300'	0'	0'	0'	0'						0'	0'	0'	0'					
Southbound Left	500'	290'	-	R-A (60 mph)	400'	300'	2'	2'	28'	40'						1'	2'	31'	39'					
Southbound Through	-	-	-	-	-	-	144'	239'	451'	522'						155'	281'	485'	558'					
Southbound Right	510'	290'	-	R-A (60 mph)	400'	300'	0'	1'	0'	5'						0'	1'	0'	3'					
#3. US 287 & Project Access																								
Westbound Left	-	-	150'	-	-	-																		
Westbound Right	-	-	-	-	-	-																		
Southbound Left	800'	TWLTL	-	R-A (60 mph)	400'	300'																		

FOX TUTTLE

Table 2 - Peak Hour Estimated 95th Percentile Queue Lengths

Intersection and Cricital Lane Groups	Ex. Storage Length	Ex. Taper Length	Prop. Storage Length	CDOT SHAC Recommendations			Year 2025 Background + Project Trips (no Imprv)				Year 2040 Background (assumes Year 2025 Imprvs.)				Year 2040 Background with Improvements						Year 2040 Background + Project Trips			
				Ex. Category	Decel.	Taper	AM Peak Hr		PM Peak Hr		AM Peak Hr		PM Peak Hr		Mitigation	AM Peak Hr		PM Peak Hr			AM Peak Hr		PM Peak Hr	
							Avg.	95th	Avg.	95th	Avg.	95th	Avg.	95th		Avg.	95th	Avg.	95th		Avg.	95th	Avg.	95th
#1. US 287 & SH 52 (Mineral Rd)							*Signalized*				*Signalized*					*Signalized*					*Signalized*			
Eastbound Left	200'	85'	-	R-A (35 mph)	190'	120'	8'	19'	45'	81'	9'	23'	77'	128'	Year 2025 Background Imprv. + Dual WB Left-Turns	9'	23'	77'	128'		9'	23'	77'	128'
Eastbound Through	-	-	-	-	-	-	80'	99'	207'	269'	121'	152'	410'	527'		121'	152'	410'	527'		121'	152'	410'	527'
Eastbound Right	400'	270'	-	R-A (35 mph)	190'	120'	0'	40'	0'	21'	12'	70'	0'	54'		12'	70'	0'	54'		14'	73'	2'	57'
Westbound Left	250'	140'	-	R-A (35 mph)	190'	120'	172'	224'	69'	120'	*291'*	*411'*	136'	*274'*		118'	139'	58'	89'		119'	140'	60'	91'
Westbound Through	-	-	-	-	-	-	188'	244'	59'	92'	284'	370'	99'	143'		284'	370'	99'	143'		284'	370'	99'	143'
Westbound Right	360'	250'	-	R-A (35 mph)	190'	120'	0'	64'	0'	61'	83'	200'	94'	201'		83'	200'	94'	201'		84'	201'	94'	201'
Northbound Left	195'	145'	-	R-A (60 mph)	400'	300'	14'	49'	7'	7'	29'	79'	47'	45'		29'	79'	47'	45'		30'	81'	49'	52'
Northbound Through	-	-	-	-	-	-	286'	415'	480'	488'	401'	551'	683'	656'		401'	551'	683'	656'		405'	562'	691'	721'
Northbound Right	470'	360'	-	R-A (60 mph)	400'	300'	7'	14'	55'	57'	0'	48'	261'	244'		0'	48'	261'	244'		0'	49'	265'	277'
Southbound Left	310'	130'	-	R-A (60 mph)	400'	300'	76'	291'	*311'*	*493'*	47'	126'	148'	256'		47'	123'	148'	256'		47'	127'	148'	256'
Southbound Through	-	-	-	-	-	-	322'	597'	366'	503'	535'	820'	490'	293'		535'	820'	490'	593'		542'	830'	498'	603'
Southbound Right	480'	220'	-	R-A (60 mph)	400'	300'	0'	0'	0'	0'	0'	12'	0'	0'		0'	12'	0'	0'		0'	12'	0'	0'
#2. US 287 & Lookout Rd							*Signalized*				*Signalized*					*Signalized*					*Signalized*			
Eastbound Left+Through+Right	-	-	-	-	-	-	104'	207'	454'	610'	195'	293'	844'	1003'										
Eastbound Left			325'	-	-	-									Add EBL and WBL	26'	54'	193'	308'		28'	58'	197'	323'
Eastbound Through+Right			-	-	-	-										51'	103'	282'	436'		51'	103'	286'	447'
Westbound Left+Through+Right	-	-	-	-	-	-	130'	261'	31'	69'	204'	347'	69'	123'										
Westbound Left			150'	-	-	-										24'	70'	15'	43'		24'	70'	15'	43'
Westbound Through+Right			-	-	-	-										114'	219'	41'	87'		116'	223'	42'	89'
Northbound Left	470'	150'	-	R-A (60 mph)	400'	300'	72'	148'	21'	44'	103'	210'	24'	82'		103'	210'	25'	82'		103'	210'	24'	82'
Northbound Through	-	-	-	-	-	-	131'	272'	588'	725'	178'	370'	861'	1000'		178'	370'	874'	1012'		182'	376'	876'	1015'
Northbound Right	470'	300'	-	R-A (60 mph)	400'	300'	0'	0'	0'	0'	0'	0'	0'	0'		0'	0'	0'	0'		0'	0'	0'	0'
Southbound Left	500'	290'	-	R-A (60 mph)	400'	300'	2'	2'	32'	42'	3'	8'	26'	26'		3'	8'	27'	29'		3'	8'	26'	30'
Southbound Through	-	-	-	-	-	-	157'	285'	491'	564'	737'	858'	705'	773'		737'	858'	712'	793'		744'	865'	719'	802'
Southbound Right	510'	290'	-	R-A (60 mph)	400'	300'	0'	1'	0'	6'	0'	28'	4'	5'		0'	28'	4'	7'		0'	28'	5'	8'
#3. US 287 & Project Access							*Stop-Controlled*				*Stop-Controlled*										*Stop-Controlled*			
Westbound Left	-	-	150'	-	-	-	-	23'	-	93'											-	43'	-	120'
Westbound Right	-	-	-	-	-	-	-	3'	-	8'											-	3'	-	13'
Southbound Left	800'	TWLTL	-	R-A (60 mph)	400'	300'	-	3'	-	5'											-	3'	-	8'

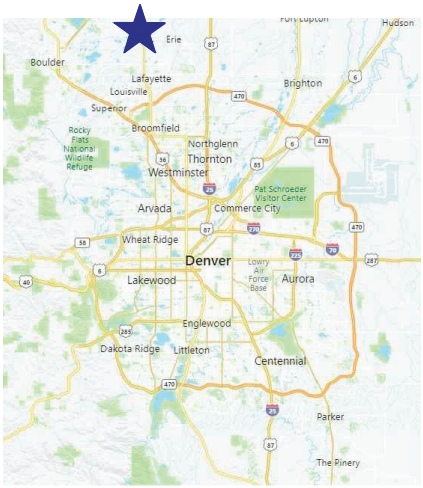
Boulder County Compost Facility on US 287

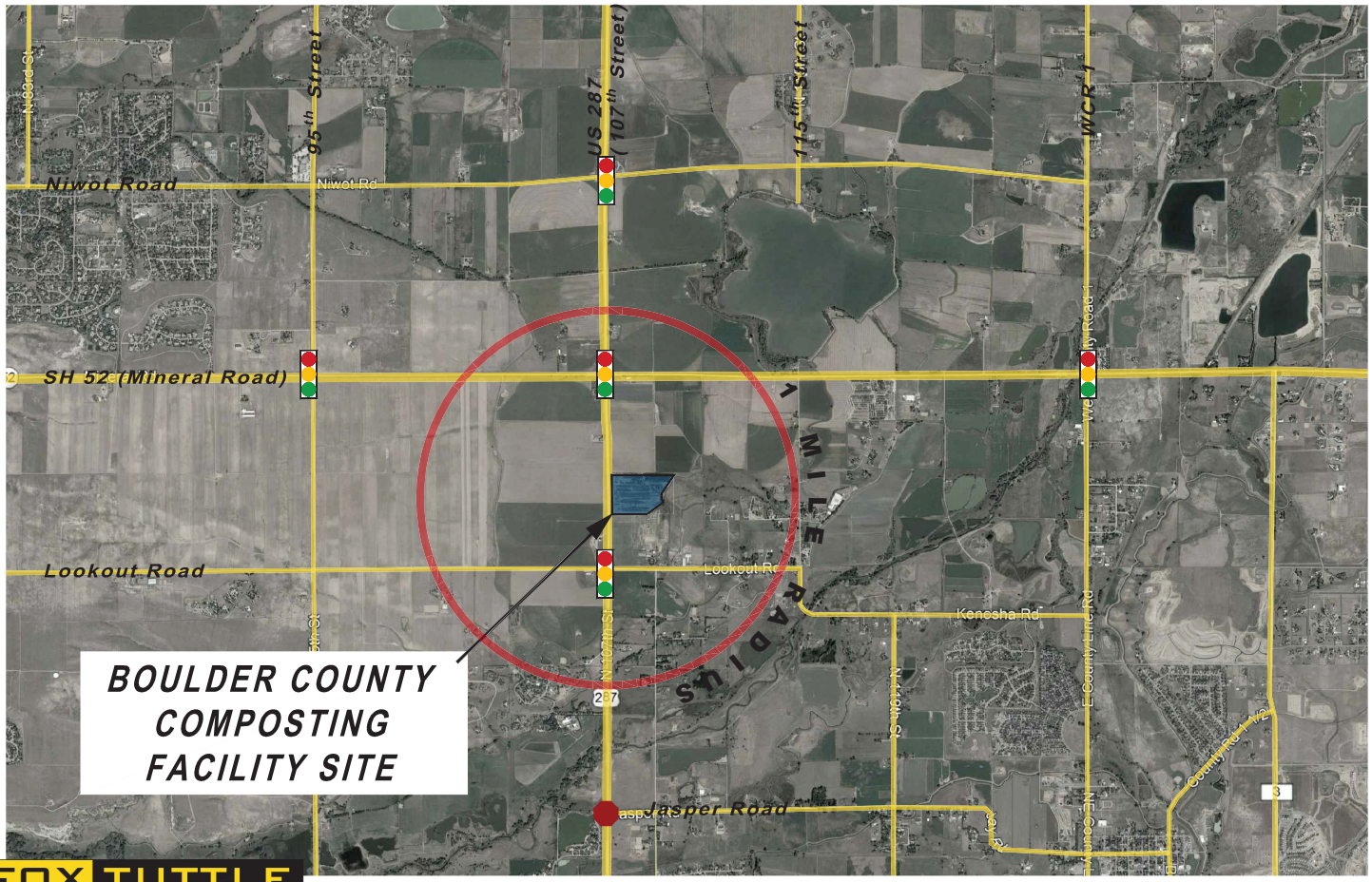
Trip Generation Estimate*

					AM Peak Hour*				PM Peak Hour*			
					AM Peak Hour %		AM Peak Hour Vehicle Trips		PM Peak Hour %		PM Peak Hour Vehicle Trips	
Trip Purpose	Vehicles Per Day	Vehicle Type	Passenger Car Equivalent (PCE) Factor **	Total Daily Trips (In + Out) PCEs	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
Food Waste	10	10 Wheel Truck	2	40	10%	10%	4	4	10%	10%	4	4
Food Waste	6	18 Wheel Truck	3	36	10%	10%	4	4	10%	10%	4	4
Green Waste	4	10 Wheel Truck	2	16	10%	10%	2	2	10%	10%	2	2
Green Waste	4	18 Wheel Truck	3	24	10%	10%	2	2	10%	10%	2	2
Finished Product Outbond	1	10 Wheel Truck	2	4	0%	0%	0	0	10%	10%	0	0
Finished Product Outbond	5	18 Wheel Truck	3	30	0%	0%	0	0	10%	10%	3	3
Outgoind Green Waste Transfer	7	18 Wheel Truck	3	42	0%	0%	0	0	10%	10%	4	4
Site Employees	7	Pick-up or Passenger Vehicle	1	14	75%	0%	11	0	0%	75%	0	11
Landscapers	30	Pick-up or Passenger Vehicle	1	60	10%	10%	6	6	10%	10%	6	6
Residential Compost Pick-up	15	Pick-up or Passenger Vehicle	1	30	5%	5%	2	2	15%	15%	5	5
Residential Compost Drop-off	15	Pick-up or Passenger Vehicle	1	30	5%	5%	2	2	15%	15%	5	5
General Public Access (events, etc.)	20	Pick-up or Passenger Vehicle	1	40	0%	0%	0	0	15%	15%	6	6
Total:	**124**			**366**			**33**	**22**			**41**	**52**

* Based on conversations and information provided by the project team.

** Large trucks are assigned a higher "passenger car equivalent" factor to account for their size and slower moving operation when accessing a site.





FOX TUTTLE TRANSPORTATION GROUP

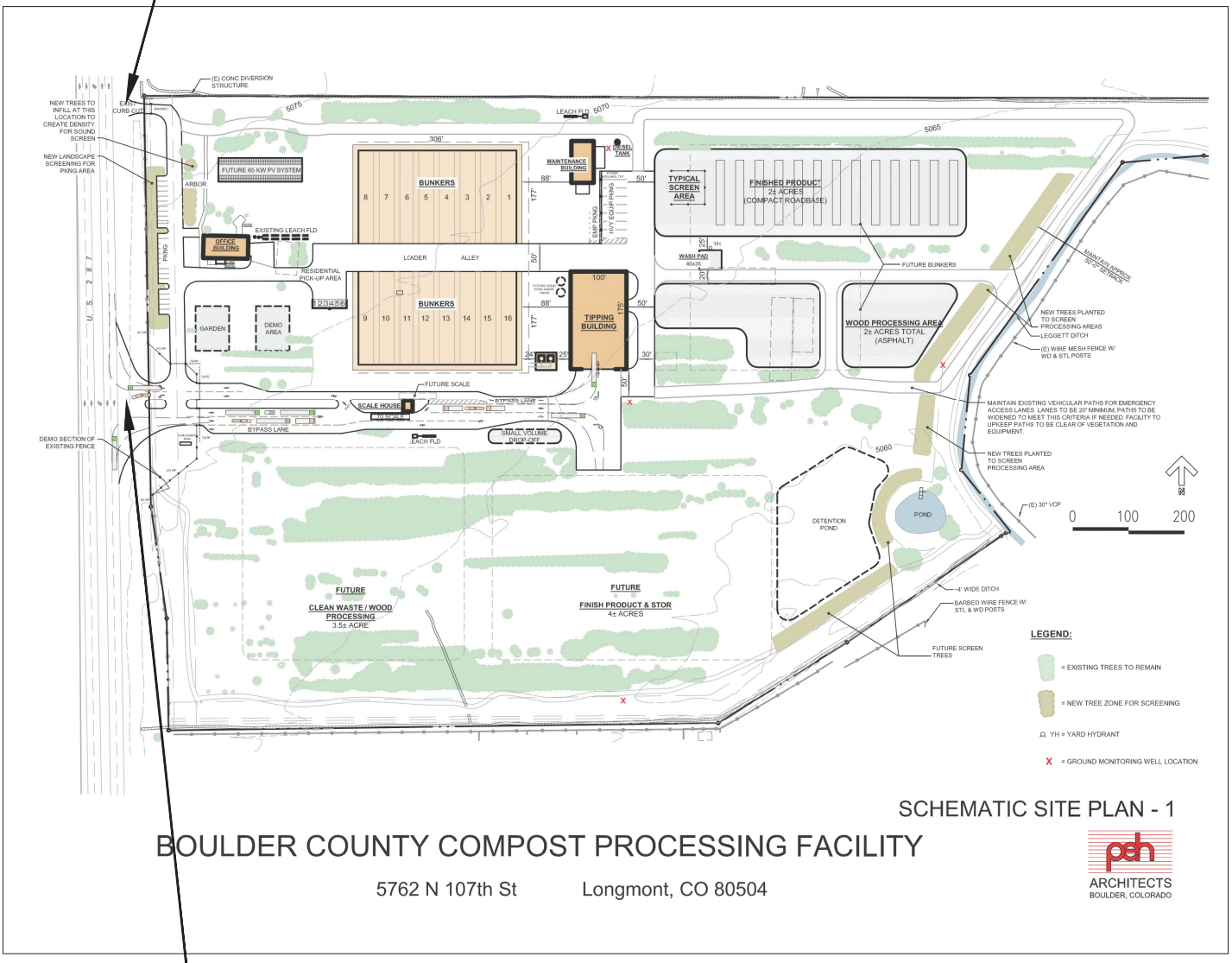
BOULDER COUNTY COMPOSTING FACILITY TRAFFIC IMPACT STUDY

VICINITY MAP

FT Project #	20069	Original Scale	NTS	Date	10/8/2020	Drawn by	CRS	Figure #	1

EXISTING FULL MOVEMENT ACCESS;
SIDE-STREET STOP-CONTROLLED

EMERGENCY ACCESS ONLY



SCHEMATIC SITE PLAN - 1

BOULDER COUNTY COMPOST PROCESSING FACILITY

5762 N 107th St Longmont, CO 80504

pch ARCHITECTS BOULDER, COLORADO

EXISTING FULL MOVEMENT ACCESS;
SIDE-STREET STOP-CONTROLLED

PRIMARY ACCESS

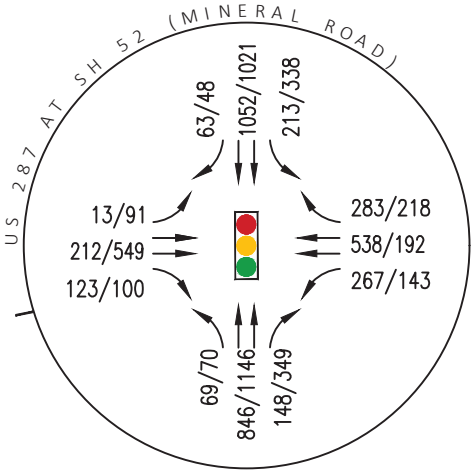
N

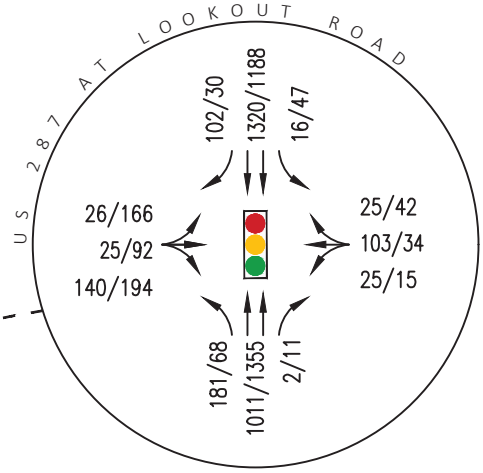
FOX TUTTLE TRANSPORTATION GROUP

BOULDER COUNTY COMPOSTING FACILITY TRAFFIC IMPACT STUDY

PROPOSED SITE PLAN AND ACCESS

FT Project #	20069	Original Scale	NTS	Date	10/8/2020	Drawn by	CRS	Figure #	2





KEY

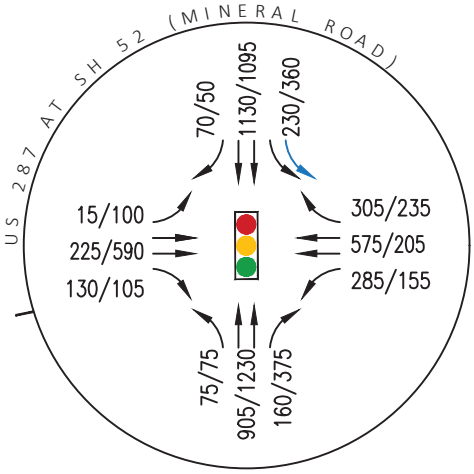
XX / XX	AM / PM PEAK HOUR TRAFFIC VOLUME
XX,XXX	ESTIMATED DAILY TRAFFIC VOLUME
←	EXISTING LANE CONFIGURATION

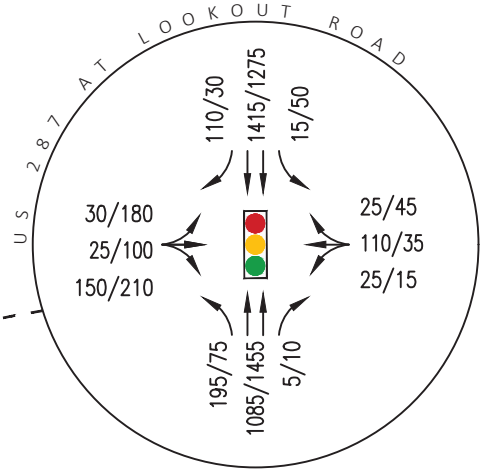
FOX TUTTLE TRANSPORTATION GROUP

BOULDER COUNTY COMPOSTING FACILITY TRAFFIC IMPACT STUDY

YEAR 2020 EXISTING TRAFFIC VOLUMES

FT Project #	20069	Original Scale	NTS	Date	10/8/2020	Drawn by	CRS	Figure #	3





N

KEY

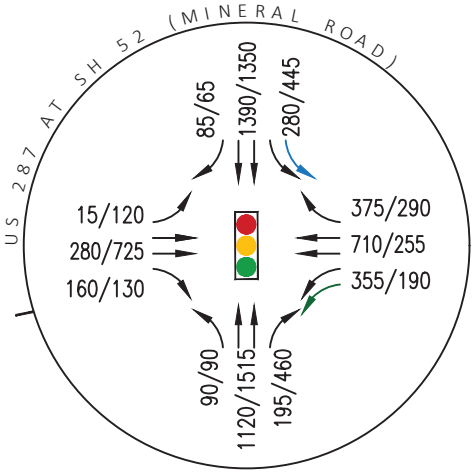
XX / XX	AM / PM PEAK HOUR TRAFFIC VOLUME
XX,XXX	ESTIMATED DAILY TRAFFIC VOLUME
←	EXISTING LANE CONFIGURATION
←	2025 BACKGROUND LANE CONFIGURATION

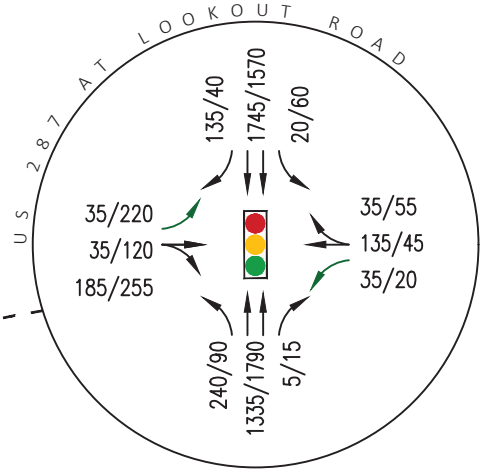
FOX TUTTLE TRANSPORTATION GROUP

BOULDER COUNTY COMPOSTING FACILITY TRAFFIC IMPACT STUDY

YEAR 2025 BACKGROUND TRAFFIC VOLUMES

FT Project #	20069	Original Scale	NTS	Date	10/8/2020	Drawn by	CRS	Figure #	4





N

KEY

XX / XX	AM / PM PEAK HOUR TRAFFIC VOLUME
XX,XXX	ESTIMATED DAILY TRAFFIC VOLUME
	EXISTING LANE CONFIGURATION
	2025 BACKGROUND LANE CONFIGURATION
	2040 BACKGROUND LANE CONFIGURATION

FOX TUTTLE TRANSPORTATION GROUP

BOULDER COUNTY COMPOSTING FACILITY TRAFFIC IMPACT STUDY

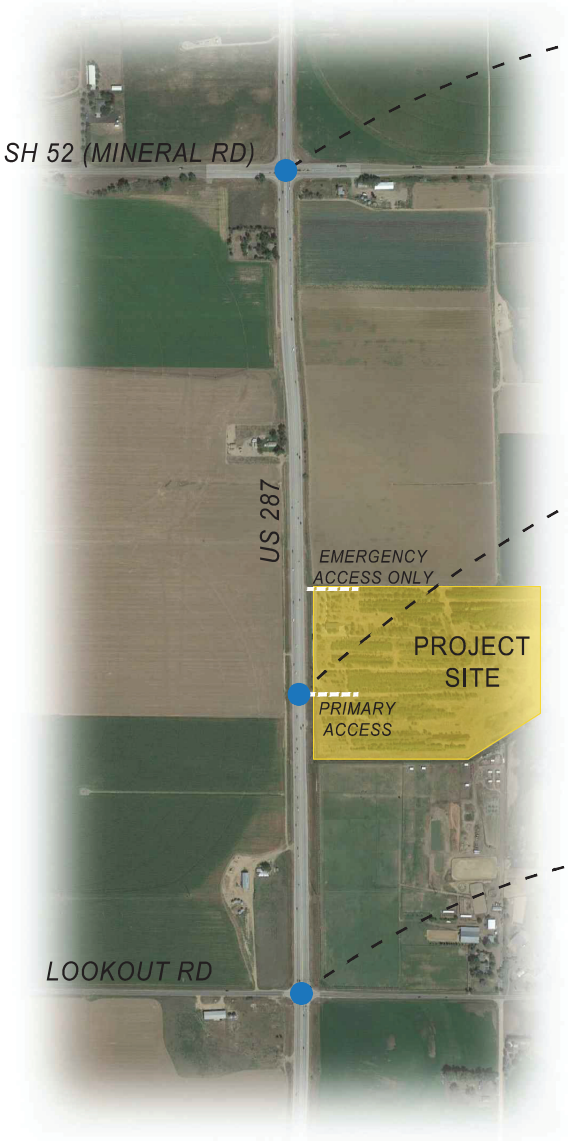
YEAR 2040 BACKGROUND TRAFFIC VOLUMES

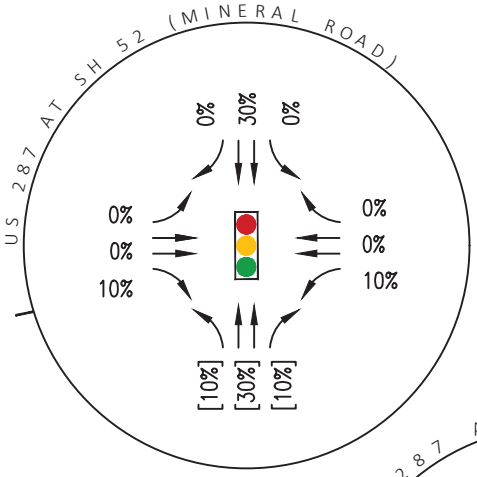
FT Project #	20069	Original Scale	NTS	Date	10/8/2020	Drawn by	CRS	Figure #	5

