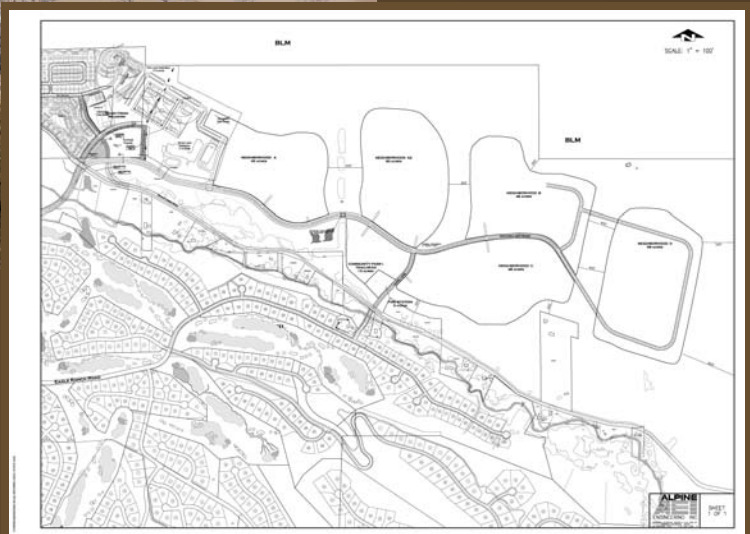
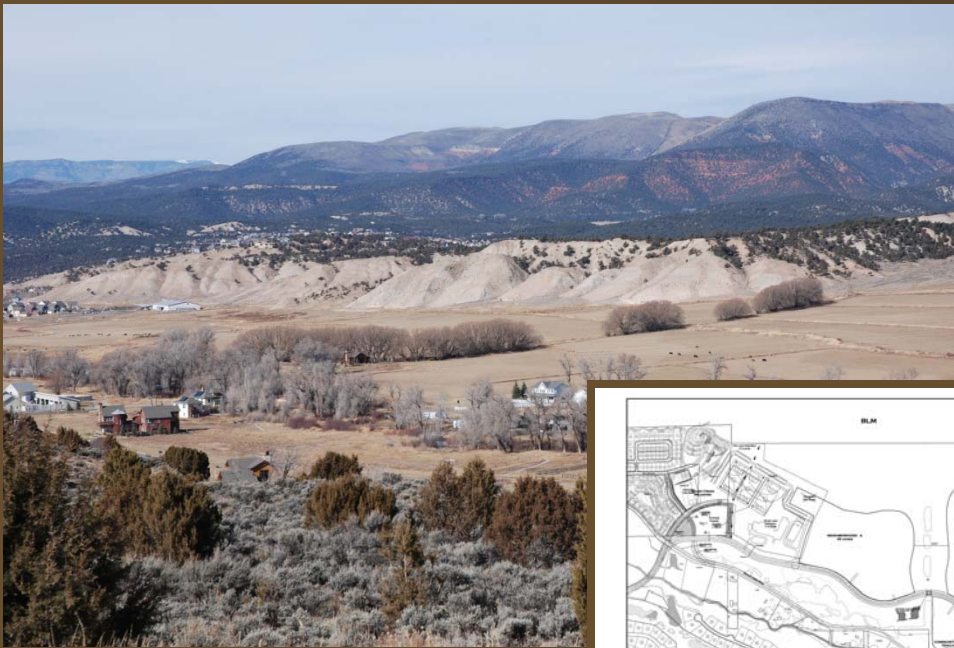


HAYMEADOW

Traffic Impact Study

Town of Eagle, Colorado



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HAYMEADOW DEVELOPMENT TRAFFIC IMPACT STUDY

1.0 Introduction

The proposed Haymeadow Project is a residential development located on a 660 acre parcel of undeveloped agricultural land along Old Brush Creek Road in Eagle, Colorado. It is located just east of existing residential development in Eagle as illustrated in the vicinity map on Figure 1. This Traffic Impact Study has been completed based on input from the site development team and staff from the Town of Eagle.

This study has documented existing roadway and traffic conditions in the area, projected the additional traffic that will be generated by the Haymeadow development, projected Year 2035 background traffic growth in the area, and evaluated Year 2035 traffic conditions with and without the additional Haymeadow traffic. Using criteria identified by Town of Eagle staff, this study has also projected that the Brush Creek Road Extension to US 6 should be constructed in the Year 2032. Traffic conditions were evaluated in this intermediate or mid-term planning horizon, both with and without the Brush Creek Road Extension.

In this context, the study has identified needed off-site roadway improvements to accommodate the buildout of development in the Eagle Ranch area and the Brush Creek Valley, and estimated the Haymeadow percent contribution to the long term traffic growth on area roadways.

2.0 Proposed Development and Site Access

The Haymeadow development will include:

- 442 single family dwelling units
- 345 multi-family dwelling units
- the potential for 66 accessory dwelling units
- a 13 acre community park
- a 2 acre fire station
- a K-8 school on a 17 acre site
- a trail system and significant open space

The Haymeadow project is also providing a 17.8 acre site for a recreation facility, adjacent to the existing ice rink complex, to be developed by the Town of Eagle, including:

- 68,000 sq. ft. field house
- 3 soccer fields
- flex space

The overall site plan is illustrated on Figure 2, and a close up of the school and recreation sites is illustrated on Figure 3. The residential development will be clustered in neighborhoods as illustrated on the site plan.

Primary access to the residential development and the school site will be provided along an extension of Sylvan Lake Road which will stretch through the project. A secondary access will be provided along Ouzel Lane which will connect Sylvan Lake Road with Old Brush Creek Road and Eagle Ranch Road. It is anticipated that Sylvan Lake Road will be realigned slightly into a single intersection with Old Brush Creek Road and the newer section of Brush Creek Road at the entry to the Haymeadow site.

It is anticipated that the traffic accessing the new recreation facilities will use the existing roadways that access the ice rink. There will be a narrow and circuitous connection between the recreation site and the school site, but it is not expected that there will be any through traffic from one parking area to the other. However, this connection will provide a secondary emergency access route to both facilities.

It is anticipated that neighborhoods A1 and A2 will be developed in the first ten years (Years 2015 – 2025), with the remaining neighborhoods completed by the Year 2035.

3.0 Existing Roadways in the Study Area

The study area for this project includes the portion of Eagle roughly bounded by US 6, Sylvan Lake Road, Capitol Street, Brush Creek Road and Old Brush Creek Road. Roadways in this study area include:

Sylvan Lake Road is newer two lane road that extends from US 6 (Grand Avenue) to the Haymeadow site. It extends through the Eagle Ranch commercial area where it has been widened to accommodate either on-street parking or future travel lanes. The intersection at US 6 is controlled by a roundabout.

Old Brush Creek Road is an older, narrow, curving two lane paved road that serves traffic traveling up-valley from the Haymeadow area.

Brush Creek Road extends west of Sylvan Lake Road and connects to Capitol Street. It is a paved, curving, two lane road. The intersection at Capitol Street is controlled by an all-way stop.

Ouzel Lane is a paved short two lane roadway that connects between Old Brush Creek Road and Eagle Ranch Road.

Capitol Street extends west from US 6 and downtown Eagle to Sylvan Lake Road. It is a two lane curving roadway with on-street parking in the developed areas at both ends. In downtown there drainage dips that cross the roadway and regulate traffic speed. The intersections at both ends are controlled by a stop signs on Capitol St. Northbound traffic approaching US 6 is limited to a right-out only movement.

US 6 (Grand Avenue) is a two lane State Highway through Eagle, connecting the Town to the communities to the northeast and southwest. It runs along the edge of the downtown area parallel to the Eagle River and I-70. It connects to Eby Creek Road just north of downtown. Eby Creek Road then provides the primary connection to I-70 in the area. This portion of US 6 is classified by CDOT as a NR-B highway (Non-Rural Arterial) in their Access Category Assignment Schedule¹, and access to the roadway is controlled by an Access Management Plan².

The speed limits on the roadways in the area range between 20 mph and 35 mph.

This traffic study evaluates peak hour traffic operation in the following intersections:

- US 6 / Capitol Street
- US 6 / Sylvan Lake Road
- US 6 / Future Brush Creek Extension
- Sylvan Lake Road / Capitol Street
- Sylvan Lake Road / Eagle Ranch Road
- Sylvan Lake Road / Old Brush Creek Road / New Brush Creek Road (future scenarios)
- Capitol Street / Brush Creek Road / Brush Creek Road Extension (future scenarios)

On-site intersections such as the school access on Sylvan Lake Road and the Ouzel Lane / Sylvan Lake Road intersection are anticipated to be constructed as roundabouts, where they will have plenty of capacity to accommodate Haymeadow site traffic.

4.0 Existing Traffic Volume and Operations

Existing daily traffic on roadways in the study area are illustrated on Figure 4. Existing AM and PM peak hour traffic counts at study area intersections are illustrated on Figure 5.

Existing traffic operations were evaluated at all study area intersections using this existing count information and analysis procedures documented in the Highway

¹ State Highway Access Category Assignment Schedule, Colorado Department of Transportation, October 2007

² Highway 6 Access Management Plan, Town of Eagle, 2003

Capacity Manual³. Traffic operations are described using a level of service (LOS) scale that assigns a letter grade (A through F) based on the calculated average delay per vehicle on each approach to the intersection during the peak hour analyzed. LOS A represents minimal delay to the average motorist and LOS F represents congested conditions and significant delay. A more detailed description of LOS letter grades, traffic conditions, and the associated vehicular delay is contained in the appendix.

Existing weekday peak hour traffic operations are summarized in Table 1. It can be seen that all intersections are currently operating comfortably. Most are in the LOS A or B range during peak hours. The Capitol Street/Brush Creek Road all-way stop intersection just drops into the LOS C range in the AM peak hour.

5.0 Mid-Term Background Traffic Volume and Operation

This traffic study has evaluated a mid-term planning horizon, with and without the completion of the Brush Creek Road Extension to US 6. At the request of Town staff, the mid-term planning horizon was selected as the year in which the projected total traffic volume on Sylvan Lake Road just south of the Brush Creek Road intersection reached 6,400 vehicle trips per day without the completion of the Brush Creek Road Extension. This would then be the trigger for completing the Brush Creek Road Extension. Determining when this would occur required the projection of both background traffic in the Brush Creek Valley and Haymeadow traffic over time, and the amount of each that would utilize this portion of Sylvan Lake Road. Town of Eagle staff provided detailed information on the buildout potential (both residential and commercial) in the Brush Creek Valley and the daily traffic volume that it would generate. This information is included in the Appendix. Combining this information with the projected Haymeadow traffic (detailed in Table 2 and described in Section 7.0 of this report) allowed the determination of the mid-term planning horizon.

Table 3 includes the traffic projection that was used to determine the mid-term planning horizon. This process included the following assumptions:

- All residential development in the upper Brush Creek Valley would be complete by the Year 2035, and approximately half would be complete by the Year 2025.
- Haymeadow neighborhoods A1 and A2 would be complete by the year 2025, and the rest of the development would be complete by the Year 2035.
- Trip distribution from this new development on the portion of Sylvan Lake Road in question would include 60% of the upper Brush Creek residential,

³ Highway Capacity Manual, Transportation Research Board, Third Edition, 2000

51% of the Haymeadow traffic, and 25% of the Eagle Ranch residential development.

- School and recreation area traffic would increase over time and 50% would utilize Sylvan Lake Road.

Using this methodology, it was projected that traffic on Sylvan Lake Road just south of Brush Creek Road would reach 6,400 vehicle trips per day in the Year 2033 (see right hand column in Table 3) . For this reason the Year 2032 was selected as the mid-term planning horizon.

With the Year 2032 selected as the mid-term planning horizon, a set of background traffic projections were prepared (excluding Haymeadow traffic), both with and without the completion of the Brush Creek Road Extension to US 6. Daily background traffic is illustrated on Figure 6, and peak hour traffic at study area intersections is illustrated on Figures 7 and 8 (without and with the Brush Creek Road Extension respectively).

It has been assumed that Grand Avenue between Sylvan Lake Road and Eby Creek Road will have been widened to include two through lanes in each direction by the Year 2032 to accommodate regional traffic.

Table 1 includes the projected peak hour traffic operation at all study area intersections for this mid-term Year 2032 planning horizon. It can be seen that:

- The Capitol/Brush Creek intersection becomes congested as a stop sign controlled intersection by the Year 2032. In fact, this analysis has projected that a traffic signal or roundabout will be warranted at this intersection prior to the Year 2032 (see Section 13.0 of this report). If this intersection is converted to a roundabout (as has been discussed previously with the project team and Town staff) it will function well in the LOS B range (see Table 1B with the Brush Creek Extension).
- Capitol/Sylvan Lake Road becomes congested with stop sign control if the Brush Creek Road Extension has not been built. This analysis has projected that a traffic signal would be warranted at this intersection by the Year 2030 without the Brush Creek Extension (see Section 13.0 of this report). When signalized, this intersection will operate at LOS A.
- The Town will want to monitor congestion and the potential need for a traffic signal at the US 6/Capitol intersection.
- All other study area intersections will operate well in the LOS A – C range with the existing traffic control.

6.0 Year 2035 Background Traffic Volume and Operation

The year 2035 has been selected as the long term planning horizon for this study. Estimates of daily and peak background traffic conditions have been made for the

study area and are detailed in Figures 9 and 10 respectively. These background traffic estimates, without any Haymeadow traffic, have been developed based on the following:

- All planned developments in the Eagle Ranch and Brush Creek area have been assumed to be completed by 2035. These developments are illustrated and quantified in the Appendix in materials provided by Town of Eagle staff.
- These other developments are projected to add over 17,000 daily vehicle trips to the roadways in the study area.
- Background daily traffic assignment onto area roadways was estimated for each project based on its location and an assumed directional distribution.
- It was assumed that the Brush Creek Extension is in place by the Year 2035.
- Peak hour traffic estimates have been made at all study area intersections using a combination of existing traffic patterns, assumed peak hour increases using reasonable peak hour factors, and some referencing of peak hour traffic projections from other studies, etc.
- These background traffic projections are significantly higher than existing and are significantly higher than the additional traffic that will be added by the Haymeadow project (nearly 2 ½ times the increase from the Haymeadow site residential development) and will effect traffic operations and the need for roadway improvements in the study area if/when they occur.

Given the magnitude of the background traffic increases, a number of improvements to the area-wide roadway network had to be assumed, including:

- US 6 will be widened to include 4 through lanes between the roundabout at Sylvan Lake Road and the roundabout at Eby Creek Road. This will likely be phased over time as auxiliary right turn lanes become continuous through lanes.
- Sylvan Lake Road will have significant growth between US 6 and Eagle Ranch Road. Where there are no intersections, this roadway may function as a two lane road with a projected daily volume of up to 13,500 vehicles per day. However, the approaches to the intersections in the area around Capitol Street and Eagle Ranch Road will likely need to be widened to accommodate two through lanes in each direction and/or auxiliary turn lanes. This paved width already is available in the Eagle Ranch commercial area, but it would require the removal of existing on-street parking in some spots. It is our understanding that this was planned when the roadway was originally designed and constructed.
- A traffic signal or roundabout will be required at the following three intersections to facilitate traffic flow: US 6/Brush Creek Road Extension; Sylvan Lake/Capitol; and Brush Creek/Capitol. The Sylvan Lake/Eagle Ranch Road intersection may not be warranted yet in the Year 2035 if there is no development on the Haymeadow site. The appendix includes signal warrant graphic sketches for each of these four intersections using the warrant procedures detailed in the Manual On Uniform Traffic Control Devices

(MUTCD)⁴. Note that the installation of roundabouts may be considered instead of traffic signals at the Brush Creek/Capitol and US 6/Brush Creek Extension intersections, assuming that the necessary right-of-way can be procured. However, roundabouts are not recommended at the two intersections on Sylvan Lake Road (Eagle Ranch and Capitol) for the following reasons:

- The proximity of adjacent development that exists near these two intersections will make it difficult for roundabouts to be constructed since they are larger intersections. They would likely require encroachment into adjacent properties and the roadway would move closer to existing buildings.
- A number of school aged pedestrians cross Sylvan Lake Road through these intersections given the proximity of the adjacent elementary school. While roundabouts are often considered appropriate for pedestrian crossings, we believe that a traffic signal that requires approaching traffic to stop is a better treatment for young school aged pedestrians.
- Intersection approach laneage assumptions are illustrated with the peak hour traffic volumes on Figure 10.

The operation of the Year 2035 background traffic volumes illustrated in Figure 10 was evaluated using the same procedures described above, and the level of service results at study area intersections are included in Tables 1A-1C.

It can be seen that:

- The roundabout at US 6 and Sylvan Lake Road will operate well at LOS B.
- The Capitol Street/US 6 intersection will have noticeable congestion on the northbound right turn movement in the AM Peak hour. The Town will want to monitor this intersection for safety and operational issues to determine if a signal is needed.
- It is likely that the three intersections noted above will need to be signalized or converted to roundabouts by the Year 2035. Once upgraded, they all will function well in the LOS B/C range.

7.0 Vehicle Trip Generation for the Haymeadow Site

A trip generation analysis was prepared for the proposed Haymeadow development (including the school) and the adjacent Town of Eagle recreation facilities. This analysis is summarized in Table 2. To the extent practical, trip generation rates were based on information contained in the Institute of Transportation Engineers

⁴ Manual On Uniform Traffic Control Devices, Federal Highway Administration, 2009 Edition

(ITE) Trip Generation Manual⁵. Adjustments to the base trip rates were made to account for internal trip making and non-single occupant vehicle access as appropriate for each land use category. All trip rates and trip adjustment factors have been approved by Town of Eagle staff.

It can be seen in Table 2 that the Haymeadow site is expected to generate approximately 6,485 off-site one way vehicle trips per day, with 625 in the AM peak hour and 650 in the PM peak hour (note that a trip to the grocery store and back would count as 2 trips). The recreation facilities are expected to generate approximately 945 vehicle trips per day with 90 in the AM peak hour and 130 in the PM peak hour. In total, the two sites, when fully developed, will add approximately 7,425 daily trips, 720 AM trips, and 780 PM trips to surrounding roadways.

8.0 Distribution of Site Access Traffic

Directional trip distribution estimates are used to assign the new site traffic to the existing roadway network. For this study, a detailed estimate of the trip distribution pattern for the Haymeadow development has been prepared as illustrated on Figure 11. These estimates are with and without the Brush Creek Road Extension to US 6. As part of this process, a travel time/distance evaluation was made to help determine how traffic might split between parallel or competing routes.

Note that the distribution estimates also assume destination patterns for the Downtown and Eagle Ranch commercial areas. All trip distribution estimates have been reviewed and approved Town of Eagle staff.

A similar, but slightly simpler trip distribution pattern was developed for the recreation site which assumed that 50% of the site access traffic would utilize Brush Creek Road and 50% would utilize Sylvan Lake Road. It was also assumed that 50% of the recreation traffic would be from existing development areas in Eagle and 50% would be from areas outside of town given the somewhat regional nature of recreation traffic.

9.0 Assignment of Site Generated Traffic

Using the trip generation and distribution information described above, the site generated traffic has been assigned to the roadway network. Daily traffic assignment, with and without the Brush Creek Road extension, is illustrated on Figure 12. Site generated peak hour traffic at all of the study area intersections is illustrated on Figure 13 assuming that the Brush Creek Road extension has not been

⁵ Trip Generation, Institute of Transportation Engineers, 8th Edition, 2008

completed yet. Figure 14 illustrates the site generated traffic at all study area intersections assuming that the Brush Creek Road extension has been completed.

10.0 Mid-Term (Year 2032) Total Traffic Volume and Operation

It was estimated that approximately 85% of the Haymeadow site generated traffic would be on area roadways in the Year 2032. This percentage of the Haymeadow site traffic (detailed above) was assigned to the Year 2032 background traffic estimate (also detailed above) both with and without the completion of the Brush Creek Road Extension to US 6. This allows a comparison of the operational impacts of completing the Brush Creek Road Extension. Projected Year 2032 total daily traffic is illustrated on Figure 15. Peak hour traffic without and with the Brush Creek Road Extension is illustrated in Figures 16 and 17 respectively.

The traffic operation in each intersection has been evaluated and summarized in Table 1. It can be seen that:

- The Capitol/Brush Creek intersection will operate well with roundabout traffic control, with or without the Brush Creek Road Extension (LOS A-C range).
- The existing roundabout at US 6/Sylvan Lake will operate at LOS B/C once the Brush Creek Road Extension is completed. Prior to the extension being completed this intersection will experience some congestion (LOS E overall) during the PM peak hour, particularly on the eastbound approach to the intersection on US 6.
- The Sylvan Lake/Old Brush Creek roundabout will operate well at LOS A.
- The new Grand/Brush Creek Road Extension intersection will operate well at LOS B/C when signalized.
- The traffic signal at Sylvan Lake/Capitol will operate well at LOS B with the Brush Creek Road Extension in place, and LOS C without.
- If signalized by Year 2032, the Sylvan Lake/Eagle Ranch intersection will operate well at LOS B. Without a signal, congestion will be noticeable, particularly in the AM peak hour.

11.0 Year 2035 Total Traffic Volume and Operation

The site generated daily and peak hour traffic detailed above has been added to the Year 2035 background traffic which was also detailed above. The resultant Year 2035 total traffic is illustrated on Figure 18 (daily traffic) and Figure 19 (peak hour traffic).

All of the same roadway network assumptions described above for the Year 2035 Background scenario were assumed for this total traffic analysis. In addition, it is projected that the installation of a traffic signal at Sylvan Lake Road and Eagle

Ranch Road will be warranted by the Year 2035 (see Section 13.0). It is projected that the segment of Sylvan Lake Road between US 6 and the Eagle Ranch commercial area will carry 16,325 vehicles per day. This segment may continue to function as a two lane road with the existing two lane bridge over Brush Creek as long as the intersection approaches have been widened as discussed above. The projected intersection operations were evaluated using the same procedures and the results are summarized in Table 1.

It can be seen that:

- The roundabout at US 6 and Sylvan Lake Road will operate well in the LOS B/C range.
- As noted above, the Capitol Street/US 6 intersection will have noticeable congestion on the northbound right turn movement in the AM Peak hour. The Town will want to monitor this intersection for safety and operational issues to determine if a signal is needed. Given the T intersection, this would effectively be a $\frac{1}{2}$ signal where the westbound movement would never need to stop since there are no northbound left turns allowed. In this context, a traffic signal could function adequately, if needed, even though this intersection is only 400 feet from the roundabout at Eby Creek Road.
- It is assumed that the intersection of Sylvan Lake Road/Old Brush Creek Road will have been constructed as a roundabout as part of the initial Haymeadow site development. As a roundabout it will function acceptably in the LOS A/B range.
- All signalized intersections described above under the 2035 Background Traffic scenario will continue to function well in the LOS B/C range. The Sylvan Lake/Eagle Ranch traffic signal will also operate at LOS B.

12.0 Haymeadow Contribution to Buildout Traffic Volumes in the Area

Given the large development potential and significant traffic increases possible in the study area (both with and without the Haymeadow project), this traffic study has calculated the percentage of traffic growth (above and beyond today's traffic) that will be attributable to the Haymeadow development at area buildout. Table 4 identifies seven key roadway links in the study area and calculates the Haymeadow portion of projected future traffic increases. This information may be helpful in identifying possible percent contribution to area roadway improvements.

13.0 Likely Timing of Triggers for Installing Traffic Signals or Roundabouts at Area Intersections

This traffic study has projected the likely year that individual intersection traffic control will need to be upgraded to either a traffic signal or roundabout to allow them to process the projected traffic efficiently. A key assumption in this analysis is that all area development in the Brush Creek Valley proceeds toward buildout by the Year 2035. This is the same assumption that was incorporated into Table 3 that was used to project the year when the Brush Creek Road Extension implementation threshold was met.

In the process this analysis has incorporated the various traffic volume projections for each planning horizon, and the peak hour signal warrant procedures contained in the MUTCD. The signal warrant diagrams in the Appendix were used to determine if a signal (or roundabout) was warranted in each planning horizon for each assumed development scenario. The analysis compared the warrant status between planning horizons and used projected growth trends for all area development to interpolate the year when each intersection would be in need of traffic control upgrade. In this way it was estimated that:

- The Brush Creek Road/Capitol Street intersection should be considered for either a traffic signal or a roundabout somewhere between Year 2020 and 2025.
- The Sylvan Lake Road/Capitol Street intersection should be considered for a traffic signal in the Year 2030.
- The Sylvan Lake Road/Eagle Ranch Road intersection should be considered for a traffic signal by the Year 2034.
- The new Grand Avenue/Brush Creek Road Extension will need to be signalized or constructed as a roundabout as part of the Brush Creek Road Extension project (previously identified for implementation in the Year 2032).

14.0 Bicycle and Pedestrian Access and Circulation

The Haymeadow development will include a network of bicycle and pedestrian facilities to facilitate pedestrian and bicycle travel through the project and to/from surrounding areas. The site plan includes:

- On-street bicycle lanes on Sylvan Lake Road;
- A detached 10 foot wide multi-use path along the north side of Sylvan Lake Road and along Ouzel Lane that will connect to other trails in the area;
- A pedestrian and bicycle underpass of Sylvan Lake Road in the Willow riparian corridor to link neighborhoods with the park facilities;
- 5 foot wide detached sidewalks along both sides of all local roadways, with connections to multi-use pathways;

- Pathway connections around the perimeter of the site to existing trails, paths and sidewalks, with connectivity to the recreation center, new school, BLM trails, etc.

These pedestrian and bicycle facilities will help minimize the amount of automobile traffic generated by the project.

15.0 On-Site Roadway Issues

The network of on-site roadways illustrated in the site plan will be able to comfortably accommodate the projected Haymeadow site traffic. The extension of Sylvan Lake Road into the site will be the primary roadway spine, with a “back door” provided by Ouzel Lane. The intersection where the school site will access Sylvan Lake Road is anticipated to be configured as a small roundabout and will easily process the traffic in this area. The intersection of Sylvan Lake Road and Ouzel Lane will also be configured as a small roundabout and it will also comfortably accommodate site traffic. All other roadways in the development will be controlled by side street stop signs where they access Sylvan Lake Road.

16.0 Summary and Conclusions

This traffic impact study for the proposed Haymeadow project has documented and evaluated existing traffic conditions, and projected future traffic increases generated by the project. It has also projected future Year 2035 traffic conditions with and without the site development, and evaluated operational issues for this long term planning horizon. The Year 2035 analysis has assumed that all other projects in the area that have been identified will be developed. The traffic implications of this large area growth potential have been evaluated, with and without the Haymeadow development.

This study has also projected an interim or mid-term planning horizon defined as the year when area traffic on Sylvan Lake Road just south of Brush Creek Road would reach 6,400 daily trips without the Brush Creek Road Extension to US 6. This analysis has concluded that this threshold will be met in the Year 2032. Therefore, the study has evaluated Year 2032 traffic conditions both with and without the Brush Creek Road Extension.

Significant findings and conclusions of this traffic study include:

- Existing traffic is functioning well on all study area roadways and intersections.
- The Haymeadow project will add approximately 6,485 daily one way vehicle trips to area roadways.

-
- Buildout of additional development projects that have been identified in the Brush Creek corridor could add an additional 17,000 trips to area roadways.
 - In this context, significant improvements to area roadways will be needed, with or without the Haymeadow development.
 - These improvements (or capacity expansions) include an additional through lane in each direction on US 6 between Sylvan Lake Road and Eby Creek Road, and on Sylvan Lake Road on the approach and departures from major intersections in the Eagle Ranch area, including the Capitol Street and Eagle Ranch Road intersections. There would also be the need for traffic signals (or roundabouts) at US 6/Brush Creek Road Extension (when constructed), Sylvan Lake Road/Capitol St (by the Year 2030), and Capitol St./Brush Creek Road (in Year 2020 to 2025) to accommodate projected traffic.
 - When all area development is complete there will also be a need for a traffic signal at Sylvan Lake Road/Eagle Ranch Road (by Year 2034 assuming the Brush Creek Extension has been constructed).
 - The Haymeadow percent contribution to the traffic increases on area roadways has been calculated and included in Table 4.
 - It has been assumed that the Brush Creek Road Extension is completed by the Year 2035. In fact, given the threshold for completing the extension as defined in discussions with Town staff, it is projected that the Brush Creek Road Extension should be constructed in the Year 2032.
 - The Haymeadow project will add approximately 4,000 vehicle trips per day to the roundabout at US 6 and Eby Creek Road.

