

Technical Memo

Date: Friday, December 18, 2020

Project: US14A/US85 Corridor / Deadwood Box Study

To: Study Advisory Team

From: HDR

Subject: Future No Build Traffic Operations

1.0 Introduction

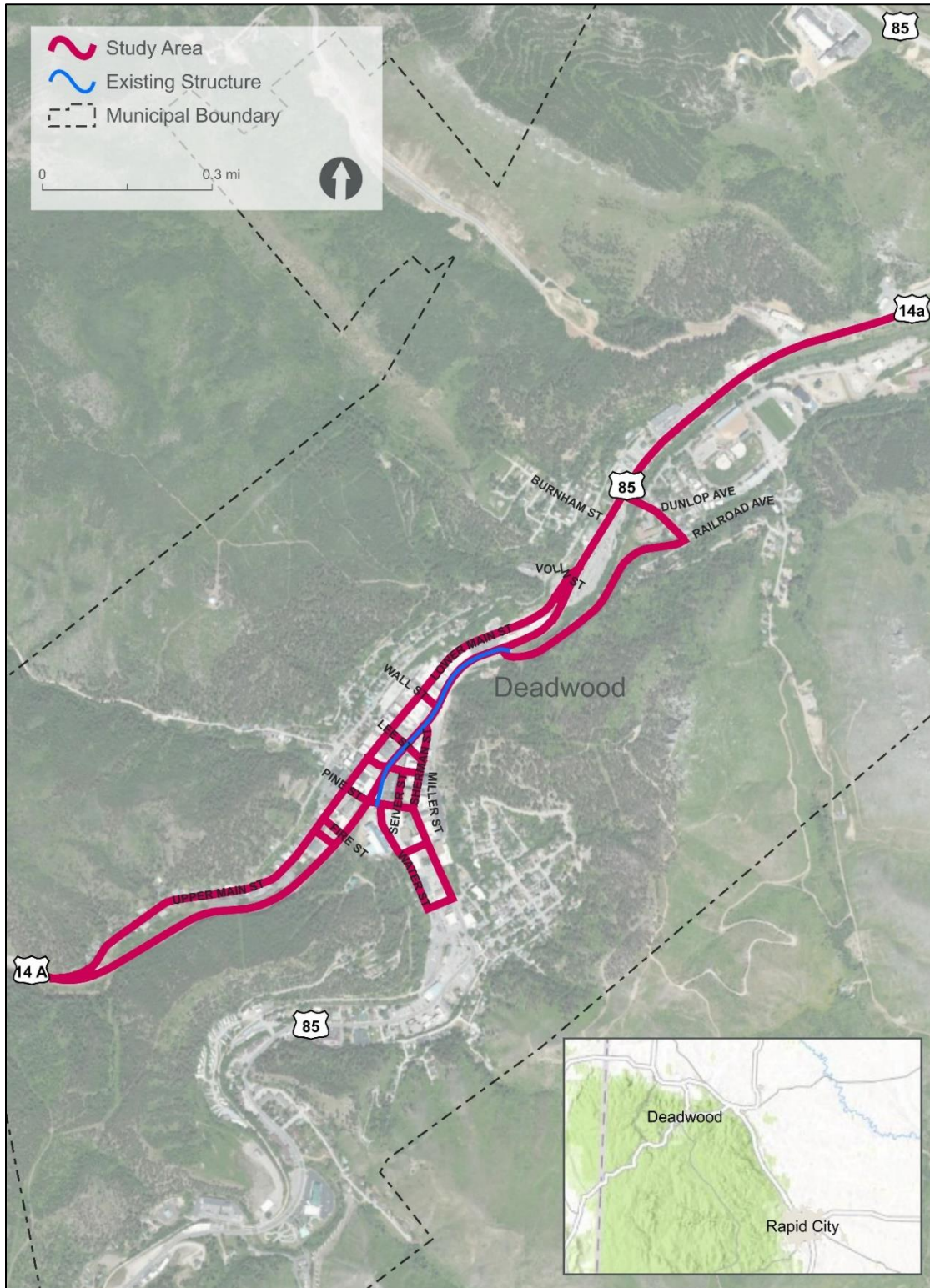
The purpose of this technical memorandum is to document the evaluation of a “No Build” scenario reflecting future traffic operations with no mitigation or changes to the existing transportation network in support of the US14A/US85 Corridor / Deadwood Box Study. This memorandum discusses future traffic operations in two years: 2027, the first possible year of project completion, and 2050, the planning horizon year.

The study area for this project is shown in Figure 1, bounded by the following limits:

- US14A / Pioneer Way - Upper Main Street to US85;
- US85 / Sherman Street - Cemetery Street / Water Street to Pine Street;
- US85 / Pine Street - Sherman Street to US14A / Pioneer Way;
- Upper/Lower Main Street - Armory Street to US14A / Pioneer Way;
- Sherman Street - US85 / Pine Street to US14A / Pioneer Way;
- Pine Street - US14A / Pioneer Way to Main Street;
- Armory Street - US14A / Pioneer Way to Upper Main Street;
- Fire Street - US14A / Pioneer Way to Upper Main Street;
- Siever Street - US85 / Pine Street to Deadwood Street;
- Deadwood Street - Sherman Street to Main Street;
- Lee Street - Sherman Street to Lower Main Street;
- Wall Street - US14A / Pioneer Way to Lower Main Street;
- Railroad Avenue - US14A / Pioneer Way to Dunlop Avenue;
- Dunlop Avenue / McKinley Street - Railroad Avenue to US14A / Pioneer Way;
- Water Street - US85 / Sherman Street to US85 / Pine Street; and
- Center Street - US85 / Sherman Street to Water Street.

The corridor limits are located within Lawrence County and within the Deadwood city limits.

Figure 1: Project Study Area



2.0 No Build Volumes

The growth factors documented in the *Traffic Forecasts Technical Memo* were linearly applied to the 2020 Existing Conditions turning movement volumes developed as part of the *Existing Conditions Traffic Operations Technical Memo* (Figure 2) to develop sets of turning movement volumes reflecting expected demand in 2027, the first possible year of project completion, and 2050, the planning horizon year for the project. The resulting sets of turning movement volumes were balanced, or “smoothed,” according to the guidelines set forth in *NCHRP Report 765: Analytical Approaches for Project-Level Planning*. AM (7:30AM-8:30AM) and PM (3:30PM-4:30PM) peak hour volumes for these years are provided in Figure 3 and Figure 4, respectively.

Figure 2: 2020 Existing Conditions Turning Movement Volumes

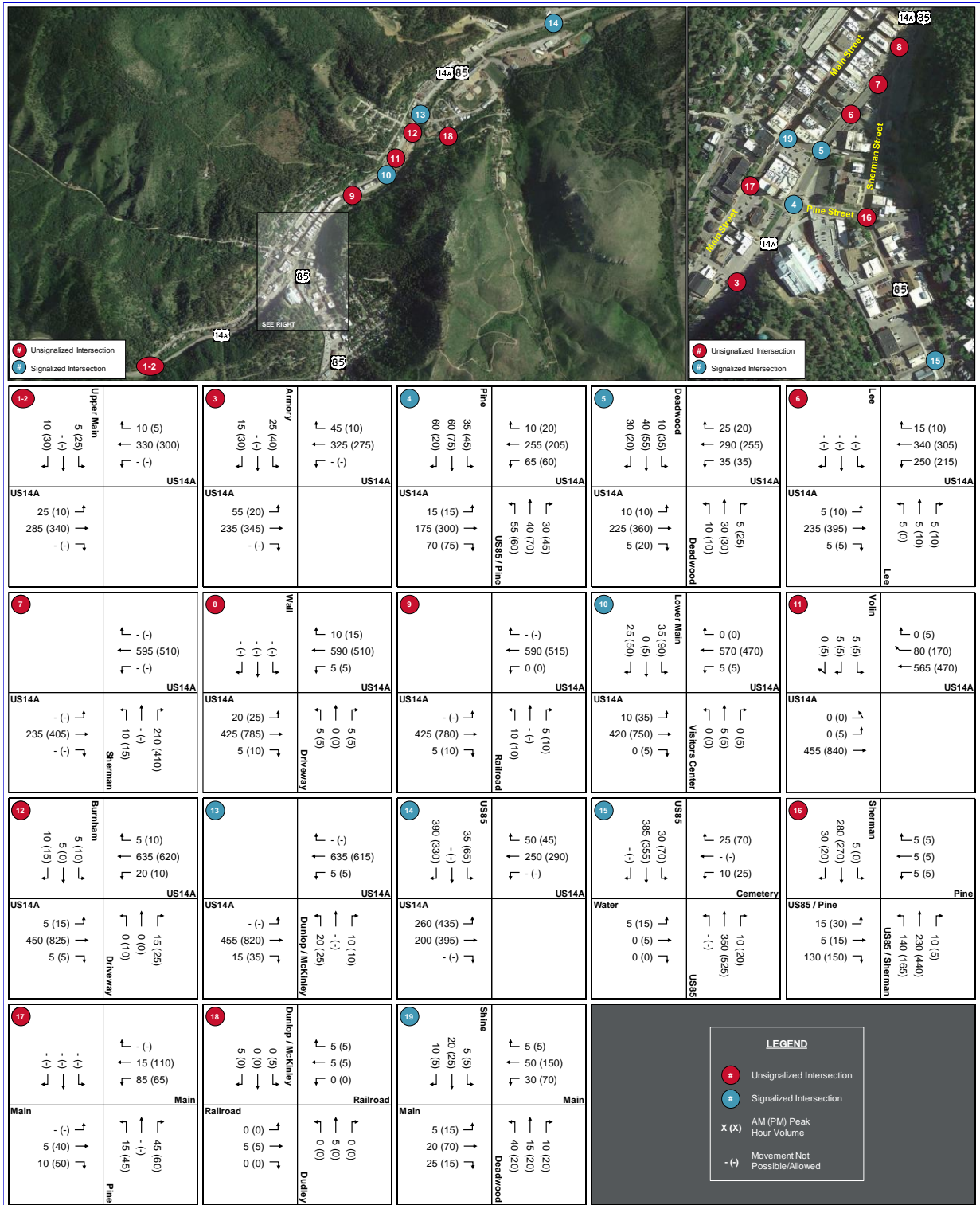
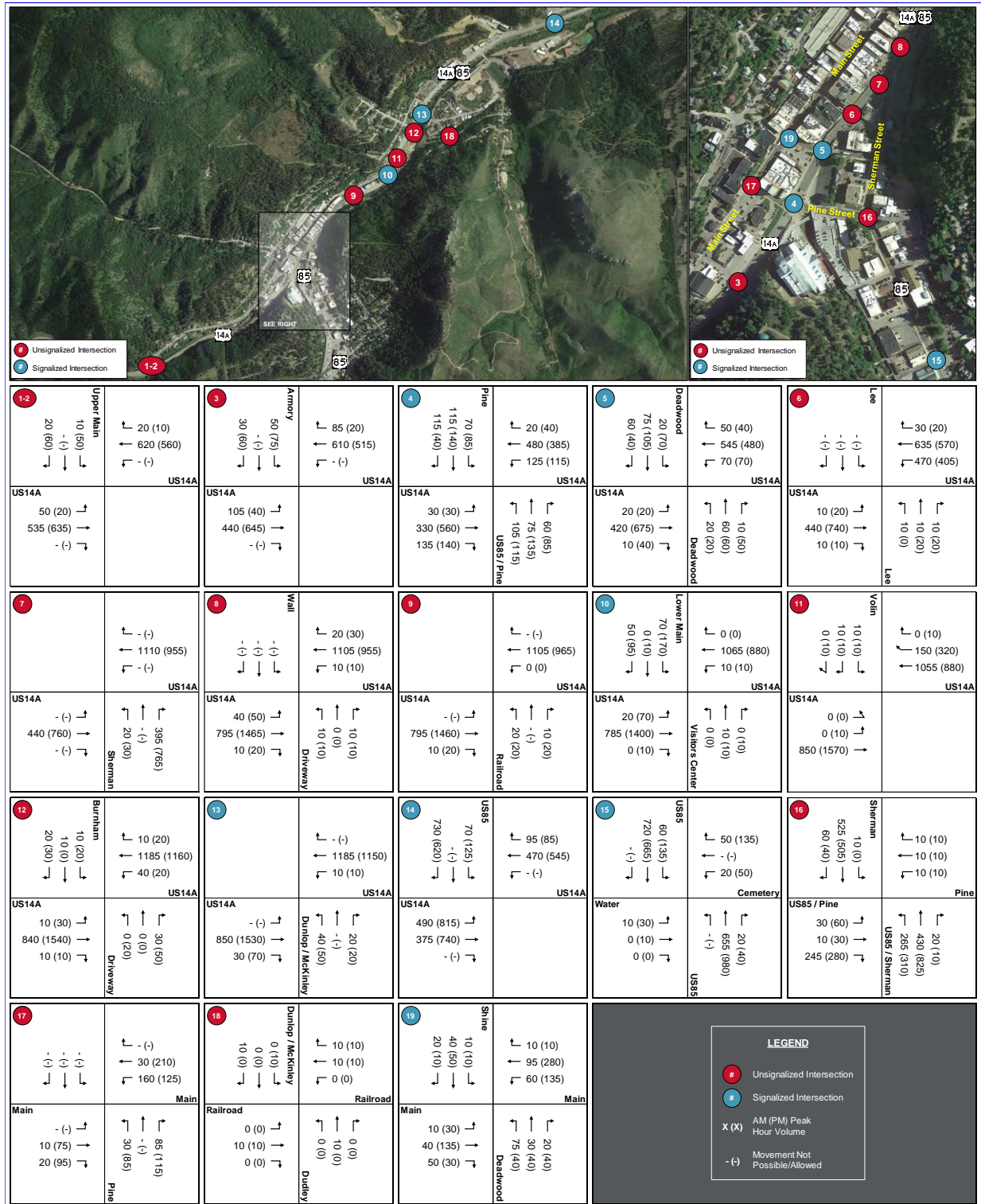


Figure 4: 2050 No Build Turning Movement Volumes





3.0 Analysis Methodology

The effectiveness of traffic operations in the study area were primarily based on the appropriate HCM 6th Edition (HCM6) level of service (LOS) measurement.

3.1 Intersections

Intersection LOS was determined using Synchro 10 software and followed the threshold scheme shown in Table 1, based on intersection delay. Per the Study's *Methods and Assumptions Document*, LOS C is the minimum value for intersections.

Table 1: Intersection LOS Thresholds

| LOS | Intersection Delay per Vehicle (sec/veh) | |
|-----|--|--|
| | Signalized Intersections | Two-Way Stop-Control*, All-Way Stop-Control, and Roundabouts |
| A | ≤ 10 | ≤ 10 |
| B | > 10-20 | > 10-15 |
| C | > 20-35 | > 15-25 |
| D | > 35-55 | >25-35 |
| E | > 55-80 | > 35-50 |
| F | Demand exceeds capacity; >80 | Demand exceeds capacity; >50 |

Source: Transportation Research Board, HCM6.

*Two-way stop-control LOS reflects worst-case stop-controlled approach.

Note that, though HCM6 methodology prescribes that two-way stop-control LOS reflect the worst-case stop-controlled approach, for this project intersection LOS—signalized and unsignalized—was calculated based on a weighted average of all approach delays. This method accounts for the operational benefits afforded to the major, high-volume through movements that are neither stop- nor signal-controlled.

3.2 Urban Streets Segments

HCM6 methodology was also used to analyze urban corridor segments between signalized intersections. This included the segment of US14A between US85 / Pine Street and Dunlop Avenue / McKinley Street, US85 between Cemetery Street / Water Street and US14A, Deadwood Street between US14A and Main Street, and Main Street between Deadwood Street and US 14A to the northeast. The HCS7 Streets module was used to evaluate travel times and pedestrian and bicycle LOS along these segments, which will be used as a basis on which to compare Build alternatives.

3.3 Multilane Highway Segments

The multilane highway segment of US14A / Lower Main Street between Dunlop Avenue / McKinley Street and US85 to the northeast were also evaluated using the HCM6 methodology. The primary MOE for this segment evaluation is LOS, which will be the basis for determining

future lane requirements along US14A. Per the Study's *Methods and Assumptions Document*, LOS C is the minimum value that segments should operate at and LOS B is desirable.

3.4 Two-Lane Highway Segments

Finally, the segment of Upper Main Street between US14A to the west and Deadwood Street downtown was analyzed for LOS as a two-lane highway segment. Though the short segment of Pine Street between US14A and Main Street is also a two-lane segment, it was determined that future lane requirements here would be best determined based on operations at the adjacent intersections.



4.0 Traffic Analysis

A summary of the overall Synchro intersection delay and LOS for each of the 19 study area intersections in 2027 and 2050 is provided in Table 2. Due to their unique signal phasing or low approach speeds, intersections marked with an asterisk (*) were evaluated using HCM 2000 methodology. For example, the HCM6 methodology is not compatible with the split signal phasing along US14A at its intersection with US85 / Pine Street, nor is it compatible with many intersections that have approaches with posted speeds below 25 miles per hour (such as along Main Street). Traffic signal timings, including cycle lengths and splits, were optimized to reflect anticipated routine signal maintenance and retiming consistent with standard practice.

Table 2: Future No Build Conditions Intersection Operations

| # | Primary Street | Cross Street | HCM6 Evaluation Type | 2027 No Build Conditions | | | | 2050 No Build Conditions | | | |
|-----|---------------------------|------------------------------------|----------------------|--------------------------|-----|--------------|-----|--------------------------|-----|--------------|-----|
| | | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| | | | | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS |
| 1* | US14A / Pioneer Way | Upper Main Street (South Junction) | TWSC | 0.2 | A | 0.5 | A | 0.2 | A | 0.7 | A |
| 2 | US14A / Pioneer Way | Upper Main Street (North Junction) | TWSC | 0.5 | A | 0.7 | A | 0.6 | A | 1.1 | A |
| 3 | US14A / Pioneer Way | Armory Street | TWSC | 1.7 | A | 1.7 | A | 3.2 | A | 3.0 | A |
| 4* | US14A / Pioneer Way | US85 / Pine Street | Signal | 26.9 | C | 30.0 | C | 40.1 | D | 70.8 | E |
| 5* | US14A / Pioneer Way | Deadwood Street | Signal | 8.5 | A | 9.4 | A | 8.3 | A | 10.1 | B |
| 6 | US14A / Pioneer Way | Lee Street | TWSC | 3.8 | A | 2.9 | A | 19.8 | C | 5.0 | A |
| 7 | US14A / Pioneer Way | Sherman Street | TWSC | 2.4 | A | 6.3 | A | 3.4 | A | 65.5 | F |
| 8 | US14A / Pioneer Way | Wall Street | TWSC | 0.7 | A | 0.8 | A | 1.2 | A | 13.0 | B |
| 9 | US14A / Pioneer Way | Railroad Avenue | TWSC | 0.3 | A | 0.4 | A | 0.5 | A | 1.6 | A |
| 10* | US14A / Pioneer Way | Lower Main Street (South Junction) | Signal | 4.7 | A | 6.8 | A | 6.1 | A | 11.7 | B |
| 11 | US14A / Pioneer Way | Lower Main Street (North Junction) | TWSC | 0.5 | A | 0.3 | A | 0.2 | A | 0.3 | A |
| 12 | US14A / Lower Main Street | Burnham Avenue | TWSC | 1.1 | A | 1.7 | A | 2.7 | A | 23.2 | C |
| 13* | US14A / Lower Main Street | Dunlop Avenue / McKinley Street | Signal | 2.6 | A | 3.5 | A | 3.4 | A | 6.3 | A |
| 14* | US14A / Lower Main Street | US85 | Signal | 6.8 | A | 14.4 | B | 40.8 | D | 124.8 | F |
| 15* | US85 / Sherman Street | Cemetery Street / Water Street | Signal | 5.7 | A | 12.5 | B | 10.2 | B | 84.1 | F |
| 16 | US85 / Pine Street | Sherman Street | AWSC | 15.4 | C | 30.4 | D | 71.8 | F | 186.2 | F |
| 17 | Main Street | Pine Street | AWSC | 7.7 | A | 8.7 | A | 8.4 | A | 11.0 | B |
| 18 | Railroad Avenue | Dunlop Avenue / McKinley Street | AWSC | 5.4 | A | 0.0 | A | 5.4 | A | 0.0 | A |
| 19* | Main Street | Deadwood Street | Signal | 6.9 | A | 7.3 | A | 8.1 | A | 10.2 | B |

Note: Red cells indicate future operations which do not meet the SDDOT's threshold for acceptable operations.

As shown in Table 2, most study intersections are expected to operate at or above LOS C in 2027 with the exception of US85 at Sherman Street, which is expected to operate at LOS D during the PM peak hour. In 2050, multiple study intersections are expected to operate at LOS E or F without mitigation.

A summary of the HCS7 segment results for vehicle travel times and pedestrian and bicycle LOS along the roadway segments between each signalized intersection is provided in Table 3. Finally, a summary of the HCS7 LOS results for the multilane and two-lane highway segments within the study area is provided in Table 4.

Table 3: Future No Build Conditions Urban Street Segment Operations

| Corridor | Segment Start | Segment End | 2027 No Build Conditions | | | | | | | | | | | | 2050 No Build Conditions | | | | | | | | | | | |
|--|--------------------------------|---------------------------------|--------------------------|-----------------|--------------|-------------|----------|-------------|-------------------|-----------------|--------------|-------------|----------|-------------|--------------------------|-----------------|--------------|-------------|----------|-------------|-------------------|-----------------|--------------|-------------|----------|-------------|
| | | | AM Peak Hour | | | | | | PM Peak Hour | | | | | | AM Peak Hour | | | | | | PM Peak Hour | | | | | |
| | | | Vehicle | | Pedestrian | | Bicycle | | Vehicle | | Pedestrian | | Bicycle | | Vehicle | | Pedestrian | | Bicycle | | Vehicle | | Pedestrian | | Bicycle | |
| | | | Through Delay (s) | Travel Time (s) | Score | LOS | Score | LOS | Through Delay (s) | Travel Time (s) | Score | LOS | Score | LOS | Through Delay (s) | Travel Time (s) | Score | LOS | Score | LOS | Through Delay (s) | Travel Time (s) | Score | LOS | Score | LOS |
| Direction: Eastbound/Northbound | | | | | | | | | | | | | | | | | | | | | | | | | | |
| US14A / Pioneer Way | US85 / Pine Street | Deadwood Street | 4.4 | 16.8 | 2.05 | B | 2.58 | B | 6.1 | 18.6 | 2.17 | B | 2.72 | B | 6.8 | 19.4 | 2.17 | B | 2.70 | B | 9.2 | 21.8 | 2.35 | B | 2.88 | C |
| | Deadwood Street | Lower Main Street | 2.4 | 52.4 | 2.18 | B | 3.06 | C | 8.2 | 58.6 | 2.35 | B | 3.27 | C | 4.0 | 54.3 | 2.32 | B | 3.24 | C | 18.1 | 69.1 | 2.58 | B | 3.44 | C |
| | Lower Main Street | Dunlop Avenue / McKinley Street | 1.8 | 22.2 | 2.51 | B | 3.37 | C | 2.8 | 23.5 | 2.89 | C | 3.59 | D | 2.7 | 23.3 | 2.79 | C | 3.57 | D | 5.0 | 26.1 | 3.32 | C | 3.76 | D |
| | Segment Total | | | 8.6 | 91.4 | 2.27 | C | 3.11 | C | 17.1 | 100.7 | 2.50 | C | 3.32 | C | 13.5 | 97.0 | 2.45 | C | 3.29 | C | 32.3 | 117.0 | 2.79 | C | 3.49 |
| US85 | Cemetery Street / Water Street | US14A / Pioneer Way | 9.2 | 47.2 | 2.25 | B | 3.20 | C | 13.2 | 52.7 | 2.85 | C | 3.31 | C | 17.9 | 57.4 | 2.82 | C | 3.33 | C | 19.9 | 60.8 | 3.36 | C | 3.30 | C |
| Deadwood Street | US14A / Pioneer Way | Main Street | 6.3 | 23.7 | 1.89 | A | 2.02 | B | 8.4 | 25.7 | 1.89 | A | 1.99 | A | 6.9 | 24.3 | 1.94 | A | 2.31 | B | 10.1 | 27.5 | 1.94 | A | 2.26 | B |
| Lower Main Street | Deadwood Street | US14A / Pioneer Way | 0.0 | 80.6 | 1.64 | A | 1.60 | A | 9.1 | 90.4 | 1.76 | A | 2.32 | B | 0.0 | 80.8 | 1.67 | A | 1.84 | A | 9.7 | 91.6 | 1.84 | A | 2.76 | C |
| Direction: Westbound/Southbound | | | | | | | | | | | | | | | | | | | | | | | | | | |
| US14A / Pioneer Way | Dunlop / McKinley Street | Lower Main Street | 2.6 | 23.1 | 2.71 | B | 3.51 | D | 5.7 | 26.2 | 2.70 | B | 3.50 | D | 4.1 | 24.9 | 3.05 | C | 3.69 | D | 8.3 | 29.1 | 3.03 | C | 3.68 | D |
| | Lower Main Street | Deadwood Street | 7.0 | 61.4 | 2.55 | B | 3.40 | C | 9.7 | 64.1 | 2.56 | B | 3.39 | C | 16.8 | 72.6 | 2.92 | C | 3.57 | D | 28.4 | 84.3 | 2.93 | C | 3.55 | D |
| | Deadwood Street | US85 / Pine Street | 9.1 | 22.1 | 2.77 | C | 3.17 | C | 14.7 | 27.6 | 2.78 | C | 3.15 | C | 121.5 | 135.1 | 3.33 | C | 3.36 | C | 82.7 | 96.3 | 3.32 | C | 3.32 | C |
| | Segment Total | | | 18.7 | 106.6 | 2.62 | C | 3.42 | C | 30.1 | 117.9 | 2.62 | C | 3.40 | C | 142.4 | 232.6 | 3.00 | C | 3.59 | D | 119.4 | 209.7 | 3.00 | C | 3.57 |
| US85 | US14A / Pioneer Way | Cemetery Street / Water Street | 8.0 | 45.1 | 2.22 | B | 3.04 | C | 8.3 | 45.5 | 2.25 | B | 3.04 | C | 12.2 | 49.9 | 2.45 | B | 3.21 | C | 14.5 | 52.6 | 2.48 | B | 3.22 | C |
| Deadwood Street | Main Street | US14A / Pioneer Way | 6.2 | 23.5 | 1.98 | A | 2.10 | B | 7.5 | 249.0 | 2.01 | B | 2.35 | B | 12.4 | 29.9 | 2.02 | B | 2.53 | B | 16.7 | 34.3 | 2.07 | B | 2.61 | B |
| Lower Main Street | US14A / Pioneer Way | Deadwood Street | 7.2 | 87.6 | 1.81 | A | 1.23 | A | 7.2 | 87.8 | 1.86 | A | 1.70 | A | 7.2 | 87.7 | 1.82 | A | 1.36 | A | 7.3 | 88.2 | 1.90 | A | 2.01 | B |



Table 4: Future No Build Conditions Multilane and Two-Lane Highway Operations

| Corridor | Segment Start | Segment End | HCM6 Evaluation Type | 2027 No Build Conditions | | | | | | 2050 No Build Conditions | | | | | |
|--|---------------------------------|---------------------------------|----------------------|--------------------------|------|-----|--------------------|------|-----|--------------------------|------|-----|--------------------|------|-----|
| | | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | | Density (pc/mi/ln) | v/c | LOS | Density (pc/mi/ln) | v/c | LOS | Density (pc/mi/ln) | v/c | LOS | Density (pc/mi/ln) | v/c | LOS |
| Direction: Eastbound/Northbound | | | | | | | | | | | | | | | |
| US14A / Pioneer Way | Upper Main Street | US85 / Pine Street | Multilane | 4.8 | 0.11 | A | 6.4 | 0.15 | A | 7.7 | 0.18 | A | 10.2 | 0.23 | A |
| US14A / Lower Main Street | Dunlop Avenue / McKinley Street | US 85 | Multilane | 7.7 | 0.18 | A | 13.2 | 0.32 | B | 12.2 | 0.29 | B | 20.6 | 0.49 | C |
| Upper Main Street | US14A / Pioneer Way | Deadwood Street | Two-Lane | - | 0.04 | A | - | 0.08 | B | - | 0.06 | A | - | 0.12 | B |
| Direction: Westbound/Southbound | | | | | | | | | | | | | | | |
| US14A / Pioneer Way | US85 / Pine Street | Upper Main Street | Multilane | 6.2 | 0.14 | A | 4.9 | 0.11 | A | 9.9 | 0.23 | A | 7.9 | 0.18 | A |
| US14A / Lower Main Street | US85 | Dunlop Avenue / McKinley Street | Multilane | 10.2 | 0.24 | A | 9.5 | 0.23 | A | 16.3 | 0.39 | B | 15.2 | 0.36 | B |
| Upper Main Street | Deadwood Street | US14A / Pioneer Way | Two-Lane | - | 0.04 | A | - | 0.08 | B | - | 0.06 | A | - | 0.12 | B |

As shown in Table 3, urban street segments throughout the study area are expected to continue to operate well in 2027; however, the westbound direction of US14A begins to experience additional through delay by 2027. This through delay reaches over 100 seconds in 2050, and the westbound travel time reaches over three (3) minutes. This is primarily a result of the split signal phasing along US14A at US85 / Pine Street, which cannot adequately accommodate future turning and through traffic volumes. Pedestrian and bicycle LOS is at or better than LOS C for all study segments in 2027 with the exception of the US14A segment between Lower Main Street and Dunlop Avenue / McKinley Street, which experiences bicycle LOS D. The overall US14A corridor experiences bicycle LOS C (eastbound) and LOS D (westbound) in 2050.

As shown in Table 4, the multilane segments of US14A and the two-lane segment of Upper Main Street between US14A / Pioneer Way and Deadwood Street operate at LOS B or better. Operations in 2050 continue to be acceptable; however, the eastbound segment of US14A east of Dunlop Avenue / McKinley Street is expected to operate at LOS C in the PM peak hour. Volume-to-capacity (v/c) ratios are low; therefore, all of these segments have additional capacity available for detour traffic and/or potential changes to traffic circulation.

Full Synchro and HCS reports are included in Attachment A and Attachment B, respectively.

4.0 Turn Lane Warrants

The SDDOT *Road Design Manual* presents guidelines to evaluating warrants for left and right-turn lanes for the major roadway at unsignalized intersections. These guidelines focus on three primary criterion:

- Criterion 1: Vehicular volume
- Criterion 2: Crash experience
- Criterion 3: Special cases
 - Railroad crossings
 - Geometric/safety concerns
 - Non-traversable median (applies to left-turn criterion only)

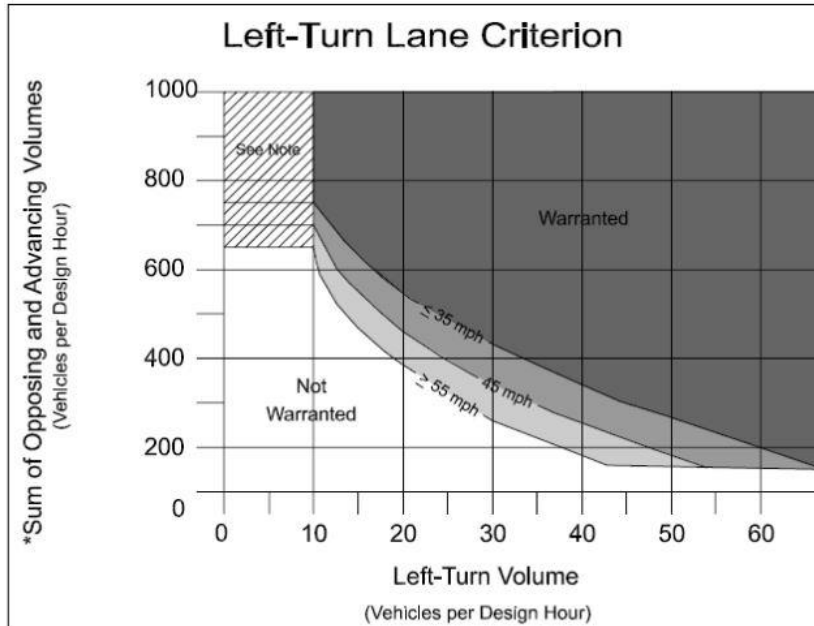
The evaluation process consists of three requirements, including:

- Turn lane should be installed if Criterion 1 (volume), 2 (crash), or 3 (special cases) are met; and
- The turn lane complies with access management spacing standards; and
- The turn lane conforms to appropriate design guidelines.

This review focuses on Criterion 1 (vehicular volume) to provide a planning-level review of future turn lane volume needs at unsignalized intersections. The SDDOT uses volume criteria curves developed by the Texas Transportation Institute (TTI) and obtained from the Oregon Department of Transportation that account for speed, number of lanes, and traffic volumes. Left- and right-turn volume warrant curves are shown in Figure 5 and Figure 6, respectively.

Note that this review assumes no changes to intersection traffic control or number of through lanes on the major route. This review also does not recommend removing existing turn lanes.

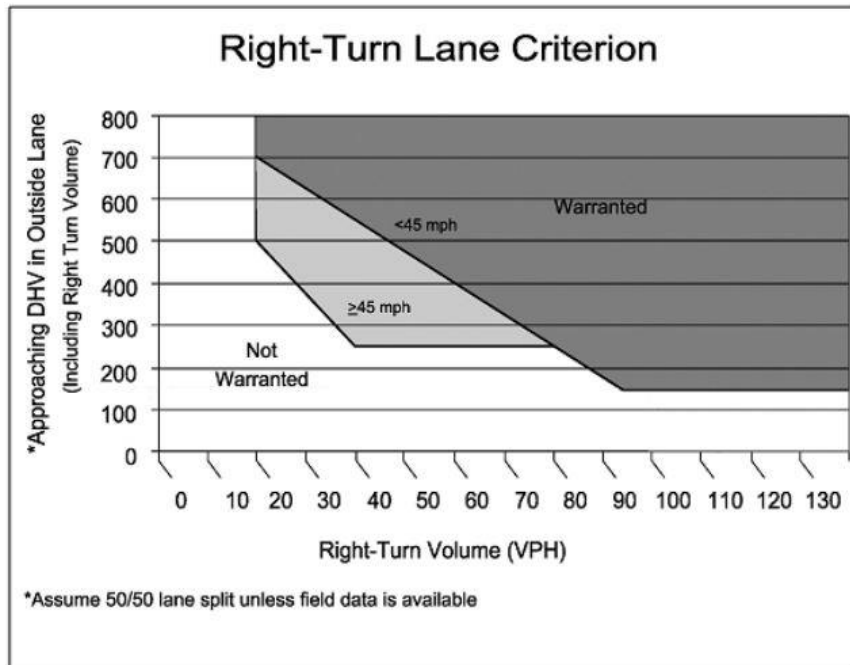
Figure 5: Left-Turn Lane Volume Criterion



Source: Oregon DOT Analysis Procedures Manual 2008

* $(\text{Advancing Vol} / \# \text{ of Advancing Through Lanes}) + (\text{Opposing Vol} / \# \text{ of Opposing Through Lanes})$

Figure 6: Right-Turn Lane Volume Criterion



A summary of the turn lane warrant analysis for the future years 2027 and 2050 is provided in Table 5. The year each turn lane meets its respective warrant, if it does, was interpolated based on linear volume growth.



Table 5: Future No Build Conditions Turn Lane Warrant Analysis Summary

| # | US14A Intersection | Posted Speed (mph) | Eastbound | | | | | | Westbound | | | | | |
|----|------------------------------------|--------------------|-----------|------|--------|------------|---------|--------|--------------|------------------|--------|------------|---------|--------|
| | | | Left Turn | | | Right Turn | | | Left Turn | | | Right Turn | | |
| | | | 2027 | 2050 | Met In | 2027 | 2050 | Met In | 2027 | 2050 | Met In | 2027 | 2050 | Met In |
| 2 | Upper Main Street (North Junction) | 45 | met | met | 2026 | - | - | - | - | - | - | not met | not met | n/a |
| 3 | Armory Street | 25 | met | met | 2020 | - | - | - | - | - | - | not met | met | 2039 |
| 6 | Lee Street | 25 | not met | met | 2042 | not met | not met | n/a | met | met | 2020 | not met | not met | n/a |
| 8 | Wall Street ¹ | 25 | met | met | 2020 | not met | met | 2049 | ² | met ³ | 2047 | not met | not met | n/a |
| 9 | Railroad Avenue ¹ | 25 | - | - | - | not met | met | 2049 | ² | ² | n/a | - | - | - |
| 12 | Burnham Avenue | 35 | met | met | 2020 | not met | not met | n/a | met | met | 2020 | not met | not met | n/a |

¹ Turn lane warrants met beyond the existing year 2020 assume uniform growth on all movements. If volumes for these movements remain constant, the warrants are not met.

² Turn lane warrant not met, but volumes fall in a special consideration area due to increased potential for crashes in the through lane.

³ Turning movement leads to/from commercial driveway (not a public street).

5.0 Conclusions

The following intersections were found to not meet LOS goals in the noted future year(s) and peak hour(s) under No Build conditions (i.e. without any mitigation or changes to the existing transportation network):

- US14A / Pioneer Way at US85 / Pine Street (2050 AM/PM)
- US14A / Pioneer Way at Sherman Street (2050 PM)
- US14A / Lower Main Street at US85 (2050 AM/PM)
- US85 / Sherman Street at Cemetery Street / Water Street (2050 PM)
- US85 / Pine Street at Sherman Street (2027 PM, 2050 AM/PM)

The following left- and right-turn lanes were found to be warranted in the noted future year. If the turn lane already exists, this study does not recommend removal even if unwarranted based on the volume criterion.