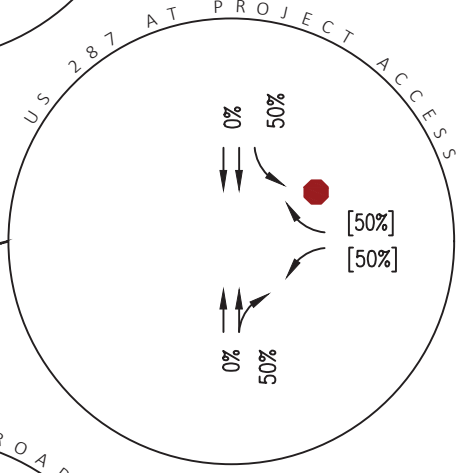
30%
To/From
North US 287

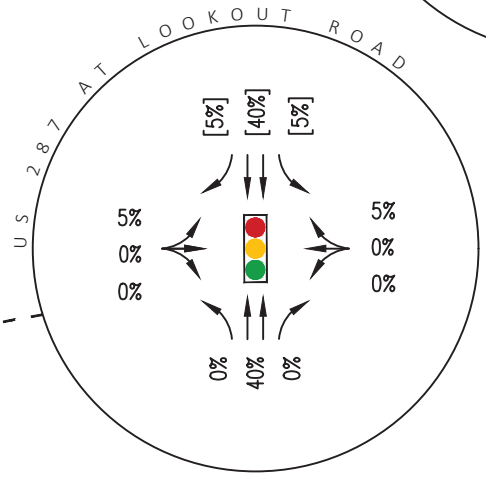
10%
To/From
West SH 52

10%
To/From
East SH 52









5%
To/From West
Lookout Rd

5%
To/From East
Lookout Rd

40%
To/From
South US 287

N

KEY

XX% [XX%] ENTER [EXIT] DISTRIBUTION PERCENTAGE

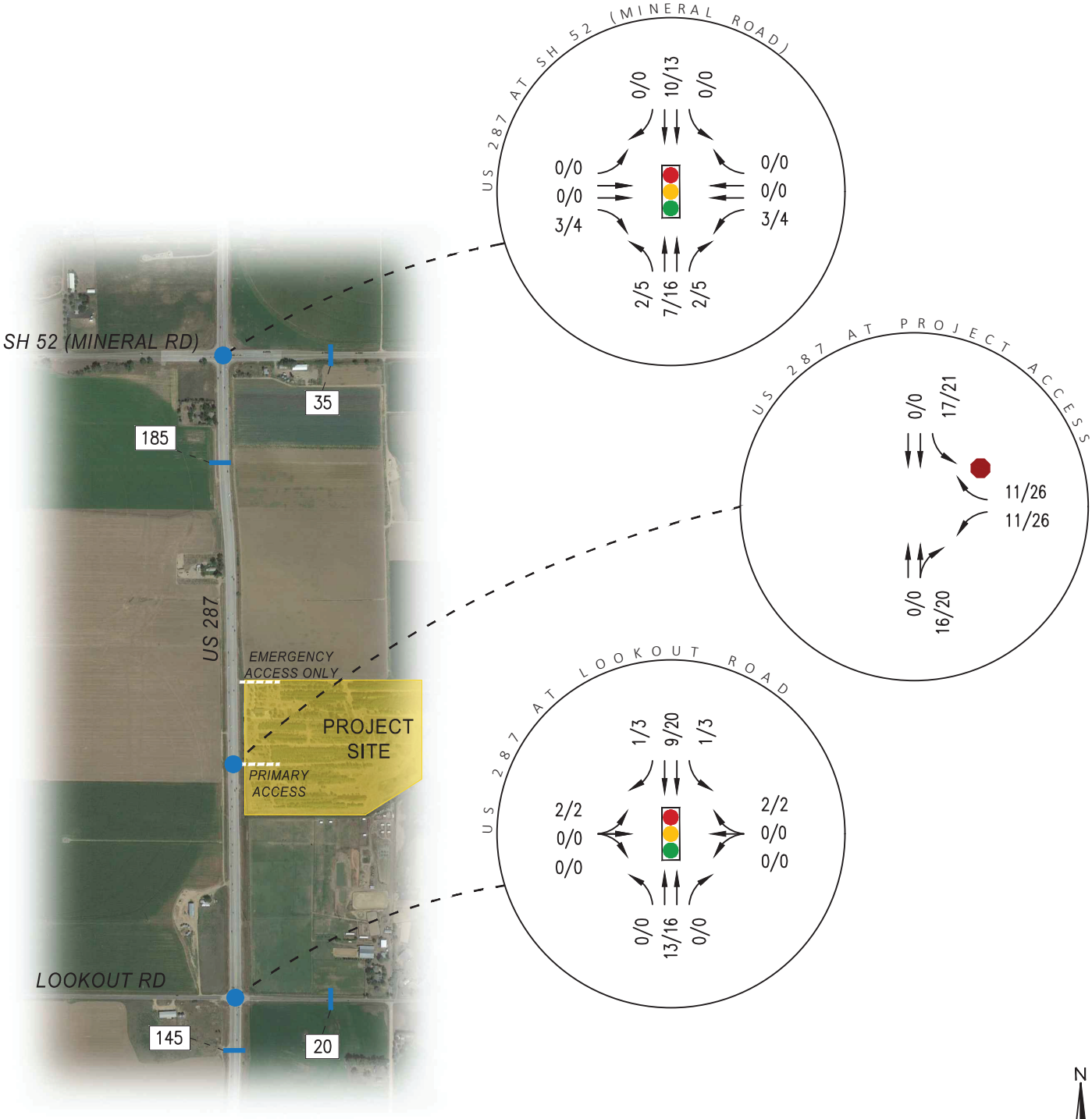
EXISTING LANE CONFIGURATION

FOX TUTTLE
TRANSPORTATION GROUP

BOULDER COUNTY COMPOSTING FACILITY TRAFFIC IMPACT STUDY

TRIP DISTRIBUTION

FT Project #	20069	Original Scale	NTS	Date	10/8/2020	Drawn by	CRS	Figure #	6



NOTE: TRUCK TRIPS WERE CONVERTED TO PASSENGER CAR EQUIVALENTS.

KEY

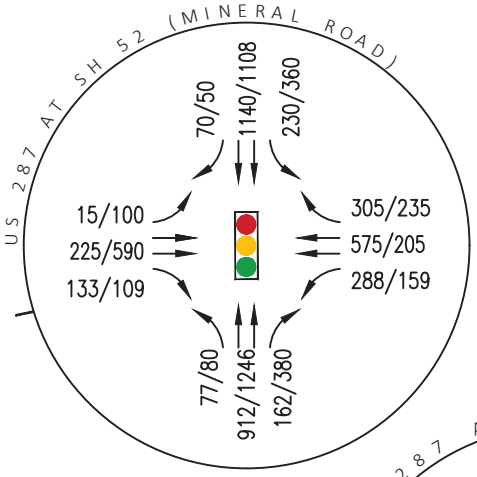
XX / XX	AM / PM PEAK HOUR TRIPS
XX,XXX	DAILY TRIP VOLUME
←	EXISTING LANE CONFIGURATION

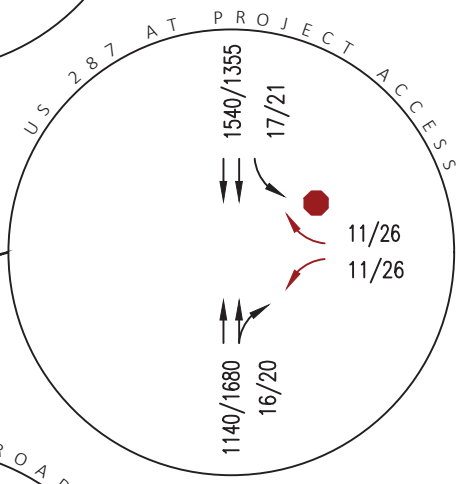
FOX TUTTLE TRANSPORTATION GROUP

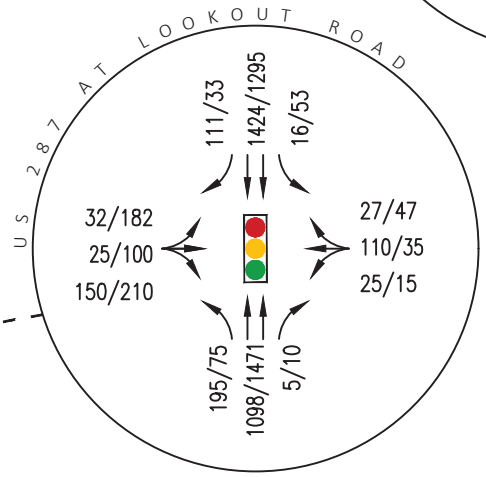
BOULDER COUNTY COMPOSTING FACILITY TRAFFIC IMPACT STUDY

SITE-GENERATED TRIPS

FT Project #	20069	Original Scale	NTS	Date	10/8/2020	Drawn by	CRS	Figure #	7







N

KEY

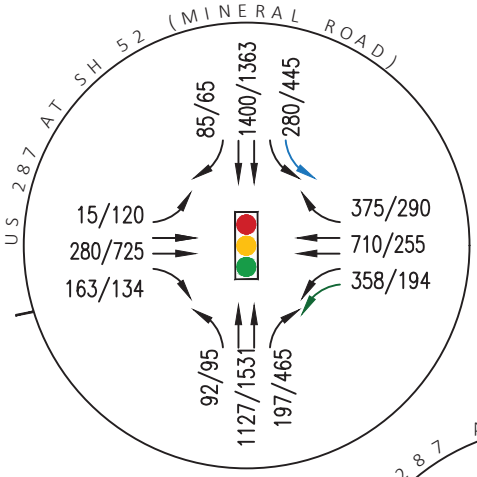
XX / XX	AM / PM PEAK HOUR TRAFFIC VOLUME
XX,XXX	ESTIMATED DAILY TRAFFIC VOLUME
	EXISTING LANE CONFIGURATION
	2025 BACKGROUND LANE CONFIGURATION
	PROJECT LANE CONFIGURATION

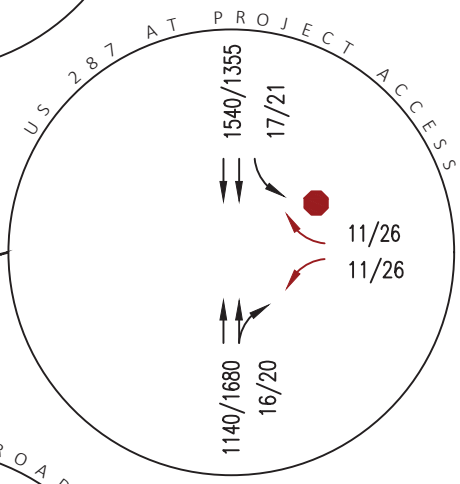
FOX TUTTLE TRANSPORTATION GROUP

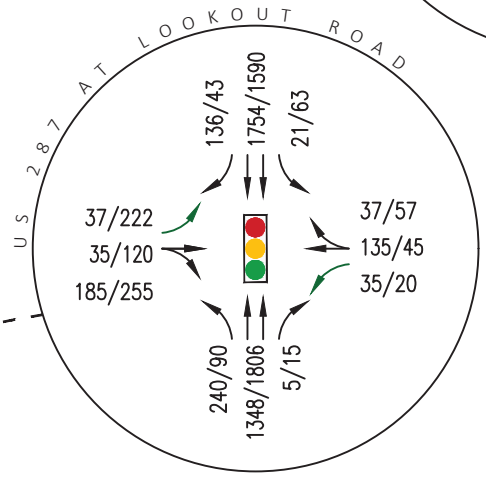
BOULDER COUNTY COMPOSTING FACILITY TRAFFIC IMPACT STUDY

YEAR 2025 BACKGROUND + PROJECT TRAFFIC VOLUMES

FT Project #	20069	Original Scale	NTS	Date	10/8/2020	Drawn by	CRS	Figure #	8







N

KEY

XX / XX	AM / PM PEAK HOUR TRAFFIC VOLUME
XX,XXX	ESTIMATED DAILY TRAFFIC VOLUME
	EXISTING LANE CONFIGURATION
	2025 BACKGROUND LANE CONFIGURATION
	PROJECT LANE CONFIGURATION
	2040 BACKGROUND LANE CONFIGURATION

FOX TUTTLE TRANSPORTATION GROUP

BOULDER COUNTY COMPOSTING FACILITY TRAFFIC IMPACT STUDY

YEAR 2040 BACKGROUND + PROJECT TRAFFIC VOLUMES

FT Project #	20069	Original Scale	NTS	Date	10/8/2020	Drawn by	CRS	Figure #	9

Appendix:

Level of Service Definitions

Existing Traffic Data

Intersection Capacity Worksheets

Level of Service Definitions

LEVEL OF SERVICE DEFINITIONS

In rating roadway and intersection operating conditions with existing or future traffic volumes, "Levels of Service" (LOS) A through F are used, with LOS A indicating very good operation and LOS F indicating poor operation. Levels of service at signalized and unsignalized intersections are closely associated with vehicle delays experienced in seconds per vehicle. More complete level of service definitions and delay data for signal and stop sign controlled intersections are contained in the following table for reference.

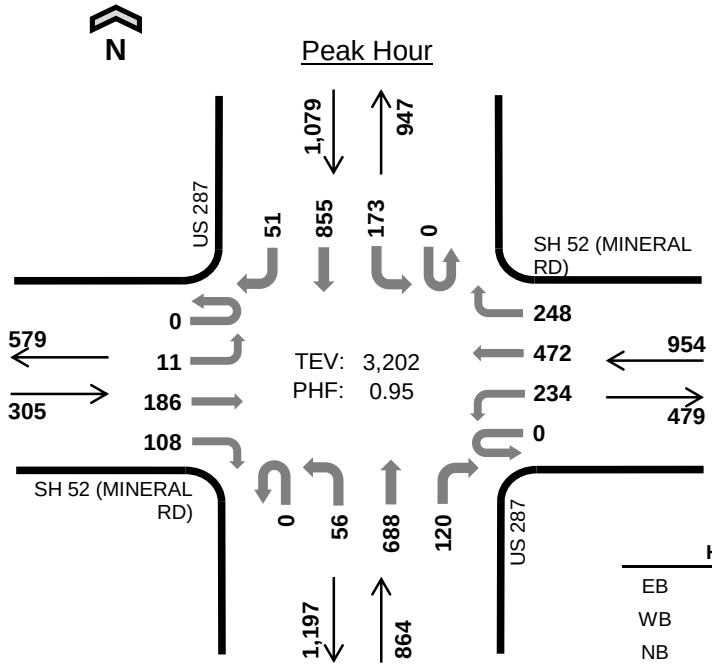
Level of Service Rating	Delay in seconds per vehicle *(a)*		Definition
	Signalized	Unsignalized	
A	0.0 to 10.0	0.0 to 10.0	Low vehicular traffic volumes; primarily free flow operations. Density is low and vehicles can freely maneuver within the traffic stream. Drivers are able to maintain their desired speeds with little or no delay.
B	10.1 to 20.0	10.1 to 15.0	Stable vehicular traffic volume flow with potential for some restriction of operating speeds due to traffic conditions. Vehicle maneuvering is only slightly restricted. The stopped delays are not bothersome and drivers are not subject to appreciable tension.
C	20.1 to 35.0	15.1 to 25.0	Stable traffic operations, however the ability for vehicles to maneuver is more restricted by the increase in traffic volumes. Relatively satisfactory operating speeds prevail, but adverse signal coordination or longer vehicle queues cause delays along the corridor.
D	35.1 to 55.0	25.1 to 35.0	Approaching unstable vehicular traffic flow where small increases in volume could cause substantial delays. Most drivers are restricted in ability to maneuver and selection of travel speeds due to congestion. Driver comfort and convenience are low, but tolerable.
E	55.1 to 80.0	35.1 to 50.0	Traffic operations characterized by significant approach delays and average travel speeds of one-half to one-third the free flow speed. Vehicular flow is unstable and there is potential for stoppages of brief duration. High signal density, extensive vehicle queuing, or corridor signal progression/timing are the typical causes of vehicle delays at signalized corridors.
F	> 80.0	> 50.0	Forced vehicular traffic flow and operations with high approach delays at critical intersections. Vehicle speeds are reduced substantially, and stoppages may occur for short or long periods of time because of downstream congestion.

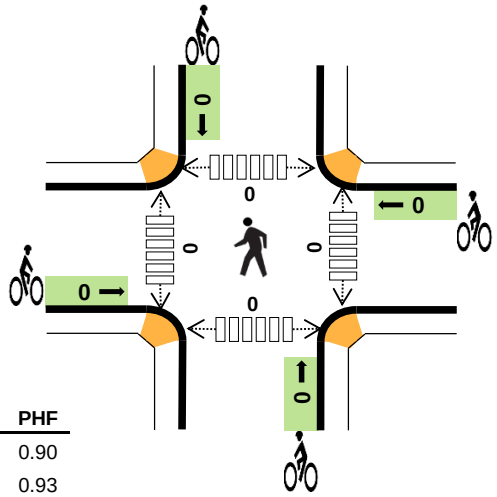
(a) Delay ranges based on Highway Capacity Manual (6th Edition, 2016) criteria.

Existing Traffic Data

US 287
SH 52 (MINERAL RD)

Date: Thu, Sep 24, 2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV %:	PHF
EB	5.9%	0.90
WB	6.3%	0.93
NB	4.3%	0.94
SB	6.0%	0.95
TOTAL	5.6%	0.95

Two-Hour Count Summaries

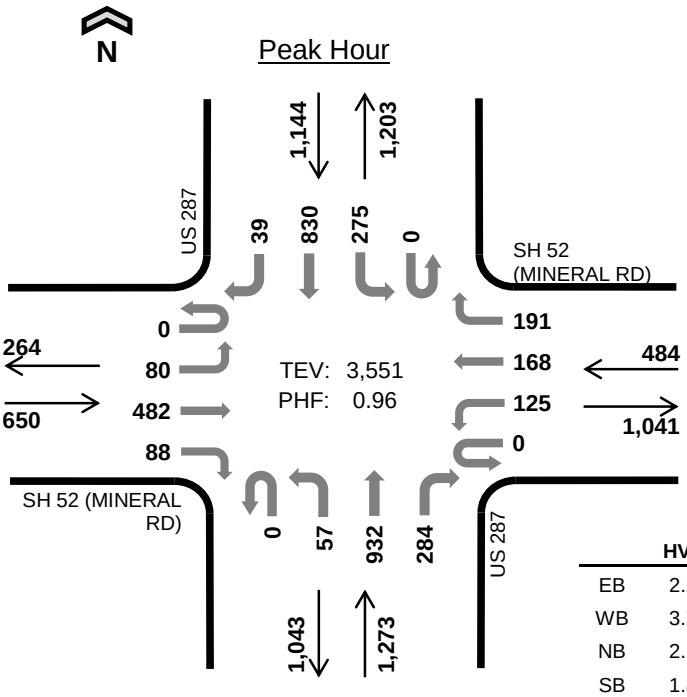
Interval Start	SH 52 (MINERAL RD) Eastbound				SH 52 (MINERAL RD) Westbound				US 287 Northbound				US 287 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	28	14	0	63	138	56	0	3	118	15	0	35	168	9	647	0
7:15 AM	**0**	**1**	**46**	**21**	**0**	**52**	**125**	**53**	**0**	**14**	**159**	**25**	**0**	**37**	**205**	**10**	**748**	0
7:30 AM	**0**	**5**	**50**	**26**	**0**	**73**	**134**	**45**	**0**	**9**	**180**	**33**	**0**	**34**	**236**	**14**	**839**	0
7:45 AM	**0**	**1**	**45**	**39**	**0**	**71**	**111**	**74**	**0**	**15**	**185**	**29**	**0**	**50**	**209**	**14**	**843**	3,077
8:00 AM	**0**	**4**	**45**	**22**	**0**	**38**	**102**	**76**	**0**	**18**	**164**	**33**	**0**	**52**	**205**	**13**	**772**	**3,202**
8:15 AM	0	4	38	20	0	45	103	58	0	14	156	22	0	35	210	12	717	3,171
8:30 AM	0	3	37	12	0	45	90	48	0	23	130	28	0	40	179	17	652	2,984
8:45 AM	0	5	37	10	0	35	64	50	0	13	149	29	0	40	196	9	637	2,778
Count Total	0	23	326	164	0	422	867	460	0	109	1,241	214	0	323	1,608	98	5,855	0
Peak Hour	**0**	**11**	**186**	**108**	**0**	**234**	**472**	**248**	**0**	**56**	**688**	**120**	**0**	**173**	**855**	**51**	**3,202**	**0**

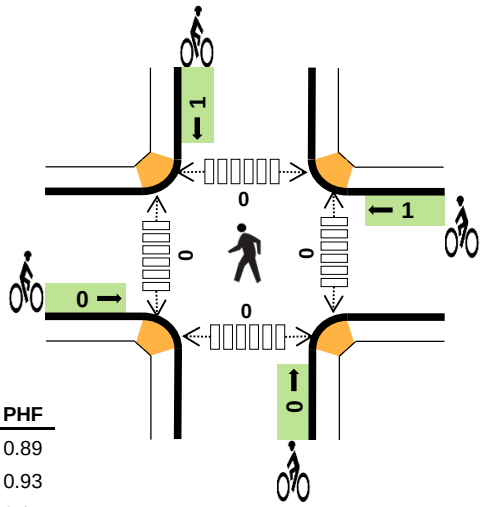
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	14	4	6	*25*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**5**	**17**	**12**	**9**	***43***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**5**	**12**	**8**	**25**	***50***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**5**	**16**	**7**	**17**	***45***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**3**	**15**	**10**	**14**	***42***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:15 AM	4	12	14	19	*49*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	1	19	5	11	*36*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	4	11	20	10	*45*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	28	116	80	111	*335*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**18**	**60**	**37**	**65**	***180***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

US 287
SH 52 (MINERAL RD)

Date: Thu, Sep 24, 2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	2.2%	0.89
WB	3.7%	0.93
NB	2.1%	0.97
SB	1.8%	0.96
TOTAL	2.3%	0.96

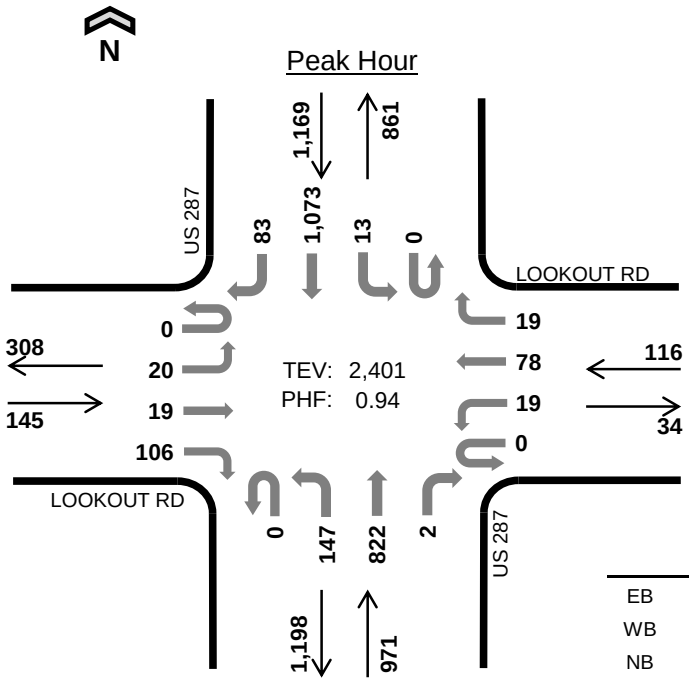
Two-Hour Count Summaries

Interval Start	SH 52 (MINERAL RD) Eastbound				SH 52 (MINERAL RD) Westbound				US 287 Northbound				US 287 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	18	114	20	0	32	42	43	0	21	224	51	0	48	199	6	818	0
4:15 PM	0	20	129	24	0	24	44	45	0	14	244	69	0	52	177	4	846	0
4:30 PM	**0**	**23**	**125**	**23**	**0**	**38**	**38**	**48**	**0**	**9**	**256**	**62**	**0**	**65**	**210**	**9**	**906**	0
4:45 PM	**0**	**16**	**127**	**20**	**0**	**22**	**40**	**52**	**0**	**11**	**233**	**82**	**0**	**68**	**221**	**8**	**900**	3,470
5:00 PM	**0**	**20**	**95**	**18**	**0**	**41**	**42**	**33**	**0**	**19**	**221**	**61**	**0**	**73**	**193**	**6**	**822**	3,474
5:15 PM	**0**	**21**	**135**	**27**	**0**	**24**	**48**	**58**	**0**	**18**	**222**	**79**	**0**	**69**	**206**	**16**	**923**	**3,551**
5:30 PM	0	5	103	19	0	21	50	53	0	4	246	62	0	52	187	11	813	3,458
5:45 PM	0	12	85	12	0	15	48	54	0	11	182	47	0	61	145	2	674	3,232
Count Total	0	135	913	163	0	217	352	386	0	107	1,828	513	0	488	1,538	62	6,702	0
Peak Hour	**0**	**80**	**482**	**88**	**0**	**125**	**168**	**191**	**0**	**57**	**932**	**284**	**0**	**275**	**830**	**39**	**3,551**	**0**

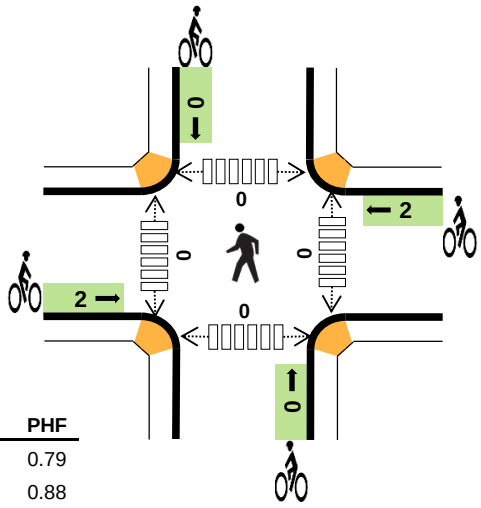
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	9	6	6	8	*29*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	8	4	9	6	*27*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	**8**	**5**	**7**	**7**	***27***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**3**	**5**	**6**	**5**	***19***	**0**	**1**	**0**	**1**	***2***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**3**	**5**	**6**	**4**	***18***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**3**	**8**	**5**	***16***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:30 PM	1	2	5	4	*12*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	2	4	5	3	*14*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	34	34	52	42	*162*	0	1	0	1	*2*	0	0	0	0	*0*
Peak Hour	**14**	**18**	**27**	**21**	***80***	**0**	**1**	**0**	**1**	***2***	**0**	**0**	**0**	**0**	***0***

US 287
LOOKOUT RD



Date: Thu, Sep 24, 2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	2.8%	0.79
WB	1.7%	0.88
NB	4.1%	0.93
SB	5.0%	0.89
TOTAL	4.4%	0.94