**Table 1A - Peak Hour Intersection Level of Service Summary - Stop Controlled**

Intersection and Movements	Existing				Year 2032 Background (Without Brush Creek Extension)				Year 2032 Background (With Brush Creek Extension)				Year 2032 Total (Without Brush Creek Extension)				Year 2032 Total (With Brush Creek Extension)				Year 2035 Background				Year 2035 Total			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS
STOP SIGN CONTROL																												
Capitol St. & Grand Ave. (US 6)	9.1	A	3.8	A	11.0	B	4.0	A	7.6	A	3.3	A	39.9	E	6.6	A	14.3	B	4.0	A	11.2	B	3.3	A	4.7	A	4.9	A
Westbound Left	9.6	A	10.1	B	11.2	B	13.4	B	11.0	B	11.3	B	13.0	B	19.5	C	13.1	B	15.0	B	11.8	B	10.4	B	14.5	B	19.1	C
Northbound Right	35.1	E	14.5	B	40.8	E	14.4	B	29.7	D	12.6	B	> 120.0	F	18.4	C	62.3	F	15.7	C	45.6	E	14.8	B	26.5	D	18.1	C
Capitol St. & Brush Creek Rd.	16.0	C	12.2	B	24.2	C	44.1	E	---	---	---	---	66.0	F	> 120.0	F	---	---	---	---	---	---	---	---	---	---	---	---
Westbound Left-Right	17.3	C	9.0	A	21.5	C	12.5	B	---	---	---	---	30.5	D	13.8	B	---	---	---	---	---	---	---	---	---	---	---	---
Northbound Through-Right	16.5	C	9.2	A	29.0	D	66.6	F	---	---	---	---	88.8	F	> 120.0	F	---	---	---	---	---	---	---	---	---	---	---	---
Southbound Left-Through	11.6	B	14.2	B	21.0	C	12.4	B	---	---	---	---	68.3	F	16.0	C	---	---	---	---	---	---	---	---	---	---	---	---
Capitol St. & Brush Creek Rd. (with Extension)	---	---	---	---	---	---	---	---	Analyzed with Signalized and Roundabout Control				---	---	---	---	Analyzed with Signalized and Roundabout Control				Analyzed with Signalized and Roundabout Control				Analyzed with Signalized and Roundabout Control			
Eastbound Left-Through-Right	---	---	---	---	---	---	---	---					---	---	---	---												
Westbound Left-Through-Right	---	---	---	---	---	---	---	---					---	---	---	---												
Northbound Left-Through-Right	---	---	---	---	---	---	---	---					---	---	---	---												
Southbound Left-Through-Right	---	---	---	---	---	---	---	---					---	---	---	---												
Capitol St. & Sylvan Lake Rd.	4.1	A	4.3	A	118.0	F	> 120.0	F	5.0	A	9.8	A	Analyzed with Signal Control				78.1	F	35.8	E	7.0	A	30.1	D	19.0	C	105.8	F
Eastbound Left	8.9	A	7.8	A	11.2	B	9.4	A	9.6	A	8.6	A					10.5	B	9.0	A	10.0	A	8.9	A	11.3	B	9.5	A
Southbound Left	18.9	C	14.3	B	< 120.0	F	> 120.0	F	25.5	D	31.2	D					> 120.0	F	145.5	F	38.0	E	100.8	F	> 120.0	F	> 120.0	F
Southbound Right	11.0	B	8.9	A	< 120.1	F	> 120.0	F	25.5	D	31.2	D					> 120.0	F	145.5	F	38.0	E	100.8	F	> 120.0	F	> 120.0	F
Eagle Ranch Rd. & Sylvan Lake Rd.	10.5	B	2.8	A	14.7	B	5.4	A	13.1	B	5.2	A	65.2	F	26.4	D	43.3	E	9.5	A	23.3	C	6.1	A	84.3	F	17.3	C
Eastbound Left	7.6	A	7.4	A	7.8	A	7.7	A	7.7	A	7.6	A	8.3	A	8.2	A	8.1	A	7.9	A	7.8	A	7.7	A	8.3	A	7.9	A
Westbound Left	8.2	A	8.1	A	8.2	A	8.8	A	8.2	A	8.8	A	8.6	A	34.9	D	8.5	A	9.4	A	8.4	A	9.0	A	8.7	A	9.8	A
Northbound Left	24.5	C	10.8	B	44.3	E	22.3	C	37.8	E	20.6	C	> 120.0	F	9.6	A	> 120.0	F	49.9	E	69.4	F	24.7	C	> 120.0	F	95.5	F
Northbound Through+Right	9.9	A	9.6	A	11.6	B	10.9	B	11.3	B	10.7	B	14.6	B	33.2	D	13.4	B	12.7	B	11.7	B	10.9	B	14.4	B	13.4	B
Southbound Left-Through-Right	10.6	B	10.0	A	12.7	B	12.3	B	12.3	B	12.0	B	17.0	C	25.2	D	15.9	C	15.4	C	13.0	B	12.5	B	17.7	C	16.9	C
Sylvan Lake Rd. & Old Brush Creek Rd.	7.7	A	7.6	A	---	---	---	---	---	---	---	---	Analyzed with Roundabout Control with Project				Analyzed with Roundabout Control with Project				---	---	---	---	Analyzed with Roundabout Control with Project			
Westbound Left-Right	7.8	A	7.6	A	---	---	---	---	---	---	---	---									---	---	---	---				
Northbound Through-Right	7.0	A	7.0	A	---	---	---	---	---	---	---	---									---	---	---	---				
Southbound Left-Through	7.7	A	7.8	A	---	---	---	---	---	---	---	---									---	---	---	---				

(a) Delay represented in average seconds per vehicle.



Table 1B - Peak Hour Intersection Level of Service Summary - Roundabout Control

Intersection and Movements	Existing				Year 2032 Background (Without Brush Creek Extension)				Year 2032 Background (With Brush Creek Extension)				Year 2032 Total (Without Brush Creek Extension)				Year 2032 Total (With Brush Creek Extension)				Year 2035 Background				Year 2035 Total			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS
ROUNDOABOUT CONTROL																												
Sylvan Lake Rd. & Grand Ave. (US 6)	6.7	A	7.8	A	11.4	B	20.5	C	11.4	B	15.8	C	14.7	B	46.7	E	11.4	B	15.4	C	11.0	B	15.0	B	14.3	B	22.9	C
Eastbound Approach	7.0	A	8.4	A	8.6	A	33.7	D	8.0	A	20.7	C	9.7	A	99.7	F	8.0	A	20.7	C	8.3	A	18.4	C	9.0	A	34.2	D
Westbound Approach	5.6	A	7.8	A	9.9	A	17.7	C	9.2	A	14.4	B	12.3	B	30.2	D	9.2	A	14.4	B	8.9	A	15.1	C	10.7	B	20.2	C
Northbound Approach	7.4	A	5.5	A	13.7	B	8.0	A	14.6	B	12.6	B	18.4	C	9.1	A	14.6	B	8.5	A	14.2	B	8.4	A	19.5	C	10.0	A
Southbound Approach	4.7	A	0.0	A	6.9	A	9.9	A	6.8	A	9.2	A	7.7	A	11.1	B	6.8	A	9.2	A	6.8	A	9.5	A	7.6	A	10.7	B
Capitol St. & Brush Creek Rd.	---	---	---	---	---	---	---	---	10.3	B	10.8	B	12.7	B	9.4	A	16.7	C	15.8	C	11.6	B	11.6	B	25.8	D	21.9	C
Eastbound Approach	---	---	---	---	---	---	---	---	7.0	A	10.7	B	0.0	A	12.1	B	8.0	A	18.1	C	7.3	A	12.1	B	8.8	A	25.6	D
Westbound Approach	---	---	---	---	---	---	---	---	13.3	B	7.3	A	17.1	C	6.4	A	27.5	D	9.4	A	15.7	C	7.2	A	48.7	E	10.8	B
Northbound Approach	---	---	---	---	---	---	---	---	10.2	B	8.9	A	10.3	B	7.6	A	11.3	B	11.4	B	11.5	B	10.0	A	13.6	B	13.7	B
Southbound Approach	---	---	---	---	---	---	---	---	8.5	A	13.4	B	9.7	A	8.6	A	10.9	B	19.9	C	9.4	A	14.1	B	12.8	B	29.4	D
Sylvan Lake Rd. & Old Brush Creek Rd.	---	---	---	---	---	---	---	---	---	---	---	---	9.3	A	9.4	A	8.6	A	9.8	A	---	---	---	---	10.6	B	11.2	B
Eastbound Approach	---	---	---	---	---	---	---	---	---	---	---	---	7.4	A	12.1	B	5.8	A	11.1	B	---	---	---	---	6.5	A	14.5	B
Westbound Approach	---	---	---	---	---	---	---	---	---	---	---	---	11.1	B	6.4	A	11.2	B	7.6	A	---	---	---	---	14.7	B	7.0	A
Northbound Approach	---	---	---	---	---	---	---	---	---	---	---	---	8.6	A	7.6	A	8.5	A	7.5	A	---	---	---	---	10.2	B	8.7	A
Southbound Approach	---	---	---	---	---	---	---	---	---	---	---	---	9.4	A	8.6	A	7.3	A	11.2	B	---	---	---	---	8.5	A	11.7	B

(a) Delay represented in average seconds per vehicle.

Note: Roundabout capacity evaluation performed with Synchro v8 software and 2010 HCM methodology



Table 1C - Peak Hour Intersection Level of Service Summary - Traffic Signal Control

Intersection and Movements	Year 2032 Background (Without Brush Creek Extension)				Year 2032 Background (With Brush Creek Extension)				Year 2032 Total (Without Brush Creek Extension)				Year 2032 Total (With Brush Creek Extension)				Year 2035 Background				Year 2035 Total			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS	Delay (a)	LOS
SIGNALIZED CONTROL																								
Capitol St. & Brush Creek Rd. (w/Extension)	--	--	--	--	13.2	B	13.6	B	--	--	--	--	14.1	B	15.6	B	13.2	B	12.5	B	15.2	B	16.9	B
Eastbound Left	--	--	--	--	18.3	B	16.9	B	--	--	--	--	15.4	B	13.7	B	18.1	B	13.3	B	16.4	B	14.1	B
Eastbound Through-Right	--	--	--	--	19.8	B	22.4	C	--	--	--	--	16.6	B	22.5	C	19.5	B	17.3	B	17.3	B	26.6	C
Westbound Left	--	--	--	--	18.3	B	16.9	B	--	--	--	--	14.8	B	13.9	B	18.1	B	13.3	B	15.3	B	14.9	B
Westbound Through	--	--	--	--	20.2	C	17.9	B	--	--	--	--	19.3	B	15.1	B	19.9	B	14.1	B	21.6	C	15.7	B
Westbound Right	--	--	--	--	17.5	B	16.3	B	--	--	--	--	14.6	B	13.3	B	17.2	B	12.7	B	15.0	B	13.6	B
Northbound Left	--	--	--	--	5.1	A	7.3	A	--	--	--	--	8.1	A	11.5	B	5.5	A	7.6	A	8.2	A	12.1	B
Northbound Through-Right	--	--	--	--	8.5	A	10.5	B	--	--	--	--	12.9	B	16.2	B	9.2	A	10.6	B	14.4	B	16.3	B
Southbound Left	--	--	--	--	5.8	A	5.7	A	--	--	--	--	7.6	A	7.8	A	6.1	A	7.1	A	7.9	A	8.8	A
Southbound Through-Right	--	--	--	--	8.0	A	11.0	B	--	--	--	--	10.7	B	15.1	B	8.5	A	12.8	B	11.7	B	15.5	B
Capitol St. & Brush Creek Rd. (No Extension)	--	--	--	--	--	--	--	--	16.9	B	19.8	B	--	--	--	--	--	--	--	--	--	--	--	--
Eastbound Through-Right	--	--	--	--	--	--	--	--	3.7	A	2.3	A	--	--	--	--	--	--	--	--	--	--	--	--
Westbound Left-Through	--	--	--	--	--	--	--	--	8.6	A	18.9	B	--	--	--	--	--	--	--	--	--	--	--	--
Northbound Left-Right	--	--	--	--	--	--	--	--	33.7	C	35.8	D	--	--	--	--	--	--	--	--	--	--	--	--
Brush Creek Rd. & Grand Ave. (US 6)	--	--	--	--	20.3	C	17.8	B	--	--	--	--	24.4	C	19.4	B	21.0	C	16.6	B	28.8	C	20.9	C
Eastbound Through	--	--	--	--	23.1	C	25.8	C	--	--	--	--	27.9	C	28.8	C	24.4	C	23.8	C	32.9	C	30.6	C
Eastbound Right	--	--	--	--	12.5	B	20.5	C	--	--	--	--	15.4	B	22.2	C	13.6	B	18.5	B	15.5	B	22.8	C
Westbound Left	--	--	--	--	19.9	B	17.9	B	--	--	--	--	29.6	C	25.3	C	19.3	B	17.6	B	41.8	D	30.5	C
Westbound Through	--	--	--	--	7.2	A	14.2	B	--	--	--	--	8.6	A	12.1	B	8.0	A	12.6	B	8.7	A	11.4	B
Northbound Left	--	--	--	--	25.9	C	14.3	B	--	--	--	--	24.2	C	18.7	B	24.4	C	15.8	B	25.9	C	22.3	C
Northbound Right	--	--	--	--	28.3	C	14.7	B	--	--	--	--	29.5	C	19.2	B	26.5	C	15.9	B	34.4	C	22.8	C
Capitol St. & Sylvan Lake Rd.	7.4	A	10.0	A	--	--	--	--	20.1	C	26.5	C	16.8	B	12.9	B	--	--	--	--	17.1	B	16.8	B
Eastbound Left	8.7	A	6.5	A	--	--	--	--	38.4	D	8.3	A	12.4	B	6.6	A	--	--	--	--	17.5	B	13.2	B
Eastbound Through	6.8	A	10.9	B	--	--	--	--	11.0	B	34.9	C	8.3	A	8.3	A	--	--	--	--	7.9	A	14.9	B
Westbound Through	5.4	A	6.1	A	--	--	--	--	25.2	C	17.2	B	23.7	C	13.2	B	--	--	--	--	24.5	C	22.0	C
Westbound Right	4.1	A	4.8	A	--	--	--	--	10.6	B	9.9	A	12.8	B	9.1	A	--	--	--	--	11.7	B	13.9	B
Southbound Left	13.3	B	16.2	B	--	--	--	--	24.8	C	33.2	C	20.3	C	23.8	C	--	--	--	--	19.7	B	16.1	B
Southbound Right	12.3	B	13.0	B	--	--	--	--	22.3	C	24.7	C	18.2	B	20.7	C	--	--	--	--	18.5	B	14.8	B
Eagle Ranch Rd. & Sylvan Lake Rd.	--	--	--	--	--	--	--	--	14.6	B	10.7	B	18.1	B	14.3	B	--	--	--	--	18.5	B	18.5	B
Eastbound Left	--	--	--	--	--	--	--	--	7.5	A	4.9	A	18.9	B	11.2	B	--	--	--	--	18.0	B	16.2	B
Eastbound Through	--	--	--	--	--	--	--	--	8.8	A	7.2	A	20.7	C	15.1	B	--	--	--	--	20.0	B	22.7	C
Eastbound Right	--	--	--	--	--	--	--	--	8.6	A	7.0	A	19.7	B	15.0	B	--	--	--	--	19.2	B	21.5	C
Westbound Left	--	--	--	--	--	--	--	--	7.8	A	5.2	A	19.2	B	11.8	B	--	--	--	--	18.3	B	17.2	B
Westbound Through	--	--	--	--	--	--	--	--	10.9	B	6.4	A	27.5	C	13.8	B	--	--	--	--	28.1	C	19.5	B
Westbound Right	--	--	--	--	--	--	--	--	7.2	A	4.8	A	18.1	B	10.9	B	--	--	--	--	17.1	B	15.8	B
Northbound Left	--	--	--	--	--	--	--	--	28.9	C	28.6	C	7.4	A	13.0	B	--	--	--	--	8.5	A	8.5	A
Northbound Through-Right	--	--	--	--	--	--	--	--	15.6	B	19.6	B	5.7	A	11.1	B	--	--	--	--	6.3	A	7.0	A
Southbound Left-Through-Right	--	--	--	--	--	--	--	--	15.6	B	19.6	B	14.3	B	20.6	C	--	--	--	--	15.7	B	14.7	B

(a) Delay represented in average seconds per vehicle.

Haymeadow Traffic Study



Table 2. Trip Generation Estimate for the Haymeadow Development and the Recreation Facility

Parcel	ITE Code	Land Use	Size	Unit	Trip Reduction Factors			Average Daily Trips			External A.M. Peak Hour Trips				External P.M. Peak Hour Trips			
					Multi-Modal	Internal Trips and Multi-Purpose Trips	Pass-By	Rate	Total Trips with No Trip Reductions	Total External Trips With Trip Reductions	Rate	Total	In	Out	Rate	Total	In	Out
School	520/522	K - 8 School (4)	600	Students	0.10	0.375	0.00	1.36	816	459	0.47	159	87	72	0.15	51	25	26
A1	210	Single Family Detached	67	Dwelling Units	0.05	0.05	0.00	9.57	641	579	0.75	45	11	34	1.01	61	38	23
A1	230	Townhome / Condo / Apt	140	Dwelling Units	0.05	0.05	0.00	5.86	820	740	0.44	56	9	47	0.52	66	44	22
A1	(2)	Accessory Dwelling Units	10	Dwelling Units	0.05	0.05	0.00	5.86	59	53	0.44	4	1	3	0.52	5	3	2
A1		Subtotal Parcel A1:	217						1,520	1,372		105	21	84		132	85	47
A2	210	Single Family Detached	90	Dwelling Units	0.05	0.05	0.00	9.57	861	777	0.75	61	15	46	1.01	82	52	30
A2	230	Townhome / Condo / Apt	93	Dwelling Units	0.05	0.05	0.00	5.86	545	492	0.44	37	6	31	0.52	44	29	15
A2	(2)	Accessory Dwelling Units	13	Dwelling Units	0.05	0.05	0.00	5.86	76	69	0.44	5	1	4	0.52	6	4	2
A2		Subtotal Parcel A2:	196						1,482	1,338		103	22	81		132	85	47
B	210	Single Family Detached	147	Dwelling Units	0.05	0.05	0.00	9.57	1,407	1,270	0.75	100	25	75	1.01	134	84	50
B	230	Townhome / Condo / Apt	48	Dwelling Units	0.05	0.05	0.00	5.86	281	254	0.44	19	3	16	0.52	23	15	8
B	(2)	Accessory Dwelling Units	22	Dwelling Units	0.05	0.05	0.00	5.86	129	116	0.44	9	1	8	0.52	10	7	3
B		Subtotal Parcel B:	217						1,817	1,640		128	29	99		167	106	61
C	210	Single Family Detached	88	Dwelling Units	0.05	0.05	0.00	9.57	842	760	0.75	60	15	45	1.01	80	50	30
C	230	Townhome / Condo / Apt	64	Dwelling Units	0.05	0.05	0.00	5.86	375	338	0.44	25	4	21	0.52	30	20	10
C	(2)	Accessory Dwelling Units	13	Dwelling Units	0.05	0.05	0.00	5.86	76	69	0.44	5	1	4	0.52	6	4	2
C		Subtotal Parcel C:	165						1,293	1,167		90	20	70		116	74	42
D	210	Single Family Detached	50	Dwelling Units	0.05	0.05	0.00	9.57	479	432	0.75	34	9	25	1.01	46	29	17
D	230	Townhome / Condo / Apt	0	Dwelling Units	0.05	0.05	0.00	5.86	0	0	0.44	0	0	0	0.52	0	0	0
D	(2)	Accessory Dwelling Units	8	Dwelling Units	0.05	0.05	0.00	5.86	47	42	0.44	3	0	3	0.52	4	3	1
D		Subtotal Parcel D:	58						526	474		37	9	28		50	32	18
Civic	412	Community Park (3)	13	Acres	0.15	0.50	0.00	2.28	30	13	0.01	0	0	0	0.06	0	0	0
Civic	(1)	Fire Station	2	Acres	0.00	0.00	0.00	10.00	20	20	2.00	4	3	1	2.00	4	1	3
Total External Haymeadow Trip Ends:									7,504	6,483		626	191	435		652	408	244
T.O.E. Rec.	495	Recreation Community Center	68	1,000 sq. ft.	0.10	0.10	0.00	14.00	952	771	1.62	89	54	35	1.45	80	30	50
T.O.E. Rec.	488	Soccer Complex	3	Fields	0.10	0.10	0.00	71.33	214	173	1.40	3	2	1	20.67	50	35	15
Total External Recreation Facility Trip Ends:									1,166	944		92	56	36		130	65	65
Total External Trips From Both Sites:									8,670	7,427		718	247	471		782	473	309

Total Single Family DUs:	442
Total Multi-Family DUs:	345
Total Accessory DUs:	66
Total DUs:	853

Notes:

1. No ITE information available. Trip rate for Fire Station estimated for normal daily activity (not a fire event) assuming some resident fire fighters on-site..
2. To be conservative, Accessory Dwelling Units are assumed to be similar to apartment units from a trip generation perspective.
3. Community Park will not likely host a significant event during weekday peak hours
4. ITE school rates have been prorated as follows: 78% Elementary and 22% Middle School / Junior High School

Table 3

Brush Creek Road Extension Development Trigger: When Traffic on Sylvan Lake Road (SLR) South of Brush Creek Road (BCR) Exceeds 6,400 Daily Trip:

Existing Traffic on SLR South of BCR: 300 vehicles per day

	Upper Brush Creek Development ⁽¹⁾				Eagle Ranch Residential Development ⁽¹⁾				Haymeadow Development ⁽²⁾				School, Soccer and Rec. Center ⁽²⁾			Total Trips on SLR South of BCR
Year	Dus	Daily Trips	SLR %	SLR Trips	Dus	Daily Trips	SLR %	SLR Trips	Dus	Daily Trips	SLR %	SLR Trips	Daily Trips	SLR %	SLR Trips	Daily Trips
2025	180	1,674	60%	1,004	230	1,955	25%	489	413	2,710	51%	1,382	600	50%	300	3,475
2026	198	1,841	60%	1,105	253	2,151	25%	538	457	3,041	51%	1,551	700	50%	350	3,843
2027	216	2,009	60%	1,205	276	2,346	25%	587	501	3,372	51%	1,720	800	50%	400	4,212
2028	234	2,176	60%	1,306	299	2,542	25%	635	545	3,703	51%	1,889	900	50%	450	4,580
2029	252	2,344	60%	1,406	322	2,737	25%	684	589	4,034	51%	2,057	1000	50%	500	4,948
2030	270	2,511	60%	1,507	345	2,933	25%	733	633	4,365	51%	2,226	1100	50%	550	5,316
2031	288	2,678	60%	1,607	368	3,128	25%	782	677	4,696	51%	2,395	1200	50%	600	5,684
2032	306	2,846	60%	1,707	391	3,324	25%	831	721	5,027	51%	2,564	1300	50%	650	6,052
2033	324	3,013	60%	1,808	414	3,519	25%	880	765	5,358	51%	2,733	1403	50%	702	6,422
2034	342	3,181	60%	1,908	437	3,715	25%	929	809	5,689	51%	2,901	1403	50%	702	6,740
2035	354	3,292	60%	1,975	459	3,902	25%	975	853	6,024	51%	3,072	1403	50%	702	7,024

1. Trip rates and development totals based on information provided by Town of Eagle staff.

2. Trip rates and development totals based on Hay Meadow information in Table 1.

3. Trip distribution percentages estimated based on existing traffic patterns, projected traffic patterns, and/or information previously discussed with Town of Eagle staff.

4. Absorption rates assume that Haymeadow neighborhoods A1 and A2 are completed by Year 2025. The remainder of Haymeadow develops by Year 2035.

All other absorption assumes that upper Brush Creek development occurs evenly over the next 23 years.

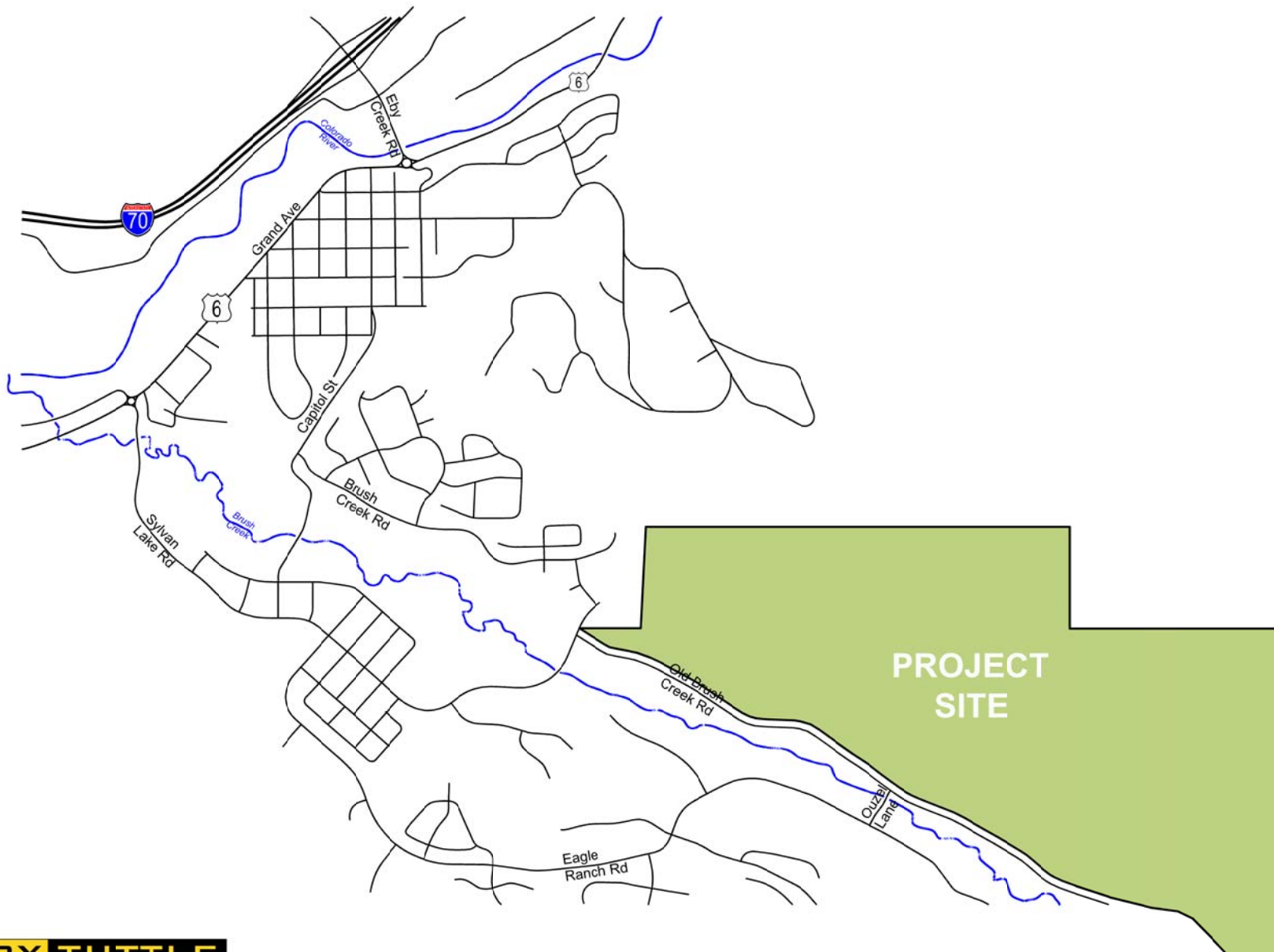
5. The 6400 ADT threshold for construction of the Brush Creek Road extension is based on discussions with Town of Eagle staff.