- US14A at Upper Main Street
 - Eastbound left turn (exists today, warranted 2026)
- US14A at Armory Street
 - Eastbound left turn (warranted 2020)
 - Westbound right turn (warranted 2039)
- US14A at Lee Street
 - Eastbound left turn (warranted 2042)
 - Westbound left turn (warranted 2020)
- US14A at Wall Street
 - Eastbound left turn (warranted 2020)
 - Westbound left turn (special category 2025; warranted 2047, assuming uniform growth)
- US14A at Railroad Avenue
 - Eastbound right turn (warranted 2049, assuming uniform growth)
 - Westbound left turn (special category 2026)
- US14A at Burnham Avenue
 - Eastbound left turn (exists today, warranted 2020)
 - Westbound left turn (exists today, warranted 2020)

Attachment A

Synchro 10 Outputs

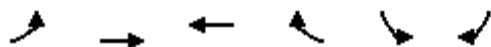
No Build AM

2027

HCM Unsignalized Intersection Capacity Analysis

1: US 14A & Upper Main

12/02/2020



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|------|
| Lane Configurations | | ↑↑ | ↑ | | | ↑ |
| Traffic Volume (veh/h) | 0 | 360 | 385 | 0 | 0 | 15 |
| Future Volume (Veh/h) | 0 | 360 | 385 | 0 | 0 | 15 |
| Sign Control | | Free | Free | | Yield | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 391 | 418 | 0 | 0 | 16 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 418 | | | | 614 | 418 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 418 | | | | 614 | 418 |
| tC, single (s) | 4.2 | | | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 100 | 97 |
| cM capacity (veh/h) | 1116 | | | | 429 | 589 |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 | | |
| Volume Total | 196 | 196 | 418 | 16 | | |
| Volume Left | 0 | 0 | 0 | 0 | | |
| Volume Right | 0 | 0 | 0 | 16 | | |
| cSH | 1700 | 1700 | 1700 | 589 | | |
| Volume to Capacity | 0.12 | 0.12 | 0.25 | 0.03 | | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 2 | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 11.3 | | |
| Lane LOS | | | | B | | |
| Approach Delay (s) | 0.0 | | 0.0 | 11.3 | | |
| Approach LOS | | | | B | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.2 | | | |
| Intersection Capacity Utilization | | | 32.6% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.5 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 30 | 330 | 385 | 15 | 10 | 0 |
| Future Vol, veh/h | 30 | 330 | 385 | 15 | 10 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 5 | 5 | 8 | 8 | 0 | 0 |
| Mvmt Flow | 33 | 359 | 418 | 16 | 11 | 0 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|---------|
| Conflicting Flow All | 434 | 0 | - | 0 | 672 426 |
| Stage 1 | - | - | - | - | 426 - |
| Stage 2 | - | - | - | - | 246 - |
| Critical Hdwy | 4.175 | - | - | - | 6.6 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.8 - |
| Follow-up Hdwy | 2.2475 | - | - | - | 3.5 3.3 |
| Pot Cap-1 Maneuver | 1105 | - | - | - | 409 633 |
| Stage 1 | - | - | - | - | 663 - |
| Stage 2 | - | - | - | - | 778 - |
| Platoon blocked, % | | - | - | - | |
| Mov Cap-1 Maneuver | 1105 | - | - | - | 397 633 |
| Mov Cap-2 Maneuver | - | - | - | - | 397 - |
| Stage 1 | - | - | - | - | 643 - |
| Stage 2 | - | - | - | - | 778 - |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.7 | 0 | 14.3 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|------|-----|-----|-----|-------|
| Capacity (veh/h) | 1105 | - | - | - | 397 |
| HCM Lane V/C Ratio | 0.03 | - | - | - | 0.027 |
| HCM Control Delay (s) | 8.4 | - | - | - | 14.3 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.1 |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 1.7 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | ↑↑ | | ↑↑ | |
| Traffic Vol, veh/h | 65 | 275 | 380 | 55 | 30 | 20 |
| Future Vol, veh/h | 65 | 275 | 380 | 55 | 30 | 20 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 7 | 7 | 10 | 10 |
| Mvmt Flow | 71 | 299 | 413 | 60 | 33 | 22 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|-----|-----|
| Conflicting Flow All | 473 | 0 | 0 | 735 | 237 |
| Stage 1 | - | - | - | 443 | - |
| Stage 2 | - | - | - | 292 | - |
| Critical Hdwy | 4.22 | - | - | 7 | 7.1 |
| Critical Hdwy Stg 1 | - | - | - | 6 | - |
| Critical Hdwy Stg 2 | - | - | - | 6 | - |
| Follow-up Hdwy | 2.26 | - | - | 3.6 | 3.4 |
| Pot Cap-1 Maneuver | 1057 | - | - | 338 | 741 |
| Stage 1 | - | - | - | 592 | - |
| Stage 2 | - | - | - | 709 | - |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | 1057 | - | - | 311 | 741 |
| Mov Cap-2 Maneuver | - | - | - | 311 | - |
| Stage 1 | - | - | - | 544 | - |
| Stage 2 | - | - | - | 709 | - |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 1.8 | 0 | 15.3 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 1057 | - | - | - | 405 |
| HCM Lane V/C Ratio | 0.067 | - | - | - | 0.134 |
| HCM Control Delay (s) | 8.7 | 0.2 | - | - | 15.3 |
| HCM Lane LOS | A | A | - | - | C |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | 0.5 |

HCM Signalized Intersection Capacity Analysis

4: Pine & US 14A

12/02/2020



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|-------|-------|-------|-------|-------|------|---------------------------|------|------|------|-------|------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | ↕ | ↕ | | | ↕↕ | |
| Traffic Volume (vph) | 20 | 205 | 85 | 80 | 295 | 15 | 65 | 50 | 35 | 45 | 70 | 70 |
| Future Volume (vph) | 20 | 205 | 85 | 80 | 295 | 15 | 65 | 50 | 35 | 45 | 70 | 70 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | | 5.5 | | | 6.0 | | 6.5 | 6.5 | | | 6.5 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | 1.00 | 1.00 | | | 1.00 | |
| Frbp, ped/bikes | | 0.99 | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 0.96 | | | 0.99 | | 1.00 | 0.94 | | | 0.95 | |
| Flt Protected | | 1.00 | | | 0.99 | | 0.95 | 1.00 | | | 0.99 | |
| Satd. Flow (prot) | | 2888 | | | 2833 | | 1455 | 1437 | | | 1563 | |
| Flt Permitted | | 1.00 | | | 0.99 | | 0.59 | 1.00 | | | 0.89 | |
| Satd. Flow (perm) | | 2888 | | | 2833 | | 909 | 1437 | | | 1409 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 22 | 223 | 92 | 87 | 321 | 16 | 71 | 54 | 38 | 49 | 76 | 76 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 337 | 0 | 0 | 424 | 0 | 71 | 92 | 0 | 0 | 201 | 0 |
| Confl. Peds. (#/hr) | | | 7 | | | 14 | | | | | | |
| Heavy Vehicles (%) | 6% | 6% | 6% | 12% | 12% | 12% | 11% | 11% | 11% | 2% | 2% | 2% |
| Turn Type | Split | NA | | Split | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 2 | 2 | | 1 | 1 | | | 4 | | | 4 | |
| Permitted Phases | | | | | | | 4 | | | 4 | | |
| Actuated Green, G (s) | | 13.6 | | | 26.8 | | 16.6 | 16.6 | | | 16.6 | |
| Effective Green, g (s) | | 13.6 | | | 26.8 | | 16.6 | 16.6 | | | 16.6 | |
| Actuated g/C Ratio | | 0.18 | | | 0.36 | | 0.22 | 0.22 | | | 0.22 | |
| Clearance Time (s) | | 5.5 | | | 6.0 | | 6.5 | 6.5 | | | 6.5 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 523 | | | 1012 | | 201 | 318 | | | 311 | |
| v/s Ratio Prot | | c0.12 | | | c0.15 | | | 0.06 | | | | |
| v/s Ratio Perm | | | | | | | 0.08 | | | | c0.14 | |
| v/c Ratio | | 0.64 | | | 0.42 | | 0.35 | 0.29 | | | 0.65 | |
| Uniform Delay, d1 | | 28.5 | | | 18.2 | | 24.7 | 24.3 | | | 26.5 | |
| Progression Factor | | 1.00 | | | 1.15 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 2.7 | | | 1.3 | | 1.1 | 0.5 | | | 4.6 | |
| Delay (s) | | 31.2 | | | 22.2 | | 25.7 | 24.8 | | | 31.1 | |
| Level of Service | | C | | | C | | C | C | | | C | |
| Approach Delay (s) | | 31.2 | | | 22.2 | | | 25.2 | | | 31.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 26.9 | | | | HCM 2000 Level of Service | | | | C | |
| HCM 2000 Volume to Capacity ratio | | | 0.54 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 75.0 | | | | Sum of lost time (s) | | | 18.0 | | |
| Intersection Capacity Utilization | | | 61.3% | | | | ICU Level of Service | | | B | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Deadwood & US 14A

12/02/2020



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | | |
|-----------------------------------|------|------|-------|------|-------|------|------|------|------|------|-------|---------------------------|----------------------|---|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | ↕ | | | |
| Traffic Volume (vph) | 15 | 265 | 10 | 45 | 340 | 30 | 15 | 35 | 10 | 15 | 50 | 35 | | |
| Future Volume (vph) | 15 | 265 | 10 | 45 | 340 | 30 | 15 | 35 | 10 | 15 | 50 | 35 | | |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | | |
| Total Lost time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | | | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | | 1.00 | | | |
| Frbp, ped/bikes | | 0.99 | | | 0.99 | | | 1.00 | | | 0.99 | | | |
| Flpb, ped/bikes | | 1.00 | | | 0.99 | | | 1.00 | | | 1.00 | | | |
| Frt | | 0.99 | | | 0.99 | | | 0.98 | | | 0.95 | | | |
| Flt Protected | | 1.00 | | | 0.99 | | | 0.99 | | | 0.99 | | | |
| Satd. Flow (prot) | | 2815 | | | 2840 | | | 1629 | | | 1543 | | | |
| Flt Permitted | | 0.93 | | | 0.89 | | | 0.92 | | | 0.94 | | | |
| Satd. Flow (perm) | | 2621 | | | 2536 | | | 1513 | | | 1460 | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Adj. Flow (vph) | 16 | 288 | 11 | 49 | 370 | 33 | 16 | 38 | 11 | 16 | 54 | 38 | | |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Lane Group Flow (vph) | 0 | 315 | 0 | 0 | 452 | 0 | 0 | 65 | 0 | 0 | 108 | 0 | | |
| Confl. Peds. (#/hr) | 29 | | 52 | 52 | | 29 | 16 | | 15 | 15 | | 16 | | |
| Heavy Vehicles (%) | 13% | 13% | 13% | 10% | 10% | 10% | 0% | 0% | 0% | 3% | 3% | 3% | | |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | | | |
| Permitted Phases | 2 | | | 6 | | | 8 | | | 4 | | | | |
| Actuated Green, G (s) | | 54.5 | | | 54.5 | | | 9.5 | | | 9.5 | | | |
| Effective Green, g (s) | | 54.5 | | | 54.5 | | | 9.5 | | | 9.5 | | | |
| Actuated g/C Ratio | | 0.73 | | | 0.73 | | | 0.13 | | | 0.13 | | | |
| Clearance Time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | | | |
| Lane Grp Cap (vph) | | 1904 | | | 1842 | | | 191 | | | 184 | | | |
| v/s Ratio Prot | | | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.12 | | | c0.18 | | | 0.04 | | | c0.07 | | | |
| v/c Ratio | | 0.17 | | | 0.25 | | | 0.34 | | | 0.59 | | | |
| Uniform Delay, d1 | | 3.2 | | | 3.4 | | | 29.9 | | | 30.9 | | | |
| Progression Factor | | 0.90 | | | 0.69 | | | 1.00 | | | 1.00 | | | |
| Incremental Delay, d2 | | 0.2 | | | 0.3 | | | 1.1 | | | 4.7 | | | |
| Delay (s) | | 3.0 | | | 2.7 | | | 31.0 | | | 35.6 | | | |
| Level of Service | | A | | | A | | | C | | | D | | | |
| Approach Delay (s) | | 3.0 | | | 2.7 | | | 31.0 | | | 35.6 | | | |
| Approach LOS | | A | | | A | | | C | | | D | | | |
| Intersection Summary | | | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 8.5 | | | | | | | | | HCM 2000 Level of Service | A | |
| HCM 2000 Volume to Capacity ratio | | | 0.30 | | | | | | | | | | | |
| Actuated Cycle Length (s) | | | 75.0 | | | | | | | | 11.0 | | | |
| Intersection Capacity Utilization | | | 51.9% | | | | | | | | | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | | | | | | | | | |

c Critical Lane Group

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|-------|------|
| Int Delay, s/veh | 3.8 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↔ | | | ↔ | | | ↔ | | | | |
| Traffic Vol, veh/h | 10 | 275 | 10 | 290 | 395 | 20 | 10 | 10 | 10 | 0 | 0 | 0 |
| Future Vol, veh/h | 10 | 275 | 10 | 290 | 395 | 20 | 10 | 10 | 10 | 0 | 0 | 0 |
| Conflicting Peds, #/hr | 31 | 0 | 11 | 11 | 0 | 31 | 6 | 0 | 4 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 10 | 10 | 10 | 8 | 8 | 8 | 0 | 0 | 0 | 2 | 2 | 2 |
| Mvmt Flow | 11 | 299 | 11 | 315 | 429 | 22 | 11 | 11 | 11 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|----------------------|--------|---|---|--------|---|---|--------|------|-----|
| Conflicting Flow All | 482 | 0 | 0 | 321 | 0 | 0 | 1189 | 1450 | 170 |
| Stage 1 | - | - | - | - | - | - | 338 | 338 | - |
| Stage 2 | - | - | - | - | - | - | 851 | 1112 | - |
| Critical Hdwy | 4.3 | - | - | 4.26 | - | - | 6.8 | 6.5 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Follow-up Hdwy | 2.3 | - | - | 2.28 | - | - | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1023 | - | - | 1193 | - | - | 184 | 132 | 851 |
| Stage 1 | - | - | - | - | - | - | 700 | 644 | - |
| Stage 2 | - | - | - | - | - | - | 384 | 287 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 1023 | - | - | 1181 | - | - | 115 | 0 | 839 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 115 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 684 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 245 | 0 | - |

| Approach | EB | | | WB | | | NB | | |
|----------------------|-----|--|--|-----|--|--|------|--|--|
| HCM Control Delay, s | 0.4 | | | 4.2 | | | 26.2 | | |
| HCM LOS | | | | | | | D | | |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 202 | 1023 | - | - | 1181 | - | - |
| HCM Lane V/C Ratio | 0.161 | 0.011 | - | - | 0.267 | - | - |
| HCM Control Delay (s) | 26.2 | 8.6 | 0.1 | - | 9.2 | 0.7 | - |
| HCM Lane LOS | D | A | A | - | A | A | - |
| HCM 95th %tile Q(veh) | 0.6 | 0 | - | - | 1.1 | - | - |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 2.4 | | | | | |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑↑ | | | ↑↑ | ↘ | ↘ |
| Traffic Vol, veh/h | 275 | 0 | 0 | 690 | 15 | 245 |
| Future Vol, veh/h | 275 | 0 | 0 | 690 | 15 | 245 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 12 | 12 | 8 | 8 | 2 | 2 |
| Mvmt Flow | 299 | 0 | 0 | 750 | 16 | 266 |

| Major/Minor | Major1 | Major2 | Minor1 | | |
|----------------------|--------|--------|--------|---|-----------|
| Conflicting Flow All | 0 | - | - | - | 674 150 |
| Stage 1 | - | - | - | - | 299 - |
| Stage 2 | - | - | - | - | 375 - |
| Critical Hdwy | - | - | - | - | 6.84 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.84 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.84 - |
| Follow-up Hdwy | - | - | - | - | 3.52 3.32 |
| Pot Cap-1 Maneuver | - | 0 | 0 | - | 388 870 |
| Stage 1 | - | 0 | 0 | - | 726 - |
| Stage 2 | - | 0 | 0 | - | 665 - |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | - | - | 388 870 |
| Mov Cap-2 Maneuver | - | - | - | - | 388 - |
| Stage 1 | - | - | - | - | 726 - |
| Stage 2 | - | - | - | - | 665 - |

| Approach | EB | WB | NB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 11.2 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | WBT |
|-----------------------|-------|-------|-----|-----|
| Capacity (veh/h) | 388 | 870 | - | - |
| HCM Lane V/C Ratio | 0.042 | 0.306 | - | - |
| HCM Control Delay (s) | 14.7 | 11 | - | - |
| HCM Lane LOS | B | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | 1.3 | - | - |

HCM 6th TWSC
8: Driveway/Wall & US 14A

12/02/2020

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|-------|------|
| Int Delay, s/veh | 0.7 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ↔↔ | | | ↔↔ | | | ↔ | | | | | |
| Traffic Vol, veh/h | 25 | 495 | 10 | 10 | 685 | 15 | 10 | 0 | 10 | 0 | 0 | 0 |
| Future Vol, veh/h | 25 | 495 | 10 | 10 | 685 | 15 | 10 | 0 | 10 | 0 | 0 | 0 |
| Conflicting Peds, #/hr | 4 | 0 | 53 | 53 | 0 | 4 | 21 | 0 | 50 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 9 | 9 | 9 | 0 | 0 | 0 | 2 | 2 | 2 |
| Mvmt Flow | 27 | 538 | 11 | 11 | 745 | 16 | 11 | 0 | 11 | 0 | 0 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor1 | | | | |
|----------------------|--------|---|--------|------|--------|---|------|------|-----|
| Conflicting Flow All | 765 | 0 | 0 | 602 | 0 | 0 | 1067 | 1438 | 378 |
| Stage 1 | - | - | - | - | - | - | 651 | 651 | - |
| Stage 2 | - | - | - | - | - | - | 416 | 787 | - |
| Critical Hdwy | 4.22 | - | - | 4.28 | - | - | 6.8 | 6.5 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Follow-up Hdwy | 2.26 | - | - | 2.29 | - | - | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 818 | - | - | 925 | - | - | 220 | 134 | 625 |
| Stage 1 | - | - | - | - | - | - | 486 | 468 | - |
| Stage 2 | - | - | - | - | - | - | 640 | 406 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 818 | - | - | 878 | - | - | 191 | 0 | 565 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 191 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 439 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 613 | 0 | - |

| Approach | EB | | WB | | NB | |
|----------------------|-----|--|-----|--|------|--|
| HCM Control Delay, s | 0.6 | | 0.2 | | 18.7 | |
| HCM LOS | | | | | C | |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 285 | 818 | - | - | 878 | - | - |
| HCM Lane V/C Ratio | 0.076 | 0.033 | - | - | 0.012 | - | - |
| HCM Control Delay (s) | 18.7 | 9.6 | 0.2 | - | 9.2 | 0.1 | - |
| HCM Lane LOS | C | A | A | - | A | A | - |
| HCM 95th %tile Q(veh) | 0.2 | 0.1 | - | - | 0 | - | - |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.3 | | | | | |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑↑ | | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 495 | 10 | 0 | 685 | 15 | 10 |
| Future Vol, veh/h | 495 | 10 | 0 | 685 | 15 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 7 | 7 | 0 | 0 |
| Mvmt Flow | 538 | 11 | 0 | 745 | 16 | 11 |

| Major/Minor | Major1 | Major2 | Minor1 | Minor2 | Minor3 |
|----------------------|--------|--------|--------|--------|--------|
| Conflicting Flow All | 0 | 0 | 549 | 0 | 917 |
| Stage 1 | - | - | - | - | 544 |
| Stage 2 | - | - | - | - | 373 |
| Critical Hdwy | - | - | 4.24 | - | 6.8 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.8 |
| Critical Hdwy Stg 2 | - | - | - | - | 5.8 |
| Follow-up Hdwy | - | - | 2.27 | - | 3.5 |
| Pot Cap-1 Maneuver | - | - | 983 | - | 275 |
| Stage 1 | - | - | - | - | 551 |
| Stage 2 | - | - | - | - | 672 |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 983 | - | 275 |
| Mov Cap-2 Maneuver | - | - | - | - | 275 |
| Stage 1 | - | - | - | - | 551 |
| Stage 2 | - | - | - | - | 672 |





















| Approach | EB | WB | NB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 15.6 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|-----------------------|-------|-----|-----|-----|-----|
| Capacity (veh/h) | 366 | - | - | 983 | - |
| HCM Lane V/C Ratio | 0.074 | - | - | - | - |
| HCM Control Delay (s) | 15.6 | - | - | 0 | - |
| HCM Lane LOS | C | - | - | A | - |
| HCM 95th %tile Q(veh) | 0.2 | - | - | 0 | - |

HCM Signalized Intersection Capacity Analysis

10: Driveway/Lower Main & US 14A

12/18/2020

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  | |  | |  |  | |
| Traffic Volume (vph) | 15 | 490 | 0 | 10 | 660 | 95 | 0 | 10 | 0 | 45 | 0 | 30 |
| Future Volume (vph) | 15 | 490 | 0 | 10 | 660 | 95 | 0 | 10 | 0 | 45 | 0 | 30 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | 5.5 | | 5.5 | | 5.5 | 5.5 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | 0.99 | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | | 1.00 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1500 | 3019 | | 1501 | 3019 | 1313 | | 1133 | | 1579 | 1398 | |
| Flt Permitted | 0.38 | 1.00 | | 0.45 | 1.00 | 1.00 | | 1.00 | | 0.75 | 1.00 | |
| Satd. Flow (perm) | 599 | 3019 | | 717 | 3019 | 1313 | | 1133 | | 1247 | 1398 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 16 | 533 | 0 | 11 | 717 | 103 | 0 | 11 | 0 | 49 | 0 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 16 | 533 | 0 | 11 | 717 | 103 | 0 | 11 | 0 | 49 | 33 | 0 |
| Confl. Peds. (#/hr) | 16 | | 7 | 7 | | 16 | 1 | | 3 | 3 | | 1 |
| Heavy Vehicles (%) | 7% | 7% | 7% | 7% | 7% | 7% | 50% | 50% | 50% | 2% | 2% | 2% |
| Turn Type | Perm | NA | | Perm | NA | Perm | | NA | | Perm | NA | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | | 4 |
| Permitted Phases | 2 | | | 6 | | 6 | 8 | | | 4 | | |
| Actuated Green, G (s) | 56.6 | 56.6 | | 56.6 | 56.6 | 56.6 | | 7.4 | | 7.4 | 7.4 | |
| Effective Green, g (s) | 56.6 | 56.6 | | 56.6 | 56.6 | 56.6 | | 7.4 | | 7.4 | 7.4 | |
| Actuated g/C Ratio | 0.75 | 0.75 | | 0.75 | 0.75 | 0.75 | | 0.10 | | 0.10 | 0.10 | |
| Clearance Time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | 5.5 | | 5.5 | | 5.5 | 5.5 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 452 | 2278 | | 541 | 2278 | 990 | | 111 | | 123 | 137 | |
| v/s Ratio Prot | | 0.18 | | | c0.24 | | | 0.01 | | | 0.02 | |
| v/s Ratio Perm | 0.03 | | | 0.02 | | 0.08 | | | | c0.04 | | |
| v/c Ratio | 0.04 | 0.23 | | 0.02 | 0.31 | 0.10 | | 0.10 | | 0.40 | 0.24 | |
| Uniform Delay, d1 | 2.3 | 2.7 | | 2.3 | 3.0 | 2.4 | | 30.8 | | 31.7 | 31.2 | |
| Progression Factor | 1.06 | 0.93 | | 1.00 | 0.84 | 0.94 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.1 | 0.2 | | 0.1 | 0.4 | 0.2 | | 0.4 | | 2.1 | 0.9 | |
| Delay (s) | 2.6 | 2.8 | | 2.4 | 2.9 | 2.5 | | 31.2 | | 33.8 | 32.1 | |
| Level of Service | A | A | | A | A | A | | C | | C | C | |
| Approach Delay (s) | | 2.8 | | | 2.8 | | | 31.2 | | | 33.1 | |
| Approach LOS | | A | | | A | | | C | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 4.7 | | | | HCM 2000 Level of Service | | | A | | |
| HCM 2000 Volume to Capacity ratio | | | 0.32 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 75.0 | | | | Sum of lost time (s) | | | 11.0 | | |
| Intersection Capacity Utilization | | | 48.7% | | | | ICU Level of Service | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

c Critical Lane Group

Intersection

| Int Delay, s/veh | 0.2 | | | | | |
|--------------------------|------|------|------|------|------|------|
| Movement | EBL | EBT | WBT | WBR | SWL | SWR |
| Lane Configurations | ↘ | ↑↑ | ↑↑↑ | | ↘ | |
| Traffic Vol, veh/h | 0 | 530 | 750 | 0 | 10 | 10 |
| Future Vol, veh/h | 0 | 530 | 750 | 0 | 10 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 50 | - | - | 200 | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 7 | 7 | 7 | 7 | 0 | 0 |
| Mvmt Flow | 0 | 576 | 815 | 0 | 11 | 11 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|----------|
| Conflicting Flow All | 815 | 0 | - | 0 | 1103 408 |
| Stage 1 | - | - | - | - | 815 - |
| Stage 2 | - | - | - | - | 288 - |
| Critical Hdwy | 5.44 | - | - | - | 6.25 7.1 |
| Critical Hdwy Stg 1 | - | - | - | - | 6.6 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.8 - |
| Follow-up Hdwy | 3.17 | - | - | - | 3.65 3.9 |
| Pot Cap-1 Maneuver | 464 | - | - | - | 241 511 |
| Stage 1 | - | - | - | - | 325 - |
| Stage 2 | - | - | - | - | 715 - |
| Platoon blocked, % | | - | - | - | |
| Mov Cap-1 Maneuver | 464 | - | - | - | 241 511 |
| Mov Cap-2 Maneuver | - | - | - | - | 285 - |
| Stage 1 | - | - | - | - | 325 - |
| Stage 2 | - | - | - | - | 715 - |

| Approach | EB | WB | SW |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 15.5 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBRSWLn1 |
|-----------------------|-----|-----|-----|----------|
| Capacity (veh/h) | 464 | - | - | - 366 |
| HCM Lane V/C Ratio | - | - | - | - 0.059 |
| HCM Control Delay (s) | 0 | - | - | - 15.5 |
| HCM Lane LOS | A | - | - | - C |
| HCM 95th %tile Q(veh) | 0 | - | - | - 0.2 |

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 1.1 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ↵ | ↕ | | ↵ | ↕ | | | ↕ | | | ↕ | ↕ |
| Traffic Vol, veh/h | 10 | 525 | 10 | 25 | 735 | 10 | 0 | 0 | 20 | 10 | 10 | 15 |
| Future Vol, veh/h | 10 | 525 | 10 | 25 | 735 | 10 | 0 | 0 | 20 | 10 | 10 | 15 |
| Conflicting Peds, #/hr | 1 | 0 | 1 | 1 | 0 | 1 | 10 | 0 | 1 | 1 | 0 | 10 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 50 | - | - | 50 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 7 | 7 | 7 | 7 | 7 | 7 | 15 | 15 | 15 | 0 | 0 | 0 |
| Mvmt Flow | 11 | 571 | 11 | 27 | 799 | 11 | 0 | 0 | 22 | 11 | 11 | 16 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|----------------------|--------|---|---|--------|---|---|--------|------|------|--------|------|-----|
| Conflicting Flow All | 811 | 0 | 0 | 583 | 0 | 0 | 1069 | 1465 | 293 | 1169 | 1465 | 416 |
| Stage 1 | - | - | - | - | - | - | 600 | 600 | - | 860 | 860 | - |
| Stage 2 | - | - | - | - | - | - | 469 | 865 | - | 309 | 605 | - |
| Critical Hdwy | 4.24 | - | - | 4.24 | - | - | 7.8 | 6.8 | 7.2 | 7.5 | 6.5 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.8 | 5.8 | - | 6.5 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.8 | 5.8 | - | 6.5 | 5.5 | - |
| Follow-up Hdwy | 2.27 | - | - | 2.27 | - | - | 3.65 | 4.15 | 3.45 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 779 | - | - | 954 | - | - | 159 | 113 | 666 | 151 | 129 | 591 |
| Stage 1 | - | - | - | - | - | - | 424 | 457 | - | 321 | 376 | - |
| Stage 2 | - | - | - | - | - | - | 511 | 340 | - | 682 | 491 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 778 | - | - | 953 | - | - | 138 | 108 | 665 | 141 | 123 | 585 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 138 | 108 | - | 141 | 123 | - |
| Stage 1 | - | - | - | - | - | - | 418 | 450 | - | 316 | 365 | - |
| Stage 2 | - | - | - | - | - | - | 464 | 330 | - | 650 | 484 | - |

| Approach | EB | | | WB | | | NB | | | SB | | |
|----------------------|-----|--|--|-----|--|--|------|--|--|------|--|--|
| HCM Control Delay, s | 0.2 | | | 0.3 | | | 10.6 | | | 27.6 | | |
| HCM LOS | | | | | | | B | | | D | | |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h) | 665 | 778 | - | - | 953 | - | - | 197 |
| HCM Lane V/C Ratio | 0.033 | 0.014 | - | - | 0.029 | - | - | 0.193 |
| HCM Control Delay (s) | 10.6 | 9.7 | - | - | 8.9 | - | - | 27.6 |
| HCM Lane LOS | B | A | - | - | A | - | - | D |
| HCM 95th %tile Q(veh) | 0.1 | 0 | - | - | 0.1 | - | - | 0.7 |

HCM Signalized Intersection Capacity Analysis
 13: Dunlop/McKinley & US 14A

12/02/2020



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|------------------------|------|------|------|-------|-------|------|
| Lane Configurations | ↑↑ | | ↵ | ↑↑ | ↵ | |
| Traffic Volume (vph) | 530 | 20 | 10 | 735 | 25 | 15 |
| Future Volume (vph) | 530 | 20 | 10 | 735 | 25 | 15 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | 5.5 | | 5.5 | 5.5 | 5.0 | |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 0.99 | | 1.00 | 1.00 | 0.95 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.97 | |
| Satd. Flow (prot) | 3000 | | 1508 | 3019 | 1398 | |
| Flt Permitted | 1.00 | | 0.43 | 1.00 | 0.97 | |
| Satd. Flow (perm) | 3000 | | 676 | 3019 | 1398 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 576 | 22 | 11 | 799 | 27 | 16 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 598 | 0 | 11 | 799 | 43 | 0 |
| Confl. Peds. (#/hr) | | 3 | 3 | | 2 | |
| Heavy Vehicles (%) | 7% | 7% | 7% | 7% | 12% | 12% |
| Turn Type | NA | | Perm | NA | Prot | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 59.0 | | 59.0 | 59.0 | 5.5 | |
| Effective Green, g (s) | 59.0 | | 59.0 | 59.0 | 5.5 | |
| Actuated g/C Ratio | 0.79 | | 0.79 | 0.79 | 0.07 | |
| Clearance Time (s) | 5.5 | | 5.5 | 5.5 | 5.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 2360 | | 531 | 2374 | 102 | |
| v/s Ratio Prot | 0.20 | | | c0.26 | c0.03 | |
| v/s Ratio Perm | | | 0.02 | | | |
| v/c Ratio | 0.25 | | 0.02 | 0.34 | 0.42 | |
| Uniform Delay, d1 | 2.1 | | 1.7 | 2.3 | 33.2 | |
| Progression Factor | 0.64 | | 0.61 | 0.52 | 1.00 | |
| Incremental Delay, d2 | 0.3 | | 0.1 | 0.4 | 2.8 | |
| Delay (s) | 1.6 | | 1.1 | 1.6 | 36.0 | |
| Level of Service | A | | A | A | D | |
| Approach Delay (s) | 1.6 | | | 1.6 | 36.0 | |
| Approach LOS | A | | | A | D | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 2.6 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.34 | | |
| Actuated Cycle Length (s) | 75.0 | Sum of lost time (s) | 10.5 |
| Intersection Capacity Utilization | 38.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: US 14A & US 85

12/02/2020



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|------------------------|-------|------|------|------|------|-------|
| Lane Configurations | ↶ | ↷ | ↶ | | ↷ | ↷ |
| Traffic Volume (vph) | 305 | 235 | 290 | 60 | 45 | 455 |
| Future Volume (vph) | 305 | 235 | 290 | 60 | 45 | 455 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | 7.0 | 5.5 | 5.5 | | 7.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.98 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1468 | 1545 | 1510 | | 1482 | 1326 |
| Flt Permitted | 0.41 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (perm) | 633 | 1545 | 1510 | | 1482 | 1326 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 332 | 255 | 315 | 65 | 49 | 495 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 332 | 255 | 380 | 0 | 49 | 495 |
| Heavy Vehicles (%) | 10% | 10% | 10% | 10% | 9% | 9% |
| Turn Type | pm+pt | NA | NA | | Prot | Free |
| Protected Phases | 5 | 2 | 6 | | 4 | |
| Permitted Phases | 2 | | | | | Free |
| Actuated Green, G (s) | 57.9 | 57.9 | 39.5 | | 4.6 | 75.0 |
| Effective Green, g (s) | 57.9 | 57.9 | 39.5 | | 4.6 | 75.0 |
| Actuated g/C Ratio | 0.77 | 0.77 | 0.53 | | 0.06 | 1.00 |
| Clearance Time (s) | 7.0 | 5.5 | 5.5 | | 7.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 615 | 1192 | 795 | | 90 | 1326 |
| v/s Ratio Prot | c0.08 | 0.17 | 0.25 | | 0.03 | |
| v/s Ratio Perm | c0.33 | | | | | c0.37 |
| v/c Ratio | 0.54 | 0.21 | 0.48 | | 0.54 | 0.37 |
| Uniform Delay, d1 | 3.9 | 2.3 | 11.2 | | 34.2 | 0.0 |
| Progression Factor | 1.59 | 0.74 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | 0.4 | 2.1 | | 6.6 | 0.8 |
| Delay (s) | 7.0 | 2.1 | 13.3 | | 40.8 | 0.8 |
| Level of Service | A | A | B | | D | A |
| Approach Delay (s) | | 4.9 | 13.3 | | 4.4 | |
| Approach LOS | | A | B | | A | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 6.8 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 75.0 | Sum of lost time (s) | 19.5 |
| Intersection Capacity Utilization | 60.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

HCM Signalized Intersection Capacity Analysis

15: Sherman & Cemetery/Van Buren

12/02/2020



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | | |
|-----------------------------------|------|------|-------|------|-------|------|------|-------|------|-------|-------|---------------------------|----------------------|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↔ | | ↕ | ↕ | | | |
| Traffic Volume (vph) | 10 | 0 | 0 | 15 | 0 | 30 | 0 | 405 | 15 | 35 | 450 | 0 | | |
| Future Volume (vph) | 10 | 0 | 0 | 15 | 0 | 30 | 0 | 405 | 15 | 35 | 450 | 0 | | |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | | |
| Total Lost time (s) | | 5.5 | | | 5.5 | | | 5.5 | | 3.0 | 5.5 | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | |
| Frbp, ped/bikes | | 1.00 | | | 0.99 | | | 1.00 | | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | |
| Frt | | 1.00 | | | 0.91 | | | 1.00 | | 1.00 | 1.00 | | | |
| Flt Protected | | 0.95 | | | 0.98 | | | 1.00 | | 0.95 | 1.00 | | | |
| Satd. Flow (prot) | | 1613 | | | 1467 | | | 1595 | | 1537 | 1619 | | | |
| Flt Permitted | | 1.00 | | | 0.95 | | | 1.00 | | 0.44 | 1.00 | | | |
| Satd. Flow (perm) | | 1698 | | | 1412 | | | 1595 | | 714 | 1619 | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Adj. Flow (vph) | 11 | 0 | 0 | 16 | 0 | 33 | 0 | 440 | 16 | 38 | 489 | 0 | | |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Lane Group Flow (vph) | 0 | 11 | 0 | 0 | 49 | 0 | 0 | 456 | 0 | 38 | 489 | 0 | | |
| Confl. Peds. (#/hr) | 1 | | 6 | 6 | | 1 | 6 | | 4 | 4 | | 6 | | |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 2% | 2% | 6% | 6% | 6% | 5% | 5% | 5% | | |
| Turn Type | Perm | NA | | Perm | NA | | | NA | | pm+pt | NA | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | 1 | 6 | | | |
| Permitted Phases | 4 | | | 8 | | | | | | 6 | | | | |
| Actuated Green, G (s) | | 2.8 | | | 2.8 | | | 29.8 | | 34.7 | 34.7 | | | |
| Effective Green, g (s) | | 2.8 | | | 2.8 | | | 29.8 | | 34.7 | 34.7 | | | |
| Actuated g/C Ratio | | 0.06 | | | 0.06 | | | 0.61 | | 0.72 | 0.72 | | | |
| Clearance Time (s) | | 5.5 | | | 5.5 | | | 5.5 | | 3.0 | 5.5 | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.2 | | 3.0 | 3.2 | | | |
| Lane Grp Cap (vph) | | 98 | | | 81 | | | 980 | | 543 | 1158 | | | |
| v/s Ratio Prot | | | | | | | | c0.29 | | 0.00 | c0.30 | | | |
| v/s Ratio Perm | | 0.01 | | | c0.03 | | | | | 0.05 | | | | |
| v/c Ratio | | 0.11 | | | 0.60 | | | 0.47 | | 0.07 | 0.42 | | | |
| Uniform Delay, d1 | | 21.7 | | | 22.3 | | | 5.0 | | 2.2 | 2.8 | | | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | | 0.5 | | | 12.1 | | | 0.4 | | 0.1 | 0.3 | | | |
| Delay (s) | | 22.2 | | | 34.4 | | | 5.4 | | 2.2 | 3.1 | | | |
| Level of Service | | C | | | C | | | A | | A | A | | | |
| Approach Delay (s) | | 22.2 | | | 34.4 | | | 5.4 | | 3.0 | | | | |
| Approach LOS | | C | | | C | | | A | | A | | | | |
| Intersection Summary | | | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 5.7 | | | | | | | | | HCM 2000 Level of Service | A | |
| HCM 2000 Volume to Capacity ratio | | | 0.48 | | | | | | | | | | | |
| Actuated Cycle Length (s) | | | 48.5 | | | | | | | 14.0 | | | Sum of lost time (s) | |
| Intersection Capacity Utilization | | | 47.0% | | | | | | | | | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | | | |

| Intersection | |
|---------------------------|------|
| Intersection Delay, s/veh | 15.4 |
| Intersection LOS | C |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | ↖ | ↗ | | ↔ | | ↖ | ↗ | | | ↔ | |
| Traffic Vol, veh/h | 20 | 10 | 155 | 10 | 10 | 10 | 165 | 270 | 15 | 10 | 325 | 35 |
| Future Vol, veh/h | 20 | 10 | 155 | 10 | 10 | 10 | 165 | 270 | 15 | 10 | 325 | 35 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 9 | 9 | 9 | 13 | 13 | 13 | 5 | 5 | 5 | 2 | 2 | 2 |
| Mvmt Flow | 22 | 11 | 168 | 11 | 11 | 11 | 179 | 293 | 16 | 11 | 353 | 38 |
| Number of Lanes | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|----------------------------|------|------|------|------|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 2 | 1 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 2 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 1 | 1 | 2 |
| HCM Control Delay | 11.6 | 11.1 | 13.6 | 19.8 |
| HCM LOS | B | B | B | C |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | SBLn1 |
|------------------------|-------|-------|-------|-------|-------|-------|
| Vol Left, % | 100% | 0% | 67% | 0% | 33% | 3% |
| Vol Thru, % | 0% | 95% | 33% | 0% | 33% | 88% |
| Vol Right, % | 0% | 5% | 0% | 100% | 33% | 9% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 165 | 285 | 30 | 155 | 30 | 370 |
| LT Vol | 165 | 0 | 20 | 0 | 10 | 10 |
| Through Vol | 0 | 270 | 10 | 0 | 10 | 325 |
| RT Vol | 0 | 15 | 0 | 155 | 10 | 35 |
| Lane Flow Rate | 179 | 310 | 33 | 168 | 33 | 402 |
| Geometry Grp | 7 | 7 | 7 | 7 | 6 | 6 |
| Degree of Util (X) | 0.319 | 0.505 | 0.067 | 0.297 | 0.068 | 0.661 |
| Departure Headway (Hd) | 6.409 | 5.865 | 7.402 | 6.347 | 7.457 | 5.921 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 561 | 613 | 483 | 564 | 478 | 611 |
| Service Time | 4.152 | 3.608 | 5.158 | 4.103 | 5.532 | 3.962 |
| HCM Lane V/C Ratio | 0.319 | 0.506 | 0.068 | 0.298 | 0.069 | 0.658 |
| HCM Control Delay | 12.1 | 14.5 | 10.7 | 11.8 | 11.1 | 19.8 |
| HCM Lane LOS | B | B | B | B | B | C |
| HCM 95th-tile Q | 1.4 | 2.8 | 0.2 | 1.2 | 0.2 | 4.9 |

| Intersection | |
|---------------------------|-----|
| Intersection Delay, s/veh | 7.7 |
| Intersection LOS | A |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---------------------|------|------|------|------|------|------|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 10 | 15 | 100 | 20 | 20 | 55 |
| Future Vol, veh/h | 10 | 15 | 100 | 20 | 20 | 55 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 0 | 0 | 2 | 2 | 6 | 6 |
| Mvmt Flow | 11 | 16 | 109 | 22 | 22 | 60 |
| Number of Lanes | 1 | 0 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB |
|----------------------------|----|-----|-----|
| Opposing Approach | WB | EB | |
| Opposing Lanes | 1 | 1 | 0 |
| Conflicting Approach Left | | NB | EB |
| Conflicting Lanes Left | 0 | 1 | 1 |
| Conflicting Approach Right | NB | | WB |
| Conflicting Lanes Right | 1 | 0 | 1 |
| HCM Control Delay | 7 | 8.1 | 7.4 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 |
|------------------------|-------|-------|-------|
| Vol Left, % | 27% | 0% | 83% |
| Vol Thru, % | 0% | 40% | 17% |
| Vol Right, % | 73% | 60% | 0% |
| Sign Control | Stop | Stop | Stop |
| Traffic Vol by Lane | 75 | 25 | 120 |
| LT Vol | 20 | 0 | 100 |
| Through Vol | 0 | 10 | 20 |
| RT Vol | 55 | 15 | 0 |
| Lane Flow Rate | 82 | 27 | 130 |
| Geometry Grp | 1 | 1 | 1 |
| Degree of Util (X) | 0.088 | 0.029 | 0.154 |
| Departure Headway (Hd) | 3.886 | 3.781 | 4.264 |
| Convergence, Y/N | Yes | Yes | Yes |
| Cap | 908 | 936 | 839 |
| Service Time | 1.969 | 1.846 | 2.3 |
| HCM Lane V/C Ratio | 0.09 | 0.029 | 0.155 |
| HCM Control Delay | 7.4 | 7 | 8.1 |
| HCM Lane LOS | A | A | A |
| HCM 95th-tile Q | 0.3 | 0.1 | 0.5 |

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 5.4 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 0 | 10 | 0 | 0 | 10 | 10 | 0 | 10 | 0 | 0 | 0 | 10 |
| Future Vol, veh/h | 0 | 10 | 0 | 0 | 10 | 10 | 0 | 10 | 0 | 0 | 0 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| Heavy Vehicles, % | 0 | 0 | 0 | 10 | 10 | 10 | 22 | 22 | 22 | 16 | 16 | 16 |
| Mvmt Flow | 0 | 14 | 0 | 0 | 14 | 14 | 0 | 14 | 0 | 0 | 0 | 14 |

| Major/Minor | Minor2 | | Minor1 | | Major1 | | | Major2 | | | | |
|----------------------|--------|-----|--------|------|--------|------|-------|--------|---|-------|---|---|
| Conflicting Flow All | 35 | 21 | 7 | 28 | 28 | 14 | 14 | 0 | 0 | 14 | 0 | 0 |
| Stage 1 | 7 | 7 | - | 14 | 14 | - | - | - | - | - | - | - |
| Stage 2 | 28 | 14 | - | 14 | 14 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.2 | 6.6 | 6.3 | 4.32 | - | - | 4.26 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.2 | 5.6 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.2 | 5.6 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.59 | 4.09 | 3.39 | 2.398 | - | - | 2.344 | - | - |
| Pot Cap-1 Maneuver | 976 | 877 | 1081 | 961 | 850 | 1043 | 1483 | - | - | 1517 | - | - |
| Stage 1 | 1020 | 894 | - | 986 | 868 | - | - | - | - | - | - | - |
| Stage 2 | 994 | 888 | - | 986 | 868 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | - | - | - |
| Mov Cap-1 Maneuver | 951 | 877 | 1081 | 949 | 850 | 1043 | 1483 | - | - | 1517 | - | - |
| Mov Cap-2 Maneuver | 951 | 877 | - | 949 | 850 | - | - | - | - | - | - | - |
| Stage 1 | 1020 | 894 | - | 986 | 868 | - | - | - | - | - | - | - |
| Stage 2 | 964 | 888 | - | 970 | 868 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|----------------------|-----|----|----|----|
| HCM Control Delay, s | 9.2 | 9 | 0 | 0 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1WBLn1 | SBL | SBT | SBR |
|-----------------------|------|-----|-----|------------|------|------|-----|
| Capacity (veh/h) | 1483 | - | - | 877 | 937 | 1517 | - |
| HCM Lane V/C Ratio | - | - | - | 0.016 | 0.03 | - | - |
| HCM Control Delay (s) | 0 | - | - | 9.2 | 9 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0.1 | 0 | - |

HCM Signalized Intersection Capacity Analysis

19: Deadwood/Shine & Upper Main/Lower Main

12/02/2020



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|------|------|-------|------|-------|------|---------------------------|-------|------|------|------|------|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 10 | 25 | 30 | 35 | 60 | 10 | 50 | 20 | 15 | 10 | 25 | 15 |
| Future Volume (vph) | 10 | 25 | 30 | 35 | 60 | 10 | 50 | 20 | 15 | 10 | 25 | 15 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frbp, ped/bikes | | 0.99 | | | 0.99 | | | 0.98 | | | 0.98 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.97 | | | 0.98 | |
| Frt | | 0.94 | | | 0.99 | | | 0.98 | | | 0.96 | |
| Flt Protected | | 0.99 | | | 0.98 | | | 0.97 | | | 0.99 | |
| Satd. Flow (prot) | | 1495 | | | 1579 | | | 1470 | | | 1478 | |
| Flt Permitted | | 0.92 | | | 0.86 | | | 1.00 | | | 0.90 | |
| Satd. Flow (perm) | | 1387 | | | 1382 | | | 1513 | | | 1351 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 11 | 27 | 33 | 38 | 65 | 11 | 54 | 22 | 16 | 11 | 27 | 16 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 71 | 0 | 0 | 114 | 0 | 0 | 92 | 0 | 0 | 54 | 0 |
| Confl. Peds. (#/hr) | 59 | | 17 | 17 | | 59 | 95 | | 127 | 127 | | 95 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 3% | 3% | 3% | 4% | 4% | 4% | 5% | 5% | 5% |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | 2 | | | 6 | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 5.1 | | | 5.1 | | | 2.7 | | | 2.7 | |
| Effective Green, g (s) | | 5.1 | | | 5.1 | | | 2.7 | | | 2.7 | |
| Actuated g/C Ratio | | 0.27 | | | 0.27 | | | 0.14 | | | 0.14 | |
| Clearance Time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 376 | | | 374 | | | 217 | | | 194 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.05 | | | c0.08 | | | c0.06 | | | 0.04 | |
| v/c Ratio | | 0.19 | | | 0.30 | | | 0.42 | | | 0.28 | |
| Uniform Delay, d1 | | 5.3 | | | 5.4 | | | 7.3 | | | 7.2 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.2 | | | 0.5 | | | 1.3 | | | 0.8 | |
| Delay (s) | | 5.5 | | | 5.9 | | | 8.7 | | | 8.0 | |
| Level of Service | | A | | | A | | | A | | | A | |
| Approach Delay (s) | | 5.5 | | | 5.9 | | | 8.7 | | | 8.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 6.9 | | | | HCM 2000 Level of Service | | A | | | |
| HCM 2000 Volume to Capacity ratio | | | 0.35 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 18.8 | | | | Sum of lost time (s) | | 11.0 | | | |
| Intersection Capacity Utilization | | | 34.8% | | | | ICU Level of Service | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