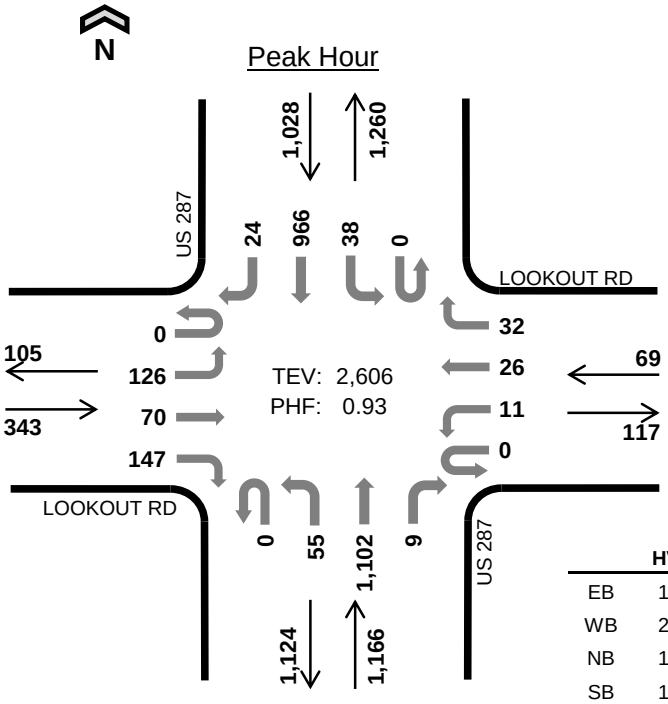
Two-Hour Count Summaries

Interval Start	LOOKOUT RD Eastbound				LOOKOUT RD Westbound				US 287 Northbound				US 287 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	3	1	3	0	4	14	2	0	17	133	1	0	1	219	20	418	0
7:15 AM	0	6	3	8	0	2	11	4	0	29	186	2	0	0	251	20	522	0
7:30 AM	**0**	**7**	**4**	**21**	**0**	**3**	**27**	**3**	**0**	**25**	**217**	**0**	**0**	**1**	**302**	**26**	**636**	0
7:45 AM	**0**	**3**	**3**	**40**	**0**	**6**	**16**	**5**	**0**	**39**	**216**	**0**	**0**	**2**	**282**	**29**	**641**	2,217
8:00 AM	**0**	**7**	**5**	**24**	**0**	**6**	**20**	**4**	**0**	**46**	**213**	**1**	**0**	**2**	**243**	**15**	**586**	2,385
8:15 AM	**0**	**3**	**7**	**21**	**0**	**4**	**15**	**7**	**0**	**37**	**176**	**1**	**0**	**8**	**246**	**13**	**538**	**2,401**
8:30 AM	0	6	5	12	0	5	15	10	0	27	170	0	0	5	220	13	488	2,253
8:45 AM	0	8	2	16	0	2	12	5	0	27	178	1	0	0	222	15	488	2,100
Count Total	0	43	30	145	0	32	130	40	0	247	1,489	6	0	19	1,985	151	4,317	0
Peak Hour	**0**	**20**	**19**	**106**	**0**	**19**	**78**	**19**	**0**	**147**	**822**	**2**	**0**	**13**	**1,073**	**83**	**2,401**	**0**

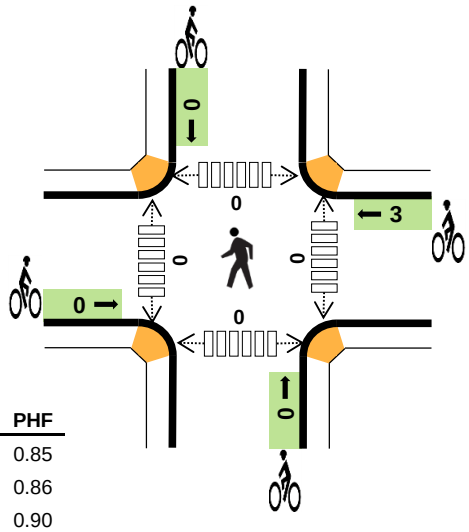
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	3	15	*18*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	0	0	10	13	*23*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	**0**	**0**	**11**	**16**	***27***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**3**	**1**	**6**	**21**	***31***	**1**	**1**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**1**	**1**	**10**	**11**	***23***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**0**	**0**	**13**	**11**	***24***	**1**	**1**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***
8:30 AM	2	0	7	12	*21*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	1	0	17	15	*33*	1	0	0	0	*1*	0	0	0	0	*0*
Count Total	7	2	77	114	*200*	3	2	0	0	*5*	0	0	0	0	*0*
Peak Hour	**4**	**2**	**40**	**59**	***105***	**2**	**2**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***

US 287
LOOKOUT RD



Date: Thu, Sep 24, 2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	1.7%	0.85
WB	2.9%	0.86
NB	1.6%	0.90
SB	1.6%	0.95
TOTAL	1.7%	0.93

Two-Hour Count Summaries

Interval Start	LOOKOUT RD Eastbound				LOOKOUT RD Westbound				US 287 Northbound				US 287 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	26	23	35	0	3	6	12	0	17	246	4	0	7	235	9	623	0
4:15 PM	0	30	25	43	0	2	4	8	0	12	321	1	0	5	212	4	667	0
4:30 PM	**0**	**28**	**23**	**33**	**0**	**0**	**9**	**11**	**0**	**11**	**256**	**4**	**0**	**12**	**252**	**7**	**646**	0
4:45 PM	**0**	**28**	**13**	**36**	**0**	**4**	**6**	**7**	**0**	**12**	**288**	**1**	**0**	**9**	**245**	**7**	**656**	2,592
5:00 PM	**0**	**31**	**15**	**35**	**0**	**3**	**6**	**4**	**0**	**15**	**254**	**1**	**0**	**7**	**232**	**3**	**606**	2,575
5:15 PM	**0**	**39**	**19**	**43**	**0**	**4**	**5**	**10**	**0**	**17**	**304**	**3**	**0**	**10**	**237**	**7**	**698**	**2,606**
5:30 PM	0	30	18	17	0	2	7	2	0	22	244	3	0	5	213	3	566	2,526
5:45 PM	0	18	13	16	0	2	7	8	0	14	216	2	0	7	154	4	461	2,331
Count Total	0	230	149	258	0	20	50	62	0	120	2,129	19	0	62	1,780	44	4,923	0
Peak Hour	**0**	**126**	**70**	**147**	**0**	**11**	**26**	**32**	**0**	**55**	**1,102**	**9**	**0**	**38**	**966**	**24**	**2,606**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	0	5	9	*16*	0	0	1	0	*1*	0	0	0	0	*0*
4:15 PM	7	0	11	5	*23*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	**1**	**1**	**4**	**4**	***10***	**0**	**2**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**2**	**0**	**3**	**6**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**3**	**0**	**4**	**4**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**1**	**8**	**2**	***11***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***
5:30 PM	0	0	4	5	*9*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	2	0	5	2	*9*	1	0	0	0	*1*	0	0	0	0	*0*
Count Total	17	2	44	37	*100*	1	3	1	0	*5*	0	0	0	0	*0*
Peak Hour	**6**	**2**	**19**	**16**	***43***	**0**	**3**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***

CDOT Data

Location	Year	AADT		NB/EB AM Hour	NB/EB PM Hour	SB/WB AM Hour	SB/WB PM Hour	AM	PM	
ON SH 287, 107TH ST S/O LOOKOUT RD, CR 38	2017	26304		1198	1334	1120	1167	2318	2501	
	2019	27473	Grown by annual rate							
	Aug-20	22702		814	1046	965	891	1779	1937	
		-3602		*-384*	*-288*	*-155*	*-276*	*-539*	*-564*	
		-14%		-32%	-22%	-14%	-24%	**-23%**	**-23%**	**-23%**
								Use for US 287		
ON LOOKOUT RD E/O SH 287	2017	2021		48	203	173	76	221	279	
	2019	2104	Grown by annual rate							
Count:	*2020*		*83*	34	117	116	69	150	186	
			4%	*-14*	*-86*	*-57*	*-7*	*-71*	*-93*	
				-29%	-42%	-33%	-9%	**-32%**	**-33%**	**-32%**
								Use for Lookout		
ON SH 287, 107TH ST S/O SH 52, MINERAL RD	2017	23955		1049	1521	1328	1250	2377	2771	
	2019	25020	Grown by annual rate							
ON SH 52 E/O SH 287	2017	16730		463	1031	1134	563	1597	1594	
	2018	15154		533	1135	1174	691	1707	1826	
	2019	15553		445	1002	1116	510	1561	1512	
	Jul-20	17868		424	985	971	570	1395	1555	
				-21	*-17*	*-145*	*60*	*-166*	*43*	
				-5%	-2%	-13%	12%	-11%	3%	
ON SH 52 W/O SH 287	2017	11139		276	924	786	319	1062	1243	
	2019	11589	Grown by annual rate							
	Jul-20	10128		225	627	594	312	819	939	
				-51	*-297*	*-192*	*-7*	*-243*	*-304*	
				0%	-32%	-24%	-2%	-23%	-24%	
								-17%	**-11%**	**-14%**
								Use for SH 52		

CDOT 20-Year Factors

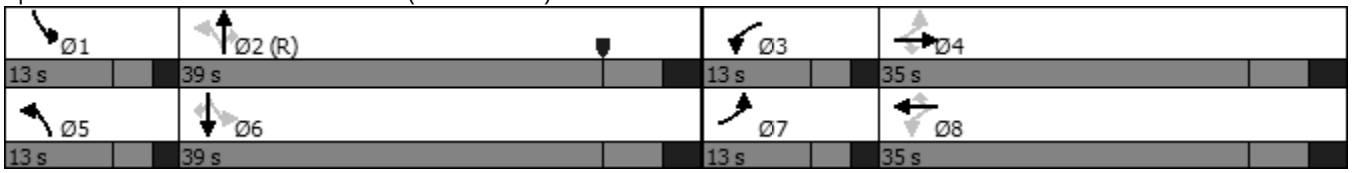
US 287 S/O SH 52	1.32	1.4%
US 287 N/O SH 53	1.31	1.4%
US 287 S/O Lookout	1.39	1.7%
SH 52 W/O US 287	1.32	1.4%
SH 52 E/O US 287	1.31	1.4%
	1.33	1.4%

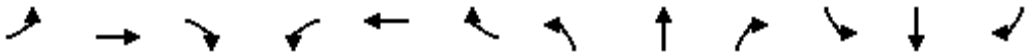
Intersection Capacity Worksheets: Existing

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	212	123	267	538	283	69	846	148	213	1052	63
Future Volume (vph)	13	212	123	267	538	283	69	846	148	213	1052	63
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	35.0	35.0	13.0	35.0	35.0	13.0	39.0	39.0	13.0	39.0	39.0
Total Split (%)	13.0%	35.0%	35.0%	13.0%	35.0%	35.0%	13.0%	39.0%	39.0%	13.0%	39.0%	39.0%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	25.4	14.9	14.9	29.4	25.3	25.3	49.6	39.1	39.1	58.6	46.7	46.7
Actuated g/C Ratio	0.25	0.15	0.15	0.29	0.25	0.25	0.50	0.39	0.39	0.59	0.47	0.47
v/c Ratio	0.05	0.47	0.37	0.87	0.67	0.48	0.28	0.66	0.22	0.62	0.70	0.08

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 41 (41%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 25.8
Intersection Capacity Utilization 79.7%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)



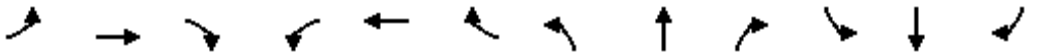


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	14	236	137	287	578	304	73	900	157	224	1107	66
v/c Ratio	0.05	0.47	0.37	0.87	0.67	0.48	0.28	0.66	0.22	0.62	0.70	0.08
Control Delay	21.6	40.8	6.5	55.9	37.8	6.3	11.7	21.5	1.7	22.6	26.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	40.8	6.5	55.9	37.8	6.3	11.7	21.5	1.7	22.6	26.5	0.2
Queue Length 50th (ft)	7	75	0	158	174	0	13	245	0	57	283	0
Queue Length 95th (ft)	17	94	34	#189	227	62	m29	m311	m14	#223	#530	0
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	272	936	549	331	936	655	262	1357	714	360	1591	823
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.25	0.25	0.87	0.62	0.46	0.28	0.66	0.22	0.62	0.70	0.08

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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	212	123	267	538	283	69	846	148	213	1052	63
Future Volume (veh/h)	13	212	123	267	538	283	69	846	148	213	1052	63
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	1811	1870	1870	1811	1870	1870	1841	1870	1870	1811	1870
Adj Flow Rate, veh/h	14	236	0	287	578	0	73	900	0	224	1107	0
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.94	0.94	0.94	0.95	0.95	0.95
Percent Heavy Veh, %	2	6	2	2	6	2	2	4	2	2	6	2
Cap, veh/h	155	518		315	704		292	1537		366	1549	
Arrive On Green	0.03	0.15	0.00	0.08	0.20	0.00	0.07	0.44	0.00	0.08	0.45	0.00
Sat Flow, veh/h	1781	3441	1585	1781	3441	1585	1781	3497	1585	1781	3441	1585
Grp Volume(v), veh/h	14	236	0	287	578	0	73	900	0	224	1107	0
Grp Sat Flow(s),veh/h/ln	1781	1721	1585	1781	1721	1585	1781	1749	1585	1781	1721	1585
Q Serve(g_s), s	0.7	6.3	0.0	8.0	16.1	0.0	2.1	19.4	0.0	6.9	26.1	0.0
Cycle Q Clear(g_c), s	0.7	6.3	0.0	8.0	16.1	0.0	2.1	19.4	0.0	6.9	26.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	155	518		315	704		292	1537		366	1549	
V/C Ratio(X)	0.09	0.46		0.91	0.82		0.25	0.59		0.61	0.71	
Avail Cap(c_a), veh/h	251	946		315	946		311	1537		366	1549	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.8	38.7	0.0	38.0	38.0	0.0	16.2	21.1	0.0	16.2	22.3	0.0
Incr Delay (d2), s/veh	0.2	0.6	0.0	29.1	4.3	0.0	0.4	1.6	0.0	3.0	2.9	0.0
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(50%),veh/ln	0.3	2.6	0.0	5.5	6.9	0.0	0.8	7.4	0.0	2.7	9.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.0	39.4	0.0	67.1	42.3	0.0	16.7	22.8	0.0	19.1	25.1	0.0
LnGrp LOS	D	D		E	D		B	C		B	C	
Approach Vol, veh/h		250	A		865	A		973	A		1331	A
Approach Delay, s/veh		39.1			50.5			22.3			24.1	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	51.5	13.0	22.5	11.9	52.5	7.6	28.0
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	8.0	31.5	8.0	27.5	8.0	31.5	8.0	27.5
Max Q Clear Time (g_c+I1), s	8.9	21.4	10.0	8.3	4.1	28.1	2.7	18.1
Green Ext Time (p_c), s	0.0	3.9	0.0	1.2	0.0	2.1	0.0	2.4

Intersection Summary		
HCM 6th Ctrl Delay		31.4
HCM 6th LOS		C

Notes

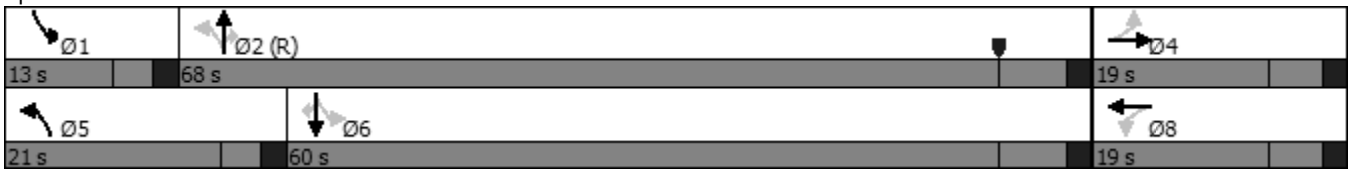
User approved pedestrian interval to be less than phase max green.

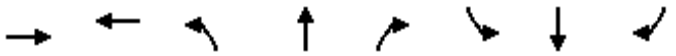
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	26	25	25	103	181	1011	2	16	1320	102
Future Volume (vph)	26	25	25	103	181	1011	2	16	1320	102
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	8.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	34.0	34.0	34.0	34.0	13.0	22.0	22.0	13.0	22.0	22.0
Total Split (s)	19.0	19.0	19.0	19.0	21.0	68.0	68.0	13.0	60.0	60.0
Total Split (%)	19.0%	19.0%	19.0%	19.0%	21.0%	68.0%	68.0%	13.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)		13.0		13.0	76.0	68.8	68.8	66.3	56.3	56.3
Actuated g/C Ratio		0.13		0.13	0.76	0.69	0.69	0.66	0.56	0.56
v/c Ratio		0.88		1.04	0.60	0.46	0.00	0.04	0.77	0.12
Control Delay		54.3		123.8	20.9	8.7	0.0	2.1	13.3	0.3
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		54.3		123.8	20.9	8.7	0.0	2.1	13.3	0.3
LOS		D		F	C	A	A	A	B	A
Approach Delay		54.3		123.8		10.6			12.3	
Approach LOS		D		F		B			B	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 4 (4%), Referenced to phase 2:NBTL, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 20.5	Intersection LOS: C
Intersection Capacity Utilization 76.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: US 287 & Lookout Road





Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	242	173	195	1087	2	18	1483	115
v/c Ratio	0.88	1.04	0.60	0.46	0.00	0.04	0.77	0.12
Control Delay	54.3	123.8	20.9	8.7	0.0	2.1	13.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.3	123.8	20.9	8.7	0.0	2.1	13.3	0.3
Queue Length 50th (ft)	82	~115	45	115	0	2	144	0
Queue Length 95th (ft)	#166	#243	116	241	0	m2	239	m1
Internal Link Dist (ft)	1379	1203		902			1202	
Turn Bay Length (ft)			470		470	500		510
Base Capacity (vph)	276	166	379	2388	1116	427	1936	953
Starvation Cap Reductn	0	0	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	0.88	1.04	0.51	0.46	0.00	0.04	0.77	0.12

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	25	140	25	103	25	181	1011	2	16	1320	102
Future Volume (veh/h)	26	25	140	25	103	25	181	1011	2	16	1320	102
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	1856	1870	1870	1870	1870	1870	1841	1870	1870	1826	1870
Adj Flow Rate, veh/h	33	32	0	28	117	0	195	1087	2	18	1483	115
Peak Hour Factor	0.79	0.79	0.79	0.88	0.88	0.88	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	2	3	2	2	2	2	2	4	2	2	5	2
Cap, veh/h	116	95		68	158		331	2401	1088	410	2215	1012
Arrive On Green	0.10	0.10	0.00	0.10	0.10	0.00	0.08	0.69	0.69	0.03	0.64	0.64
Sat Flow, veh/h	606	931	0	244	1548	0	1781	3497	1585	1781	3469	1585
Grp Volume(v), veh/h	65	0	0	145	0	0	195	1087	2	18	1483	115
Grp Sat Flow(s),veh/h/ln	1537	0	0	1791	0	0	1781	1749	1585	1781	1735	1585
Q Serve(g_s), s	0.0	0.0	0.0	4.2	0.0	0.0	3.2	14.1	0.0	0.3	27.0	2.8
Cycle Q Clear(g_c), s	3.7	0.0	0.0	7.8	0.0	0.0	3.2	14.1	0.0	0.3	27.0	2.8
Prop In Lane	0.51		0.00	0.19		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	211	0		226	0		331	2401	1088	410	2215	1012
V/C Ratio(X)	0.31	0.00		0.64	0.00		0.59	0.45	0.00	0.04	0.67	0.11
Avail Cap(c_a), veh/h	253	0		275	0		474	2401	1088	497	2215	1012
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	0.0	0.0	43.8	0.0	0.0	14.4	7.1	4.9	6.0	11.4	7.0
Incr Delay (d2), s/veh	3.0	0.0	0.0	10.8	0.0	0.0	3.5	0.6	0.0	0.1	1.6	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(50%),veh/ln	1.6	0.0	0.0	4.1	0.0	0.0	2.4	3.9	0.0	0.1	8.3	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	0.0	0.0	54.5	0.0	0.0	17.9	7.7	4.9	6.0	13.0	7.3
LnGrp LOS	D	A		D	A		B	A	A	A	B	A
Approach Vol, veh/h		65	A		145	A		1284			1616	
Approach Delay, s/veh		44.8			54.5			9.3			12.6	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	75.7		16.2	13.0	70.8		16.2				
Change Period (Y+Rc), s	5.0	7.0		6.0	5.0	7.0		6.0				
Max Green Setting (Gmax), s	8.0	61.0		13.0	16.0	53.0		13.0				
Max Q Clear Time (g_c+I1), s	2.3	16.1		5.7	5.2	29.0		9.8				
Green Ext Time (p_c), s	0.0	22.8		0.2	0.8	20.3		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		13.8
HCM 6th LOS		B

Notes

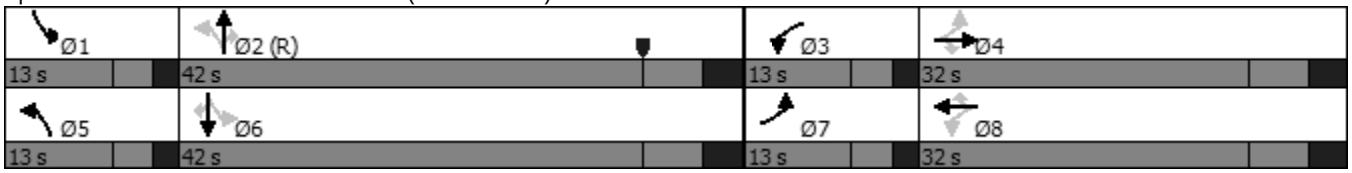
User approved pedestrian interval to be less than phase max green.

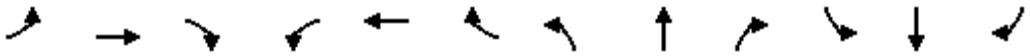
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	549	100	143	192	218	70	1146	349	338	1021	48
Future Volume (vph)	91	549	100	143	192	218	70	1146	349	338	1021	48
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	32.0	32.0	13.0	32.0	32.0	13.0	42.0	42.0	13.0	42.0	42.0
Total Split (%)	13.0%	32.0%	32.0%	13.0%	32.0%	32.0%	13.0%	42.0%	42.0%	13.0%	42.0%	42.0%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	32.8	22.3	22.3	33.8	24.9	24.9	45.0	34.5	34.5	49.0	39.3	39.3
Actuated g/C Ratio	0.33	0.22	0.22	0.34	0.25	0.25	0.45	0.34	0.34	0.49	0.39	0.39
v/c Ratio	0.24	0.78	0.24	0.61	0.24	0.41	0.31	0.97	0.51	1.37	0.77	0.07

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 28 (28%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.37
Intersection Signal Delay: 42.8
Intersection Capacity Utilization 94.3%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)





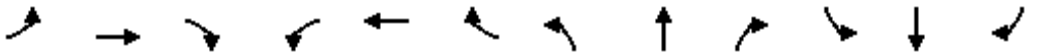
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	102	617	112	154	206	234	72	1181	360	352	1064	50
v/c Ratio	0.24	0.78	0.24	0.61	0.24	0.41	0.31	0.97	0.51	1.37	0.77	0.07
Control Delay	21.4	44.0	3.0	32.1	31.3	6.6	8.1	32.5	4.9	213.2	32.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	44.0	3.0	32.1	31.3	6.6	8.1	32.5	4.9	213.2	32.5	0.2
Queue Length 50th (ft)	41	191	0	64	55	0	6	425	53	~271	328	0
Queue Length 95th (ft)	75	248	17	108	87	59	m7	m#495	m58	#457	#446	0
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	429	867	507	254	890	574	232	1220	704	257	1390	710
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.71	0.22	0.61	0.23	0.41	0.31	0.97	0.51	1.37	0.77	0.07

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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	549	100	143	192	218	70	1146	349	338	1021	48
Future Volume (veh/h)	91	549	100	143	192	218	70	1146	349	338	1021	48
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	1841	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	102	617	0	154	206	0	72	1181	0	352	1064	0
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.97	0.97	0.97	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	4	2	2	2	2	2	2	2
Cap, veh/h	396	734		247	738		267	1363		251	1401	
Arrive On Green	0.08	0.21	0.00	0.08	0.21	0.00	0.07	0.38	0.00	0.08	0.39	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3497	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	102	617	0	154	206	0	72	1181	0	352	1064	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1749	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	4.4	16.7	0.0	6.8	4.9	0.0	2.3	30.7	0.0	8.0	25.9	0.0
Cycle Q Clear(g_c), s	4.4	16.7	0.0	6.8	4.9	0.0	2.3	30.7	0.0	8.0	25.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	396	734		247	738		267	1363		251	1401	
V/C Ratio(X)	0.26	0.84		0.62	0.28		0.27	0.87		1.40	0.76	
Avail Cap(c_a), veh/h	405	871		247	857		286	1363		251	1401	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.5	38.1	0.0	29.6	33.1	0.0	19.2	28.5	0.0	25.4	26.2	0.0
Incr Delay (d2), s/veh	0.3	6.5	0.0	4.9	0.2	0.0	0.5	7.6	0.0	203.5	3.9	0.0
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(50%),veh/ln	1.9	7.7	0.0	3.1	2.1	0.0	0.9	13.1	0.0	17.4	10.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	44.6	0.0	34.4	33.3	0.0	19.7	36.1	0.0	228.9	30.1	0.0
LnGrp LOS	C	D		C	C		B	D		F	C	
Approach Vol, veh/h		719	A		360	A		1253	A		1416	A
Approach Delay, s/veh		42.2			33.8			35.1			79.5	
Approach LOS		D			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	45.9	13.0	28.1	11.9	46.9	12.5	28.6
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	8.0	34.5	8.0	24.5	8.0	34.5	8.0	24.5
Max Q Clear Time (g_c+I1), s	10.0	32.7	8.8	18.7	4.3	27.9	6.4	6.9
Green Ext Time (p_c), s	0.0	1.2	0.0	2.0	0.0	3.4	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	53.1
HCM 6th LOS	D

Notes

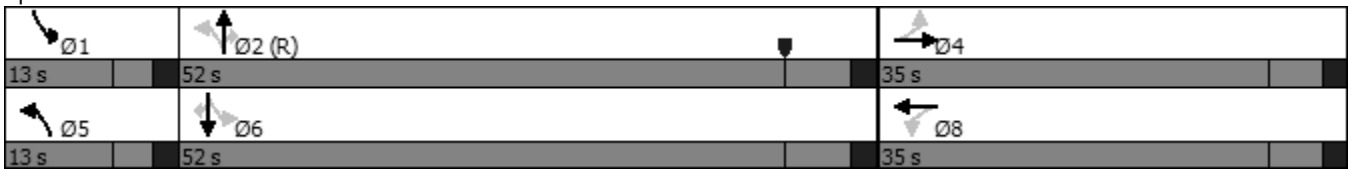
User approved pedestrian interval to be less than phase max green.