6. **This methodology projects that the Brush Creek Road Extension to US 6 should be constructed in the year 2032**

Table 4 Haymeadow Contribution to Area Traffic Growth in the Year 2035 (Assuming Area Buildout)

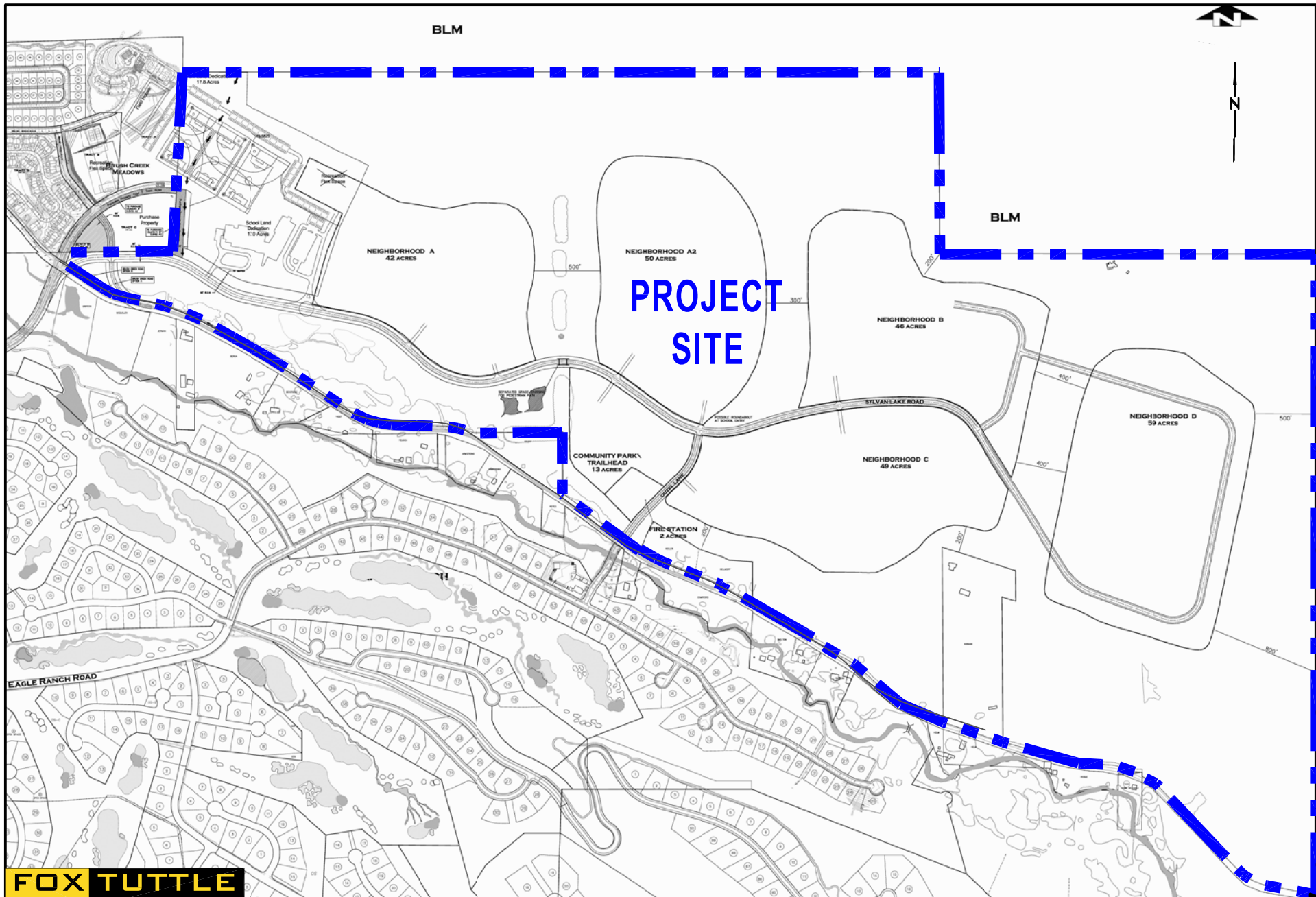
29-Jul-13

Roadway	Segment	Existing ADT	Year 2035 Background ADT	Growth in Background ADT	Haymeadow ADT	Total Growth in ADT	Haymeadow Percentage of Traffic Growth
Old Brush Creek Road	Sylvan Lake Road to Ouzel Lane	925	4,225	3,300	965	4,265	23%
Brush Creek Road	Capitol St. to Sylvan Lake Road	3,725	5,500	1,775	3,865	5,640	69%
Capitol Street	North of Brush Creek Road	6,000	8,000	2,000	1,340	3,340	40%
Sylvan Lake Road	US 6 to Eagle Ranch Road	3,625	13,500	9,875	2,825	12,700	22%
Grand Avenue (US 6)	Northeast of Sylvan Lake Road	11,600	23,000	11,400	3,565	14,965	24%
Grand Avenue (US 6)	Northeast of Capitol St.	13,500	26,000	12,500	4,010	16,510	24%
Brush Creek Extension	Grand Ave. to Capitol St.	0	7,000	7,000	2,525	9,525	27%



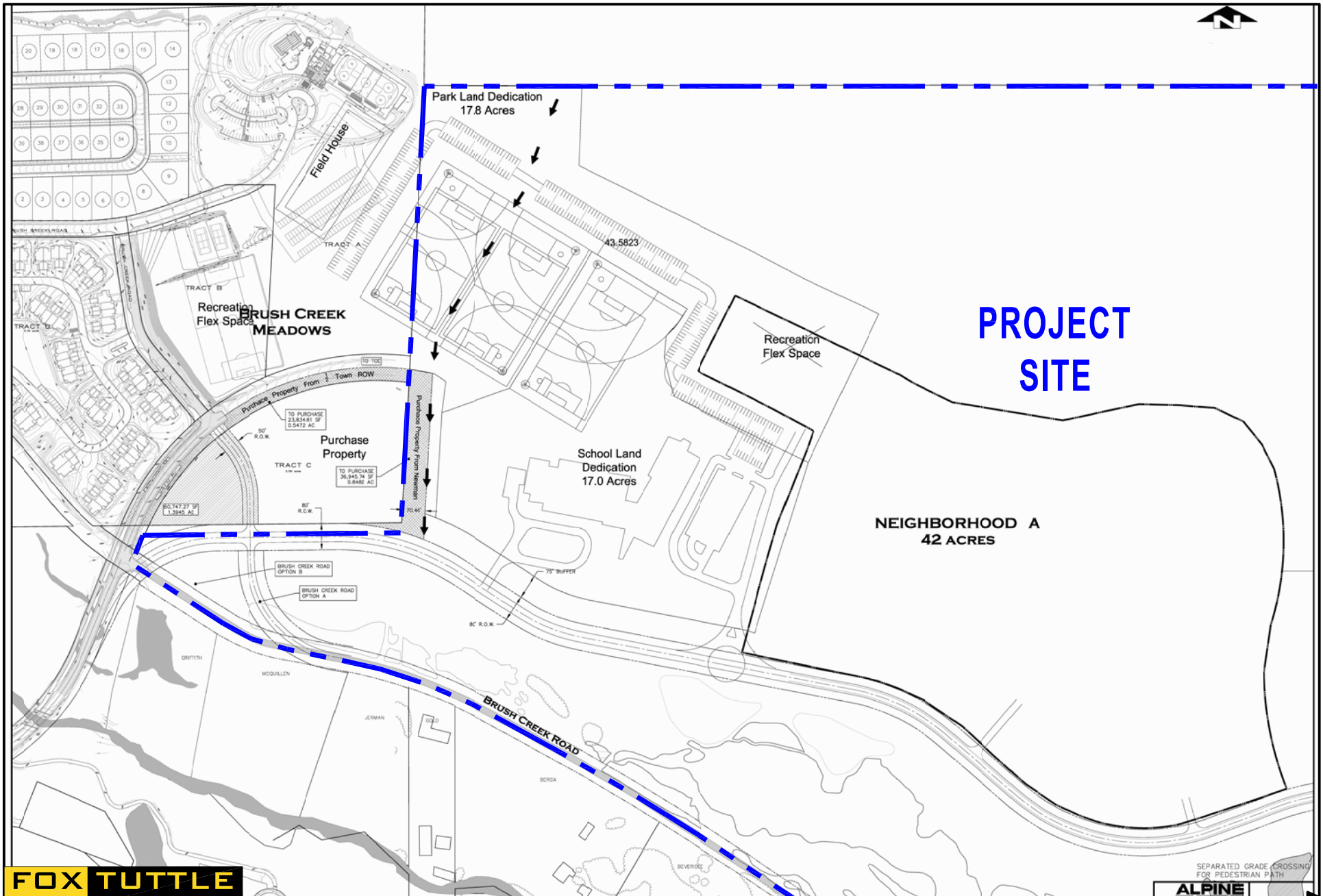
HAYMEADOW PROJECT TRAFFIC STUDY
VICINITY MAP

FT Project #	09026	Original Scale	1"=2000'	Date	8/2013	Drawn by	SGT	Figure #	1
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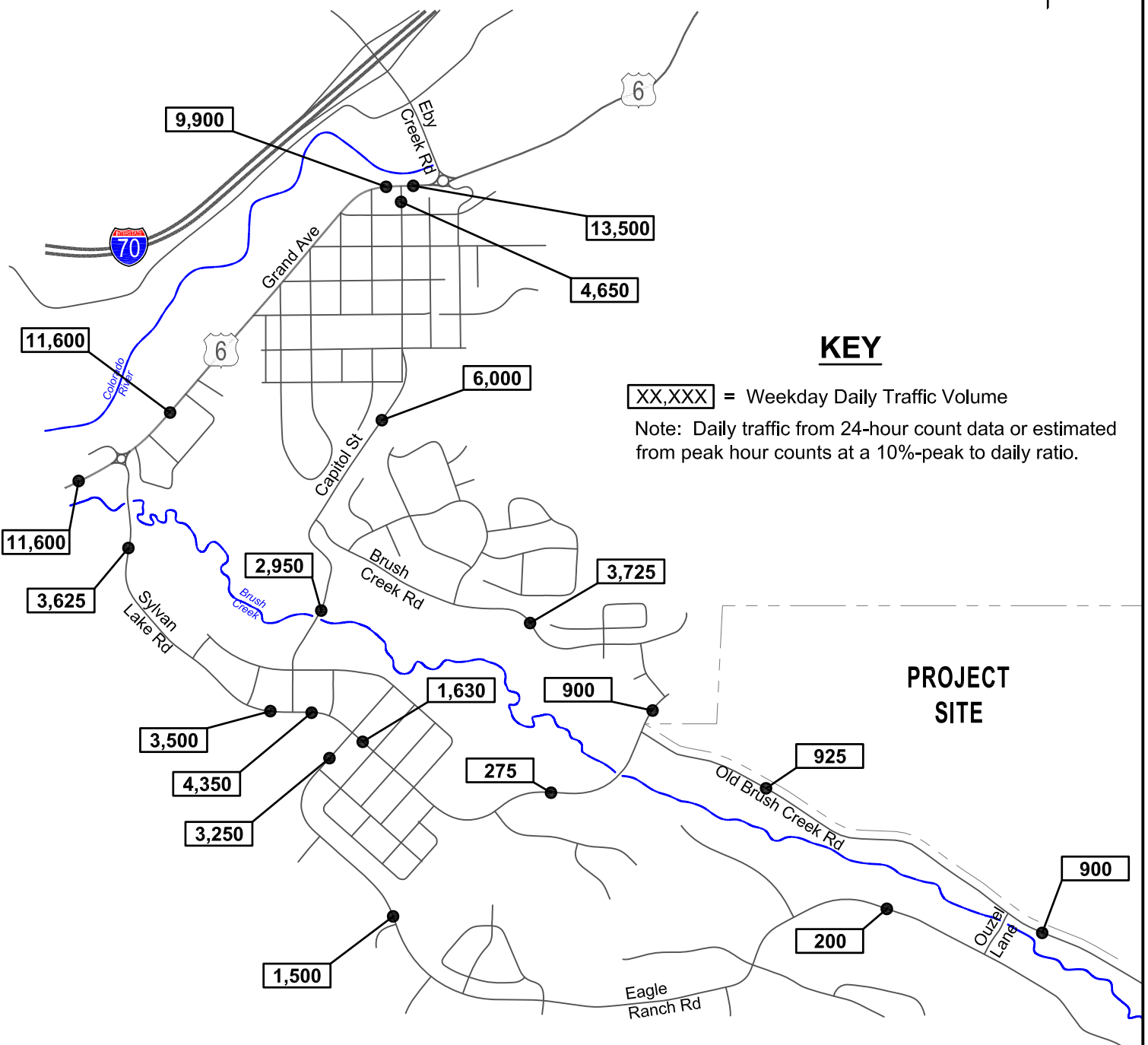
HAYMEADOW PROJECT TRAFFIC STUDY
SITE PLAN - OVERALL

FT Project #	09026	Original Scale	1"=1000'	Date	8/2013	Drawn by	SGT	Figure #	2
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HAYMEADOW PROJECT TRAFFIC STUDY
SITE PLAN - SCHOOL / RECREATION AREA

FT Project #	09026	Original Scale	1"=400'	Date	8/2013	Drawn by	SGT	Figure #	3
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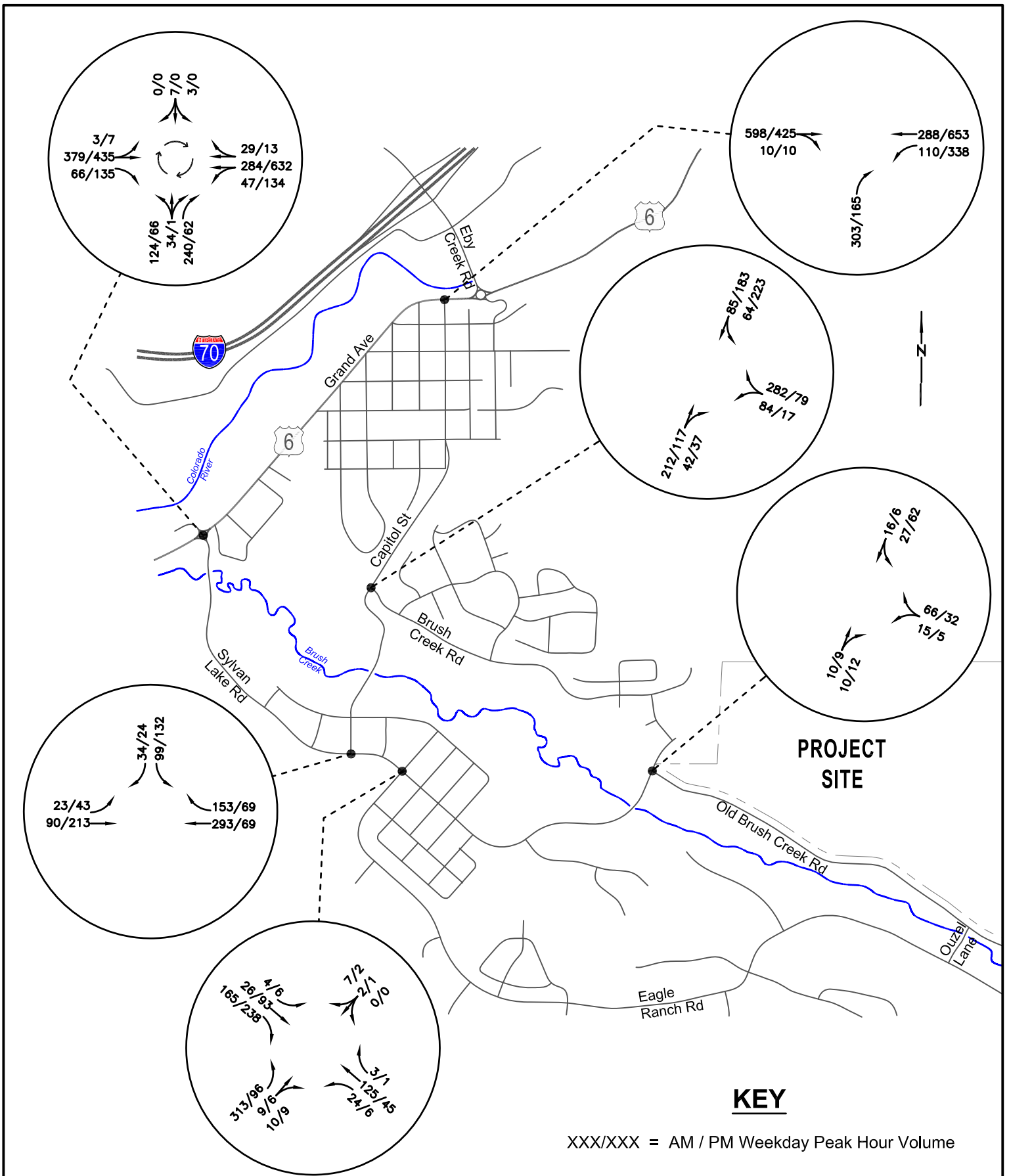
KEY

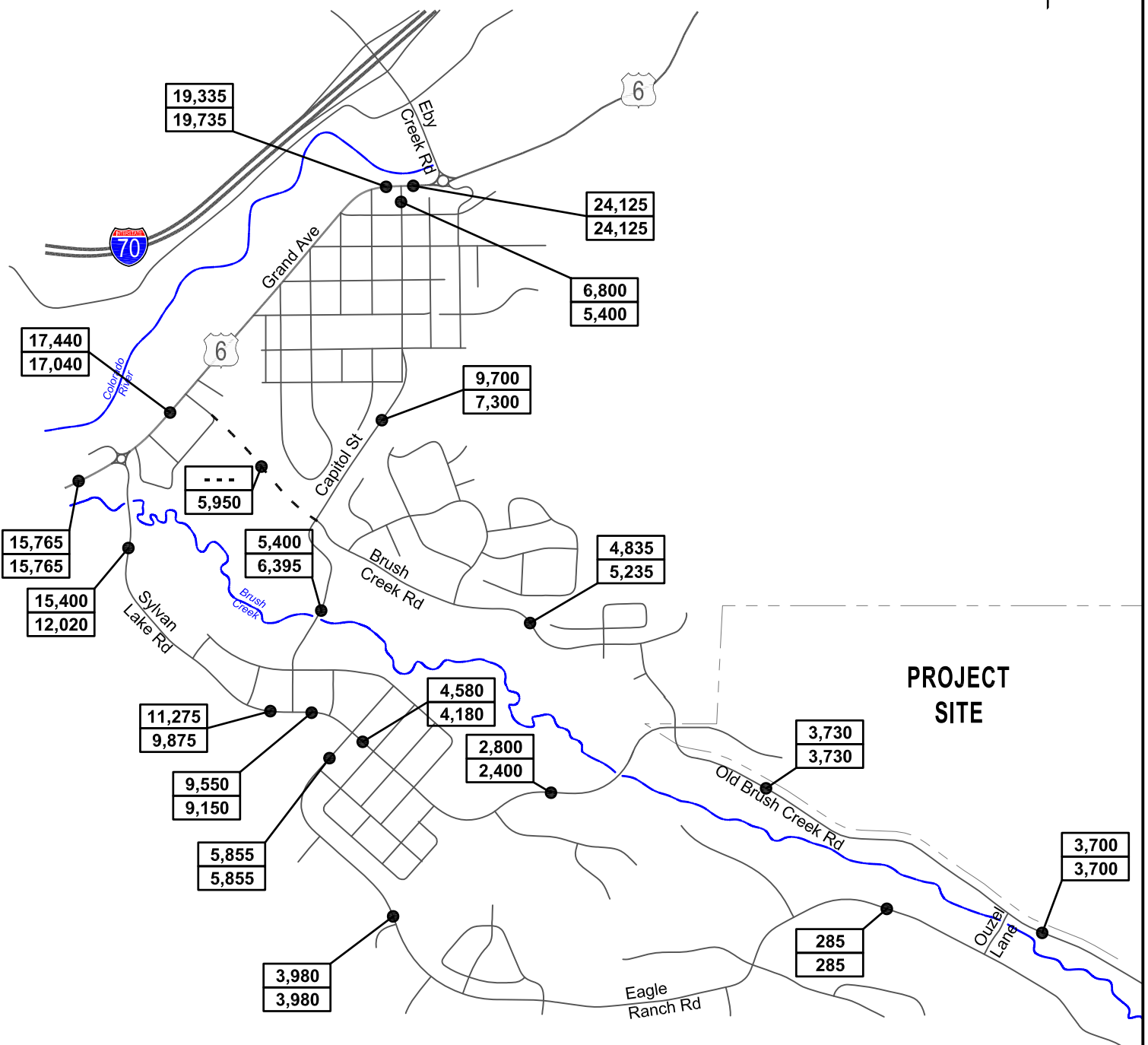
XX,XXX = Weekday Daily Traffic Volume
Note: Daily traffic from 24-hour count data or estimated from peak hour counts at a 10%-peak to daily ratio.



HAYMEADOW PROJECT TRAFFIC STUDY
EXISTING DAILY TRAFFIC

FT Project #	09026	Original Scale	NTS	Date	8/2013	Drawn by	SGT	Figure #	4
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KEY