No Build PM

2027

HCM Unsignalized Intersection Capacity Analysis

1: US 14A & Upper Main

12/02/2020



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|------|
| Lane Configurations | | ↑↑ | ↑ | | | ↗ |
| Traffic Volume (veh/h) | 0 | 410 | 350 | 0 | 0 | 35 |
| Future Volume (Veh/h) | 0 | 410 | 350 | 0 | 0 | 35 |
| Sign Control | | Free | Free | | Yield | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 446 | 380 | 0 | 0 | 38 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 380 | | | | 603 | 380 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 380 | | | | 603 | 380 |
| tC, single (s) | 4.2 | | | | 6.9 | 7.0 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.3 | | | | 3.6 | 3.4 |
| p0 queue free % | 100 | | | | 100 | 94 |
| cM capacity (veh/h) | 1147 | | | | 421 | 607 |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 | | |
| Volume Total | 223 | 223 | 380 | 38 | | |
| Volume Left | 0 | 0 | 0 | 0 | | |
| Volume Right | 0 | 0 | 0 | 38 | | |
| cSH | 1700 | 1700 | 1700 | 607 | | |
| Volume to Capacity | 0.13 | 0.13 | 0.22 | 0.06 | | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 5 | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 11.3 | | |
| Lane LOS | | | | B | | |
| Approach Delay (s) | 0.0 | | 0.0 | 11.3 | | |
| Approach LOS | | | | B | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.5 | | | |
| Intersection Capacity Utilization | | | 30.6% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.7 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 15 | 395 | 350 | 10 | 30 | 0 |
| Future Vol, veh/h | 15 | 395 | 350 | 10 | 30 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 3 | 3 | 6 | 6 |
| Mvmt Flow | 16 | 429 | 380 | 11 | 33 | 0 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|-------------|
| Conflicting Flow All | 391 | 0 | - | 0 | 633 386 |
| Stage 1 | - | - | - | - | 386 - |
| Stage 2 | - | - | - | - | 247 - |
| Critical Hdwy | 4.19 | - | - | - | 6.69 6.29 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.49 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.89 - |
| Follow-up Hdwy | 2.257 | - | - | - | 3.557 3.357 |
| Pot Cap-1 Maneuver | 1141 | - | - | - | 420 651 |
| Stage 1 | - | - | - | - | 676 - |
| Stage 2 | - | - | - | - | 761 - |
| Platoon blocked, % | | - | - | - | |
| Mov Cap-1 Maneuver | 1141 | - | - | - | 414 651 |
| Mov Cap-2 Maneuver | - | - | - | - | 414 - |
| Stage 1 | - | - | - | - | 667 - |
| Stage 2 | - | - | - | - | 761 - |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.3 | 0 | 14.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 1141 | - | - | - | 414 |
| HCM Lane V/C Ratio | 0.014 | - | - | - | 0.079 |
| HCM Control Delay (s) | 8.2 | - | - | - | 14.4 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.3 |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 1.7 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | ↑↑ | | ↑↑ | |
| Traffic Vol, veh/h | 25 | 400 | 320 | 15 | 50 | 35 |
| Future Vol, veh/h | 25 | 400 | 320 | 15 | 50 | 35 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 3 | 3 | 4 | 4 |
| Mvmt Flow | 27 | 435 | 348 | 16 | 54 | 38 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|------|------|
| Conflicting Flow All | 364 | 0 | 0 | 628 | 182 |
| Stage 1 | - | - | - | 356 | - |
| Stage 2 | - | - | - | 272 | - |
| Critical Hdwy | 4.22 | - | - | 6.88 | 6.98 |
| Critical Hdwy Stg 1 | - | - | - | 5.88 | - |
| Critical Hdwy Stg 2 | - | - | - | 5.88 | - |
| Follow-up Hdwy | 2.26 | - | - | 3.54 | 3.34 |
| Pot Cap-1 Maneuver | 1163 | - | - | 410 | 823 |
| Stage 1 | - | - | - | 674 | - |
| Stage 2 | - | - | - | 743 | - |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | 1163 | - | - | 397 | 823 |
| Mov Cap-2 Maneuver | - | - | - | 397 | - |
| Stage 1 | - | - | - | 653 | - |
| Stage 2 | - | - | - | 743 | - |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.6 | 0 | 13.7 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 1163 | - | - | - | 505 |
| HCM Lane V/C Ratio | 0.023 | - | - | - | 0.183 |
| HCM Control Delay (s) | 8.2 | 0.1 | - | - | 13.7 |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.7 |

HCM Signalized Intersection Capacity Analysis

4: Pine & US 14A

12/02/2020



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|-------|-------|-------|-------|-------|------|---------------------------|------|------|------|-------|------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | ↕ | ↕ | | | ↕↕ | |
| Traffic Volume (vph) | 20 | 350 | 90 | 70 | 240 | 25 | 70 | 85 | 55 | 55 | 90 | 25 |
| Future Volume (vph) | 20 | 350 | 90 | 70 | 240 | 25 | 70 | 85 | 55 | 55 | 90 | 25 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | | 5.5 | | | 6.0 | | 6.5 | 6.5 | | | 6.5 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | 1.00 | 1.00 | | | 1.00 | |
| Frbp, ped/bikes | | 0.98 | | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 0.99 | 1.00 | | | 1.00 | |
| Frt | | 0.97 | | | 0.99 | | 1.00 | 0.94 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 0.99 | | 0.95 | 1.00 | | | 0.98 | |
| Satd. Flow (prot) | | 2934 | | | 2980 | | 1518 | 1506 | | | 1578 | |
| Flt Permitted | | 1.00 | | | 0.99 | | 0.63 | 1.00 | | | 0.83 | |
| Satd. Flow (perm) | | 2934 | | | 2980 | | 1003 | 1506 | | | 1337 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 22 | 380 | 98 | 76 | 261 | 27 | 76 | 92 | 60 | 60 | 98 | 27 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 500 | 0 | 0 | 364 | 0 | 76 | 152 | 0 | 0 | 185 | 0 |
| Confl. Peds. (#/hr) | | | 36 | | | 61 | 24 | | 21 | 21 | | 24 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 3% | 3% | 3% |
| Turn Type | Split | NA | | Split | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 2 | 2 | | 1 | 1 | | | 4 | | | 4 | |
| Permitted Phases | | | | | | | 4 | | | 4 | | |
| Actuated Green, G (s) | | 16.6 | | | 23.8 | | 16.6 | 16.6 | | | 16.6 | |
| Effective Green, g (s) | | 16.6 | | | 23.8 | | 16.6 | 16.6 | | | 16.6 | |
| Actuated g/C Ratio | | 0.22 | | | 0.32 | | 0.22 | 0.22 | | | 0.22 | |
| Clearance Time (s) | | 5.5 | | | 6.0 | | 6.5 | 6.5 | | | 6.5 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 649 | | | 945 | | 221 | 333 | | | 295 | |
| v/s Ratio Prot | | c0.17 | | | c0.12 | | | 0.10 | | | | |
| v/s Ratio Perm | | | | | | | 0.08 | | | | c0.14 | |
| v/c Ratio | | 0.77 | | | 0.39 | | 0.34 | 0.46 | | | 0.63 | |
| Uniform Delay, d1 | | 27.4 | | | 19.9 | | 24.6 | 25.3 | | | 26.4 | |
| Progression Factor | | 1.00 | | | 1.36 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 5.6 | | | 1.2 | | 0.9 | 1.0 | | | 4.1 | |
| Delay (s) | | 33.0 | | | 28.2 | | 25.5 | 26.3 | | | 30.5 | |
| Level of Service | | C | | | C | | C | C | | | C | |
| Approach Delay (s) | | 33.0 | | | 28.2 | | | 26.0 | | | 30.5 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 30.0 | | | | HCM 2000 Level of Service | | | | C | |
| HCM 2000 Volume to Capacity ratio | | | 0.57 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 75.0 | | | | Sum of lost time (s) | | | 18.0 | | |
| Intersection Capacity Utilization | | | 89.3% | | | | ICU Level of Service | | | E | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Deadwood & US 14A

12/02/2020



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|-------|------|------|------|------|------|------|------|------|-------|------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 15 | 420 | 25 | 45 | 295 | 25 | 15 | 35 | 30 | 45 | 65 | 25 |
| Future Volume (vph) | 15 | 420 | 25 | 45 | 295 | 25 | 15 | 35 | 30 | 45 | 65 | 25 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | | 1.00 | |
| Frbp, ped/bikes | | 0.98 | | | 0.99 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 0.98 | | | 1.00 | | | 0.99 | |
| Frt | | 0.99 | | | 0.99 | | | 0.95 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 0.99 | | | 0.99 | | | 0.98 | |
| Satd. Flow (prot) | | 2982 | | | 2933 | | | 1502 | | | 1568 | |
| Flt Permitted | | 0.94 | | | 0.85 | | | 0.94 | | | 0.88 | |
| Satd. Flow (perm) | | 2805 | | | 2516 | | | 1420 | | | 1401 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 16 | 457 | 27 | 49 | 321 | 27 | 16 | 38 | 33 | 49 | 71 | 27 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 500 | 0 | 0 | 397 | 0 | 0 | 87 | 0 | 0 | 147 | 0 |
| Confl. Peds. (#/hr) | 51 | | 125 | 125 | | | 51 | 8 | | 23 | 23 | |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 3% | 3% | 3% |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | 2 | | | 6 | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 50.9 | | | 50.9 | | | 13.1 | | | 13.1 | |
| Effective Green, g (s) | | 50.9 | | | 50.9 | | | 13.1 | | | 13.1 | |
| Actuated g/C Ratio | | 0.68 | | | 0.68 | | | 0.17 | | | 0.17 | |
| Clearance Time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 1903 | | | 1707 | | | 248 | | | 244 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.18 | | | 0.16 | | | 0.06 | | | c0.10 | |
| v/c Ratio | | 0.26 | | | 0.23 | | | 0.35 | | | 0.60 | |
| Uniform Delay, d1 | | 4.7 | | | 4.6 | | | 27.2 | | | 28.5 | |
| Progression Factor | | 0.70 | | | 0.81 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.3 | | | 0.3 | | | 0.9 | | | 4.2 | |
| Delay (s) | | 3.5 | | | 4.0 | | | 28.1 | | | 32.7 | |
| Level of Service | | A | | | A | | | C | | | C | |
| Approach Delay (s) | | 3.5 | | | 4.0 | | | 28.1 | | | 32.7 | |
| Approach LOS | | A | | | A | | | C | | | C | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 9.4 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.33 | | |
| Actuated Cycle Length (s) | 75.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 56.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|-------|------|
| Int Delay, s/veh | 2.9 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↔ | | | ↔ | | | ↔ | | | | |
| Traffic Vol, veh/h | 15 | 460 | 10 | 250 | 355 | 15 | 0 | 15 | 15 | 0 | 0 | 0 |
| Future Vol, veh/h | 15 | 460 | 10 | 250 | 355 | 15 | 0 | 15 | 15 | 0 | 0 | 0 |
| Conflicting Peds, #/hr | 50 | 0 | 31 | 31 | 0 | 50 | 12 | 0 | 16 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 2 | 2 | 2 | 0 | 0 | 0 | 2 | 2 | 2 |
| Mvmt Flow | 16 | 500 | 11 | 272 | 386 | 16 | 0 | 16 | 16 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|----------------------|--------|---|---|--------|---|---|--------|------|-----|
| Conflicting Flow All | 452 | 0 | 0 | 542 | 0 | 0 | 1318 | 1565 | 303 |
| Stage 1 | - | - | - | - | - | - | 569 | 569 | - |
| Stage 2 | - | - | - | - | - | - | 749 | 996 | - |
| Critical Hdwy | 4.16 | - | - | 4.14 | - | - | 6.8 | 6.5 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Follow-up Hdwy | 2.23 | - | - | 2.22 | - | - | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1098 | - | - | 1023 | - | - | 151 | 113 | 699 |
| Stage 1 | - | - | - | - | - | - | 535 | 509 | - |
| Stage 2 | - | - | - | - | - | - | 433 | 325 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 1098 | - | - | 993 | - | - | 92 | 0 | 668 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 92 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 509 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 277 | 0 | - |

| Approach | EB | | | WB | | | NB | | |
|----------------------|-----|--|--|-----|--|--|------|--|--|
| HCM Control Delay, s | 0.4 | | | 4.4 | | | 10.7 | | |
| HCM LOS | | | | | | | B | | |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 668 | 1098 | - | - | 993 | - | - |
| HCM Lane V/C Ratio | 0.049 | 0.015 | - | - | 0.274 | - | - |
| HCM Control Delay (s) | 10.7 | 8.3 | 0.1 | - | 10 | 0.7 | - |
| HCM Lane LOS | B | A | A | - | A | A | - |
| HCM 95th %tile Q(veh) | 0.2 | 0 | - | - | 1.1 | - | - |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 6.3 | | | | | |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑↑ | | | ↑↑ | ↘ | ↘ |
| Traffic Vol, veh/h | 470 | 0 | 0 | 590 | 20 | 475 |
| Future Vol, veh/h | 470 | 0 | 0 | 590 | 20 | 475 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 2 | 2 | 1 | 1 |
| Mvmt Flow | 511 | 0 | 0 | 641 | 22 | 516 |

| Major/Minor | Major1 | Major2 | Minor1 | | |
|----------------------|--------|--------|--------|---|-----------|
| Conflicting Flow All | 0 | - | - | - | 832 256 |
| Stage 1 | - | - | - | - | 511 - |
| Stage 2 | - | - | - | - | 321 - |
| Critical Hdwy | - | - | - | - | 6.82 6.92 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.82 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.82 - |
| Follow-up Hdwy | - | - | - | - | 3.51 3.31 |
| Pot Cap-1 Maneuver | - | 0 | 0 | - | 310 746 |
| Stage 1 | - | 0 | 0 | - | 570 - |
| Stage 2 | - | 0 | 0 | - | 711 - |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | - | - | 310 746 |
| Mov Cap-2 Maneuver | - | - | - | - | 310 - |
| Stage 1 | - | - | - | - | 570 - |
| Stage 2 | - | - | - | - | 711 - |

| Approach | EB | WB | NB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 19.8 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | WBT |
|-----------------------|-------|-------|-----|-----|
| Capacity (veh/h) | 310 | 746 | - | - |
| HCM Lane V/C Ratio | 0.07 | 0.692 | - | - |
| HCM Control Delay (s) | 17.5 | 19.9 | - | - |
| HCM Lane LOS | C | C | - | - |
| HCM 95th %tile Q(veh) | 0.2 | 5.6 | - | - |

HCM 6th TWSC
8: Driveway/Wall & US 14A

12/02/2020

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|-------|------|
| Int Delay, s/veh | 0.8 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↔ | | | ↔ | | | ↔ | | | | |
| Traffic Vol, veh/h | 30 | 910 | 15 | 10 | 590 | 20 | 10 | 0 | 10 | 0 | 0 | 0 |
| Future Vol, veh/h | 30 | 910 | 15 | 10 | 590 | 20 | 10 | 0 | 10 | 0 | 0 | 0 |
| Conflicting Peds, #/hr | 3 | 0 | 34 | 34 | 0 | 3 | 7 | 0 | 15 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 2 | 2 | 2 | 0 | 0 | 0 | 2 | 2 | 2 |
| Mvmt Flow | 33 | 989 | 16 | 11 | 641 | 22 | 11 | 0 | 11 | 0 | 0 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor1 | | | | |
|----------------------|--------|---|--------|------|--------|---|------|------|-----|
| Conflicting Flow All | 666 | 0 | 0 | 1039 | 0 | 0 | 1447 | 1785 | 552 |
| Stage 1 | - | - | - | - | - | - | 1097 | 1097 | - |
| Stage 2 | - | - | - | - | - | - | 350 | 688 | - |
| Critical Hdwy | 4.16 | - | - | 4.14 | - | - | 6.8 | 6.5 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Follow-up Hdwy | 2.23 | - | - | 2.22 | - | - | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 913 | - | - | 665 | - | - | 125 | 82 | 483 |
| Stage 1 | - | - | - | - | - | - | 286 | 291 | - |
| Stage 2 | - | - | - | - | - | - | 690 | 450 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 913 | - | - | 643 | - | - | 107 | 0 | 461 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 107 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 254 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 667 | 0 | - |

| Approach | EB | | WB | | NB | |
|----------------------|-----|--|-----|--|------|--|
| HCM Control Delay, s | 0.6 | | 0.3 | | 28.6 | |
| HCM LOS | | | | | D | |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 174 | 913 | - | - | 643 | - | - |
| HCM Lane V/C Ratio | 0.125 | 0.036 | - | - | 0.017 | - | - |
| HCM Control Delay (s) | 28.6 | 9.1 | 0.3 | - | 10.7 | 0.1 | - |
| HCM Lane LOS | D | A | A | - | B | A | - |
| HCM 95th %tile Q(veh) | 0.4 | 0.1 | - | - | 0.1 | - | - |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.4 | | | | | |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑↑ | | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 905 | 15 | 0 | 600 | 15 | 15 |
| Future Vol, veh/h | 905 | 15 | 0 | 600 | 15 | 15 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 2 | 2 | 0 | 0 |
| Mvmt Flow | 984 | 16 | 0 | 652 | 16 | 16 |

| Major/Minor | Major1 | Major2 | Minor1 | Minor2 | Minor3 |
|----------------------|--------|--------|--------|--------|--------|
| Conflicting Flow All | 0 | 0 | 1000 | 0 | 1318 |
| Stage 1 | - | - | - | - | 992 |
| Stage 2 | - | - | - | - | 326 |
| Critical Hdwy | - | - | 4.14 | - | 6.8 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.8 |
| Critical Hdwy Stg 2 | - | - | - | - | 5.8 |
| Follow-up Hdwy | - | - | 2.22 | - | 3.5 |
| Pot Cap-1 Maneuver | - | - | 688 | - | 151 |
| Stage 1 | - | - | - | - | 324 |
| Stage 2 | - | - | - | - | 710 |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 688 | - | 151 |
| Mov Cap-2 Maneuver | - | - | - | - | 151 |
| Stage 1 | - | - | - | - | 324 |
| Stage 2 | - | - | - | - | 710 |





















| Approach | EB | WB | NB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 22.9 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|-----------------------|-------|-----|-----|-----|-----|
| Capacity (veh/h) | 234 | - | - | 688 | - |
| HCM Lane V/C Ratio | 0.139 | - | - | - | - |
| HCM Control Delay (s) | 22.9 | - | - | 0 | - |
| HCM Lane LOS | C | - | - | A | - |
| HCM 95th %tile Q(veh) | 0.5 | - | - | 0 | - |

HCM Signalized Intersection Capacity Analysis

10: Driveway/Lower Main & US 14A

12/18/2020

| |  |  |  |  |  |  |  |  |  |  |  |  | |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Configurations |  |  | |  |  |  | |  | |  |  | | |
| Traffic Volume (vph) | 45 | 870 | 10 | 10 | 545 | 210 | 0 | 10 | 10 | 105 | 10 | 60 | |
| Future Volume (vph) | 45 | 870 | 10 | 10 | 545 | 210 | 0 | 10 | 10 | 105 | 10 | 60 | |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | 4.0 | | 5.5 | | 5.5 | 5.5 | | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | | 1.00 | | 1.00 | 1.00 | | |
| Frbp, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | | 0.98 | | 1.00 | 0.99 | | |
| Flpb, ped/bikes | 0.98 | 1.00 | | 0.98 | 1.00 | 1.00 | | 1.00 | | 0.96 | 1.00 | | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | | 0.93 | | 1.00 | 0.87 | | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 1520 | 3097 | | 1553 | 3167 | 1380 | | 1290 | | 1528 | 1434 | | |
| Flt Permitted | 0.43 | 1.00 | | 0.28 | 1.00 | 1.00 | | 1.00 | | 0.74 | 1.00 | | |
| Satd. Flow (perm) | 686 | 3097 | | 460 | 3167 | 1380 | | 1290 | | 1195 | 1434 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Adj. Flow (vph) | 49 | 946 | 11 | 11 | 592 | 228 | 0 | 11 | 11 | 114 | 11 | 65 | |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Lane Group Flow (vph) | 49 | 957 | 0 | 11 | 592 | 228 | 0 | 22 | 0 | 114 | 76 | 0 | |
| Confl. Peds. (#/hr) | 47 | | 46 | 46 | | 47 | 4 | | 42 | 42 | | 4 | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 2% | 2% | 2% | 20% | 20% | 20% | 2% | 2% | 2% | |
| Turn Type | Perm | NA | | Perm | NA | Free | | NA | | Perm | NA | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | | |
| Permitted Phases | 2 | | | 6 | | Free | 8 | | | 4 | | | |
| Actuated Green, G (s) | 52.7 | 52.7 | | 52.7 | 52.7 | 75.0 | | 11.3 | | 11.3 | 11.3 | | |
| Effective Green, g (s) | 52.7 | 52.7 | | 52.7 | 52.7 | 75.0 | | 11.3 | | 11.3 | 11.3 | | |
| Actuated g/C Ratio | 0.70 | 0.70 | | 0.70 | 0.70 | 1.00 | | 0.15 | | 0.15 | 0.15 | | |
| Clearance Time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | | | 5.5 | | 5.5 | 5.5 | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | | |
| Lane Grp Cap (vph) | 482 | 2176 | | 323 | 2225 | 1380 | | 194 | | 180 | 216 | | |
| v/s Ratio Prot | | c0.31 | | | 0.19 | | | 0.02 | | | 0.05 | | |
| v/s Ratio Perm | 0.07 | | | 0.02 | | 0.17 | | | | c0.10 | | | |
| v/c Ratio | 0.10 | 0.44 | | 0.03 | 0.27 | 0.17 | | 0.11 | | 0.63 | 0.35 | | |
| Uniform Delay, d1 | 3.6 | 4.8 | | 3.4 | 4.1 | 0.0 | | 27.5 | | 29.9 | 28.6 | | |
| Progression Factor | 0.90 | 0.93 | | 0.61 | 0.67 | 1.00 | | 1.00 | | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 0.4 | 0.6 | | 0.2 | 0.3 | 0.3 | | 0.3 | | 7.1 | 1.0 | | |
| Delay (s) | 3.6 | 5.1 | | 2.3 | 3.0 | 0.3 | | 27.8 | | 37.0 | 29.6 | | |
| Level of Service | A | A | | A | A | A | | C | | D | C | | |
| Approach Delay (s) | | 5.0 | | | 2.2 | | | 27.8 | | | 34.0 | | |
| Approach LOS | | A | | | A | | | C | | | C | | |
| Intersection Summary | | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 6.8 | | | | | | | | | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | | | 0.47 | | | | | | | | | | |
| Actuated Cycle Length (s) | | | 75.0 | | | | | | | | | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | | | 68.5% | | | | | | | | | ICU Level of Service | C |
| Analysis Period (min) | | | 15 | | | | | | | | | | |

c Critical Lane Group

Intersection

Int Delay, s/veh 0.3

| Movement | EBL | EBT | WBT | WBR | SWL | SWR |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | ↘ | ↑↑ | ↑↑↑ | | ↘ | |
| Traffic Vol, veh/h | 10 | 975 | 745 | 10 | 10 | 20 |
| Future Vol, veh/h | 10 | 975 | 745 | 10 | 10 | 20 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 50 | - | - | 200 | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 4 | 4 | 2 | 2 | 8 | 8 |
| Mvmt Flow | 11 | 1060 | 810 | 11 | 11 | 22 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 821 | 0 | 0 |
| Stage 1 | - | - | 816 |
| Stage 2 | - | - | 552 |
| Critical Hdwy | 5.38 | - | 6.41 |
| Critical Hdwy Stg 1 | - | - | 6.76 |
| Critical Hdwy Stg 2 | - | - | 5.96 |
| Follow-up Hdwy | 3.14 | - | 3.73 |
| Pot Cap-1 Maneuver | 471 | - | 158 |
| Stage 1 | - | - | 309 |
| Stage 2 | - | - | 508 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 471 | - | 154 |
| Mov Cap-2 Maneuver | - | - | 236 |
| Stage 1 | - | - | 302 |
| Stage 2 | - | - | 508 |

| Approach | EB | WB | SW |
|----------------------|-----|----|----|
| HCM Control Delay, s | 0.1 | 0 | 16 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBRSWLn1 |
|-----------------------|-------|-----|-----|----------|
| Capacity (veh/h) | 471 | - | - | 361 |
| HCM Lane V/C Ratio | 0.023 | - | - | 0.09 |
| HCM Control Delay (s) | 12.8 | - | - | 16 |
| HCM Lane LOS | B | - | - | C |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 0.3 |

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 1.7 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ↵ | ↕↗ | | ↵ | ↕↗ | | | ↕↘ | | | ↕↘ | |
| Traffic Vol, veh/h | 20 | 955 | 10 | 15 | 720 | 15 | 15 | 0 | 30 | 15 | 0 | 20 |
| Future Vol, veh/h | 20 | 955 | 10 | 15 | 720 | 15 | 15 | 0 | 30 | 15 | 0 | 20 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 13 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 50 | - | - | 50 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 4 | 4 | 4 | 2 | 2 | 2 | 9 | 9 | 9 | 0 | 0 | 0 |
| Mvmt Flow | 22 | 1038 | 11 | 16 | 783 | 16 | 16 | 0 | 33 | 16 | 0 | 22 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|----------------------|--------|---|---|--------|---|---|--------|------|------|--------|------|-----|
| Conflicting Flow All | 799 | 0 | 0 | 1049 | 0 | 0 | 1525 | 1919 | 525 | 1386 | 1916 | 413 |
| Stage 1 | - | - | - | - | - | - | 1088 | 1088 | - | 823 | 823 | - |
| Stage 2 | - | - | - | - | - | - | 437 | 831 | - | 563 | 1093 | - |
| Critical Hdwy | 4.18 | - | - | 4.14 | - | - | 7.68 | 6.68 | 7.08 | 7.5 | 6.5 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.68 | 5.68 | - | 6.5 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.68 | 5.68 | - | 6.5 | 5.5 | - |
| Follow-up Hdwy | 2.24 | - | - | 2.22 | - | - | 3.59 | 4.09 | 3.39 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 807 | - | - | 659 | - | - | 75 | 61 | 479 | 104 | 68 | 594 |
| Stage 1 | - | - | - | - | - | - | 218 | 276 | - | 338 | 391 | - |
| Stage 2 | - | - | - | - | - | - | 550 | 367 | - | 483 | 293 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 807 | - | - | 659 | - | - | 69 | 58 | 479 | 93 | 65 | 587 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 69 | 58 | - | 93 | 65 | - |
| Stage 1 | - | - | - | - | - | - | 212 | 269 | - | 329 | 382 | - |
| Stage 2 | - | - | - | - | - | - | 510 | 358 | - | 438 | 285 | - |

| Approach | EB | | | WB | | | NB | | | SB | | |
|----------------------|-----|--|--|-----|--|--|------|--|--|------|--|--|
| HCM Control Delay, s | 0.2 | | | 0.2 | | | 36.8 | | | 30.5 | | |
| HCM LOS | | | | | | | E | | | D | | |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h) | 161 | 807 | - | - | 659 | - | - | 179 |
| HCM Lane V/C Ratio | 0.304 | 0.027 | - | - | 0.025 | - | - | 0.213 |
| HCM Control Delay (s) | 36.8 | 9.6 | - | - | 10.6 | - | - | 30.5 |
| HCM Lane LOS | E | A | - | - | B | - | - | D |
| HCM 95th %tile Q(veh) | 1.2 | 0.1 | - | - | 0.1 | - | - | 0.8 |

HCM Signalized Intersection Capacity Analysis

13: Dunlop/McKinley & US 14A

12/02/2020



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|------------------------|-------|------|------|------|-------|------|
| Lane Configurations | ↑↑ | | ↵ | ↑↑ | ↵ | |
| Traffic Volume (vph) | 950 | 45 | 10 | 715 | 30 | 15 |
| Future Volume (vph) | 950 | 45 | 10 | 715 | 30 | 15 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | 5.5 | | 5.5 | 5.5 | 5.0 | |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 0.99 | | 1.00 | 1.00 | 0.96 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.97 | |
| Satd. Flow (prot) | 3112 | | 1583 | 3167 | 1526 | |
| Flt Permitted | 1.00 | | 0.26 | 1.00 | 0.97 | |
| Satd. Flow (perm) | 3112 | | 426 | 3167 | 1526 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 1033 | 49 | 11 | 777 | 33 | 16 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 1082 | 0 | 11 | 777 | 49 | 0 |
| Confl. Peds. (#/hr) | | 3 | 3 | | 14 | |
| Heavy Vehicles (%) | 3% | 3% | 2% | 2% | 3% | 3% |
| Turn Type | NA | | Perm | NA | Prot | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 59.0 | | 59.0 | 59.0 | 5.5 | |
| Effective Green, g (s) | 59.0 | | 59.0 | 59.0 | 5.5 | |
| Actuated g/C Ratio | 0.79 | | 0.79 | 0.79 | 0.07 | |
| Clearance Time (s) | 5.5 | | 5.5 | 5.5 | 5.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 2448 | | 335 | 2491 | 111 | |
| v/s Ratio Prot | c0.35 | | | 0.25 | c0.03 | |
| v/s Ratio Perm | | | 0.03 | | | |
| v/c Ratio | 0.44 | | 0.03 | 0.31 | 0.44 | |
| Uniform Delay, d1 | 2.6 | | 1.8 | 2.3 | 33.3 | |
| Progression Factor | 1.20 | | 0.52 | 0.44 | 1.00 | |
| Incremental Delay, d2 | 0.5 | | 0.2 | 0.3 | 2.8 | |
| Delay (s) | 3.7 | | 1.1 | 1.3 | 36.1 | |
| Level of Service | A | | A | A | D | |
| Approach Delay (s) | 3.7 | | | 1.3 | 36.1 | |
| Approach LOS | A | | | A | D | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 3.5 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 75.0 | Sum of lost time (s) | 10.5 |
| Intersection Capacity Utilization | 46.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: US 14A & US 85

12/02/2020





















| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|------------------------|-------|------|------|------|-------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 505 | 460 | 340 | 55 | 80 | 385 |
| Future Volume (vph) | 505 | 460 | 340 | 55 | 80 | 385 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | 7.0 | 5.5 | 5.5 | | 7.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.98 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1553 | 1635 | 1604 | | 1583 | 1417 |
| Flt Permitted | 0.31 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (perm) | 512 | 1635 | 1604 | | 1583 | 1417 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 549 | 500 | 370 | 60 | 87 | 418 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 549 | 500 | 430 | 0 | 87 | 418 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 2% | 2% |
| Turn Type | pm+pt | NA | NA | | Prot | Free |
| Protected Phases | 5 | 2 | 6 | | 4 | |
| Permitted Phases | 2 | | | | | Free |
| Actuated Green, G (s) | 56.5 | 56.5 | 31.8 | | 6.0 | 75.0 |
| Effective Green, g (s) | 56.5 | 56.5 | 31.8 | | 6.0 | 75.0 |
| Actuated g/C Ratio | 0.75 | 0.75 | 0.42 | | 0.08 | 1.00 |
| Clearance Time (s) | 7.0 | 5.5 | 5.5 | | 7.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 631 | 1231 | 680 | | 126 | 1417 |
| v/s Ratio Prot | c0.21 | 0.31 | 0.27 | | c0.05 | |
| v/s Ratio Perm | c0.45 | | | | | 0.30 |
| v/c Ratio | 0.87 | 0.41 | 0.63 | | 0.69 | 0.29 |
| Uniform Delay, d1 | 8.9 | 3.3 | 17.0 | | 33.6 | 0.0 |
| Progression Factor | 1.25 | 1.23 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 11.7 | 0.9 | 4.4 | | 15.1 | 0.5 |
| Delay (s) | 22.7 | 5.0 | 21.4 | | 48.7 | 0.5 |
| Level of Service | C | A | C | | D | A |
| Approach Delay (s) | | 14.3 | 21.4 | | 8.8 | |
| Approach LOS | | B | C | | A | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 14.4 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 75.0 | Sum of lost time (s) | 19.5 |
| Intersection Capacity Utilization | 75.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

HCM Signalized Intersection Capacity Analysis
 15: Sherman & Cemetery/Van Buren

12/02/2020

| |  |  |  |  |  |  |  |  |  |  |  |  | | |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|----------------------|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | | |
| Lane Configurations | |  | | |  | | |  | |  |  |  | | |
| Traffic Volume (vph) | 20 | 10 | 0 | 30 | 0 | 85 | 0 | 610 | 25 | 85 | 415 | 0 | | |
| Future Volume (vph) | 20 | 10 | 0 | 30 | 0 | 85 | 0 | 610 | 25 | 85 | 415 | 0 | | |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | | |
| Total Lost time (s) | | 5.5 | | | 5.5 | | | 5.5 | | 3.0 | 5.5 | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | |
| Frbp, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | |
| Frt | | 1.00 | | | 0.90 | | | 0.99 | | 1.00 | 1.00 | | | |
| Flt Protected | | 0.97 | | | 0.99 | | | 1.00 | | 0.95 | 1.00 | | | |
| Satd. Flow (prot) | | 1523 | | | 1475 | | | 1625 | | 1583 | 1667 | | | |
| Flt Permitted | | 0.78 | | | 0.90 | | | 1.00 | | 0.25 | 1.00 | | | |
| Satd. Flow (perm) | | 1229 | | | 1344 | | | 1625 | | 416 | 1667 | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Adj. Flow (vph) | 22 | 11 | 0 | 33 | 0 | 92 | 0 | 663 | 27 | 92 | 451 | 0 | | |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Lane Group Flow (vph) | 0 | 33 | 0 | 0 | 125 | 0 | 0 | 690 | 0 | 92 | 451 | 0 | | |
| Confl. Peds. (#/hr) | | | 12 | 12 | | | 9 | | 2 | | | 9 | | |
| Heavy Vehicles (%) | 8% | 8% | 8% | 2% | 2% | 2% | 4% | 4% | 4% | 2% | 2% | 2% | | |
| Turn Type | Perm | NA | | Perm | NA | | | NA | | pm+pt | NA | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | 1 | 6 | | | |
| Permitted Phases | 4 | | | 8 | | | | | | 6 | | | | |
| Actuated Green, G (s) | | 8.8 | | | 8.8 | | | 35.6 | | 43.4 | 43.4 | | | |
| Effective Green, g (s) | | 8.8 | | | 8.8 | | | 35.6 | | 43.4 | 43.4 | | | |
| Actuated g/C Ratio | | 0.14 | | | 0.14 | | | 0.56 | | 0.69 | 0.69 | | | |
| Clearance Time (s) | | 5.5 | | | 5.5 | | | 5.5 | | 3.0 | 5.5 | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.2 | | 3.0 | 3.2 | | | |
| Lane Grp Cap (vph) | | 171 | | | 187 | | | 915 | | 374 | 1144 | | | |
| v/s Ratio Prot | | | | | | | | c0.42 | | 0.02 | c0.27 | | | |
| v/s Ratio Perm | | 0.03 | | | c0.09 | | | | | 0.15 | | | | |
| v/c Ratio | | 0.19 | | | 0.67 | | | 0.75 | | 0.25 | 0.39 | | | |
| Uniform Delay, d1 | | 24.1 | | | 25.8 | | | 10.5 | | 5.3 | 4.3 | | | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | | 0.6 | | | 8.7 | | | 3.6 | | 0.3 | 0.2 | | | |
| Delay (s) | | 24.6 | | | 34.5 | | | 14.1 | | 5.6 | 4.5 | | | |
| Level of Service | | C | | | C | | | B | | A | A | | | |
| Approach Delay (s) | | 24.6 | | | 34.5 | | | 14.1 | | | 4.7 | | | |
| Approach LOS | | C | | | C | | | B | | | A | | | |
| Intersection Summary | | | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 12.5 | | | | | | | | | HCM 2000 Level of Service | B | |
| HCM 2000 Volume to Capacity ratio | | | 0.71 | | | | | | | | | | | |
| Actuated Cycle Length (s) | | | 63.2 | | | | | | | | 14.0 | | Sum of lost time (s) | |
| Intersection Capacity Utilization | | | 63.0% | | | | | | | | | | ICU Level of Service | B |
| Analysis Period (min) | | | 15 | | | | | | | | | | | |

c Critical Lane Group

| Intersection | |
|---------------------------|------|
| Intersection Delay, s/veh | 30.4 |
| Intersection LOS | D |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | ↖ | ↗ | | ↔ | | ↖ | ↗ | | | ↔ | |
| Traffic Vol, veh/h | 35 | 20 | 175 | 10 | 10 | 10 | 195 | 510 | 10 | 0 | 315 | 25 |
| Future Vol, veh/h | 35 | 20 | 175 | 10 | 10 | 10 | 195 | 510 | 10 | 0 | 315 | 25 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | 3 | 1 | 1 | 1 |
| Mvmt Flow | 38 | 22 | 190 | 11 | 11 | 11 | 212 | 554 | 11 | 0 | 342 | 27 |
| Number of Lanes | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|----------------------------|----|------|------|------|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 2 | 1 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 2 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 1 | 1 | 2 |
| HCM Control Delay | 13 | 11.8 | 41.1 | 21.4 |
| HCM LOS | B | B | E | C |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | SBLn1 |
|------------------------|-------|-------|-------|-------|-------|-------|
| Vol Left, % | 100% | 0% | 64% | 0% | 33% | 0% |
| Vol Thru, % | 0% | 98% | 36% | 0% | 33% | 93% |
| Vol Right, % | 0% | 2% | 0% | 100% | 33% | 7% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 195 | 520 | 55 | 175 | 30 | 340 |
| LT Vol | 195 | 0 | 35 | 0 | 10 | 0 |
| Through Vol | 0 | 510 | 20 | 0 | 10 | 315 |
| RT Vol | 0 | 10 | 0 | 175 | 10 | 25 |
| Lane Flow Rate | 212 | 565 | 60 | 190 | 33 | 370 |
| Geometry Grp | 7 | 7 | 7 | 7 | 6 | 6 |
| Degree of Util (X) | 0.389 | 0.956 | 0.13 | 0.359 | 0.073 | 0.663 |
| Departure Headway (Hd) | 6.613 | 6.092 | 7.84 | 6.796 | 8.113 | 6.458 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 543 | 593 | 456 | 527 | 444 | 558 |
| Service Time | 4.378 | 3.857 | 5.621 | 4.576 | 6.113 | 4.527 |
| HCM Lane V/C Ratio | 0.39 | 0.953 | 0.132 | 0.361 | 0.074 | 0.663 |
| HCM Control Delay | 13.6 | 51.4 | 11.8 | 13.4 | 11.8 | 21.4 |
| HCM Lane LOS | B | F | B | B | B | C |
| HCM 95th-tile Q | 1.8 | 13 | 0.4 | 1.6 | 0.2 | 4.9 |

| Intersection | |
|---------------------------|-----|
| Intersection Delay, s/veh | 8.7 |
| Intersection LOS | A |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---------------------|------|------|------|------|------|------|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 50 | 60 | 80 | 130 | 55 | 70 |
| Future Vol, veh/h | 50 | 60 | 80 | 130 | 55 | 70 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 5 | 5 | 3 | 3 | 5 | 5 |
| Mvmt Flow | 54 | 65 | 87 | 141 | 60 | 76 |
| Number of Lanes | 1 | 0 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB |
|----------------------------|-----|-----|-----|
| Opposing Approach | WB | EB | |
| Opposing Lanes | 1 | 1 | 0 |
| Conflicting Approach Left | | NB | EB |
| Conflicting Lanes Left | 0 | 1 | 1 |
| Conflicting Approach Right | NB | | WB |
| Conflicting Lanes Right | 1 | 0 | 1 |
| HCM Control Delay | 7.9 | 9.3 | 8.5 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 |
|------------------------|-------|-------|-------|
| Vol Left, % | 44% | 0% | 38% |
| Vol Thru, % | 0% | 45% | 62% |
| Vol Right, % | 56% | 55% | 0% |
| Sign Control | Stop | Stop | Stop |
| Traffic Vol by Lane | 125 | 110 | 210 |
| LT Vol | 55 | 0 | 80 |
| Through Vol | 0 | 50 | 130 |
| RT Vol | 70 | 60 | 0 |
| Lane Flow Rate | 136 | 120 | 228 |
| Geometry Grp | 1 | 1 | 1 |
| Degree of Util (X) | 0.17 | 0.14 | 0.283 |
| Departure Headway (Hd) | 4.513 | 4.227 | 4.471 |
| Convergence, Y/N | Yes | Yes | Yes |
| Cap | 796 | 849 | 806 |
| Service Time | 2.535 | 2.248 | 2.49 |
| HCM Lane V/C Ratio | 0.171 | 0.141 | 0.283 |
| HCM Control Delay | 8.5 | 7.9 | 9.3 |
| HCM Lane LOS | A | A | A |
| HCM 95th-tile Q | 0.6 | 0.5 | 1.2 |