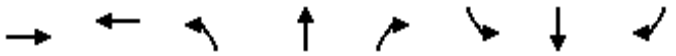
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	166	92	15	34	68	1355	11	47	1188	30
Future Volume (vph)	166	92	15	34	68	1355	11	47	1188	30
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	8.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	34.0	34.0	34.0	34.0	13.0	22.0	22.0	13.0	22.0	22.0
Total Split (s)	35.0	35.0	35.0	35.0	13.0	52.0	52.0	13.0	52.0	52.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	13.0%	52.0%	52.0%	13.0%	52.0%	52.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)		29.0		29.0	56.0	47.6	47.6	56.0	47.6	47.6
Actuated g/C Ratio		0.29		0.29	0.56	0.48	0.48	0.56	0.48	0.48
v/c Ratio		1.16		0.22	0.32	0.89	0.02	0.22	0.74	0.04
		126.4		17.8	12.2	33.3	0.0	22.0	44.4	8.1

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 56 (56%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 49.7
Intersection Capacity Utilization 91.7%
Analysis Period (min) 15

Splits and Phases: 2: US 287 & Lookout Road





Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	531	106	76	1506	12	49	1251	32
v/c Ratio	1.16	0.22	0.32	0.89	0.02	0.22	0.74	0.04
Control Delay	126.4	17.8	12.2	33.3	0.0	22.0	44.4	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	126.4	17.8	12.2	33.3	0.0	22.0	44.4	8.1
Queue Length 50th (ft)	~386	29	19	470	0	28	451	0
Queue Length 95th (ft)	#540	67	38	#634	0	m40	522	m5
Internal Link Dist (ft)	1379	1203		902			1202	
Turn Bay Length (ft)			470		470	500		510
Base Capacity (vph)	457	475	239	1684	799	218	1684	799
Starvation Cap Reductn	0	0	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	1.16	0.22	0.32	0.89	0.02	0.22	0.74	0.04

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	92	194	15	34	42	68	1355	11	47	1188	30
Future Volume (veh/h)	166	92	194	15	34	42	68	1355	11	47	1188	30
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	1856	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	195	108	0	17	40	0	76	1506	12	49	1251	32
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	3	2	2	2	2	2	2	2
Cap, veh/h	286	126		134	291		310	1892	844	243	1854	827
Arrive On Green	0.23	0.23	0.00	0.23	0.23	0.00	0.07	0.53	0.53	0.06	0.52	0.52
Sat Flow, veh/h	994	550	0	383	1277	0	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	303	0	0	57	0	0	76	1506	12	49	1251	32
Grp Sat Flow(s),veh/h/ln	1544	0	0	1660	0	0	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	16.3	0.0	0.0	0.0	0.0	0.0	1.8	34.4	0.4	1.2	26.0	1.0
Cycle Q Clear(g_c), s	18.7	0.0	0.0	2.4	0.0	0.0	1.8	34.4	0.4	1.2	26.0	1.0
Prop In Lane	0.64		0.00	0.30		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	411	0		425	0		310	1892	844	243	1854	827
V/C Ratio(X)	0.74	0.00		0.13	0.00		0.25	0.80	0.01	0.20	0.67	0.04
Avail Cap(c_a), veh/h	505	0		527	0		327	1892	844	279	1854	827
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	0.0	0.0	30.7	0.0	0.0	12.8	19.0	11.0	15.5	17.7	11.7
Incr Delay (d2), s/veh	9.4	0.0	0.0	0.5	0.0	0.0	0.9	3.6	0.0	0.9	2.0	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(50%),veh/ln	7.7	0.0	0.0	1.1	0.0	0.0	0.7	12.7	0.1	0.4	9.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	0.0	0.0	31.3	0.0	0.0	13.7	22.5	11.0	16.3	19.6	11.8
LnGrp LOS	D	A		C	A		B	C	B	B	B	B
Approach Vol, veh/h		303	A		57	A		1594			1332	
Approach Delay, s/veh		46.2			31.3			22.0			19.3	
Approach LOS		D			C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.9	60.2		28.8	12.0	59.2		28.8				
Change Period (Y+Rc), s	5.0	7.0		6.0	5.0	7.0		6.0				
Max Green Setting (Gmax), s	8.0	45.0		29.0	8.0	45.0		29.0				
Max Q Clear Time (g_c+I1), s	3.2	36.4		20.7	3.8	28.0		4.4				
Green Ext Time (p_c), s	0.1	7.8		2.1	0.1	13.3		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		23.3	
HCM 6th LOS		C	

Notes

User approved pedestrian interval to be less than phase max green.

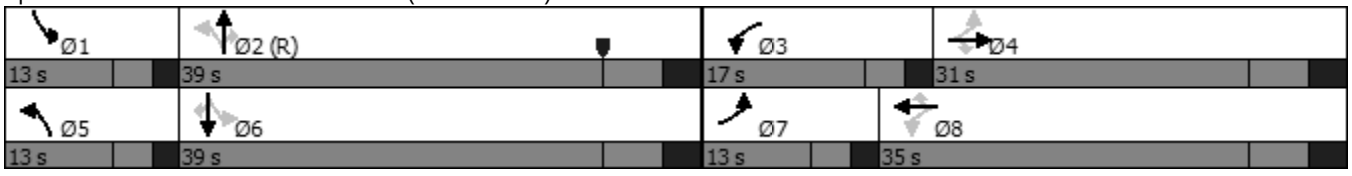
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

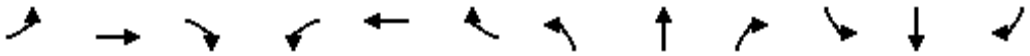
Intersection Capacity Worksheets:
Existing
With Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	212	123	267	538	283	69	846	148	213	1052	63
Future Volume (vph)	13	212	123	267	538	283	69	846	148	213	1052	63
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	31.0	31.0	17.0	35.0	35.0	13.0	39.0	39.0	13.0	39.0	39.0
Total Split (%)	13.0%	31.0%	31.0%	17.0%	35.0%	35.0%	13.0%	39.0%	39.0%	13.0%	39.0%	39.0%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	24.5	14.0	14.0	33.3	28.4	28.4	51.2	40.7	40.7	52.8	43.6	43.6
Actuated g/C Ratio	0.24	0.14	0.14	0.33	0.28	0.28	0.51	0.41	0.41	0.53	0.44	0.44
v/c Ratio	0.05	0.49	0.38	0.72	0.60	0.46	0.31	0.64	0.21	0.39	0.75	0.08

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 41 (41%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 24.2
Intersection Capacity Utilization 79.7%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	14	236	137	287	578	304	73	900	157	224	1107	66
v/c Ratio	0.05	0.49	0.38	0.72	0.60	0.46	0.31	0.64	0.21	0.39	0.75	0.08
Control Delay	20.5	42.4	7.1	37.0	33.8	5.7	18.3	20.0	1.6	13.4	29.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	42.4	7.1	37.0	33.8	5.7	18.3	20.0	1.6	13.4	29.7	0.2
Queue Length 50th (ft)	6	75	0	148	164	0	13	234	0	30	307	0
Queue Length 95th (ft)	17	100	36	189	227	62	m45	m311	m14	62	#530	0
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	275	800	492	400	971	668	235	1411	737	569	1484	778
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.29	0.28	0.72	0.60	0.46	0.31	0.64	0.21	0.39	0.75	0.08

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	212	123	267	538	283	69	846	148	213	1052	63
Future Volume (veh/h)	13	212	123	267	538	283	69	846	148	213	1052	63
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	1811	1870	1870	1811	1870	1870	1841	1870	1870	1811	1870
Adj Flow Rate, veh/h	14	236	0	287	578	0	73	900	0	224	1107	0
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.94	0.94	0.94	0.95	0.95	0.95
Percent Heavy Veh, %	2	6	2	2	6	2	2	4	2	2	6	2
Cap, veh/h	155	380		337	704		292	1538		715	1549	
Arrive On Green	0.03	0.11	0.00	0.12	0.20	0.00	0.07	0.44	0.00	0.08	0.45	0.00
Sat Flow, veh/h	1781	3441	1585	1781	3441	1585	1781	3497	1585	3456	3441	1585
Grp Volume(v), veh/h	14	236	0	287	578	0	73	900	0	224	1107	0
Grp Sat Flow(s),veh/h/ln	1781	1721	1585	1781	1721	1585	1781	1749	1585	1728	1721	1585
Q Serve(g_s), s	0.7	6.5	0.0	12.0	16.1	0.0	2.1	19.4	0.0	3.3	26.1	0.0
Cycle Q Clear(g_c), s	0.7	6.5	0.0	12.0	16.1	0.0	2.1	19.4	0.0	3.3	26.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	155	380		337	704		292	1538		715	1549	
V/C Ratio(X)	0.09	0.62		0.85	0.82		0.25	0.59		0.31	0.71	
Avail Cap(c_a), veh/h	251	809		337	946		311	1538		715	1549	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	37.8	42.5	0.0	35.4	38.0	0.0	16.2	21.1	0.0	14.7	22.3	0.0
Incr Delay (d2), s/veh	0.2	1.7	0.0	18.4	4.3	0.0	0.4	1.6	0.0	0.2	2.9	0.0
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(50%),veh/ln	0.3	2.8	0.0	7.6	6.9	0.0	0.8	7.3	0.0	1.1	9.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.1	44.1	0.0	53.8	42.3	0.0	16.7	22.8	0.0	14.9	25.1	0.0
LnGrp LOS	D	D		D	D		B	C		B	C	
Approach Vol, veh/h		250	A		865	A		973	A		1331	A
Approach Delay, s/veh		43.8			46.1			22.3			23.4	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	51.5	17.0	18.5	11.9	52.5	7.6	28.0
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	8.0	31.5	12.0	23.5	8.0	31.5	8.0	27.5
Max Q Clear Time (g_c+I1), s	5.3	21.4	14.0	8.5	4.1	28.1	2.7	18.1
Green Ext Time (p_c), s	0.2	3.9	0.0	1.1	0.0	2.1	0.0	2.4

Intersection Summary	
HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Notes

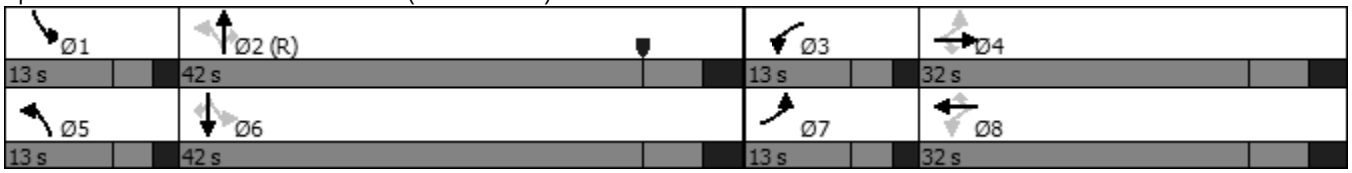
User approved pedestrian interval to be less than phase max green.

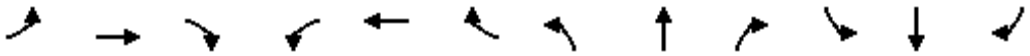
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	549	100	143	192	218	70	1146	349	338	1021	48
Future Volume (vph)	91	549	100	143	192	218	70	1146	349	338	1021	48
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	32.0	32.0	13.0	32.0	32.0	13.0	42.0	42.0	13.0	42.0	42.0
Total Split (%)	13.0%	32.0%	32.0%	13.0%	32.0%	32.0%	13.0%	42.0%	42.0%	13.0%	42.0%	42.0%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	32.8	22.3	22.3	33.8	24.9	24.9	46.5	36.0	36.0	48.8	39.3	39.3
Actuated g/C Ratio	0.33	0.22	0.22	0.34	0.25	0.25	0.46	0.36	0.36	0.49	0.39	0.39
v/c Ratio	0.24	0.78	0.24	0.61	0.24	0.41	0.31	0.93	0.50	0.78	0.77	0.07

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 8 (8%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 28.0
Intersection Capacity Utilization 85.3%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	102	617	112	154	206	234	72	1181	360	352	1064	50
v/c Ratio	0.24	0.78	0.24	0.61	0.24	0.41	0.31	0.93	0.50	0.78	0.77	0.07
Control Delay	21.4	44.0	3.0	32.1	31.3	6.6	14.6	29.4	6.4	31.0	32.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	44.0	3.0	32.1	31.3	6.6	14.6	29.4	6.4	31.0	32.5	0.2
Queue Length 50th (ft)	41	191	0	64	55	0	15	235	34	61	328	0
Queue Length 95th (ft)	75	248	17	108	87	59	m19	m#460	m43	#138	#446	0
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	429	867	507	254	890	574	232	1273	724	453	1390	710
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.71	0.22	0.61	0.23	0.41	0.31	0.93	0.50	0.78	0.77	0.07

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	549	100	143	192	218	70	1146	349	338	1021	48
Future Volume (veh/h)	91	549	100	143	192	218	70	1146	349	338	1021	48
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	1841	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	102	617	0	154	206	0	72	1181	0	352	1064	0
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.97	0.97	0.97	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	4	2	2	2	2	2	2	2
Cap, veh/h	396	734		247	738		267	1363		491	1401	
Arrive On Green	0.08	0.21	0.00	0.08	0.21	0.00	0.07	0.38	0.00	0.08	0.39	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3497	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	102	617	0	154	206	0	72	1181	0	352	1064	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1749	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	4.4	16.7	0.0	6.8	4.9	0.0	2.3	30.7	0.0	6.1	25.9	0.0
Cycle Q Clear(g_c), s	4.4	16.7	0.0	6.8	4.9	0.0	2.3	30.7	0.0	6.1	25.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	396	734		247	738		267	1363		491	1401	
V/C Ratio(X)	0.26	0.84		0.62	0.28		0.27	0.87		0.72	0.76	
Avail Cap(c_a), veh/h	405	871		247	857		286	1363		491	1401	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.5	38.1	0.0	29.6	33.1	0.0	19.2	28.5	0.0	22.6	26.2	0.0
Incr Delay (d2), s/veh	0.3	6.5	0.0	4.9	0.2	0.0	0.5	7.6	0.0	5.0	3.9	0.0
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(50%),veh/ln	1.9	7.7	0.0	3.1	2.1	0.0	0.9	13.1	0.0	2.5	10.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	44.6	0.0	34.4	33.3	0.0	19.7	36.1	0.0	27.6	30.1	0.0
LnGrp LOS	C	D		C	C		B	D		C	C	
Approach Vol, veh/h		719	A		360	A		1253	A		1416	A
Approach Delay, s/veh		42.2			33.8			35.1			29.5	
Approach LOS		D			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	45.9	13.0	28.1	11.9	46.9	12.5	28.6
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	8.0	34.5	8.0	24.5	8.0	34.5	8.0	24.5
Max Q Clear Time (g_c+I1), s	8.1	32.7	8.8	18.7	4.3	27.9	6.4	6.9
Green Ext Time (p_c), s	0.0	1.2	0.0	2.0	0.0	3.4	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	34.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

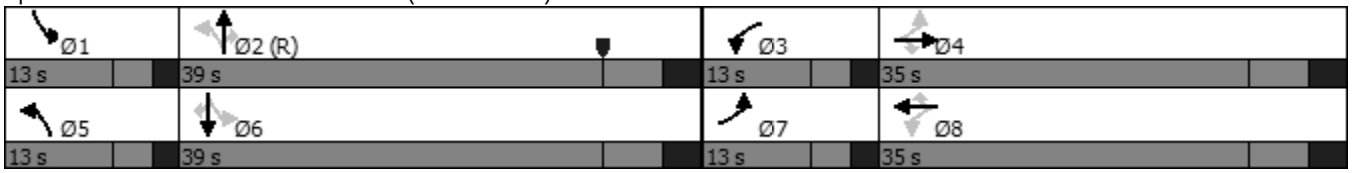
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

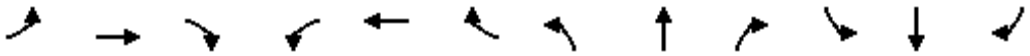
Intersection Capacity Worksheets: 2025 Background

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	225	130	285	575	305	75	905	160	230	1130	70
Future Volume (vph)	15	225	130	285	575	305	75	905	160	230	1130	70
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	35.0	35.0	13.0	35.0	35.0	13.0	39.0	39.0	13.0	39.0	39.0
Total Split (%)	13.0%	35.0%	35.0%	13.0%	35.0%	35.0%	13.0%	39.0%	39.0%	13.0%	39.0%	39.0%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	28.3	17.8	17.8	31.3	25.6	25.6	45.4	34.9	34.9	54.7	43.8	43.8
Actuated g/C Ratio	0.28	0.18	0.18	0.31	0.26	0.26	0.45	0.35	0.35	0.55	0.44	0.44
v/c Ratio	0.06	0.41	0.35	0.87	0.71	0.51	0.35	0.80	0.26	0.72	0.80	0.09

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 41 (41%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 29.5
Intersection Capacity Utilization 82.9%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	250	144	306	618	328	80	963	170	242	1189	74
v/c Ratio	0.06	0.41	0.35	0.87	0.71	0.51	0.35	0.80	0.26	0.72	0.80	0.09
Control Delay	19.2	37.0	6.3	53.7	38.7	6.3	19.7	27.9	2.0	36.2	32.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	37.0	6.3	53.7	38.7	6.3	19.7	27.9	2.0	36.2	32.5	0.2
Queue Length 50th (ft)	8	80	0	170	188	0	14	283	7	76	317	0
Queue Length 95th (ft)	19	99	38	#217	244	64	m47	m#412	m14	#291	#589	0
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	267	936	549	351	936	673	229	1210	662	336	1493	782
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.27	0.26	0.87	0.66	0.49	0.35	0.80	0.26	0.72	0.80	0.09

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	225	130	285	575	305	75	905	160	230	1130	70
Future Volume (veh/h)	15	225	130	285	575	305	75	905	160	230	1130	70
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	1811	1870	1870	1811	1870	1870	1841	1870	1870	1811	1870
Adj Flow Rate, veh/h	17	250	0	306	618	0	80	963	0	242	1189	0
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.94	0.94	0.94	0.95	0.95	0.95
Percent Heavy Veh, %	2	6	2	2	6	2	2	4	2	2	6	2
Cap, veh/h	161	571		328	742		262	1483		334	1489	
Arrive On Green	0.03	0.17	0.00	0.08	0.22	0.00	0.07	0.42	0.00	0.08	0.43	0.00
Sat Flow, veh/h	1781	3441	1585	1781	3441	1585	1781	3497	1585	1781	3441	1585
Grp Volume(v), veh/h	17	250	0	306	618	0	80	963	0	242	1189	0
Grp Sat Flow(s),veh/h/ln	1781	1721	1585	1781	1721	1585	1781	1749	1585	1781	1721	1585
Q Serve(g_s), s	0.8	6.5	0.0	8.0	17.2	0.0	2.4	21.9	0.0	7.8	29.9	0.0
Cycle Q Clear(g_c), s	0.8	6.5	0.0	8.0	17.2	0.0	2.4	21.9	0.0	7.8	29.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	161	571		328	742		262	1483		334	1489	
V/C Ratio(X)	0.11	0.44		0.93	0.83		0.31	0.65		0.72	0.80	
Avail Cap(c_a), veh/h	250	946		328	946		277	1483		334	1489	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.4	37.5	0.0	37.6	37.5	0.0	18.4	22.9	0.0	18.3	24.6	0.0
Incr Delay (d2), s/veh	0.3	0.5	0.0	32.7	5.1	0.0	0.7	2.2	0.0	7.5	4.6	0.0
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(50%),veh/ln	0.3	2.7	0.0	6.4	7.4	0.0	0.9	8.4	0.0	3.4	11.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	38.0	0.0	70.4	42.6	0.0	19.1	25.1	0.0	25.9	29.1	0.0
LnGrp LOS	C	D		E	D		B	C		C	C	
Approach Vol, veh/h		267	A		924	A		1043	A		1431	A
Approach Delay, s/veh		37.8			51.8			24.6			28.6	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	49.9	13.0	24.1	12.1	50.8	8.0	29.1
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	8.0	31.5	8.0	27.5	8.0	31.5	8.0	27.5
Max Q Clear Time (g_c+I1), s	9.8	23.9	10.0	8.5	4.4	31.9	2.8	19.2
Green Ext Time (p_c), s	0.0	3.4	0.0	1.3	0.0	0.0	0.0	2.4

Intersection Summary	
HCM 6th Ctrl Delay	34.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

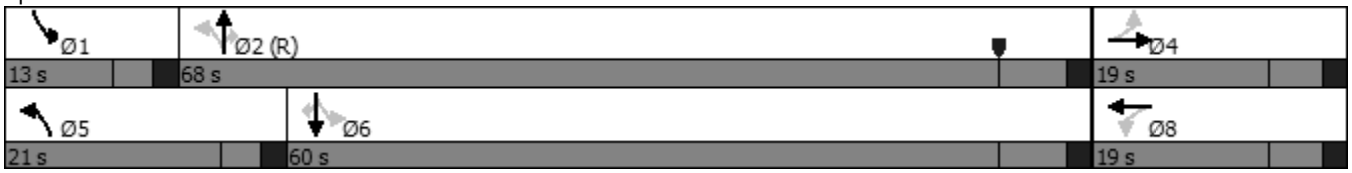
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

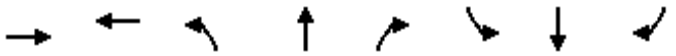
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	30	25	25	110	195	1085	5	15	1415	110
Future Volume (vph)	30	25	25	110	195	1085	5	15	1415	110
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	8.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	34.0	34.0	34.0	34.0	13.0	22.0	22.0	13.0	22.0	22.0
Total Split (s)	19.0	19.0	19.0	19.0	21.0	68.0	68.0	13.0	60.0	60.0
Total Split (%)	19.0%	19.0%	19.0%	19.0%	21.0%	68.0%	68.0%	13.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)		13.0		13.0	76.0	68.8	68.8	65.7	55.7	55.7
Actuated g/C Ratio		0.13		0.13	0.76	0.69	0.69	0.66	0.56	0.56
v/c Ratio		0.96		1.10	0.67	0.49	0.00	0.04	0.83	0.13

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 4 (4%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 24.8 Intersection LOS: C
Intersection Capacity Utilization 81.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: US 287 & Lookout Road





Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	260	181	210	1167	5	17	1590	124
v/c Ratio	0.96	1.10	0.67	0.49	0.00	0.04	0.83	0.13
Control Delay	72.5	141.3	30.8	9.1	0.0	2.2	16.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.5	141.3	30.8	9.1	0.0	2.2	16.7	0.4
Queue Length 50th (ft)	98	~128	72	128	0	1	155	0
Queue Length 95th (ft)	#195	#257	148	267	0	m2	281	m1
Internal Link Dist (ft)	1379	1203		902			1202	
Turn Bay Length (ft)			470		470	500		510
Base Capacity (vph)	270	164	357	2388	1116	399	1916	945
Starvation Cap Reductn	0	0	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	0.96	1.10	0.59	0.49	0.00	0.04	0.83	0.13

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	25	150	25	110	25	195	1085	5	15	1415	110
Future Volume (veh/h)	30	25	150	25	110	25	195	1085	5	15	1415	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	1856	1870	1870	1870	1870	1870	1841	1870	1870	1826	1870
Adj Flow Rate, veh/h	38	32	0	28	125	0	210	1167	5	17	1590	124
Peak Hour Factor	0.79	0.79	0.79	0.88	0.88	0.88	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	2	3	2	2	2	2	2	4	2	2	5	2
Cap, veh/h	122	87		67	166		307	2393	1084	377	2201	1006
Arrive On Green	0.11	0.11	0.00	0.11	0.11	0.00	0.08	0.68	0.68	0.03	0.63	0.63
Sat Flow, veh/h	633	824	0	230	1570	0	1781	3497	1585	1781	3469	1585
Grp Volume(v), veh/h	70	0	0	153	0	0	210	1167	5	17	1590	124
Grp Sat Flow(s),veh/h/ln	1456	0	0	1800	0	0	1781	1749	1585	1781	1735	1585
Q Serve(g_s), s	0.0	0.0	0.0	4.0	0.0	0.0	3.6	15.8	0.1	0.3	30.9	3.1
Cycle Q Clear(g_c), s	4.2	0.0	0.0	8.2	0.0	0.0	3.6	15.8	0.1	0.3	30.9	3.1
Prop In Lane	0.54		0.00	0.18		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	210	0		233	0		307	2393	1084	377	2201	1006
V/C Ratio(X)	0.33	0.00		0.66	0.00		0.68	0.49	0.00	0.05	0.72	0.12
Avail Cap(c_a), veh/h	245	0		275	0		450	2393	1084	466	2201	1006
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	0.0	0.0	43.6	0.0	0.0	18.2	7.5	5.0	6.3	12.3	7.2
Incr Delay (d2), s/veh	3.3	0.0	0.0	11.2	0.0	0.0	5.7	0.7	0.0	0.1	2.1	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(50%),veh/ln	1.7	0.0	0.0	4.4	0.0	0.0	3.5	4.4	0.0	0.1	9.6	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.1	0.0	0.0	54.8	0.0	0.0	23.9	8.2	5.0	6.4	14.4	7.5
LnGrp LOS	D	A		D	A		C	A	A	A	B	A
Approach Vol, veh/h		70	A		153	A		1382			1731	
Approach Delay, s/veh		45.1			54.8			10.6			13.9	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	75.4		16.6	13.0	70.4		16.6				
Change Period (Y+Rc), s	5.0	7.0		6.0	5.0	7.0		6.0				
Max Green Setting (Gmax), s	8.0	61.0		13.0	16.0	53.0		13.0				
Max Q Clear Time (g_c+I1), s	2.3	17.8		6.2	5.6	32.9		10.2				
Green Ext Time (p_c), s	0.0	24.4		0.3	0.9	17.9		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		15.0
HCM 6th LOS		B

Notes

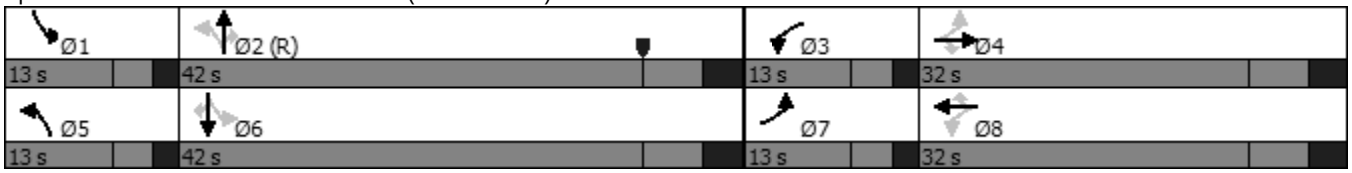
User approved pedestrian interval to be less than phase max green.