XX,XXX
XX,XXX

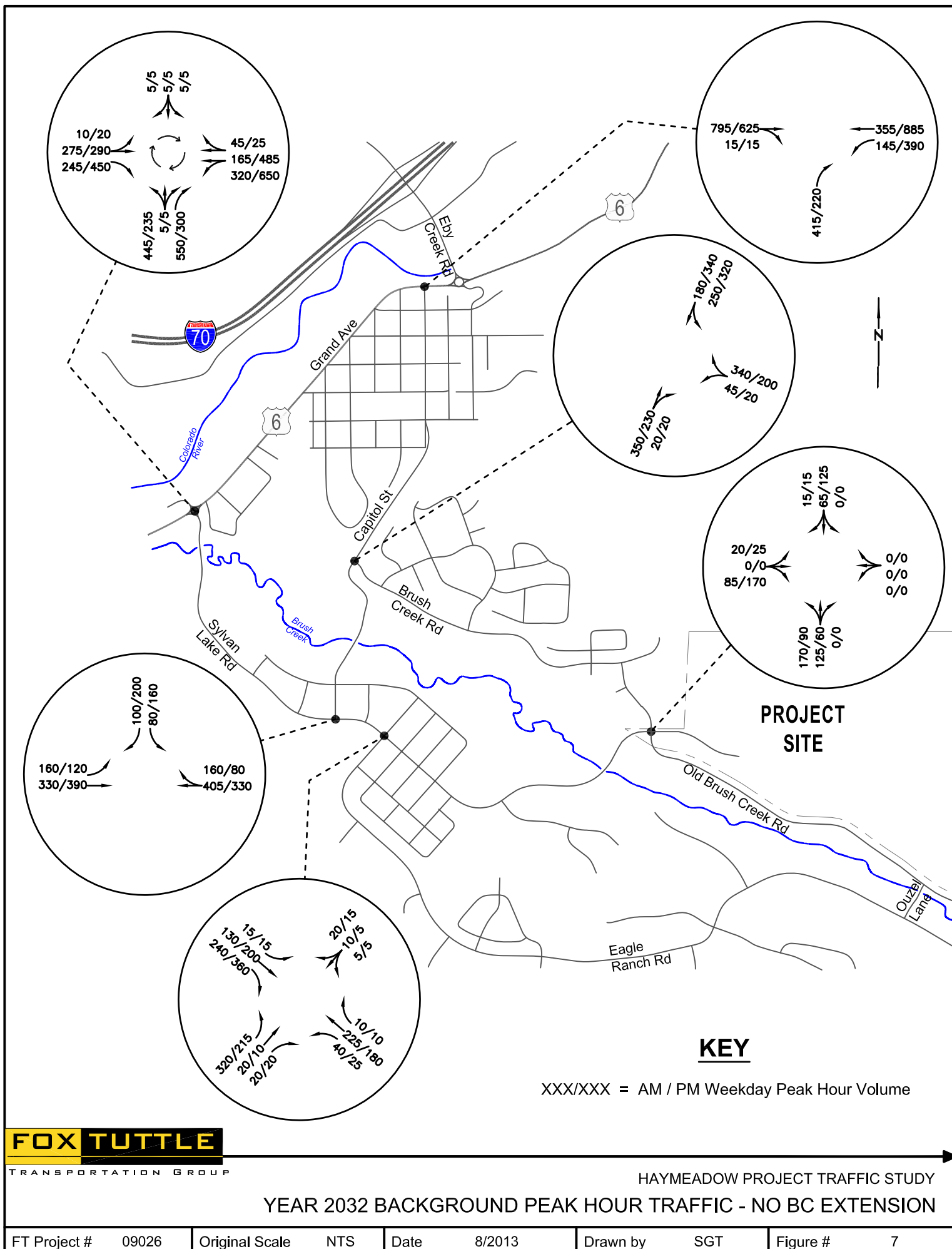
 = Weekday Daily Traffic Volume

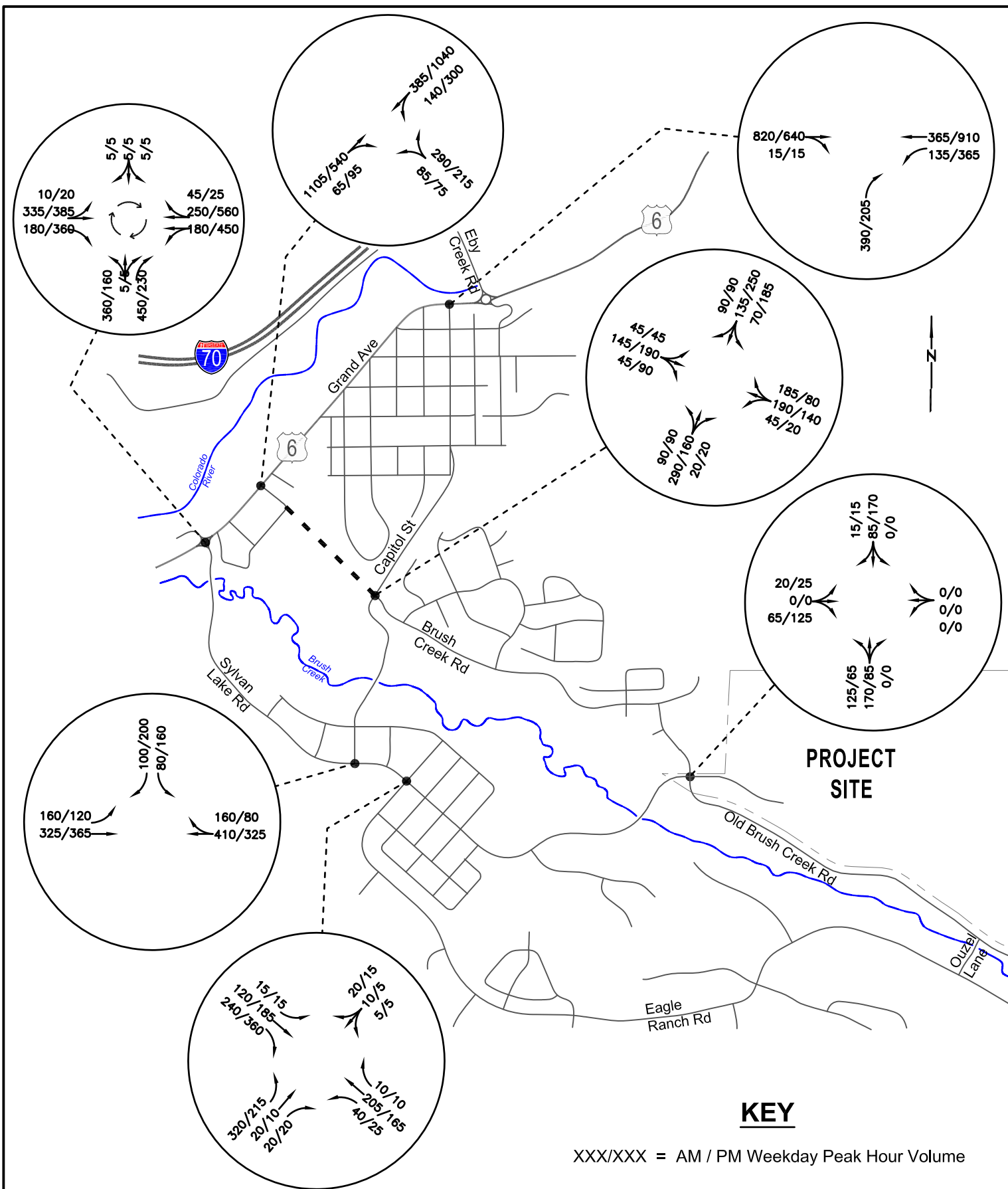
without
with

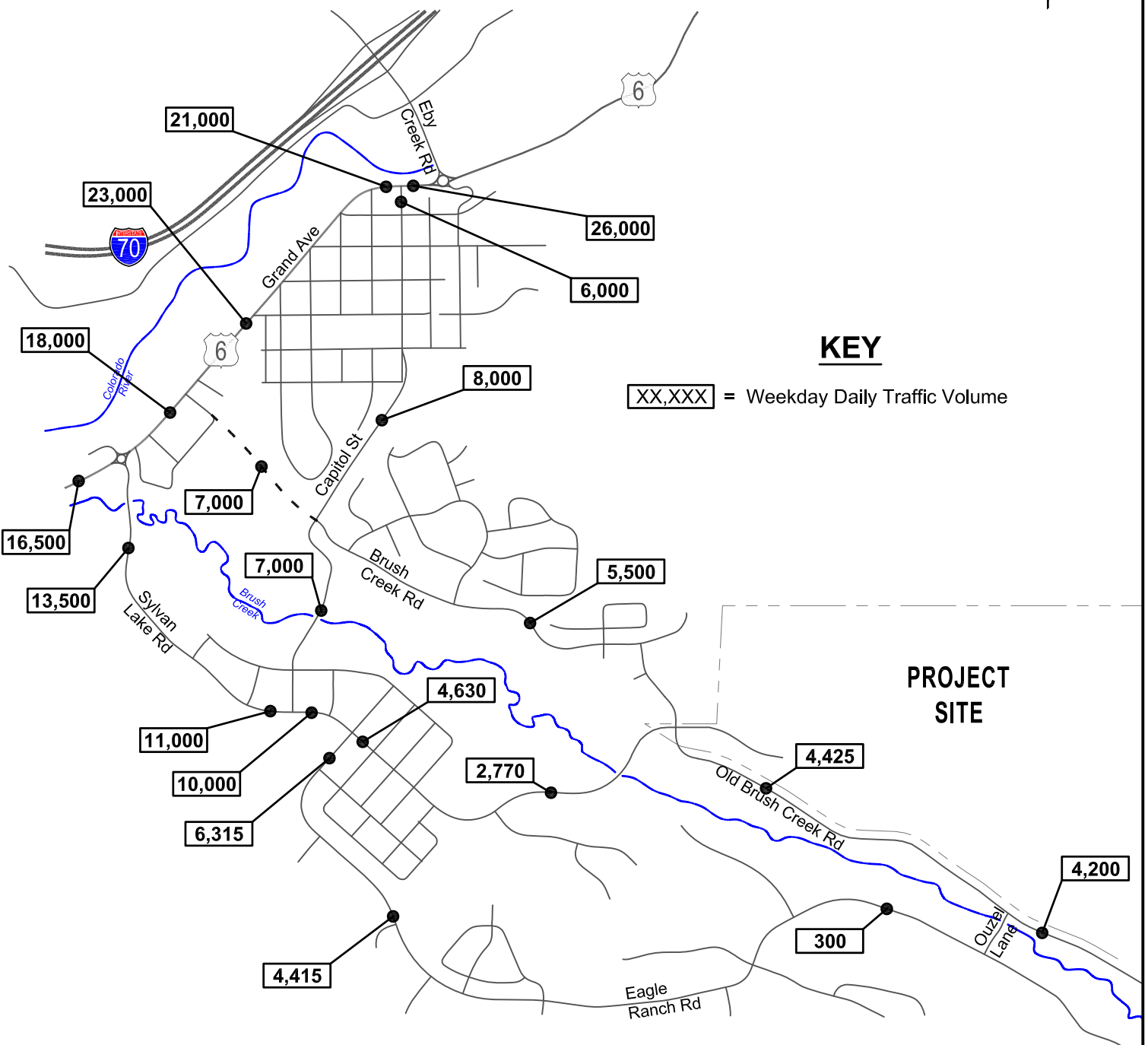
 Brush Creek Extension

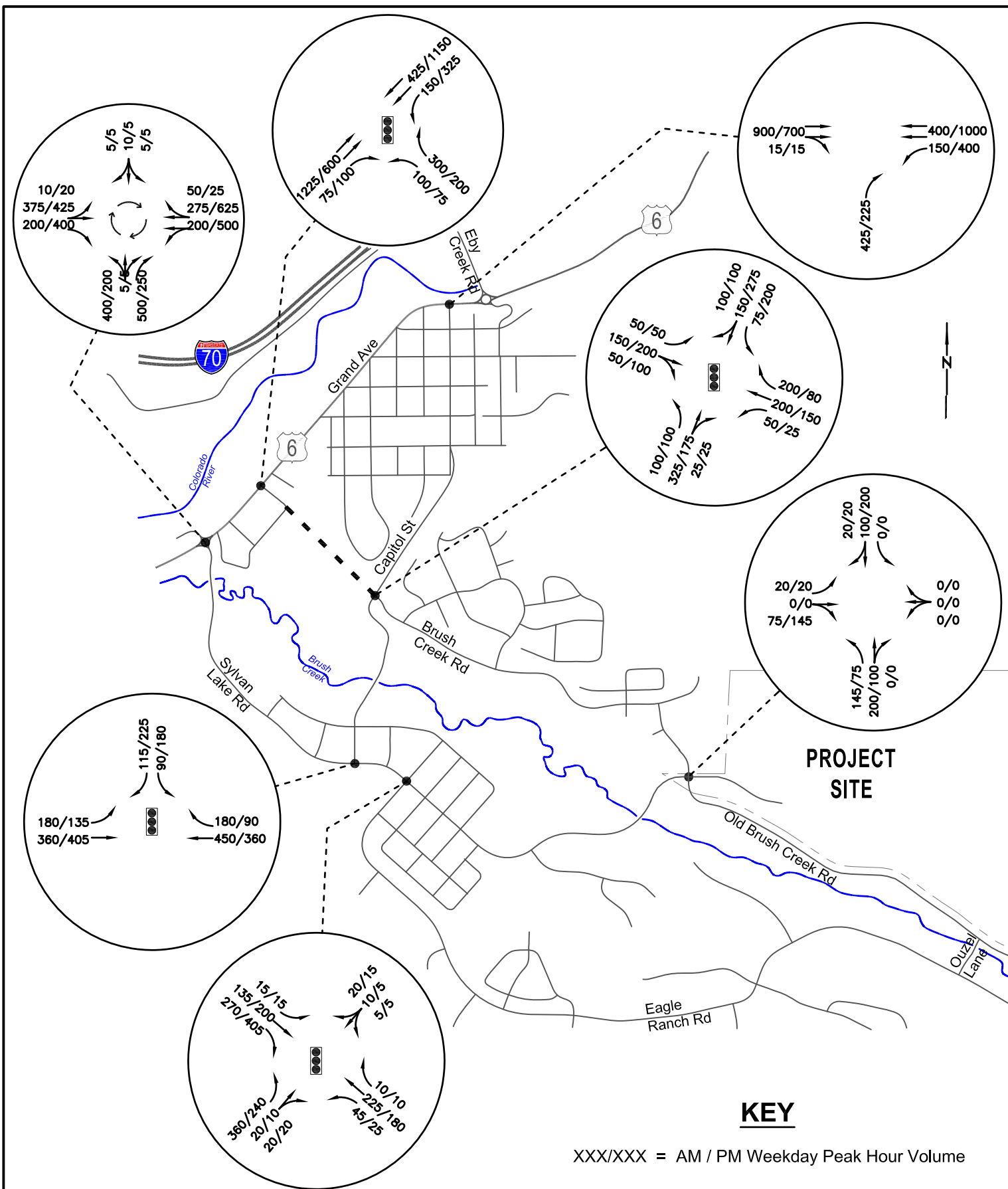


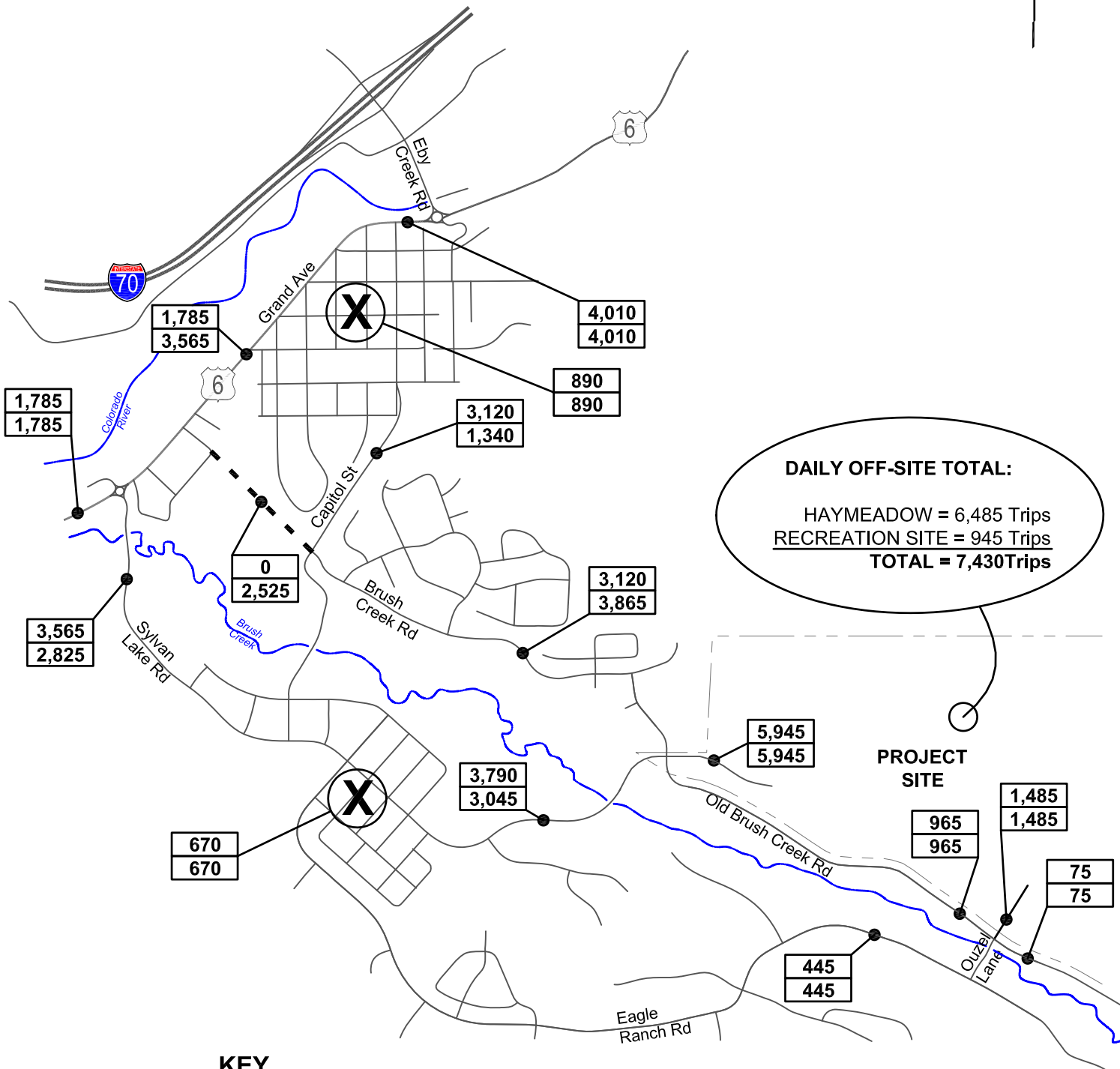
HAYMEADOW PROJECT TRAFFIC STUDY YEAR 2032 BACKGROUND DAILY TRAFFIC











KEY

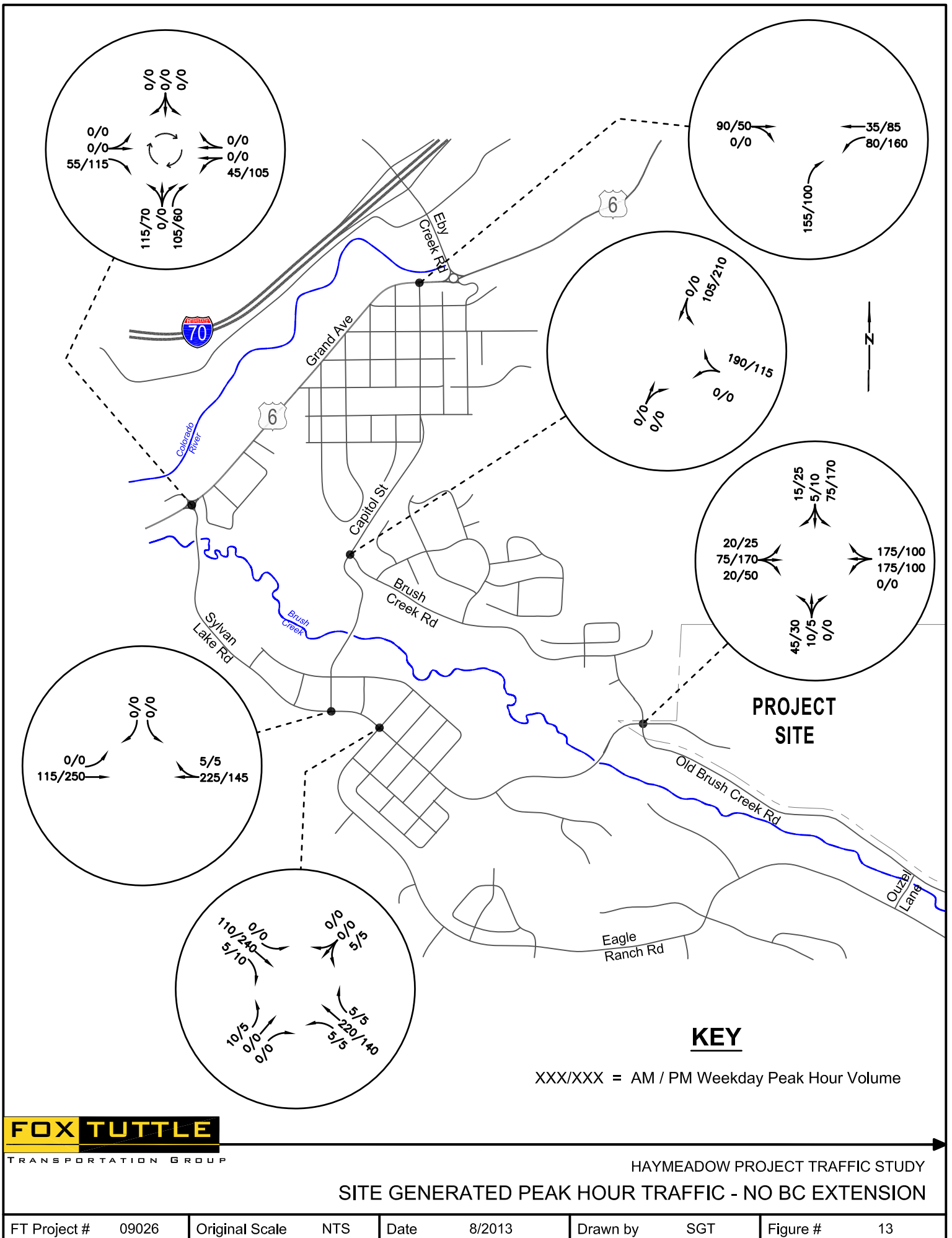
X,XXX
X,XXX

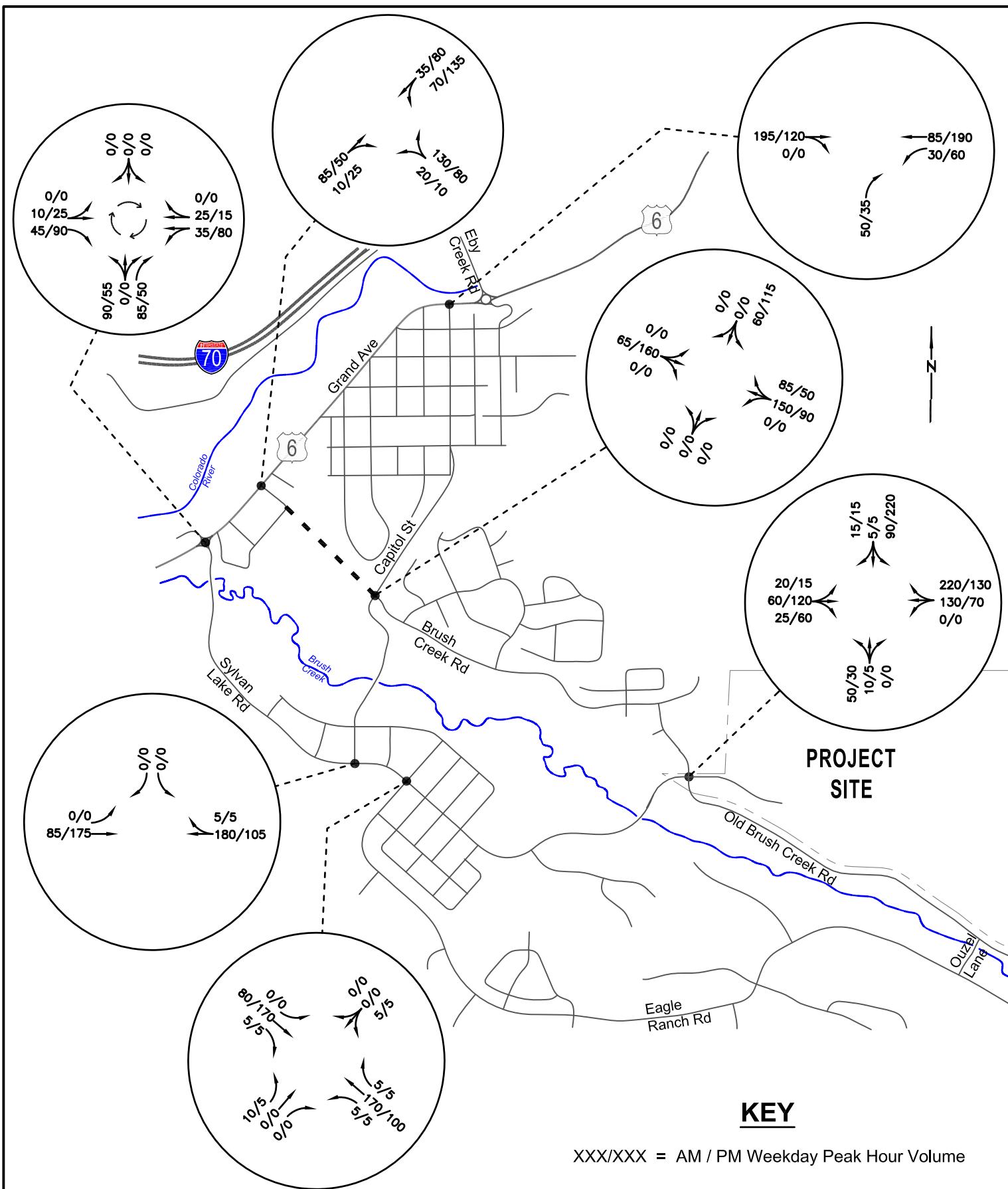
 = Site-Generated Daily Traffic

without
with

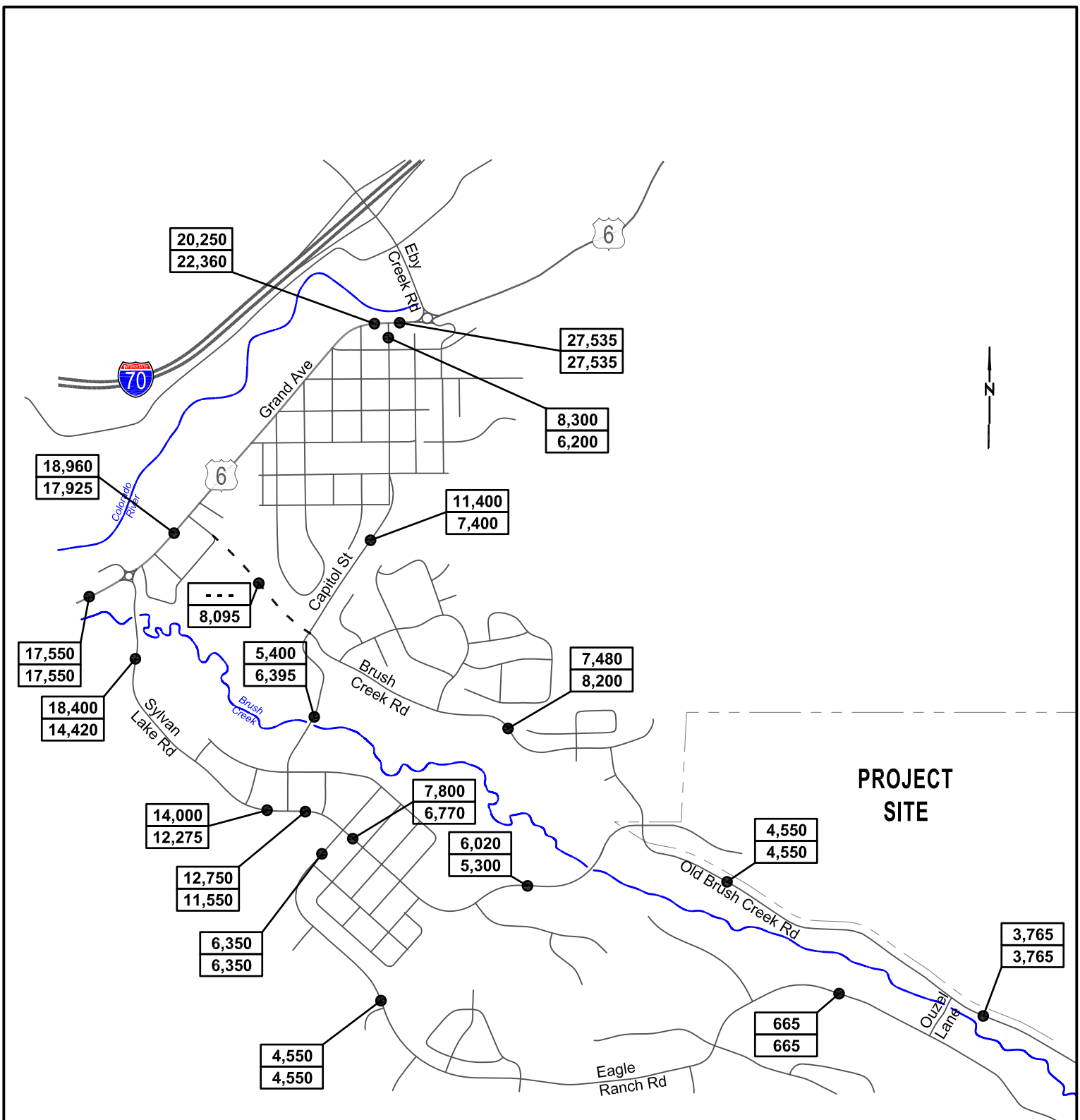
 Brush Creek Extension

= Local Destination





HAYMEADOW PROJECT TRAFFIC STUDY SITE GENERATED PEAK HOUR TRAFFIC - WITH BC EXTENSION



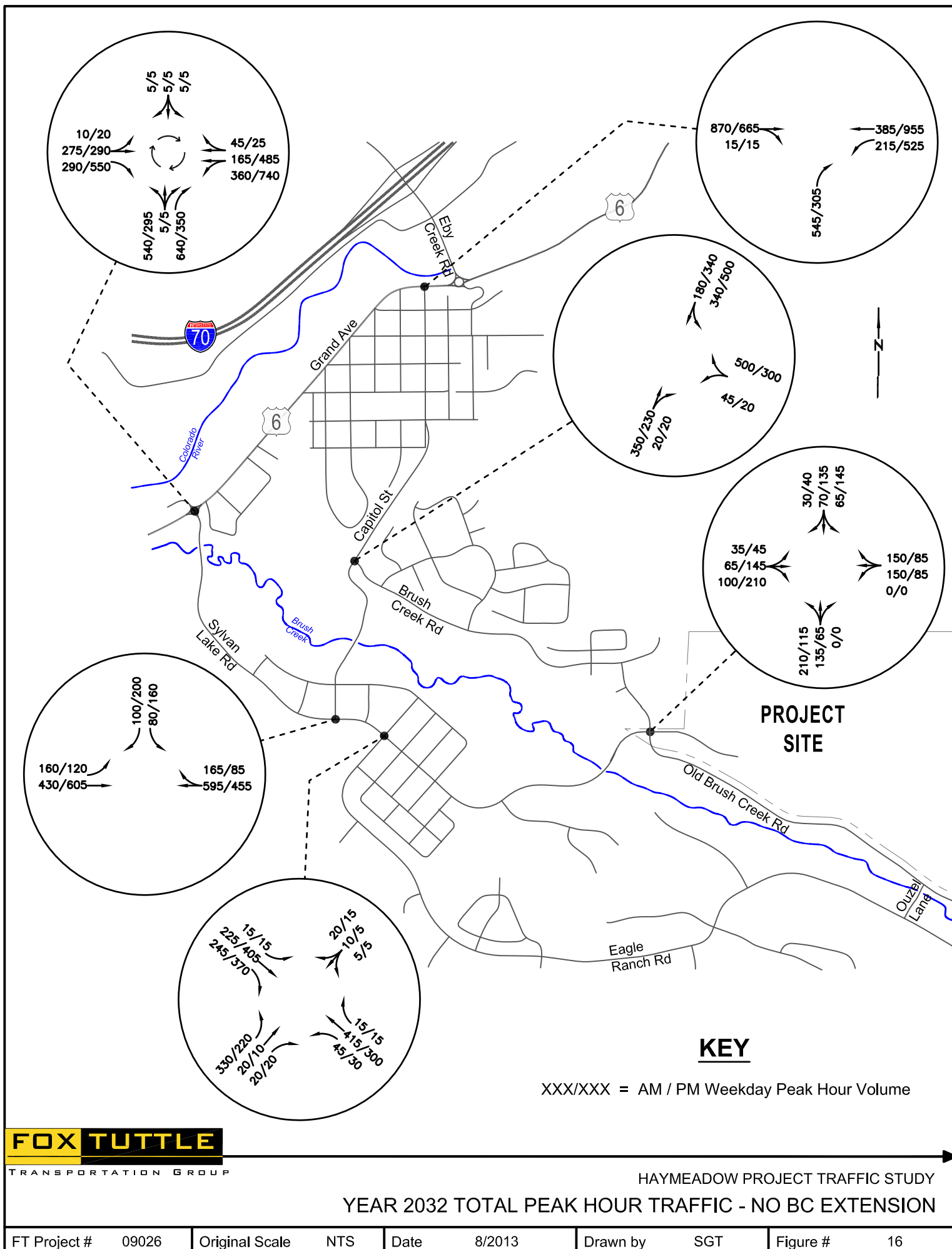
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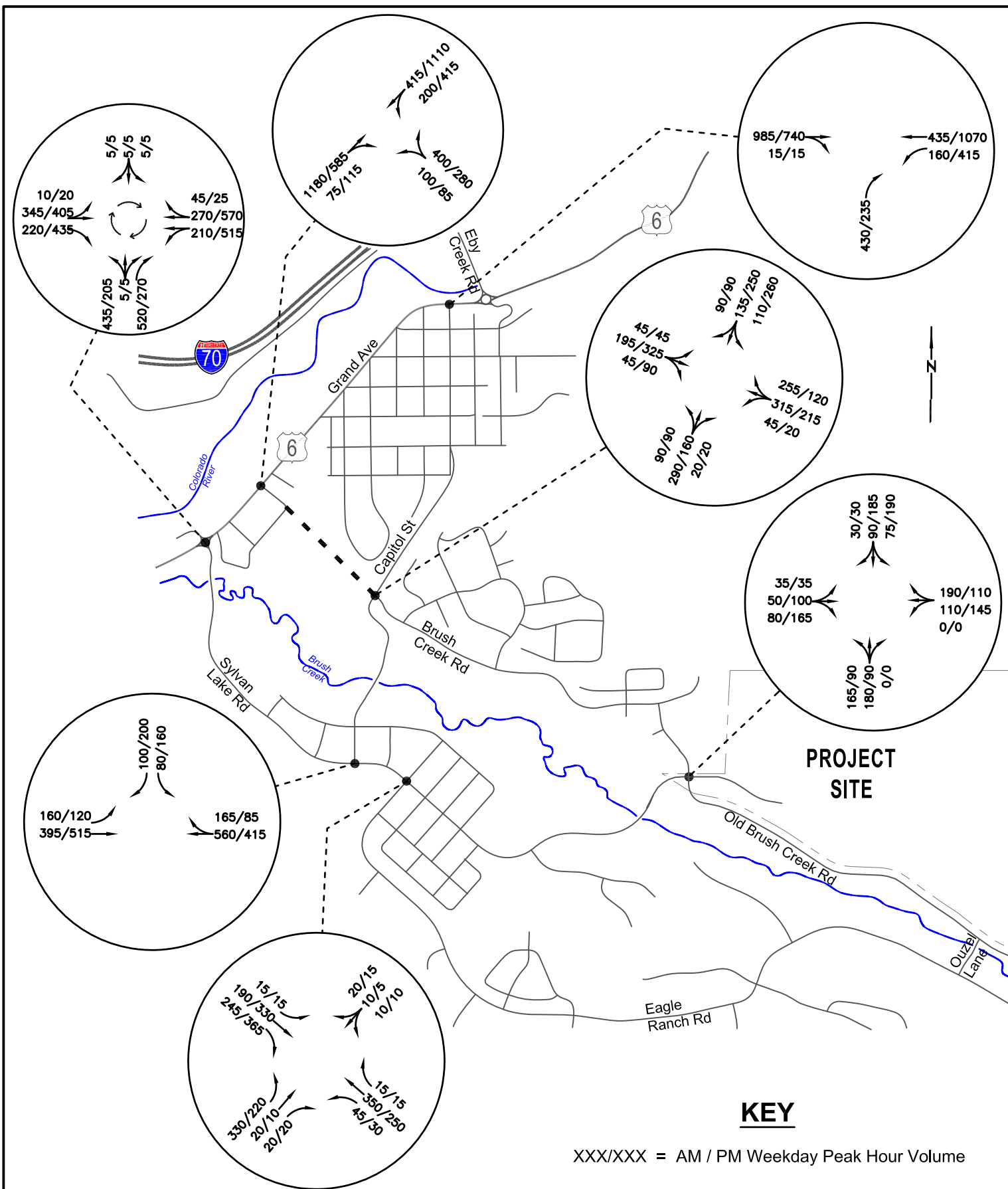
XX,XXX
XX,XXX