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 0 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 0 | 10 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 10 | 0 | 0 |
| Future Vol, veh/h | 0 | 10 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 10 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 33 | 33 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 14 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 14 | 0 | 0 |

| Major/Minor | Minor2 | | Minor1 | | Major1 | | | Major2 | | | |
|----------------------|--------|-----|--------|-----|--------|-----|-------|--------|---|-----|---|
| Conflicting Flow All | 42 | 28 | 0 | 35 | 28 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stage 1 | 28 | 28 | - | 0 | 0 | - | - | - | - | - | - |
| Stage 2 | 14 | 0 | - | 35 | 28 | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.43 | - | - | 4.1 | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.3 | 2.497 | - | - | 2.2 | - |
| Pot Cap-1 Maneuver | 966 | 869 | - | 976 | 869 | - | - | - | - | - | - |
| Stage 1 | 994 | 876 | - | - | - | - | - | - | - | - | - |
| Stage 2 | 1011 | - | - | 986 | 876 | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | | | | |
| Mov Cap-1 Maneuver | - | 869 | - | - | 869 | - | - | - | - | - | - |
| Mov Cap-2 Maneuver | - | 869 | - | - | 869 | - | - | - | - | - | - |
| Stage 1 | 994 | 876 | - | - | - | - | - | - | - | - | - |
| Stage 2 | 1011 | - | - | 970 | 876 | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|----------------------|----|----|----|----|
| HCM Control Delay, s | | | 0 | |
| HCM LOS | - | - | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1WBLn1 | SBL | SBT | SBR |
|-----------------------|-----|-----|-----|------------|-----|-----|-----|
| Capacity (veh/h) | - | - | - | - | - | - | - |
| HCM Lane V/C Ratio | - | - | - | - | - | - | - |
| HCM Control Delay (s) | 0 | - | - | - | - | - | - |
| HCM Lane LOS | A | - | - | - | - | - | - |
| HCM 95th %tile Q(veh) | - | - | - | - | - | - | - |

HCM Signalized Intersection Capacity Analysis
 19: Deadwood/Shine & Upper Main/Lower Main

12/02/2020



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|------|------|-------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 20 | 85 | 20 | 85 | 175 | 10 | 25 | 25 | 25 | 10 | 30 | 10 |
| Future Volume (vph) | 20 | 85 | 20 | 85 | 175 | 10 | 25 | 25 | 25 | 10 | 30 | 10 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frbp, ped/bikes | | 0.99 | | | 0.99 | | | 0.93 | | | 0.97 | |
| Flpb, ped/bikes | | 0.99 | | | 0.99 | | | 0.96 | | | 0.96 | |
| Frt | | 0.98 | | | 0.99 | | | 0.95 | | | 0.97 | |
| Flt Protected | | 0.99 | | | 0.98 | | | 0.98 | | | 0.99 | |
| Satd. Flow (prot) | | 1587 | | | 1575 | | | 1398 | | | 1526 | |
| Flt Permitted | | 0.91 | | | 0.85 | | | 0.87 | | | 0.91 | |
| Satd. Flow (perm) | | 1454 | | | 1353 | | | 1233 | | | 1401 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 22 | 92 | 22 | 92 | 190 | 11 | 27 | 27 | 27 | 11 | 33 | 11 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 136 | 0 | 0 | 293 | 0 | 0 | 81 | 0 | 0 | 55 | 0 |
| Confl. Peds. (#/hr) | 133 | | 52 | 52 | | 133 | 153 | | 217 | 217 | | 153 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 4% | 4% | 4% | 1% | 1% | 1% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | 2 | | | 6 | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 11.0 | | | 11.0 | | | 4.6 | | | 4.6 | |
| Effective Green, g (s) | | 11.0 | | | 11.0 | | | 4.6 | | | 4.6 | |
| Actuated g/C Ratio | | 0.41 | | | 0.41 | | | 0.17 | | | 0.17 | |
| Clearance Time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 601 | | | 559 | | | 213 | | | 242 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.09 | | | 0.22 | | | 0.07 | | | 0.04 | |
| v/c Ratio | | 0.23 | | | 0.52 | | | 0.38 | | | 0.23 | |
| Uniform Delay, d1 | | 5.0 | | | 5.8 | | | 9.7 | | | 9.5 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.2 | | | 0.9 | | | 1.1 | | | 0.5 | |
| Delay (s) | | 5.2 | | | 6.7 | | | 10.9 | | | 10.0 | |
| Level of Service | | A | | | A | | | B | | | A | |
| Approach Delay (s) | | 5.2 | | | 6.7 | | | 10.9 | | | 10.0 | |
| Approach LOS | | A | | | A | | | B | | | A | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 7.3 | | | | | | | | | |
| HCM 2000 Volume to Capacity ratio | | | 0.48 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 26.6 | | | | | | | | | |
| Intersection Capacity Utilization | | | 44.0% | | | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

No Build AM

2050

HCM Unsignalized Intersection Capacity Analysis

1: US 14A & Upper Main

12/02/2020



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|------|
| Lane Configurations | | ↑↑ | ↑ | | | ↗ |
| Traffic Volume (veh/h) | 0 | 585 | 620 | 0 | 0 | 20 |
| Future Volume (Veh/h) | 0 | 585 | 620 | 0 | 0 | 20 |
| Sign Control | | Free | Free | | Yield | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 636 | 674 | 0 | 0 | 22 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 674 | | | | 992 | 674 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 674 | | | | 992 | 674 |
| tC, single (s) | 4.2 | | | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 100 | 95 |
| cM capacity (veh/h) | 893 | | | | 246 | 402 |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 | | |
| Volume Total | 318 | 318 | 674 | 22 | | |
| Volume Left | 0 | 0 | 0 | 0 | | |
| Volume Right | 0 | 0 | 0 | 22 | | |
| cSH | 1700 | 1700 | 1700 | 402 | | |
| Volume to Capacity | 0.19 | 0.19 | 0.40 | 0.05 | | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 4 | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 14.5 | | |
| Lane LOS | | | | B | | |
| Approach Delay (s) | 0.0 | | 0.0 | 14.5 | | |
| Approach LOS | | | | B | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.2 | | | |
| Intersection Capacity Utilization | | | 46.5% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.6 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 50 | 535 | 620 | 20 | 10 | 0 |
| Future Vol, veh/h | 50 | 535 | 620 | 20 | 10 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 5 | 5 | 8 | 8 | 0 | 0 |
| Mvmt Flow | 54 | 582 | 674 | 22 | 11 | 0 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|----------|
| Conflicting Flow All | 696 | 0 | - | 0 | 1084 685 |
| Stage 1 | - | - | - | - | 685 - |
| Stage 2 | - | - | - | - | 399 - |
| Critical Hdwy | 4.175 | - | - | - | 6.6 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.8 - |
| Follow-up Hdwy | 2.2475 | - | - | - | 3.5 3.3 |
| Pot Cap-1 Maneuver | 881 | - | - | - | 228 452 |
| Stage 1 | - | - | - | - | 504 - |
| Stage 2 | - | - | - | - | 652 - |
| Platoon blocked, % | | - | - | - | |
| Mov Cap-1 Maneuver | 881 | - | - | - | 214 452 |
| Mov Cap-2 Maneuver | - | - | - | - | 214 - |
| Stage 1 | - | - | - | - | 473 - |
| Stage 2 | - | - | - | - | 652 - |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.8 | 0 | 22.7 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 881 | - | - | - | 214 |
| HCM Lane V/C Ratio | 0.062 | - | - | - | 0.051 |
| HCM Control Delay (s) | 9.4 | - | - | - | 22.7 |
| HCM Lane LOS | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | 0.2 |

| Intersection | | | | | | |
|--------------------------|--------|--------|--------|------|-------|-------|
| Int Delay, s/veh | 3.2 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | ↑↑ | | ↑↑ | |
| Traffic Vol, veh/h | 105 | 440 | 610 | 85 | 50 | 30 |
| Future Vol, veh/h | 105 | 440 | 610 | 85 | 50 | 30 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 7 | 7 | 10 | 10 |
| Mvmt Flow | 114 | 478 | 663 | 92 | 54 | 33 |
| Major/Minor | Major1 | Major2 | Minor2 | | | |
| Conflicting Flow All | 755 | 0 | - | 0 | 1176 | 378 |
| Stage 1 | - | - | - | - | 709 | - |
| Stage 2 | - | - | - | - | 467 | - |
| Critical Hdwy | 4.22 | - | - | - | 7 | 7.1 |
| Critical Hdwy Stg 1 | - | - | - | - | 6 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 6 | - |
| Follow-up Hdwy | 2.26 | - | - | - | 3.6 | 3.4 |
| Pot Cap-1 Maneuver | 825 | - | - | - | 173 | 597 |
| Stage 1 | - | - | - | - | 428 | - |
| Stage 2 | - | - | - | - | 575 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 825 | - | - | - | 140 | 597 |
| Mov Cap-2 Maneuver | - | - | - | - | 140 | - |
| Stage 1 | - | - | - | - | 348 | - |
| Stage 2 | - | - | - | - | 575 | - |
| Approach | EB | WB | SB | | | |
| HCM Control Delay, s | 2.4 | 0 | 37.2 | | | |
| HCM LOS | | | E | | | |
| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | |
| Capacity (veh/h) | 825 | - | - | - | - | 196 |
| HCM Lane V/C Ratio | 0.138 | - | - | - | - | 0.444 |
| HCM Control Delay (s) | 10.1 | 0.6 | - | - | - | 37.2 |
| HCM Lane LOS | B | A | - | - | - | E |
| HCM 95th %tile Q(veh) | 0.5 | - | - | - | - | 2.1 |

HCM Signalized Intersection Capacity Analysis

4: Pine & US 14A

12/02/2020



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|-------|-------|-------|-------|-------|------|---------------------------|------|------|------|-------|------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | ↗ | ↘ | | | ↕↕ | |
| Traffic Volume (vph) | 30 | 330 | 135 | 125 | 480 | 20 | 105 | 75 | 60 | 70 | 115 | 115 |
| Future Volume (vph) | 30 | 330 | 135 | 125 | 480 | 20 | 105 | 75 | 60 | 70 | 115 | 115 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | | 5.5 | | | 6.0 | | 6.5 | 6.5 | | | 6.5 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | 1.00 | 1.00 | | | 1.00 | |
| Frbp, ped/bikes | | 0.99 | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 0.96 | | | 1.00 | | 1.00 | 0.93 | | | 0.95 | |
| Flt Protected | | 1.00 | | | 0.99 | | 0.95 | 1.00 | | | 0.99 | |
| Satd. Flow (prot) | | 2889 | | | 2837 | | 1455 | 1430 | | | 1562 | |
| Flt Permitted | | 1.00 | | | 0.99 | | 0.48 | 1.00 | | | 0.88 | |
| Satd. Flow (perm) | | 2889 | | | 2837 | | 730 | 1430 | | | 1386 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 33 | 359 | 147 | 136 | 522 | 22 | 114 | 82 | 65 | 76 | 125 | 125 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 539 | 0 | 0 | 680 | 0 | 114 | 147 | 0 | 0 | 326 | 0 |
| Confl. Peds. (#/hr) | | | 7 | | | 14 | | | | | | |
| Heavy Vehicles (%) | 6% | 6% | 6% | 12% | 12% | 12% | 11% | 11% | 11% | 2% | 2% | 2% |
| Turn Type | Split | NA | | Split | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 2 | 2 | | 1 | 1 | | | 4 | | | 4 | |
| Permitted Phases | | | | | | | 4 | | | 4 | | |
| Actuated Green, G (s) | | 16.1 | | | 19.7 | | 21.2 | 21.2 | | | 21.2 | |
| Effective Green, g (s) | | 16.1 | | | 19.7 | | 21.2 | 21.2 | | | 21.2 | |
| Actuated g/C Ratio | | 0.21 | | | 0.26 | | 0.28 | 0.28 | | | 0.28 | |
| Clearance Time (s) | | 5.5 | | | 6.0 | | 6.5 | 6.5 | | | 6.5 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 620 | | | 745 | | 206 | 404 | | | 391 | |
| v/s Ratio Prot | | c0.19 | | | c0.24 | | | 0.10 | | | | |
| v/s Ratio Perm | | | | | | | 0.16 | | | | c0.24 | |
| v/c Ratio | | 0.87 | | | 0.91 | | 0.55 | 0.36 | | | 0.83 | |
| Uniform Delay, d1 | | 28.4 | | | 26.8 | | 22.9 | 21.5 | | | 25.2 | |
| Progression Factor | | 1.00 | | | 1.11 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 12.4 | | | 16.4 | | 3.2 | 0.6 | | | 14.1 | |
| Delay (s) | | 40.8 | | | 46.1 | | 26.1 | 22.1 | | | 39.4 | |
| Level of Service | | D | | | D | | C | C | | | D | |
| Approach Delay (s) | | 40.8 | | | 46.1 | | | 23.8 | | | 39.4 | |
| Approach LOS | | D | | | D | | | C | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 40.1 | | | | HCM 2000 Level of Service | | | | D | |
| HCM 2000 Volume to Capacity ratio | | | 0.87 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 75.0 | | | | Sum of lost time (s) | | | 18.0 | | |
| Intersection Capacity Utilization | | | 84.3% | | | | ICU Level of Service | | | E | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Deadwood & US 14A

12/02/2020



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|------|------|------|-------|------|------|------|------|------|-------|------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 20 | 420 | 10 | 70 | 545 | 50 | 20 | 60 | 10 | 20 | 75 | 60 |
| Future Volume (vph) | 20 | 420 | 10 | 70 | 545 | 50 | 20 | 60 | 10 | 20 | 75 | 60 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | | 1.00 | |
| Frbp, ped/bikes | | 1.00 | | | 0.99 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 0.99 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.99 | | | 0.98 | | | 0.95 | |
| Flt Protected | | 1.00 | | | 0.99 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 2829 | | | 2846 | | | 1647 | | | 1537 | |
| Flt Permitted | | 0.91 | | | 0.85 | | | 0.91 | | | 0.95 | |
| Satd. Flow (perm) | | 2585 | | | 2418 | | | 1523 | | | 1467 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 22 | 457 | 11 | 76 | 592 | 54 | 22 | 65 | 11 | 22 | 82 | 65 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 490 | 0 | 0 | 722 | 0 | 0 | 98 | 0 | 0 | 169 | 0 |
| Confl. Peds. (#/hr) | 29 | | 52 | 52 | | 29 | 16 | | 15 | 15 | | 16 |
| Heavy Vehicles (%) | 13% | 13% | 13% | 10% | 10% | 10% | 0% | 0% | 0% | 3% | 3% | 3% |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | 2 | | | 6 | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 50.2 | | | 50.2 | | | 13.8 | | | 13.8 | |
| Effective Green, g (s) | | 50.2 | | | 50.2 | | | 13.8 | | | 13.8 | |
| Actuated g/C Ratio | | 0.67 | | | 0.67 | | | 0.18 | | | 0.18 | |
| Clearance Time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 1730 | | | 1618 | | | 280 | | | 269 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.19 | | | c0.30 | | | 0.06 | | | c0.12 | |
| v/c Ratio | | 0.28 | | | 0.45 | | | 0.35 | | | 0.63 | |
| Uniform Delay, d1 | | 5.1 | | | 5.8 | | | 26.7 | | | 28.2 | |
| Progression Factor | | 0.52 | | | 0.50 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.3 | | | 0.8 | | | 0.8 | | | 4.5 | |
| Delay (s) | | 2.9 | | | 3.7 | | | 27.4 | | | 32.8 | |
| Level of Service | | A | | | A | | | C | | | C | |
| Approach Delay (s) | | 2.9 | | | 3.7 | | | 27.4 | | | 32.8 | |
| Approach LOS | | A | | | A | | | C | | | C | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 8.3 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 75.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 64.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|-------|------|
| Int Delay, s/veh | 19.8 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↔ | | | ↔ | | | ↔ | | | | |
| Traffic Vol, veh/h | 10 | 440 | 10 | 470 | 635 | 30 | 10 | 10 | 10 | 0 | 0 | 0 |
| Future Vol, veh/h | 10 | 440 | 10 | 470 | 635 | 30 | 10 | 10 | 10 | 0 | 0 | 0 |
| Conflicting Peds, #/hr | 31 | 0 | 11 | 11 | 0 | 31 | 6 | 0 | 4 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 10 | 10 | 10 | 8 | 8 | 8 | 0 | 0 | 0 | 2 | 2 | 2 |
| Mvmt Flow | 11 | 478 | 11 | 511 | 690 | 33 | 11 | 11 | 11 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|----------------------|--------|---|---|--------|---|---|--------|------|-----|
| Conflicting Flow All | 754 | 0 | 0 | 500 | 0 | 0 | 1890 | 2293 | 260 |
| Stage 1 | - | - | - | - | - | - | 517 | 517 | - |
| Stage 2 | - | - | - | - | - | - | 1373 | 1776 | - |
| Critical Hdwy | 4.3 | - | - | 4.26 | - | - | 6.8 | 6.5 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Follow-up Hdwy | 2.3 | - | - | 2.28 | - | - | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 801 | - | - | 1019 | - | - | 63 | 40 | 745 |
| Stage 1 | - | - | - | - | - | - | 569 | 537 | - |
| Stage 2 | - | - | - | - | - | - | 204 | 137 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 801 | - | - | 1008 | - | - | ~ 9 | 0 | 734 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | ~ 9 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 552 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 30 | 0 | - |

| Approach | EB | WB | NB |
|----------------------|-----|-----|----------|
| HCM Control Delay, s | 0.3 | 6.2 | \$ 830.8 |
| HCM LOS | | | F |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|----------|-------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 18 | 801 | - | - | 1008 | - | - |
| HCM Lane V/C Ratio | 1.812 | 0.014 | - | - | 0.507 | - | - |
| HCM Control Delay (s) | \$ 830.8 | 9.6 | 0.1 | - | 12.2 | 2.1 | - |
| HCM Lane LOS | F | A | A | - | B | A | - |
| HCM 95th %tile Q(veh) | 4.5 | 0 | - | - | 2.9 | - | - |

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

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 3.4 | | | | | |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑↑ | | | ↑↑ | ↘ | ↘ |
| Traffic Vol, veh/h | 440 | 0 | 0 | 1110 | 20 | 395 |
| Future Vol, veh/h | 440 | 0 | 0 | 1110 | 20 | 395 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 12 | 12 | 8 | 8 | 2 | 2 |
| Mvmt Flow | 478 | 0 | 0 | 1207 | 22 | 429 |

| Major/Minor | Major1 | Major2 | Minor1 | | |
|----------------------|--------|--------|--------|---|-----------|
| Conflicting Flow All | 0 | - | - | - | 1082 239 |
| Stage 1 | - | - | - | - | 478 - |
| Stage 2 | - | - | - | - | 604 - |
| Critical Hdwy | - | - | - | - | 6.84 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.84 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.84 - |
| Follow-up Hdwy | - | - | - | - | 3.52 3.32 |
| Pot Cap-1 Maneuver | - | 0 | 0 | - | 212 762 |
| Stage 1 | - | 0 | 0 | - | 590 - |
| Stage 2 | - | 0 | 0 | - | 508 - |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | - | - | 212 762 |
| Mov Cap-2 Maneuver | - | - | - | - | 212 - |
| Stage 1 | - | - | - | - | 590 - |
| Stage 2 | - | - | - | - | 508 - |

| Approach | EB | WB | NB |
|----------------------|----|----|----|
| HCM Control Delay, s | 0 | 0 | 16 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | WBT |
|-----------------------|-------|-------|-----|-----|
| Capacity (veh/h) | 212 | 762 | - | - |
| HCM Lane V/C Ratio | 0.103 | 0.563 | - | - |
| HCM Control Delay (s) | 23.9 | 15.6 | - | - |
| HCM Lane LOS | C | C | - | - |
| HCM 95th %tile Q(veh) | 0.3 | 3.6 | - | - |

HCM 6th TWSC
8: Driveway/Wall & US 14A

12/02/2020

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|-------|------|
| Int Delay, s/veh | 1.2 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↔↔ | | | ↔↔ | | | ↔ | | | | |
| Traffic Vol, veh/h | 40 | 795 | 10 | 10 | 1105 | 20 | 10 | 0 | 10 | 0 | 0 | 0 |
| Future Vol, veh/h | 40 | 795 | 10 | 10 | 1105 | 20 | 10 | 0 | 10 | 0 | 0 | 0 |
| Conflicting Peds, #/hr | 4 | 0 | 53 | 53 | 0 | 4 | 21 | 0 | 50 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 6 | 9 | 9 | 9 | 0 | 0 | 0 | 2 | 2 | 2 |
| Mvmt Flow | 43 | 864 | 11 | 11 | 1201 | 22 | 11 | 0 | 11 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|----------------------|--------|---|---|--------|---|---|--------|------|-----|
| Conflicting Flow All | 1227 | 0 | 0 | 928 | 0 | 0 | 1653 | 2258 | 541 |
| Stage 1 | - | - | - | - | - | - | 1009 | 1009 | - |
| Stage 2 | - | - | - | - | - | - | 644 | 1249 | - |
| Critical Hdwy | 4.22 | - | - | 4.28 | - | - | 6.8 | 6.5 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Follow-up Hdwy | 2.26 | - | - | 2.29 | - | - | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 542 | - | - | 691 | - | - | 91 | 42 | 491 |
| Stage 1 | - | - | - | - | - | - | 318 | 320 | - |
| Stage 2 | - | - | - | - | - | - | 490 | 247 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 542 | - | - | 656 | - | - | 68 | 0 | 444 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 68 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 255 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 455 | 0 | - |

| Approach | EB | | | WB | | | NB | | |
|----------------------|-----|--|--|-----|--|--|------|--|--|
| HCM Control Delay, s | 1.4 | | | 0.4 | | | 42.3 | | |
| HCM LOS | | | | | | | E | | |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|-------|------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 118 | 542 | - | - | 656 | - | - |
| HCM Lane V/C Ratio | 0.184 | 0.08 | - | - | 0.017 | - | - |
| HCM Control Delay (s) | 42.3 | 12.2 | 0.9 | - | 10.6 | 0.3 | - |
| HCM Lane LOS | E | B | A | - | B | A | - |
| HCM 95th %tile Q(veh) | 0.6 | 0.3 | - | - | 0.1 | - | - |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.5 | | | | | |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑↑ | | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 795 | 10 | 0 | 1105 | 20 | 10 |
| Future Vol, veh/h | 795 | 10 | 0 | 1105 | 20 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 7 | 7 | 0 | 0 |
| Mvmt Flow | 864 | 11 | 0 | 1201 | 22 | 11 |

| Major/Minor | Major1 | Major2 | Minor1 | Minor2 | Minor3 |
|----------------------|--------|--------|--------|--------|--------|
| Conflicting Flow All | 0 | 0 | 875 | 0 | 1471 |
| Stage 1 | - | - | - | - | 870 |
| Stage 2 | - | - | - | - | 601 |
| Critical Hdwy | - | - | 4.24 | - | 6.8 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.8 |
| Critical Hdwy Stg 2 | - | - | - | - | 5.8 |
| Follow-up Hdwy | - | - | 2.27 | - | 3.5 |
| Pot Cap-1 Maneuver | - | - | 736 | - | 120 |
| Stage 1 | - | - | - | - | 375 |
| Stage 2 | - | - | - | - | 516 |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 736 | - | 120 |
| Mov Cap-2 Maneuver | - | - | - | - | 120 |
| Stage 1 | - | - | - | - | 375 |
| Stage 2 | - | - | - | - | 516 |
























| Approach | EB | WB | NB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 32.5 |
| HCM LOS | | | D |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|-----------------------|-------|-----|-----|-----|-----|
| Capacity (veh/h) | 163 | - | - | 736 | - |
| HCM Lane V/C Ratio | 0.2 | - | - | - | - |
| HCM Control Delay (s) | 32.5 | - | - | 0 | - |
| HCM Lane LOS | D | - | - | A | - |
| HCM 95th %tile Q(veh) | 0.7 | - | - | 0 | - |

HCM Signalized Intersection Capacity Analysis

10: Driveway/Lower Main & US 14A

12/18/2020

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|--|---|---|--|---|--|--|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |   | |  |   |  | |   | |  |  | |
| Traffic Volume (vph) | 20 | 785 | 0 | 10 | 1065 | 150 | 0 | 10 | 0 | 70 | 0 | 50 |
| Future Volume (vph) | 20 | 785 | 0 | 10 | 1065 | 150 | 0 | 10 | 0 | 70 | 0 | 50 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | 5.5 | | 5.5 | | 5.5 | 5.5 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | | 1.00 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1505 | 3019 | | 1504 | 3019 | 1313 | | 1133 | | 1579 | 1398 | |
| Flt Permitted | 0.22 | 1.00 | | 0.33 | 1.00 | 1.00 | | 1.00 | | 0.75 | 1.00 | |
| Satd. Flow (perm) | 355 | 3019 | | 515 | 3019 | 1313 | | 1133 | | 1247 | 1398 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 22 | 853 | 0 | 11 | 1158 | 163 | 0 | 11 | 0 | 76 | 0 | 54 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 22 | 853 | 0 | 11 | 1158 | 163 | 0 | 11 | 0 | 76 | 54 | 0 |
| Confl. Peds. (#/hr) | 16 | | 7 | 7 | | 16 | 1 | | 3 | 3 | | 1 |
| Heavy Vehicles (%) | 7% | 7% | 7% | 7% | 7% | 7% | 50% | 50% | 50% | 2% | 2% | 2% |
| Turn Type | Perm | NA | | Perm | NA | Perm | | NA | | Perm | NA | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | 2 | | | 6 | | 6 | 8 | | | 4 | | |
| Actuated Green, G (s) | 55.2 | 55.2 | | 55.2 | 55.2 | 55.2 | | 8.8 | | 8.8 | 8.8 | |
| Effective Green, g (s) | 55.2 | 55.2 | | 55.2 | 55.2 | 55.2 | | 8.8 | | 8.8 | 8.8 | |
| Actuated g/C Ratio | 0.74 | 0.74 | | 0.74 | 0.74 | 0.74 | | 0.12 | | 0.12 | 0.12 | |
| Clearance Time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | 5.5 | | 5.5 | | 5.5 | 5.5 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 261 | 2221 | | 379 | 2221 | 966 | | 132 | | 146 | 164 | |
| v/s Ratio Prot | | 0.28 | | | c0.38 | | | 0.01 | | | 0.04 | |
| v/s Ratio Perm | 0.06 | | | 0.02 | | 0.12 | | | | c0.06 | | |
| v/c Ratio | 0.08 | 0.38 | | 0.03 | 0.52 | 0.17 | | 0.08 | | 0.52 | 0.33 | |
| Uniform Delay, d1 | 2.8 | 3.6 | | 2.7 | 4.2 | 3.0 | | 29.5 | | 31.1 | 30.4 | |
| Progression Factor | 1.01 | 1.11 | | 0.98 | 0.85 | 0.98 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.6 | 0.5 | | 0.1 | 0.8 | 0.3 | | 0.3 | | 3.3 | 1.2 | |
| Delay (s) | 3.4 | 4.5 | | 2.8 | 4.4 | 3.3 | | 29.8 | | 34.4 | 31.6 | |
| Level of Service | A | A | | A | A | A | | C | | C | C | |
| Approach Delay (s) | | 4.5 | | | 4.2 | | | 29.8 | | | 33.2 | |
| Approach LOS | | A | | | A | | | C | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 6.1 | | | | | | | | | A |
| HCM 2000 Volume to Capacity ratio | | | 0.52 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 75.0 | | | | | | | 11.0 | | |
| Intersection Capacity Utilization | | | 53.4% | | | | | | | | | A |
| Analysis Period (min) | | | 15 | | | | | | | | | |

c Critical Lane Group

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 2.7 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ↵ | ↕ | | ↵ | ↕ | | | ↕ | | | ↕ | ↕ |
| Traffic Vol, veh/h | 10 | 840 | 10 | 40 | 1185 | 10 | 0 | 0 | 30 | 10 | 10 | 20 |
| Future Vol, veh/h | 10 | 840 | 10 | 40 | 1185 | 10 | 0 | 0 | 30 | 10 | 10 | 20 |
| Conflicting Peds, #/hr | 1 | 0 | 1 | 1 | 0 | 1 | 10 | 0 | 1 | 1 | 0 | 10 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 50 | - | - | 50 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 7 | 7 | 7 | 7 | 7 | 7 | 15 | 15 | 15 | 0 | 0 | 0 |
| Mvmt Flow | 11 | 913 | 11 | 43 | 1288 | 11 | 0 | 0 | 33 | 11 | 11 | 22 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|----------------------|--------|---|---|--------|---|---|--------|------|------|--------|------|-----|
| Conflicting Flow All | 1300 | 0 | 0 | 925 | 0 | 0 | 1688 | 2328 | 464 | 1861 | 2328 | 661 |
| Stage 1 | - | - | - | - | - | - | 942 | 942 | - | 1381 | 1381 | - |
| Stage 2 | - | - | - | - | - | - | 746 | 1386 | - | 480 | 947 | - |
| Critical Hdwy | 4.24 | - | - | 4.24 | - | - | 7.8 | 6.8 | 7.2 | 7.5 | 6.5 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.8 | 5.8 | - | 6.5 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.8 | 5.8 | - | 6.5 | 5.5 | - |
| Follow-up Hdwy | 2.27 | - | - | 2.27 | - | - | 3.65 | 4.15 | 3.45 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 503 | - | - | 704 | - | - | 53 | 31 | 511 | 46 | 38 | 410 |
| Stage 1 | - | - | - | - | - | - | 258 | 312 | - | 154 | 213 | - |
| Stage 2 | - | - | - | - | - | - | 344 | 186 | - | 541 | 342 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 503 | - | - | 703 | - | - | 35 | 28 | 510 | 40 | 35 | 406 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 35 | 28 | - | 40 | 35 | - |
| Stage 1 | - | - | - | - | - | - | 252 | 305 | - | 150 | 200 | - |
| Stage 2 | - | - | - | - | - | - | 286 | 174 | - | 495 | 334 | - |

| Approach | EB | | | WB | | | NB | | | SB | | |
|----------------------|-----|--|--|-----|--|--|------|--|--|-------|--|--|
| HCM Control Delay, s | 0.1 | | | 0.3 | | | 12.5 | | | 124.5 | | |
| HCM LOS | | | | | | | B | | | F | | |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h) | 510 | 503 | - | - | 703 | - | - | 68 |
| HCM Lane V/C Ratio | 0.064 | 0.022 | - | - | 0.062 | - | - | 0.639 |
| HCM Control Delay (s) | 12.5 | 12.3 | - | - | 10.5 | - | - | 124.5 |
| HCM Lane LOS | B | B | - | - | B | - | - | F |
| HCM 95th %tile Q(veh) | 0.2 | 0.1 | - | - | 0.2 | - | - | 2.8 |

HCM Signalized Intersection Capacity Analysis
 13: Dunlop/McKinley & US 14A

12/02/2020



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|------------------------|------|------|------|-------|-------|------|
| Lane Configurations | ↑↑ | | ↵ | ↑↑ | ↵ | |
| Traffic Volume (vph) | 850 | 30 | 10 | 1185 | 40 | 20 |
| Future Volume (vph) | 850 | 30 | 10 | 1185 | 40 | 20 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | 5.5 | | 5.5 | 5.5 | 5.0 | |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Frbp, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 0.99 | | 1.00 | 1.00 | 0.95 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.97 | |
| Satd. Flow (prot) | 3001 | | 1509 | 3019 | 1402 | |
| Flt Permitted | 1.00 | | 0.29 | 1.00 | 0.97 | |
| Satd. Flow (perm) | 3001 | | 467 | 3019 | 1402 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 924 | 33 | 11 | 1288 | 43 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 957 | 0 | 11 | 1288 | 65 | 0 |
| Confl. Peds. (#/hr) | | 3 | 3 | | 2 | |
| Heavy Vehicles (%) | 7% | 7% | 7% | 7% | 12% | 12% |
| Turn Type | NA | | Perm | NA | Prot | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 58.2 | | 58.2 | 58.2 | 6.3 | |
| Effective Green, g (s) | 58.2 | | 58.2 | 58.2 | 6.3 | |
| Actuated g/C Ratio | 0.78 | | 0.78 | 0.78 | 0.08 | |
| Clearance Time (s) | 5.5 | | 5.5 | 5.5 | 5.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 2328 | | 362 | 2342 | 117 | |
| v/s Ratio Prot | 0.32 | | | c0.43 | c0.05 | |
| v/s Ratio Perm | | | 0.02 | | | |
| v/c Ratio | 0.41 | | 0.03 | 0.55 | 0.56 | |
| Uniform Delay, d1 | 2.8 | | 1.9 | 3.3 | 33.0 | |
| Progression Factor | 0.55 | | 0.60 | 0.65 | 1.00 | |
| Incremental Delay, d2 | 0.5 | | 0.1 | 0.6 | 5.6 | |
| Delay (s) | 2.0 | | 1.3 | 2.7 | 38.6 | |
| Level of Service | A | | A | A | D | |
| Approach Delay (s) | 2.0 | | | 2.7 | 38.6 | |
| Approach LOS | A | | | A | D | |

Intersection Summary

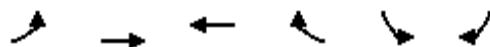
| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 3.4 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 75.0 | Sum of lost time (s) | 10.5 |
| Intersection Capacity Utilization | 52.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: US 14A & US 85

12/02/2020



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|------------------------|-------|------|-------|------|------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 490 | 375 | 470 | 95 | 70 | 730 |
| Future Volume (vph) | 490 | 375 | 470 | 95 | 70 | 730 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | 7.0 | 5.5 | 5.5 | | 7.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.98 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1468 | 1545 | 1510 | | 1482 | 1326 |
| Flt Permitted | 0.12 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (perm) | 181 | 1545 | 1510 | | 1482 | 1326 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 533 | 408 | 511 | 103 | 76 | 793 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 533 | 408 | 614 | 0 | 76 | 793 |
| Heavy Vehicles (%) | 10% | 10% | 10% | 10% | 9% | 9% |
| Turn Type | pm+pt | NA | NA | | Prot | Free |
| Protected Phases | 5 | 2 | 6 | | 4 | |
| Permitted Phases | 2 | | | | | Free |
| Actuated Green, G (s) | 57.7 | 57.7 | 27.1 | | 4.8 | 75.0 |
| Effective Green, g (s) | 57.7 | 57.7 | 27.1 | | 4.8 | 75.0 |
| Actuated g/C Ratio | 0.77 | 0.77 | 0.36 | | 0.06 | 1.00 |
| Clearance Time (s) | 7.0 | 5.5 | 5.5 | | 7.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 544 | 1188 | 545 | | 94 | 1326 |
| v/s Ratio Prot | c0.31 | 0.26 | c0.41 | | 0.05 | |
| v/s Ratio Perm | 0.44 | | | | | c0.60 |
| v/c Ratio | 0.98 | 0.34 | 1.13 | | 0.81 | 0.60 |
| Uniform Delay, d1 | 20.4 | 2.7 | 23.9 | | 34.6 | 0.0 |
| Progression Factor | 1.02 | 0.59 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 31.9 | 0.7 | 78.3 | | 38.1 | 2.0 |
| Delay (s) | 52.6 | 2.3 | 102.3 | | 72.8 | 2.0 |
| Level of Service | D | A | F | | E | A |
| Approach Delay (s) | | 30.8 | 102.3 | | 8.2 | |
| Approach LOS | | C | F | | A | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 40.8 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.10 | | |
| Actuated Cycle Length (s) | 75.0 | Sum of lost time (s) | 19.5 |
| Intersection Capacity Utilization | 84.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

HCM Signalized Intersection Capacity Analysis

15: Sherman & Cemetery/Van Buren

12/02/2020



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
|-----------------------------------|------|------|-------|------|-------|------|------|-------|------|-------|-------|---------------------------|------|
| Lane Configurations | | ↕ | | | ↕ | | | ↔ | | ↕ | ↕ | | |
| Traffic Volume (vph) | 10 | 0 | 0 | 20 | 0 | 50 | 0 | 655 | 20 | 60 | 720 | 0 | |
| Future Volume (vph) | 10 | 0 | 0 | 20 | 0 | 50 | 0 | 655 | 20 | 60 | 720 | 0 | |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | |
| Total Lost time (s) | | 5.5 | | | 5.5 | | | 5.5 | | 3.0 | 5.5 | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | |
| Frbp, ped/bikes | | 1.00 | | | 0.98 | | | 1.00 | | 1.00 | 1.00 | | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | |
| Frt | | 1.00 | | | 0.90 | | | 1.00 | | 1.00 | 1.00 | | |
| Flt Protected | | 0.95 | | | 0.99 | | | 1.00 | | 0.95 | 1.00 | | |
| Satd. Flow (prot) | | 1613 | | | 1459 | | | 1596 | | 1538 | 1619 | | |
| Flt Permitted | | 0.71 | | | 0.90 | | | 1.00 | | 0.25 | 1.00 | | |
| Satd. Flow (perm) | | 1201 | | | 1330 | | | 1596 | | 409 | 1619 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Adj. Flow (vph) | 11 | 0 | 0 | 22 | 0 | 54 | 0 | 712 | 22 | 65 | 783 | 0 | |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Lane Group Flow (vph) | 0 | 11 | 0 | 0 | 76 | 0 | 0 | 734 | 0 | 65 | 783 | 0 | |
| Confl. Peds. (#/hr) | 1 | | 6 | 6 | | 1 | 6 | | 4 | 4 | | 6 | |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 2% | 2% | 6% | 6% | 6% | 5% | 5% | 5% | |
| Turn Type | Perm | NA | | Perm | NA | | | NA | | pm+pt | NA | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | 1 | 6 | | |
| Permitted Phases | 4 | | | 8 | | | | | | 6 | | | |
| Actuated Green, G (s) | | 7.3 | | | 7.3 | | | 38.9 | | 45.3 | 45.3 | | |
| Effective Green, g (s) | | 7.3 | | | 7.3 | | | 38.9 | | 45.3 | 45.3 | | |
| Actuated g/C Ratio | | 0.11 | | | 0.11 | | | 0.61 | | 0.71 | 0.71 | | |
| Clearance Time (s) | | 5.5 | | | 5.5 | | | 5.5 | | 3.0 | 5.5 | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.2 | | 3.0 | 3.2 | | |
| Lane Grp Cap (vph) | | 137 | | | 152 | | | 976 | | 351 | 1153 | | |
| v/s Ratio Prot | | | | | | | | c0.46 | | 0.01 | c0.48 | | |
| v/s Ratio Perm | | 0.01 | | | c0.06 | | | | | 0.12 | | | |
| v/c Ratio | | 0.08 | | | 0.50 | | | 0.75 | | 0.19 | 0.68 | | |
| Uniform Delay, d1 | | 25.2 | | | 26.4 | | | 8.9 | | 4.6 | 5.1 | | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | |
| Incremental Delay, d2 | | 0.3 | | | 2.6 | | | 3.4 | | 0.3 | 1.6 | | |
| Delay (s) | | 25.4 | | | 29.0 | | | 12.2 | | 4.9 | 6.7 | | |
| Level of Service | | C | | | C | | | B | | A | A | | |
| Approach Delay (s) | | 25.4 | | | 29.0 | | | 12.2 | | | 6.6 | | |
| Approach LOS | | C | | | C | | | B | | | A | | |
| Intersection Summary | | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 10.2 | | | | | | | | | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | | | 0.72 | | | | | | | | | | |
| Actuated Cycle Length (s) | | | 63.6 | | | | | | | | | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | | | 62.4% | | | | | | | | | ICU Level of Service | B |
| Analysis Period (min) | | | 15 | | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | | |

Intersection

| | |
|---------------------------|------|
| Intersection Delay, s/veh | 71.8 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | ↔ | ↔ | | ↔ | | ↔ | ↔ | | | ↔ | |
| Traffic Vol, veh/h | 30 | 10 | 245 | 10 | 10 | 10 | 265 | 430 | 20 | 10 | 525 | 60 |
| Future Vol, veh/h | 30 | 10 | 245 | 10 | 10 | 10 | 265 | 430 | 20 | 10 | 525 | 60 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 9 | 9 | 9 | 13 | 13 | 13 | 5 | 5 | 5 | 2 | 2 | 2 |
| Mvmt Flow | 33 | 11 | 266 | 11 | 11 | 11 | 288 | 467 | 22 | 11 | 571 | 65 |
| Number of Lanes | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|----------------------------|------|------|------|-------|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 2 | 1 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 2 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 1 | 1 | 2 |
| HCM Control Delay | 17.9 | 13.7 | 37.8 | 141.4 |
| HCM LOS | C | B | E | F |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | SBLn1 |
|------------------------|-------|-------|-------|-------|-------|-------|
| Vol Left, % | 100% | 0% | 75% | 0% | 33% | 2% |
| Vol Thru, % | 0% | 96% | 25% | 0% | 33% | 88% |
| Vol Right, % | 0% | 4% | 0% | 100% | 33% | 10% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 265 | 450 | 40 | 245 | 30 | 595 |
| LT Vol | 265 | 0 | 30 | 0 | 10 | 10 |
| Through Vol | 0 | 430 | 10 | 0 | 10 | 525 |
| RT Vol | 0 | 20 | 0 | 245 | 10 | 60 |
| Lane Flow Rate | 288 | 489 | 43 | 266 | 33 | 647 |
| Geometry Grp | 7 | 7 | 7 | 7 | 6 | 6 |
| Degree of Util (X) | 0.581 | 0.915 | 0.1 | 0.535 | 0.082 | 1.228 |
| Departure Headway (Hd) | 7.654 | 7.108 | 8.773 | 7.657 | 9.831 | 6.833 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 475 | 514 | 411 | 474 | 367 | 530 |
| Service Time | 5.354 | 4.808 | 6.473 | 5.357 | 7.831 | 4.882 |
| HCM Lane V/C Ratio | 0.606 | 0.951 | 0.105 | 0.561 | 0.09 | 1.221 |
| HCM Control Delay | 20.4 | 48.1 | 12.4 | 18.8 | 13.7 | 141.4 |
| HCM Lane LOS | C | E | B | C | B | F |
| HCM 95th-tile Q | 3.6 | 10.8 | 0.3 | 3.1 | 0.3 | 24.7 |

| Intersection | |
|---------------------------|-----|
| Intersection Delay, s/veh | 8.4 |
| Intersection LOS | A |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---------------------|------|------|------|------|------|------|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 10 | 20 | 160 | 30 | 30 | 85 |
| Future Vol, veh/h | 10 | 20 | 160 | 30 | 30 | 85 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 0 | 0 | 2 | 2 | 6 | 6 |
| Mvmt Flow | 11 | 22 | 174 | 33 | 33 | 92 |
| Number of Lanes | 1 | 0 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB |
|----------------------------|-----|-----|-----|
| Opposing Approach | WB | EB | |
| Opposing Lanes | 1 | 1 | 0 |
| Conflicting Approach Left | | NB | EB |
| Conflicting Lanes Left | 0 | 1 | 1 |
| Conflicting Approach Right | NB | | WB |
| Conflicting Lanes Right | 1 | 0 | 1 |
| HCM Control Delay | 7.2 | 8.9 | 7.9 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 |
|------------------------|-------|-------|-------|
| Vol Left, % | 26% | 0% | 84% |
| Vol Thru, % | 0% | 33% | 16% |
| Vol Right, % | 74% | 67% | 0% |
| Sign Control | Stop | Stop | Stop |
| Traffic Vol by Lane | 115 | 30 | 190 |
| LT Vol | 30 | 0 | 160 |
| Through Vol | 0 | 10 | 30 |
| RT Vol | 85 | 20 | 0 |
| Lane Flow Rate | 125 | 33 | 207 |
| Geometry Grp | 1 | 1 | 1 |
| Degree of Util (X) | 0.144 | 0.036 | 0.249 |
| Departure Headway (Hd) | 4.158 | 3.996 | 4.347 |
| Convergence, Y/N | Yes | Yes | Yes |
| Cap | 868 | 899 | 818 |
| Service Time | 2.16 | 2.005 | 2.419 |
| HCM Lane V/C Ratio | 0.144 | 0.037 | 0.253 |
| HCM Control Delay | 7.9 | 7.2 | 8.9 |
| HCM Lane LOS | A | A | A |
| HCM 95th-tile Q | 0.5 | 0.1 | 1 |