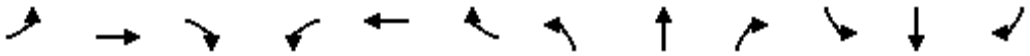
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	590	105	155	205	235	75	1230	375	360	1095	50
Future Volume (vph)	100	590	105	155	205	235	75	1230	375	360	1095	50
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	32.0	32.0	13.0	32.0	32.0	13.0	42.0	42.0	13.0	42.0	42.0
Total Split (%)	13.0%	32.0%	32.0%	13.0%	32.0%	32.0%	13.0%	42.0%	42.0%	13.0%	42.0%	42.0%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	33.3	22.8	22.8	33.3	22.8	22.8	45.0	34.5	34.5	48.1	38.8	38.8
Actuated g/C Ratio	0.33	0.23	0.23	0.33	0.23	0.23	0.45	0.34	0.34	0.48	0.39	0.39
v/c Ratio	0.26	0.82	0.24	0.70	0.28	0.46	0.35	1.04	0.55	1.52	0.83	0.07

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 28 (28%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.52
Intersection Signal Delay: 53.2
Intersection Capacity Utilization 99.7%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	112	663	118	167	220	253	77	1268	387	375	1141	52
v/c Ratio	0.26	0.82	0.24	0.70	0.28	0.46	0.35	1.04	0.55	1.52	0.83	0.07
Control Delay	21.6	45.7	3.4	38.4	32.3	6.9	11.0	47.8	5.1	278.9	35.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	45.7	3.4	38.4	32.3	6.9	11.0	47.8	5.1	278.9	35.9	0.2
Queue Length 50th (ft)	45	207	0	69	59	0	6	~480	56	~311	366	0
Queue Length 95th (ft)	81	269	21	#120	92	61	m7	m#495	m58	#493	#503	0
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	431	867	507	238	850	573	221	1220	700	246	1371	702
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.76	0.23	0.70	0.26	0.44	0.35	1.04	0.55	1.52	0.83	0.07

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	590	105	155	205	235	75	1230	375	360	1095	50
Future Volume (veh/h)	100	590	105	155	205	235	75	1230	375	360	1095	50
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	1841	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	112	663	0	167	220	0	77	1268	0	375	1141	0
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.97	0.97	0.97	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	4	2	2	2	2	2	2	2
Cap, veh/h	404	771		243	772		242	1325		225	1359	
Arrive On Green	0.08	0.22	0.00	0.08	0.22	0.00	0.07	0.37	0.00	0.08	0.38	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3497	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	112	663	0	167	220	0	77	1268	0	375	1141	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1749	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	4.7	18.0	0.0	7.3	5.2	0.0	2.5	34.8	0.0	8.0	29.2	0.0
Cycle Q Clear(g_c), s	4.7	18.0	0.0	7.3	5.2	0.0	2.5	34.8	0.0	8.0	29.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	404	771		243	772		242	1325		225	1359	
V/C Ratio(X)	0.28	0.86		0.69	0.29		0.32	0.96		1.66	0.84	
Avail Cap(c_a), veh/h	410	871		243	857		259	1325		225	1359	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.8	37.7	0.0	29.3	32.4	0.0	20.9	30.6	0.0	24.3	28.1	0.0
Incr Delay (d2), s/veh	0.4	7.9	0.0	7.8	0.2	0.0	0.7	16.3	0.0	317.4	6.4	0.0
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(50%),veh/ln	2.0	8.4	0.0	3.5	2.2	0.0	1.0	16.3	0.0	22.8	12.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.1	45.6	0.0	37.1	32.6	0.0	21.7	46.9	0.0	341.7	34.5	0.0
LnGrp LOS	C	D		D	C		C	D		F	C	
Approach Vol, veh/h		775	A		387	A		1345	A		1516	A
Approach Delay, s/veh		42.9			34.5			45.5			110.5	
Approach LOS		D			C			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	44.8	13.0	29.2	12.1	45.7	12.6	29.6
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	8.0	34.5	8.0	24.5	8.0	34.5	8.0	24.5
Max Q Clear Time (g_c+I1), s	10.0	36.8	9.3	20.0	4.5	31.2	6.7	7.2
Green Ext Time (p_c), s	0.0	0.0	0.0	1.8	0.0	2.0	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	68.4
HCM 6th LOS	E

Notes

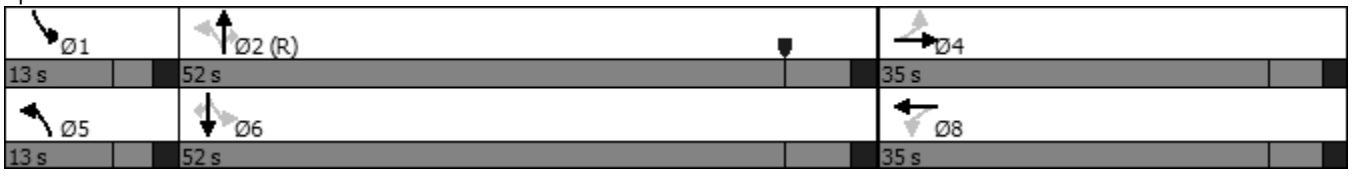
User approved pedestrian interval to be less than phase max green.

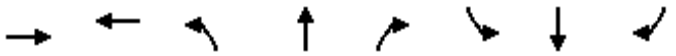
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	180	100	15	35	75	1455	10	50	1275	30
Future Volume (vph)	180	100	15	35	75	1455	10	50	1275	30
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	8.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	34.0	34.0	34.0	34.0	13.0	22.0	22.0	13.0	22.0	22.0
Total Split (s)	35.0	35.0	35.0	35.0	13.0	52.0	52.0	13.0	52.0	52.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	13.0%	52.0%	52.0%	13.0%	52.0%	52.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)		29.0		29.0	56.0	47.6	47.6	56.0	47.6	47.6
Actuated g/C Ratio		0.29		0.29	0.56	0.48	0.48	0.56	0.48	0.48
v/c Ratio		1.27		0.23	0.38	0.96	0.01	0.24	0.80	0.04

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 56 (56%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.27
Intersection Signal Delay: 59.7
Intersection Capacity Utilization 96.6%
Analysis Period (min) 15

Splits and Phases: 2: US 287 & Lookout Road





Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	577	110	83	1617	11	53	1342	32
v/c Ratio	1.27	0.23	0.38	0.96	0.01	0.24	0.80	0.04
Control Delay	166.4	18.0	14.9	41.4	0.0	21.7	45.2	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	166.4	18.0	14.9	41.4	0.0	21.7	45.2	7.9
Queue Length 50th (ft)	~450	31	21	~548	0	31	485	0
Queue Length 95th (ft)	#606	69	44	#713	0	m39	558	m3
Internal Link Dist (ft)	1379	1203		902			1202	
Turn Bay Length (ft)			470		470	500		510
Base Capacity (vph)	456	473	218	1684	799	218	1684	799
Starvation Cap Reductn	0	0	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	1.27	0.23	0.38	0.96	0.01	0.24	0.80	0.04

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	100	210	15	35	45	75	1455	10	50	1275	30
Future Volume (veh/h)	180	100	210	15	35	45	75	1455	10	50	1275	30
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	1856	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	118	0	17	41	0	83	1617	11	53	1342	32
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	3	2	2	2	2	2	2	2
Cap, veh/h	301	134		139	311		281	1828	816	216	1792	799
Arrive On Green	0.24	0.24	0.00	0.24	0.24	0.00	0.07	0.51	0.51	0.06	0.50	0.50
Sat Flow, veh/h	990	551	0	379	1277	0	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	330	0	0	58	0	0	83	1617	11	53	1342	32
Grp Sat Flow(s),veh/h/ln	1542	0	0	1656	0	0	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	18.1	0.0	0.0	0.0	0.0	0.0	2.1	40.5	0.3	1.3	30.1	1.0
Cycle Q Clear(g_c), s	20.5	0.0	0.0	2.4	0.0	0.0	2.1	40.5	0.3	1.3	30.1	1.0
Prop In Lane	0.64		0.00	0.29		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	435	0		450	0		281	1828	816	216	1792	799
V/C Ratio(X)	0.76	0.00		0.13	0.00		0.30	0.88	0.01	0.25	0.75	0.04
Avail Cap(c_a), veh/h	505	0		526	0		295	1828	816	248	1792	799
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	0.0	0.0	29.5	0.0	0.0	15.2	21.6	11.9	19.1	19.8	12.5
Incr Delay (d2), s/veh	10.1	0.0	0.0	0.5	0.0	0.0	1.2	6.7	0.0	1.3	2.9	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(50%),veh/ln	8.4	0.0	0.0	1.1	0.0	0.0	0.8	15.8	0.1	0.5	11.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.3	0.0	0.0	30.0	0.0	0.0	16.4	28.3	11.9	20.4	22.7	12.6
LnGrp LOS	D	A		C	A		B	C	B	C	C	B
Approach Vol, veh/h		330	A		58	A		1711			1427	
Approach Delay, s/veh		46.3			30.0			27.6			22.4	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.2	58.5		30.4	12.2	57.4		30.4				
Change Period (Y+Rc), s	5.0	7.0		6.0	5.0	7.0		6.0				
Max Green Setting (Gmax), s	8.0	45.0		29.0	8.0	45.0		29.0				
Max Q Clear Time (g_c+I1), s	3.3	42.5		22.5	4.1	32.1		4.4				
Green Ext Time (p_c), s	0.1	2.4		1.9	0.1	10.9		0.5				

Intersection Summary		
HCM 6th Ctrl Delay		27.3
HCM 6th LOS		C

Notes

User approved pedestrian interval to be less than phase max green.

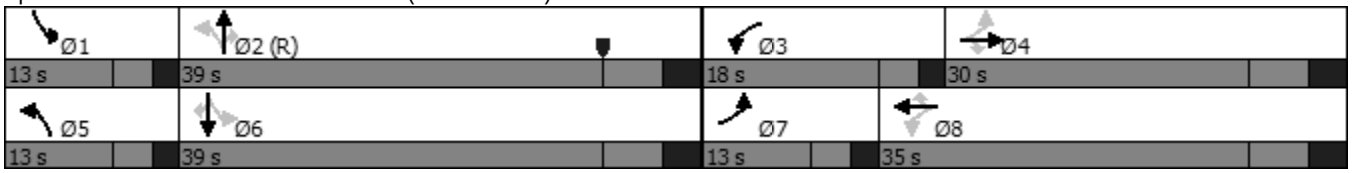
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

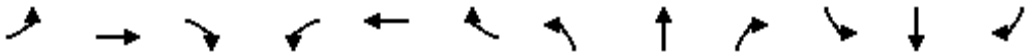
Intersection Capacity Worksheets: 2025 Background With Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	225	130	285	575	305	75	905	160	230	1130	70
Future Volume (vph)	15	225	130	285	575	305	75	905	160	230	1130	70
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	30.0	30.0	18.0	35.0	35.0	13.0	39.0	39.0	13.0	39.0	39.0
Total Split (%)	13.0%	30.0%	30.0%	18.0%	35.0%	35.0%	13.0%	39.0%	39.0%	13.0%	39.0%	39.0%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	26.3	15.8	15.8	36.3	28.6	28.6	48.6	38.1	38.1	49.9	40.8	40.8
Actuated g/C Ratio	0.26	0.16	0.16	0.36	0.29	0.29	0.49	0.38	0.38	0.50	0.41	0.41
v/c Ratio	0.06	0.47	0.38	0.71	0.64	0.48	0.35	0.73	0.24	0.49	0.86	0.10

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 41 (41%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 27.0
Intersection Capacity Utilization 82.9%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	250	144	306	618	328	80	963	170	242	1189	74
v/c Ratio	0.06	0.47	0.38	0.71	0.64	0.48	0.35	0.73	0.24	0.49	0.86	0.10
Control Delay	18.9	40.1	7.3	33.5	34.8	5.8	21.9	24.0	1.7	16.5	37.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.9	40.1	7.3	33.5	34.8	5.8	21.9	24.0	1.7	16.5	37.0	0.3
Queue Length 50th (ft)	7	80	0	157	174	0	15	264	0	34	351	0
Queue Length 95th (ft)	19	106	41	202	244	64	m53	m#412	m14	67	#589	0
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	283	766	478	434	972	686	227	1322	708	489	1390	739
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.33	0.30	0.71	0.64	0.48	0.35	0.73	0.24	0.49	0.86	0.10

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	225	130	285	575	305	75	905	160	230	1130	70
Future Volume (veh/h)	15	225	130	285	575	305	75	905	160	230	1130	70
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	1811	1870	1870	1811	1870	1870	1841	1870	1870	1811	1870
Adj Flow Rate, veh/h	17	250	0	306	618	0	80	963	0	242	1189	0
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.94	0.94	0.94	0.95	0.95	0.95
Percent Heavy Veh, %	2	6	2	2	6	2	2	4	2	2	6	2
Cap, veh/h	161	399		356	742		262	1484		653	1489	
Arrive On Green	0.03	0.12	0.00	0.13	0.22	0.00	0.07	0.42	0.00	0.08	0.43	0.00
Sat Flow, veh/h	1781	3441	1585	1781	3441	1585	1781	3497	1585	3456	3441	1585
Grp Volume(v), veh/h	17	250	0	306	618	0	80	963	0	242	1189	0
Grp Sat Flow(s),veh/h/ln	1781	1721	1585	1781	1721	1585	1781	1749	1585	1728	1721	1585
Q Serve(g_s), s	0.8	6.9	0.0	13.0	17.2	0.0	2.4	21.9	0.0	3.7	29.9	0.0
Cycle Q Clear(g_c), s	0.8	6.9	0.0	13.0	17.2	0.0	2.4	21.9	0.0	3.7	29.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	161	399		356	742		262	1484		653	1489	
V/C Ratio(X)	0.11	0.63		0.86	0.83		0.31	0.65		0.37	0.80	
Avail Cap(c_a), veh/h	250	774		356	946		277	1484		653	1489	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	37.1	42.1	0.0	34.4	37.5	0.0	18.4	22.9	0.0	16.3	24.6	0.0
Incr Delay (d2), s/veh	0.3	1.6	0.0	18.6	5.1	0.0	0.7	2.2	0.0	0.4	4.6	0.0
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(50%),veh/ln	0.4	2.9	0.0	8.0	7.4	0.0	0.9	8.4	0.0	1.3	11.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.4	43.8	0.0	53.0	42.6	0.0	19.1	25.1	0.0	16.6	29.1	0.0
LnGrp LOS	D	D		D	D		B	C		B	C	
Approach Vol, veh/h		267	A		924	A		1043	A		1431	A
Approach Delay, s/veh		43.4			46.1			24.6			27.0	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	49.9	18.0	19.1	12.1	50.8	8.0	29.1
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	8.0	31.5	13.0	22.5	8.0	31.5	8.0	27.5
Max Q Clear Time (g_c+I1), s	5.7	23.9	15.0	8.9	4.4	31.9	2.8	19.2
Green Ext Time (p_c), s	0.2	3.4	0.0	1.1	0.0	0.0	0.0	2.4

Intersection Summary	
HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

Notes

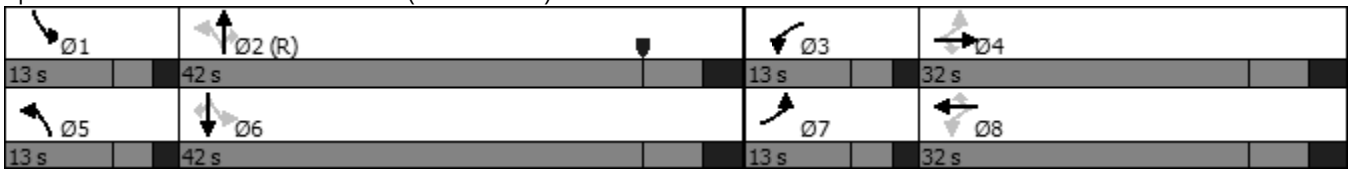
User approved pedestrian interval to be less than phase max green.

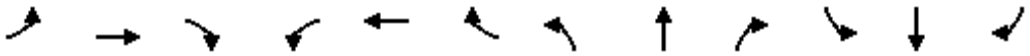
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	590	105	155	205	235	75	1230	375	360	1095	50
Future Volume (vph)	100	590	105	155	205	235	75	1230	375	360	1095	50
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	32.0	32.0	13.0	32.0	32.0	13.0	42.0	42.0	13.0	42.0	42.0
Total Split (%)	13.0%	32.0%	32.0%	13.0%	32.0%	32.0%	13.0%	42.0%	42.0%	13.0%	42.0%	42.0%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	33.3	22.8	22.8	33.3	22.8	22.8	45.9	35.4	35.4	48.1	38.8	38.8
Actuated g/C Ratio	0.33	0.23	0.23	0.33	0.23	0.23	0.46	0.35	0.35	0.48	0.39	0.39
v/c Ratio	0.26	0.82	0.24	0.70	0.28	0.46	0.35	1.01	0.54	0.83	0.83	0.07

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 28 (28%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 32.2
Intersection Capacity Utilization 90.0%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	112	663	118	167	220	253	77	1268	387	375	1141	52
v/c Ratio	0.26	0.82	0.24	0.70	0.28	0.46	0.35	1.01	0.54	0.83	0.83	0.07
Control Delay	21.6	45.7	3.4	38.4	32.3	6.9	11.5	39.1	4.8	36.8	35.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	45.7	3.4	38.4	32.3	6.9	11.5	39.1	4.8	36.8	35.9	0.2
Queue Length 50th (ft)	45	207	0	69	59	0	6	~480	56	72	366	0
Queue Length 95th (ft)	81	269	21	#120	92	61	m7	m#495	m58	#157	#503	0
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	431	867	507	238	850	573	221	1252	712	451	1371	702
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.76	0.23	0.70	0.26	0.44	0.35	1.01	0.54	0.83	0.83	0.07

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	590	105	155	205	235	75	1230	375	360	1095	50
Future Volume (veh/h)	100	590	105	155	205	235	75	1230	375	360	1095	50
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	1841	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	112	663	0	167	220	0	77	1268	0	375	1141	0
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.97	0.97	0.97	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	4	2	2	2	2	2	2	2
Cap, veh/h	404	771		243	772		242	1325		442	1359	
Arrive On Green	0.08	0.22	0.00	0.08	0.22	0.00	0.07	0.37	0.00	0.08	0.38	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3497	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	112	663	0	167	220	0	77	1268	0	375	1141	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1749	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	4.7	18.0	0.0	7.3	5.2	0.0	2.5	34.8	0.0	6.7	29.2	0.0
Cycle Q Clear(g_c), s	4.7	18.0	0.0	7.3	5.2	0.0	2.5	34.8	0.0	6.7	29.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	404	771		243	772		242	1325		442	1359	
V/C Ratio(X)	0.28	0.86		0.69	0.29		0.32	0.96		0.85	0.84	
Avail Cap(c_a), veh/h	410	871		243	857		259	1325		442	1359	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.8	37.7	0.0	29.3	32.4	0.0	20.9	30.6	0.0	23.7	28.1	0.0
Incr Delay (d2), s/veh	0.4	7.9	0.0	7.8	0.2	0.0	0.7	16.3	0.0	14.4	6.4	0.0
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(50%),veh/ln	2.0	8.4	0.0	3.5	2.2	0.0	1.0	16.3	0.0	3.2	12.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.1	45.6	0.0	37.1	32.6	0.0	21.7	46.9	0.0	38.1	34.5	0.0
LnGrp LOS	C	D		D	C		C	D		D	C	
Approach Vol, veh/h		775	A		387	A		1345	A		1516	A
Approach Delay, s/veh		42.9			34.5			45.5			35.4	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	44.8	13.0	29.2	12.1	45.7	12.6	29.6
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	8.0	34.5	8.0	24.5	8.0	34.5	8.0	24.5
Max Q Clear Time (g_c+I1), s	8.7	36.8	9.3	20.0	4.5	31.2	6.7	7.2
Green Ext Time (p_c), s	0.0	0.0	0.0	1.8	0.0	2.0	0.0	1.1

Intersection Summary		
HCM 6th Ctrl Delay		40.1
HCM 6th LOS		D

Notes

User approved pedestrian interval to be less than phase max green.

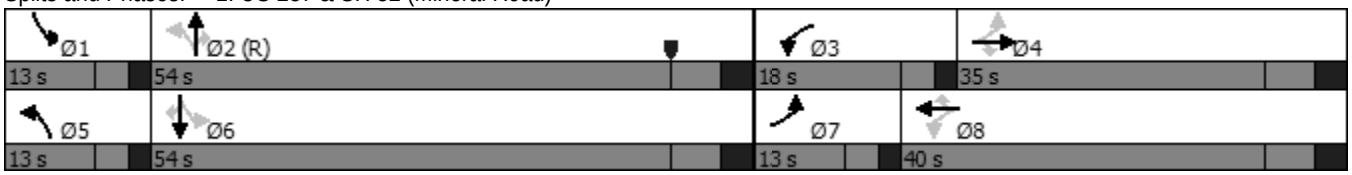
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

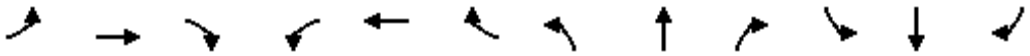
Intersection Capacity Worksheets: 2040 Background

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	280	160	355	710	375	90	1120	195	280	1390	85
Future Volume (vph)	15	280	160	355	710	375	90	1120	195	280	1390	85
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	35.0	35.0	18.0	40.0	40.0	13.0	54.0	54.0	13.0	54.0	54.0
Total Split (%)	10.8%	29.2%	29.2%	15.0%	33.3%	33.3%	10.8%	45.0%	45.0%	10.8%	45.0%	45.0%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	30.2	19.7	19.7	40.2	32.5	32.5	63.7	53.2	53.2	66.0	54.3	54.3
Actuated g/C Ratio	0.25	0.16	0.16	0.34	0.27	0.27	0.53	0.44	0.44	0.55	0.45	0.45
v/c Ratio	0.09	0.56	0.45	1.04	0.83	0.64	0.51	0.77	0.25	0.70	0.95	0.11

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 40.5
Intersection Capacity Utilization 93.9%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)



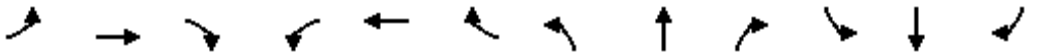


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	311	178	382	763	403	96	1191	207	295	1463	89
v/c Ratio	0.09	0.56	0.45	1.04	0.83	0.64	0.51	0.77	0.25	0.70	0.95	0.11
Control Delay	24.9	49.0	11.8	93.7	50.0	17.6	25.8	33.9	4.0	26.7	46.4	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	49.0	11.8	93.7	50.0	17.6	25.8	33.9	4.0	26.7	46.4	1.5
Queue Length 50th (ft)	9	121	12	~291	284	83	29	401	0	47	535	0
Queue Length 95th (ft)	23	152	70	#411	370	200	79	#551	48	#126	#820	12
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	199	780	486	367	936	630	187	1537	816	421	1541	788
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.40	0.37	1.04	0.82	0.64	0.51	0.77	0.25	0.70	0.95	0.11

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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	280	160	355	710	375	90	1120	195	280	1390	85
Future Volume (veh/h)	15	280	160	355	710	375	90	1120	195	280	1390	85
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	1811	1870	1870	1811	1870	1870	1841	1870	1870	1811	1870
Adj Flow Rate, veh/h	17	311	0	382	763	0	96	1191	0	295	1463	0
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.94	0.94	0.94	0.95	0.95	0.95
Percent Heavy Veh, %	2	6	2	2	6	2	2	4	2	2	6	2
Cap, veh/h	135	579		344	852		190	1568		500	1552	
Arrive On Green	0.03	0.17	0.00	0.11	0.25	0.00	0.06	0.45	0.00	0.07	0.45	0.00
Sat Flow, veh/h	1781	3441	1585	1781	3441	1585	1781	3497	1585	3456	3441	1585
Grp Volume(v), veh/h	17	311	0	382	763	0	96	1191	0	295	1463	0
Grp Sat Flow(s),veh/h/ln	1781	1721	1585	1781	1721	1585	1781	1749	1585	1728	1721	1585
Q Serve(g_s), s	0.9	9.9	0.0	13.0	25.7	0.0	3.3	34.2	0.0	5.4	48.7	0.0
Cycle Q Clear(g_c), s	0.9	9.9	0.0	13.0	25.7	0.0	3.3	34.2	0.0	5.4	48.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	135	579		344	852		190	1568		500	1552	
V/C Ratio(X)	0.13	0.54		1.11	0.90		0.50	0.76		0.59	0.94	
Avail Cap(c_a), veh/h	202	789		344	932		195	1568		500	1552	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	40.2	45.6	0.0	42.6	43.6	0.0	26.7	27.7	0.0	22.6	31.4	0.0
Incr Delay (d2), s/veh	0.4	0.8	0.0	81.2	10.5	0.0	2.1	3.5	0.0	1.8	12.7	0.0
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(50%),veh/ln	0.4	4.2	0.0	11.6	11.8	0.0	1.3	13.7	0.0	2.1	20.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	46.4	0.0	123.8	54.2	0.0	28.7	31.2	0.0	24.5	44.2	0.0
LnGrp LOS	D	D		F	D		C	C		C	D	
Approach Vol, veh/h		328	A		1145	A		1287	A		1758	A
Approach Delay, s/veh		46.1			77.4			31.0			40.9	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	61.3	18.0	27.7	12.7	61.6	8.5	37.2
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	8.0	46.5	13.0	27.5	8.0	46.5	8.0	32.5
Max Q Clear Time (g_c+I1), s	7.4	36.2	15.0	11.9	5.3	50.7	2.9	27.7
Green Ext Time (p_c), s	0.1	5.2	0.0	1.5	0.0	0.0	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	47.7
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

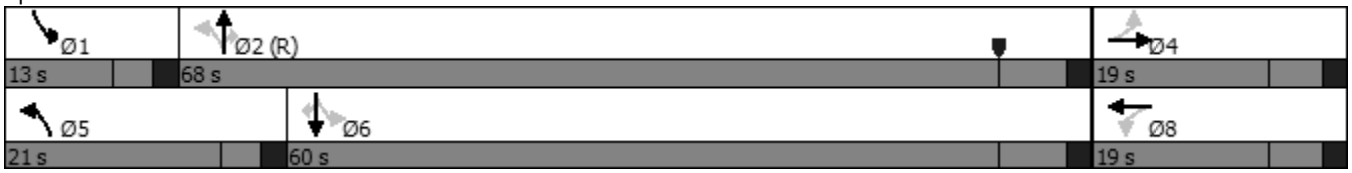
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

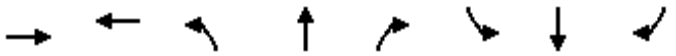
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	35	35	35	135	240	1335	5	20	1745	135
Future Volume (vph)	35	35	35	135	240	1335	5	20	1745	135
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	8.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	34.0	34.0	34.0	34.0	13.0	22.0	22.0	13.0	22.0	22.0
Total Split (s)	19.0	19.0	19.0	19.0	21.0	68.0	68.0	13.0	60.0	60.0
Total Split (%)	19.0%	19.0%	19.0%	19.0%	21.0%	68.0%	68.0%	13.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)		13.0		13.0	76.0	68.8	68.8	64.6	54.6	54.6
Actuated g/C Ratio		0.13		0.13	0.76	0.69	0.69	0.65	0.55	0.55
v/c Ratio		1.27		1.50	0.78	0.60	0.00	0.07	1.05	0.16

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 4 (4%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.50
Intersection Signal Delay: 59.9
Intersection Capacity Utilization 95.6%
Analysis Period (min) 15

Splits and Phases: 2: US 287 & Lookout Road





Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	322	233	258	1435	5	22	1961	152
v/c Ratio	1.27	1.50	0.78	0.60	0.00	0.07	1.05	0.16
Control Delay	173.6	288.8	39.5	10.7	0.0	4.3	58.0	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	173.6	288.8	39.5	10.7	0.0	4.3	58.0	2.4
Queue Length 50th (ft)	~195	~204	103	178	0	3	~737	0
Queue Length 95th (ft)	#293	#347	#210	370	0	8	#858	28
Internal Link Dist (ft)	1379	1203		902			1202	
Turn Bay Length (ft)			470		470	500		510
Base Capacity (vph)	254	155	358	2388	1116	313	1876	932
Starvation Cap Reductn	0	0	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	1.27	1.50	0.72	0.60	0.00	0.07	1.05	0.16