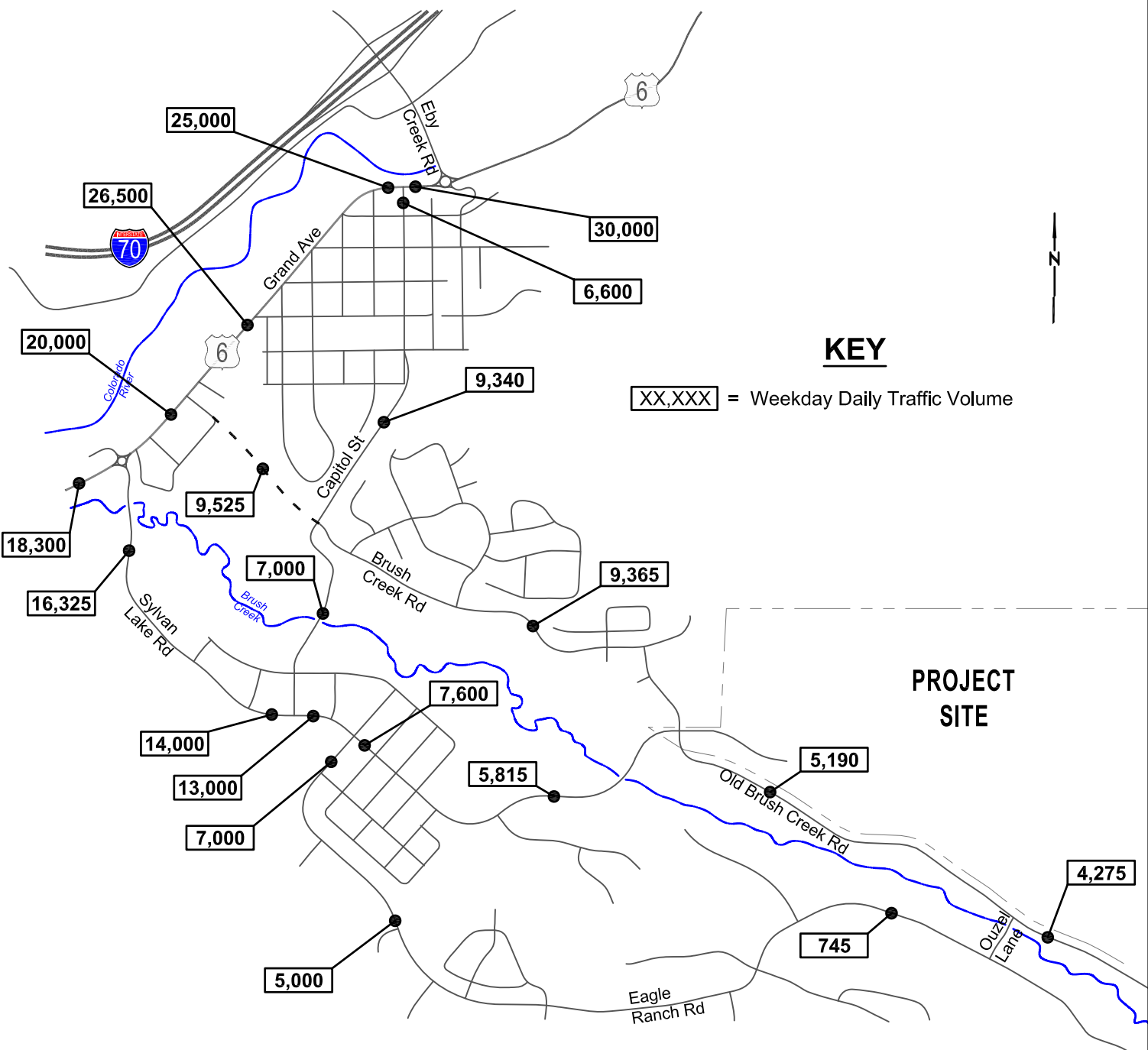
= Weekday Daily Traffic Volume

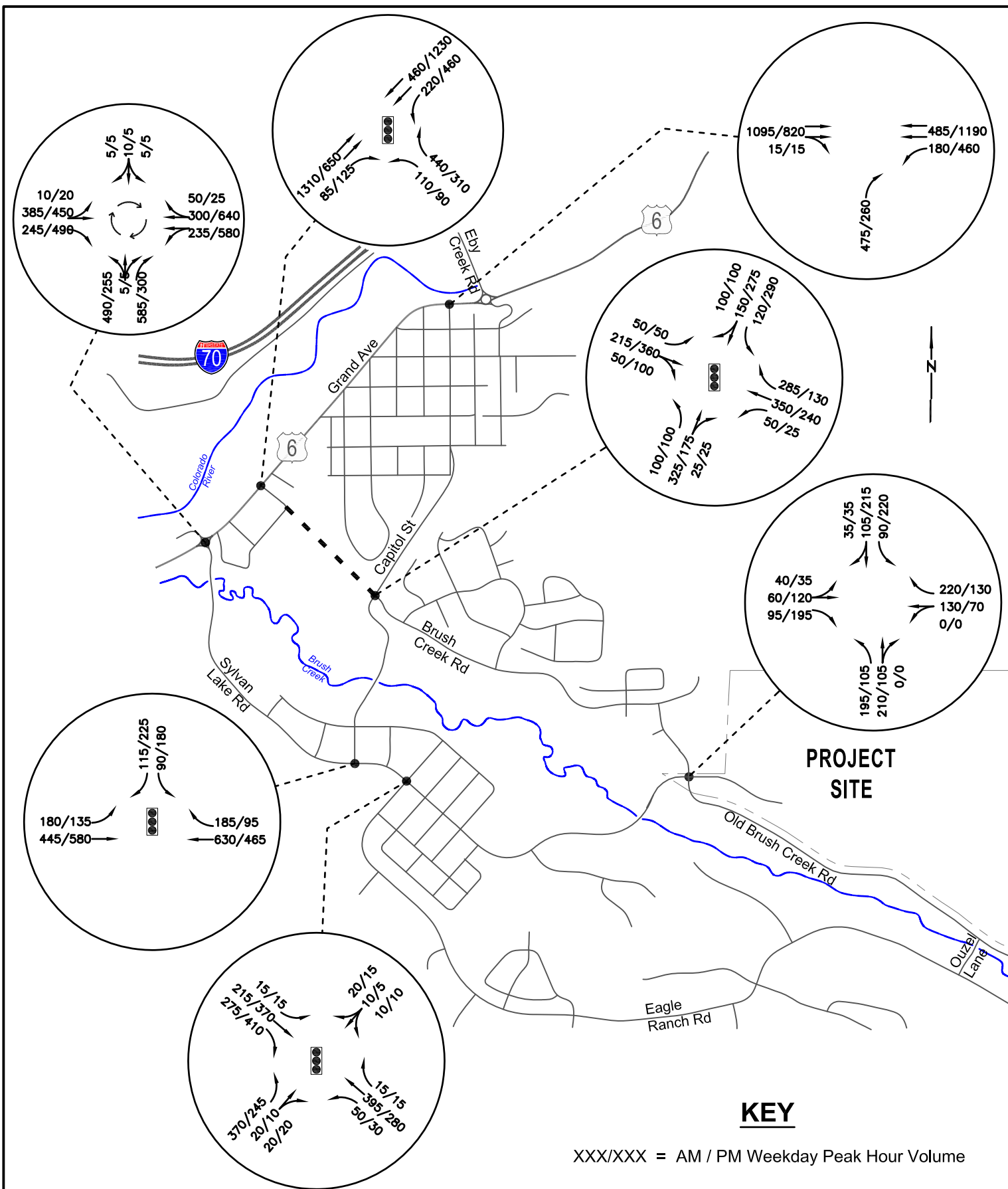
without
with

Brush Creek Extension









APPENDIX

- *Figure: Map of potential development parcels in the Brush Creek Valley (provided by Town of Eagle staff)*
- *Table: Trip Generation in the Brush Creek Valley (provided by Town of Eagle staff)*
- *Traffic Signal Warrant Sketches*
- *Level of Service Definitions*
- *Level of Service calculation sheets*

Corky Hillside, JHY, and Ewing
Parcels

Residential Units			Trips from Residential Units		
Existing	Future	Total	Existing	Future	Total
0	169	169	0	1,332	1,332

Eagle Ranch

~2,000 acres

Residential Units			Trips from Residential Units		
Existing	Future	Total	Existing	Future	Total
896	459	1,355	7,635	3,886	11,521
Other Trip Generators*			Total Trips		
Existing	Future	Total	Existing	Future	Total
6,957	7,560	14,517	14,592	11,446	26,038

* Other Traffic Generators
Medical Center
Village Center
Golf Course

Terrace

~120 acres

Residential Units			Trips from Residential Units		
Existing	Future	Total	Existing	Future	Total
303	0	303	2,628	0	2,628

Brush Creek Meadows

~30 acres

Residential Units			Trips from Residential Units		
Existing	Future	Total	Existing	Future	Total
90	49	139	743	287	1,030

Haymeadow

~660 acres

Residential Units			Trips from Residential Units		
Existing	Future	Total	Existing	Future	Total
0	1,038	1,038	0	8,530	8,530

Adams Rib Upper Ranch

~550 acres

Residential Units			Trips from Residential Units		
Existing	Future	Total	Existing	Future	Total
2	80	82	19	746	765

Charlie Ridgeway

~230 acres

Residential Units			Trips from Residential Units		
Existing	Future	Total	Existing	Future	Total
2	36	38	19	336	355

Salt Creek

~520 acres

Residential Units			Trips from Residential Units		
Existing	Future	Total	Existing	Future	Total
0	3	3	0	29	29
Other Trip Generators*			Total Trips		
Existing	Future	Total	Existing	Future	Total
0	401	401	0	430	430

* Other Traffic Generators
Equestrian Center
Shooting Range
Recreation Center

Adams Rib Ridgeway

~120 acres

Residential Units			Trips from Residential Units		
Existing	Future	Total	Existing	Future	Total
0	15	15	0	141	141

Moser Lane

~180 acres

Residential Units			Trips from Residential Units		
Existing	Future	Total	Existing	Future	Total
27	11	38	253	102	355

Frost Creek

~1,000 acres

Residential Units			Trips from Residential Units		
Existing	Future	Total	Existing	Future	Total
5	102	107	48	950	998
Golf Course Trip Generators			Total Trips		
Existing	Future	Total	Existing	Future	Total
643	0	643	691	950	1,641

Bruce Creek and Other
Development along Brush
Creek

~4,000 acres

Residential Units			Trips from Residential Units		
Existing	Future	Total	Existing	Future	Total
106	77	183	989	717	1,706

Trip Generation in the Brush Creek Valley

May 8, 2012

Parcel Name	Residential Development in the Brush Creek Valley													Vehicle Trips Generated from Residential Development in the Brush Creek Valley		
	Approximate Parcel Size	Single Family Units			Multi-Family Units			ADU			Total Residential Units			Existing	Future	Total at build out
	[acres]	Existing	Future	Total at build out	Existing	Future	Total at build out	Existing	Future	Total at build out	Existing	Future	Total at build out			
Corky Hillside	45	0	0	0	0	10	10	0	0	0	0	10	10	0	59	59
JHY	30	0	90	90	0	30	30	0	9	9	0	129	129	0	1,098	1,098
Ewing	7	0	0	0	0	30	30	0	0	0	0	30	30	0	176	176
Terrace	120	225	0	225	58	0	58	20	0	20	303	0	303	2,628	0	2,628
Brush Creek Meadows	30	58	0	58	32	49	81	0	0	0	90	49	139	743	287	1,030
Eagle Ranch	2,000	628	315	943	205	112	317	63	32	95	896	459	1,355	7,635	3,886	11,521
Haymeadow	660	0	646	646	0	333	333	0	59	59	0	1,038	1,038	0	8,530	8,530
Upper Ranch	550	2	73	75	0	0	0	0	7	7	2	80	82	19	746	765
Charlie Ridgeway	230	2	33	35	0	0	0	0	3	3	2	36	38	19	336	355
Lower Ranch	340	2	27	29	0	0	0	0	3	3	2	30	32	19	279	298
Adams Rib Ridgeway	120	0	14	14	0	0	0	0	1	1	0	15	15	0	141	141
Salt Creek	520	0	3	3	0	0	0	0	0	0	0	3	3	0	29	29
Moser Lane	180	25	10	35	0	0	0	2	1	3	27	11	38	253	102	355
Frost Creek	1,000	5	93	98	0	0	0	0	9	9	5	102	107	48	950	998
Other Development - Adjacent to Brush Creek Downvalley from Hardscrabble Road	200	32	5	37	0	0	0	3	1	4	35	6	41	326	55	381
Bruce Creek Area	3,500	50	55	105	0	0	0	5	5	10	55	60	115	512	560	1,072
Other Development - Adjacent to Brush Creek Upvalley from Bruce Creek Area	500	15	10	25	0	0	0	1	1	2	16	11	27	150	102	253
Totals	10,032	1,044	1,374	2,418	295	564	859	94	131	225	1,433	2,069	3,502	12,351	17,335	29,686

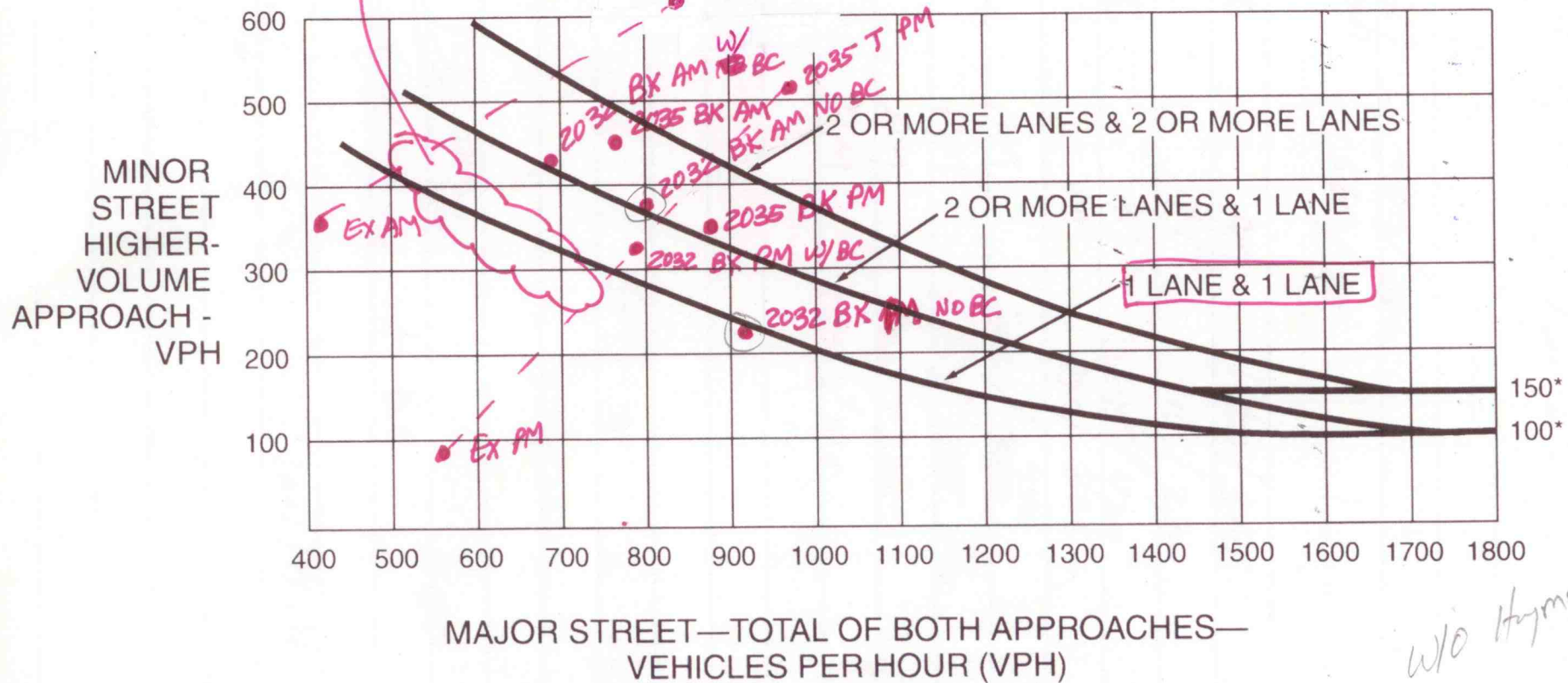
Other Trip Generators in the Brush Creek Valley	Vehicle Trips Generated from Other Development in the Brush Creek Valley		
	Existing	Future	Total at build out
Medical Center (Eagle Ranch)	1,246	5,259	6,505
Village Center (Eagle Ranch)	5,343	2,302	7,645
Elementary School (Eagle Ranch)	367	0	367
Recreation Center	759	831	1,590
Golf Course (Eagle Ranch)	643	0	643
Elementary and Middle School (Haymeadow)	0	744	744
Equestrian Center (Salt Creek)	0	148	148
Shooting Range (Salt Creek)	0	200	200
Recreation Center (Salt Creek)	0	53	53
Golf Course (Frost Creek)	643	0	643
Sylvan Lake State Park	?	?	?
National Forest	?	?	?
Totals	9,002	9,536	18,538

Trips per Single Family = 9.57
Trips per Multi-Family = 5.86
Trips per ADU = 6.72

Total Vehicle Trips Generated in the Brush Creek Valley		
Existing	Future	Total at build out
21,353	26,871	48,224

SIGNAL OR RUNDABNT BY 2020 TO 2025

Figure 4C-3. Warrant 3, Peak Hour

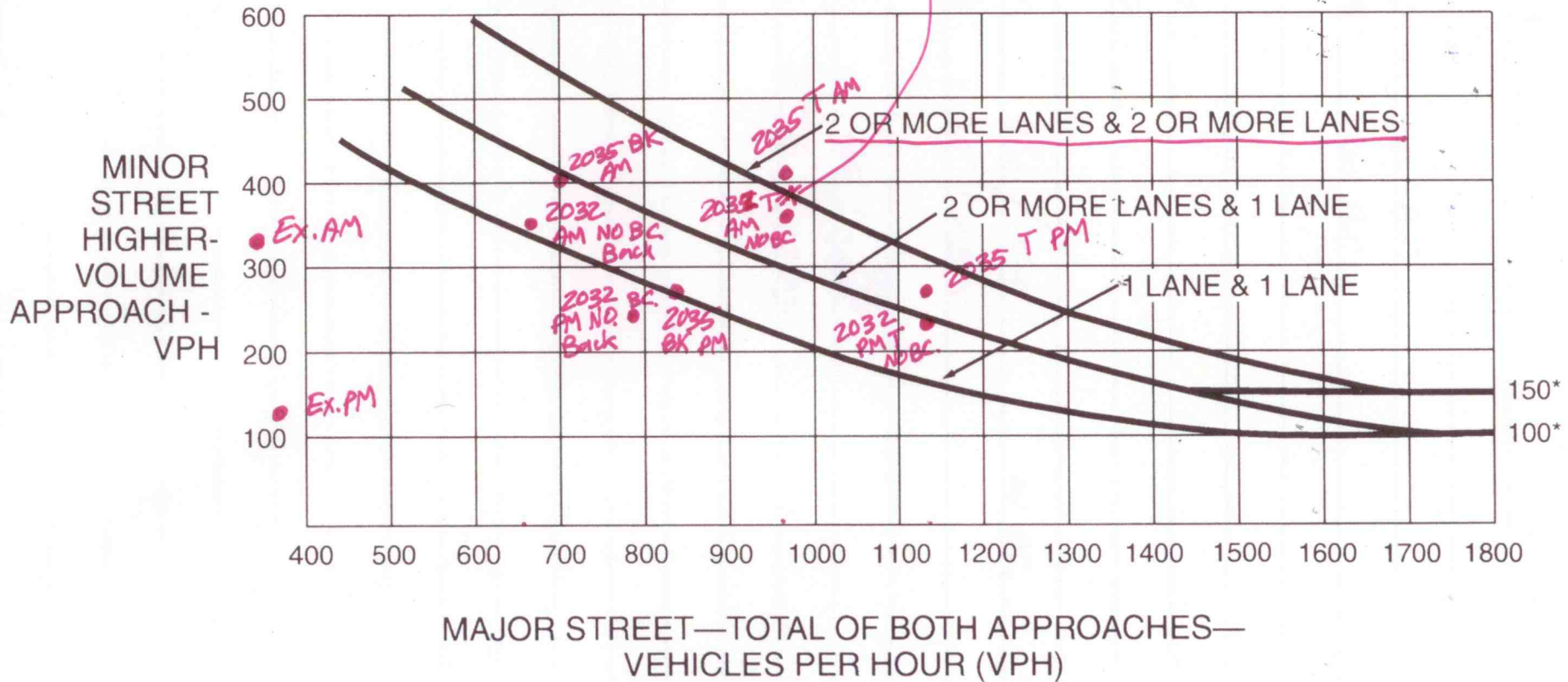


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

CAPITOL / BRUSH CREEK RD.

W/O Hyman

Figure 4C-3. Warrant 3, Peak Hour



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

EAGLE RANCH ROAD / SYLVAN LAKE ROAD

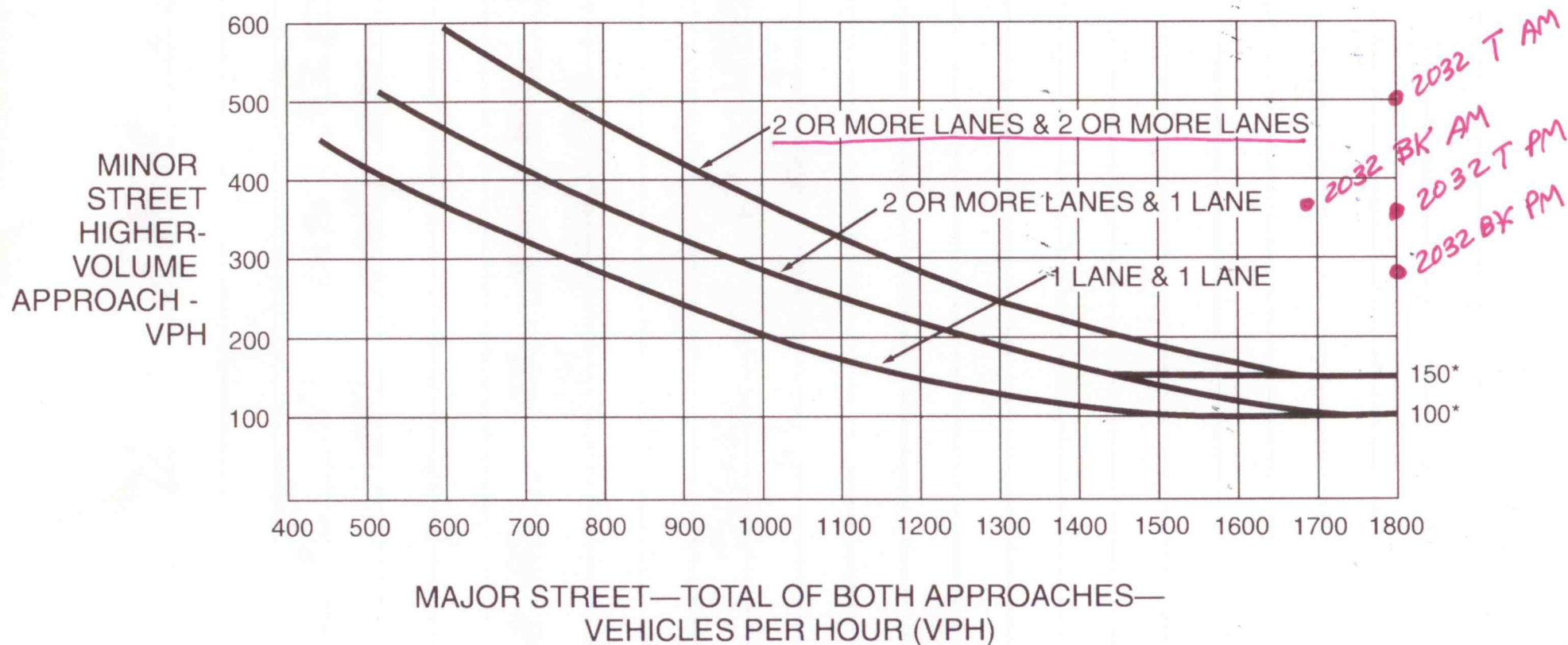
Figure 4C-3. Warrant 3, Peak Hour



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

CAPITOL ST / SYLVAN LAKE ROAD

Figure 4C-3. Warrant 3, Peak Hour



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

US 6 / BRUSH CREEK ROAD EXT.

LEVEL OF SERVICE DEFINITIONS

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

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

(a) Delay ranges based on 2010 Highway Capacity Manual criteria.

HCM Unsignalized Intersection Capacity Analysis

1: US 6 & Capitol St

Existing
AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	598	10	110	288	0	303
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.63	0.86	0.89	0.92	0.86
Hourly flow rate (vph)	664	16	128	324	0	352
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage veh	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			680		1252	672
vC1, stage 1 conf vol					672	
vC2, stage 2 conf vol					579	
vCu, unblocked vol			680		1252	672
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			86		100	23
cM capacity (veh/h)			912		375	456
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	680	128	324	352		
Volume Left	0	128	0	0		
Volume Right	16	0	0	352		
cSH	1700	912	1700	456		
Volume to Capacity	0.40	0.14	0.19	0.77		
Queue Length 95th (ft)	0	12	0	168		
Control Delay (s)	0.0	9.6	0.0	35.1		
Lane LOS		A		E		
Approach Delay (s)	0.0	2.7		35.1		
Approach LOS				E		
Intersection Summary						
Average Delay			9.1			
Intersection Capacity Utilization			57.5%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

2: Capitol St & Brush Creek Rd

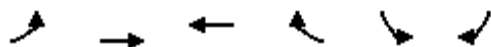
Existing
AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	84	282	212	42	64	85
Peak Hour Factor	0.71	0.84	0.63	0.66	0.73	0.85
Hourly flow rate (vph)	118	336	337	64	88	100
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	454	400	188			
Volume Left (vph)	118	0	88			
Volume Right (vph)	336	64	0			
Hadj (s)	-0.36	-0.06	0.13			
Departure Headway (s)	5.2	5.5	6.0			
Degree Utilization, x	0.65	0.61	0.31			
Capacity (veh/h)	665	627	555			
Control Delay (s)	17.3	16.5	11.6			
Approach Delay (s)	17.3	16.5	11.6			
Approach LOS	C	C	B			
Intersection Summary						
Delay			16.0			
Level of Service			C			
Intersection Capacity Utilization			53.8%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Existing
AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	23	90	293	153	99	34
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.58	0.50	0.78	0.67	0.59	0.47
Hourly flow rate (vph)	40	180	376	228	168	72
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	604				635	376
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	604				635	376
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				60	89
cM capacity (veh/h)	974				425	671
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	40	180	376	228	168	72
Volume Left	40	0	0	0	168	0
Volume Right	0	0	0	228	0	72
cSH	974	1700	1700	1700	425	671
Volume to Capacity	0.04	0.11	0.22	0.13	0.40	0.11
Queue Length 95th (ft)	3	0	0	0	46	9
Control Delay (s)	8.9	0.0	0.0	0.0	18.9	11.0
Lane LOS	A				C	B
Approach Delay (s)	1.6		0.0		16.5	
Approach LOS					C	
Intersection Summary						
Average Delay			4.1			
Intersection Capacity Utilization			31.3%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

Existing
AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	26	165	24	125	3	313	9	10	0	2	7
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.50	0.72	0.49	0.50	0.78	0.25	0.74	0.56	0.42	0.50	0.50	0.58
Hourly flow rate (vph)	8	36	337	48	160	12	423	16	24	0	4	12
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	172			373			322	320	36	340	645	160
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	172			373			322	320	36	340	645	160
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			29	97	98	100	99	99
cM capacity (veh/h)	1405			1186			595	569	1036	566	373	885
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	8	36	337	48	160	12	423	40	16			
Volume Left	8	0	0	48	0	0	423	0	0			
Volume Right	0	0	337	0	0	12	0	24	12			
cSH	1405	1700	1700	1186	1700	1700	595	779	659			
Volume to Capacity	0.01	0.02	0.20	0.04	0.09	0.01	0.71	0.05	0.02			
Queue Length 95th (ft)	0	0	0	3	0	0	145	4	2			
Control Delay (s)	7.6	0.0	0.0	8.2	0.0	0.0	24.5	9.9	10.6			
Lane LOS	A			A			C	A	B			
Approach Delay (s)	0.2			1.8			23.3		10.6			
Approach LOS							C		B			
Intersection Summary												
Average Delay	10.5											
Intersection Capacity Utilization	38.7%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis 5: Sylvan Lake Rd & Old Brush Creek Rd

Existing
AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	66	15	10	10	27	16
Peak Hour Factor	0.69	0.63	0.83	0.50	0.75	0.67
Hourly flow rate (vph)	96	24	12	20	36	24
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	119	32	60			
Volume Left (vph)	96	0	36			
Volume Right (vph)	24	20	0			
Hadj (s)	0.07	-0.34	0.15			
Departure Headway (s)	4.2	3.9	4.4			
Degree Utilization, x	0.14	0.03	0.07			
Capacity (veh/h)	841	885	801			
Control Delay (s)	7.8	7.0	7.7			
Approach Delay (s)	7.8	7.0	7.7			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.7			
Level of Service			A			
Intersection Capacity Utilization			20.2%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

1: US 6 & Capitol St

Existing
PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	425	10	338	653	0	165
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.50	0.92	0.94	0.92	0.79
Hourly flow rate (vph)	467	20	367	695	0	209
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			487		1906	477
vC1, stage 1 conf vol					477	
vC2, stage 2 conf vol					1429	
vCu, unblocked vol			487		1906	477
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			66		100	64
cM capacity (veh/h)			1076		140	588
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	487	367	695	209		
Volume Left	0	367	0	0		
Volume Right	20	0	0	209		
cSH	1700	1076	1700	588		
Volume to Capacity	0.29	0.34	0.41	0.36		
Queue Length 95th (ft)	0	38	0	40		
Control Delay (s)	0.0	10.1	0.0	14.5		
Lane LOS		B		B		
Approach Delay (s)	0.0	3.5		14.5		
Approach LOS				B		
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utilization			48.4%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

2: Capitol St & Brush Creek Rd

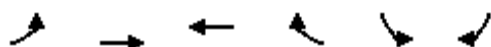
Existing
PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	17	79	117	37	223	183
Peak Hour Factor	0.85	0.82	0.81	0.62	0.93	0.79
Hourly flow rate (vph)	20	96	144	60	240	232
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	116	204	471			
Volume Left (vph)	20	0	240			
Volume Right (vph)	96	60	0			
Hadj (s)	-0.43	-0.14	0.14			
Departure Headway (s)	5.0	4.6	4.6			
Degree Utilization, x	0.16	0.26	0.60			
Capacity (veh/h)	639	747	767			
Control Delay (s)	9.0	9.2	14.2			
Approach Delay (s)	9.0	9.2	14.2			
Approach LOS	A	A	B			
Intersection Summary						
Delay			12.2			
Level of Service			B			
Intersection Capacity Utilization			46.2%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Existing
PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	43	213	69	69	132	24
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.83	0.90	0.66	0.64	0.81	0.75
Hourly flow rate (vph)	52	237	105	108	163	32
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	212				445	105
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	212				445	105
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				70	97
cM capacity (veh/h)	1358				549	950
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	52	237	105	108	163	32
Volume Left	52	0	0	0	163	0
Volume Right	0	0	0	108	0	32
cSH	1358	1700	1700	1700	549	950
Volume to Capacity	0.04	0.14	0.06	0.06	0.30	0.03
Queue Length 95th (ft)	3	0	0	0	31	3
Control Delay (s)	7.8	0.0	0.0	0.0	14.3	8.9
Lane LOS	A				B	A
Approach Delay (s)	1.4		0.0		13.4	
Approach LOS					B	
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization			25.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