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 5.4 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 0 | 10 | 0 | 0 | 10 | 10 | 0 | 10 | 0 | 0 | 0 | 10 |
| Future Vol, veh/h | 0 | 10 | 0 | 0 | 10 | 10 | 0 | 10 | 0 | 0 | 0 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| Heavy Vehicles, % | 0 | 0 | 0 | 10 | 10 | 10 | 22 | 22 | 22 | 16 | 16 | 16 |
| Mvmt Flow | 0 | 14 | 0 | 0 | 14 | 14 | 0 | 14 | 0 | 0 | 0 | 14 |

| Major/Minor | Minor2 | | Minor1 | | Major1 | | | Major2 | | | | |
|----------------------|--------|-----|--------|------|--------|------|-------|--------|---|-------|---|---|
| Conflicting Flow All | 35 | 21 | 7 | 28 | 28 | 14 | 14 | 0 | 0 | 14 | 0 | 0 |
| Stage 1 | 7 | 7 | - | 14 | 14 | - | - | - | - | - | - | - |
| Stage 2 | 28 | 14 | - | 14 | 14 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.2 | 6.6 | 6.3 | 4.32 | - | - | 4.26 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.2 | 5.6 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.2 | 5.6 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.59 | 4.09 | 3.39 | 2.398 | - | - | 2.344 | - | - |
| Pot Cap-1 Maneuver | 976 | 877 | 1081 | 961 | 850 | 1043 | 1483 | - | - | 1517 | - | - |
| Stage 1 | 1020 | 894 | - | 986 | 868 | - | - | - | - | - | - | - |
| Stage 2 | 994 | 888 | - | 986 | 868 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | - | - | - |
| Mov Cap-1 Maneuver | 951 | 877 | 1081 | 949 | 850 | 1043 | 1483 | - | - | 1517 | - | - |
| Mov Cap-2 Maneuver | 951 | 877 | - | 949 | 850 | - | - | - | - | - | - | - |
| Stage 1 | 1020 | 894 | - | 986 | 868 | - | - | - | - | - | - | - |
| Stage 2 | 964 | 888 | - | 970 | 868 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|----------------------|-----|----|----|----|
| HCM Control Delay, s | 9.2 | 9 | 0 | 0 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1WBLn1 | SBL | SBT | SBR |
|-----------------------|------|-----|-----|------------|------|------|-----|
| Capacity (veh/h) | 1483 | - | - | 877 | 937 | 1517 | - |
| HCM Lane V/C Ratio | - | - | - | 0.016 | 0.03 | - | - |
| HCM Control Delay (s) | 0 | - | - | 9.2 | 9 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0.1 | 0 | - |

HCM Signalized Intersection Capacity Analysis

19: Deadwood/Shine & Upper Main/Lower Main

12/02/2020



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
|-----------------------------------|------|------|-------|------|------|------|------|------|------|------|------|---------------------------|------|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | | |
| Traffic Volume (vph) | 10 | 40 | 50 | 60 | 95 | 10 | 75 | 30 | 20 | 10 | 40 | 20 | |
| Future Volume (vph) | 10 | 40 | 50 | 60 | 95 | 10 | 75 | 30 | 20 | 10 | 40 | 20 | |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | |
| Total Lost time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | | |
| Frb, ped/bikes | | 0.98 | | | 0.99 | | | 0.98 | | | 0.97 | | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.95 | | | 0.99 | | |
| Frt | | 0.93 | | | 0.99 | | | 0.98 | | | 0.96 | | |
| Flt Protected | | 0.99 | | | 0.98 | | | 0.97 | | | 0.99 | | |
| Satd. Flow (prot) | | 1488 | | | 1592 | | | 1450 | | | 1478 | | |
| Flt Permitted | | 0.95 | | | 0.84 | | | 0.77 | | | 0.92 | | |
| Satd. Flow (perm) | | 1421 | | | 1354 | | | 1154 | | | 1371 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Adj. Flow (vph) | 11 | 43 | 54 | 65 | 103 | 11 | 82 | 33 | 22 | 11 | 43 | 22 | |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Lane Group Flow (vph) | 0 | 108 | 0 | 0 | 179 | 0 | 0 | 137 | 0 | 0 | 76 | 0 | |
| Confl. Peds. (#/hr) | 59 | | 17 | 17 | | 59 | 95 | | 127 | 127 | | 95 | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 3% | 3% | 3% | 4% | 4% | 4% | 5% | 5% | 5% | |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | | |
| Permitted Phases | 2 | | | 6 | | | 8 | | | 4 | | | |
| Actuated Green, G (s) | | 8.7 | | | 8.7 | | | 5.4 | | | 5.4 | | |
| Effective Green, g (s) | | 8.7 | | | 8.7 | | | 5.4 | | | 5.4 | | |
| Actuated g/C Ratio | | 0.35 | | | 0.35 | | | 0.22 | | | 0.22 | | |
| Clearance Time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | | |
| Lane Grp Cap (vph) | | 492 | | | 469 | | | 248 | | | 294 | | |
| v/s Ratio Prot | | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.08 | | | 0.13 | | | 0.12 | | | 0.06 | | |
| v/c Ratio | | 0.22 | | | 0.38 | | | 0.55 | | | 0.26 | | |
| Uniform Delay, d1 | | 5.8 | | | 6.2 | | | 8.8 | | | 8.2 | | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | | |
| Incremental Delay, d2 | | 0.2 | | | 0.5 | | | 2.7 | | | 0.5 | | |
| Delay (s) | | 6.0 | | | 6.7 | | | 11.4 | | | 8.7 | | |
| Level of Service | | A | | | A | | | B | | | A | | |
| Approach Delay (s) | | 6.0 | | | 6.7 | | | 11.4 | | | 8.7 | | |
| Approach LOS | | A | | | A | | | B | | | A | | |
| Intersection Summary | | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 8.1 | | | | | | | | | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | | | 0.45 | | | | | | | | | | |
| Actuated Cycle Length (s) | | | 25.1 | | | | | | | | | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | | | 41.6% | | | | | | | | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | | |

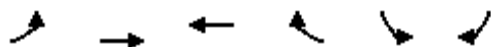
No Build PM

2050

HCM Unsignalized Intersection Capacity Analysis

1: US 14A & Upper Main

12/02/2020



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations | | ↑↑ | ↑ | | | ↗ |
| Traffic Volume (veh/h) | 0 | 655 | 560 | 0 | 0 | 60 |
| Future Volume (Veh/h) | 0 | 655 | 560 | 0 | 0 | 60 |
| Sign Control | | Free | Free | | Yield | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 712 | 609 | 0 | 0 | 65 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 609 | | | | 965 | 609 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 609 | | | | 965 | 609 |
| tC, single (s) | 4.2 | | | | 6.9 | 7.0 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.3 | | | | 3.6 | 3.4 |
| p0 queue free % | 100 | | | | 100 | 85 |
| cM capacity (veh/h) | 939 | | | | 246 | 428 |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 | | |
| Volume Total | 356 | 356 | 609 | 65 | | |
| Volume Left | 0 | 0 | 0 | 0 | | |
| Volume Right | 0 | 0 | 0 | 65 | | |
| cSH | 1700 | 1700 | 1700 | 428 | | |
| Volume to Capacity | 0.21 | 0.21 | 0.36 | 0.15 | | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 13 | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 14.9 | | |
| Lane LOS | | | | B | | |
| Approach Delay (s) | 0.0 | | 0.0 | 14.9 | | |
| Approach LOS | | | | B | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.7 | | | |
| Intersection Capacity Utilization | | | 43.8% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 1.1 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 20 | 635 | 560 | 10 | 50 | 0 |
| Future Vol, veh/h | 20 | 635 | 560 | 10 | 50 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 3 | 3 | 6 | 6 |
| Mvmt Flow | 22 | 690 | 609 | 11 | 54 | 0 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|-------------|
| Conflicting Flow All | 620 | 0 | - | 0 | 1004 615 |
| Stage 1 | - | - | - | - | 615 - |
| Stage 2 | - | - | - | - | 389 - |
| Critical Hdwy | 4.19 | - | - | - | 6.69 6.29 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.49 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.89 - |
| Follow-up Hdwy | 2.257 | - | - | - | 3.557 3.357 |
| Pot Cap-1 Maneuver | 936 | - | - | - | 247 481 |
| Stage 1 | - | - | - | - | 529 - |
| Stage 2 | - | - | - | - | 645 - |
| Platoon blocked, % | | - | - | - | |
| Mov Cap-1 Maneuver | 936 | - | - | - | 241 481 |
| Mov Cap-2 Maneuver | - | - | - | - | 241 - |
| Stage 1 | - | - | - | - | 516 - |
| Stage 2 | - | - | - | - | 645 - |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.3 | 0 | 24.2 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 936 | - | - | - | 241 |
| HCM Lane V/C Ratio | 0.023 | - | - | - | 0.226 |
| HCM Control Delay (s) | 8.9 | - | - | - | 24.2 |
| HCM Lane LOS | A | - | - | - | C |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.8 |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 3 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | ↑↑ | | ↑↑ | |
| Traffic Vol, veh/h | 40 | 645 | 515 | 20 | 75 | 60 |
| Future Vol, veh/h | 40 | 645 | 515 | 20 | 75 | 60 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 6 | 6 | 3 | 3 | 4 | 4 |
| Mvmt Flow | 43 | 701 | 560 | 22 | 82 | 65 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|-----------|
| Conflicting Flow All | 582 | 0 | - | 0 | 1008 291 |
| Stage 1 | - | - | - | - | 571 - |
| Stage 2 | - | - | - | - | 437 - |
| Critical Hdwy | 4.22 | - | - | - | 6.88 6.98 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.88 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.88 - |
| Follow-up Hdwy | 2.26 | - | - | - | 3.54 3.34 |
| Pot Cap-1 Maneuver | 961 | - | - | - | 233 700 |
| Stage 1 | - | - | - | - | 523 - |
| Stage 2 | - | - | - | - | 613 - |
| Platoon blocked, % | | - | - | - | |
| Mov Cap-1 Maneuver | 961 | - | - | - | 216 700 |
| Mov Cap-2 Maneuver | - | - | - | - | 216 - |
| Stage 1 | - | - | - | - | 485 - |
| Stage 2 | - | - | - | - | 613 - |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.8 | 0 | 26.4 |
| HCM LOS | | | D |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 961 | - | - | - | 312 |
| HCM Lane V/C Ratio | 0.045 | - | - | - | 0.47 |
| HCM Control Delay (s) | 8.9 | 0.3 | - | - | 26.4 |
| HCM Lane LOS | A | A | - | - | D |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 2.4 |

HCM Signalized Intersection Capacity Analysis

4: Pine & US 14A

12/02/2020



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|-------|-------|--------|-------|-------|------|---------------------------|------|------|------|-------|------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | ↕ | ↕ | | | ↕↕ | |
| Traffic Volume (vph) | 30 | 560 | 140 | 115 | 385 | 40 | 115 | 135 | 85 | 85 | 140 | 40 |
| Future Volume (vph) | 30 | 560 | 140 | 115 | 385 | 40 | 115 | 135 | 85 | 85 | 140 | 40 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | | 5.5 | | | 6.0 | | 6.5 | 6.5 | | | 6.5 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | 1.00 | 1.00 | | | 1.00 | |
| Frbp, ped/bikes | | 0.99 | | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 0.99 | 1.00 | | | 1.00 | |
| Frt | | 0.97 | | | 0.99 | | 1.00 | 0.94 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 0.99 | | 0.95 | 1.00 | | | 0.98 | |
| Satd. Flow (prot) | | 2937 | | | 2980 | | 1521 | 1509 | | | 1579 | |
| Flt Permitted | | 1.00 | | | 0.99 | | 0.53 | 1.00 | | | 0.74 | |
| Satd. Flow (perm) | | 2937 | | | 2980 | | 854 | 1509 | | | 1183 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 33 | 609 | 152 | 125 | 418 | 43 | 125 | 147 | 92 | 92 | 152 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 794 | 0 | 0 | 586 | 0 | 125 | 239 | 0 | 0 | 287 | 0 |
| Confl. Peds. (#/hr) | | | 36 | | | 61 | 24 | | 21 | 21 | | 24 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 3% | 3% | 3% |
| Turn Type | Split | NA | | Split | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 2 | 2 | | 1 | 1 | | | 4 | | | | 4 |
| Permitted Phases | | | | | | | 4 | | | 4 | | |
| Actuated Green, G (s) | | 17.1 | | | 18.6 | | 21.3 | 21.3 | | | 21.3 | |
| Effective Green, g (s) | | 17.1 | | | 18.6 | | 21.3 | 21.3 | | | 21.3 | |
| Actuated g/C Ratio | | 0.23 | | | 0.25 | | 0.28 | 0.28 | | | 0.28 | |
| Clearance Time (s) | | 5.5 | | | 6.0 | | 6.5 | 6.5 | | | 6.5 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 669 | | | 739 | | 242 | 428 | | | 335 | |
| v/s Ratio Prot | | c0.27 | | | c0.20 | | | 0.16 | | | | |
| v/s Ratio Perm | | | | | | | 0.15 | | | | c0.24 | |
| v/c Ratio | | 1.19 | | | 0.79 | | 0.52 | 0.56 | | | 0.86 | |
| Uniform Delay, d1 | | 28.9 | | | 26.4 | | 22.5 | 22.8 | | | 25.4 | |
| Progression Factor | | 1.00 | | | 1.05 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 98.6 | | | 7.8 | | 1.9 | 1.6 | | | 18.9 | |
| Delay (s) | | 127.6 | | | 35.5 | | 24.4 | 24.4 | | | 44.3 | |
| Level of Service | | F | | | D | | C | C | | | D | |
| Approach Delay (s) | | 127.6 | | | 35.5 | | | 24.4 | | | 44.3 | |
| Approach LOS | | F | | | D | | | C | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 70.8 | | | | HCM 2000 Level of Service | | | | E | |
| HCM 2000 Volume to Capacity ratio | | | 0.93 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 75.0 | | | | Sum of lost time (s) | | | | 18.0 | |
| Intersection Capacity Utilization | | | 101.8% | | | | ICU Level of Service | | | | G | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Deadwood & US 14A

12/02/2020



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | | |
|-----------------------------------|------|-------|-------|------|------|------|------|------|------|------|-------|---------------------------|----------------------|---|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | ↕ | | | |
| Traffic Volume (vph) | 20 | 675 | 40 | 70 | 480 | 40 | 20 | 60 | 50 | 70 | 105 | 40 | | |
| Future Volume (vph) | 20 | 675 | 40 | 70 | 480 | 40 | 20 | 60 | 50 | 70 | 105 | 40 | | |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | | |
| Total Lost time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | | | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | | 1.00 | | | |
| Frbp, ped/bikes | | 0.98 | | | 0.99 | | | 0.99 | | | 1.00 | | | |
| Flpb, ped/bikes | | 1.00 | | | 0.99 | | | 1.00 | | | 0.99 | | | |
| Frt | | 0.99 | | | 0.99 | | | 0.95 | | | 0.98 | | | |
| Flt Protected | | 1.00 | | | 0.99 | | | 0.99 | | | 0.98 | | | |
| Satd. Flow (prot) | | 2986 | | | 2962 | | | 1504 | | | 1570 | | | |
| Flt Permitted | | 0.93 | | | 0.78 | | | 0.94 | | | 0.85 | | | |
| Satd. Flow (perm) | | 2779 | | | 2313 | | | 1419 | | | 1357 | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Adj. Flow (vph) | 22 | 734 | 43 | 76 | 522 | 43 | 22 | 65 | 54 | 76 | 114 | 43 | | |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Lane Group Flow (vph) | 0 | 799 | 0 | 0 | 641 | 0 | 0 | 141 | 0 | 0 | 233 | 0 | | |
| Confl. Peds. (#/hr) | 51 | | 125 | 125 | | 51 | 8 | | 23 | 23 | | 8 | | |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 3% | 3% | 3% | | |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | | | |
| Permitted Phases | 2 | | | 6 | | | 8 | | | 4 | | | | |
| Actuated Green, G (s) | | 45.9 | | | 45.9 | | | 18.1 | | | 18.1 | | | |
| Effective Green, g (s) | | 45.9 | | | 45.9 | | | 18.1 | | | 18.1 | | | |
| Actuated g/C Ratio | | 0.61 | | | 0.61 | | | 0.24 | | | 0.24 | | | |
| Clearance Time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | | | |
| Lane Grp Cap (vph) | | 1700 | | | 1415 | | | 342 | | | 327 | | | |
| v/s Ratio Prot | | | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.29 | | | 0.28 | | | 0.10 | | | c0.17 | | | |
| v/c Ratio | | 0.47 | | | 0.45 | | | 0.41 | | | 0.71 | | | |
| Uniform Delay, d1 | | 7.9 | | | 7.8 | | | 24.0 | | | 26.1 | | | |
| Progression Factor | | 0.49 | | | 0.65 | | | 1.00 | | | 1.00 | | | |
| Incremental Delay, d2 | | 0.1 | | | 1.0 | | | 0.8 | | | 7.2 | | | |
| Delay (s) | | 4.0 | | | 6.0 | | | 24.8 | | | 33.2 | | | |
| Level of Service | | A | | | A | | | C | | | C | | | |
| Approach Delay (s) | | 4.0 | | | 6.0 | | | 24.8 | | | 33.2 | | | |
| Approach LOS | | A | | | A | | | C | | | C | | | |
| Intersection Summary | | | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 10.1 | | | | | | | | | HCM 2000 Level of Service | B | |
| HCM 2000 Volume to Capacity ratio | | | 0.54 | | | | | | | | | | | |
| Actuated Cycle Length (s) | | | 75.0 | | | | | | | | 11.0 | | | |
| Intersection Capacity Utilization | | | 76.1% | | | | | | | | | | ICU Level of Service | D |
| Analysis Period (min) | | | 15 | | | | | | | | | | | |

c Critical Lane Group

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|-------|------|
| Int Delay, s/veh | 5 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↔ | | | ↔ | | | ↔ | | | | |
| Traffic Vol, veh/h | 20 | 740 | 10 | 405 | 570 | 20 | 0 | 20 | 20 | 0 | 0 | 0 |
| Future Vol, veh/h | 20 | 740 | 10 | 405 | 570 | 20 | 0 | 20 | 20 | 0 | 0 | 0 |
| Conflicting Peds, #/hr | 50 | 0 | 31 | 31 | 0 | 50 | 12 | 0 | 16 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 2 | 2 | 2 | 0 | 0 | 0 | 2 | 2 | 2 |
| Mvmt Flow | 22 | 804 | 11 | 440 | 620 | 22 | 0 | 22 | 22 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|----------------------|--------|---|---|--------|---|---|--------|------|-----|
| Conflicting Flow All | 692 | 0 | 0 | 846 | 0 | 0 | 2087 | 2457 | 455 |
| Stage 1 | - | - | - | - | - | - | 885 | 885 | - |
| Stage 2 | - | - | - | - | - | - | 1202 | 1572 | - |
| Critical Hdwy | 4.16 | - | - | 4.14 | - | - | 6.8 | 6.5 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Follow-up Hdwy | 2.23 | - | - | 2.22 | - | - | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 892 | - | - | 787 | - | - | 47 | 31 | 558 |
| Stage 1 | - | - | - | - | - | - | 369 | 366 | - |
| Stage 2 | - | - | - | - | - | - | 251 | 172 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 892 | - | - | 764 | - | - | 4 | 0 | 533 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 4 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 342 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 25 | 0 | - |

| Approach | EB | | | WB | | | NB | | |
|----------------------|-----|--|--|-----|--|--|------|--|--|
| HCM Control Delay, s | 0.4 | | | 8.2 | | | 12.4 | | |
| HCM LOS | | | | | | | B | | |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 533 | 892 | - | - | 764 | - | - |
| HCM Lane V/C Ratio | 0.082 | 0.024 | - | - | 0.576 | - | - |
| HCM Control Delay (s) | 12.4 | 9.1 | 0.2 | - | 15.9 | 3 | - |
| HCM Lane LOS | B | A | A | - | C | A | - |
| HCM 95th %tile Q(veh) | 0.3 | 0.1 | - | - | 3.7 | - | - |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 65.5 | | | | | |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑↑ | | | ↑↑ | ↖ | ↗ |
| Traffic Vol, veh/h | 760 | 0 | 0 | 955 | 30 | 765 |
| Future Vol, veh/h | 760 | 0 | 0 | 955 | 30 | 765 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 2 | 2 | 1 | 1 |
| Mvmt Flow | 826 | 0 | 0 | 1038 | 33 | 832 |

| Major/Minor | Major1 | Major2 | Minor1 | | |
|----------------------|--------|--------|--------|---|-----------|
| Conflicting Flow All | 0 | - | - | - | 1345 413 |
| Stage 1 | - | - | - | - | 826 - |
| Stage 2 | - | - | - | - | 519 - |
| Critical Hdwy | - | - | - | - | 6.82 6.92 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.82 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.82 - |
| Follow-up Hdwy | - | - | - | - | 3.51 3.31 |
| Pot Cap-1 Maneuver | - | 0 | 0 | - | 144 ~ 591 |
| Stage 1 | - | 0 | 0 | - | 393 - |
| Stage 2 | - | 0 | 0 | - | 565 - |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | - | - | 144 ~ 591 |
| Mov Cap-2 Maneuver | - | - | - | - | 144 - |
| Stage 1 | - | - | - | - | 393 - |
| Stage 2 | - | - | - | - | 565 - |

| Approach | EB | WB | NB |
|----------------------|----|----|-------|
| HCM Control Delay, s | 0 | 0 | 206.7 |
| HCM LOS | | | F |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | WBT |
|-----------------------|-------|-------|-----|-----|
| Capacity (veh/h) | 144 | 591 | - | - |
| HCM Lane V/C Ratio | 0.226 | 1.407 | - | - |
| HCM Control Delay (s) | 37.2 | 213.3 | - | - |
| HCM Lane LOS | E | F | - | - |
| HCM 95th %tile Q(veh) | 0.8 | 38.2 | - | - |

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

HCM 6th TWSC
8: Driveway/Wall & US 14A

12/02/2020

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|-------|------|
| Int Delay, s/veh | 13 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↔↔ | | | ↔↔ | | | ↔ | | | | |
| Traffic Vol, veh/h | 50 | 1465 | 20 | 10 | 955 | 30 | 10 | 0 | 10 | 0 | 0 | 0 |
| Future Vol, veh/h | 50 | 1465 | 20 | 10 | 955 | 30 | 10 | 0 | 10 | 0 | 0 | 0 |
| Conflicting Peds, #/hr | 3 | 0 | 34 | 34 | 0 | 3 | 7 | 0 | 15 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 2 | 2 | 2 | 0 | 0 | 0 | 2 | 2 | 2 |
| Mvmt Flow | 54 | 1592 | 22 | 11 | 1038 | 33 | 11 | 0 | 11 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|----------------------|--------|---|---|--------|---|---|--------|------|-----|
| Conflicting Flow All | 1074 | 0 | 0 | 1648 | 0 | 0 | 2293 | 2841 | 856 |
| Stage 1 | - | - | - | - | - | - | 1745 | 1745 | - |
| Stage 2 | - | - | - | - | - | - | 548 | 1096 | - |
| Critical Hdwy | 4.16 | - | - | 4.14 | - | - | 6.8 | 6.5 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.8 | 5.5 | - |
| Follow-up Hdwy | 2.23 | - | - | 2.22 | - | - | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 639 | - | - | 388 | - | - | 34 | 18 | 305 |
| Stage 1 | - | - | - | - | - | - | 128 | 142 | - |
| Stage 2 | - | - | - | - | - | - | 549 | 292 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 639 | - | - | 375 | - | - | ~ 5 | 0 | 291 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | ~ 5 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 20 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 506 | 0 | - |

| Approach | EB | | | WB | | | NB | | |
|----------------------|-----|--|--|-----|--|--|-----------|--|--|
| HCM Control Delay, s | 4.6 | | | 0.6 | | | \$ 1278.7 | | |
| HCM LOS | | | | | | | F | | |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|-----------|-------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 10 | 639 | - | - | 375 | - | - |
| HCM Lane V/C Ratio | 2.174 | 0.085 | - | - | 0.029 | - | - |
| HCM Control Delay (s) | \$ 1278.7 | 11.2 | 4.4 | - | 14.9 | 0.5 | - |
| HCM Lane LOS | F | B | A | - | B | A | - |
| HCM 95th %tile Q(veh) | 3.7 | 0.3 | - | - | 0.1 | - | - |

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

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 1.6 | | | | | |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑↑ | | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 1460 | 20 | 0 | 965 | 20 | 20 |
| Future Vol, veh/h | 1460 | 20 | 0 | 965 | 20 | 20 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 2 | 2 | 0 | 0 |
| Mvmt Flow | 1587 | 22 | 0 | 1049 | 22 | 22 |

| Major/Minor | Major1 | Major2 | Minor1 | Minor2 | Minor3 |
|----------------------|--------|--------|--------|--------|--------|
| Conflicting Flow All | 0 | 0 | 1609 | 0 | 2123 |
| Stage 1 | - | - | - | - | 1598 |
| Stage 2 | - | - | - | - | 525 |
| Critical Hdwy | - | - | 4.14 | - | 6.8 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.8 |
| Critical Hdwy Stg 2 | - | - | - | - | 5.8 |
| Follow-up Hdwy | - | - | 2.22 | - | 3.5 |
| Pot Cap-1 Maneuver | - | - | 402 | - | 44 |
| Stage 1 | - | - | - | - | 154 |
| Stage 2 | - | - | - | - | 564 |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 402 | - | 44 |
| Mov Cap-2 Maneuver | - | - | - | - | 44 |
| Stage 1 | - | - | - | - | 154 |
| Stage 2 | - | - | - | - | 564 |





















| Approach | EB | WB | NB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 98.2 |
| HCM LOS | | | F |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|-----------------------|-------|-----|-----|-----|-----|
| Capacity (veh/h) | 78 | - | - | 402 | - |
| HCM Lane V/C Ratio | 0.557 | - | - | - | - |
| HCM Control Delay (s) | 98.2 | - | - | 0 | - |
| HCM Lane LOS | F | - | - | A | - |
| HCM 95th %tile Q(veh) | 2.4 | - | - | 0 | - |

HCM Signalized Intersection Capacity Analysis

10: Driveway/Lower Main & US 14A

12/18/2020

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  | |  | |  |  | |
| Traffic Volume (vph) | 70 | 1400 | 10 | 10 | 880 | 330 | 0 | 10 | 10 | 170 | 10 | 95 |
| Future Volume (vph) | 70 | 1400 | 10 | 10 | 880 | 330 | 0 | 10 | 10 | 170 | 10 | 95 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | 4.0 | | 5.5 | | 5.5 | 5.5 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | | 0.98 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | 0.99 | 1.00 | 1.00 | | 1.00 | | 0.96 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | | 0.93 | | 1.00 | 0.86 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1536 | 3100 | | 1574 | 3167 | 1380 | | 1290 | | 1528 | 1421 | |
| Flt Permitted | 0.26 | 1.00 | | 0.10 | 1.00 | 1.00 | | 1.00 | | 0.74 | 1.00 | |
| Satd. Flow (perm) | 427 | 3100 | | 174 | 3167 | 1380 | | 1290 | | 1195 | 1421 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 76 | 1522 | 11 | 11 | 957 | 359 | 0 | 11 | 11 | 185 | 11 | 103 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 76 | 1533 | 0 | 11 | 957 | 359 | 0 | 22 | 0 | 185 | 114 | 0 |
| Confl. Peds. (#/hr) | 47 | | 46 | 46 | | 47 | 4 | | 42 | 42 | | 4 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 2% | 2% | 2% | 20% | 20% | 20% | 2% | 2% | 2% |
| Turn Type | Perm | NA | | Perm | NA | Free | | NA | | Perm | NA | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | 2 | | | 6 | | Free | 8 | | | 4 | | |
| Actuated Green, G (s) | 46.7 | 46.7 | | 46.7 | 46.7 | 75.0 | | 17.3 | | 17.3 | 17.3 | |
| Effective Green, g (s) | 46.7 | 46.7 | | 46.7 | 46.7 | 75.0 | | 17.3 | | 17.3 | 17.3 | |
| Actuated g/C Ratio | 0.62 | 0.62 | | 0.62 | 0.62 | 1.00 | | 0.23 | | 0.23 | 0.23 | |
| Clearance Time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | | | 5.5 | | 5.5 | 5.5 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 265 | 1930 | | 108 | 1971 | 1380 | | 297 | | 275 | 327 | |
| v/s Ratio Prot | | c0.49 | | | 0.30 | | | 0.02 | | | 0.08 | |
| v/s Ratio Perm | 0.18 | | | 0.06 | | 0.26 | | | | c0.15 | | |
| v/c Ratio | 0.29 | 0.79 | | 0.10 | 0.49 | 0.26 | | 0.07 | | 0.67 | 0.35 | |
| Uniform Delay, d1 | 6.5 | 10.6 | | 5.7 | 7.7 | 0.0 | | 22.6 | | 26.3 | 24.1 | |
| Progression Factor | 1.05 | 1.12 | | 0.62 | 0.49 | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.7 | 3.4 | | 1.7 | 0.8 | 0.4 | | 0.1 | | 6.3 | 0.6 | |
| Delay (s) | 9.5 | 15.3 | | 5.3 | 4.5 | 0.4 | | 22.7 | | 32.6 | 24.8 | |
| Level of Service | A | B | | A | A | A | | C | | C | C | |
| Approach Delay (s) | | 15.0 | | | 3.4 | | | 22.7 | | | 29.6 | |
| Approach LOS | | B | | | A | | | C | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 11.7 | | | HCM 2000 Level of Service | | | | B | | |
| HCM 2000 Volume to Capacity ratio | | | 0.76 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 75.0 | | | Sum of lost time (s) | | | | 11.0 | | |
| Intersection Capacity Utilization | | | 85.1% | | | ICU Level of Service | | | | E | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

c Critical Lane Group

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.3 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SWL | SWR |
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 10 | 1570 | 1200 | 10 | 10 | 20 |
| Future Vol, veh/h | 10 | 1570 | 1200 | 10 | 10 | 20 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 50 | - | - | 200 | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 4 | 4 | 2 | 2 | 8 | 8 |
| Mvmt Flow | 11 | 1707 | 1304 | 11 | 11 | 22 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|-----------|
| Conflicting Flow All | 1315 | 0 | - | 0 | 2186 658 |
| Stage 1 | - | - | - | - | 1310 - |
| Stage 2 | - | - | - | - | 876 - |
| Critical Hdwy | 5.38 | - | - | - | 6.41 7.26 |
| Critical Hdwy Stg 1 | - | - | - | - | 6.76 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.96 - |
| Follow-up Hdwy | 3.14 | - | - | - | 3.73 3.98 |
| Pot Cap-1 Maneuver | 270 | - | - | - | 50 338 |
| Stage 1 | - | - | - | - | 151 - |
| Stage 2 | - | - | - | - | 344 - |
| Platoon blocked, % | | - | - | - | |
| Mov Cap-1 Maneuver | 270 | - | - | - | 48 338 |
| Mov Cap-2 Maneuver | - | - | - | - | 111 - |
| Stage 1 | - | - | - | - | 145 - |
| Stage 2 | - | - | - | - | 344 - |

| Approach | EB | WB | SW |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.1 | 0 | 26.3 |
| HCM LOS | | | D |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBRSWLn1 |
|-----------------------|------|-----|-----|----------|
| Capacity (veh/h) | 270 | - | - | - 201 |
| HCM Lane V/C Ratio | 0.04 | - | - | - 0.162 |
| HCM Control Delay (s) | 18.9 | - | - | - 26.3 |
| HCM Lane LOS | C | - | - | - D |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - 0.6 |

HCM 6th TWSC
12: Driveway/Burnham & US 14A

12/02/2020

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 23.2 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ↖ | ↕ | | ↖ | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 30 | 1540 | 10 | 20 | 1160 | 20 | 20 | 0 | 50 | 20 | 0 | 30 |
| Future Vol, veh/h | 30 | 1540 | 10 | 20 | 1160 | 20 | 20 | 0 | 50 | 20 | 0 | 30 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 13 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 50 | - | - | 50 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 4 | 4 | 4 | 2 | 2 | 2 | 9 | 9 | 9 | 0 | 0 | 0 |
| Mvmt Flow | 33 | 1674 | 11 | 22 | 1261 | 22 | 22 | 0 | 54 | 22 | 0 | 33 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|----------------------|--------|---|---|--------|---|---|--------|------|------|--------|------|-----|
| Conflicting Flow All | 1283 | 0 | 0 | 1685 | 0 | 0 | 2434 | 3073 | 843 | 2219 | 3067 | 655 |
| Stage 1 | - | - | - | - | - | - | 1746 | 1746 | - | 1316 | 1316 | - |
| Stage 2 | - | - | - | - | - | - | 688 | 1327 | - | 903 | 1751 | - |
| Critical Hdwy | 4.18 | - | - | 4.14 | - | - | 7.68 | 6.68 | 7.08 | 7.5 | 6.5 | 6.9 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.68 | 5.68 | - | 6.5 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.68 | 5.68 | - | 6.5 | 5.5 | - |
| Follow-up Hdwy | 2.24 | - | - | 2.22 | - | - | 3.59 | 4.09 | 3.39 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 526 | - | - | 376 | - | - | ~ 15 | 11 | 293 | 25 | 12 | 413 |
| Stage 1 | - | - | - | - | - | - | 83 | 129 | - | 169 | 229 | - |
| Stage 2 | - | - | - | - | - | - | 387 | 210 | - | 303 | 141 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 526 | - | - | 376 | - | - | ~ 12 | 10 | 293 | ~ 19 | 11 | 408 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | ~ 12 | 10 | - | ~ 19 | 11 | - |
| Stage 1 | - | - | - | - | - | - | 78 | 121 | - | 158 | 215 | - |
| Stage 2 | - | - | - | - | - | - | 331 | 198 | - | 231 | 132 | - |

| Approach | EB | | WB | | NB | | SB | |
|----------------------|-----|--|-----|--|----------|--|----------|--|
| HCM Control Delay, s | 0.2 | | 0.3 | | \$ 694.3 | | \$ 359.5 | |
| HCM LOS | | | | | F | | F | |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|-----------------------|----------|-------|-----|-----|-------|-----|-----|----------|
| Capacity (veh/h) | 38 | 526 | - | - | 376 | - | - | 44 |
| HCM Lane V/C Ratio | 2.002 | 0.062 | - | - | 0.058 | - | - | 1.235 |
| HCM Control Delay (s) | \$ 694.3 | 12.3 | - | - | 15.2 | - | - | \$ 359.5 |
| HCM Lane LOS | F | B | - | - | C | - | - | F |
| HCM 95th %tile Q(veh) | 8.2 | 0.2 | - | - | 0.2 | - | - | 5.2 |

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

HCM Signalized Intersection Capacity Analysis
 13: Dunlop/McKinley & US 14A

12/02/2020



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|------------------------|-------|------|------|------|-------|------|
| Lane Configurations | ↑↑ | | ↵ | ↑↑ | ↵ | |
| Traffic Volume (vph) | 1530 | 70 | 10 | 1150 | 50 | 20 |
| Future Volume (vph) | 1530 | 70 | 10 | 1150 | 50 | 20 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | 5.5 | | 5.5 | 5.5 | 5.0 | |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 0.99 | | 1.00 | 1.00 | 0.96 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.97 | |
| Satd. Flow (prot) | 3112 | | 1583 | 3167 | 1532 | |
| Flt Permitted | 1.00 | | 0.10 | 1.00 | 0.97 | |
| Satd. Flow (perm) | 3112 | | 171 | 3167 | 1532 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 1663 | 76 | 11 | 1250 | 54 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 1739 | 0 | 11 | 1250 | 76 | 0 |
| Confl. Peds. (#/hr) | | 3 | 3 | | 14 | |
| Heavy Vehicles (%) | 3% | 3% | 2% | 2% | 3% | 3% |
| Turn Type | NA | | Perm | NA | Prot | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 56.4 | | 56.4 | 56.4 | 8.1 | |
| Effective Green, g (s) | 56.4 | | 56.4 | 56.4 | 8.1 | |
| Actuated g/C Ratio | 0.75 | | 0.75 | 0.75 | 0.11 | |
| Clearance Time (s) | 5.5 | | 5.5 | 5.5 | 5.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 2340 | | 128 | 2381 | 165 | |
| v/s Ratio Prot | c0.56 | | | 0.39 | c0.05 | |
| v/s Ratio Perm | | | 0.06 | | | |
| v/c Ratio | 0.74 | | 0.09 | 0.52 | 0.46 | |
| Uniform Delay, d1 | 5.2 | | 2.5 | 3.8 | 31.4 | |
| Progression Factor | 1.16 | | 0.53 | 0.66 | 1.00 | |
| Incremental Delay, d2 | 1.5 | | 0.8 | 0.5 | 2.0 | |
| Delay (s) | 7.6 | | 2.1 | 3.0 | 33.4 | |
| Level of Service | A | | A | A | C | |
| Approach Delay (s) | 7.6 | | | 3.0 | 33.4 | |
| Approach LOS | A | | | A | C | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 6.3 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 75.0 | Sum of lost time (s) | 10.5 |
| Intersection Capacity Utilization | 65.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: US 14A & US 85

12/02/2020



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations | ↖ | ↑ | ↗ | | ↙ | ↘ |
| Traffic Volume (vph) | 815 | 740 | 545 | 85 | 125 | 620 |
| Future Volume (vph) | 815 | 740 | 545 | 85 | 125 | 620 |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Total Lost time (s) | 7.0 | 5.5 | 5.5 | | 7.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.98 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1553 | 1635 | 1605 | | 1583 | 1417 |
| Flt Permitted | 0.11 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (perm) | 184 | 1635 | 1605 | | 1583 | 1417 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 886 | 804 | 592 | 92 | 136 | 674 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 886 | 804 | 684 | 0 | 136 | 674 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 2% | 2% |
| Turn Type | pm+pt | NA | NA | | Prot | Free |
| Protected Phases | 5 | 2 | 6 | | 4 | |
| Permitted Phases | 2 | | | | | Free |
| Actuated Green, G (s) | 56.5 | 56.5 | 28.5 | | 6.0 | 75.0 |
| Effective Green, g (s) | 56.5 | 56.5 | 28.5 | | 6.0 | 75.0 |
| Actuated g/C Ratio | 0.75 | 0.75 | 0.38 | | 0.08 | 1.00 |
| Clearance Time (s) | 7.0 | 5.5 | 5.5 | | 7.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 521 | 1231 | 609 | | 126 | 1417 |
| v/s Ratio Prot | c0.48 | 0.49 | 0.43 | | c0.09 | |
| v/s Ratio Perm | c0.80 | | | | | 0.48 |
| v/c Ratio | 1.70 | 0.65 | 1.12 | | 1.08 | 0.48 |
| Uniform Delay, d1 | 21.7 | 4.5 | 23.2 | | 34.5 | 0.0 |
| Progression Factor | 1.24 | 0.23 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 321.0 | 1.9 | 75.3 | | 103.0 | 1.1 |
| Delay (s) | 347.9 | 2.9 | 98.5 | | 137.5 | 1.1 |
| Level of Service | F | A | F | | F | A |
| Approach Delay (s) | | 183.8 | 98.5 | | 24.0 | |
| Approach LOS | | F | F | | C | |


















Intersection Summary

| | | | |
|-----------------------------------|--------|---------------------------|------|
| HCM 2000 Control Delay | 124.8 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 1.72 | | |
| Actuated Cycle Length (s) | 75.0 | Sum of lost time (s) | 19.5 |
| Intersection Capacity Utilization | 111.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