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	35	185	35	135	35	240	1335	5	20	1745	135
Future Volume (veh/h)	35	35	185	35	135	35	240	1335	5	20	1745	135
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	1856	1870	1870	1870	1870	1870	1841	1870	1870	1826	1870
Adj Flow Rate, veh/h	44	44	0	40	153	0	258	1435	5	22	1961	152
Peak Hour Factor	0.79	0.79	0.79	0.88	0.88	0.88	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	2	3	2	2	2	2	2	4	2	2	5	2
Cap, veh/h	121	104		78	190		297	2300	1043	293	1974	902
Arrive On Green	0.13	0.13	0.00	0.13	0.13	0.00	0.13	0.66	0.66	0.04	0.57	0.57
Sat Flow, veh/h	536	828	0	279	1514	0	1781	3497	1585	1781	3469	1585
Grp Volume(v), veh/h	88	0	0	193	0	0	258	1435	5	22	1961	152
Grp Sat Flow(s),veh/h/ln	1364	0	0	1793	0	0	1781	1749	1585	1781	1735	1585
Q Serve(g_s), s	0.0	0.0	0.0	4.8	0.0	0.0	10.0	23.8	0.1	0.5	56.0	4.6
Cycle Q Clear(g_c), s	5.7	0.0	0.0	10.5	0.0	0.0	10.0	23.8	0.1	0.5	56.0	4.6
Prop In Lane	0.50		0.00	0.21		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	225	0		269	0		297	2300	1043	293	1974	902
V/C Ratio(X)	0.39	0.00		0.72	0.00		0.87	0.62	0.00	0.08	0.99	0.17
Avail Cap(c_a), veh/h	232	0		276	0		359	2300	1043	370	1974	902
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	0.0	0.0	42.7	0.0	0.0	33.0	9.9	5.9	9.1	21.4	10.3
Incr Delay (d2), s/veh	4.0	0.0	0.0	13.4	0.0	0.0	20.7	1.3	0.0	0.2	18.8	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(50%),veh/ln	2.2	0.0	0.0	5.6	0.0	0.0	7.5	7.1	0.0	0.2	23.2	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.4	0.0	0.0	56.1	0.0	0.0	53.8	11.2	5.9	9.3	40.2	10.7
LnGrp LOS	D	A		E	A		D	B	A	A	D	B
Approach Vol, veh/h		88	A		193	A		1698			2135	
Approach Delay, s/veh		44.4			56.1			17.7			37.7	
Approach LOS		D			E			B			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	72.8		18.6	17.5	63.9		18.6				
Change Period (Y+Rc), s	5.0	7.0		6.0	5.0	7.0		6.0				
Max Green Setting (Gmax), s	8.0	61.0		13.0	16.0	53.0		13.0				
Max Q Clear Time (g_c+I1), s	2.5	25.8		7.7	12.0	58.0		12.5				
Green Ext Time (p_c), s	0.0	26.3		0.3	0.6	0.0		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	30.5
HCM 6th LOS	C

Notes

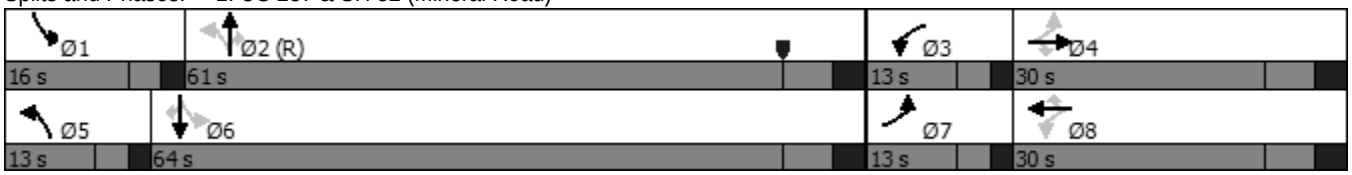
User approved pedestrian interval to be less than phase max green.

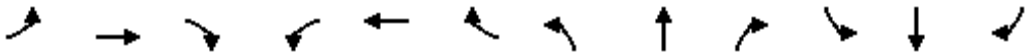
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	725	130	190	255	290	90	1515	460	445	1350	65
Future Volume (vph)	120	725	130	190	255	290	90	1515	460	445	1350	65
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	30.0	30.0	13.0	30.0	30.0	13.0	61.0	61.0	16.0	64.0	64.0
Total Split (%)	10.8%	25.0%	25.0%	10.8%	25.0%	25.0%	10.8%	50.8%	50.8%	13.3%	53.3%	53.3%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	33.0	22.5	22.5	33.0	22.5	22.5	64.0	53.5	53.5	70.0	56.5	56.5
Actuated g/C Ratio	0.28	0.19	0.19	0.28	0.19	0.19	0.53	0.45	0.45	0.58	0.47	0.47
v/c Ratio	0.40	1.23	0.35	1.09	0.42	0.71	0.51	0.99	0.57	1.05	0.84	0.08

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 62.5
Intersection Capacity Utilization 106.0%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	135	815	146	204	274	312	93	1562	474	464	1406	68
v/c Ratio	0.40	1.23	0.35	1.09	0.42	0.71	0.51	0.99	0.57	1.05	0.84	0.08
Control Delay	35.1	157.5	9.2	127.0	45.3	28.4	19.8	55.8	28.2	87.9	33.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	157.5	9.2	127.0	45.3	28.4	19.8	55.8	28.2	87.9	33.8	0.2
Queue Length 50th (ft)	77	~410	0	~136	99	94	47	683	261	~148	490	0
Queue Length 95th (ft)	128	#527	54	#274	143	201	m45	m656	m244	#256	593	0
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	334	663	415	187	650	440	183	1577	833	441	1666	806
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	1.23	0.35	1.09	0.42	0.71	0.51	0.99	0.57	1.05	0.84	0.08

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	725	130	190	255	290	90	1515	460	445	1350	65
Future Volume (veh/h)	120	725	130	190	255	290	90	1515	460	445	1350	65
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	1841	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	135	815	0	204	274	0	93	1562	0	464	1406	0
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.97	0.97	0.97	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	4	2	2	2	2	2	2	2
Cap, veh/h	310	666		179	656		223	1584		444	1684	
Arrive On Green	0.07	0.19	0.00	0.07	0.19	0.00	0.06	0.45	0.00	0.09	0.47	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3497	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	135	815	0	204	274	0	93	1562	0	464	1406	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1749	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	7.3	22.5	0.0	8.0	8.3	0.0	3.2	52.2	0.0	11.0	41.3	0.0
Cycle Q Clear(g_c), s	7.3	22.5	0.0	8.0	8.3	0.0	3.2	52.2	0.0	11.0	41.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	310	666		179	656		223	1584		444	1684	
V/C Ratio(X)	0.44	1.22		1.14	0.42		0.42	0.99		1.05	0.83	
Avail Cap(c_a), veh/h	310	666		179	656		228	1584		444	1684	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.4	48.8	0.0	42.4	43.0	0.0	23.2	32.9	0.0	37.1	27.5	0.0
Incr Delay (d2), s/veh	1.0	113.5	0.0	110.4	0.4	0.0	1.2	19.5	0.0	55.0	5.1	0.0
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(50%),veh/ln	3.3	20.3	0.0	6.9	3.6	0.0	1.3	24.4	0.0	9.8	16.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.4	162.3	0.0	152.8	43.4	0.0	24.4	52.4	0.0	92.1	32.5	0.0
LnGrp LOS	D	F		F	D		C	D		F	C	
Approach Vol, veh/h		950	A		478	A		1655	A		1870	A
Approach Delay, s/veh		144.5			90.1			50.8			47.3	
Approach LOS		F			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	61.0	13.0	30.0	12.6	64.4	13.0	30.0
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	11.0	53.5	8.0	22.5	8.0	56.5	8.0	22.5
Max Q Clear Time (g_c+I1), s	13.0	54.2	10.0	24.5	5.2	43.3	9.3	10.3
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	7.3	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	71.3
HCM 6th LOS	E

Notes

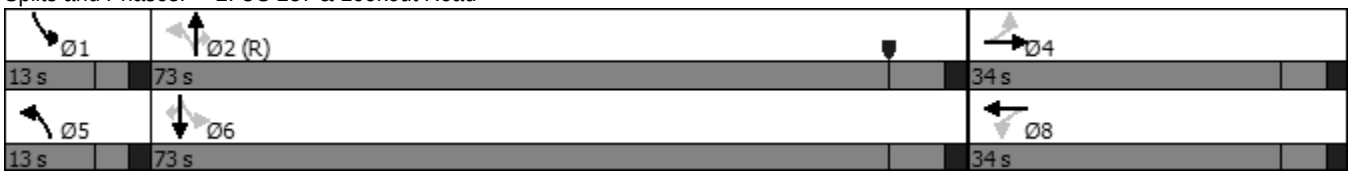
User approved pedestrian interval to be less than phase max green.

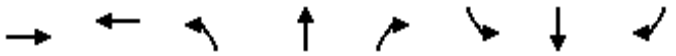
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	220	120	20	45	90	1790	15	60	1570	40
Future Volume (vph)	220	120	20	45	90	1790	15	60	1570	40
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	8.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	34.0	34.0	34.0	34.0	13.0	22.0	22.0	13.0	22.0	22.0
Total Split (s)	34.0	34.0	34.0	34.0	13.0	73.0	73.0	13.0	73.0	73.0
Total Split (%)	28.3%	28.3%	28.3%	28.3%	10.8%	60.8%	60.8%	10.8%	60.8%	60.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)		28.0		28.0	77.0	68.6	68.6	76.0	66.0	66.0
Actuated g/C Ratio		0.23		0.23	0.64	0.57	0.57	0.63	0.55	0.55
v/c Ratio		2.05		0.38	0.55	0.98	0.02	0.35	0.85	0.05

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.05
Intersection Signal Delay: 110.6
Intersection Capacity Utilization 111.9%
Analysis Period (min) 15

Splits and Phases: 2: US 287 & Lookout Road





Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	700	139	100	1989	17	63	1653	42
v/c Ratio	2.05	0.38	0.55	0.98	0.02	0.35	0.85	0.05
Control Delay	508.8	32.8	28.6	42.8	0.1	14.0	42.6	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	508.8	32.8	28.6	42.8	0.1	14.0	42.6	5.8
Queue Length 50th (ft)	~844	69	24	~861	0	26	705	4
Queue Length 95th (ft)	#1003	123	82	#1000	0	m26	m773	m5
Internal Link Dist (ft)	1379	1203		902			1202	
Turn Bay Length (ft)			470		470	500		510
Base Capacity (vph)	341	364	181	2023	936	182	1946	903
Starvation Cap Reductn	0	0	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	2.05	0.38	0.55	0.98	0.02	0.35	0.85	0.05

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	120	255	20	45	55	90	1790	15	60	1570	40
Future Volume (veh/h)	220	120	255	20	45	55	90	1790	15	60	1570	40
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	1856	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	259	141	0	23	52	0	100	1989	17	63	1653	42
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	3	2	2	2	2	2	2	2
Cap, veh/h	282	127		135	286		222	1984	885	164	1963	876
Arrive On Green	0.23	0.23	0.00	0.23	0.23	0.00	0.06	0.56	0.56	0.06	0.55	0.55
Sat Flow, veh/h	997	543	0	410	1224	0	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	400	0	0	75	0	0	100	1989	17	63	1653	42
Grp Sat Flow(s),veh/h/ln	1540	0	0	1633	0	0	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	24.1	0.0	0.0	0.0	0.0	0.0	2.7	67.0	0.6	1.7	46.7	1.5
Cycle Q Clear(g_c), s	28.0	0.0	0.0	3.9	0.0	0.0	2.7	67.0	0.6	1.7	46.7	1.5
Prop In Lane	0.65		0.00	0.31		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	409	0		420	0		222	1984	885	164	1963	876
V/C Ratio(X)	0.98	0.00		0.18	0.00		0.45	1.00	0.02	0.38	0.84	0.05
Avail Cap(c_a), veh/h	409	0		420	0		226	1984	885	179	1963	876
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	0.0	0.0	36.8	0.0	0.0	23.0	26.5	11.8	27.7	22.5	12.3
Incr Delay (d2), s/veh	39.3	0.0	0.0	0.7	0.0	0.0	3.0	20.9	0.0	3.1	4.6	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(50%),veh/ln	16.2	0.0	0.0	1.8	0.0	0.0	1.6	29.9	0.2	1.0	18.1	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.4	0.0	0.0	37.5	0.0	0.0	26.1	47.4	11.9	30.8	27.1	12.5
LnGrp LOS	F	A		D	A		C	D	B	C	C	B
Approach Vol, veh/h		400	A		75	A		2106			1758	
Approach Delay, s/veh		86.4			37.5			46.1			26.9	
Approach LOS		F			D			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	74.0		34.0	12.7	73.3		34.0				
Change Period (Y+Rc), s	5.0	7.0		6.0	5.0	7.0		6.0				
Max Green Setting (Gmax), s	8.0	66.0		28.0	8.0	66.0		28.0				
Max Q Clear Time (g_c+I1), s	3.7	69.0		30.0	4.7	48.7		5.9				
Green Ext Time (p_c), s	0.1	0.0		0.0	0.1	15.7		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		41.9
HCM 6th LOS		D

Notes

User approved pedestrian interval to be less than phase max green.

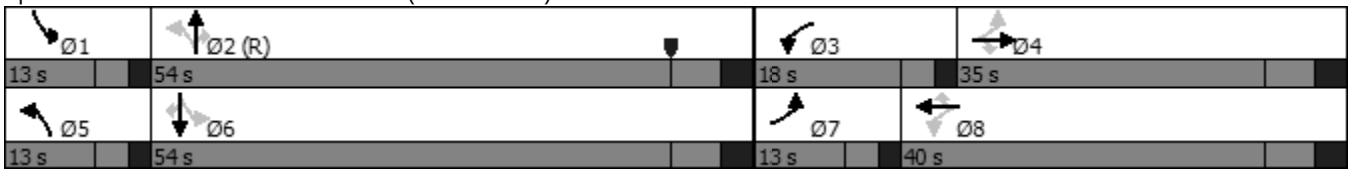
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

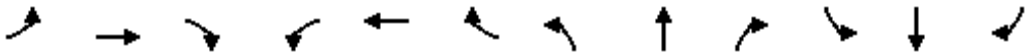
Intersection Capacity Worksheets: 2040 Background With Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	280	160	355	710	375	90	1120	195	280	1390	85
Future Volume (vph)	15	280	160	355	710	375	90	1120	195	280	1390	85
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	35.0	35.0	18.0	40.0	40.0	13.0	54.0	54.0	13.0	54.0	54.0
Total Split (%)	10.8%	29.2%	29.2%	15.0%	33.3%	33.3%	10.8%	45.0%	45.0%	10.8%	45.0%	45.0%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	30.2	19.7	19.7	40.0	32.3	32.3	63.8	53.3	53.3	66.1	54.4	54.4
Actuated g/C Ratio	0.25	0.16	0.16	0.33	0.27	0.27	0.53	0.44	0.44	0.55	0.45	0.45
v/c Ratio	0.09	0.56	0.45	0.54	0.83	0.65	0.51	0.77	0.25	0.69	0.95	0.11

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 36.0
Intersection Capacity Utilization 92.2%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	311	178	382	763	403	96	1191	207	295	1463	89
v/c Ratio	0.09	0.56	0.45	0.54	0.83	0.65	0.51	0.77	0.25	0.69	0.95	0.11
Control Delay	24.9	49.0	11.8	32.1	50.2	17.6	25.8	33.8	4.0	26.1	46.1	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	49.0	11.8	32.1	50.2	17.6	25.8	33.8	4.0	26.1	46.1	1.5
Queue Length 50th (ft)	9	121	12	118	284	83	29	401	0	47	535	0
Queue Length 95th (ft)	23	152	70	139	370	200	79	#551	48	#123	#820	12
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	198	780	486	709	936	630	187	1541	818	425	1544	790
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.40	0.37	0.54	0.82	0.64	0.51	0.77	0.25	0.69	0.95	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	280	160	355	710	375	90	1120	195	280	1390	85
Future Volume (veh/h)	15	280	160	355	710	375	90	1120	195	280	1390	85
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	1811	1870	1870	1811	1870	1870	1841	1870	1870	1811	1870
Adj Flow Rate, veh/h	17	311	0	382	763	0	96	1191	0	295	1463	0
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.94	0.94	0.94	0.95	0.95	0.95
Percent Heavy Veh, %	2	6	2	2	6	2	2	4	2	2	6	2
Cap, veh/h	135	590		668	852		190	1568		500	1552	
Arrive On Green	0.03	0.17	0.00	0.11	0.25	0.00	0.06	0.45	0.00	0.07	0.45	0.00
Sat Flow, veh/h	1781	3441	1585	3456	3441	1585	1781	3497	1585	3456	3441	1585
Grp Volume(v), veh/h	17	311	0	382	763	0	96	1191	0	295	1463	0
Grp Sat Flow(s),veh/h/ln	1781	1721	1585	1728	1721	1585	1781	1749	1585	1728	1721	1585
Q Serve(g_s), s	0.9	9.9	0.0	10.5	25.7	0.0	3.3	34.2	0.0	5.4	48.7	0.0
Cycle Q Clear(g_c), s	0.9	9.9	0.0	10.5	25.7	0.0	3.3	34.2	0.0	5.4	48.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	135	590		668	852		190	1568		500	1552	
V/C Ratio(X)	0.13	0.53		0.57	0.90		0.50	0.76		0.59	0.94	
Avail Cap(c_a), veh/h	202	789		679	932		195	1568		500	1552	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	39.9	45.3	0.0	34.4	43.6	0.0	26.7	27.7	0.0	22.6	31.4	0.0
Incr Delay (d2), s/veh	0.4	0.7	0.0	1.1	10.5	0.0	2.1	3.5	0.0	1.8	12.7	0.0
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(50%),veh/ln	0.4	4.2	0.0	4.4	11.8	0.0	1.3	13.7	0.0	2.1	20.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.3	46.0	0.0	35.5	54.2	0.0	28.7	31.2	0.0	24.5	44.2	0.0
LnGrp LOS	D	D		D	D		C	C		C	D	
Approach Vol, veh/h		328	A		1145	A		1287	A		1758	A
Approach Delay, s/veh		45.7			48.0			31.0			40.9	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	61.3	17.6	28.1	12.7	61.6	8.5	37.2
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	8.0	46.5	13.0	27.5	8.0	46.5	8.0	32.5
Max Q Clear Time (g_c+I1), s	7.4	36.2	12.5	11.9	5.3	50.7	2.9	27.7
Green Ext Time (p_c), s	0.1	5.2	0.1	1.5	0.0	0.0	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	40.2
HCM 6th LOS	D

Notes

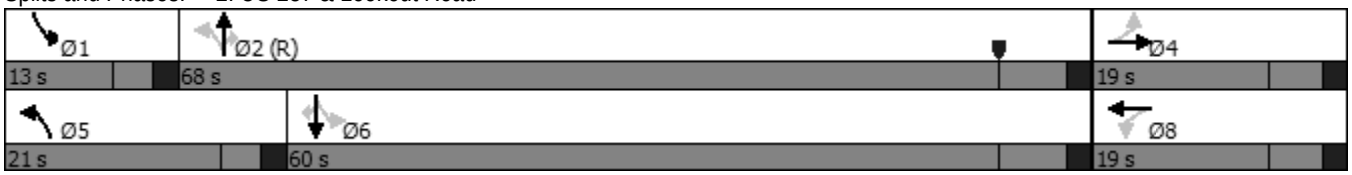
User approved pedestrian interval to be less than phase max green.

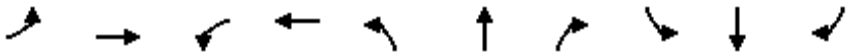
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	35	35	35	135	240	1335	5	20	1745	135
Future Volume (vph)	35	35	35	135	240	1335	5	20	1745	135
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	8.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	34.0	34.0	34.0	34.0	13.0	22.0	22.0	13.0	22.0	22.0
Total Split (s)	19.0	19.0	19.0	19.0	21.0	68.0	68.0	13.0	60.0	60.0
Total Split (%)	19.0%	19.0%	19.0%	19.0%	21.0%	68.0%	68.0%	13.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	13.0	13.0	13.0	13.0	76.0	68.8	68.8	64.6	54.6	54.6
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.76	0.69	0.69	0.65	0.55	0.55
v/c Ratio	0.44	0.74	0.54	0.79	0.78	0.60	0.00	0.07	1.05	0.16

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 4 (4%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 37.5
Intersection Capacity Utilization 103.1%
Analysis Period (min) 15

Splits and Phases: 2: US 287 & Lookout Road





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	44	278	40	193	258	1435	5	22	1961	152
v/c Ratio	0.44	0.74	0.54	0.79	0.78	0.60	0.00	0.07	1.05	0.16
Control Delay	54.7	26.8	68.8	63.9	39.5	10.7	0.0	4.3	58.0	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	26.8	68.8	63.9	39.5	10.7	0.0	4.3	58.0	2.4
Queue Length 50th (ft)	26	51	24	114	103	178	0	3	~737	0
Queue Length 95th (ft)	54	103	#70	#219	#210	370	0	8	#858	28
Internal Link Dist (ft)		1379		1203		902			1202	
Turn Bay Length (ft)	300		300		470		470	500		510
Base Capacity (vph)	101	376	74	243	358	2388	1116	313	1876	932
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.74	0.54	0.79	0.72	0.60	0.00	0.07	1.05	0.16

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	35	185	35	135	35	240	1335	5	20	1745	135
Future Volume (veh/h)	35	35	185	35	135	35	240	1335	5	20	1745	135
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	1856	1870	1870	1870	1870	1870	1841	1870	1870	1826	1870
Adj Flow Rate, veh/h	44	44	0	40	153	0	258	1435	5	22	1961	152
Peak Hour Factor	0.79	0.79	0.79	0.88	0.88	0.88	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	2	3	2	2	2	2	2	4	2	2	5	2
Cap, veh/h	137	241		220	243		297	2285	1036	290	1956	894
Arrive On Green	0.13	0.13	0.00	0.13	0.13	0.00	0.13	0.65	0.65	0.04	0.56	0.56
Sat Flow, veh/h	1234	1856	0	1362	1870	0	1781	3497	1585	1781	3469	1585
Grp Volume(v), veh/h	44	44	0	40	153	0	258	1435	5	22	1961	152
Grp Sat Flow(s),veh/h/ln	1234	1856	0	1362	1870	0	1781	1749	1585	1781	1735	1585
Q Serve(g_s), s	3.5	2.1	0.0	2.7	7.8	0.0	10.1	24.1	0.1	0.5	56.4	4.6
Cycle Q Clear(g_c), s	11.3	2.1	0.0	4.8	7.8	0.0	10.1	24.1	0.1	0.5	56.4	4.6
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	137	241		220	243		297	2285	1036	290	1956	894
V/C Ratio(X)	0.32	0.18		0.18	0.63		0.87	0.63	0.00	0.08	1.00	0.17
Avail Cap(c_a), veh/h	137	241		220	243		357	2285	1036	367	1956	894
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.5	38.8	0.0	40.9	41.2	0.0	33.1	10.2	6.0	9.3	21.8	10.5
Incr Delay (d2), s/veh	4.8	1.3	0.0	1.4	10.0	0.0	20.9	1.3	0.0	0.2	21.0	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(50%),veh/ln	1.2	1.0	0.0	1.0	4.2	0.0	7.5	7.3	0.0	0.2	23.9	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	40.1	0.0	42.3	51.2	0.0	54.0	11.5	6.0	9.5	42.8	10.9
LnGrp LOS	D	D		D	D		D	B	A	A	D	B
Approach Vol, veh/h		88	A		193	A		1698			2135	
Approach Delay, s/veh		45.7			49.4			17.9			40.2	
Approach LOS		D			D			B			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	72.3		19.0	17.6	63.4		19.0				
Change Period (Y+Rc), s	5.0	7.0		6.0	5.0	7.0		6.0				
Max Green Setting (Gmax), s	8.0	61.0		13.0	16.0	53.0		13.0				
Max Q Clear Time (g_c+I1), s	2.5	26.1		13.3	12.1	58.4		9.8				
Green Ext Time (p_c), s	0.0	26.2		0.0	0.6	0.0		0.5				

Intersection Summary		
HCM 6th Ctrl Delay		31.5
HCM 6th LOS		C

Notes

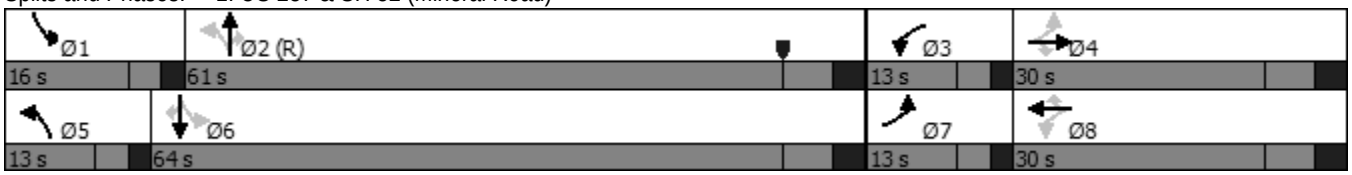
User approved pedestrian interval to be less than phase max green.