Existing
PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	93	238	6	45	1	96	6	9	0	1	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.83	0.82	0.75	0.75	0.25	0.80	0.50	0.56	0.50	0.50	0.50
Hourly flow rate (vph)	8	112	290	8	60	4	120	12	16	0	2	4
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	64			402			209	208	112	226	494	60
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	64			402			209	208	112	226	494	60
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			84	98	98	100	100	100
cM capacity (veh/h)	1538			1156			736	680	941	701	470	1005
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	8	112	290	8	60	4	120	28	6			
Volume Left	8	0	0	8	0	0	120	0	0			
Volume Right	0	0	290	0	0	4	0	16	4			
cSH	1538	1700	1700	1156	1700	1700	736	809	729			
Volume to Capacity	0.01	0.07	0.17	0.01	0.04	0.00	0.16	0.03	0.01			
Queue Length 95th (ft)	0	0	0	1	0	0	15	3	1			
Control Delay (s)	7.4	0.0	0.0	8.1	0.0	0.0	10.8	9.6	10.0			
Lane LOS	A			A			B	A	A			
Approach Delay (s)	0.1			0.9			10.6		10.0			
Approach LOS							B		A			
Intersection Summary												
Average Delay			2.8									
Intersection Capacity Utilization			31.4%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 5: Sylvan Lake Rd & Old Brush Creek Rd

Existing
PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	32	5	9	12	62	6
Peak Hour Factor	0.67	0.63	0.56	0.60	0.74	0.50
Hourly flow rate (vph)	48	8	16	20	84	12
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	56	36	96			
Volume Left (vph)	48	0	84			
Volume Right (vph)	8	20	0			
Hadj (s)	0.12	-0.30	0.21			
Departure Headway (s)	4.3	3.8	4.3			
Degree Utilization, x	0.07	0.04	0.11			
Capacity (veh/h)	808	911	827			
Control Delay (s)	7.6	7.0	7.8			
Approach Delay (s)	7.6	7.0	7.8			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.6			
Level of Service			A			
Intersection Capacity Utilization			20.4%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

1: US 6 & Capitol St

Year 2032 Background - No BC Ext
AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	795	15	145	355	0	415
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.63	0.86	0.89	0.92	0.86
Hourly flow rate (vph)	883	24	169	399	0	483
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage (veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			907		1432	454
vC1, stage 1 conf vol					895	
vC2, stage 2 conf vol					537	
vCu, unblocked vol			907		1432	454
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			77		100	13
cM capacity (veh/h)			746		284	553
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	589	318	169	199	199	483
Volume Left	0	0	169	0	0	0
Volume Right	0	24	0	0	0	483
cSH	1700	1700	746	1700	1700	553
Volume to Capacity	0.35	0.19	0.23	0.12	0.12	0.87
Queue Length 95th (ft)	0	0	22	0	0	243
Control Delay (s)	0.0	0.0	11.2	0.0	0.0	40.8
Lane LOS			B			E
Approach Delay (s)	0.0		3.3			40.8
Approach LOS						E
Intersection Summary						
Average Delay			11.0			
Intersection Capacity Utilization			54.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 2: Brush Creek Rd & Capitol St

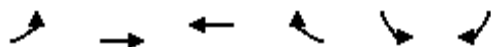
Year 2032 Background - No BC Ext
AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Sign Control	Stop			Stop	Stop	
Volume (vph)	350	20	250	180	45	340
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	380	22	272	196	49	370
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	402	467	418			
Volume Left (vph)	0	272	49			
Volume Right (vph)	22	0	370			
Hadj (s)	0.00	0.15	-0.47			
Departure Headway (s)	6.1	6.2	5.9			
Degree Utilization, x	0.69	0.80	0.69			
Capacity (veh/h)	565	564	579			
Control Delay (s)	21.5	29.5	21.0			
Approach Delay (s)	21.5	29.5	21.0			
Approach LOS	C	D	C			
Intersection Summary						
Delay			24.2			
Level of Service			C			
Intersection Capacity Utilization			76.4%	ICU Level of Service	D	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 Background - No BC Ext
AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	160	330	405	160	80	100
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.58	0.50	0.78	0.67	0.59	0.47
Hourly flow rate (vph)	276	660	519	239	136	213
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	758				1731	519
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	758				1731	519
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	68				0	62
cM capacity (veh/h)	853				66	557
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	276	660	519	239	348	
Volume Left	276	0	0	0	136	
Volume Right	0	0	0	239	213	
cSH	853	1700	1700	1700	147	
Volume to Capacity	0.32	0.39	0.31	0.14	2.36	
Queue Length 95th (ft)	35	0	0	0	739	
Control Delay (s)	11.2	0.0	0.0	0.0	682.9	
Lane LOS	B				F	
Approach Delay (s)	3.3		0.0		682.9	
Approach LOS					F	
Intersection Summary						
Average Delay			118.0			
Intersection Capacity Utilization			44.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

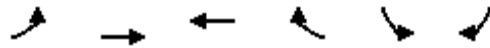
Year 2032 Background - No BC Ext
AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	130	240	40	225	10	320	20	20	5	10	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	16	141	261	43	245	11	348	22	22	5	11	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	255			402			533	516	141	538	766	245
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	255			402			533	516	141	538	766	245
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			17	95	98	99	97	97
cM capacity (veh/h)	1310			1156			417	440	907	410	316	794
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	16	141	261	43	245	11	348	43	38			
Volume Left	16	0	0	43	0	0	348	0	5			
Volume Right	0	0	261	0	0	11	0	22	22			
cSH	1310	1700	1700	1156	1700	1700	417	592	507			
Volume to Capacity	0.01	0.08	0.15	0.04	0.14	0.01	0.83	0.07	0.07			
Queue Length 95th (ft)	1	0	0	3	0	0	197	6	6			
Control Delay (s)	7.8	0.0	0.0	8.2	0.0	0.0	44.3	11.6	12.7			
Lane LOS	A			A			E	B	B			
Approach Delay (s)	0.3			1.2			40.7		12.7			
Approach LOS							E		B			
Intersection Summary												
Average Delay			14.7									
Intersection Capacity Utilization			49.6%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 Background - No BC Ext
AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	160	330	405	160	80	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.41	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	766	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.58	0.50	0.78	0.67	0.59	0.47
Adj. Flow (vph)	276	660	519	239	136	213
RTOR Reduction (vph)	0	0	0	103	0	164
Lane Group Flow (vph)	276	660	519	136	136	49
Turn Type	Perm	NA	NA	Perm	NA	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	22.5	22.5	22.5	22.5	9.0	9.0
Effective Green, g (s)	22.5	22.5	22.5	22.5	9.0	9.0
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.23	0.23
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	436	1061	1061	901	403	360
v/s Ratio Prot		0.35	0.28		c0.08	
v/s Ratio Perm	c0.36			0.09		0.03
v/c Ratio	0.63	0.62	0.49	0.15	0.34	0.13
Uniform Delay, d1	5.7	5.7	5.1	4.0	12.8	12.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.0	1.1	0.4	0.1	0.5	0.2
Delay (s)	8.7	6.8	5.4	4.1	13.3	12.3
Level of Service	A	A	A	A	B	B
Approach Delay (s)		7.4	5.0		12.7	
Approach LOS		A	A		B	

Intersection Summary

HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	39.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

1: US 6 & Capitol St

Year 2032 Background - No BC Ext
PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	625	15	390	885	0	220
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.63	0.86	0.89	0.92	0.86
Hourly flow rate (vph)	694	24	453	994	0	256
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage (veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			718		2111	359
vC1, stage 1 conf vol					706	
vC2, stage 2 conf vol					1404	
vCu, unblocked vol			718		2111	359
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			48		100	60
cM capacity (veh/h)			879		89	637
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	463	255	453	497	497	256
Volume Left	0	0	453	0	0	0
Volume Right	0	24	0	0	0	256
cSH	1700	1700	879	1700	1700	637
Volume to Capacity	0.27	0.15	0.52	0.29	0.29	0.40
Queue Length 95th (ft)	0	0	76	0	0	48
Control Delay (s)	0.0	0.0	13.4	0.0	0.0	14.4
Lane LOS			B			B
Approach Delay (s)	0.0		4.2			14.4
Approach LOS						B
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization			46.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 2: Brush Creek Rd & Capitol St

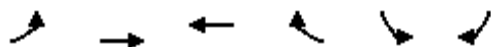
Year 2032 Background - No BC Ext
PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	230	20	320	340	20	200
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	250	22	348	370	22	217
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	272	717	239			
Volume Left (vph)	0	348	22			
Volume Right (vph)	22	0	217			
Hadj (s)	-0.01	0.13	-0.49			
Departure Headway (s)	5.6	5.2	5.8			
Degree Utilization, x	0.42	1.04	0.38			
Capacity (veh/h)	625	681	604			
Control Delay (s)	12.5	66.6	12.4			
Approach Delay (s)	12.5	66.6	12.4			
Approach LOS	B	F	B			
Intersection Summary						
Delay			44.1			
Level of Service			E			
Intersection Capacity Utilization			72.4%	ICU Level of Service	C	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 Background - No BC Ext
PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	120	390	330	80	160	100
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.58	0.50	0.78	0.67	0.59	0.47
Hourly flow rate (vph)	207	780	423	119	271	213
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	542				1617	423
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	542				1617	423
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	80				0	66
cM capacity (veh/h)	1026				91	631
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	207	780	423	119	484	
Volume Left	207	0	0	0	271	
Volume Right	0	0	0	119	213	
cSH	1026	1700	1700	1700	147	
Volume to Capacity	0.20	0.46	0.25	0.07	3.29	
Queue Length 95th (ft)	19	0	0	0	Err	
Control Delay (s)	9.4	0.0	0.0	0.0	Err	
Lane LOS	A				F	
Approach Delay (s)	2.0		0.0		Err	
Approach LOS					F	
Intersection Summary						
Average Delay		2404.5				
Intersection Capacity Utilization		42.9%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

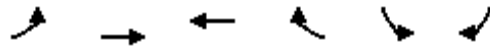
Year 2032 Background - No BC Ext
PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	200	360	25	180	10	215	10	20	5	5	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	16	217	391	27	196	11	234	11	22	5	5	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	207			609			519	511	217	527	891	196
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	207			609			519	511	217	527	891	196
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			47	98	97	99	98	98
cM capacity (veh/h)	1365			970			438	448	822	428	270	846
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	16	217	391	27	196	11	234	33	27			
Volume Left	16	0	0	27	0	0	234	0	5			
Volume Right	0	0	391	0	0	11	0	22	16			
cSH	1365	1700	1700	970	1700	1700	438	643	522			
Volume to Capacity	0.01	0.13	0.23	0.03	0.12	0.01	0.53	0.05	0.05			
Queue Length 95th (ft)	1	0	0	2	0	0	77	4	4			
Control Delay (s)	7.7	0.0	0.0	8.8	0.0	0.0	22.3	10.9	12.3			
Lane LOS	A			A			C	B	B			
Approach Delay (s)	0.2			1.0			20.9		12.3			
Approach LOS							C		B			
Intersection Summary												
Average Delay			5.4									
Intersection Capacity Utilization			42.4%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 Background - No BC Ext
PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	120	390	330	80	160	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.47	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	875	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.58	0.50	0.78	0.67	0.59	0.47
Adj. Flow (vph)	207	780	423	119	271	213
RTOR Reduction (vph)	0	0	0	53	0	156
Lane Group Flow (vph)	207	780	423	66	271	57
Turn Type	Perm	NA	NA	Perm	NA	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	25.9	25.9	25.9	25.9	12.5	12.5
Effective Green, g (s)	25.9	25.9	25.9	25.9	12.5	12.5
Actuated g/C Ratio	0.56	0.56	0.56	0.56	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	488	1039	1039	883	476	426
v/s Ratio Prot		c0.42	0.23		c0.15	
v/s Ratio Perm	0.24			0.04		0.04
v/c Ratio	0.42	0.75	0.41	0.08	0.57	0.13
Uniform Delay, d1	5.9	7.8	5.9	4.7	14.6	12.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	3.1	0.3	0.0	1.6	0.1
Delay (s)	6.5	10.9	6.1	4.8	16.2	13.0
Level of Service	A	B	A	A	B	B
Approach Delay (s)		10.0	5.8		14.8	
Approach LOS		A	A		B	

Intersection Summary

HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	46.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

1: US 6 & Capitol St

Year 2032 Background w/BC Ext
AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	820	15	135	365	0	390
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	891	16	147	397	0	424
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage (veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			908		1391	454
vC1, stage 1 conf vol					899	
vC2, stage 2 conf vol					492	
vCu, unblocked vol			908		1391	454
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			80		100	23
cM capacity (veh/h)			746		294	553
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	594	313	147	198	198	424
Volume Left	0	0	147	0	0	0
Volume Right	0	16	0	0	0	424
cSH	1700	1700	746	1700	1700	553
Volume to Capacity	0.35	0.18	0.20	0.12	0.12	0.77
Queue Length 95th (ft)	0	0	18	0	0	172
Control Delay (s)	0.0	0.0	11.0	0.0	0.0	29.7
Lane LOS			B			D
Approach Delay (s)	0.0		3.0			29.7
Approach LOS						D
Intersection Summary						
Average Delay			7.6			
Intersection Capacity Utilization			54.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Capitol St & Brush Creek Rd

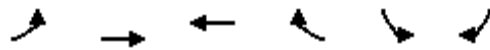
Year 2032 Background w/BC Ext
AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	145	45	45	190	185	90	290	20	70	135	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1797		1770	1863	1583	1770	1845		1770	1751	
Flt Permitted	0.54	1.00		0.54	1.00	1.00	0.59	1.00		0.53	1.00	
Satd. Flow (perm)	1011	1797		1011	1863	1583	1091	1845		996	1751	
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	158	49	49	207	201	98	315	22	76	147	98
RTOR Reduction (vph)	0	21	0	0	0	158	0	3	0	0	35	0
Lane Group Flow (vph)	49	186	0	49	207	43	98	334	0	76	210	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	11.5	11.5		11.5	11.5	11.5	31.6	28.5		30.0	27.7	
Effective Green, g (s)	11.5	11.5		11.5	11.5	11.5	31.6	28.5		30.0	27.7	
Actuated g/C Ratio	0.21	0.21		0.21	0.21	0.21	0.58	0.52		0.55	0.51	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	380		214	394	335	673	968		583	893	
v/s Ratio Prot		0.10			c0.11		c0.01	c0.18		0.01	0.12	
v/s Ratio Perm	0.05			0.05		0.03	0.08			0.07		
v/c Ratio	0.23	0.49		0.23	0.53	0.13	0.15	0.34		0.13	0.24	
Uniform Delay, d1	17.7	18.8		17.7	19.0	17.3	5.0	7.5		5.7	7.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	1.0		0.5	1.3	0.2	0.1	1.0		0.1	0.6	
Delay (s)	18.3	19.8		18.3	20.2	17.5	5.1	8.5		5.8	8.0	
Level of Service	B	B		B	C	B	A	A		A	A	
Approach Delay (s)		19.5			18.8			7.7			7.5	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay		13.2			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.39										
Actuated Cycle Length (s)		54.3			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		47.4%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 Background w/BC Ext
AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	160	325	410	160	80	100
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	174	353	446	174	87	109
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	620				1147	446
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	620				1147	446
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				52	82
cM capacity (veh/h)	961				180	613
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	174	353	446	174	196	
Volume Left	174	0	0	0	87	
Volume Right	0	0	0	174	109	
cSH	961	1700	1700	1700	406	
Volume to Capacity	0.18	0.21	0.26	0.10	0.48	
Queue Length 95th (ft)	16	0	0	0	64	
Control Delay (s)	9.6	0.0	0.0	0.0	25.5	
Lane LOS	A				D	
Approach Delay (s)	3.2		0.0		25.5	
Approach LOS					D	
Intersection Summary						
Average Delay			5.0			
Intersection Capacity Utilization			44.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

Year 2032 Background w/BC Ext
AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	120	240	40	205	10	320	20	20	5	10	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	16	130	261	43	223	11	348	22	22	5	11	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	234			391			500	484	130	505	734	223
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	234			391			500	484	130	505	734	223
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			21	95	98	99	97	97
cM capacity (veh/h)	1334			1167			440	459	919	432	330	817
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	16	130	261	43	223	11	348	43	38			
Volume Left	16	0	0	43	0	0	348	0	5			
Volume Right	0	0	261	0	0	11	0	22	22			
cSH	1334	1700	1700	1167	1700	1700	440	612	528			
Volume to Capacity	0.01	0.08	0.15	0.04	0.13	0.01	0.79	0.07	0.07			
Queue Length 95th (ft)	1	0	0	3	0	0	176	6	6			
Control Delay (s)	7.7	0.0	0.0	8.2	0.0	0.0	37.8	11.3	12.3			
Lane LOS	A			A			E	B	B			
Approach Delay (s)	0.3			1.3			34.8		12.3			
Approach LOS							D		B			
Intersection Summary												
Average Delay			13.1									
Intersection Capacity Utilization			43.5%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

6: Brush Creek Rd & Grand Ave (US 6)

Year 2032 Background w/BC Ext
AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Volume (vph)	1275	75	150	450	100	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.08	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	157	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1386	82	163	489	109	326
RTOR Reduction (vph)	0	43	0	0	0	165
Lane Group Flow (vph)	1386	39	163	489	109	161
Turn Type	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	43.4	43.4	56.9	56.9	25.3	25.3
Effective Green, g (s)	43.4	43.4	56.9	56.9	25.3	25.3
Actuated g/C Ratio	0.48	0.48	0.63	0.63	0.28	0.28
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1702	761	268	2232	496	444
v/s Ratio Prot	c0.39		c0.06	0.14	0.06	
v/s Ratio Perm		0.02	0.32			c0.10
v/c Ratio	0.81	0.05	0.61	0.22	0.22	0.36
Uniform Delay, d1	20.0	12.5	16.0	7.1	24.9	26.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	0.0	3.9	0.0	1.0	2.3
Delay (s)	23.1	12.5	19.9	7.2	25.9	28.3
Level of Service	C	B	B	A	C	C
Approach Delay (s)	22.5			10.4	27.7	
Approach LOS	C			B	C	
Intersection Summary						
HCM 2000 Control Delay			20.3		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			90.2		Sum of lost time (s)	12.0
Intersection Capacity Utilization			60.5%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis

1: US 6 & Capitol St

Year 2032 Background w/BC Ext
PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	540	15	365	910	0	205
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	587	16	397	989	0	223
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage (veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			603		1883	302
vC1, stage 1 conf vol					595	
vC2, stage 2 conf vol					1288	
vCu, unblocked vol			603		1883	302
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			59		100	68
cM capacity (veh/h)			970		126	694
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	391	212	397	495	495	223
Volume Left	0	0	397	0	0	0
Volume Right	0	16	0	0	0	223
cSH	1700	1700	970	1700	1700	694
Volume to Capacity	0.23	0.12	0.41	0.29	0.29	0.32
Queue Length 95th (ft)	0	0	50	0	0	35
Control Delay (s)	0.0	0.0	11.3	0.0	0.0	12.6
Lane LOS			B			B
Approach Delay (s)	0.0		3.2			12.6
Approach LOS						B
Intersection Summary						
Average Delay			3.3			
Intersection Capacity Utilization			42.3%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Capitol St & Brush Creek Rd

Year 2032 Background w/BC Ext
PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	190	90	20	140	80	90	160	20	185	250	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1773		1770	1863	1583	1770	1831		1770	1789	
Flt Permitted	0.66	1.00		0.37	1.00	1.00	0.51	1.00		0.58	1.00	
Satd. Flow (perm)	1230	1773		697	1863	1583	949	1831		1087	1789	
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	207	98	22	152	87	98	174	22	201	272	98
RTOR Reduction (vph)	0	32	0	0	0	66	0	7	0	0	19	0
Lane Group Flow (vph)	49	273	0	22	152	21	98	189	0	201	351	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	13.1	13.1		13.1	13.1	13.1	27.9	24.0		32.1	26.1	
Effective Green, g (s)	13.1	13.1		13.1	13.1	13.1	27.9	24.0		32.1	26.1	
Actuated g/C Ratio	0.24	0.24		0.24	0.24	0.24	0.51	0.44		0.58	0.47	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	292	421		165	442	376	538	797		707	847	
v/s Ratio Prot		c0.15			0.08		0.01	0.10		c0.03	c0.20	
v/s Ratio Perm	0.04			0.03		0.01	0.08			0.13		
v/c Ratio	0.17	0.65		0.13	0.34	0.06	0.18	0.24		0.28	0.41	
Uniform Delay, d1	16.7	18.9		16.5	17.4	16.2	7.1	9.8		5.5	9.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	3.4		0.4	0.5	0.1	0.2	0.7		0.2	1.5	
Delay (s)	16.9	22.4		16.9	17.9	16.3	7.3	10.5		5.7	11.0	
Level of Service	B	C		B	B	B	A	B		A	B	
Approach Delay (s)		21.6			17.3			9.4			9.1	
Approach LOS		C			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			13.6									HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			55.1									Sum of lost time (s) 12.0
Intersection Capacity Utilization			55.8%									ICU Level of Service B
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 Background w/BC Ext
PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	120	365	325	80	160	200
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	130	397	353	87	174	217
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	440				1011	353
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	440				1011	353
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				26	69
cM capacity (veh/h)	1120				235	690
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	130	397	353	87	391	
Volume Left	130	0	0	0	174	
Volume Right	0	0	0	87	217	
cSH	1120	1700	1700	1700	528	
Volume to Capacity	0.12	0.23	0.21	0.05	0.74	
Queue Length 95th (ft)	10	0	0	0	157	
Control Delay (s)	8.6	0.0	0.0	0.0	31.2	
Lane LOS	A				D	
Approach Delay (s)	2.1		0.0		31.2	
Approach LOS					D	
Intersection Summary						
Average Delay			9.8			
Intersection Capacity Utilization			42.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

Year 2032 Background w/BC Ext
PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	185	360	25	165	10	215	10	20	5	5	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	16	201	391	27	179	11	234	11	22	5	5	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	190			592			486	478	201	495	859	179
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	190			592			486	478	201	495	859	179
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			49	98	97	99	98	98
cM capacity (veh/h)	1384			983			461	467	840	450	283	863
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	16	201	391	27	179	11	234	33	27			
Volume Left	16	0	0	27	0	0	234	0	5			
Volume Right	0	0	391	0	0	11	0	22	16			
cSH	1384	1700	1700	983	1700	1700	461	663	542			
Volume to Capacity	0.01	0.12	0.23	0.03	0.11	0.01	0.51	0.05	0.05			
Queue Length 95th (ft)	1	0	0	2	0	0	70	4	4			
Control Delay (s)	7.6	0.0	0.0	8.8	0.0	0.0	20.6	10.7	12.0			
Lane LOS	A			A			C	B	B			
Approach Delay (s)	0.2			1.1			19.4		12.0			
Approach LOS							C		B			
Intersection Summary												
Average Delay			5.2									
Intersection Capacity Utilization			41.6%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

6: Brush Creek Rd & Grand Ave (US 6)

Year 2032 Background w/BC Ext
PM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↗
Volume (vph)	540	95	300	1040	75	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.21	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	400	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	587	103	326	1130	82	234
RTOR Reduction (vph)	0	77	0	0	0	142
Lane Group Flow (vph)	587	26	326	1130	82	92
Turn Type	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	18.3	18.3	35.9	35.9	28.3	28.3
Effective Green, g (s)	18.3	18.3	35.9	35.9	28.3	28.3
Actuated g/C Ratio	0.25	0.25	0.50	0.50	0.39	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	897	401	456	1759	693	620
v/s Ratio Prot	0.17		c0.13	0.32	0.05	
v/s Ratio Perm		0.02	c0.22			c0.06
v/c Ratio	0.65	0.07	0.71	0.64	0.12	0.15
Uniform Delay, d1	24.1	20.5	12.6	13.4	14.0	14.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	0.1	5.3	0.8	0.3	0.5
Delay (s)	25.8	20.5	17.9	14.2	14.3	14.7
Level of Service	C	C	B	B	B	B
Approach Delay (s)	25.1			15.0	14.6	
Approach LOS	C			B	B	
Intersection Summary						
HCM 2000 Control Delay			17.8		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.48			
Actuated Cycle Length (s)			72.2		Sum of lost time (s)	12.0
Intersection Capacity Utilization			45.7%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis

1: US 6 & Capitol St

Year 2032 w/Project - No BC Ext
AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	870	15	215	385	0	545
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.63	0.86	0.89	0.92	0.86
Hourly flow rate (vph)	967	24	250	433	0	634
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage (veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			990		1695	495
vC1, stage 1 conf vol					979	
vC2, stage 2 conf vol					716	
vCu, unblocked vol			990		1695	495
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			64		100	0
cM capacity (veh/h)			694		214	520
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	644	346	250	216	216	634
Volume Left	0	0	250	0	0	0
Volume Right	0	24	0	0	0	634
cSH	1700	1700	694	1700	1700	520
Volume to Capacity	0.38	0.20	0.36	0.13	0.13	1.22
Queue Length 95th (ft)	0	0	41	0	0	602
Control Delay (s)	0.0	0.0	13.1	0.0	0.0	140.0
Lane LOS			B			F
Approach Delay (s)	0.0		4.8			140.0
Approach LOS						F
Intersection Summary						
Average Delay			39.9			
Intersection Capacity Utilization			64.9%		ICU Level of Service	C
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 2: Brush Creek Rd & Capitol St

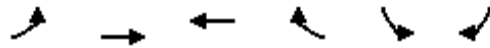
Year 2032 w/Project - No BC Ext
AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	350	20	340	180	45	500
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	380	22	370	196	49	543
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	402	565	592			
Volume Left (vph)	0	370	49			
Volume Right (vph)	22	0	543			
Hadj (s)	0.00	0.16	-0.50			
Departure Headway (s)	7.0	6.9	6.2			
Degree Utilization, x	0.78	1.08	1.02			
Capacity (veh/h)	508	519	582			
Control Delay (s)	30.5	88.8	68.3			
Approach Delay (s)	30.5	88.8	68.3			
Approach LOS	D	F	F			
Intersection Summary						
Delay			66.0			
Level of Service			F			
Intersection Capacity Utilization			91.3%	ICU Level of Service	F	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 w/Project - No BC Ext
AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	160	430	595	165	80	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.11	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	212	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.58	0.50	0.78	0.67	0.59	0.47
Adj. Flow (vph)	276	860	763	246	136	213
RTOR Reduction (vph)	0	0	0	116	0	164
Lane Group Flow (vph)	276	860	763	130	136	49
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Actuated Green, G (s)	46.0	46.0	34.0	34.0	16.0	16.0
Effective Green, g (s)	46.0	46.0	34.0	34.0	16.0	16.0
Actuated g/C Ratio	0.66	0.66	0.49	0.49	0.23	0.23
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	317	1224	904	768	404	361
v/s Ratio Prot	c0.10	0.46	0.41		c0.08	
v/s Ratio Perm	c0.47			0.08		0.03
v/c Ratio	0.87	0.70	0.84	0.17	0.34	0.13
Uniform Delay, d1	16.5	7.6	15.7	10.1	22.6	21.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	22.0	3.4	9.5	0.5	2.2	0.8
Delay (s)	38.4	11.0	25.2	10.6	24.8	22.3
Level of Service	D	B	C	B	C	C
Approach Delay (s)		17.7	21.6		23.3	
Approach LOS		B	C		C	

Intersection Summary

HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

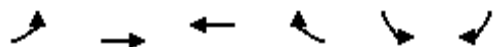
Year 2032 w/Project - No BC Ext
AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	225	245	45	415	15	330	20	20	5	10	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93			0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			0.99	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1723			1706	
Flt Permitted	0.42	1.00	1.00	0.59	1.00	1.00	0.73	1.00			0.98	
Satd. Flow (perm)	775	1863	1583	1101	1863	1583	1364	1723			1684	
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	245	266	49	451	16	359	22	22	5	11	22
RTOR Reduction (vph)	0	0	91	0	0	7	0	15	0	0	15	0
Lane Group Flow (vph)	16	245	175	49	451	9	359	29	0	0	23	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	38.3	38.3	38.3	38.3	38.3	38.3	23.7	23.7			23.7	
Effective Green, g (s)	38.3	38.3	38.3	38.3	38.3	38.3	23.7	23.7			23.7	
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.55	0.55	0.34	0.34			0.34	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	424	1019	866	602	1019	866	461	583			570	
v/s Ratio Prot		0.13			c0.24			0.02				
v/s Ratio Perm	0.02		0.11	0.04		0.01	c0.26				0.01	
v/c Ratio	0.04	0.24	0.20	0.08	0.44	0.01	0.78	0.05			0.04	
Uniform Delay, d1	7.3	8.3	8.1	7.5	9.5	7.2	20.8	15.6			15.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.2	0.6	0.5	0.3	1.4	0.0	8.1	0.0			0.0	
Delay (s)	7.5	8.8	8.6	7.8	10.9	7.2	28.9	15.6			15.6	
Level of Service	A	A	A	A	B	A	C	B			B	
Approach Delay (s)		8.7			10.5			27.5			15.6	
Approach LOS		A			B			C			B	
Intersection Summary												
HCM 2000 Control Delay			14.6				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			60.1%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 w/Project - No BC Ext
AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	160	430	595	165	80	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.12	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	215	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.58	0.50	0.78	0.67	0.59	0.47
Adj. Flow (vph)	276	860	763	246	136	213
RTOR Reduction (vph)	0	0	0	118	0	160
Lane Group Flow (vph)	276	860	763	128	136	53
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	43.7	43.7	30.7	30.7	17.0	17.0
Effective Green, g (s)	43.7	43.7	30.7	30.7	17.0	17.0
Actuated g/C Ratio	0.64	0.64	0.45	0.45	0.25	0.25
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	340	1185	832	707	437	391
v/s Ratio Prot	0.11	c0.46	c0.41		c0.08	
v/s Ratio Perm	0.41			0.08		0.03
v/c Ratio	0.81	0.73	0.92	0.18	0.31	0.13
Uniform Delay, d1	16.2	8.4	17.8	11.4	21.1	20.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.7	2.2	14.7	0.1	1.9	0.7
Delay (s)	29.9	10.7	32.5	11.6	22.9	20.8
Level of Service	C	B	C	B	C	C
Approach Delay (s)		15.4	27.4		21.7	
Approach LOS		B	C		C	