HCM Signalized Intersection Capacity Analysis

15: Sherman & Cemetery/Van Buren

12/02/2020

| |  |  |  |  |  |  |  |  |  |  |  |  | |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Configurations | |  | | |  | | |  | |  |  | | |
| Traffic Volume (vph) | 30 | 10 | 0 | 50 | 0 | 135 | 0 | 980 | 40 | 135 | 665 | 0 | |
| Future Volume (vph) | 30 | 10 | 0 | 50 | 0 | 135 | 0 | 980 | 40 | 135 | 665 | 0 | |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | |
| Total Lost time (s) | | 5.5 | | | 5.5 | | | 5.5 | | 3.0 | 5.5 | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | |
| Frbp, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | |
| Frt | | 1.00 | | | 0.90 | | | 0.99 | | 1.00 | 1.00 | | |
| Flt Protected | | 0.96 | | | 0.99 | | | 1.00 | | 0.95 | 1.00 | | |
| Satd. Flow (prot) | | 1517 | | | 1475 | | | 1625 | | 1583 | 1667 | | |
| Flt Permitted | | 0.67 | | | 0.89 | | | 1.00 | | 0.09 | 1.00 | | |
| Satd. Flow (perm) | | 1048 | | | 1336 | | | 1625 | | 157 | 1667 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Adj. Flow (vph) | 33 | 11 | 0 | 54 | 0 | 147 | 0 | 1065 | 43 | 147 | 723 | 0 | |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Lane Group Flow (vph) | 0 | 44 | 0 | 0 | 201 | 0 | 0 | 1108 | 0 | 147 | 723 | 0 | |
| Confl. Peds. (#/hr) | | | 12 | 12 | | | 9 | | 2 | | | 9 | |
| Heavy Vehicles (%) | 8% | 8% | 8% | 2% | 2% | 2% | 4% | 4% | 4% | 2% | 2% | 2% | |
| Turn Type | Perm | NA | | Perm | NA | | | NA | | pm+pt | NA | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | 1 | 6 | | |
| Permitted Phases | 4 | | | 8 | | | | | | 6 | | | |
| Actuated Green, G (s) | | 13.6 | | | 13.6 | | | 39.5 | | 49.3 | 49.3 | | |
| Effective Green, g (s) | | 13.6 | | | 13.6 | | | 39.5 | | 49.3 | 49.3 | | |
| Actuated g/C Ratio | | 0.18 | | | 0.18 | | | 0.53 | | 0.67 | 0.67 | | |
| Clearance Time (s) | | 5.5 | | | 5.5 | | | 5.5 | | 3.0 | 5.5 | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.2 | | 3.0 | 3.2 | | |
| Lane Grp Cap (vph) | | 192 | | | 245 | | | 868 | | 235 | 1112 | | |
| v/s Ratio Prot | | | | | | | | c0.68 | | 0.06 | c0.43 | | |
| v/s Ratio Perm | | 0.04 | | | c0.15 | | | | | 0.36 | | | |
| v/c Ratio | | 0.23 | | | 0.82 | | | 1.28 | | 0.63 | 0.65 | | |
| Uniform Delay, d1 | | 25.7 | | | 29.0 | | | 17.2 | | 15.5 | 7.2 | | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | |
| Incremental Delay, d2 | | 0.6 | | | 19.3 | | | 133.4 | | 5.1 | 1.4 | | |
| Delay (s) | | 26.3 | | | 48.3 | | | 150.6 | | 20.6 | 8.6 | | |
| Level of Service | | C | | | D | | | F | | C | A | | |
| Approach Delay (s) | | 26.3 | | | 48.3 | | | 150.6 | | | 10.7 | | |
| Approach LOS | | C | | | D | | | F | | | B | | |
| Intersection Summary | | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 84.1 | | | | | | | | | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | | | 1.11 | | | | | | | | | | |
| Actuated Cycle Length (s) | | | 73.9 | | | | | | | | | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | | | 93.2% | | | | | | | | | ICU Level of Service | F |
| Analysis Period (min) | | | 15 | | | | | | | | | | |

c Critical Lane Group

| Intersection | |
|---------------------------|-------|
| Intersection Delay, s/veh | 186.2 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | ↖ | ↗ | | ↔ | | ↖ | ↗ | | | ↔ | |
| Traffic Vol, veh/h | 60 | 30 | 280 | 10 | 10 | 10 | 310 | 825 | 10 | 0 | 505 | 40 |
| Future Vol, veh/h | 60 | 30 | 280 | 10 | 10 | 10 | 310 | 825 | 10 | 0 | 505 | 40 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | 3 | 1 | 1 | 1 |
| Mvmt Flow | 65 | 33 | 304 | 11 | 11 | 11 | 337 | 897 | 11 | 0 | 549 | 43 |
| Number of Lanes | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|----------------------------|------|------|-------|-------|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 2 | 1 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 2 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 1 | 1 | 2 |
| HCM Control Delay | 20.2 | 14.3 | 275.6 | 120.4 |
| HCM LOS | C | B | F | F |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | SBLn1 |
|------------------------|-------|-------|-------|-------|--------|-------|
| Vol Left, % | 100% | 0% | 67% | 0% | 33% | 0% |
| Vol Thru, % | 0% | 99% | 33% | 0% | 33% | 93% |
| Vol Right, % | 0% | 1% | 0% | 100% | 33% | 7% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 310 | 835 | 90 | 280 | 30 | 545 |
| LT Vol | 310 | 0 | 60 | 0 | 10 | 0 |
| Through Vol | 0 | 825 | 30 | 0 | 10 | 505 |
| RT Vol | 0 | 10 | 0 | 280 | 10 | 40 |
| Lane Flow Rate | 337 | 908 | 98 | 304 | 33 | 592 |
| Geometry Grp | 7 | 7 | 7 | 7 | 6 | 6 |
| Degree of Util (X) | 0.702 | 1.759 | 0.224 | 0.608 | 0.084 | 1.165 |
| Departure Headway (Hd) | 7.888 | 7.364 | 8.958 | 7.881 | 10.392 | 7.488 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 462 | 499 | 403 | 463 | 347 | 492 |
| Service Time | 5.588 | 5.064 | 6.658 | 5.581 | 8.392 | 5.488 |
| HCM Lane V/C Ratio | 0.729 | 1.82 | 0.243 | 0.657 | 0.095 | 1.203 |
| HCM Control Delay | 27.1 | 367.9 | 14.2 | 22.1 | 14.3 | 120.4 |
| HCM Lane LOS | D | F | B | C | B | F |
| HCM 95th-tile Q | 5.4 | 52.5 | 0.8 | 4 | 0.3 | 20.3 |

Intersection

| | |
|---------------------------|----|
| Intersection Delay, s/veh | 11 |
| Intersection LOS | B |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---------------------|------|------|------|------|------|------|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 75 | 95 | 125 | 210 | 85 | 115 |
| Future Vol, veh/h | 75 | 95 | 125 | 210 | 85 | 115 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 5 | 5 | 3 | 3 | 5 | 5 |
| Mvmt Flow | 82 | 103 | 136 | 228 | 92 | 125 |
| Number of Lanes | 1 | 0 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB |
|----------------------------|-----|------|------|
| Opposing Approach | WB | EB | |
| Opposing Lanes | 1 | 1 | 0 |
| Conflicting Approach Left | | NB | EB |
| Conflicting Lanes Left | 0 | 1 | 1 |
| Conflicting Approach Right | NB | | WB |
| Conflicting Lanes Right | 1 | 0 | 1 |
| HCM Control Delay | 9.2 | 12.3 | 10.2 |
| HCM LOS | A | B | B |

| Lane | NBLn1 | EBLn1 | WBLn1 |
|------------------------|-------|-------|-------|
| Vol Left, % | 42% | 0% | 37% |
| Vol Thru, % | 0% | 44% | 63% |
| Vol Right, % | 57% | 56% | 0% |
| Sign Control | Stop | Stop | Stop |
| Traffic Vol by Lane | 200 | 170 | 335 |
| LT Vol | 85 | 0 | 125 |
| Through Vol | 0 | 75 | 210 |
| RT Vol | 115 | 95 | 0 |
| Lane Flow Rate | 217 | 185 | 364 |
| Geometry Grp | 1 | 1 | 1 |
| Degree of Util (X) | 0.301 | 0.238 | 0.484 |
| Departure Headway (Hd) | 4.987 | 4.638 | 4.79 |
| Convergence, Y/N | Yes | Yes | Yes |
| Cap | 715 | 767 | 746 |
| Service Time | 3.054 | 2.706 | 2.849 |
| HCM Lane V/C Ratio | 0.303 | 0.241 | 0.488 |
| HCM Control Delay | 10.2 | 9.2 | 12.3 |
| HCM Lane LOS | B | A | B |
| HCM 95th-tile Q | 1.3 | 0.9 | 2.7 |

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 0 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 0 | 10 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 10 | 0 | 0 |
| Future Vol, veh/h | 0 | 10 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 10 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 33 | 33 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 14 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 14 | 0 | 0 |

| Major/Minor | Minor2 | | Minor1 | | Major1 | | | Major2 | | | | |
|----------------------|--------|-----|--------|-----|--------|-----|-------|--------|---|-----|---|---|
| Conflicting Flow All | 42 | 28 | 0 | 35 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stage 1 | 28 | 28 | - | 0 | 0 | - | - | - | - | - | - | - |
| Stage 2 | 14 | 0 | - | 35 | 28 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.43 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.3 | 2.497 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 966 | 869 | - | 976 | 869 | - | - | - | - | - | - | - |
| Stage 1 | 994 | 876 | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | 1011 | - | - | 986 | 876 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | | | | | |
| Mov Cap-1 Maneuver | - | 869 | - | - | 869 | - | - | - | - | - | - | - |
| Mov Cap-2 Maneuver | - | 869 | - | - | 869 | - | - | - | - | - | - | - |
| Stage 1 | 994 | 876 | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | 1011 | - | - | 970 | 876 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|----------------------|----|----|----|----|
| HCM Control Delay, s | | | 0 | |
| HCM LOS | - | - | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1WBLn1 | SBL | SBT | SBR |
|-----------------------|-----|-----|-----|------------|-----|-----|-----|
| Capacity (veh/h) | - | - | - | - | - | - | - |
| HCM Lane V/C Ratio | - | - | - | - | - | - | - |
| HCM Control Delay (s) | 0 | - | - | - | - | - | - |
| HCM Lane LOS | A | - | - | - | - | - | - |
| HCM 95th %tile Q(veh) | - | - | - | - | - | - | - |

HCM Signalized Intersection Capacity Analysis
 19: Deadwood/Shine & Upper Main/Lower Main

12/02/2020



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
|-----------------------------------|------|------|-------|------|------|------|------|------|------|------|------|---------------------------|------|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | | |
| Traffic Volume (vph) | 30 | 135 | 30 | 135 | 280 | 10 | 40 | 40 | 40 | 10 | 50 | 10 | |
| Future Volume (vph) | 30 | 135 | 30 | 135 | 280 | 10 | 40 | 40 | 40 | 10 | 50 | 10 | |
| Ideal Flow (vphpl) | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | |
| Total Lost time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | | |
| Frbp, ped/bikes | | 0.99 | | | 1.00 | | | 0.88 | | | 0.96 | | |
| Flpb, ped/bikes | | 0.99 | | | 0.99 | | | 0.93 | | | 0.96 | | |
| Frt | | 0.98 | | | 1.00 | | | 0.95 | | | 0.98 | | |
| Flt Protected | | 0.99 | | | 0.98 | | | 0.98 | | | 0.99 | | |
| Satd. Flow (prot) | | 1581 | | | 1576 | | | 1297 | | | 1529 | | |
| Flt Permitted | | 0.90 | | | 0.82 | | | 0.86 | | | 0.94 | | |
| Satd. Flow (perm) | | 1437 | | | 1318 | | | 1133 | | | 1445 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Adj. Flow (vph) | 33 | 147 | 33 | 147 | 304 | 11 | 43 | 43 | 43 | 11 | 54 | 11 | |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Lane Group Flow (vph) | 0 | 213 | 0 | 0 | 462 | 0 | 0 | 129 | 0 | 0 | 76 | 0 | |
| Confl. Peds. (#/hr) | 133 | | 52 | 52 | | 133 | 153 | | 217 | 217 | | 153 | |
| Heavy Vehicles (%) | 2% | 2% | 2% | 4% | 4% | 4% | 1% | 1% | 1% | 0% | 0% | 0% | |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | | |
| Permitted Phases | 2 | | | 6 | | | 8 | | | 4 | | | |
| Actuated Green, G (s) | | 23.1 | | | 23.1 | | | 9.3 | | | 9.3 | | |
| Effective Green, g (s) | | 23.1 | | | 23.1 | | | 9.3 | | | 9.3 | | |
| Actuated g/C Ratio | | 0.53 | | | 0.53 | | | 0.21 | | | 0.21 | | |
| Clearance Time (s) | | 5.5 | | | 5.5 | | | 5.5 | | | 5.5 | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | | |
| Lane Grp Cap (vph) | | 764 | | | 701 | | | 242 | | | 309 | | |
| v/s Ratio Prot | | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.15 | | | 0.35 | | | 0.11 | | | 0.05 | | |
| v/c Ratio | | 0.28 | | | 0.66 | | | 0.53 | | | 0.25 | | |
| Uniform Delay, d1 | | 5.6 | | | 7.3 | | | 15.1 | | | 14.1 | | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | | |
| Incremental Delay, d2 | | 0.2 | | | 2.3 | | | 2.3 | | | 0.4 | | |
| Delay (s) | | 5.8 | | | 9.6 | | | 17.4 | | | 14.6 | | |
| Level of Service | | A | | | A | | | B | | | B | | |
| Approach Delay (s) | | 5.8 | | | 9.6 | | | 17.4 | | | 14.6 | | |
| Approach LOS | | A | | | A | | | B | | | B | | |
| Intersection Summary | | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 10.2 | | | | | | | | | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | | | 0.62 | | | | | | | | | | |
| Actuated Cycle Length (s) | | | 43.4 | | | | | | | | | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | | | 71.5% | | | | | | | | | ICU Level of Service | C |
| Analysis Period (min) | | | 15 | | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | | |

Attachment B

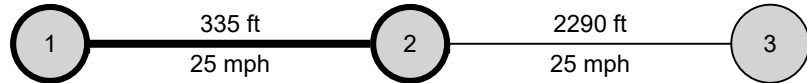
HCS7 Outputs

No Build AM

2027

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|--------------------------|---------------|--------------|-------------------------|---------|
| Agency | HDR, Inc. | | | Number of Intersections | 4 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 3 |
| Jurisdiction | Deadwood | Time Period | 7:30 AM | Number of Iterations | 15 |
| File Name | 2027 AM_US 14A_Urban.xus | Analysis Year | 2027 | System Cycle Length, s | 75 |
| Intersections | US 85/Pine | Deadwood | | Analysis Period | 1> 7:30 |
| Project Description | | | | | |



| Basic Segment Information | | | | | | | | | | | | | | | |
|---------------------------|-------------|----|---------------|----|----------------|-----|------------------|----|--------------|----|--------------|----|-------------|-----|--|
| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | | |
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | |
| 1 | 25 | 25 | 2 | 1 | 335 | 335 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 | |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|-------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | | 2 | 12 | 1 | 6 | |
| 1 | Bay/Lane Spillback Time, h | | never | | | never | |
| 1 | Shared Lane Spillback Time, h | | | | | | |
| 1 | Base Free-Flow Speed, mph | | 33.46 | | | 33.46 | |
| 1 | Running Time, s | | 12.47 | | | 12.92 | |
| 1 | Running Speed, mph | | 18.31 | | | 17.68 | |
| 1 | Through Delay, s/veh | | 4.36 | | | 9.14 | |
| 1 | Travel Time, s | | 16.83 | | | 22.06 | |
| 1 | Travel Speed, mph | | 25.00 | | | 25.00 | |
| 1 | Stop Rate, stops/veh | | 0.24 | | | 0.34 | |
| 1 | Spatial Stop Rate, stops/mi | | 3.71 | | | 5.34 | |
| 1 | Through vol/cap Ratio | | 0.15 | | | 0.63 | |
| 1 | Percent of Base FFS | | 74.72 | | | 74.72 | |
| 1 | Level of Service | | B | | | B | |
| 1 | Auto Traveler Perception Score | | 2.98 | | | 3.29 | |

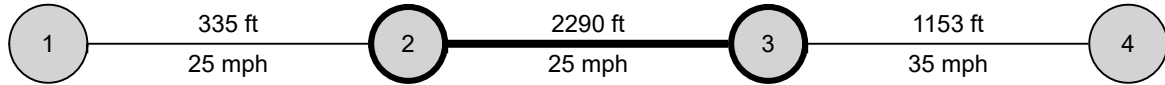
| Multimodal Results (Segment) | | | | | |
|------------------------------|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 2.05 | B | 2.77 | C |
| 1 | Bicycle Segment LOS Score / LOS | 2.58 | B | 3.17 | C |
| 1 | Transit Segment LOS Score / LOS | 1.68 | A | 1.95 | A |

| Facility Output Data | | Eastbound | | Westbound | |
|---|--|-----------|--|-----------|--|
| Facility Travel Time, s | | 91.44 | | 106.63 | |
| Facility Travel Speed, mph | | 28.17 | | 24.16 | |
| Facility Base Free Flow Speed, mph | | 35.42 | | 33.82 | |
| Facility Percent of Base FFS | | 79.53 | | 71.43 | |
| Facility Level of Service | | B | | B | |
| Facility Auto Traveler Perception Score | | 2.39 | | 2.39 | |

| Multimodal Results (Facility) | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 2.27 | C | 2.62 | C |
| Bicycle Facility LOS Score / LOS | 3.11 | C | 3.42 | C |
| Transit Facility LOS Score / LOS | 0.79 | A | 0.94 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|--------------------------|---------------|--------------|-------------------------|---------|
| Agency | HDR, Inc. | | | Number of Intersections | 4 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 3 |
| Jurisdiction | Deadwood | Time Period | 7:30 AM | Number of Iterations | 15 |
| File Name | 2027 AM_US 14A_Urban.xus | Analysis Year | 2027 | System Cycle Length, s | 75 |
| Intersections | Deadwood | Lower Main | | Analysis Period | 1> 7:30 |
| Project Description | | | | | |



Basic Segment Information

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB |
| 2 | 25 | 25 | 2 | 2 | 2290 | 2290 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|-------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | |
| 2 | Bay/Lane Spillback Time, h | | never | | | never | |
| 2 | Shared Lane Spillback Time, h | never | | | | | |
| 2 | Base Free-Flow Speed, mph | | 32.18 | | | 30.05 | |
| 2 | Running Time, s | | 49.98 | | | 54.44 | |
| 2 | Running Speed, mph | | 31.24 | | | 28.68 | |
| 2 | Through Delay, s/veh | | 2.42 | | | 7.00 | |
| 2 | Travel Time, s | | 52.40 | | | 61.44 | |
| 2 | Travel Speed, mph | | 25.00 | | | 25.00 | |
| 2 | Stop Rate, stops/veh | | 0.12 | | | 0.35 | |
| 2 | Spatial Stop Rate, stops/mi | | 0.28 | | | 0.80 | |
| 2 | Through vol/cap Ratio | | 0.21 | | | 0.43 | |
| 2 | Percent of Base FFS | | 77.68 | | | 83.20 | |
| 2 | Level of Service | | B | | | A | |
| 2 | Auto Traveler Perception Score | | 2.32 | | | 2.40 | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 2 | Pedestrian Segment LOS Score / LOS | 2.18 | B | 2.55 | B |
| 2 | Bicycle Segment LOS Score / LOS | 3.06 | C | 3.40 | C |
| 2 | Transit Segment LOS Score / LOS | 0.79 | A | 0.95 | A |

Facility Output Data

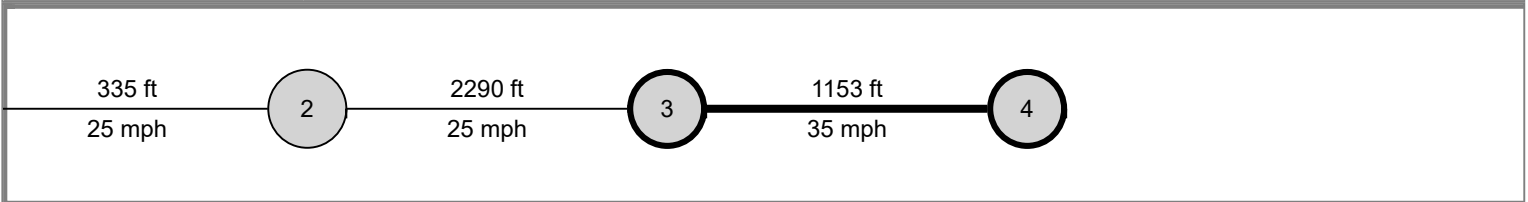
| Facility Output Data | Eastbound | | Westbound | |
|---|-----------|-----|-----------|-----|
| | Score | LOS | Score | LOS |
| Facility Travel Time, s | 91.44 | | 106.63 | |
| Facility Travel Speed, mph | 28.17 | | 24.16 | |
| Facility Base Free Flow Speed, mph | 35.42 | | 33.82 | |
| Facility Percent of Base FFS | 79.53 | | 71.43 | |
| Facility Level of Service | B | | B | |
| Facility Auto Traveler Perception Score | 2.39 | | 2.39 | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 2.27 | C | 2.62 | C |
| Bicycle Facility LOS Score / LOS | 3.11 | C | 3.42 | C |
| Transit Facility LOS Score / LOS | 0.79 | A | 0.94 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|--------------------------|-----------------|--------------|-------------------------|---------|
| Agency | HDR, Inc. | | | Number of Intersections | 4 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 3 |
| Jurisdiction | Deadwood | Time Period | 7:30 AM | Number of Iterations | 15 |
| File Name | 2027 AM_US 14A_Urban.xus | Analysis Year | 2027 | System Cycle Length, s | 75 |
| Intersections | Lower Main | Dunlop/McKinley | | Analysis Period | 1> 7:30 |
| Project Description | | | | | |



| Basic Segment Information | | | | | | | | | | | | | | | |
|---------------------------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|--|
| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | | |
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | |
| 3 | 35 | 35 | 2 | 2 | 1153 | 1153 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 | |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|-------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | |
| 3 | Bay/Lane Spillback Time, h | | never | | | never | |
| 3 | Shared Lane Spillback Time, h | | | | never | | |
| 3 | Base Free-Flow Speed, mph | 45.24 | | | 45.24 | | |
| 3 | Running Time, s | 20.38 | | | 20.51 | | |
| 3 | Running Speed, mph | 38.58 | | | 38.33 | | |
| 3 | Through Delay, s/veh | 1.83 | | | 2.62 | | |
| 3 | Travel Time, s | 22.21 | | | 23.13 | | |
| 3 | Travel Speed, mph | 35.00 | | | 35.00 | | |
| 3 | Stop Rate, stops/veh | 0.07 | | | 0.10 | | |
| 3 | Spatial Stop Rate, stops/mi | 0.30 | | | 0.45 | | |
| 3 | Through vol/cap Ratio | 0.22 | | | 0.34 | | |
| 3 | Percent of Base FFS | 77.36 | | | 77.36 | | |
| 3 | Level of Service | B | | | B | | |
| 3 | Auto Traveler Perception Score | 2.39 | | | 2.21 | | |

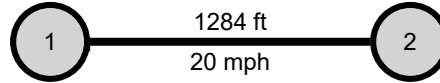
| Multimodal Results (Segment) | | | | | |
|------------------------------|------------------------------------|------|---|------|---|
| 3 | Pedestrian Segment LOS Score / LOS | 2.51 | B | 2.71 | B |
| 3 | Bicycle Segment LOS Score / LOS | 3.37 | C | 3.51 | D |
| 3 | Transit Segment LOS Score / LOS | 0.52 | A | 0.64 | A |

| Facility Output Data | | Eastbound | | Westbound | |
|---|--|-----------|--|-----------|--|
| Facility Travel Time, s | | 91.44 | | 106.63 | |
| Facility Travel Speed, mph | | 28.17 | | 24.16 | |
| Facility Base Free Flow Speed, mph | | 35.42 | | 33.82 | |
| Facility Percent of Base FFS | | 79.53 | | 71.43 | |
| Facility Level of Service | | B | | B | |
| Facility Auto Traveler Perception Score | | 2.39 | | 2.39 | |

| Multimodal Results (Facility) | | | | | |
|-------------------------------------|--|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | | 2.27 | C | 2.62 | C |
| Bicycle Facility LOS Score / LOS | | 3.11 | C | 3.42 | C |
| Transit Facility LOS Score / LOS | | 0.79 | A | 0.94 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|-------------------|---------------|--------------|-------------------------|---------|
| Agency | HDR, Inc. | | | Number of Intersections | 2 |
| Analyst | | Analysis Date | Oct 30, 2020 | Number of Segments | 1 |
| Jurisdiction | Deadwood | Time Period | 7:30 AM | Number of Iterations | 15 |
| File Name | 2027 AM_US 85.xus | Analysis Year | 2027 | System Cycle Length, s | 75 |
| Intersections | US 14A/Pioneer | Cemetery | | Analysis Period | 1> 7:30 |
| Project Description | | | | | |



Basic Segment Information (US 85/Pioneer-Cemetery)

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|
| | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB |
| 1 | 20 | 20 | 1 | 1 | 1284 | 1284 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Southbound | | | Northbound | | |
|---------------------|--------------------------------|------------|-------|-----|------------|-------|-----|
| | | SBL | SBT | SBR | NBL | NBT | NBR |
| Segment | Movement | 1 | 6 | 16 | 5 | 2 | 12 |
| 1 | Bay/Lane Spillback Time, h | | never | | | never | |
| 1 | Shared Lane Spillback Time, h | never | | | never | | |
| 1 | Base Free-Flow Speed, mph | 25.00 | | | 25.00 | | |
| 1 | Running Time, s | 37.08 | | | 37.94 | | |
| 1 | Running Speed, mph | 23.61 | | | 23.07 | | |
| 1 | Through Delay, s/veh | 8.04 | | | 9.23 | | |
| 1 | Travel Time, s | 45.11 | | | 47.17 | | |
| 1 | Travel Speed, mph | 20.00 | | | 20.00 | | |
| 1 | Stop Rate, stops/veh | 0.57 | | | 0.41 | | |
| 1 | Spatial Stop Rate, stops/mi | 2.36 | | | 1.68 | | |
| 1 | Through vol/cap Ratio | 0.59 | | | 0.16 | | |
| 1 | Percent of Base FFS | 79.99 | | | 79.99 | | |
| 1 | Level of Service | B | | | B | | |
| 1 | Auto Traveler Perception Score | 2.62 | | | 2.50 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 2.22 | B | 2.25 | B |
| 1 | Bicycle Segment LOS Score / LOS | 3.04 | C | 3.20 | C |
| 1 | Transit Segment LOS Score / LOS | 1.62 | A | 1.37 | A |

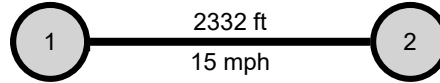
| Facility Output Data | | Southbound | | Northbound | |
|---|--|------------|--|------------|--|
| Facility Travel Time, s | | 45.11 | | 47.17 | |
| Facility Travel Speed, mph | | 19.41 | | 18.56 | |
| Facility Base Free Flow Speed, mph | | 25.00 | | 25.00 | |
| Facility Percent of Base FFS | | 77.61 | | 74.23 | |
| Facility Level of Service | | B | | B | |
| Facility Auto Traveler Perception Score | | 2.62 | | 2.50 | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 2.22 | B | 2.25 | C |
| Bicycle Facility LOS Score / LOS | 3.04 | C | 3.20 | C |
| Transit Facility LOS Score / LOS | 1.62 | A | 1.37 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|------------------------|----------------|--------------|-------------------------|---------|
| Agency | HDR, Inc. | | | Number of Intersections | 2 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 1 |
| Jurisdiction | Deadwood | Time Period | 7:30 AM | Number of Iterations | 15 |
| File Name | 2027 AM_Main_Urban.xus | Analysis Year | 2027 | System Cycle Length, s | 75 |
| Intersections | Deadwood | US 14A/Pioneer | | Analysis Period | 1> 7:30 |
| Project Description | | | | | |



Basic Segment Information

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB |
| 1 | 15 | 15 | 1 | 1 | 2332 | 2332 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|-------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | 16 |
| 1 | Bay/Lane Spillback Time, h | | never | | | never | |
| 1 | Shared Lane Spillback Time, h | | | | | | |
| 1 | Base Free-Flow Speed, mph | 20.00 | | | 20.00 | | |
| 1 | Running Time, s | 80.63 | | | 80.40 | | |
| 1 | Running Speed, mph | 19.72 | | | 19.78 | | |
| 1 | Through Delay, s/veh | 0.00 | | | 7.18 | | |
| 1 | Travel Time, s | 80.63 | | | 87.58 | | |
| 1 | Travel Speed, mph | 15.00 | | | 15.00 | | |
| 1 | Stop Rate, stops/veh | 0.00 | | | 0.64 | | |
| 1 | Spatial Stop Rate, stops/mi | 0.00 | | | 1.44 | | |
| 1 | Through vol/cap Ratio | 0.00 | | | 0.04 | | |
| 1 | Percent of Base FFS | 75.00 | | | 75.00 | | |
| 1 | Level of Service | B | | | B | | |
| 1 | Auto Traveler Perception Score | 2.14 | | | 2.58 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 1.64 | A | 1.81 | A |
| 1 | Bicycle Segment LOS Score / LOS | 1.60 | A | 1.23 | A |
| 1 | Transit Segment LOS Score / LOS | 1.51 | A | 1.50 | A |

Facility Output Data

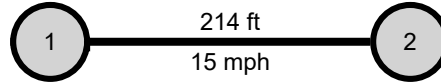
| | Eastbound | Westbound |
|---|-----------|-----------|
| Facility Travel Time, s | 80.63 | 87.58 |
| Facility Travel Speed, mph | 19.72 | 18.15 |
| Facility Base Free Flow Speed, mph | 20.00 | 20.00 |
| Facility Percent of Base FFS | 98.60 | 90.77 |
| Facility Level of Service | A | A |
| Facility Auto Traveler Perception Score | 2.14 | 2.58 |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 1.64 | A | 1.81 | A |
| Bicycle Facility LOS Score / LOS | 1.60 | A | 1.23 | A |
| Transit Facility LOS Score / LOS | 1.51 | A | 1.50 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|----------------------|---------------|--------------|-------------------------|---------|
| Agency | HDR, Inc. | | | Number of Intersections | 2 |
| Analyst | | Analysis Date | Oct 30, 2020 | Number of Segments | 1 |
| Jurisdiction | Deadwood | Time Period | 7:30 AM | Number of Iterations | 15 |
| File Name | 2027 AM_Deadwood.xus | Analysis Year | 2027 | System Cycle Length, s | 75 |
| Intersections | US 14A/Pioneer | Main | | Analysis Period | 1> 7:30 |
| Project Description | | | | | |



Basic Segment Information (Deadwood/Pioneer-Main)

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|-----|------------------|----|--------------|----|--------------|----|-------------|-----|
| | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB |
| 1 | 15 | 15 | 1 | 1 | 214 | 214 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Northbound | | | Southbound | | |
|---------------------|--------------------------------|------------|-------|-----|------------|-------|-----|
| | | NBL | NBT | NBR | SBL | SBT | SBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | 16 |
| 1 | Bay/Lane Spillback Time, h | | never | | | never | |
| 1 | Shared Lane Spillback Time, h | | | | | | |
| 1 | Base Free-Flow Speed, mph | 15.00 | | | 15.00 | | |
| 1 | Running Time, s | 17.32 | | | 17.34 | | |
| 1 | Running Speed, mph | 8.42 | | | 8.42 | | |
| 1 | Through Delay, s/veh | 6.32 | | | 6.16 | | |
| 1 | Travel Time, s | 23.65 | | | 23.50 | | |
| 1 | Travel Speed, mph | 15.00 | | | 15.00 | | |
| 1 | Stop Rate, stops/veh | 0.58 | | | 0.33 | | |
| 1 | Spatial Stop Rate, stops/mi | 14.42 | | | 8.07 | | |
| 1 | Through vol/cap Ratio | 0.14 | | | 0.11 | | |
| 1 | Percent of Base FFS | 100.00 | | | 100.00 | | |
| 1 | Level of Service | A | | | A | | |
| 1 | Auto Traveler Perception Score | 5.00 | | | 3.83 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 1.89 | A | 1.98 | A |
| 1 | Bicycle Segment LOS Score / LOS | 2.02 | B | 2.10 | B |
| 1 | Transit Segment LOS Score / LOS | 2.82 | C | 2.83 | C |

| Facility Output Data | | Northbound | | Southbound | |
|---|--|------------|--|------------|--|
| Facility Travel Time, s | | 23.65 | | 23.50 | |
| Facility Travel Speed, mph | | 6.17 | | 6.21 | |
| Facility Base Free Flow Speed, mph | | 15.00 | | 15.00 | |
| Facility Percent of Base FFS | | 41.14 | | 41.39 | |
| Facility Level of Service | | D | | D | |
| Facility Auto Traveler Perception Score | | 5.00 | | 3.83 | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 1.89 | A | 1.98 | A |
| Bicycle Facility LOS Score / LOS | 2.02 | B | 2.10 | B |
| Transit Facility LOS Score / LOS | 2.82 | C | 2.83 | C |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|---|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2027 |
| Jurisdiction | Deadwood | Time Period Analyzed | 7:30AM-8:30AM |
| Project Description | US14A / Pioneer Way from Upper Main Street to Pine Street | | |

Direction 1 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 1 Description | Eastbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | Undivided | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 2.0 | Free-Flow Speed (FFS), mi/h | 42.9 |

Direction 1 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 1 Demand and Capacity

| | | | |
|-----------------------------|------|--|-------|
| Volume (V), veh/h | 340 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.943 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 196 |
| Total Trucks, % | 6.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.11 |

Direction 1 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 40.8 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 4.8 |
| Median Type Adjustment (f _M) | 1.6 | Level of Service (LOS) | A |
| Access Point Density Adjustment (f _A) | 0.5 | | |

Direction 1 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 185 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 2.99 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | C |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|---|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2027 |
| Jurisdiction | Deadwood | Time Period Analyzed | 7:30AM-8:30AM |
| Project Description | US14A / Pioneer Way from Upper Main Street to Pine Street | | |

Direction 2 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 2 Description | Westbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | Undivided | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 2.0 | Free-Flow Speed (FFS), mi/h | 42.9 |

Direction 2 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 2 Demand and Capacity

| | | | |
|-----------------------------|------|--|-------|
| Volume (V), veh/h | 435 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.935 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 253 |
| Total Trucks, % | 7.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.14 |

Direction 2 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 40.8 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 6.2 |
| Median Type Adjustment (f _M) | 1.6 | Level of Service (LOS) | A |
| Access Point Density Adjustment (f _A) | 0.5 | | |

Direction 2 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 236 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 3.38 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | C |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2027 |
| Jurisdiction | Deadwood | Time Period Analyzed | 7:30AM-8:30AM |
| Project Description | US14A / Pioneer Way from Dunlop Avenue to US85 | | |

Direction 1 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 1 Description | Eastbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | TWLT | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 1.0 | Free-Flow Speed (FFS), mi/h | 44.8 |

Direction 1 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 1 Demand and Capacity

| | | | |
|-----------------------------|-------|--|-------|
| Volume (V), veh/h | 545 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.909 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 326 |
| Total Trucks, % | 10.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.18 |

Direction 1 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 42.5 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 7.7 |
| Median Type Adjustment (f _M) | 0.0 | Level of Service (LOS) | A |
| Access Point Density Adjustment (f _A) | 0.3 | | |

Direction 1 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 296 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 4.39 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | D |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2027 |
| Jurisdiction | Deadwood | Time Period Analyzed | 7:30AM-8:30AM |
| Project Description | US14A / Pioneer Way from Dunlop Avenue to US85 | | |

Direction 2 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 2 Description | Westbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | TWLT | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 1.0 | Free-Flow Speed (FFS), mi/h | 44.8 |

Direction 2 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 2 Demand and Capacity

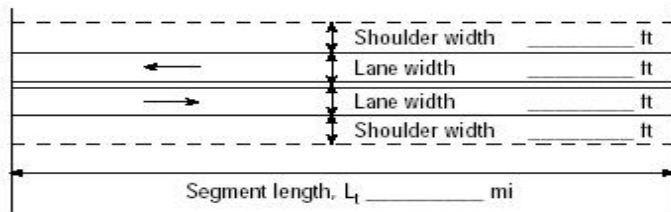
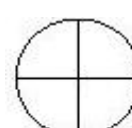
| | | | |
|-----------------------------|------|--|-------|
| Volume (V), veh/h | 745 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.935 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 433 |
| Total Trucks, % | 7.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.24 |

Direction 2 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 42.5 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 10.2 |
| Median Type Adjustment (f _M) | 0.0 | Level of Service (LOS) | A |
| Access Point Density Adjustment (f _A) | 0.3 | | |

Direction 2 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 405 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 3.65 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | D |

| DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET | | | |
|--|---|---|-------------------|
| General Information | | Site Information | |
| Analyst | THopkins | Highway / Direction of Travel | Upper Main Street |
| Agency or Company | HDR, Inc. | From/To | US14A to Deadwood |
| Date Performed | 11/5/2020 | Jurisdiction | Deadwood |
| Analysis Time Period | 7:30AM-8:30AM | Analysis Year | 2027 |
| Project Description: <i>Deadwood Box - Upper Main 2-Ln</i> | | | |
| Input Data | | | |
|  | | <div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">  <p>Show North Arrow</p> </div> <div> <input type="checkbox"/> Class I highway <input type="checkbox"/> Class II highway <input checked="" type="checkbox"/> Class III highway Terrain <input checked="" type="checkbox"/> Level <input type="checkbox"/> Rolling Grade Length mi Up/down Peak-hour factor, PHF 0.92 No-passing zone 0% % Trucks and Buses, P_T 4 % % Recreational vehicles, P_R 0% Access points <i>mi</i> 0/mi </div> </div> | |
| Analysis direction vol., V _d | 65veh/h | | |
| Opposing direction vol., V _o | 120veh/h | | |
| Shoulder width ft | 0.0 | | |
| Lane Width ft | 12.0 | | |
| Segment Length mi | 0.7 | | |
| Average Travel Speed | | | |
| | Analysis Direction (d) | Opposing Direction (o) | |
| Passenger-car equivalents for trucks, E _T (Exhibit 15-11 or 15-12) | 1.9 | 1.8 | |
| Passenger-car equivalents for RVs, E _R (Exhibit 15-11 or 15-13) | 1.0 | 1.0 | |
| Heavy-vehicle adjustment factor, f _{HV,ATS} =1/ (1+ P _T (E _T -1)+P _R (E _R -1)) | 0.965 | 0.969 | |
| Grade adjustment factor ¹ , f _{g,ATS} (Exhibit 15-9) | 1.00 | 1.00 | |
| Demand flow rate ² , v _i (pc/h) v _i =V _i / (PHF* f _{g,ATS} * f _{HV,ATS}) | 73 | 135 | |
| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
| Mean speed of sample ³ , S _{FM} | Base free-flow speed ⁴ , BFFS 45.0 mi/h | | |
| Total demand flow rate, both directions, v | Adj. for lane and shoulder width, ⁴ f _{LS} (Exhibit 15-7) 4.2 mi/h | | |
| Free-flow speed, FFS=S _{FM} +0.00776(v/ f _{HV,ATS}) | Adj. for access points ⁴ , f _A (Exhibit 15-8) 0.0 mi/h | | |
| Adj. for no-passing zones, f _{np,ATS} (Exhibit 15-15) 0.4 mi/h | Free-flow speed, FFS (FFS=BFFS-f _{LS} -f _A) 40.8 mi/h | | |
| | Average travel speed, ATS _d =FFS-0.00776(v _{d,ATS} + V _{o,ATS}) - f _{np,ATS} 38.8 mi/h | | |
| | Percent free flow speed, PFFS 95.1 % | | |
| Percent Time-Spent-Following | | | |
| | Analysis Direction (d) | Opposing Direction (o) | |
| Passenger-car equivalents for trucks, E _T (Exhibit 15-18 or 15-19) | 1.1 | 1.1 | |
| Passenger-car equivalents for RVs, E _R (Exhibit 15-18 or 15-19) | 1.0 | 1.0 | |
| Heavy-vehicle adjustment factor, f _{HV} =1/ (1+ P _T (E _T -1)+P _R (E _R -1)) | 0.996 | 0.996 | |
| Grade adjustment factor ¹ , f _{g,PTSF} (Exhibit 15-16 or Ex 15-17) | 1.00 | 1.00 | |
| Directional flow rate ² , v _i (pc/h) v _i =V _i / (PHF* f _{HV,PTSF} * f _{g,PTSF}) | 71 | 131 | |
| Base percent time-spent-following ⁴ , BPTSF _d (%)=100(1-e ^{av_d}) | 8.5 | | |
| Adj. for no-passing zone, f _{np,PTSF} (Exhibit 15-21) | 10.5 | | |
| Percent time-spent-following, PTSF _d (%)=BPTSF _d +f _{np,PTSF} *(v _{d,PTSF} / v _{d,PTSF} + V _{o,PTSF}) | 12.2 | | |
| Level of Service and Other Performance Measures | | | |
| Level of service, LOS (Exhibit 15-3) | A | | |
| Volume to capacity ratio, v/c | 0.04 | | |

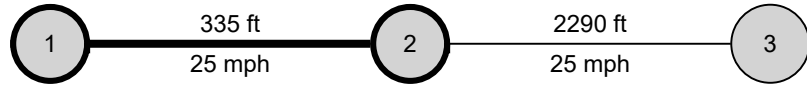
| | |
|--|-------|
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | 1700 |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | 1700 |
| Percent Free-Flow Speed $PFFS_d$ (Equation 15-11 - Class III only) | 95.1 |
| Bicycle Level of Service | |
| Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h | 70.7 |
| Effective width, W_v (Eq. 15-29) ft | 20.10 |
| Effective speed factor, S_t (Eq. 15-30) | |
| Bicycle level of service score, BLOS (Eq. 15-31) | |
| Bicycle level of service (Exhibit 15-4) | |
| Notes | |
| <p>1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.</p> <p>2. If $v_i(v_d \text{ or } v_o) \geq 1,700$ pc/h, terminate analysis--the LOS is F.</p> <p>3. For the analysis direction only and for $v > 200$ veh/h.</p> <p>4. For the analysis direction only</p> <p>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.</p> <p>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.</p> | |

No Build PM

2027

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|--------------------------|---------------|--------------|-------------------------|----------|
| Agency | HDR, Inc. | | | Number of Intersections | 4 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 3 |
| Jurisdiction | Deadwood | Time Period | 3:30 PM | Number of Iterations | 15 |
| File Name | 2027 PM_US 14A_Urban.xus | Analysis Year | 207 | System Cycle Length, s | 75 |
| Intersections | US 85/Pine | Deadwood | | Analysis Period | 1> 15:30 |
| Project Description | | | | | |



Basic Segment Information

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|-----|------------------|----|--------------|----|--------------|----|-------------|-----|
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB |
| 1 | 25 | 25 | 2 | 1 | 335 | 335 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|-------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | | 2 | 12 | 1 | 6 | |
| 1 | Bay/Lane Spillback Time, h | | never | | | never | |
| 1 | Shared Lane Spillback Time, h | | | | | | |
| 1 | Base Free-Flow Speed, mph | | 33.46 | | | 33.46 | |
| 1 | Running Time, s | | 12.53 | | | 12.92 | |
| 1 | Running Speed, mph | | 18.23 | | | 17.68 | |
| 1 | Through Delay, s/veh | | 6.07 | | | 14.67 | |
| 1 | Travel Time, s | | 18.60 | | | 27.59 | |
| 1 | Travel Speed, mph | | 25.00 | | | 25.00 | |
| 1 | Stop Rate, stops/veh | | 0.31 | | | 0.54 | |
| 1 | Spatial Stop Rate, stops/mi | | 4.92 | | | 8.59 | |
| 1 | Through vol/cap Ratio | | 0.24 | | | 0.68 | |
| 1 | Percent of Base FFS | | 74.72 | | | 74.72 | |
| 1 | Level of Service | | B | | | B | |
| 1 | Auto Traveler Perception Score | | 3.21 | | | 3.93 | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 2.17 | B | 2.78 | C |
| 1 | Bicycle Segment LOS Score / LOS | 2.72 | B | 3.15 | C |
| 1 | Transit Segment LOS Score / LOS | 1.72 | A | 1.95 | A |