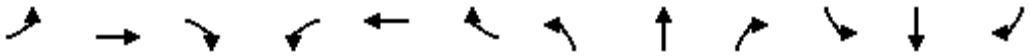
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	725	130	190	255	290	90	1515	460	445	1350	65
Future Volume (vph)	120	725	130	190	255	290	90	1515	460	445	1350	65
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	30.0	30.0	13.0	30.0	30.0	13.0	61.0	61.0	16.0	64.0	64.0
Total Split (%)	10.8%	25.0%	25.0%	10.8%	25.0%	25.0%	10.8%	50.8%	50.8%	13.3%	53.3%	53.3%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	33.0	22.5	22.5	33.0	22.5	22.5	64.0	53.5	53.5	70.0	56.5	56.5
Actuated g/C Ratio	0.28	0.19	0.19	0.28	0.19	0.19	0.53	0.45	0.45	0.58	0.47	0.47
v/c Ratio	0.40	1.23	0.35	0.56	0.42	0.71	0.51	0.99	0.57	1.05	0.84	0.08

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 60.9
Intersection Capacity Utilization 102.1%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	135	815	146	204	274	312	93	1562	474	464	1406	68
v/c Ratio	0.40	1.23	0.35	0.56	0.42	0.71	0.51	0.99	0.57	1.05	0.84	0.08
Control Delay	35.1	157.5	9.2	36.4	45.3	28.4	22.0	61.3	28.8	87.9	33.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	157.5	9.2	36.4	45.3	28.4	22.0	61.3	28.8	87.9	33.8	0.2
Queue Length 50th (ft)	77	~410	0	58	99	94	48	685	265	~148	490	0
Queue Length 95th (ft)	128	#527	54	89	143	201	m49	m#701	m274	#256	593	0
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	334	663	415	362	650	440	183	1577	833	441	1666	806
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	1.23	0.35	0.56	0.42	0.71	0.51	0.99	0.57	1.05	0.84	0.08

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	725	130	190	255	290	90	1515	460	445	1350	65
Future Volume (veh/h)	120	725	130	190	255	290	90	1515	460	445	1350	65
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	1841	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	135	815	0	204	274	0	93	1562	0	464	1406	0
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.97	0.97	0.97	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	4	2	2	2	2	2	2	2
Cap, veh/h	310	666		350	655		223	1585		444	1684	
Arrive On Green	0.07	0.19	0.00	0.07	0.19	0.00	0.06	0.45	0.00	0.09	0.47	0.00
Sat Flow, veh/h	1781	3554	1585	3456	3497	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	135	815	0	204	274	0	93	1562	0	464	1406	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1749	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	7.3	22.5	0.0	5.6	8.3	0.0	3.2	52.1	0.0	11.0	41.3	0.0
Cycle Q Clear(g_c), s	7.3	22.5	0.0	5.6	8.3	0.0	3.2	52.1	0.0	11.0	41.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	310	666		350	655		223	1585		444	1684	
V/C Ratio(X)	0.44	1.22		0.58	0.42		0.42	0.99		1.04	0.83	
Avail Cap(c_a), veh/h	310	666		350	656		228	1585		444	1684	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.4	48.8	0.0	37.6	43.0	0.0	23.2	32.9	0.0	37.1	27.5	0.0
Incr Delay (d2), s/veh	1.0	113.5	0.0	2.4	0.4	0.0	1.2	19.5	0.0	54.9	5.1	0.0
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(50%),veh/ln	3.3	20.3	0.0	2.5	3.6	0.0	1.3	24.4	0.0	9.8	16.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.4	162.3	0.0	40.0	43.4	0.0	24.4	52.3	0.0	92.0	32.5	0.0
LnGrp LOS	D	F		D	D		C	D		F	C	
Approach Vol, veh/h		950	A		478	A		1655	A		1870	A
Approach Delay, s/veh		144.5			42.0			50.8			47.3	
Approach LOS		F			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	61.0	13.0	30.0	12.6	64.4	13.0	30.0
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	11.0	53.5	8.0	22.5	8.0	56.5	8.0	22.5
Max Q Clear Time (g_c+I1), s	13.0	54.1	7.6	24.5	5.2	43.3	9.3	10.3
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	7.3	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	66.6
HCM 6th LOS	E

Notes

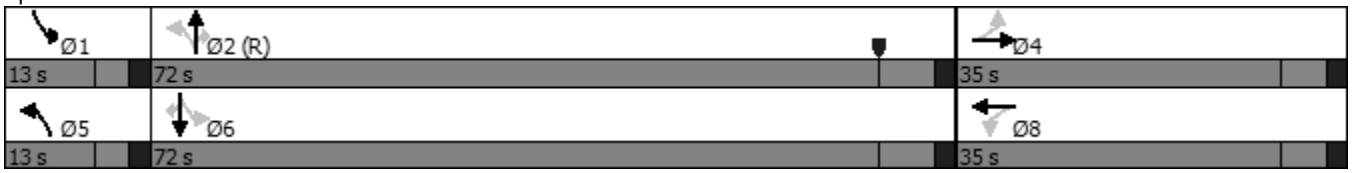
User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	220	120	20	45	90	1790	15	60	1570	40
Future Volume (vph)	220	120	20	45	90	1790	15	60	1570	40
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	8.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	34.0	34.0	34.0	34.0	13.0	22.0	22.0	13.0	22.0	22.0
Total Split (s)	35.0	35.0	35.0	35.0	13.0	72.0	72.0	13.0	72.0	72.0
Total Split (%)	29.2%	29.2%	29.2%	29.2%	10.8%	60.0%	60.0%	10.8%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	29.0	29.0	29.0	29.0	76.0	67.6	67.6	75.0	65.0	65.0
Actuated g/C Ratio	0.24	0.24	0.24	0.24	0.63	0.56	0.56	0.62	0.54	0.54
v/c Ratio	0.85	0.94	0.37	0.26	0.55	1.00	0.02	0.35	0.86	0.05

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 47.3
Intersection Capacity Utilization 93.1%
Analysis Period (min) 15

Splits and Phases: 2: US 287 & Lookout Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	259	441	23	116	100	1989	17	63	1653	42
v/c Ratio	0.85	0.94	0.37	0.26	0.55	1.00	0.02	0.35	0.86	0.05
Control Delay	69.3	66.1	57.5	23.3	28.4	46.9	0.1	15.0	44.7	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.3	66.1	57.5	23.3	28.4	46.9	0.1	15.0	44.7	6.1
Queue Length 50th (ft)	193	282	15	41	25	~874	0	27	712	4
Queue Length 95th (ft)	#308	#436	43	87	82	#1012	0	m29	793	m7
Internal Link Dist (ft)		1379		1203		902			1202	
Turn Bay Length (ft)	300		300		470		470	500		510
Base Capacity (vph)	304	468	62	444	181	1993	923	182	1916	890
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.94	0.37	0.26	0.55	1.00	0.02	0.35	0.86	0.05

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	120	255	20	45	55	90	1790	15	60	1570	40
Future Volume (veh/h)	220	120	255	20	45	55	90	1790	15	60	1570	40
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	1856	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	259	141	0	23	52	0	100	1989	17	63	1653	42
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	3	2	2	2	2	2	2	2
Cap, veh/h	343	433		271	430		223	1990	888	164	1969	878
Arrive On Green	0.23	0.23	0.00	0.23	0.23	0.00	0.06	0.56	0.56	0.06	0.55	0.55
Sat Flow, veh/h	1352	1870	0	1248	1856	0	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	259	141	0	23	52	0	100	1989	17	63	1653	42
Grp Sat Flow(s),veh/h/ln	1352	1870	0	1248	1856	0	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	22.5	7.5	0.0	1.9	2.7	0.0	2.7	67.1	0.6	1.7	46.5	1.5
Cycle Q Clear(g_c), s	25.1	7.5	0.0	9.4	2.7	0.0	2.7	67.1	0.6	1.7	46.5	1.5
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	343	433		271	430		223	1990	888	164	1969	878
V/C Ratio(X)	0.75	0.33		0.08	0.12		0.45	1.00	0.02	0.38	0.84	0.05
Avail Cap(c_a), veh/h	357	452		283	448		227	1990	888	179	1969	878
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.4	38.3	0.0	42.2	36.4	0.0	22.9	26.4	11.7	27.8	22.3	12.3
Incr Delay (d2), s/veh	12.8	1.6	0.0	0.5	0.5	0.0	3.0	20.1	0.0	3.1	4.5	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(50%),veh/ln	8.4	3.5	0.0	0.6	1.3	0.0	1.6	29.7	0.2	1.1	18.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.1	39.9	0.0	42.7	36.9	0.0	25.9	46.5	11.8	30.9	26.8	12.4
LnGrp LOS	E	D		D	D		C	D	B	C	C	B
Approach Vol, veh/h		400	A		75	A		2106			1758	
Approach Delay, s/veh		52.4			38.7			45.2			26.6	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	74.2		33.8	12.7	73.5		33.8				
Change Period (Y+Rc), s	5.0	7.0		6.0	5.0	7.0		6.0				
Max Green Setting (Gmax), s	8.0	65.0		29.0	8.0	65.0		29.0				
Max Q Clear Time (g_c+I1), s	3.7	69.1		27.1	4.7	48.5		11.4				
Green Ext Time (p_c), s	0.1	0.0		0.7	0.1	15.0		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		38.2	
HCM 6th LOS		D	

Notes

User approved pedestrian interval to be less than phase max green.

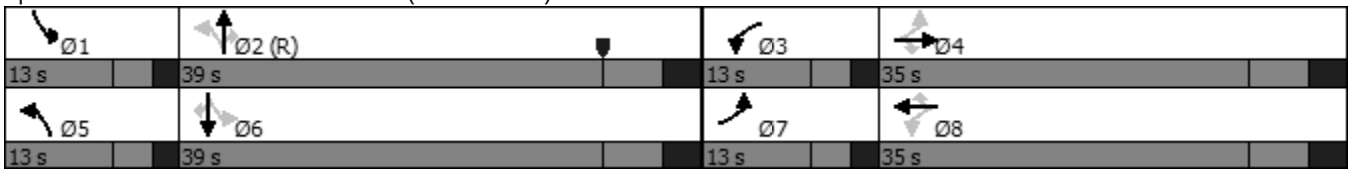
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

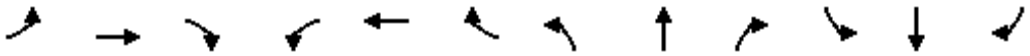
Intersection Capacity Worksheets: 2025 Background + Project

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	225	133	288	575	305	77	912	162	230	1140	70
Future Volume (vph)	15	225	133	288	575	305	77	912	162	230	1140	70
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	35.0	35.0	13.0	35.0	35.0	13.0	39.0	39.0	13.0	39.0	39.0
Total Split (%)	13.0%	35.0%	35.0%	13.0%	35.0%	35.0%	13.0%	39.0%	39.0%	13.0%	39.0%	39.0%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	28.3	17.8	17.8	31.3	25.6	25.6	45.4	34.9	34.9	54.7	43.8	43.8
Actuated g/C Ratio	0.28	0.18	0.18	0.31	0.26	0.26	0.45	0.35	0.35	0.55	0.44	0.44
v/c Ratio	0.06	0.41	0.36	0.88	0.71	0.51	0.36	0.80	0.26	0.72	0.80	0.09

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 41 (41%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 29.8
Intersection Capacity Utilization 83.3%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	250	148	310	618	328	82	970	172	242	1200	74
v/c Ratio	0.06	0.41	0.36	0.88	0.71	0.51	0.36	0.80	0.26	0.72	0.80	0.09
Control Delay	19.2	37.0	6.6	55.4	38.7	6.3	19.9	28.2	2.0	36.2	32.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	37.0	6.6	55.4	38.7	6.3	19.9	28.2	2.0	36.2	32.9	0.2
Queue Length 50th (ft)	8	80	0	172	188	0	15	287	7	76	322	0
Queue Length 95th (ft)	19	99	40	#224	244	64	m49	m#414	m14	#291	#597	0
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	267	936	549	351	936	673	229	1210	664	336	1493	782
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.27	0.27	0.88	0.66	0.49	0.36	0.80	0.26	0.72	0.80	0.09

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	225	133	288	575	305	77	912	162	230	1140	70
Future Volume (veh/h)	15	225	133	288	575	305	77	912	162	230	1140	70
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	1811	1870	1870	1811	1870	1870	1841	1870	1870	1811	1870
Adj Flow Rate, veh/h	17	250	0	310	618	0	82	970	0	242	1200	0
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.94	0.94	0.94	0.95	0.95	0.95
Percent Heavy Veh, %	2	6	2	2	6	2	2	4	2	2	6	2
Cap, veh/h	161	571		328	742		260	1483		332	1488	
Arrive On Green	0.03	0.17	0.00	0.08	0.22	0.00	0.07	0.42	0.00	0.08	0.43	0.00
Sat Flow, veh/h	1781	3441	1585	1781	3441	1585	1781	3497	1585	1781	3441	1585
Grp Volume(v), veh/h	17	250	0	310	618	0	82	970	0	242	1200	0
Grp Sat Flow(s),veh/h/ln	1781	1721	1585	1781	1721	1585	1781	1749	1585	1781	1721	1585
Q Serve(g_s), s	0.8	6.5	0.0	8.0	17.2	0.0	2.4	22.1	0.0	7.8	30.4	0.0
Cycle Q Clear(g_c), s	0.8	6.5	0.0	8.0	17.2	0.0	2.4	22.1	0.0	7.8	30.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	161	571		328	742		260	1483		332	1488	
V/C Ratio(X)	0.11	0.44		0.95	0.83		0.32	0.65		0.73	0.81	
Avail Cap(c_a), veh/h	250	946		328	946		274	1483		332	1488	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.4	37.5	0.0	37.8	37.5	0.0	18.6	22.9	0.0	18.4	24.7	0.0
Incr Delay (d2), s/veh	0.3	0.5	0.0	35.4	5.1	0.0	0.7	2.3	0.0	7.8	4.8	0.0
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(50%),veh/ln	0.3	2.7	0.0	6.8	7.4	0.0	0.9	8.5	0.0	3.4	11.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	38.0	0.0	73.2	42.6	0.0	19.3	25.2	0.0	26.3	29.5	0.0
LnGrp LOS	C	D		E	D		B	C		C	C	
Approach Vol, veh/h		267	A		928	A		1052	A		1442	A
Approach Delay, s/veh		37.8			52.8			24.7			29.0	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	49.9	13.0	24.1	12.2	50.7	8.0	29.1
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	8.0	31.5	8.0	27.5	8.0	31.5	8.0	27.5
Max Q Clear Time (g_c+I1), s	9.8	24.1	10.0	8.5	4.4	32.4	2.8	19.2
Green Ext Time (p_c), s	0.0	3.4	0.0	1.3	0.0	0.0	0.0	2.4

Intersection Summary	
HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Notes

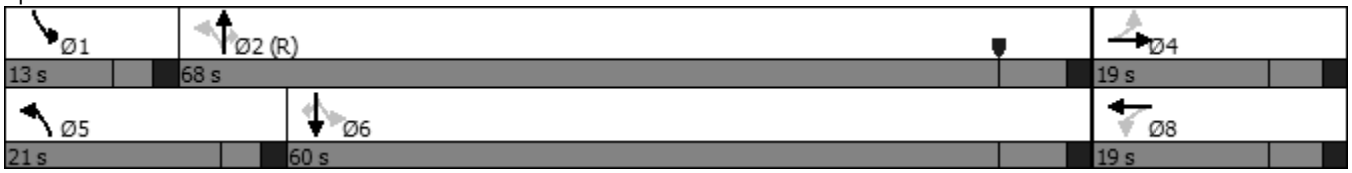
User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	32	25	25	110	195	1098	5	16	1424	111
Future Volume (vph)	32	25	25	110	195	1098	5	16	1424	111
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	8.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	34.0	34.0	34.0	34.0	13.0	22.0	22.0	13.0	22.0	22.0
Total Split (s)	19.0	19.0	19.0	19.0	21.0	68.0	68.0	13.0	60.0	60.0
Total Split (%)	19.0%	19.0%	19.0%	19.0%	21.0%	68.0%	68.0%	13.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)		13.0		13.0	76.0	68.8	68.8	65.7	55.7	55.7
Actuated g/C Ratio		0.13		0.13	0.76	0.69	0.69	0.66	0.56	0.56
v/c Ratio		1.00		1.11	0.67	0.49	0.00	0.05	0.84	0.13

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 4 (4%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 25.8
Intersection Capacity Utilization 81.7%
Analysis Period (min) 15

Splits and Phases: 2: US 287 & Lookout Road



Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	263	184	210	1181	5	18	1600	125
v/c Ratio	1.00	1.11	0.67	0.49	0.00	0.05	0.84	0.13
Control Delay	83.1	142.3	30.8	9.2	0.0	2.2	16.9	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.1	142.3	30.8	9.2	0.0	2.2	16.9	0.4
Queue Length 50th (ft)	104	~130	72	131	0	2	157	0
Queue Length 95th (ft)	#207	#261	148	272	0	m2	284	m1
Internal Link Dist (ft)	1379	1203		902			1202	
Turn Bay Length (ft)			470		470	500		510
Base Capacity (vph)	263	166	357	2388	1116	394	1916	945
Starvation Cap Reductn	0	0	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	1.00	1.11	0.59	0.49	0.00	0.05	0.84	0.13

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	25	150	25	110	27	195	1098	5	16	1424	111
Future Volume (veh/h)	32	25	150	25	110	27	195	1098	5	16	1424	111
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	1856	1870	1870	1870	1870	1870	1841	1870	1870	1826	1870
Adj Flow Rate, veh/h	41	32	0	28	125	0	210	1181	5	18	1600	125
Peak Hour Factor	0.79	0.79	0.79	0.88	0.88	0.88	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	2	3	2	2	2	2	2	4	2	2	5	2
Cap, veh/h	125	82		67	166		305	2388	1082	374	2202	1006
Arrive On Green	0.11	0.11	0.00	0.11	0.11	0.00	0.08	0.68	0.68	0.03	0.63	0.63
Sat Flow, veh/h	653	781	0	230	1572	0	1781	3497	1585	1781	3469	1585
Grp Volume(v), veh/h	73	0	0	153	0	0	210	1181	5	18	1600	125
Grp Sat Flow(s),veh/h/ln	1434	0	0	1803	0	0	1781	1749	1585	1781	1735	1585
Q Serve(g_s), s	0.0	0.0	0.0	3.7	0.0	0.0	3.6	16.2	0.1	0.3	31.3	3.1
Cycle Q Clear(g_c), s	4.6	0.0	0.0	8.2	0.0	0.0	3.6	16.2	0.1	0.3	31.3	3.1
Prop In Lane	0.56		0.00	0.18		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	208	0		233	0		305	2388	1082	374	2202	1006
V/C Ratio(X)	0.35	0.00		0.66	0.00		0.69	0.49	0.00	0.05	0.73	0.12
Avail Cap(c_a), veh/h	243	0		276	0		448	2388	1082	461	2202	1006
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	0.0	0.0	43.6	0.0	0.0	18.4	7.6	5.0	6.3	12.4	7.2
Incr Delay (d2), s/veh	3.6	0.0	0.0	11.2	0.0	0.0	5.8	0.7	0.0	0.1	2.1	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(50%),veh/ln	1.8	0.0	0.0	4.4	0.0	0.0	3.5	4.5	0.0	0.1	9.8	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.5	0.0	0.0	54.8	0.0	0.0	24.2	8.3	5.1	6.4	14.5	7.5
LnGrp LOS	D	A		D	A		C	A	A	A	B	A
Approach Vol, veh/h		73	A		153	A		1396			1743	
Approach Delay, s/veh		45.5			54.8			10.7			13.9	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	75.3		16.6	13.0	70.5		16.6				
Change Period (Y+Rc), s	5.0	7.0		6.0	5.0	7.0		6.0				
Max Green Setting (Gmax), s	8.0	61.0		13.0	16.0	53.0		13.0				
Max Q Clear Time (g_c+I1), s	2.3	18.2		6.6	5.6	33.3		10.2				
Green Ext Time (p_c), s	0.0	24.7		0.3	0.9	17.7		0.4				

Intersection Summary		
HCM 6th Ctrl Delay	15.1	
HCM 6th LOS	B	

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	11	1140	16	17	1540
Future Vol, veh/h	11	11	1140	16	17	1540
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	400	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	12	1213	17	18	1638

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2077	615	0	0	1230	0
Stage 1	1222	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	46	434	-	-	562	-
Stage 1	241	-	-	-	-	-
Stage 2	377	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	45	434	-	-	562	-
Mov Cap-2 Maneuver	45	-	-	-	-	-
Stage 1	241	-	-	-	-	-
Stage 2	365	-	-	-	-	-

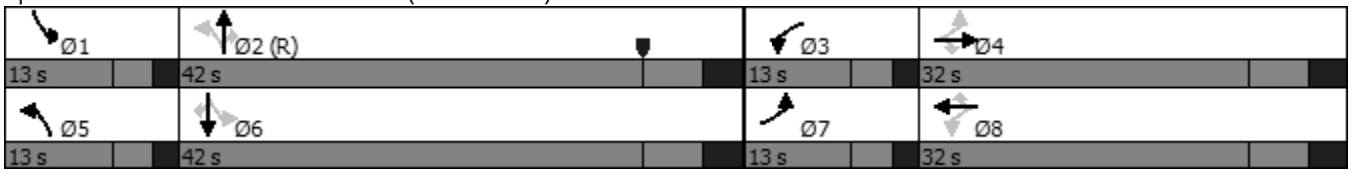
Approach	WB	NB	SB
HCM Control Delay, s	62.7	0	0.1
HCM LOS	F		

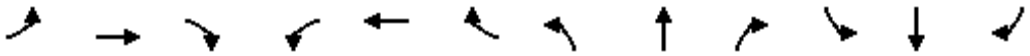
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	45	434	562	-
HCM Lane V/C Ratio	-	-	0.266	0.028	0.032	-
HCM Control Delay (s)	-	-	111.8	13.5	11.6	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	0.9	0.1	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	590	105	155	205	235	75	1230	375	360	1095	50
Future Volume (vph)	100	590	105	155	205	235	75	1230	375	360	1095	50
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	32.0	32.0	13.0	32.0	32.0	13.0	42.0	42.0	13.0	42.0	42.0
Total Split (%)	13.0%	32.0%	32.0%	13.0%	32.0%	32.0%	13.0%	42.0%	42.0%	13.0%	42.0%	42.0%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	33.3	22.8	22.8	33.3	22.8	22.8	45.0	34.5	34.5	48.1	38.8	38.8
Actuated g/C Ratio	0.33	0.23	0.23	0.33	0.23	0.23	0.45	0.34	0.34	0.48	0.39	0.39
v/c Ratio	0.26	0.82	0.24	0.70	0.28	0.46	0.35	1.04	0.55	1.52	0.83	0.07

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 28 (28%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.52
Intersection Signal Delay: 53.4
Intersection Capacity Utilization 99.7%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	112	663	118	167	220	253	77	1268	387	375	1141	52
v/c Ratio	0.26	0.82	0.24	0.70	0.28	0.46	0.35	1.04	0.55	1.52	0.83	0.07
Control Delay	21.6	45.7	3.4	38.4	32.3	6.9	11.1	48.2	5.0	278.9	35.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	45.7	3.4	38.4	32.3	6.9	11.1	48.2	5.0	278.9	35.9	0.2
Queue Length 50th (ft)	45	207	0	69	59	0	7	~480	55	~311	366	0
Queue Length 95th (ft)	81	269	21	#120	92	61	m7	m#488	m57	#493	#503	0
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	431	867	507	238	850	573	221	1220	700	246	1371	702
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.76	0.23	0.70	0.26	0.44	0.35	1.04	0.55	1.52	0.83	0.07

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	590	105	155	205	235	75	1230	375	360	1095	50
Future Volume (veh/h)	100	590	105	155	205	235	75	1230	375	360	1095	50
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	1841	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	112	663	0	167	220	0	77	1268	0	375	1141	0
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.97	0.97	0.97	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	4	2	2	2	2	2	2	2
Cap, veh/h	404	771		243	772		242	1325		225	1359	
Arrive On Green	0.08	0.22	0.00	0.08	0.22	0.00	0.07	0.37	0.00	0.08	0.38	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3497	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	112	663	0	167	220	0	77	1268	0	375	1141	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1749	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	4.7	18.0	0.0	7.3	5.2	0.0	2.5	34.8	0.0	8.0	29.2	0.0
Cycle Q Clear(g_c), s	4.7	18.0	0.0	7.3	5.2	0.0	2.5	34.8	0.0	8.0	29.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	404	771		243	772		242	1325		225	1359	
V/C Ratio(X)	0.28	0.86		0.69	0.29		0.32	0.96		1.66	0.84	
Avail Cap(c_a), veh/h	410	871		243	857		259	1325		225	1359	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.8	37.7	0.0	29.3	32.4	0.0	20.9	30.6	0.0	24.3	28.1	0.0
Incr Delay (d2), s/veh	0.4	7.9	0.0	7.8	0.2	0.0	0.7	16.3	0.0	317.4	6.4	0.0
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(50%),veh/ln	2.0	8.4	0.0	3.5	2.2	0.0	1.0	16.3	0.0	22.8	12.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.1	45.6	0.0	37.1	32.6	0.0	21.7	46.9	0.0	341.7	34.5	0.0
LnGrp LOS	C	D		D	C		C	D		F	C	
Approach Vol, veh/h		775	A		387	A		1345	A		1516	A
Approach Delay, s/veh		42.9			34.5			45.5			110.5	
Approach LOS		D			C			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	44.8	13.0	29.2	12.1	45.7	12.6	29.6
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	8.0	34.5	8.0	24.5	8.0	34.5	8.0	24.5
Max Q Clear Time (g_c+I1), s	10.0	36.8	9.3	20.0	4.5	31.2	6.7	7.2
Green Ext Time (p_c), s	0.0	0.0	0.0	1.8	0.0	2.0	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	68.4
HCM 6th LOS	E

Notes

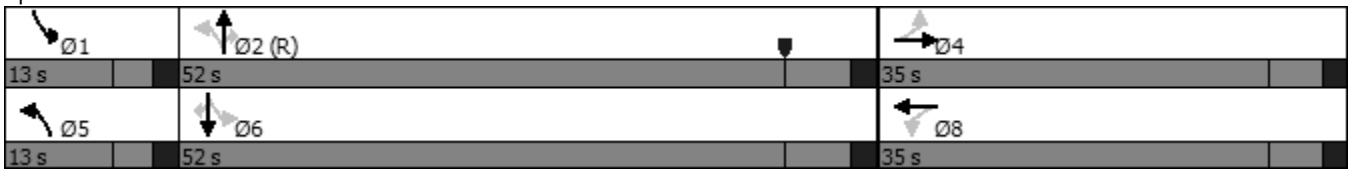
User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	182	100	15	35	75	1471	10	53	1295	33
Future Volume (vph)	182	100	15	35	75	1471	10	53	1295	33
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	8.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	34.0	34.0	34.0	34.0	13.0	22.0	22.0	13.0	22.0	22.0
Total Split (s)	35.0	35.0	35.0	35.0	13.0	52.0	52.0	13.0	52.0	52.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	13.0%	52.0%	52.0%	13.0%	52.0%	52.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)		29.0		29.0	56.0	47.6	47.6	56.0	47.6	47.6
Actuated g/C Ratio		0.29		0.29	0.56	0.48	0.48	0.56	0.48	0.48
v/c Ratio		1.27		0.24	0.38	0.97	0.01	0.26	0.81	0.04

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 56 (56%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.27
Intersection Signal Delay: 60.6
Intersection Capacity Utilization 97.2%
Analysis Period (min) 15

Splits and Phases: 2: US 287 & Lookout Road



Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	579	113	83	1634	11	56	1363	35
v/c Ratio	1.27	0.24	0.38	0.97	0.01	0.26	0.81	0.04
Control Delay	169.3	17.6	14.9	43.3	0.0	21.5	45.1	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	169.3	17.6	14.9	43.3	0.0	21.5	45.1	8.5
Queue Length 50th (ft)	~454	31	21	~588	0	32	491	0
Queue Length 95th (ft)	#610	69	44	#725	0	m42	564	m6
Internal Link Dist (ft)	1379	1203		902			1202	
Turn Bay Length (ft)			470		470	500		510
Base Capacity (vph)	455	476	218	1684	799	218	1684	799
Starvation Cap Reductn	0	0	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	1.27	0.24	0.38	0.97	0.01	0.26	0.81	0.04