Intersection Summary

HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	68.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis 2: Brush Creek Rd & Capitol St

Year 2032 w/Project - No BC Ext
AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	350	20	340	180	45	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.99			1.00	0.88	
Flt Protected	1.00			0.97	1.00	
Satd. Flow (prot)	1849			1804	1625	
Flt Permitted	1.00			0.57	1.00	
Satd. Flow (perm)	1849			1060	1625	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	380	22	370	196	49	543
RTOR Reduction (vph)	2	0	0	0	444	0
Lane Group Flow (vph)	400	0	0	566	148	0
Turn Type	NA		pm+pt	NA	NA	
Protected Phases	2		1	6		
Permitted Phases			6		8	
Actuated Green, G (s)	55.2			55.2	11.2	
Effective Green, g (s)	55.2			55.2	11.2	
Actuated g/C Ratio	0.74			0.74	0.15	
Clearance Time (s)	4.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1371			786	244	
v/s Ratio Prot	0.22					
v/s Ratio Perm				c0.53	c0.09	
v/c Ratio	0.29			0.72	0.61	
Uniform Delay, d1	3.2			5.3	29.5	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.5			3.3	4.2	
Delay (s)	3.7			8.6	33.7	
Level of Service	A			A	C	
Approach Delay (s)	3.7			8.6	33.7	
Approach LOS	A			A	C	
Intersection Summary						
HCM 2000 Control Delay			16.9		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.75			
Actuated Cycle Length (s)			74.4		Sum of lost time (s)	12.0
Intersection Capacity Utilization			91.3%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis

1: US 6 & Capitol St

Year 2032 w/Project - No BC Ext
PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	 		 	 		 
Volume (veh/h)	665	15	525	955	0	305
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.63	0.86	0.89	0.92	0.86
Hourly flow rate (vph)	739	24	610	1073	0	355
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			763		2508	381
vC1, stage 1 conf vol					751	
vC2, stage 2 conf vol					1757	
vCu, unblocked vol			763		2508	381
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			28		100	42
cM capacity (veh/h)			846		33	617
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	493	270	610	537	537	355
Volume Left	0	0	610	0	0	0
Volume Right	0	24	0	0	0	355
cSH	1700	1700	846	1700	1700	617
Volume to Capacity	0.29	0.16	0.72	0.32	0.32	0.58
Queue Length 95th (ft)	0	0	160	0	0	91
Control Delay (s)	0.0	0.0	19.5	0.0	0.0	18.4
Lane LOS			C			C
Approach Delay (s)	0.0		7.1			18.4
Approach LOS						C
Intersection Summary						
Average Delay			6.6			
Intersection Capacity Utilization			54.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Brush Creek Rd & Capitol St

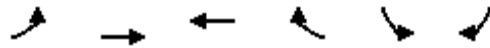
Year 2032 w/Project - No BC Ext
PM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	👉			👈	👈	
Volume (vph)	230	20	500	340	20	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.99			1.00	0.87	
Flt Protected	1.00			0.97	1.00	
Satd. Flow (prot)	1842			1809	1622	
Flt Permitted	1.00			0.67	1.00	
Satd. Flow (perm)	1842			1248	1622	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	250	22	543	370	22	326
RTOR Reduction (vph)	2	0	0	0	292	0
Lane Group Flow (vph)	270	0	0	913	56	0
Turn Type	NA		pm+pt	NA	NA	
Protected Phases	2		1	6		
Permitted Phases			6		8	
Actuated Green, G (s)	66.8			66.8	8.8	
Effective Green, g (s)	66.8			66.8	8.8	
Actuated g/C Ratio	0.80			0.80	0.11	
Clearance Time (s)	4.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1471			997	170	
v/s Ratio Prot	0.15					
v/s Ratio Perm				c0.73	c0.03	
v/c Ratio	0.18			0.92	0.33	
Uniform Delay, d1	2.0			6.3	34.7	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.3			12.6	1.1	
Delay (s)	2.3			18.9	35.8	
Level of Service	A			B	D	
Approach Delay (s)	2.3			18.9	35.8	
Approach LOS	A			B	D	
Intersection Summary						
HCM 2000 Control Delay			19.8		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.89			
Actuated Cycle Length (s)			83.6		Sum of lost time (s)	12.0
Intersection Capacity Utilization			88.5%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 w/Project - No BC Ext
PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	120	605	455	85	160	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.24	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	448	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.58	0.50	0.78	0.67	0.59	0.47
Adj. Flow (vph)	207	1210	583	127	271	426
RTOR Reduction (vph)	0	0	0	66	0	312
Lane Group Flow (vph)	207	1210	583	61	271	114
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Actuated Green, G (s)	46.0	46.0	33.8	33.8	16.0	16.0
Effective Green, g (s)	46.0	46.0	33.8	33.8	16.0	16.0
Actuated g/C Ratio	0.66	0.66	0.48	0.48	0.23	0.23
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	449	1224	899	764	404	361
v/s Ratio Prot	0.05	c0.65	0.31		c0.15	
v/s Ratio Perm	0.25			0.04		0.07
v/c Ratio	0.46	0.99	0.65	0.08	0.67	0.32
Uniform Delay, d1	7.5	11.7	13.6	9.7	24.6	22.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	23.1	3.6	0.2	8.6	2.3
Delay (s)	8.3	34.9	17.2	9.9	33.2	24.7
Level of Service	A	C	B	A	C	C
Approach Delay (s)		31.0	15.9		28.0	
Approach LOS		C	B		C	

Intersection Summary

HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

Year 2032 w/Project - No BC Ext
PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	405	370	30	300	15	220	10	20	5	5	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90			0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			0.99	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1676			1692	
Flt Permitted	0.54	1.00	1.00	0.46	1.00	1.00	0.74	1.00			0.97	
Satd. Flow (perm)	1010	1863	1583	854	1863	1583	1379	1676			1655	
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	440	402	33	326	16	239	11	22	5	5	16
RTOR Reduction (vph)	0	0	69	0	0	6	0	16	0	0	12	0
Lane Group Flow (vph)	16	440	333	33	326	10	239	17	0	0	14	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	44.4	44.4	44.4	44.4	44.4	44.4	17.6	17.6			17.6	
Effective Green, g (s)	44.4	44.4	44.4	44.4	44.4	44.4	17.6	17.6			17.6	
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63	0.63	0.25	0.25			0.25	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	640	1181	1004	541	1181	1004	346	421			416	
v/s Ratio Prot		c0.24			0.18			0.01				
v/s Ratio Perm	0.02		0.21	0.04		0.01	c0.17				0.01	
v/c Ratio	0.03	0.37	0.33	0.06	0.28	0.01	0.69	0.04			0.03	
Uniform Delay, d1	4.8	6.1	5.9	4.9	5.7	4.7	23.7	19.8			19.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1	0.9	0.9	0.2	0.6	0.0	5.8	0.0			0.0	
Delay (s)	4.8	7.0	6.8	5.1	6.3	4.7	29.6	19.8			19.8	
Level of Service	A	A	A	A	A	A	C	B			B	
Approach Delay (s)		6.9			6.1			28.4			19.8	
Approach LOS		A			A			C			B	
Intersection Summary												
HCM 2000 Control Delay			10.7				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			50.5%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 2: Brush Creek Rd & Capitol St

Year 2032 w/Project - No BC Ext
PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	230	20	500	340	20	300
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	250	22	543	370	22	326
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	272	913	348			
Volume Left (vph)	0	543	22			
Volume Right (vph)	22	0	326			
Hadj (s)	-0.01	0.15	-0.52			
Departure Headway (s)	6.0	5.6	5.8			
Degree Utilization, x	0.45	1.43	0.56			
Capacity (veh/h)	582	641	607			
Control Delay (s)	13.8	219.7	16.0			
Approach Delay (s)	13.8	219.7	16.0			
Approach LOS	B	F	C			
Intersection Summary						
Delay			137.0			
Level of Service			F			
Intersection Capacity Utilization			88.5%	ICU Level of Service	E	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

1: US 6 & Capitol St

Year 2032 w/Project w/BC Ext
AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	985	15	180	435	0	430
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1071	16	196	473	0	467
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage (veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1087		1707	543
vC1, stage 1 conf vol					1079	
vC2, stage 2 conf vol					628	
vCu, unblocked vol			1087		1707	543
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			69		100	3
cM capacity (veh/h)			638		221	484
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	714	373	196	236	236	467
Volume Left	0	0	196	0	0	0
Volume Right	0	16	0	0	0	467
cSH	1700	1700	638	1700	1700	484
Volume to Capacity	0.42	0.22	0.31	0.14	0.14	0.97
Queue Length 95th (ft)	0	0	32	0	0	307
Control Delay (s)	0.0	0.0	13.1	0.0	0.0	62.3
Lane LOS			B			F
Approach Delay (s)	0.0		3.8			62.3
Approach LOS						F
Intersection Summary						
Average Delay			14.3			
Intersection Capacity Utilization			61.0%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Capitol St & Brush Creek Rd

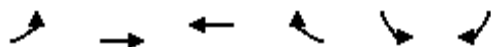
Year 2032 w/Project w/BC Ext
AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	195	45	45	315	255	90	290	20	110	135	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1810		1770	1863	1583	1770	1845		1770	1751	
Flt Permitted	0.38	1.00		0.50	1.00	1.00	0.61	1.00		0.46	1.00	
Satd. Flow (perm)	701	1810		933	1863	1583	1128	1845		860	1751	
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	212	49	49	342	277	98	315	22	120	147	98
RTOR Reduction (vph)	0	15	0	0	0	197	0	4	0	0	37	0
Lane Group Flow (vph)	49	246	0	49	342	80	98	333	0	120	208	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	15.7	15.7		15.7	15.7	15.7	25.8	22.8		27.4	23.6	
Effective Green, g (s)	15.7	15.7		15.7	15.7	15.7	25.8	22.8		27.4	23.6	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.29	0.48	0.42		0.50	0.43	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	202	523		269	538	457	571	774		497	761	
v/s Ratio Prot		0.14			c0.18		0.01	c0.18		c0.02	0.12	
v/s Ratio Perm	0.07			0.05		0.05	0.07			0.10		
v/c Ratio	0.24	0.47		0.18	0.64	0.18	0.17	0.43		0.24	0.27	
Uniform Delay, d1	14.8	15.9		14.5	16.8	14.5	7.9	11.2		7.3	9.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.7		0.3	2.5	0.2	0.1	1.7		0.3	0.9	
Delay (s)	15.4	16.6		14.8	19.3	14.6	8.1	12.9		7.6	10.7	
Level of Service	B	B		B	B	B	A	B		A	B	
Approach Delay (s)		16.4			17.0			11.8			9.7	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay		14.1			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.49										
Actuated Cycle Length (s)		54.3			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		55.8%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 w/Project w/BC Ext
AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	160	395	560	165	160	200
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	174	429	609	179	174	217
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	788				1386	609
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	788				1386	609
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	79				0	56
cM capacity (veh/h)	831				125	495
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	174	429	609	179	391	
Volume Left	174	0	0	0	174	
Volume Right	0	0	0	179	217	
cSH	831	1700	1700	1700	236	
Volume to Capacity	0.21	0.25	0.36	0.11	1.66	
Queue Length 95th (ft)	20	0	0	0	631	
Control Delay (s)	10.5	0.0	0.0	0.0	351.1	
Lane LOS	B				F	
Approach Delay (s)	3.0		0.0		351.1	
Approach LOS					F	
Intersection Summary						
Average Delay			78.1			
Intersection Capacity Utilization			57.2%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

Year 2032 w/Project w/BC Ext
AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	190	245	45	350	15	330	20	20	10	10	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	16	207	266	49	380	16	359	22	22	11	11	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	397			473			745	734	207	750	984	380
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	397			473			745	734	207	750	984	380
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			0	93	97	96	95	97
cM capacity (veh/h)	1162			1089			295	327	834	289	234	667
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	16	207	266	49	380	16	359	43	43			
Volume Left	16	0	0	49	0	0	359	0	11			
Volume Right	0	0	266	0	0	16	0	22	22			
cSH	1162	1700	1700	1089	1700	1700	295	470	373			
Volume to Capacity	0.01	0.12	0.16	0.04	0.22	0.01	1.22	0.09	0.12			
Queue Length 95th (ft)	1	0	0	4	0	0	407	8	10			
Control Delay (s)	8.1	0.0	0.0	8.5	0.0	0.0	161.6	13.4	15.9			
Lane LOS	A			A			F	B	C			
Approach Delay (s)	0.3			0.9			145.5		15.9			
Approach LOS							F		C			
Intersection Summary												
Average Delay			43.3									
Intersection Capacity Utilization			56.7%			ICU Level of Service			B			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Capitol St & Brush Creek Rd

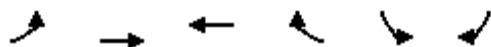
Year 2032 w/Project w/BC Ext
AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	195	45	45	315	255	90	290	20	110	135	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1810		1770	1863	1583	1770	1845		1770	1751	
Flt Permitted	0.38	1.00		0.50	1.00	1.00	0.61	1.00		0.46	1.00	
Satd. Flow (perm)	701	1810		933	1863	1583	1128	1845		860	1751	
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	212	49	49	342	277	98	315	22	120	147	98
RTOR Reduction (vph)	0	15	0	0	0	197	0	4	0	0	37	0
Lane Group Flow (vph)	49	246	0	49	342	80	98	333	0	120	208	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	15.7	15.7		15.7	15.7	15.7	25.8	22.8		27.4	23.6	
Effective Green, g (s)	15.7	15.7		15.7	15.7	15.7	25.8	22.8		27.4	23.6	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.29	0.48	0.42		0.50	0.43	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	202	523		269	538	457	571	774		497	761	
v/s Ratio Prot		0.14			c0.18		0.01	c0.18		c0.02	0.12	
v/s Ratio Perm	0.07			0.05		0.05	0.07			0.10		
v/c Ratio	0.24	0.47		0.18	0.64	0.18	0.17	0.43		0.24	0.27	
Uniform Delay, d1	14.8	15.9		14.5	16.8	14.5	7.9	11.2		7.3	9.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.7		0.3	2.5	0.2	0.1	1.7		0.3	0.9	
Delay (s)	15.4	16.6		14.8	19.3	14.6	8.1	12.9		7.6	10.7	
Level of Service	B	B		B	B	B	A	B		A	B	
Approach Delay (s)		16.4			17.0			11.8			9.7	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay		14.1			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.49										
Actuated Cycle Length (s)		54.3			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		55.8%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 w/Project w/BC Ext
AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	160	395	560	165	160	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.16	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	289	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	429	609	179	174	217
RTOR Reduction (vph)	0	0	0	105	0	151
Lane Group Flow (vph)	174	429	609	74	174	66
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	40.6	40.6	28.8	28.8	21.4	21.4
Effective Green, g (s)	40.6	40.6	28.8	28.8	21.4	21.4
Actuated g/C Ratio	0.58	0.58	0.41	0.41	0.31	0.31
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	332	1080	766	651	541	483
v/s Ratio Prot	c0.06	0.23	c0.33		c0.10	
v/s Ratio Perm	0.24			0.05		0.04
v/c Ratio	0.52	0.40	0.80	0.11	0.32	0.14
Uniform Delay, d1	10.9	8.0	18.0	12.7	18.7	17.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	0.2	5.7	0.1	1.6	0.6
Delay (s)	12.4	8.3	23.7	12.8	20.3	18.2
Level of Service	B	A	C	B	C	B
Approach Delay (s)		9.5	21.2		19.1	
Approach LOS		A	C		B	

Intersection Summary

HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

Year 2032 w/Project w/BC Ext
AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	190	245	45	350	15	330	20	20	10	10	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			0.99	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1723			1716	
Flt Permitted	0.28	1.00	1.00	0.55	1.00	1.00	0.71	1.00			0.96	
Satd. Flow (perm)	523	1863	1583	1021	1863	1583	1318	1723			1662	
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	207	266	49	380	16	359	22	22	11	11	22
RTOR Reduction (vph)	0	0	151	0	0	11	0	9	0	0	14	0
Lane Group Flow (vph)	16	207	115	49	380	5	359	35	0	0	30	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	19.8	19.8	19.8	19.8	19.8	19.8	42.2	42.2			25.9	
Effective Green, g (s)	19.8	19.8	19.8	19.8	19.8	19.8	42.2	42.2			25.9	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28	0.28	0.60	0.60			0.37	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	147	526	447	288	526	447	873	1038			614	
v/s Ratio Prot		0.11			c0.20		c0.07	0.02				
v/s Ratio Perm	0.03		0.07	0.05		0.00	c0.18				0.02	
v/c Ratio	0.11	0.39	0.26	0.17	0.72	0.01	0.41	0.03			0.05	
Uniform Delay, d1	18.6	20.3	19.4	18.9	22.6	18.1	7.1	5.6			14.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.3	0.5	0.3	0.3	4.9	0.0	0.3	0.1			0.2	
Delay (s)	18.9	20.7	19.7	19.2	27.5	18.1	7.4	5.7			14.3	
Level of Service	B	C	B	B	C	B	A	A			B	
Approach Delay (s)		20.1			26.2			7.2			14.3	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			18.1				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			56.7%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Brush Creek Rd & Grand Ave (US 6)

Year 2032 w/Project w/BC Ext
AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Volume (vph)	1180	75	200	415	100	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.09	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	168	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1283	82	217	451	109	435
RTOR Reduction (vph)	0	47	0	0	0	189
Lane Group Flow (vph)	1283	35	217	451	109	246
Turn Type	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	40.3	40.3	56.0	56.0	29.3	29.3
Effective Green, g (s)	40.3	40.3	56.0	56.0	29.3	29.3
Actuated g/C Ratio	0.43	0.43	0.60	0.60	0.31	0.31
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1528	683	301	2124	555	497
v/s Ratio Prot	c0.36		c0.09	0.13	0.06	
v/s Ratio Perm		0.02	0.34			c0.16
v/c Ratio	0.84	0.05	0.72	0.21	0.20	0.49
Uniform Delay, d1	23.6	15.4	21.3	8.5	23.4	26.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.2	0.0	8.2	0.1	0.8	3.5
Delay (s)	27.9	15.4	29.6	8.6	24.2	29.5
Level of Service	C	B	C	A	C	C
Approach Delay (s)	27.1			15.4	28.4	
Approach LOS	C			B	C	
Intersection Summary						
HCM 2000 Control Delay			24.4		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			93.3		Sum of lost time (s)	12.0
Intersection Capacity Utilization			64.1%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis

1: US 6 & Capitol St

Year 2032 w/Project w/BC Ext
PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	740	15	415	1070	0	235
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	804	16	451	1163	0	255
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT		TWLT			
Median storage (veh)	2		2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			821		2296	410
vC1, stage 1 conf vol					812	
vC2, stage 2 conf vol					1484	
vCu, unblocked vol			821		2296	410
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			44		100	57
cM capacity (veh/h)			804		73	590
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	536	284	451	582	582	255
Volume Left	0	0	451	0	0	0
Volume Right	0	16	0	0	0	255
cSH	1700	1700	804	1700	1700	590
Volume to Capacity	0.32	0.17	0.56	0.34	0.34	0.43
Queue Length 95th (ft)	0	0	89	0	0	54
Control Delay (s)	0.0	0.0	15.0	0.0	0.0	15.7
Lane LOS			C			C
Approach Delay (s)	0.0		4.2			15.7
Approach LOS						C
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization			50.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Capitol St & Brush Creek Rd

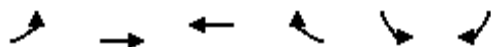
Year 2032 w/Project w/BC Ext
PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	325	90	20	215	120	90	160	20	260	250	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1802		1770	1863	1583	1770	1831		1770	1789	
Flt Permitted	0.56	1.00		0.26	1.00	1.00	0.54	1.00		0.50	1.00	
Satd. Flow (perm)	1036	1802		478	1863	1583	1004	1831		922	1789	
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	353	98	22	234	130	98	174	22	283	272	98
RTOR Reduction (vph)	0	18	0	0	0	89	0	7	0	0	19	0
Lane Group Flow (vph)	49	433	0	22	234	41	98	189	0	283	351	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	17.6	17.6		17.6	17.6	17.6	21.1	17.2		29.7	21.8	
Effective Green, g (s)	17.6	17.6		17.6	17.6	17.6	21.1	17.2		29.7	21.8	
Actuated g/C Ratio	0.32	0.32		0.32	0.32	0.32	0.38	0.31		0.54	0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	329	573		152	592	503	437	569		625	705	
v/s Ratio Prot		c0.24			0.13		0.02	0.10		c0.07	c0.20	
v/s Ratio Perm	0.05			0.05		0.03	0.07			0.17		
v/c Ratio	0.15	0.75		0.14	0.40	0.08	0.22	0.33		0.45	0.50	
Uniform Delay, d1	13.5	16.9		13.5	14.7	13.2	11.2	14.6		7.3	12.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	5.6		0.4	0.4	0.1	0.3	1.6		0.5	2.5	
Delay (s)	13.7	22.5		13.9	15.1	13.3	11.5	16.2		7.8	15.1	
Level of Service	B	C		B	B	B	B	B		A	B	
Approach Delay (s)		21.7			14.4			14.6			12.0	
Approach LOS		C			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			15.6		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			55.3		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			63.3%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 w/Project w/BC Ext
PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	120	515	415	85	160	200
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	130	560	451	92	174	217
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	543				1272	451
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	543				1272	451
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	87				0	64
cM capacity (veh/h)	1025				162	608
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	130	560	451	92	391	
Volume Left	130	0	0	0	174	
Volume Right	0	0	0	92	217	
cSH	1025	1700	1700	1700	329	
Volume to Capacity	0.13	0.33	0.27	0.05	1.19	
Queue Length 95th (ft)	11	0	0	0	415	
Control Delay (s)	9.0	0.0	0.0	0.0	145.5	
Lane LOS	A				F	
Approach Delay (s)	1.7		0.0		145.5	
Approach LOS					F	
Intersection Summary						
Average Delay			35.8			
Intersection Capacity Utilization			47.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

Year 2032 w/Project w/BC Ext
PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	330	365	30	250	15	220	10	20	10	5	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	16	359	397	33	272	16	239	11	22	11	5	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	288			755			747	745	359	755	1125	272
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	288			755			747	745	359	755	1125	272
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			21	97	97	96	97	98
cM capacity (veh/h)	1274			855			303	325	686	295	195	767
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	16	359	397	33	272	16	239	33	33			
Volume Left	16	0	0	33	0	0	239	0	11			
Volume Right	0	0	397	0	0	16	0	22	16			
cSH	1274	1700	1700	855	1700	1700	303	501	379			
Volume to Capacity	0.01	0.21	0.23	0.04	0.16	0.01	0.79	0.07	0.09			
Queue Length 95th (ft)	1	0	0	3	0	0	157	5	7			
Control Delay (s)	7.9	0.0	0.0	9.4	0.0	0.0	49.9	12.7	15.4			
Lane LOS	A			A			E	B	C			
Approach Delay (s)	0.2			1.0			45.4		15.4			
Approach LOS							E		C			
Intersection Summary												
Average Delay			9.5									
Intersection Capacity Utilization			49.6%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

6: Brush Creek Rd & Grand Ave (US 6)

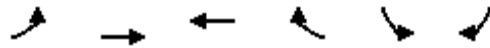
Year 2032 w/Project w/BC Ext
PM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Volume (vph)	585	115	415	1110	85	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.19	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	345	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	636	125	451	1207	92	304
RTOR Reduction (vph)	0	93	0	0	0	201
Lane Group Flow (vph)	636	32	451	1207	92	103
Turn Type	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	20.3	20.3	44.1	44.1	26.6	26.6
Effective Green, g (s)	20.3	20.3	44.1	44.1	26.6	26.6
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.34	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	912	408	551	1983	598	535
v/s Ratio Prot	0.18		c0.21	0.34	0.05	
v/s Ratio Perm		0.02	c0.25			c0.06
v/c Ratio	0.70	0.08	0.82	0.61	0.15	0.19
Uniform Delay, d1	26.4	22.1	16.1	11.5	18.2	18.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	0.1	9.2	0.5	0.5	0.8
Delay (s)	28.8	22.2	25.3	12.1	18.7	19.2
Level of Service	C	C	C	B	B	B
Approach Delay (s)	27.7			15.7	19.1	
Approach LOS	C			B	B	
Intersection Summary						
HCM 2000 Control Delay			19.4		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.60			
Actuated Cycle Length (s)			78.7		Sum of lost time (s)	12.0
Intersection Capacity Utilization			53.9%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 w/Project w/BC Ext
PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	120	515	415	85	160	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.35	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	658	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	560	451	92	174	217
RTOR Reduction (vph)	0	0	0	46	0	161
Lane Group Flow (vph)	130	560	451	46	174	56
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Actuated Green, G (s)	44.0	44.0	35.2	35.2	18.0	18.0
Effective Green, g (s)	44.0	44.0	35.2	35.2	18.0	18.0
Actuated g/C Ratio	0.63	0.63	0.50	0.50	0.26	0.26
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	489	1171	936	796	455	407
v/s Ratio Prot	0.02	c0.30	0.24		c0.10	
v/s Ratio Perm	0.15			0.03		0.04
v/c Ratio	0.27	0.48	0.48	0.06	0.38	0.14
Uniform Delay, d1	6.3	6.9	11.4	8.9	21.4	20.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	1.4	1.8	0.1	2.4	0.7
Delay (s)	6.6	8.3	13.2	9.1	23.8	20.7
Level of Service	A	A	B	A	C	C
Approach Delay (s)		8.0	12.5		22.1	
Approach LOS		A	B		C	

Intersection Summary

HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

Year 2032 w/Project w/BC Ext
PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	330	365	30	250	15	220	10	20	10	5	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1676			1708	
Flt Permitted	0.54	1.00	1.00	0.45	1.00	1.00	0.71	1.00			0.93	
Satd. Flow (perm)	998	1863	1583	831	1863	1583	1324	1676			1623	
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	359	397	33	272	16	239	11	22	11	5	16
RTOR Reduction (vph)	0	0	114	0	0	9	0	12	0	0	12	0
Lane Group Flow (vph)	16	359	283	33	272	7	239	21	0	0	20	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0			16.9	
Effective Green, g (s)	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0			16.9	
Actuated g/C Ratio	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44			0.24	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	441	825	701	368	825	701	650	742			391	
v/s Ratio Prot		c0.19			0.15		c0.05	0.01				
v/s Ratio Perm	0.02		0.18	0.04		0.00	c0.11				0.01	
v/c Ratio	0.04	0.44	0.40	0.09	0.33	0.01	0.37	0.03			0.05	
Uniform Delay, d1	11.0	13.5	13.2	11.3	12.7	10.9	12.7	11.0			20.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.2	1.7	1.7	0.5	1.1	0.0	0.4	0.1			0.2	
Delay (s)	11.2	15.1	15.0	11.8	13.8	10.9	13.0	11.1			20.6	
Level of Service	B	B	B	B	B	B	B	B			C	
Approach Delay (s)		15.0			13.4			12.8			20.6	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay			14.3									B
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			70.0								12.0	
Intersection Capacity Utilization			49.6%								A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Brush Creek Rd & Grand Ave (US 6)

Year 2032 w/Project w/BC Ext
PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Volume (vph)	585	115	415	1110	85	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.19	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	345	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	636	125	451	1207	92	304
RTOR Reduction (vph)	0	93	0	0	0	201
Lane Group Flow (vph)	636	32	451	1207	92	103
Turn Type	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	20.3	20.3	44.1	44.1	26.6	26.6
Effective Green, g (s)	20.3	20.3	44.1	44.1	26.6	26.6
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.34	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	912	408	551	1983	598	535
v/s Ratio Prot	0.18		c0.21	0.34	0.05	
v/s Ratio Perm		0.02	c0.25			c0.06
v/c Ratio	0.70	0.08	0.82	0.61	0.15	0.19
Uniform Delay, d1	26.4	22.1	16.1	11.5	18.2	18.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	0.1	9.2	0.5	0.5	0.8
Delay (s)	28.8	22.2	25.3	12.1	18.7	19.2
Level of Service	C	C	C	B	B	B
Approach Delay (s)	27.7			15.7	19.1	
Approach LOS	C			B	B	
Intersection Summary						
HCM 2000 Control Delay			19.4		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.60			
Actuated Cycle Length (s)			78.7		Sum of lost time (s)	12.0
Intersection Capacity Utilization			53.9%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis