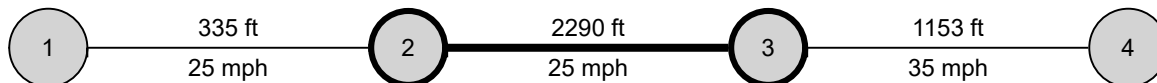
| Facility Output Data | | Eastbound | | Westbound | |
|---|--|-----------|--|-----------|--|
| Facility Travel Time, s | | 100.65 | | 117.88 | |
| Facility Travel Speed, mph | | 25.59 | | 21.85 | |
| Facility Base Free Flow Speed, mph | | 35.42 | | 33.82 | |
| Facility Percent of Base FFS | | 72.25 | | 64.61 | |
| Facility Level of Service | | B | | C | |
| Facility Auto Traveler Perception Score | | 2.46 | | 2.49 | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 2.50 | C | 2.62 | C |
| Bicycle Facility LOS Score / LOS | 3.32 | C | 3.40 | C |
| Transit Facility LOS Score / LOS | 1.01 | A | 1.02 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|--------------------------|---------------|--------------|-------------------------|----------|
| Agency | HDR, Inc. | | | Number of Intersections | 4 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 3 |
| Jurisdiction | Deadwood | Time Period | 3:30 PM | Number of Iterations | 15 |
| File Name | 2027 PM_US 14A_Urban.xus | Analysis Year | 207 | System Cycle Length, s | 75 |
| Intersections | Deadwood | Lower Main | | Analysis Period | 1> 15:30 |
| Project Description | | | | | |



Basic Segment Information

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB |
| 2 | 25 | 25 | 2 | 2 | 2290 | 2290 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|-------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | |
| 2 | Bay/Lane Spillback Time, h | | never | | | never | |
| 2 | Shared Lane Spillback Time, h | never | | | | | |
| 2 | Base Free-Flow Speed, mph | 32.18 | | | 30.05 | | |
| 2 | Running Time, s | 50.38 | | | 54.48 | | |
| 2 | Running Speed, mph | 30.99 | | | 28.66 | | |
| 2 | Through Delay, s/veh | 8.18 | | | 9.65 | | |
| 2 | Travel Time, s | 58.56 | | | 64.13 | | |
| 2 | Travel Speed, mph | 25.00 | | | 25.00 | | |
| 2 | Stop Rate, stops/veh | 0.37 | | | 0.50 | | |
| 2 | Spatial Stop Rate, stops/mi | 0.86 | | | 1.15 | | |
| 2 | Through vol/cap Ratio | 0.47 | | | 0.45 | | |
| 2 | Percent of Base FFS | 77.68 | | | 83.20 | | |
| 2 | Level of Service | B | | | A | | |
| 2 | Auto Traveler Perception Score | 2.41 | | | 2.46 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 2 | Pedestrian Segment LOS Score / LOS | 2.35 | B | 2.56 | B |
| 2 | Bicycle Segment LOS Score / LOS | 3.27 | C | 3.39 | C |
| 2 | Transit Segment LOS Score / LOS | 1.05 | A | 0.95 | A |

Facility Output Data

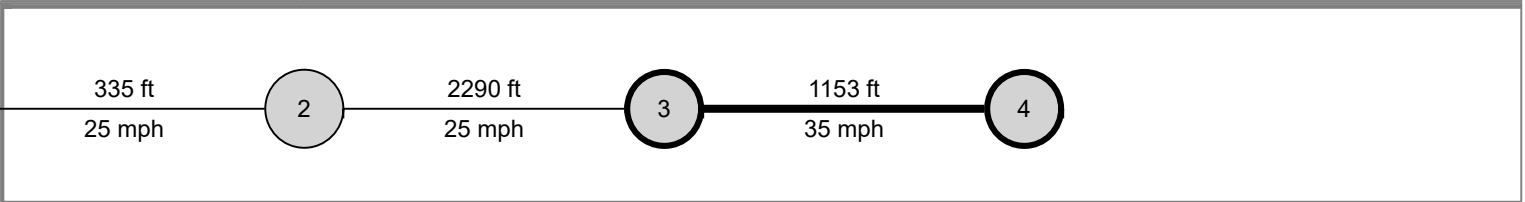
| | Eastbound | Westbound |
|---|-----------|-----------|
| Facility Travel Time, s | 100.65 | 117.88 |
| Facility Travel Speed, mph | 25.59 | 21.85 |
| Facility Base Free Flow Speed, mph | 35.42 | 33.82 |
| Facility Percent of Base FFS | 72.25 | 64.61 |
| Facility Level of Service | B | C |
| Facility Auto Traveler Perception Score | 2.46 | 2.49 |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 2.50 | C | 2.62 | C |
| Bicycle Facility LOS Score / LOS | 3.32 | C | 3.40 | C |
| Transit Facility LOS Score / LOS | 1.01 | A | 1.02 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|--------------------------|-----------------|--------------|-------------------------|----------|
| Agency | HDR, Inc. | | | Number of Intersections | 4 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 3 |
| Jurisdiction | Deadwood | Time Period | 3:30 PM | Number of Iterations | 15 |
| File Name | 2027 PM_US 14A_Urban.xus | Analysis Year | 207 | System Cycle Length, s | 75 |
| Intersections | Lower Main | Dunlop/McKinley | | Analysis Period | 1> 15:30 |
| Project Description | | | | | |



Basic Segment Information

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB |
| 3 | 35 | 35 | 2 | 2 | 1153 | 1153 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|-------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | |
| 3 | Bay/Lane Spillback Time, h | | never | | | never | |
| 3 | Shared Lane Spillback Time, h | | | | never | | |
| 3 | Base Free-Flow Speed, mph | 45.24 | | | 45.24 | | |
| 3 | Running Time, s | 20.68 | | | 20.50 | | |
| 3 | Running Speed, mph | 38.01 | | | 38.35 | | |
| 3 | Through Delay, s/veh | 2.81 | | | 5.66 | | |
| 3 | Travel Time, s | 23.49 | | | 26.16 | | |
| 3 | Travel Speed, mph | 35.00 | | | 35.00 | | |
| 3 | Stop Rate, stops/veh | 0.09 | | | 0.24 | | |
| 3 | Spatial Stop Rate, stops/mi | 0.41 | | | 1.10 | | |
| 3 | Through vol/cap Ratio | 0.43 | | | 0.38 | | |
| 3 | Percent of Base FFS | 77.36 | | | 77.36 | | |
| 3 | Level of Service | B | | | B | | |
| 3 | Auto Traveler Perception Score | 2.41 | | | 2.30 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 3 | Pedestrian Segment LOS Score / LOS | 2.89 | C | 2.70 | B |
| 3 | Bicycle Segment LOS Score / LOS | 3.59 | D | 3.50 | D |
| 3 | Transit Segment LOS Score / LOS | 0.72 | A | 0.89 | A |

Facility Output Data

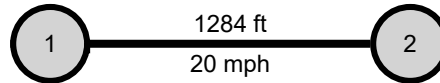
| Facility Output Data | Eastbound | | Westbound | |
|---|-----------|-----|-----------|-----|
| | EBL | EBT | WBL | WBT |
| Facility Travel Time, s | 100.65 | | 117.88 | |
| Facility Travel Speed, mph | 25.59 | | 21.85 | |
| Facility Base Free Flow Speed, mph | 35.42 | | 33.82 | |
| Facility Percent of Base FFS | 72.25 | | 64.61 | |
| Facility Level of Service | B | | C | |
| Facility Auto Traveler Perception Score | 2.46 | | 2.49 | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 2.50 | C | 2.62 | C |
| Bicycle Facility LOS Score / LOS | 3.32 | C | 3.40 | C |
| Transit Facility LOS Score / LOS | 1.01 | A | 1.02 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|-------------------|---------------|--------------|-------------------------|----------|
| Agency | HDR, Inc. | | | Number of Intersections | 2 |
| Analyst | | Analysis Date | Oct 30, 2020 | Number of Segments | 1 |
| Jurisdiction | Deadwood | Time Period | 3:30 PM | Number of Iterations | 15 |
| File Name | 2027 PM_US 85.xus | Analysis Year | 2027 | System Cycle Length, s | 75 |
| Intersections | US 14A/Pioneer | Cemetery | | Analysis Period | 1> 15:30 |
| Project Description | | | | | |



Basic Segment Information (US 85/Pioneer-Cemetery)

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|
| | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB |
| 1 | 20 | 20 | 1 | 1 | 1284 | 1284 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Southbound | | | Northbound | | |
|---------------------|--------------------------------|------------|-------|-----|------------|-------|-----|
| | | SBL | SBT | SBR | NBL | NBT | NBR |
| Segment | Movement | 1 | 6 | | | 2 | 12 |
| 1 | Bay/Lane Spillback Time, h | | never | | | never | |
| 1 | Shared Lane Spillback Time, h | never | | | never | | |
| 1 | Base Free-Flow Speed, mph | 25.00 | | | 25.00 | | |
| 1 | Running Time, s | 37.22 | | | 39.52 | | |
| 1 | Running Speed, mph | 23.52 | | | 22.15 | | |
| 1 | Through Delay, s/veh | 8.31 | | | 13.16 | | |
| 1 | Travel Time, s | 45.53 | | | 52.68 | | |
| 1 | Travel Speed, mph | 20.00 | | | 20.00 | | |
| 1 | Stop Rate, stops/veh | 0.43 | | | 0.51 | | |
| 1 | Spatial Stop Rate, stops/mi | 1.76 | | | 2.09 | | |
| 1 | Through vol/cap Ratio | 0.48 | | | 0.25 | | |
| 1 | Percent of Base FFS | 79.99 | | | 79.99 | | |
| 1 | Level of Service | B | | | B | | |
| 1 | Auto Traveler Perception Score | 2.52 | | | 2.57 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 2.25 | B | 2.85 | C |
| 1 | Bicycle Segment LOS Score / LOS | 3.04 | C | 3.31 | C |
| 1 | Transit Segment LOS Score / LOS | 1.64 | A | 1.55 | A |

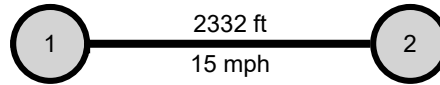
| Facility Output Data | | Southbound | | Northbound | |
|---|--|------------|--|------------|--|
| Facility Travel Time, s | | 45.53 | | 52.68 | |
| Facility Travel Speed, mph | | 19.23 | | 16.62 | |
| Facility Base Free Flow Speed, mph | | 25.00 | | 25.00 | |
| Facility Percent of Base FFS | | 76.90 | | 66.46 | |
| Facility Level of Service | | B | | C | |
| Facility Auto Traveler Perception Score | | 2.52 | | 2.57 | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 2.25 | B | 2.85 | C |
| Bicycle Facility LOS Score / LOS | 3.04 | C | 3.31 | C |
| Transit Facility LOS Score / LOS | 1.64 | A | 1.55 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|------------------------|----------------|--------------|-------------------------|----------|
| Agency | HDR, Inc. | | | Number of Intersections | 2 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 1 |
| Jurisdiction | Deadwood | Time Period | 3:30 PM | Number of Iterations | 15 |
| File Name | 2027 PM_Main_Urban.xus | Analysis Year | 2027 | System Cycle Length, s | 75 |
| Intersections | Deadwood | US 14A/Pioneer | | Analysis Period | 1> 15:30 |
| Project Description | | | | | |



Basic Segment Information

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB |
| 1 | 15 | 15 | 1 | 1 | 2332 | 2332 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|-------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | 16 |
| 1 | Bay/Lane Spillback Time, h | | never | | | never | |
| 1 | Shared Lane Spillback Time, h | | | | | | |
| 1 | Base Free-Flow Speed, mph | 20.00 | | | 20.00 | | |
| 1 | Running Time, s | 81.29 | | | 80.67 | | |
| 1 | Running Speed, mph | 19.56 | | | 19.71 | | |
| 1 | Through Delay, s/veh | 9.11 | | | 7.16 | | |
| 1 | Travel Time, s | 90.39 | | | 87.84 | | |
| 1 | Travel Speed, mph | 15.00 | | | 15.00 | | |
| 1 | Stop Rate, stops/veh | 0.42 | | | 0.55 | | |
| 1 | Spatial Stop Rate, stops/mi | 0.96 | | | 1.24 | | |
| 1 | Through vol/cap Ratio | 0.11 | | | 0.08 | | |
| 1 | Percent of Base FFS | 75.00 | | | 75.00 | | |
| 1 | Level of Service | B | | | B | | |
| 1 | Auto Traveler Perception Score | 2.28 | | | 2.54 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 1.76 | A | 1.86 | A |
| 1 | Bicycle Segment LOS Score / LOS | 2.32 | B | 1.70 | A |
| 1 | Transit Segment LOS Score / LOS | 1.55 | A | 1.52 | A |

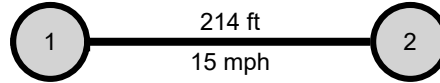
| Facility Output Data | | Eastbound | | Westbound | |
|---|--|-----------|--|-----------|--|
| Facility Travel Time, s | | 90.39 | | 87.84 | |
| Facility Travel Speed, mph | | 17.59 | | 18.10 | |
| Facility Base Free Flow Speed, mph | | 20.00 | | 20.00 | |
| Facility Percent of Base FFS | | 87.95 | | 90.51 | |
| Facility Level of Service | | A | | A | |
| Facility Auto Traveler Perception Score | | 2.28 | | 2.54 | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 1.76 | A | 1.86 | A |
| Bicycle Facility LOS Score / LOS | 2.32 | C | 1.70 | A |
| Transit Facility LOS Score / LOS | 1.55 | A | 1.52 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|----------------------|---------------|--------------|-------------------------|----------|
| Agency | HDR, Inc. | | | Number of Intersections | 2 |
| Analyst | | Analysis Date | Oct 30, 2020 | Number of Segments | 1 |
| Jurisdiction | Deadwood | Time Period | 3:30 PM | Number of Iterations | 15 |
| File Name | 2027 PM_Deadwood.xus | Analysis Year | 2027 | System Cycle Length, s | 75 |
| Intersections | US 14A/Pioneer | Main | | Analysis Period | 1> 15:30 |
| Project Description | | | | | |



Basic Segment Information (Deadwood/Pioneer-Main)

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|-----|------------------|----|--------------|----|--------------|----|-------------|-----|
| | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB |
| 1 | 15 | 15 | 1 | 1 | 214 | 214 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Northbound | | | Southbound | | |
|---------------------|--------------------------------|------------|-------|-----|------------|-------|-----|
| | | NBL | NBT | NBR | SBL | SBT | SBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | 16 |
| 1 | Bay/Lane Spillback Time, h | | never | | | never | |
| 1 | Shared Lane Spillback Time, h | | | | | | |
| 1 | Base Free-Flow Speed, mph | 15.00 | | | 15.00 | | |
| 1 | Running Time, s | 17.31 | | | 17.41 | | |
| 1 | Running Speed, mph | 8.43 | | | 8.38 | | |
| 1 | Through Delay, s/veh | 8.38 | | | 7.52 | | |
| 1 | Travel Time, s | 25.70 | | | 24.93 | | |
| 1 | Travel Speed, mph | 15.00 | | | 15.00 | | |
| 1 | Stop Rate, stops/veh | 0.60 | | | 0.37 | | |
| 1 | Spatial Stop Rate, stops/mi | 14.68 | | | 9.23 | | |
| 1 | Through vol/cap Ratio | 0.15 | | | 0.17 | | |
| 1 | Percent of Base FFS | 100.00 | | | 100.00 | | |
| 1 | Level of Service | A | | | A | | |
| 1 | Auto Traveler Perception Score | 5.04 | | | 4.06 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 1.89 | A | 2.01 | B |
| 1 | Bicycle Segment LOS Score / LOS | 1.99 | A | 2.35 | B |
| 1 | Transit Segment LOS Score / LOS | 2.82 | C | 2.85 | C |

| Facility Output Data | | Northbound | | Southbound | |
|---|-------|-------------------------|-------|------------|--|
| | | Facility Travel Time, s | 25.70 | 24.93 | |
| Facility Travel Speed, mph | 5.68 | 5.85 | | | |
| Facility Base Free Flow Speed, mph | 15.00 | 15.00 | | | |
| Facility Percent of Base FFS | 37.85 | 39.01 | | | |
| Facility Level of Service | E | E | | | |
| Facility Auto Traveler Perception Score | 5.04 | 4.06 | | | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 1.89 | A | 2.01 | B |
| Bicycle Facility LOS Score / LOS | 1.99 | A | 2.35 | C |
| Transit Facility LOS Score / LOS | 2.82 | C | 2.85 | C |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|---|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2027 |
| Jurisdiction | Deadwood | Time Period Analyzed | 7:30AM-8:30AM |
| Project Description | US14A / Pioneer Way from Upper Main Street to Pine Street | | |

Direction 1 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 1 Description | Eastbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | Undivided | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 2.0 | Free-Flow Speed (FFS), mi/h | 42.9 |

Direction 1 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 1 Demand and Capacity

| | | | |
|-----------------------------|------|--|-------|
| Volume (V), veh/h | 450 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.943 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 260 |
| Total Trucks, % | 6.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.15 |

Direction 1 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 40.8 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 6.4 |
| Median Type Adjustment (f _M) | 1.6 | Level of Service (LOS) | A |
| Access Point Density Adjustment (f _A) | 0.5 | | |

Direction 1 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 245 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 3.13 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | C |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|---|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2027 |
| Jurisdiction | Deadwood | Time Period Analyzed | 7:30AM-8:30AM |
| Project Description | US14A / Pioneer Way from Upper Main Street to Pine Street | | |

Direction 2 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 2 Description | Westbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | Undivided | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 2.0 | Free-Flow Speed (FFS), mi/h | 42.9 |

Direction 2 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 2 Demand and Capacity

| | | | |
|-----------------------------|------|--|-------|
| Volume (V), veh/h | 355 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.971 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 198 |
| Total Trucks, % | 3.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.11 |

Direction 2 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 40.8 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 4.9 |
| Median Type Adjustment (f _M) | 1.6 | Level of Service (LOS) | A |
| Access Point Density Adjustment (f _A) | 0.5 | | |

Direction 2 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 193 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 2.31 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | B |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2027 |
| Jurisdiction | Deadwood | Time Period Analyzed | 3:30PM-4:30PM |
| Project Description | US14A / Pioneer Way from Dunlop Avenue to US85 | | |

Direction 1 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 1 Description | Eastbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | TWLT | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 1.0 | Free-Flow Speed (FFS), mi/h | 44.8 |

Direction 1 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 1 Demand and Capacity

| | | | |
|-----------------------------|------|--|-------|
| Volume (V), veh/h | 995 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.962 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 562 |
| Total Trucks, % | 4.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.32 |

Direction 1 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 42.5 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 13.2 |
| Median Type Adjustment (f _M) | 0.0 | Level of Service (LOS) | B |
| Access Point Density Adjustment (f _A) | 0.3 | | |

Direction 1 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 541 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 3.05 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | C |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2027 |
| Jurisdiction | Deadwood | Time Period Analyzed | 3:30PM-4:30PM |
| Project Description | US14A / Pioneer Way from Dunlop Avenue to US85 | | |

Direction 2 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 2 Description | Westbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | TWLT | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 1.0 | Free-Flow Speed (FFS), mi/h | 44.8 |

Direction 2 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 2 Demand and Capacity

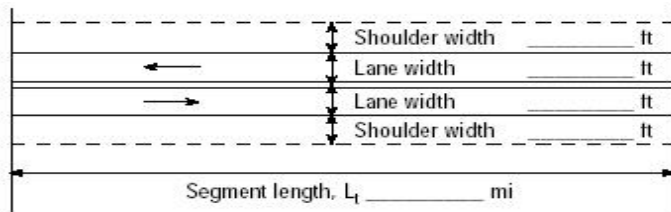
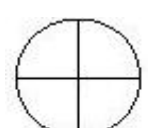
| | | | |
|-----------------------------|------|--|-------|
| Volume (V), veh/h | 725 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.980 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 402 |
| Total Trucks, % | 2.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.23 |

Direction 2 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 42.5 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 9.5 |
| Median Type Adjustment (f _M) | 0.0 | Level of Service (LOS) | A |
| Access Point Density Adjustment (f _A) | 0.3 | | |

Direction 2 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 394 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 2.47 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | B |

| DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET | | | |
|--|---|---|-------------------|
| General Information | | Site Information | |
| Analyst | THopkins | Highway / Direction of Travel | Upper Main Street |
| Agency or Company | HDR, Inc. | From/To | US14A to Deadwood |
| Date Performed | 11/5/2020 | Jurisdiction | Deadwood |
| Analysis Time Period | 3:30PM-4:30PM | Analysis Year | 2027 |
| Project Description: <i>Deadwood Box - Upper Main 2-Ln</i> | | | |
| Input Data | | | |
|  | | <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> Class I highway <input type="checkbox"/> Class II highway <input checked="" type="checkbox"/> Class III highway </div> <div style="width: 45%;"> <input type="checkbox"/> Terrain <input checked="" type="checkbox"/> Level <input type="checkbox"/> Rolling </div> </div> <div style="margin-top: 10px;">  <p>Show North Arrow</p> </div> <div style="margin-top: 10px;"> Grade Length mi Up/down Peak-hour factor, PHF 0.92 No-passing zone 0% % Trucks and Buses, P_T 5% % Recreational vehicles, P_R 0% Access points mi 0/mi </div> | |
| Analysis direction vol., V _d | 120veh/h | | |
| Opposing direction vol., V _o | 210veh/h | | |
| Shoulder width ft | 0.0 | | |
| Lane Width ft | 12.0 | | |
| Segment Length mi | 0.7 | | |
| Average Travel Speed | | | |
| | Analysis Direction (d) | Opposing Direction (o) | |
| Passenger-car equivalents for trucks, E _T (Exhibit 15-11 or 15-12) | 1.8 | 1.5 | |
| Passenger-car equivalents for RVs, E _R (Exhibit 15-11 or 15-13) | 1.0 | 1.0 | |
| Heavy-vehicle adjustment factor, f _{HV,ATS} =1/(1+P _T (E _T -1)+P _R (E _R -1)) | 0.962 | 0.976 | |
| Grade adjustment factor ¹ , f _{g,ATS} (Exhibit 15-9) | 1.00 | 1.00 | |
| Demand flow rate ² , v _i (pc/h) v _i =V _i /(PHF*f _{g,ATS} *f _{HV,ATS}) | 136 | 234 | |
| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
| Mean speed of sample ³ , S _{FM} | Base free-flow speed ⁴ , BFFS 45.0 mi/h | | |
| Total demand flow rate, both directions, v | Adj. for lane and shoulder width, ⁴ f _{LS} (Exhibit 15-7) 4.2 mi/h | | |
| Free-flow speed, FFS=S _{FM} +0.00776(v/f _{HV,ATS}) | Adj. for access points ⁴ , f _A (Exhibit 15-8) 0.0 mi/h | | |
| Adj. for no-passing zones, f _{np,ATS} (Exhibit 15-15) 0.9 mi/h | Free-flow speed, FFS (FFS=BFFS-f _{LS} -f _A) 40.8 mi/h | | |
| | Average travel speed, ATS _d =FFS-0.00776(v _{d,ATS} + V _{o,ATS}) - f _{np,ATS} 37.0 mi/h | | |
| | Percent free flow speed, PFFS 90.8 % | | |
| Percent Time-Spent-Following | | | |
| | Analysis Direction (d) | Opposing Direction (o) | |
| Passenger-car equivalents for trucks, E _T (Exhibit 15-18 or 15-19) | 1.1 | 1.1 | |
| Passenger-car equivalents for RVs, E _R (Exhibit 15-18 or 15-19) | 1.0 | 1.0 | |
| Heavy-vehicle adjustment factor, f _{HV} =1/(1+P _T (E _T -1)+P _R (E _R -1)) | 0.995 | 0.995 | |
| Grade adjustment factor ¹ , f _{g,PTSF} (Exhibit 15-16 or Ex 15-17) | 1.00 | 1.00 | |
| Directional flow rate ² , v _i (pc/h) v _i =V _i /(PHF*f _{HV,PTSF} *f _{g,PTSF}) | 131 | 229 | |
| Base percent time-spent-following ⁴ , BPTSF _d (%)=100(1-e ^{av_d}) | 15.3 | | |
| Adj. for no-passing zone, f _{np,PTSF} (Exhibit 15-21) | 12.6 | | |
| Percent time-spent-following, PTSF _d (%)=BPTSF _d +f _{np,PTSF} *(v _{d,PTSF} /v _{d,PTSF} +V _{o,PTSF}) | 19.9 | | |
| Level of Service and Other Performance Measures | | | |
| Level of service, LOS (Exhibit 15-3) | B | | |
| Volume to capacity ratio, v/c | 0.08 | | |

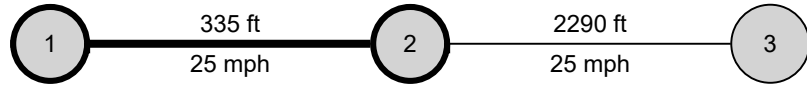
| | |
|--|-------|
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | 1700 |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | 1700 |
| Percent Free-Flow Speed $PFFS_d$ (Equation 15-11 - Class III only) | 90.8 |
| Bicycle Level of Service | |
| Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h | 130.4 |
| Effective width, W_v (Eq. 15-29) ft | 16.80 |
| Effective speed factor, S_t (Eq. 15-30) | |
| Bicycle level of service score, BLOS (Eq. 15-31) | |
| Bicycle level of service (Exhibit 15-4) | |
| Notes | |
| <p>1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.</p> <p>2. If $v_i(v_d \text{ or } v_o) \geq 1,700$ pc/h, terminate analysis--the LOS is F.</p> <p>3. For the analysis direction only and for $v > 200$ veh/h.</p> <p>4. For the analysis direction only</p> <p>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.</p> <p>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.</p> | |

No Build AM

2050

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|--------------------------|---------------|--------------|-------------------------|---------|
| Agency | HDR, Inc. | | | Number of Intersections | 4 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 3 |
| Jurisdiction | Deadwood | Time Period | 7:30 AM | Number of Iterations | 15 |
| File Name | 2050 AM_US 14A_Urban.xus | Analysis Year | 2050 | System Cycle Length, s | 75 |
| Intersections | US 85/Pine | Deadwood | | Analysis Period | 1> 7:30 |
| Project Description | | | | | |



Basic Segment Information

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|-----|------------------|----|--------------|----|--------------|----|-------------|-----|
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB |
| 1 | 25 | 25 | 2 | 1 | 335 | 335 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | 16 |
| 1 | Bay/Lane Spillback Time, h | | never | | | 0.06 | |
| 1 | Shared Lane Spillback Time, h | | | | | | |
| 1 | Base Free-Flow Speed, mph | 33.46 | | | 33.46 | | |
| 1 | Running Time, s | 12.53 | | | 13.62 | | |
| 1 | Running Speed, mph | 18.23 | | | 16.77 | | |
| 1 | Through Delay, s/veh | 6.84 | | | 121.45 | | |
| 1 | Travel Time, s | 19.37 | | | 135.08 | | |
| 1 | Travel Speed, mph | 25.00 | | | 25.00 | | |
| 1 | Stop Rate, stops/veh | 0.33 | | | 1.72 | | |
| 1 | Spatial Stop Rate, stops/mi | 5.16 | | | 27.15 | | |
| 1 | Through vol/cap Ratio | 0.29 | | | 1.23 | | |
| 1 | Percent of Base FFS | 74.72 | | | 74.72 | | |
| 1 | Level of Service | B | | | F | | |
| 1 | Auto Traveler Perception Score | 3.25 | | | 5.93 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 2.17 | B | 3.33 | C |
| 1 | Bicycle Segment LOS Score / LOS | 2.70 | B | 3.36 | C |
| 1 | Transit Segment LOS Score / LOS | 1.72 | A | 2.21 | B |

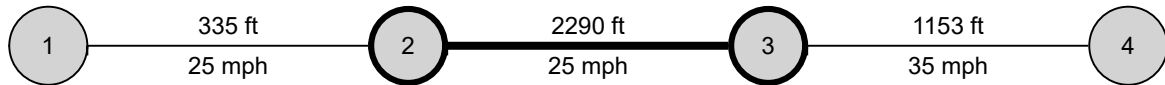
| Facility Output Data | | Eastbound | | Westbound | |
|---|--|-----------|--|-----------|--|
| Facility Travel Time, s | | 96.89 | | 232.56 | |
| Facility Travel Speed, mph | | 26.59 | | 11.08 | |
| Facility Base Free Flow Speed, mph | | 35.42 | | 33.82 | |
| Facility Percent of Base FFS | | 75.06 | | 32.75 | |
| Facility Level of Service | | B | | F | |
| Facility Auto Traveler Perception Score | | 2.43 | | 2.55 | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 2.45 | C | 3.00 | C |
| Bicycle Facility LOS Score / LOS | 3.29 | C | 3.59 | D |
| Transit Facility LOS Score / LOS | 0.90 | A | 1.12 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|--------------------------|---------------|--------------|-------------------------|---------|
| Agency | HDR, Inc. | | | Number of Intersections | 4 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 3 |
| Jurisdiction | Deadwood | Time Period | 7:30 AM | Number of Iterations | 15 |
| File Name | 2050 AM_US 14A_Urban.xus | Analysis Year | 2050 | System Cycle Length, s | 75 |
| Intersections | Deadwood | Lower Main | | Analysis Period | 1> 7:30 |
| Project Description | | | | | |



Basic Segment Information

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB |
| 2 | 25 | 25 | 2 | 2 | 2290 | 2290 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|-------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | 16 |
| 2 | Bay/Lane Spillback Time, h | | never | | | never | |
| 2 | Shared Lane Spillback Time, h | never | | | | | |
| 2 | Base Free-Flow Speed, mph | 32.18 | | | 30.05 | | |
| 2 | Running Time, s | 50.31 | | | 55.85 | | |
| 2 | Running Speed, mph | 31.03 | | | 27.96 | | |
| 2 | Through Delay, s/veh | 3.95 | | | 16.77 | | |
| 2 | Travel Time, s | 54.26 | | | 72.62 | | |
| 2 | Travel Speed, mph | 25.00 | | | 25.00 | | |
| 2 | Stop Rate, stops/veh | 0.20 | | | 0.67 | | |
| 2 | Spatial Stop Rate, stops/mi | 0.47 | | | 1.55 | | |
| 2 | Through vol/cap Ratio | 0.37 | | | 0.75 | | |
| 2 | Percent of Base FFS | 77.68 | | | 83.20 | | |
| 2 | Level of Service | B | | | A | | |
| 2 | Auto Traveler Perception Score | 2.35 | | | 2.52 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 2 | Pedestrian Segment LOS Score / LOS | 2.32 | B | 2.92 | C |
| 2 | Bicycle Segment LOS Score / LOS | 3.24 | C | 3.57 | D |
| 2 | Transit Segment LOS Score / LOS | 0.89 | A | 1.08 | A |

Facility Output Data

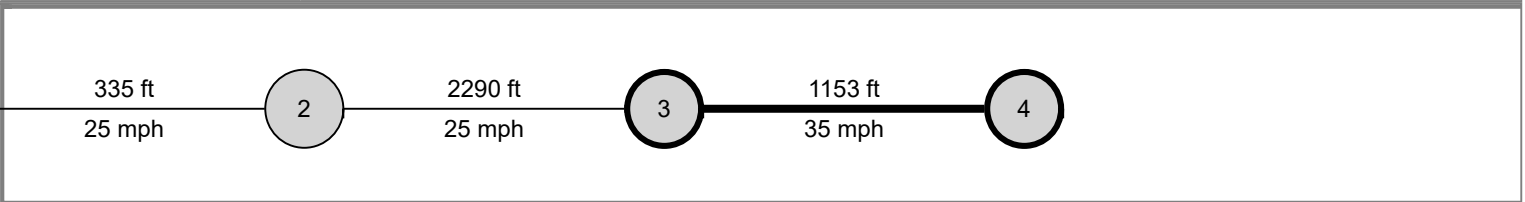
| Facility Output Data | Eastbound | | Westbound | |
|---|-----------|-----|-----------|-----|
| | Score | LOS | Score | LOS |
| Facility Travel Time, s | 96.89 | | 232.56 | |
| Facility Travel Speed, mph | 26.59 | | 11.08 | |
| Facility Base Free Flow Speed, mph | 35.42 | | 33.82 | |
| Facility Percent of Base FFS | 75.06 | | 32.75 | |
| Facility Level of Service | B | | F | |
| Facility Auto Traveler Perception Score | 2.43 | | 2.55 | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 2.45 | C | 3.00 | C |
| Bicycle Facility LOS Score / LOS | 3.29 | C | 3.59 | D |
| Transit Facility LOS Score / LOS | 0.90 | A | 1.12 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|--------------------------|-----------------|--------------|-------------------------|---------|
| Agency | HDR, Inc. | | | Number of Intersections | 4 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 3 |
| Jurisdiction | Deadwood | Time Period | 7:30 AM | Number of Iterations | 15 |
| File Name | 2050 AM_US 14A_Urban.xus | Analysis Year | 2050 | System Cycle Length, s | 75 |
| Intersections | Lower Main | Dunlop/McKinley | | Analysis Period | 1> 7:30 |
| Project Description | | | | | |



Basic Segment Information

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB |
| 3 | 35 | 35 | 2 | 2 | 1153 | 1153 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|-------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | |
| 3 | Bay/Lane Spillback Time, h | | never | | | never | |
| 3 | Shared Lane Spillback Time, h | | | | never | | |
| 3 | Base Free-Flow Speed, mph | 45.24 | | | 45.24 | | |
| 3 | Running Time, s | 20.59 | | | 20.81 | | |
| 3 | Running Speed, mph | 38.17 | | | 37.78 | | |
| 3 | Through Delay, s/veh | 2.66 | | | 4.06 | | |
| 3 | Travel Time, s | 23.25 | | | 24.86 | | |
| 3 | Travel Speed, mph | 35.00 | | | 35.00 | | |
| 3 | Stop Rate, stops/veh | 0.09 | | | 0.15 | | |
| 3 | Spatial Stop Rate, stops/mi | 0.42 | | | 0.68 | | |
| 3 | Through vol/cap Ratio | 0.39 | | | 0.56 | | |
| 3 | Percent of Base FFS | 77.36 | | | 77.36 | | |
| 3 | Level of Service | B | | | B | | |
| 3 | Auto Traveler Perception Score | 2.41 | | | 2.24 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 3 | Pedestrian Segment LOS Score / LOS | 2.79 | C | 3.05 | C |
| 3 | Bicycle Segment LOS Score / LOS | 3.57 | D | 3.69 | D |
| 3 | Transit Segment LOS Score / LOS | 0.68 | A | 0.87 | A |

Facility Output Data

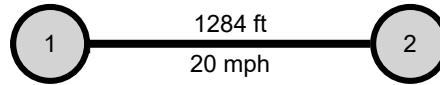
| | Eastbound | Westbound |
|---|-----------|-----------|
| Facility Travel Time, s | 96.89 | 232.56 |
| Facility Travel Speed, mph | 26.59 | 11.08 |
| Facility Base Free Flow Speed, mph | 35.42 | 33.82 |
| Facility Percent of Base FFS | 75.06 | 32.75 |
| Facility Level of Service | B | F |
| Facility Auto Traveler Perception Score | 2.43 | 2.55 |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 2.45 | C | 3.00 | C |
| Bicycle Facility LOS Score / LOS | 3.29 | C | 3.59 | D |
| Transit Facility LOS Score / LOS | 0.90 | A | 1.12 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|-------------------|---------------|--------------|-------------------------|----------|
| Agency | HDR, Inc. | | | Number of Intersections | 2 |
| Analyst | | Analysis Date | Oct 30, 2020 | Number of Segments | 1 |
| Jurisdiction | Deadwood | Time Period | 7:30 AM | Number of Iterations | 15 |
| File Name | 2050 AM_US 85.xus | Analysis Year | 2050 | System Cycle Length, s | 75 |
| Intersections | US 14A/Pioneer | Cemetery | | Analysis Period | 1 > 7:30 |
| Project Description | | | | | |



Basic Segment Information (US 85/Pioneer-Cemetery)

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|
| | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB |
| 1 | 20 | 20 | 1 | 1 | 1284 | 1284 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Southbound | | | Northbound | | |
|---------------------|--------------------------------|------------|-------|-----|------------|-------|-----|
| | | SBL | SBT | SBR | NBL | NBT | NBR |
| Segment | Movement | 1 | 6 | | | 2 | 12 |
| 1 | Bay/Lane Spillback Time, h | never | never | | never | never | |
| 1 | Shared Lane Spillback Time, h | never | | | never | | |
| 1 | Base Free-Flow Speed, mph | 25.00 | | | 25.00 | | |
| 1 | Running Time, s | 37.71 | | | 39.52 | | |
| 1 | Running Speed, mph | 23.21 | | | 22.15 | | |
| 1 | Through Delay, s/veh | 12.16 | | | 17.87 | | |
| 1 | Travel Time, s | 49.87 | | | 57.39 | | |
| 1 | Travel Speed, mph | 20.00 | | | 20.00 | | |
| 1 | Stop Rate, stops/veh | 0.66 | | | 0.62 | | |
| 1 | Spatial Stop Rate, stops/mi | 2.72 | | | 2.55 | | |
| 1 | Through vol/cap Ratio | 0.83 | | | 0.38 | | |
| 1 | Percent of Base FFS | 79.99 | | | 79.99 | | |
| 1 | Level of Service | B | | | B | | |
| 1 | Auto Traveler Perception Score | 2.68 | | | 2.65 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 2.45 | B | 2.82 | C |
| 1 | Bicycle Segment LOS Score / LOS | 3.21 | C | 3.33 | C |
| 1 | Transit Segment LOS Score / LOS | 1.85 | A | 1.55 | A |

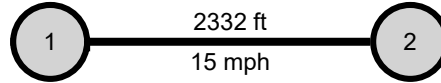
| Facility Output Data | | Southbound | | Northbound | |
|---|--|------------|--|------------|--|
| Facility Travel Time, s | | 49.87 | | 57.39 | |
| Facility Travel Speed, mph | | 17.55 | | 15.25 | |
| Facility Base Free Flow Speed, mph | | 25.00 | | 25.00 | |
| Facility Percent of Base FFS | | 70.20 | | 61.01 | |
| Facility Level of Service | | B | | C | |
| Facility Auto Traveler Perception Score | | 2.68 | | 2.65 | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 2.45 | C | 2.82 | C |
| Bicycle Facility LOS Score / LOS | 3.21 | C | 3.33 | C |
| Transit Facility LOS Score / LOS | 1.85 | A | 1.55 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|------------------------|----------------|--------------|-------------------------|---------|
| Agency | HDR, Inc. | | | Number of Intersections | 2 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 1 |
| Jurisdiction | Deadwood | Time Period | 7:30 AM | Number of Iterations | 15 |
| File Name | 2050 AM_Main_Urban.xus | Analysis Year | 2050 | System Cycle Length, s | 75 |
| Intersections | Deadwood | US 14A/Pioneer | | Analysis Period | 1> 7:30 |
| Project Description | | | | | |



Basic Segment Information

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB |
| 1 | 15 | 15 | 1 | 1 | 2332 | 2332 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|-------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | 16 |
| 1 | Bay/Lane Spillback Time, h | | never | | | never | |
| 1 | Shared Lane Spillback Time, h | | | | | | |
| 1 | Base Free-Flow Speed, mph | 20.00 | | | 20.00 | | |
| 1 | Running Time, s | 80.81 | | | 80.45 | | |
| 1 | Running Speed, mph | 19.68 | | | 19.76 | | |
| 1 | Through Delay, s/veh | 0.00 | | | 7.23 | | |
| 1 | Travel Time, s | 80.81 | | | 87.68 | | |
| 1 | Travel Speed, mph | 15.00 | | | 15.00 | | |
| 1 | Stop Rate, stops/veh | 0.00 | | | 0.62 | | |
| 1 | Spatial Stop Rate, stops/mi | 0.00 | | | 1.41 | | |
| 1 | Through vol/cap Ratio | 0.00 | | | 0.05 | | |
| 1 | Percent of Base FFS | 75.00 | | | 75.00 | | |
| 1 | Level of Service | B | | | B | | |
| 1 | Auto Traveler Perception Score | 2.14 | | | 2.57 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 1.67 | A | 1.82 | A |
| 1 | Bicycle Segment LOS Score / LOS | 1.84 | A | 1.36 | A |
| 1 | Transit Segment LOS Score / LOS | 1.52 | A | 1.50 | A |

Facility Output Data

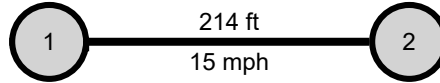
| Facility Output Data | Eastbound | | Westbound | |
|---|-----------|-----|-----------|-----|
| | EBL | EBT | WBL | WBT |
| Facility Travel Time, s | 80.81 | | 87.68 | |
| Facility Travel Speed, mph | 19.68 | | 18.13 | |
| Facility Base Free Flow Speed, mph | 20.00 | | 20.00 | |
| Facility Percent of Base FFS | 98.38 | | 90.67 | |
| Facility Level of Service | A | | A | |
| Facility Auto Traveler Perception Score | 2.14 | | 2.57 | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 1.67 | A | 1.82 | A |
| Bicycle Facility LOS Score / LOS | 1.84 | A | 1.36 | A |
| Transit Facility LOS Score / LOS | 1.52 | A | 1.50 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|----------------------|---------------|--------------|-------------------------|---------|
| Agency | HDR, Inc. | | | Number of Intersections | 2 |
| Analyst | | Analysis Date | Oct 30, 2020 | Number of Segments | 1 |
| Jurisdiction | Deadwood | Time Period | 7:30 AM | Number of Iterations | 15 |
| File Name | 2050 AM_Deadwood.xus | Analysis Year | 2050 | System Cycle Length, s | 75 |
| Intersections | US 14A/Pioneer | Main | | Analysis Period | 1> 7:30 |
| Project Description | | | | | |



Basic Segment Information (Deadwood/Pioneer-Main)