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	100	210	15	35	47	75	1471	10	53	1295	33
Future Volume (veh/h)	182	100	210	15	35	47	75	1471	10	53	1295	33
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	1856	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	214	118	0	17	41	0	83	1634	11	56	1363	35
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	3	2	2	2	2	2	2	2
Cap, veh/h	303	134		140	313		275	1819	811	214	1787	797
Arrive On Green	0.25	0.25	0.00	0.25	0.25	0.00	0.07	0.51	0.51	0.06	0.50	0.50
Sat Flow, veh/h	993	548	0	380	1277	0	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	332	0	0	58	0	0	83	1634	11	56	1363	35
Grp Sat Flow(s),veh/h/ln	1541	0	0	1657	0	0	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	18.2	0.0	0.0	0.0	0.0	0.0	2.1	41.6	0.3	1.4	30.9	1.1
Cycle Q Clear(g_c), s	20.6	0.0	0.0	2.4	0.0	0.0	2.1	41.6	0.3	1.4	30.9	1.1
Prop In Lane	0.64		0.00	0.29		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	437	0		453	0		275	1819	811	214	1787	797
V/C Ratio(X)	0.76	0.00		0.13	0.00		0.30	0.90	0.01	0.26	0.76	0.04
Avail Cap(c_a), veh/h	505	0		526	0		289	1819	811	244	1787	797
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	0.0	0.0	29.4	0.0	0.0	15.6	22.1	12.0	19.9	20.0	12.6
Incr Delay (d2), s/veh	10.2	0.0	0.0	0.5	0.0	0.0	1.3	7.5	0.0	1.4	3.1	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(50%),veh/ln	8.5	0.0	0.0	1.1	0.0	0.0	0.8	16.4	0.1	0.6	11.6	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.3	0.0	0.0	29.9	0.0	0.0	16.9	29.6	12.0	21.2	23.2	12.7
LnGrp LOS	D	A		C	A		B	C	B	C	C	B
Approach Vol, veh/h		332	A		58	A		1728			1454	
Approach Delay, s/veh		46.3			29.9			28.9			22.9	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.3	58.2		30.5	12.2	57.3		30.5				
Change Period (Y+Rc), s	5.0	7.0		6.0	5.0	7.0		6.0				
Max Green Setting (Gmax), s	8.0	45.0		29.0	8.0	45.0		29.0				
Max Q Clear Time (g_c+I1), s	3.4	43.6		22.6	4.1	32.9		4.4				
Green Ext Time (p_c), s	0.1	1.4		1.9	0.1	10.3		0.5				

Intersection Summary		
HCM 6th Ctrl Delay		28.0
HCM 6th LOS		C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	26	1680	20	21	1355
Future Vol, veh/h	26	26	1680	20	21	1355
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	400	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	28	1750	21	22	1411

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2511	886	0	0	1771	0
Stage 1	1761	-	-	-	-	-
Stage 2	750	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 23	288	-	-	348	-
Stage 1	123	-	-	-	-	-
Stage 2	427	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 22	288	-	-	348	-
Mov Cap-2 Maneuver	~ 22	-	-	-	-	-
Stage 1	123	-	-	-	-	-
Stage 2	400	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	282.8	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	22	288	348	-
HCM Lane V/C Ratio	-	-	1.285	0.098	0.063	-
HCM Control Delay (s)	-	-	$ 546.8	18.9	16	-
HCM Lane LOS	-	-	F	C	C	-
HCM 95th %tile Q(veh)	-	-	3.7	0.3	0.2	-

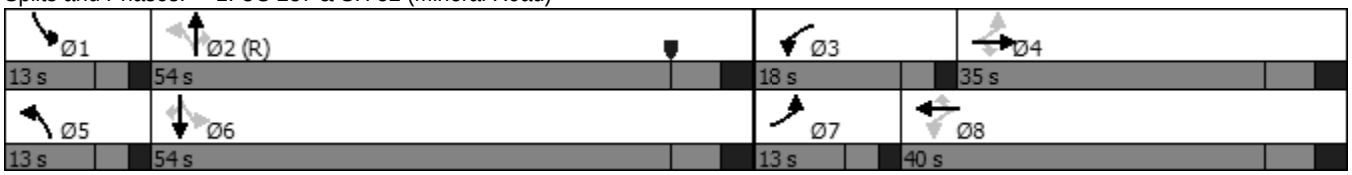
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

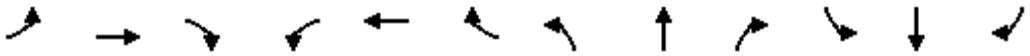
Intersection Capacity Worksheets: 2040 Background + Project

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	280	163	358	710	375	92	1127	197	280	1400	85
Future Volume (vph)	15	280	163	358	710	375	92	1127	197	280	1400	85
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	35.0	35.0	18.0	40.0	40.0	13.0	54.0	54.0	13.0	54.0	54.0
Total Split (%)	10.8%	29.2%	29.2%	15.0%	33.3%	33.3%	10.8%	45.0%	45.0%	10.8%	45.0%	45.0%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	30.2	19.7	19.7	40.1	32.4	32.4	63.8	53.3	53.3	66.1	54.4	54.4
Actuated g/C Ratio	0.25	0.16	0.16	0.33	0.27	0.27	0.53	0.44	0.44	0.55	0.45	0.45
v/c Ratio	0.09	0.56	0.46	0.54	0.83	0.65	0.52	0.78	0.26	0.70	0.96	0.11

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 36.4
Intersection Capacity Utilization 92.5%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	311	181	385	763	403	98	1199	210	295	1474	89
v/c Ratio	0.09	0.56	0.46	0.54	0.83	0.65	0.52	0.78	0.26	0.70	0.96	0.11
Control Delay	24.9	49.0	12.3	32.1	50.2	17.7	26.4	34.0	4.0	27.1	47.2	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	49.0	12.3	32.1	50.2	17.7	26.4	34.0	4.0	27.1	47.2	1.5
Queue Length 50th (ft)	9	121	14	119	284	84	30	405	0	47	542	0
Queue Length 95th (ft)	23	152	73	140	370	201	81	#562	49	#127	#830	12
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	198	780	486	710	936	629	187	1540	819	420	1543	789
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.40	0.37	0.54	0.82	0.64	0.52	0.78	0.26	0.70	0.96	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	280	163	358	710	375	92	1127	197	280	1400	85
Future Volume (veh/h)	15	280	163	358	710	375	92	1127	197	280	1400	85
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	1811	1870	1870	1811	1870	1870	1841	1870	1870	1811	1870
Adj Flow Rate, veh/h	17	311	0	385	763	0	98	1199	0	295	1474	0
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.94	0.94	0.94	0.95	0.95	0.95
Percent Heavy Veh, %	2	6	2	2	6	2	2	4	2	2	6	2
Cap, veh/h	135	588		669	852		188	1568		496	1552	
Arrive On Green	0.03	0.17	0.00	0.11	0.25	0.00	0.06	0.45	0.00	0.07	0.45	0.00
Sat Flow, veh/h	1781	3441	1585	3456	3441	1585	1781	3497	1585	3456	3441	1585
Grp Volume(v), veh/h	17	311	0	385	763	0	98	1199	0	295	1474	0
Grp Sat Flow(s),veh/h/ln	1781	1721	1585	1728	1721	1585	1781	1749	1585	1728	1721	1585
Q Serve(g_s), s	0.9	9.9	0.0	10.6	25.7	0.0	3.4	34.5	0.0	5.4	49.4	0.0
Cycle Q Clear(g_c), s	0.9	9.9	0.0	10.6	25.7	0.0	3.4	34.5	0.0	5.4	49.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	135	588		669	852		188	1568		496	1552	
V/C Ratio(X)	0.13	0.53		0.58	0.90		0.52	0.76		0.59	0.95	
Avail Cap(c_a), veh/h	202	789		678	932		193	1568		496	1552	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	40.0	45.4	0.0	34.5	43.6	0.0	26.8	27.8	0.0	22.8	31.6	0.0
Incr Delay (d2), s/veh	0.4	0.7	0.0	1.2	10.5	0.0	2.3	3.6	0.0	1.9	13.7	0.0
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(50%),veh/ln	0.4	4.2	0.0	4.4	11.8	0.0	1.4	13.9	0.0	2.1	21.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.4	46.1	0.0	35.6	54.2	0.0	29.1	31.4	0.0	24.7	45.3	0.0
LnGrp LOS	D	D		D	D		C	C		C	D	
Approach Vol, veh/h		328	A		1148	A		1297	A		1769	A
Approach Delay, s/veh		45.8			48.0			31.2			41.9	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	61.3	17.7	28.0	12.7	61.6	8.5	37.2
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	8.0	46.5	13.0	27.5	8.0	46.5	8.0	32.5
Max Q Clear Time (g_c+I1), s	7.4	36.5	12.6	11.9	5.4	51.4	2.9	27.7
Green Ext Time (p_c), s	0.1	5.1	0.1	1.5	0.0	0.0	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	40.6
HCM 6th LOS	D

Notes

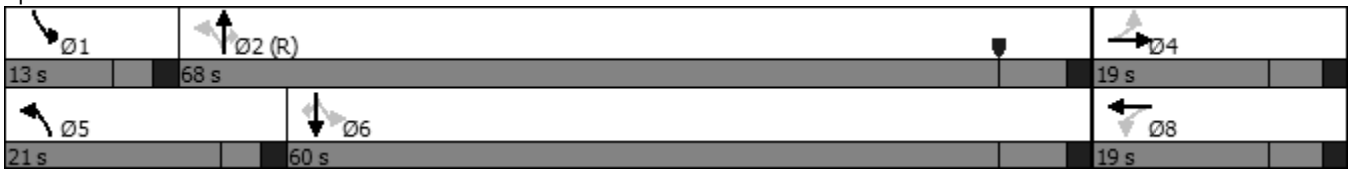
User approved pedestrian interval to be less than phase max green.

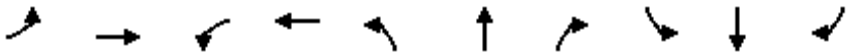
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	37	35	35	135	240	1348	5	21	1754	136
Future Volume (vph)	37	35	35	135	240	1348	5	21	1754	136
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	8.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	34.0	34.0	34.0	34.0	13.0	22.0	22.0	13.0	22.0	22.0
Total Split (s)	19.0	19.0	19.0	19.0	21.0	68.0	68.0	13.0	60.0	60.0
Total Split (%)	19.0%	19.0%	19.0%	19.0%	21.0%	68.0%	68.0%	13.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	13.0	13.0	13.0	13.0	76.0	68.8	68.8	64.6	54.6	54.6
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.76	0.69	0.69	0.65	0.55	0.55
v/c Ratio	0.47	0.74	0.54	0.80	0.78	0.61	0.00	0.08	1.05	0.16

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 4 (4%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 38.4
Intersection Capacity Utilization 103.4%
Analysis Period (min) 15

Splits and Phases: 2: US 287 & Lookout Road





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	47	278	40	195	258	1449	5	24	1971	153
v/c Ratio	0.47	0.74	0.54	0.80	0.78	0.61	0.00	0.08	1.05	0.16
Control Delay	57.3	26.8	68.8	64.8	39.5	10.8	0.0	4.4	59.8	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.3	26.8	68.8	64.8	39.5	10.8	0.0	4.4	59.8	2.4
Queue Length 50th (ft)	28	51	24	116	103	182	0	3	~744	0
Queue Length 95th (ft)	58	103	#70	#223	#210	376	0	8	#865	28
Internal Link Dist (ft)		1379		1203		902			1202	
Turn Bay Length (ft)	300		300		470		470	500		510
Base Capacity (vph)	99	376	74	243	358	2388	1116	309	1876	932
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.74	0.54	0.80	0.72	0.61	0.00	0.08	1.05	0.16

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	35	185	35	135	37	240	1348	5	21	1754	136
Future Volume (veh/h)	37	35	185	35	135	37	240	1348	5	21	1754	136
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	1856	1870	1870	1870	1870	1870	1841	1870	1870	1826	1870
Adj Flow Rate, veh/h	47	44	0	40	153	0	258	1449	5	24	1971	153
Peak Hour Factor	0.79	0.79	0.79	0.88	0.88	0.88	0.93	0.93	0.93	0.89	0.89	0.89
Percent Heavy Veh, %	2	3	2	2	2	2	2	4	2	2	5	2
Cap, veh/h	137	241		220	243		297	2277	1032	289	1956	894
Arrive On Green	0.13	0.13	0.00	0.13	0.13	0.00	0.13	0.65	0.65	0.04	0.56	0.56
Sat Flow, veh/h	1234	1856	0	1362	1870	0	1781	3497	1585	1781	3469	1585
Grp Volume(v), veh/h	47	44	0	40	153	0	258	1449	5	24	1971	153
Grp Sat Flow(s),veh/h/ln	1234	1856	0	1362	1870	0	1781	1749	1585	1781	1735	1585
Q Serve(g_s), s	3.8	2.1	0.0	2.7	7.8	0.0	10.1	24.7	0.1	0.5	56.4	4.7
Cycle Q Clear(g_c), s	11.5	2.1	0.0	4.8	7.8	0.0	10.1	24.7	0.1	0.5	56.4	4.7
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	137	241		220	243		297	2277	1032	289	1956	894
V/C Ratio(X)	0.34	0.18		0.18	0.63		0.87	0.64	0.00	0.08	1.01	0.17
Avail Cap(c_a), veh/h	137	241		220	243		357	2277	1032	362	1956	894
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.7	38.8	0.0	40.9	41.2	0.0	33.1	10.4	6.1	9.4	21.8	10.5
Incr Delay (d2), s/veh	5.3	1.3	0.0	1.4	10.0	0.0	20.9	1.4	0.0	0.3	22.2	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(50%),veh/ln	1.3	1.0	0.0	1.0	4.2	0.0	7.5	7.5	0.0	0.2	24.3	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.0	40.1	0.0	42.3	51.2	0.0	54.0	11.8	6.1	9.6	44.0	10.9
LnGrp LOS	D	D		D	D		D	B	A	A	D	B
Approach Vol, veh/h		91	A		193	A		1712			2148	
Approach Delay, s/veh		46.2			49.4			18.1			41.3	
Approach LOS		D			D			B			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	72.1		19.0	17.6	63.4		19.0				
Change Period (Y+Rc), s	5.0	7.0		6.0	5.0	7.0		6.0				
Max Green Setting (Gmax), s	8.0	61.0		13.0	16.0	53.0		13.0				
Max Q Clear Time (g_c+I1), s	2.5	26.7		13.5	12.1	58.4		9.8				
Green Ext Time (p_c), s	0.0	26.1		0.0	0.6	0.0		0.5				

Intersection Summary		
HCM 6th Ctrl Delay	32.2	
HCM 6th LOS	C	

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	11	1405	16	17	1900
Future Vol, veh/h	11	11	1405	16	17	1900
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	400	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	12	1511	17	18	2043

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2578	764	0	0	1528	0
Stage 1	1520	-	-	-	-	-
Stage 2	1058	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	21	346	-	-	432	-
Stage 1	167	-	-	-	-	-
Stage 2	295	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	20	346	-	-	432	-
Mov Cap-2 Maneuver	20	-	-	-	-	-
Stage 1	167	-	-	-	-	-
Stage 2	283	-	-	-	-	-

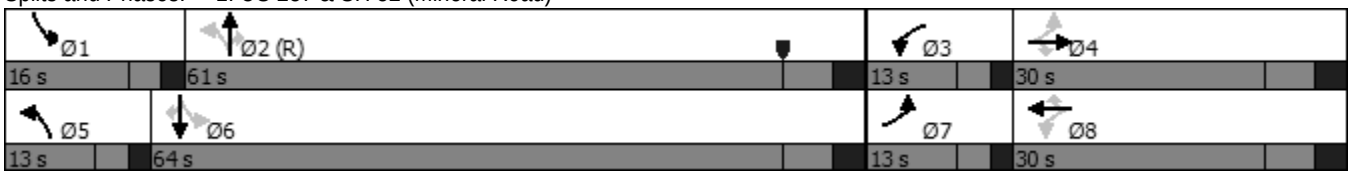
Approach	WB	NB	SB
HCM Control Delay, s	174.1	0	0.1
HCM LOS	F		

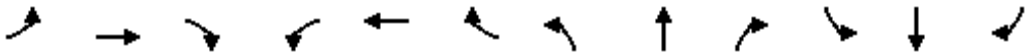
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	20	346	432	-
HCM Lane V/C Ratio	-	-	0.598	0.035	0.042	-
HCM Control Delay (s)	-	-	$ 332.4	15.8	13.7	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	1.7	0.1	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	725	134	194	255	290	95	1531	465	445	1363	65
Future Volume (vph)	120	725	134	194	255	290	95	1531	465	445	1363	65
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	8.0	10.0	10.0	8.0	10.0	10.0	8.0	20.0	20.0	8.0	20.0	20.0
Minimum Split (s)	13.0	35.5	35.5	13.0	35.5	35.5	13.0	27.5	27.5	13.0	27.5	27.5
Total Split (s)	13.0	30.0	30.0	13.0	30.0	30.0	13.0	61.0	61.0	16.0	64.0	64.0
Total Split (%)	10.8%	25.0%	25.0%	10.8%	25.0%	25.0%	10.8%	50.8%	50.8%	13.3%	53.3%	53.3%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	33.0	22.5	22.5	33.0	22.5	22.5	64.0	53.5	53.5	70.0	56.5	56.5
Actuated g/C Ratio	0.28	0.19	0.19	0.28	0.19	0.19	0.53	0.45	0.45	0.58	0.47	0.47
v/c Ratio	0.40	1.23	0.36	0.58	0.42	0.71	0.54	1.00	0.58	1.05	0.85	0.08

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 61.6
Intersection Capacity Utilization 102.6%
Analysis Period (min) 15

Splits and Phases: 1: US 287 & SH 52 (Mineral Road)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	135	815	151	209	274	312	98	1578	479	464	1420	68
v/c Ratio	0.40	1.23	0.36	0.58	0.42	0.71	0.54	1.00	0.58	1.05	0.85	0.08
Control Delay	35.1	157.5	9.6	36.8	45.3	28.4	22.9	63.9	28.8	87.9	34.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	157.5	9.6	36.8	45.3	28.4	22.9	63.9	28.8	87.9	34.3	0.2
Queue Length 50th (ft)	77	~410	2	60	99	94	49	~691	265	~148	498	0
Queue Length 95th (ft)	128	#527	57	91	143	201	m52	m#721	m277	#256	603	0
Internal Link Dist (ft)		1299			420			1072			1102	
Turn Bay Length (ft)	200		400	250		360	195		470	310		480
Base Capacity (vph)	334	663	417	362	650	440	183	1577	833	441	1666	806
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	1.23	0.36	0.58	0.42	0.71	0.54	1.00	0.58	1.05	0.85	0.08

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	725	134	194	255	290	95	1531	465	445	1363	65
Future Volume (veh/h)	120	725	134	194	255	290	95	1531	465	445	1363	65
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	1841	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	135	815	0	209	274	0	98	1578	0	464	1420	0
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.97	0.97	0.97	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	4	2	2	2	2	2	2	2
Cap, veh/h	310	666		350	656		221	1585		439	1682	
Arrive On Green	0.07	0.19	0.00	0.07	0.19	0.00	0.06	0.45	0.00	0.09	0.47	0.00
Sat Flow, veh/h	1781	3554	1585	3456	3497	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	135	815	0	209	274	0	98	1578	0	464	1420	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1749	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	7.3	22.5	0.0	5.8	8.3	0.0	3.4	53.1	0.0	11.0	42.1	0.0
Cycle Q Clear(g_c), s	7.3	22.5	0.0	5.8	8.3	0.0	3.4	53.1	0.0	11.0	42.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	310	666		350	656		221	1585		439	1682	
V/C Ratio(X)	0.44	1.22		0.60	0.42		0.44	1.00		1.06	0.84	
Avail Cap(c_a), veh/h	310	666		350	656		225	1585		439	1682	
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.4	48.8	0.0	37.6	43.0	0.0	23.7	33.1	0.0	37.6	27.7	0.0
Incr Delay (d2), s/veh	1.0	113.5	0.0	2.8	0.4	0.0	1.4	21.6	0.0	58.9	5.4	0.0
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(50%),veh/ln	3.3	20.3	0.0	2.6	3.6	0.0	1.4	25.3	0.0	9.9	17.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.4	162.3	0.0	40.4	43.4	0.0	25.1	54.8	0.0	96.5	33.1	0.0
LnGrp LOS	D	F		D	D		C	D		F	C	
Approach Vol, veh/h		950	A		483	A		1676	A		1884	A
Approach Delay, s/veh		144.5			42.1			53.0			48.7	
Approach LOS		F			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	61.0	13.0	30.0	12.7	64.3	13.0	30.0
Change Period (Y+Rc), s	5.0	7.5	5.0	7.5	5.0	7.5	5.0	7.5
Max Green Setting (Gmax), s	11.0	53.5	8.0	22.5	8.0	56.5	8.0	22.5
Max Q Clear Time (g_c+I1), s	13.0	55.1	7.8	24.5	5.4	44.1	9.3	10.3
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	7.1	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	67.8
HCM 6th LOS	E

Notes

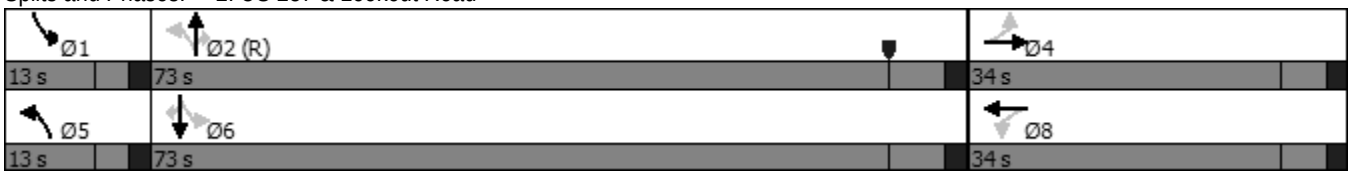
User approved pedestrian interval to be less than phase max green.

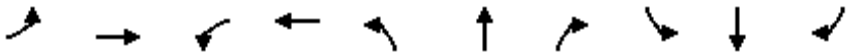
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	222	120	20	45	90	1806	15	63	1590	43
Future Volume (vph)	222	120	20	45	90	1806	15	63	1590	43
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	8.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	34.0	34.0	34.0	34.0	13.0	22.0	22.0	13.0	22.0	22.0
Total Split (s)	34.0	34.0	34.0	34.0	13.0	73.0	73.0	13.0	73.0	73.0
Total Split (%)	28.3%	28.3%	28.3%	28.3%	10.8%	60.8%	60.8%	10.8%	60.8%	60.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	28.0	28.0	28.0	28.0	77.0	68.6	68.6	76.0	66.0	66.0
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.64	0.57	0.57	0.63	0.55	0.55
v/c Ratio	0.90	0.97	0.37	0.27	0.55	0.99	0.02	0.36	0.86	0.05

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 47.0
Intersection Capacity Utilization 93.6%
Analysis Period (min) 15

Splits and Phases: 2: US 287 & Lookout Road





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	261	441	23	118	100	2007	17	66	1674	45
v/c Ratio	0.90	0.97	0.37	0.27	0.55	0.99	0.02	0.36	0.86	0.05
Control Delay	77.4	73.2	58.1	23.8	28.6	44.8	0.1	15.0	43.5	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.4	73.2	58.1	23.8	28.6	44.8	0.1	15.0	43.5	6.0
Queue Length 50th (ft)	197	286	15	42	24	~876	0	26	719	5
Queue Length 95th (ft)	#323	#447	43	89	82	#1015	0	m30	802	m8
Internal Link Dist (ft)		1379		1203		902			1202	
Turn Bay Length (ft)	300		300		470		470	500		510
Base Capacity (vph)	291	454	62	431	181	2023	936	182	1946	903
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.97	0.37	0.27	0.55	0.99	0.02	0.36	0.86	0.05

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	120	255	20	45	57	90	1806	15	63	1590	43
Future Volume (veh/h)	222	120	255	20	45	57	90	1806	15	63	1590	43
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	1856	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	261	141	0	23	52	0	100	2007	17	66	1674	45
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	3	2	2	2	2	2	2	2
Cap, veh/h	341	430		269	427		220	1992	889	166	1974	881
Arrive On Green	0.23	0.23	0.00	0.23	0.23	0.00	0.06	0.56	0.56	0.06	0.56	0.56
Sat Flow, veh/h	1352	1870	0	1248	1856	0	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	261	141	0	23	52	0	100	2007	17	66	1674	45
Grp Sat Flow(s),veh/h/ln	1352	1870	0	1248	1856	0	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	22.7	7.5	0.0	1.9	2.7	0.0	2.7	67.3	0.6	1.8	47.5	1.6
Cycle Q Clear(g_c), s	25.4	7.5	0.0	9.4	2.7	0.0	2.7	67.3	0.6	1.8	47.5	1.6
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	341	430		269	427		220	1992	889	166	1974	881
V/C Ratio(X)	0.76	0.33		0.09	0.12		0.46	1.01	0.02	0.40	0.85	0.05
Avail Cap(c_a), veh/h	346	436		273	433		224	1992	889	179	1974	881
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	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	38.5	0.0	42.4	36.6	0.0	23.4	26.4	11.7	27.8	22.4	12.2
Incr Delay (d2), s/veh	13.6	1.6	0.0	0.5	0.5	0.0	3.1	22.0	0.0	3.3	4.8	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(50%),veh/ln	8.6	3.5	0.0	0.6	1.3	0.0	1.6	30.2	0.2	1.1	18.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.3	40.1	0.0	42.9	37.0	0.0	26.5	48.4	11.8	31.1	27.2	12.3
LnGrp LOS	E	D		D	D		C	D	B	C	C	B
Approach Vol, veh/h		402	A		75	A		2124			1785	
Approach Delay, s/veh		53.2			38.8			47.0			26.9	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.1	74.3		33.6	12.7	73.7		33.6				
Change Period (Y+Rc), s	5.0	7.0		6.0	5.0	7.0		6.0				
Max Green Setting (Gmax), s	8.0	66.0		28.0	8.0	66.0		28.0				
Max Q Clear Time (g_c+I1), s	3.8	69.3		27.4	4.7	49.5		11.4				
Green Ext Time (p_c), s	0.1	0.0		0.2	0.1	15.1		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		39.3	
HCM 6th LOS		D	

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	14.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	26	2065	20	21	1670
Future Vol, veh/h	26	26	2065	20	21	1670
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	400	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	28	2174	21	22	1758

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	3108	1098	0	0	2195	0
Stage 1	2185	-	-	-	-	-
Stage 2	923	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 9	208	-	-	237	-
Stage 1	72	-	-	-	-	-
Stage 2	347	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 8	208	-	-	237	-
Mov Cap-2 Maneuver	~ 8	-	-	-	-	-
Stage 1	72	-	-	-	-	-
Stage 2	315	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 1034.9	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	8	208	237	-
HCM Lane V/C Ratio	-	-	3.533	0.136	0.093	-
HCM Control Delay (s)	-	-	$ 2044.7	25	21.7	-
HCM Lane LOS	-	-	F	D	C	-
HCM 95th %tile Q(veh)	-	-	4.8	0.5	0.3	-

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