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|-----|------------------|----|--------------|----|--------------|----|-------------|-----|
| | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB |
| 1 | 15 | 15 | 1 | 1 | 214 | 214 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Northbound | | | Southbound | | |
|---------------------|--------------------------------|------------|-------|-----|------------|-------|-----|
| | | NBL | NBT | NBR | SBL | SBT | SBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | 16 |
| 1 | Bay/Lane Spillback Time, h | | never | | | never | |
| 1 | Shared Lane Spillback Time, h | | | | | | |
| 1 | Base Free-Flow Speed, mph | 15.00 | | | 15.00 | | |
| 1 | Running Time, s | 17.40 | | | 17.44 | | |
| 1 | Running Speed, mph | 8.38 | | | 8.37 | | |
| 1 | Through Delay, s/veh | 6.92 | | | 12.43 | | |
| 1 | Travel Time, s | 24.33 | | | 29.87 | | |
| 1 | Travel Speed, mph | 15.00 | | | 15.00 | | |
| 1 | Stop Rate, stops/veh | 0.60 | | | 0.52 | | |
| 1 | Spatial Stop Rate, stops/mi | 14.91 | | | 12.76 | | |
| 1 | Through vol/cap Ratio | 0.23 | | | 0.23 | | |
| 1 | Percent of Base FFS | 100.00 | | | 100.00 | | |
| 1 | Level of Service | A | | | A | | |
| 1 | Auto Traveler Perception Score | 5.07 | | | 4.72 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 1.94 | A | 2.02 | B |
| 1 | Bicycle Segment LOS Score / LOS | 2.31 | B | 2.53 | B |
| 1 | Transit Segment LOS Score / LOS | 2.85 | C | 2.86 | C |

| Facility Output Data | | Northbound | | Southbound | |
|---|-------|-------------------------|-------|------------|--|
| | | Facility Travel Time, s | 24.33 | 29.87 | |
| Facility Travel Speed, mph | 6.00 | 4.88 | | | |
| Facility Base Free Flow Speed, mph | 15.00 | 15.00 | | | |
| Facility Percent of Base FFS | 39.99 | 32.56 | | | |
| Facility Level of Service | E | E | | | |
| Facility Auto Traveler Perception Score | 5.07 | 4.72 | | | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 1.94 | A | 2.02 | B |
| Bicycle Facility LOS Score / LOS | 2.31 | C | 2.53 | C |
| Transit Facility LOS Score / LOS | 2.85 | C | 2.86 | C |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|---|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2050 |
| Jurisdiction | Deadwood | Time Period Analyzed | 7:30AM-8:30AM |
| Project Description | US14A / Pioneer Way from Upper Main Street to Pine Street | | |

Direction 1 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 1 Description | Eastbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | Undivided | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 2.0 | Free-Flow Speed (FFS), mi/h | 42.9 |

Direction 1 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 1 Demand and Capacity

| | | | |
|-----------------------------|------|--|-------|
| Volume (V), veh/h | 545 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.943 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 314 |
| Total Trucks, % | 6.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.18 |

Direction 1 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 40.8 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 7.7 |
| Median Type Adjustment (f _M) | 1.6 | Level of Service (LOS) | A |
| Access Point Density Adjustment (f _A) | 0.5 | | |

Direction 1 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 296 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 3.23 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | C |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|---|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2050 |
| Jurisdiction | Deadwood | Time Period Analyzed | 7:30AM-8:30AM |
| Project Description | US14A / Pioneer Way from Upper Main Street to Pine Street | | |

Direction 2 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 2 Description | Westbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | Undivided | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 2.0 | Free-Flow Speed (FFS), mi/h | 42.9 |

Direction 2 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 2 Demand and Capacity

| | | | |
|-----------------------------|------|--|-------|
| Volume (V), veh/h | 695 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.935 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 404 |
| Total Trucks, % | 7.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.23 |

Direction 2 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 40.8 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 9.9 |
| Median Type Adjustment (f _M) | 1.6 | Level of Service (LOS) | A |
| Access Point Density Adjustment (f _A) | 0.5 | | |

Direction 2 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 378 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 3.62 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | D |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2050 |
| Jurisdiction | Deadwood | Time Period Analyzed | 7:30AM-8:30AM |
| Project Description | US14A / Pioneer Way from Dunlop Avenue to US85 | | |

Direction 1 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 1 Description | Eastbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | TWLT | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 1.0 | Free-Flow Speed (FFS), mi/h | 44.8 |

Direction 1 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 1 Demand and Capacity

| | | | |
|-----------------------------|-------|--|-------|
| Volume (V), veh/h | 870 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.909 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 520 |
| Total Trucks, % | 10.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.29 |

Direction 1 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 42.5 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 12.2 |
| Median Type Adjustment (f _M) | 0.0 | Level of Service (LOS) | B |
| Access Point Density Adjustment (f _A) | 0.3 | | |

Direction 1 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 473 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 4.63 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | E |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2050 |
| Jurisdiction | Deadwood | Time Period Analyzed | 7:30AM-8:30AM |
| Project Description | US14A / Pioneer Way from Dunlop Avenue to US85 | | |

Direction 2 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 2 Description | Westbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | TWLT | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 1.0 | Free-Flow Speed (FFS), mi/h | 44.8 |

Direction 2 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 2 Demand and Capacity

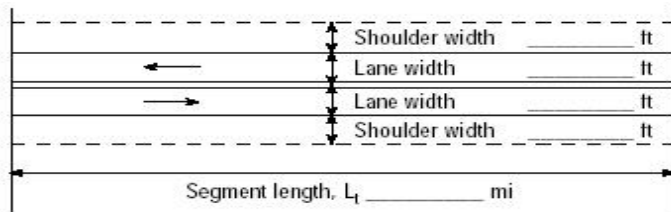
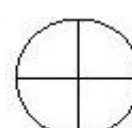
| | | | |
|-----------------------------|------|--|-------|
| Volume (V), veh/h | 1195 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.935 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 694 |
| Total Trucks, % | 7.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.39 |

Direction 2 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 42.5 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 16.3 |
| Median Type Adjustment (f _M) | 0.0 | Level of Service (LOS) | B |
| Access Point Density Adjustment (f _A) | 0.3 | | |

Direction 2 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 649 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 3.89 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | D |

| DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET | | | |
|--|---|---|-------------------|
| General Information | | Site Information | |
| Analyst | THopkins | Highway / Direction of Travel | Upper Main Street |
| Agency or Company | HDR, Inc. | From/To | US14A to Deadwood |
| Date Performed | 11/5/2020 | Jurisdiction | Deadwood |
| Analysis Time Period | 7:30AM-8:30AM | Analysis Year | 2050 |
| Project Description: <i>Deadwood Box - Upper Main 2-Ln</i> | | | |
| Input Data | | | |
|  | | <div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">  <p>Show North Arrow</p> </div> <div> <input type="checkbox"/> Class I highway <input type="checkbox"/> Class II highway <input checked="" type="checkbox"/> Class III highway Terrain <input checked="" type="checkbox"/> Level <input type="checkbox"/> Rolling Grade Length mi Up/down Peak-hour factor, PHF 0.92 No-passing zone 0% % Trucks and Buses, P_T 4 % % Recreational vehicles, P_R 0% Access points <i>mi</i> 0/mi </div> </div> | |
| Analysis direction vol., V _d | 95veh/h | | |
| Opposing direction vol., V _o | 190veh/h | | |
| Shoulder width ft | 0.0 | | |
| Lane Width ft | 12.0 | | |
| Segment Length mi | 0.7 | | |
| Average Travel Speed | | | |
| | Analysis Direction (d) | Opposing Direction (o) | |
| Passenger-car equivalents for trucks, E _T (Exhibit 15-11 or 15-12) | 1.9 | 1.5 | |
| Passenger-car equivalents for RVs, E _R (Exhibit 15-11 or 15-13) | 1.0 | 1.0 | |
| Heavy-vehicle adjustment factor, f _{HV,ATS} =1/ (1+ P _T (E _T -1)+P _R (E _R -1)) | 0.965 | 0.980 | |
| Grade adjustment factor ¹ , f _{g,ATS} (Exhibit 15-9) | 1.00 | 1.00 | |
| Demand flow rate ² , v _i (pc/h) v _i =V _i / (PHF* f _{g,ATS} * f _{HV,ATS}) | 107 | 211 | |
| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
| Mean speed of sample ³ , S _{FM} | Base free-flow speed ⁴ , BFFS 45.0 mi/h | | |
| Total demand flow rate, both directions, v | Adj. for lane and shoulder width, ⁴ f _{LS} (Exhibit 15-7) 4.2 mi/h | | |
| Free-flow speed, FFS=S _{FM} +0.00776(v/ f _{HV,ATS}) | Adj. for access points ⁴ , f _A (Exhibit 15-8) 0.0 mi/h | | |
| Adj. for no-passing zones, f _{np,ATS} (Exhibit 15-15) 0.9 mi/h | Free-flow speed, FFS (FFS=BFFS-f _{LS} -f _A) 40.8 mi/h | | |
| | Average travel speed, ATS _d =FFS-0.00776(v _{d,ATS} + V _{o,ATS}) - f _{np,ATS} 37.4 mi/h | | |
| | Percent free flow speed, PFFS 91.7 % | | |
| Percent Time-Spent-Following | | | |
| | Analysis Direction (d) | Opposing Direction (o) | |
| Passenger-car equivalents for trucks, E _T (Exhibit 15-18 or 15-19) | 1.1 | 1.1 | |
| Passenger-car equivalents for RVs, E _R (Exhibit 15-18 or 15-19) | 1.0 | 1.0 | |
| Heavy-vehicle adjustment factor, f _{HV} =1/ (1+ P _T (E _T -1)+P _R (E _R -1)) | 0.996 | 0.996 | |
| Grade adjustment factor ¹ , f _{g,PTSF} (Exhibit 15-16 or Ex 15-17) | 1.00 | 1.00 | |
| Directional flow rate ² , v _i (pc/h) v _i =V _i / (PHF* f _{HV,PTSF} * f _{g,PTSF}) | 104 | 207 | |
| Base percent time-spent-following ⁴ , BPTSF _d (%)=100(1-e ^{-av_d^b}) | 11.9 | | |
| Adj. for no-passing zone, f _{np,PTSF} (Exhibit 15-21) | 11.2 | | |
| Percent time-spent-following, PTSF _d (%)=BPTSF _d +f _{np,PTSF} *(v _{d,PTSF} / v _{d,PTSF} + V _{o,PTSF}) | 15.6 | | |
| Level of Service and Other Performance Measures | | | |
| Level of service, LOS (Exhibit 15-3) | A | | |
| Volume to capacity ratio, v/c | 0.06 | | |

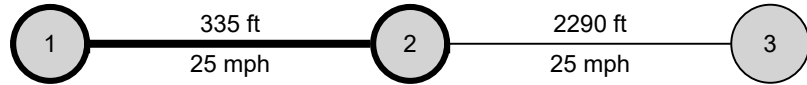
| | |
|--|-------|
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | 1700 |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | 1700 |
| Percent Free-Flow Speed $PFFS_d$ (Equation 15-11 - Class III only) | 91.7 |
| Bicycle Level of Service | |
| Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h | 103.3 |
| Effective width, Wv (Eq. 15-29) ft | 18.30 |
| Effective speed factor, S_t (Eq. 15-30) | |
| Bicycle level of service score, BLOS (Eq. 15-31) | |
| Bicycle level of service (Exhibit 15-4) | |
| Notes | |
| <p>1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.</p> <p>2. If $v_i(v_d \text{ or } v_o) \geq 1,700$ pc/h, terminate analysis--the LOS is F.</p> <p>3. For the analysis direction only and for $v > 200$ veh/h.</p> <p>4. For the analysis direction only</p> <p>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.</p> <p>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.</p> | |

No Build PM

2050

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|--------------------------|---------------|--------------|-------------------------|----------|
| Agency | HDR, Inc. | | | Number of Intersections | 4 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 3 |
| Jurisdiction | Deadwood | Time Period | 3:30 PM | Number of Iterations | 15 |
| File Name | 2050 PM_US 14A_Urban.xus | Analysis Year | 2050 | System Cycle Length, s | 75 |
| Intersections | US 85/Pine | Deadwood | | Analysis Period | 1> 15:30 |
| Project Description | | | | | |



Basic Segment Information

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|-----|------------------|----|--------------|----|--------------|----|-------------|-----|
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB |
| 1 | 25 | 25 | 2 | 1 | 335 | 335 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|-------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | |
| 1 | Bay/Lane Spillback Time, h | | never | | | 0.10 | |
| 1 | Shared Lane Spillback Time, h | | | | | | |
| 1 | Base Free-Flow Speed, mph | | 33.46 | | | 33.46 | |
| 1 | Running Time, s | | 12.62 | | | 13.61 | |
| 1 | Running Speed, mph | | 18.10 | | | 16.78 | |
| 1 | Through Delay, s/veh | | 9.22 | | | 82.66 | |
| 1 | Travel Time, s | | 21.84 | | | 96.27 | |
| 1 | Travel Speed, mph | | 25.00 | | | 25.00 | |
| 1 | Stop Rate, stops/veh | | 0.41 | | | 1.13 | |
| 1 | Spatial Stop Rate, stops/mi | | 6.51 | | | 17.76 | |
| 1 | Through vol/cap Ratio | | 0.44 | | | 1.15 | |
| 1 | Percent of Base FFS | | 74.72 | | | 74.72 | |
| 1 | Level of Service | | B | | | F | |
| 1 | Auto Traveler Perception Score | | 3.52 | | | 5.44 | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 2.35 | B | 3.32 | C |
| 1 | Bicycle Segment LOS Score / LOS | 2.88 | C | 3.32 | C |
| 1 | Transit Segment LOS Score / LOS | 1.78 | A | 2.20 | B |

Facility Output Data

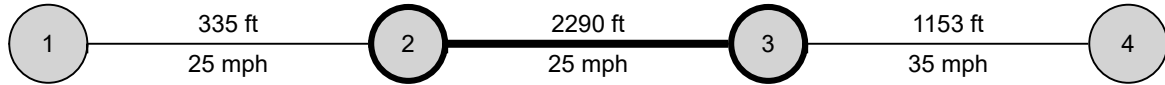
| Facility Output Data | Eastbound | | Westbound | |
|---|-----------|-----|-----------|-----|
| | EBL | EBT | WBL | WBT |
| Facility Travel Time, s | 117.07 | | 209.67 | |
| Facility Travel Speed, mph | 22.00 | | 12.29 | |
| Facility Base Free Flow Speed, mph | 35.42 | | 33.82 | |
| Facility Percent of Base FFS | 62.11 | | 36.33 | |
| Facility Level of Service | C | | F | |
| Facility Auto Traveler Perception Score | 2.57 | | 2.63 | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 2.79 | C | 3.00 | C |
| Bicycle Facility LOS Score / LOS | 3.49 | C | 3.57 | D |
| Transit Facility LOS Score / LOS | 1.33 | A | 1.22 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|--------------------------|---------------|--------------|-------------------------|----------|
| Agency | HDR, Inc. | | | Number of Intersections | 4 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 3 |
| Jurisdiction | Deadwood | Time Period | 3:30 PM | Number of Iterations | 15 |
| File Name | 2050 PM_US 14A_Urban.xus | Analysis Year | 2050 | System Cycle Length, s | 75 |
| Intersections | Deadwood | Lower Main | | Analysis Period | 1> 15:30 |
| Project Description | | | | | |



Basic Segment Information

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB |
| 2 | 25 | 25 | 2 | 2 | 2290 | 2290 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|-------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | |
| 2 | Bay/Lane Spillback Time, h | | never | | | never | |
| 2 | Shared Lane Spillback Time, h | never | | | | | |
| 2 | Base Free-Flow Speed, mph | 32.18 | | | 30.05 | | |
| 2 | Running Time, s | 51.00 | | | 55.91 | | |
| 2 | Running Speed, mph | 30.61 | | | 27.93 | | |
| 2 | Through Delay, s/veh | 18.12 | | | 28.39 | | |
| 2 | Travel Time, s | 69.12 | | | 84.30 | | |
| 2 | Travel Speed, mph | 25.00 | | | 25.00 | | |
| 2 | Stop Rate, stops/veh | 0.68 | | | 0.84 | | |
| 2 | Spatial Stop Rate, stops/mi | 1.58 | | | 1.94 | | |
| 2 | Through vol/cap Ratio | 0.78 | | | 0.88 | | |
| 2 | Percent of Base FFS | 77.68 | | | 83.20 | | |
| 2 | Level of Service | B | | | A | | |
| 2 | Auto Traveler Perception Score | 2.53 | | | 2.59 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 2 | Pedestrian Segment LOS Score / LOS | 2.58 | B | 2.93 | C |
| 2 | Bicycle Segment LOS Score / LOS | 3.44 | C | 3.55 | D |
| 2 | Transit Segment LOS Score / LOS | 1.42 | A | 1.09 | A |

Facility Output Data

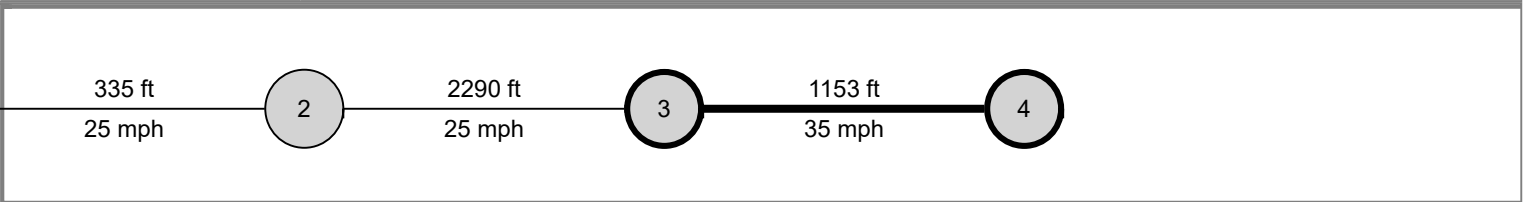
| Facility Output Data | Eastbound | | Westbound | |
|---|-----------|-------|-----------|-------|
| | Value | Value | Value | Value |
| Facility Travel Time, s | 117.07 | | 209.67 | |
| Facility Travel Speed, mph | 22.00 | | 12.29 | |
| Facility Base Free Flow Speed, mph | 35.42 | | 33.82 | |
| Facility Percent of Base FFS | 62.11 | | 36.33 | |
| Facility Level of Service | C | | F | |
| Facility Auto Traveler Perception Score | 2.57 | | 2.63 | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 2.79 | C | 3.00 | C |
| Bicycle Facility LOS Score / LOS | 3.49 | C | 3.57 | D |
| Transit Facility LOS Score / LOS | 1.33 | A | 1.22 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|--------------------------|-----------------|--------------|-------------------------|----------|
| Agency | HDR, Inc. | | | Number of Intersections | 4 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 3 |
| Jurisdiction | Deadwood | Time Period | 3:30 PM | Number of Iterations | 15 |
| File Name | 2050 PM_US 14A_Urban.xus | Analysis Year | 2050 | System Cycle Length, s | 75 |
| Intersections | Lower Main | Dunlop/McKinley | | Analysis Period | 1> 15:30 |
| Project Description | | | | | |



Basic Segment Information

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB |
| 3 | 35 | 35 | 2 | 2 | 1153 | 1153 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|-------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | |
| 3 | Bay/Lane Spillback Time, h | | never | | | never | |
| 3 | Shared Lane Spillback Time, h | | | | never | | |
| 3 | Base Free-Flow Speed, mph | 45.24 | | | 45.24 | | |
| 3 | Running Time, s | 21.12 | | | 20.79 | | |
| 3 | Running Speed, mph | 37.23 | | | 37.81 | | |
| 3 | Through Delay, s/veh | 4.99 | | | 8.31 | | |
| 3 | Travel Time, s | 26.11 | | | 29.10 | | |
| 3 | Travel Speed, mph | 35.00 | | | 35.00 | | |
| 3 | Stop Rate, stops/veh | 0.15 | | | 0.31 | | |
| 3 | Spatial Stop Rate, stops/mi | 0.67 | | | 1.40 | | |
| 3 | Through vol/cap Ratio | 0.69 | | | 0.65 | | |
| 3 | Percent of Base FFS | 77.36 | | | 77.36 | | |
| 3 | Level of Service | B | | | B | | |
| 3 | Auto Traveler Perception Score | 2.45 | | | 2.35 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 3 | Pedestrian Segment LOS Score / LOS | 3.32 | C | 3.03 | C |
| 3 | Bicycle Segment LOS Score / LOS | 3.76 | D | 3.68 | D |
| 3 | Transit Segment LOS Score / LOS | 1.04 | A | 1.18 | A |

Facility Output Data

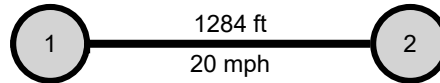
| Facility Output Data | Eastbound | | Westbound | |
|---|-----------|-----|-----------|-----|
| | EBL | EBT | WBL | WBT |
| Facility Travel Time, s | 117.07 | | 209.67 | |
| Facility Travel Speed, mph | 22.00 | | 12.29 | |
| Facility Base Free Flow Speed, mph | 35.42 | | 33.82 | |
| Facility Percent of Base FFS | 62.11 | | 36.33 | |
| Facility Level of Service | C | | F | |
| Facility Auto Traveler Perception Score | 2.57 | | 2.63 | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 2.79 | C | 3.00 | C |
| Bicycle Facility LOS Score / LOS | 3.49 | C | 3.57 | D |
| Transit Facility LOS Score / LOS | 1.33 | A | 1.22 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|-------------------|---------------|--------------|-------------------------|----------|
| Agency | HDR, Inc. | | | Number of Intersections | 2 |
| Analyst | | Analysis Date | Oct 30, 2020 | Number of Segments | 1 |
| Jurisdiction | Deadwood | Time Period | 3:30 PM | Number of Iterations | 15 |
| File Name | 2050 PM_US 85.xus | Analysis Year | 2050 | System Cycle Length, s | 75 |
| Intersections | US 14A/Pioneer | Cemetery | | Analysis Period | 1> 15:30 |
| Project Description | | | | | |



Basic Segment Information (US 85/Pioneer-Cemetery)

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|
| | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB |
| 1 | 20 | 20 | 1 | 1 | 1284 | 1284 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Southbound | | | Northbound | | |
|---------------------|--------------------------------|------------|-------|-----|------------|-------|-----|
| | | SBL | SBT | SBR | NBL | NBT | NBR |
| Segment | Movement | 1 | 6 | | | 2 | 12 |
| 1 | Bay/Lane Spillback Time, h | never | never | | never | never | |
| 1 | Shared Lane Spillback Time, h | never | | | never | | |
| 1 | Base Free-Flow Speed, mph | 25.00 | | | 25.00 | | |
| 1 | Running Time, s | 38.04 | | | 40.87 | | |
| 1 | Running Speed, mph | 23.01 | | | 21.42 | | |
| 1 | Through Delay, s/veh | 14.54 | | | 19.89 | | |
| 1 | Travel Time, s | 52.58 | | | 60.76 | | |
| 1 | Travel Speed, mph | 20.00 | | | 20.00 | | |
| 1 | Stop Rate, stops/veh | 0.54 | | | 0.65 | | |
| 1 | Spatial Stop Rate, stops/mi | 2.21 | | | 2.67 | | |
| 1 | Through vol/cap Ratio | 0.75 | | | 0.41 | | |
| 1 | Percent of Base FFS | 79.99 | | | 79.99 | | |
| 1 | Level of Service | B | | | B | | |
| 1 | Auto Traveler Perception Score | 2.59 | | | 2.67 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 2.48 | B | 3.36 | C |
| 1 | Bicycle Segment LOS Score / LOS | 3.22 | C | 3.30 | C |
| 1 | Transit Segment LOS Score / LOS | 1.95 | A | 1.67 | A |

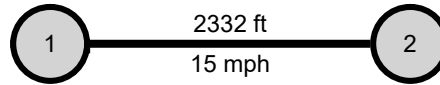
| Facility Output Data | | Southbound | | Northbound | |
|---|--|------------|--|------------|--|
| Facility Travel Time, s | | 52.58 | | 60.76 | |
| Facility Travel Speed, mph | | 16.65 | | 14.41 | |
| Facility Base Free Flow Speed, mph | | 25.00 | | 25.00 | |
| Facility Percent of Base FFS | | 66.59 | | 57.63 | |
| Facility Level of Service | | C | | C | |
| Facility Auto Traveler Perception Score | | 2.59 | | 2.67 | |

Multimodal Results (Facility)

| | | | | | |
|-------------------------------------|--|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | | 2.48 | C | 3.36 | C |
| Bicycle Facility LOS Score / LOS | | 3.22 | C | 3.30 | C |
| Transit Facility LOS Score / LOS | | 1.95 | A | 1.67 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|------------------------|----------------|--------------|-------------------------|----------|
| Agency | HDR, Inc. | | | Number of Intersections | 2 |
| Analyst | | Analysis Date | Oct 29, 2020 | Number of Segments | 1 |
| Jurisdiction | Deadwood | Time Period | 3:30 PM | Number of Iterations | 15 |
| File Name | 2050 PM_Main_Urban.xus | Analysis Year | 2050 | System Cycle Length, s | 75 |
| Intersections | Deadwood | US 14A/Pioneer | | Analysis Period | 1> 15:30 |
| Project Description | | | | | |



Basic Segment Information

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|------|------------------|----|--------------|----|--------------|----|-------------|-----|
| | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB | EB | WB |
| 1 | 15 | 15 | 1 | 1 | 2332 | 2332 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Eastbound | | | Westbound | | |
|---------------------|--------------------------------|-----------|-------|-----|-----------|-------|-----|
| | | EBL | EBT | EBR | WBL | WBT | WBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | 16 |
| 1 | Bay/Lane Spillback Time, h | | never | | | never | |
| 1 | Shared Lane Spillback Time, h | | | | | | |
| 1 | Base Free-Flow Speed, mph | 20.00 | | | 20.00 | | |
| 1 | Running Time, s | 81.95 | | | 80.90 | | |
| 1 | Running Speed, mph | 19.40 | | | 19.65 | | |
| 1 | Through Delay, s/veh | 9.66 | | | 7.29 | | |
| 1 | Travel Time, s | 91.61 | | | 88.19 | | |
| 1 | Travel Speed, mph | 15.00 | | | 15.00 | | |
| 1 | Stop Rate, stops/veh | 0.44 | | | 0.55 | | |
| 1 | Spatial Stop Rate, stops/mi | 0.99 | | | 1.24 | | |
| 1 | Through vol/cap Ratio | 0.10 | | | 0.12 | | |
| 1 | Percent of Base FFS | 75.00 | | | 75.00 | | |
| 1 | Level of Service | B | | | B | | |
| 1 | Auto Traveler Perception Score | 2.29 | | | 2.54 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 1.84 | A | 1.90 | A |
| 1 | Bicycle Segment LOS Score / LOS | 2.76 | C | 2.01 | B |
| 1 | Transit Segment LOS Score / LOS | 1.59 | A | 1.53 | A |

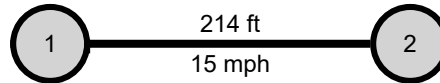
| Facility Output Data | | Eastbound | | Westbound | |
|---|--|-----------|--|-----------|--|
| Facility Travel Time, s | | 91.61 | | 88.19 | |
| Facility Travel Speed, mph | | 17.36 | | 18.03 | |
| Facility Base Free Flow Speed, mph | | 20.00 | | 20.00 | |
| Facility Percent of Base FFS | | 86.78 | | 90.15 | |
| Facility Level of Service | | A | | A | |
| Facility Auto Traveler Perception Score | | 2.29 | | 2.54 | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 1.84 | A | 1.90 | A |
| Bicycle Facility LOS Score / LOS | 2.76 | C | 2.01 | B |
| Transit Facility LOS Score / LOS | 1.59 | A | 1.53 | A |

HCS7 Urban Street Segment Report

| General Information | | | | Streets Information | |
|---------------------|----------------------|---------------|--------------|-------------------------|----------|
| Agency | HDR, Inc. | | | Number of Intersections | 2 |
| Analyst | | Analysis Date | Oct 30, 2020 | Number of Segments | 1 |
| Jurisdiction | Deadwood | Time Period | 3:30 PM | Number of Iterations | 15 |
| File Name | 2050 PM_Deadwood.xus | Analysis Year | 2050 | System Cycle Length, s | 75 |
| Intersections | US 14A/Pioneer | Main | | Analysis Period | 1> 15:30 |
| Project Description | | | | | |



Basic Segment Information (Deadwood/Pioneer-Main)

| Segment | Speed Limit | | Through Lanes | | Segment Length | | Intersection Wid | | Length of RM | | Percent Curb | | Other Delay | |
|---------|-------------|----|---------------|----|----------------|-----|------------------|----|--------------|----|--------------|----|-------------|-----|
| | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB | NB | SB |
| 1 | 15 | 15 | 1 | 1 | 214 | 214 | 50 | 50 | 0 | 0 | 70 | 70 | 0.0 | 0.0 |

| Segment Output Data | | Northbound | | | Southbound | | |
|---------------------|--------------------------------|------------|-------|-----|------------|-------|-----|
| | | NBL | NBT | NBR | SBL | SBT | SBR |
| Segment | Movement | 5 | 2 | 12 | 1 | 6 | 16 |
| 1 | Bay/Lane Spillback Time, h | | never | | | never | |
| 1 | Shared Lane Spillback Time, h | | | | | | |
| 1 | Base Free-Flow Speed, mph | 15.00 | | | 15.00 | | |
| 1 | Running Time, s | 17.39 | | | 17.56 | | |
| 1 | Running Speed, mph | 8.39 | | | 8.31 | | |
| 1 | Through Delay, s/veh | 10.09 | | | 16.70 | | |
| 1 | Travel Time, s | 27.48 | | | 34.26 | | |
| 1 | Travel Speed, mph | 15.00 | | | 15.00 | | |
| 1 | Stop Rate, stops/veh | 0.64 | | | 0.62 | | |
| 1 | Spatial Stop Rate, stops/mi | 15.78 | | | 15.36 | | |
| 1 | Through vol/cap Ratio | 0.26 | | | 0.38 | | |
| 1 | Percent of Base FFS | 100.00 | | | 100.00 | | |
| 1 | Level of Service | A | | | A | | |
| 1 | Auto Traveler Perception Score | 5.20 | | | 5.14 | | |

Multimodal Results (Segment)

| | | | | | |
|---|------------------------------------|------|---|------|---|
| 1 | Pedestrian Segment LOS Score / LOS | 1.94 | A | 2.07 | B |
| 1 | Bicycle Segment LOS Score / LOS | 2.26 | B | 2.61 | B |
| 1 | Transit Segment LOS Score / LOS | 2.84 | C | 2.89 | C |

| Facility Output Data | | Northbound | | Southbound | |
|---|-------|-------------------------|-------|------------|--|
| | | Facility Travel Time, s | 27.48 | 34.26 | |
| Facility Travel Speed, mph | 5.31 | 4.26 | | | |
| Facility Base Free Flow Speed, mph | 15.00 | 15.00 | | | |
| Facility Percent of Base FFS | 35.40 | 28.39 | | | |
| Facility Level of Service | E | F | | | |
| Facility Auto Traveler Perception Score | 5.20 | 5.14 | | | |

Multimodal Results (Facility)

| | | | | |
|-------------------------------------|------|---|------|---|
| Pedestrian Facility LOS Score / LOS | 1.94 | A | 2.07 | B |
| Bicycle Facility LOS Score / LOS | 2.26 | C | 2.61 | C |
| Transit Facility LOS Score / LOS | 2.84 | C | 2.89 | C |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|---|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2050 |
| Jurisdiction | Deadwood | Time Period Analyzed | 7:30AM-8:30AM |
| Project Description | US14A / Pioneer Way from Upper Main Street to Pine Street | | |

Direction 1 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 1 Description | Eastbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | Undivided | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 2.0 | Free-Flow Speed (FFS), mi/h | 42.9 |

Direction 1 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 1 Demand and Capacity

| | | | |
|-----------------------------|------|--|-------|
| Volume (V), veh/h | 720 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.943 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 415 |
| Total Trucks, % | 6.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.23 |

Direction 1 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 40.8 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 10.2 |
| Median Type Adjustment (f _M) | 1.6 | Level of Service (LOS) | A |
| Access Point Density Adjustment (f _A) | 0.5 | | |

Direction 1 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 391 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 3.37 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | C |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|---|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2050 |
| Jurisdiction | Deadwood | Time Period Analyzed | 7:30AM-8:30AM |
| Project Description | US14A / Pioneer Way from Upper Main Street to Pine Street | | |

Direction 2 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 2 Description | Westbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | Undivided | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 2.0 | Free-Flow Speed (FFS), mi/h | 42.9 |

Direction 2 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 2 Demand and Capacity

| | | | |
|-----------------------------|------|--|-------|
| Volume (V), veh/h | 575 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.971 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 322 |
| Total Trucks, % | 3.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.18 |

Direction 2 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 40.8 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 7.9 |
| Median Type Adjustment (f _M) | 1.6 | Level of Service (LOS) | A |
| Access Point Density Adjustment (f _A) | 0.5 | | |

Direction 2 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 312 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 2.55 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | C |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2050 |
| Jurisdiction | Deadwood | Time Period Analyzed | 3:30PM-4:30PM |
| Project Description | US14A / Pioneer Way from Dunlop Avenue to US85 | | |

Direction 1 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 1 Description | Eastbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | TWLT | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 1.0 | Free-Flow Speed (FFS), mi/h | 44.8 |

Direction 1 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 1 Demand and Capacity

| | | | |
|-----------------------------|------|--|-------|
| Volume (V), veh/h | 1550 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.962 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 876 |
| Total Trucks, % | 4.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.49 |

Direction 1 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 42.5 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 20.6 |
| Median Type Adjustment (f _M) | 0.0 | Level of Service (LOS) | C |
| Access Point Density Adjustment (f _A) | 0.3 | | |

Direction 1 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 842 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 3.27 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | C |

HCS7 Multilane Highway Report

Project Information

| | | | |
|---------------------|--|----------------------|---------------|
| Analyst | HDR | Date | 11/4/2020 |
| Agency | SDDOT | Analysis Year | 2050 |
| Jurisdiction | Deadwood | Time Period Analyzed | 3:30PM-4:30PM |
| Project Description | US14A / Pioneer Way from Dunlop Avenue to US85 | | |

Direction 2 Geometric Data

| | | | |
|-----------------------------------|-----------|---|-------|
| Direction 2 Description | Westbound | | |
| Number of Lanes (N), ln | 2 | Terrain Type | Level |
| Segment Length (L), ft | - | Percent Grade, % | - |
| Measured or Base Free-Flow Speed | Base | Grade Length, mi | - |
| Base Free-Flow Speed (BFFS), mi/h | 45.0 | Right-Side Lateral Clearance (LC _R), ft | 6 |
| Lane Width, ft | 12 | Left-Side Lateral Clearance (LC _L), ft | 6 |
| Median Type | TWLT | Total Lateral Clearance (TLC), ft | 12.00 |
| Access Point Density, pts/mi | 1.0 | Free-Flow Speed (FFS), mi/h | 44.8 |

Direction 2 Adjustment Factors

| | | | |
|-----------------------|--------------|--|-------|
| Driver Population | Balanced Mix | Final Speed Adjustment Factor (SAF) | 0.950 |
| Driver Population SAF | 0.950 | Final Capacity Adjustment Factor (CAF) | 0.939 |
| Driver Population CAF | 0.939 | | |

Direction 2 Demand and Capacity

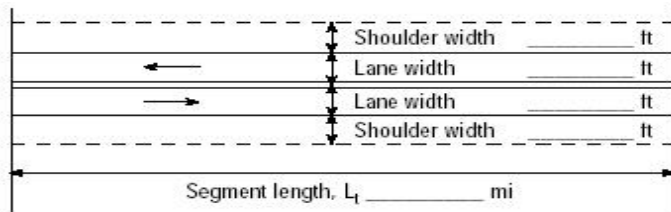
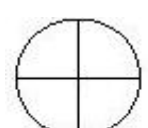
| | | | |
|-----------------------------|------|--|-------|
| Volume (V), veh/h | 1160 | Heavy Vehicle Adjustment Factor (f _{HV}) | 0.980 |
| Peak Hour Factor (PHF) | 0.92 | Flow Rate (v _P), pc/h/ln | 644 |
| Total Trucks, % | 2.00 | Capacity (c), pc/h/ln | 1900 |
| Single-Unit Trucks (SUT), % | - | Adjusted Capacity (c _{adj}), pc/h/ln | 1784 |
| Tractor-Trailers (TT), % | - | Volume-to-Capacity Ratio (v/c) | 0.36 |

Direction 2 Speed and Density

| | | | |
|---|-----|-------------------------|------|
| Lane Width Adjustment (f _{LW}) | 0.0 | Average Speed (S), mi/h | 42.5 |
| Total Lateral Clearance Adj. (f _{TLC}) | 0.0 | Density (D), pc/mi/ln | 15.2 |
| Median Type Adjustment (f _M) | 0.0 | Level of Service (LOS) | B |
| Access Point Density Adjustment (f _A) | 0.3 | | |

Direction 2 Bicycle LOS

| | | | |
|---|-----|--|------|
| Flow Rate in Outside Lane (v _{OL}), veh/h | 630 | Effective Speed Factor (S _i) | 3.84 |
| Effective Width of Volume (W _v), ft | 18 | Bicycle LOS Score (BLOS) | 2.71 |
| Average Effective Width (W _e), ft | 24 | Bicycle Level of Service (LOS) | C |

| DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET | | | |
|--|---|---|-------------------|
| General Information | | Site Information | |
| Analyst | THopkins | Highway / Direction of Travel | Upper Main Street |
| Agency or Company | HDR, Inc. | From/To | US14A to Deadwood |
| Date Performed | 11/5/2020 | Jurisdiction | Deadwood |
| Analysis Time Period | 3:30PM-4:30PM | Analysis Year | 2050 |
| Project Description: <i>Deadwood Box - Upper Main 2-Ln</i> | | | |
| Input Data | | | |
|  | | <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> Class I highway <input type="checkbox"/> Class II highway <input checked="" type="checkbox"/> Class III highway </div> <div style="width: 45%;"> <input type="checkbox"/> Terrain <input checked="" type="checkbox"/> Level <input type="checkbox"/> Rolling </div> </div> <div style="margin-top: 10px;">  <p>Show North Arrow</p> </div> <div style="margin-top: 10px;"> Grade Length mi Up/down Peak-hour factor, PHF 0.92 No-passing zone 0% % Trucks and Buses, P_T 5% % Recreational vehicles, P_R 0% Access points mi 0/mi </div> | |
| Analysis direction vol., V _d | 190veh/h | | |
| Opposing direction vol., V _o | 335veh/h | | |
| Shoulder width ft | 0.0 | | |
| Lane Width ft | 12.0 | | |
| Segment Length mi | 0.7 | | |
| Average Travel Speed | | | |
| | Analysis Direction (d) | Opposing Direction (o) | |
| Passenger-car equivalents for trucks, E _T (Exhibit 15-11 or 15-12) | 1.5 | 1.3 | |
| Passenger-car equivalents for RVs, E _R (Exhibit 15-11 or 15-13) | 1.0 | 1.0 | |
| Heavy-vehicle adjustment factor, f _{HV,ATS} =1/(1+P _T (E _T -1)+P _R (E _R -1)) | 0.976 | 0.985 | |
| Grade adjustment factor ¹ , f _{g,ATS} (Exhibit 15-9) | 1.00 | 1.00 | |
| Demand flow rate ² , v _i (pc/h) v _i =V _i /(PHF*f _{g,ATS} *f _{HV,ATS}) | 212 | 370 | |
| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
| Mean speed of sample ³ , S _{FM} | Base free-flow speed ⁴ , BFFS 45.0 mi/h | | |
| Total demand flow rate, both directions, v | Adj. for lane and shoulder width, ⁴ f _{LS} (Exhibit 15-7) 4.2 mi/h | | |
| Free-flow speed, FFS=S _{FM} +0.00776(v/f _{HV,ATS}) | Adj. for access points ⁴ , f _A (Exhibit 15-8) 0.0 mi/h | | |
| Adj. for no-passing zones, f _{np,ATS} (Exhibit 15-15) 0.9 mi/h | Free-flow speed, FFS (FFS=BFFS-f _{LS} -f _A) 40.8 mi/h | | |
| | Average travel speed, ATS _d =FFS-0.00776(v _{d,ATS} + V _{o,ATS}) - f _{np,ATS} 35.4 mi/h | | |
| | Percent free flow speed, PFFS 86.7 % | | |
| Percent Time-Spent-Following | | | |
| | Analysis Direction (d) | Opposing Direction (o) | |
| Passenger-car equivalents for trucks, E _T (Exhibit 15-18 or 15-19) | 1.1 | 1.1 | |
| Passenger-car equivalents for RVs, E _R (Exhibit 15-18 or 15-19) | 1.0 | 1.0 | |
| Heavy-vehicle adjustment factor, f _{HV} =1/(1+P _T (E _T -1)+P _R (E _R -1)) | 0.995 | 0.995 | |
| Grade adjustment factor ¹ , f _{g,PTSF} (Exhibit 15-16 or Ex 15-17) | 1.00 | 1.00 | |
| Directional flow rate ² , v _i (pc/h) v _i =V _i /(PHF*f _{HV,PTSF} *f _{g,PTSF}) | 208 | 366 | |
| Base percent time-spent-following ⁴ , BPTSF _d (%)=100(1-e ^{-av_d^b}) | 26.1 | | |
| Adj. for no-passing zone, f _{np,PTSF} (Exhibit 15-21) | 13.3 | | |
| Percent time-spent-following, PTSF _d (%)=BPTSF _d +f _{np,PTSF} *(v _{d,PTSF} /v _{d,PTSF} +V _{o,PTSF}) | 30.9 | | |
| Level of Service and Other Performance Measures | | | |
| Level of service, LOS (Exhibit 15-3) | B | | |
| Volume to capacity ratio, v/c | 0.12 | | |

| | |
|--|-------|
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | 1700 |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | 1700 |
| Percent Free-Flow Speed $PFFS_d$ (Equation 15-11 - Class III only) | 86.7 |
| Bicycle Level of Service | |
| Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h | 206.5 |
| Effective width, W_v (Eq. 15-29) ft | 12.00 |
| Effective speed factor, S_t (Eq. 15-30) | |
| Bicycle level of service score, BLOS (Eq. 15-31) | |
| Bicycle level of service (Exhibit 15-4) | |
| Notes | |
| <p>1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.</p> <p>2. If $v_i(v_d \text{ or } v_o) \geq 1,700$ pc/h, terminate analysis--the LOS is F.</p> <p>3. For the analysis direction only and for $v > 200$ veh/h.</p> <p>4. For the analysis direction only</p> <p>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.</p> <p>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.</p> | |