1: US 6 & Capitol St

Year 2032 Background
AM

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Volume (veh/h)	900	15	150	400	0	425		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	978	16	163	435	0	462		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	TWLTL			TWLTL				
Median storage veh)	2			2				
Upstream signal (ft)								
pX, platoon unblocked								
vC, conflicting volume			995		1530	497		
vC1, stage 1 conf vol					986			
vC2, stage 2 conf vol					543			
vCu, unblocked vol			995		1530	497		
tC, single (s)			4.1		6.8	6.9		
tC, 2 stage (s)					5.8			
tF (s)			2.2		3.5	3.3		
p0 queue free %			76		100	11		
cM capacity (veh/h)			691		260	518		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1		
Volume Total	652	342	163	217	217	462		
Volume Left	0	0	163	0	0	0		
Volume Right	0	16	0	0	0	462		
cSH	1700	1700	691	1700	1700	518		
Volume to Capacity	0.38	0.20	0.24	0.13	0.13	0.89		
Queue Length 95th (ft)	0	0	23	0	0	253		
Control Delay (s)	0.0	0.0	11.8	0.0	0.0	45.6		
Lane LOS			B			E		
Approach Delay (s)	0.0		3.2			45.6		
Approach LOS						E		
Intersection Summary								
Average Delay	11.2							
Intersection Capacity Utilization	58.3%		ICU Level of Service		B			
Analysis Period (min)	15							

HCM Signalized Intersection Capacity Analysis

2: Capitol St & Brush Creek Rd

Year 2032 Background

AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	150	50	50	200	200	100	325	25	75	150	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1793		1770	1863	1583	1770	1843		1770	1751	
Flt Permitted	0.53	1.00		0.53	1.00	1.00	0.56	1.00		0.49	1.00	
Satd. Flow (perm)	985	1793		985	1863	1583	1039	1843		918	1751	
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)	54	163	54	54	217	217	109	353	27	82	163	109
RTOR Reduction (vph)	0	22	0	0	0	169	0	4	0	0	35	0
Lane Group Flow (vph)	54	195	0	54	217	48	109	376	0	82	237	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	12.1	12.1		12.1	12.1	12.1	31.3	28.3		29.7	27.5	
Effective Green, g (s)	12.1	12.1		12.1	12.1	12.1	31.3	28.3		29.7	27.5	
Actuated g/C Ratio	0.22	0.22		0.22	0.22	0.22	0.57	0.52		0.54	0.50	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	218	397		218	412	350	635	955		533	881	
v/s Ratio Prot		0.11			c0.12		c0.01	c0.20		0.01	0.14	
v/s Ratio Perm	0.05			0.05		0.03	0.09			0.08		
v/c Ratio	0.25	0.49		0.25	0.53	0.14	0.17	0.39		0.15	0.27	
Uniform Delay, d1	17.5	18.6		17.5	18.7	17.1	5.3	8.0		6.0	7.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	1.0		0.6	1.2	0.2	0.1	1.2		0.1	0.7	
Delay (s)	18.1	19.5		18.1	19.9	17.2	5.5	9.2		6.1	8.5	
Level of Service	B	B		B	B	B	A	A		A	A	
Approach Delay (s)		19.2			18.5			8.3			8.0	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay		13.2			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.42										
Actuated Cycle Length (s)		54.6			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		50.4%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 Background
AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	180	360	450	180	90	115
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	196	391	489	196	98	125
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	685				1272	489
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	685				1272	489
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	78				33	78
cM capacity (veh/h)	909				145	579
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	196	391	489	196	223	
Volume Left	196	0	0	0	98	
Volume Right	0	0	0	196	125	
cSH	909	1700	1700	1700	331	
Volume to Capacity	0.22	0.23	0.29	0.12	0.67	
Queue Length 95th (ft)	20	0	0	0	115	
Control Delay (s)	10.0	0.0	0.0	0.0	38.0	
Lane LOS	B				E	
Approach Delay (s)	3.3		0.0		38.0	
Approach LOS					E	
Intersection Summary						
Average Delay			7.0			
Intersection Capacity Utilization			48.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

Year 2032 Background

AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	135	270	45	225	10	360	20	20	5	10	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	16	147	293	49	245	11	391	22	22	5	11	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	255			440			549	533	147	554	815	245
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	255			440			549	533	147	554	815	245
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			3	95	98	99	96	97
cM capacity (veh/h)	1310			1120			404	428	900	398	294	794
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	16	147	293	49	245	11	391	43	38			
Volume Left	16	0	0	49	0	0	391	0	5			
Volume Right	0	0	293	0	0	11	0	22	22			
cSH	1310	1700	1700	1120	1700	1700	404	580	488			
Volume to Capacity	0.01	0.09	0.17	0.04	0.14	0.01	0.97	0.07	0.08			
Queue Length 95th (ft)	1	0	0	3	0	0	283	6	6			
Control Delay (s)	7.8	0.0	0.0	8.4	0.0	0.0	69.4	11.7	13.0			
Lane LOS	A			A			F	B	B			
Approach Delay (s)	0.3			1.3			63.7		13.0			
Approach LOS							F		B			
Intersection Summary												
Average Delay			23.3									
Intersection Capacity Utilization			51.8%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

6: Brush Creek Rd & Grand Ave (US 6)

Year 2032 Background

AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵	↑
Volume (vph)	1225	75	150	425	100	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.09	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	163	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1332	82	163	462	109	326
RTOR Reduction (vph)	0	44	0	0	0	166
Lane Group Flow (vph)	1332	38	163	462	109	160
Turn Type	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	41.6	41.6	55.2	55.2	27.3	27.3
Effective Green, g (s)	41.6	41.6	55.2	55.2	27.3	27.3
Actuated g/C Ratio	0.46	0.46	0.61	0.61	0.30	0.30
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1626	727	269	2158	533	477
v/s Ratio Prot	c0.38		c0.06	0.13	0.06	
v/s Ratio Perm		0.02	0.30			c0.10
v/c Ratio	0.82	0.05	0.61	0.21	0.20	0.34
Uniform Delay, d1	21.2	13.5	15.4	7.9	23.5	24.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	0.0	3.8	0.0	0.9	1.9
Delay (s)	24.5	13.6	19.3	8.0	24.4	26.5
Level of Service	C	B	B	A	C	C
Approach Delay (s)	23.9			10.9	25.9	
Approach LOS	C			B	C	
Intersection Summary						
HCM 2000 Control Delay			21.0		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.63			
Actuated Cycle Length (s)			90.5		Sum of lost time (s)	12.0
Intersection Capacity Utilization			59.1%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis

1: US 6 & Capitol St

Year 2032 Background
PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	700	15	150	400	0	225
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	761	16	163	435	0	245
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage (veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			777		1312	389
vC1, stage 1 conf vol					769	
vC2, stage 2 conf vol					543	
vCu, unblocked vol			777		1312	389
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			80		100	60
cM capacity (veh/h)			835		318	610
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	507	270	163	217	217	245
Volume Left	0	0	163	0	0	0
Volume Right	0	16	0	0	0	245
cSH	1700	1700	835	1700	1700	610
Volume to Capacity	0.30	0.16	0.20	0.13	0.13	0.40
Queue Length 95th (ft)	0	0	18	0	0	48
Control Delay (s)	0.0	0.0	10.4	0.0	0.0	14.8
Lane LOS			B			B
Approach Delay (s)	0.0		2.8			14.8
Approach LOS						B
Intersection Summary						
Average Delay			3.3			
Intersection Capacity Utilization			40.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Capitol St & Brush Creek Rd

Year 2032 Background

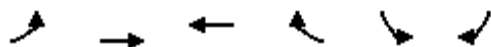
PM

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	50	200	100	25	150	80	100	175	25	200	275	100	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0		
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Frt	1.00	0.95		1.00	1.00	0.85	1.00	0.98		1.00	0.96		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1770	1769		1770	1863	1583	1770	1828		1770	1788		
Flt Permitted	0.65	1.00		0.40	1.00	1.00	0.43	1.00		0.60	1.00		
Satd. Flow (perm)	1218	1769		746	1863	1583	804	1828		1110	1788		
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)	54	217	109	27	163	87	109	190	27	217	299	109	
RTOR Reduction (vph)	0	39	0	0	0	64	0	10	0	0	24	0	
Lane Group Flow (vph)	54	287	0	27	163	23	109	207	0	217	384	0	
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA		
Protected Phases		4			8		5	2		1	6		
Permitted Phases	4			8		8	2			6			
Actuated Green, G (s)	12.1	12.1		12.1	12.1	12.1	21.1	18.1		22.7	18.9		
Effective Green, g (s)	12.1	12.1		12.1	12.1	12.1	21.1	18.1		22.7	18.9		
Actuated g/C Ratio	0.26	0.26		0.26	0.26	0.26	0.46	0.39		0.49	0.41		
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	320	465		196	490	416	431	719		602	734		
v/s Ratio Prot		c0.16			0.09		0.02	0.11		c0.03	c0.21		
v/s Ratio Perm	0.04			0.04		0.01	0.10			0.15			
v/c Ratio	0.17	0.62		0.14	0.33	0.06	0.25	0.29		0.36	0.52		
Uniform Delay, d1	13.1	14.9		13.0	13.7	12.7	7.3	9.5		6.7	10.2		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.3	2.4		0.3	0.4	0.1	0.3	1.0		0.4	2.7		
Delay (s)	13.3	17.3		13.3	14.1	12.7	7.6	10.6		7.1	12.8		
Level of Service	B	B		B	B	B	A	B		A	B		
Approach Delay (s)		16.8			13.6			9.6			10.8		
Approach LOS		B			B			A			B		
Intersection Summary													
HCM 2000 Control Delay			12.5									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.55										
Actuated Cycle Length (s)			46.0									Sum of lost time (s)	12.0
Intersection Capacity Utilization			59.4%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

HCM Unsignalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 Background
PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	135	405	360	90	180	225
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	147	440	391	98	196	245
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	489				1125	391
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	489				1125	391
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				0	63
cM capacity (veh/h)	1074				196	657
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	147	440	391	98	440	
Volume Left	147	0	0	0	196	
Volume Right	0	0	0	98	245	
cSH	1074	1700	1700	1700	407	
Volume to Capacity	0.14	0.26	0.23	0.06	1.08	
Queue Length 95th (ft)	12	0	0	0	378	
Control Delay (s)	8.9	0.0	0.0	0.0	100.8	
Lane LOS	A				F	
Approach Delay (s)	2.2		0.0		100.8	
Approach LOS					F	
Intersection Summary						
Average Delay			30.1			
Intersection Capacity Utilization			46.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

Year 2032 Background

PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	200	405	25	180	10	240	10	20	5	5	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	16	217	440	27	196	11	261	11	22	5	5	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	207			658			519	511	217	527	940	196
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	207			658			519	511	217	527	940	196
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			40	98	97	99	98	98
cM capacity (veh/h)	1365			930			437	447	822	427	253	846
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	16	217	440	27	196	11	261	33	27			
Volume Left	16	0	0	27	0	0	261	0	5			
Volume Right	0	0	440	0	0	11	0	22	16			
cSH	1365	1700	1700	930	1700	1700	437	643	508			
Volume to Capacity	0.01	0.13	0.26	0.03	0.12	0.01	0.60	0.05	0.05			
Queue Length 95th (ft)	1	0	0	2	0	0	95	4	4			
Control Delay (s)	7.7	0.0	0.0	9.0	0.0	0.0	24.7	10.9	12.5			
Lane LOS	A			A			C	B	B			
Approach Delay (s)	0.2			1.0			23.2		12.5			
Approach LOS							C		B			
Intersection Summary												
Average Delay			6.1									
Intersection Capacity Utilization			43.8%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

6: Brush Creek Rd & Grand Ave (US 6)

Year 2032 Background
PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Volume (vph)	600	100	325	1150	75	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.20	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	373	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	652	109	353	1250	82	217
RTOR Reduction (vph)	0	79	0	0	0	141
Lane Group Flow (vph)	652	30	353	1250	82	76
Turn Type	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	19.4	19.4	37.1	37.1	24.4	24.4
Effective Green, g (s)	19.4	19.4	37.1	37.1	24.4	24.4
Actuated g/C Ratio	0.28	0.28	0.53	0.53	0.35	0.35
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	987	441	474	1889	621	555
v/s Ratio Prot	0.18		c0.15	0.35	0.05	
v/s Ratio Perm		0.02	c0.25			c0.05
v/c Ratio	0.66	0.07	0.74	0.66	0.13	0.14
Uniform Delay, d1	22.1	18.4	11.3	11.7	15.3	15.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	0.1	6.3	0.9	0.4	0.5
Delay (s)	23.8	18.5	17.6	12.6	15.8	15.9
Level of Service	C	B	B	B	B	B
Approach Delay (s)	23.0			13.7	15.9	
Approach LOS	C			B	B	
Intersection Summary						
HCM 2000 Control Delay			16.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.52			
Actuated Cycle Length (s)			69.5		Sum of lost time (s)	12.0
Intersection Capacity Utilization			48.7%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis

1: US 6 & Capitol St

Year 2032 w/Project
AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1095	15	180	485	0	260
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1190	16	196	527	0	283
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage (veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1207		1853	603
vC1, stage 1 conf vol					1198	
vC2, stage 2 conf vol					655	
vCu, unblocked vol			1207		1853	603
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			66		100	36
cM capacity (veh/h)			574		194	442
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	793	413	196	264	264	283
Volume Left	0	0	196	0	0	0
Volume Right	0	16	0	0	0	283
cSH	1700	1700	574	1700	1700	442
Volume to Capacity	0.47	0.24	0.34	0.16	0.16	0.64
Queue Length 95th (ft)	0	0	38	0	0	109
Control Delay (s)	0.0	0.0	14.5	0.0	0.0	26.5
Lane LOS			B			D
Approach Delay (s)	0.0		3.9			26.5
Approach LOS						D
Intersection Summary						
Average Delay			4.7			
Intersection Capacity Utilization			53.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Capitol St & Brush Creek Rd

Year 2032 w/Project
AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	215	50	50	350	285	100	325	25	120	150	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1810		1770	1863	1583	1770	1843		1770	1751	
Flt Permitted	0.32	1.00		0.46	1.00	1.00	0.57	1.00		0.41	1.00	
Satd. Flow (perm)	595	1810		851	1863	1583	1055	1843		768	1751	
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)	54	234	54	54	380	310	109	353	27	130	163	109
RTOR Reduction (vph)	0	15	0	0	0	220	0	4	0	0	37	0
Lane Group Flow (vph)	54	273	0	54	380	90	109	376	0	130	235	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	16.1	16.1		16.1	16.1	16.1	26.6	22.8		28.0	23.5	
Effective Green, g (s)	16.1	16.1		16.1	16.1	16.1	26.6	22.8		28.0	23.5	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.29	0.48	0.41		0.51	0.42	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	172	526		247	541	460	555	758		469	742	
v/s Ratio Prot		0.15			c0.20		0.01	c0.20		c0.02	0.13	
v/s Ratio Perm	0.09			0.06		0.06	0.08			0.12		
v/c Ratio	0.31	0.52		0.22	0.70	0.20	0.20	0.50		0.28	0.32	
Uniform Delay, d1	15.3	16.4		14.9	17.5	14.8	8.0	12.1		7.6	10.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.9		0.4	4.1	0.2	0.2	2.3		0.3	1.1	
Delay (s)	16.4	17.3		15.3	21.6	15.0	8.2	14.4		7.9	11.7	
Level of Service	B	B		B	C	B	A	B		A	B	
Approach Delay (s)		17.1			18.4			13.0			10.5	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay		15.2			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.55										
Actuated Cycle Length (s)		55.4			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		60.4%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 w/Project
AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	180	445	630	185	90	115
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	196	484	685	201	98	125
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	886				1560	685
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	886				1560	685
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	74				0	72
cM capacity (veh/h)	764				92	448
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	196	484	685	201	223	
Volume Left	196	0	0	0	98	
Volume Right	0	0	0	201	125	
cSH	764	1700	1700	1700	202	
Volume to Capacity	0.26	0.28	0.40	0.12	1.10	
Queue Length 95th (ft)	25	0	0	0	263	
Control Delay (s)	11.3	0.0	0.0	0.0	142.8	
Lane LOS	B				F	
Approach Delay (s)	3.3		0.0		142.8	
Approach LOS					F	
Intersection Summary						
Average Delay			19.0			
Intersection Capacity Utilization			58.1%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

Year 2032 w/Project
AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	215	275	50	395	15	370	20	20	10	10	20
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	16	234	299	54	429	16	402	22	22	11	11	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	446			533			832	821	234	837	1103	429
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	446			533			832	821	234	837	1103	429
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			0	92	97	96	94	97
cM capacity (veh/h)	1115			1035			253	289	805	249	197	626
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	16	234	299	54	429	16	402	43	43			
Volume Left	16	0	0	54	0	0	402	0	11			
Volume Right	0	0	299	0	0	16	0	22	22			
cSH	1115	1700	1700	1035	1700	1700	253	425	326			
Volume to Capacity	0.01	0.14	0.18	0.05	0.25	0.01	1.59	0.10	0.13			
Queue Length 95th (ft)	1	0	0	4	0	0	617	8	11			
Control Delay (s)	8.3	0.0	0.0	8.7	0.0	0.0	317.3	14.4	17.7			
Lane LOS	A			A			F	B	C			
Approach Delay (s)	0.2			0.9			287.7		17.7			
Approach LOS							F		C			
Intersection Summary												
Average Delay	84.3											
Intersection Capacity Utilization	61.3%			ICU Level of Service					B			
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis

6: Brush Creek Rd & Grand Ave (US 6)

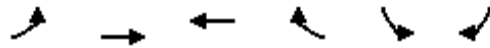
Year 2032 w/Project
AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Volume (vph)	1310	85	220	460	110	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.08	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	158	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1424	92	239	500	120	478
RTOR Reduction (vph)	0	49	0	0	0	177
Lane Group Flow (vph)	1424	43	239	500	120	301
Turn Type	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	43.3	43.3	59.3	59.3	30.1	30.1
Effective Green, g (s)	43.3	43.3	59.3	59.3	30.1	30.1
Actuated g/C Ratio	0.44	0.44	0.61	0.61	0.31	0.31
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1573	703	294	2154	546	489
v/s Ratio Prot	c0.40		c0.10	0.14	0.07	
v/s Ratio Perm		0.03	0.39			c0.19
v/c Ratio	0.91	0.06	0.81	0.23	0.22	0.62
Uniform Delay, d1	25.1	15.4	26.2	8.7	24.9	28.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.8	0.0	15.6	0.1	0.9	5.7
Delay (s)	32.9	15.5	41.8	8.7	25.9	34.4
Level of Service	C	B	D	A	C	C
Approach Delay (s)	31.9			19.4	32.7	
Approach LOS	C			B	C	
Intersection Summary						
HCM 2000 Control Delay			28.8		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.79			
Actuated Cycle Length (s)			97.4		Sum of lost time (s)	12.0
Intersection Capacity Utilization			70.1%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 w/Project
AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	180	445	630	185	90	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.13	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	235	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	484	685	201	98	125
RTOR Reduction (vph)	0	0	0	112	0	89
Lane Group Flow (vph)	196	484	685	89	98	36
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	41.9	41.9	30.9	30.9	20.1	20.1
Effective Green, g (s)	41.9	41.9	30.9	30.9	20.1	20.1
Actuated g/C Ratio	0.60	0.60	0.44	0.44	0.29	0.29
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	294	1115	822	698	508	454
v/s Ratio Prot	c0.07	0.26	c0.37		c0.06	
v/s Ratio Perm	0.33			0.06		0.02
v/c Ratio	0.67	0.43	0.83	0.13	0.19	0.08
Uniform Delay, d1	11.9	7.6	17.3	11.6	18.8	18.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.6	0.3	7.3	0.1	0.8	0.3
Delay (s)	17.5	7.9	24.5	11.7	19.7	18.5
Level of Service	B	A	C	B	B	B
Approach Delay (s)		10.7	21.6		19.0	
Approach LOS		B	C		B	

Intersection Summary

HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

Year 2032 w/Project
AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	215	275	50	395	15	370	20	20	10	10	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			0.99	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1723			1716	
Flt Permitted	0.24	1.00	1.00	0.52	1.00	1.00	0.71	1.00			0.96	
Satd. Flow (perm)	447	1863	1583	964	1863	1583	1315	1723			1660	
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	234	299	54	429	16	402	22	22	11	11	22
RTOR Reduction (vph)	0	0	146	0	0	11	0	9	0	0	15	0
Lane Group Flow (vph)	16	234	153	54	429	5	402	35	0	0	29	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	21.2	21.2	21.2	21.2	21.2	21.2	40.8	40.8			23.8	
Effective Green, g (s)	21.2	21.2	21.2	21.2	21.2	21.2	40.8	40.8			23.8	
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30	0.30	0.58	0.58			0.34	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	135	564	479	291	564	479	850	1004			564	
v/s Ratio Prot		0.13			c0.23		c0.09	0.02				
v/s Ratio Perm	0.04		0.10	0.06		0.00	c0.19				0.02	
v/c Ratio	0.12	0.41	0.32	0.19	0.76	0.01	0.47	0.03			0.05	
Uniform Delay, d1	17.6	19.5	18.8	18.0	22.1	17.1	8.0	6.2			15.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.4	0.5	0.4	0.3	6.0	0.0	0.4	0.1			0.2	
Delay (s)	18.0	20.0	19.2	18.3	28.1	17.1	8.5	6.3			15.7	
Level of Service	B	B	B	B	C	B	A	A			B	
Approach Delay (s)		19.5			26.7			8.2			15.7	
Approach LOS		B			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			18.5				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			61.3%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1: US 6 & Capitol St

Year 2032 w/Project
PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	820	15	460	1190	0	260
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	891	16	500	1293	0	283
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			908		2546	454
vC1, stage 1 conf vol					899	
vC2, stage 2 conf vol					1647	
vCu, unblocked vol			908		2546	454
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			33		100	49
cM capacity (veh/h)			746		45	553
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	594	313	500	647	647	283
Volume Left	0	0	500	0	0	0
Volume Right	0	16	0	0	0	283
cSH	1700	1700	746	1700	1700	553
Volume to Capacity	0.35	0.18	0.67	0.38	0.38	0.51
Queue Length 95th (ft)	0	0	130	0	0	72
Control Delay (s)	0.0	0.0	19.1	0.0	0.0	18.1
Lane LOS			C			C
Approach Delay (s)	0.0		5.3			18.1
Approach LOS						C
Intersection Summary						
Average Delay			4.9			
Intersection Capacity Utilization			55.3%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Capitol St & Brush Creek Rd

Year 2032 w/Project
PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	360	100	25	240	130	100	175	25	290	275	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1802		1770	1863	1583	1770	1828		1770	1788	
Flt Permitted	0.52	1.00		0.21	1.00	1.00	0.49	1.00		0.48	1.00	
Satd. Flow (perm)	961	1802		394	1863	1583	914	1828		891	1788	
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)	54	391	109	27	261	141	109	190	27	315	299	109
RTOR Reduction (vph)	0	17	0	0	0	95	0	8	0	0	21	0
Lane Group Flow (vph)	54	483	0	27	261	46	109	209	0	315	387	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	18.9	18.9		18.9	18.9	18.9	22.1	19.0		30.9	23.8	
Effective Green, g (s)	18.9	18.9		18.9	18.9	18.9	22.1	19.0		30.9	23.8	
Actuated g/C Ratio	0.33	0.33		0.33	0.33	0.33	0.38	0.33		0.53	0.41	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	314	589		128	609	517	395	600		596	736	
v/s Ratio Prot		c0.27			0.14		0.01	0.11		c0.07	0.22	
v/s Ratio Perm	0.06			0.07		0.03	0.09			c0.21		
v/c Ratio	0.17	0.82		0.21	0.43	0.09	0.28	0.35		0.53	0.53	
Uniform Delay, d1	13.9	17.9		14.1	15.2	13.5	11.8	14.7		8.0	12.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	8.7		0.8	0.5	0.1	0.4	1.6		0.8	2.7	
Delay (s)	14.1	26.6		14.9	15.7	13.6	12.1	16.3		8.8	15.5	
Level of Service	B	C		B	B	B	B	B		A	B	
Approach Delay (s)		25.4			15.0			14.9			12.6	
Approach LOS		C			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			16.9				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			57.8				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			68.5%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 w/Project
PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	135	580	465	95	180	225
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	147	630	505	103	196	245
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	609				1429	505
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	609				1429	505
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	85				0	57
cM capacity (veh/h)	970				126	567
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	147	630	505	103	440	
Volume Left	147	0	0	0	196	
Volume Right	0	0	0	103	245	
cSH	970	1700	1700	1700	237	
Volume to Capacity	0.15	0.37	0.30	0.06	1.86	
Queue Length 95th (ft)	13	0	0	0	769	
Control Delay (s)	9.4	0.0	0.0	0.0	435.7	
Lane LOS	A				F	
Approach Delay (s)	1.8		0.0		435.7	
Approach LOS					F	
Intersection Summary						
Average Delay			105.8			
Intersection Capacity Utilization			51.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

Year 2032 w/Project
PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	370	410	30	280	15	245	10	20	10	5	15
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	16	402	446	33	304	16	266	11	22	11	5	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	321			848			823	821	402	832	1250	304
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	321			848			823	821	402	832	1250	304
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			0	96	97	96	97	98
cM capacity (veh/h)	1239			790			267	293	648	260	163	735
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	16	402	446	33	304	16	266	33	33			
Volume Left	16	0	0	33	0	0	266	0	11			
Volume Right	0	0	446	0	0	16	0	22	16			
cSH	1239	1700	1700	790	1700	1700	267	461	335			
Volume to Capacity	0.01	0.24	0.26	0.04	0.18	0.01	1.00	0.07	0.10			
Queue Length 95th (ft)	1	0	0	3	0	0	248	6	8			
Control Delay (s)	7.9	0.0	0.0	9.8	0.0	0.0	95.5	13.4	16.9			
Lane LOS	A			A			F	B	C			
Approach Delay (s)	0.1			0.9			86.5		16.9			
Approach LOS							F	C				
Intersection Summary												
Average Delay	17.3											
Intersection Capacity Utilization	51.8%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis

6: Brush Creek Rd & Grand Ave (US 6)

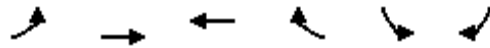
Year 2032 w/Project
PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Volume (vph)	650	125	460	1230	90	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.16	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	293	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	707	136	500	1337	98	337
RTOR Reduction (vph)	0	99	0	0	0	234
Lane Group Flow (vph)	707	37	500	1337	98	103
Turn Type	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	23.0	23.0	50.5	50.5	25.6	25.6
Effective Green, g (s)	23.0	23.0	50.5	50.5	25.6	25.6
Actuated g/C Ratio	0.27	0.27	0.60	0.60	0.30	0.30
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	967	432	588	2125	538	481
v/s Ratio Prot	0.20		c0.24	0.38	0.06	
v/s Ratio Perm		0.02	c0.27			c0.06
v/c Ratio	0.73	0.09	0.85	0.63	0.18	0.21
Uniform Delay, d1	27.7	22.7	19.2	10.8	21.5	21.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.9	0.1	11.3	0.6	0.7	1.0
Delay (s)	30.6	22.8	30.5	11.4	22.3	22.8
Level of Service	C	C	C	B	C	C
Approach Delay (s)	29.4			16.6	22.7	
Approach LOS	C			B	C	
Intersection Summary						
HCM 2000 Control Delay			20.9		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.66			
Actuated Cycle Length (s)			84.1		Sum of lost time (s)	12.0
Intersection Capacity Utilization			58.4%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Sylvan Lake Rd & Capitol St

Year 2032 w/Project
PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	135	580	465	95	180	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.21	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	395	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	630	505	103	196	245
RTOR Reduction (vph)	0	0	0	64	0	152
Lane Group Flow (vph)	147	630	505	39	196	93
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	35.3	35.3	26.5	26.5	26.7	26.7
Effective Green, g (s)	35.3	35.3	26.5	26.5	26.7	26.7
Actuated g/C Ratio	0.50	0.50	0.38	0.38	0.38	0.38
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	293	939	705	599	675	603
v/s Ratio Prot	0.03	c0.34	0.27		c0.11	
v/s Ratio Perm	0.22			0.02		0.06
v/c Ratio	0.50	0.67	0.72	0.07	0.29	0.15
Uniform Delay, d1	11.8	13.0	18.5	13.9	15.1	14.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	1.9	3.5	0.0	1.1	0.5
Delay (s)	13.2	14.9	22.0	13.9	16.1	14.8
Level of Service	B	B	C	B	B	B
Approach Delay (s)		14.6	20.6		15.4	
Approach LOS		B	C		B	

Intersection Summary

HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Eagle Ranch Rd & Sylvan Lake Rd

Year 2032 w/Project
PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	370	410	30	280	15	245	10	20	10	5	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1676			1708	
Flt Permitted	0.44	1.00	1.00	0.31	1.00	1.00	0.72	1.00			0.94	
Satd. Flow (perm)	812	1863	1583	574	1863	1583	1338	1676			1640	
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	402	446	33	304	16	266	11	22	11	5	16
RTOR Reduction (vph)	0	0	134	0	0	11	0	10	0	0	10	0
Lane Group Flow (vph)	16	402	312	33	304	5	266	23	0	0	22	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	23.0	23.0	23.0	23.0	23.0	23.0	39.0	39.0			25.1	
Effective Green, g (s)	23.0	23.0	23.0	23.0	23.0	23.0	39.0	39.0			25.1	
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33	0.33	0.56	0.56			0.36	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	266	612	520	188	612	520	806	933			588	
v/s Ratio Prot		c0.22			0.16		c0.05	0.01				
v/s Ratio Perm	0.02		0.20	0.06		0.00	c0.14				0.01	
v/c Ratio	0.06	0.66	0.60	0.18	0.50	0.01	0.33	0.02			0.04	
Uniform Delay, d1	16.1	20.1	19.6	16.7	18.9	15.8	8.2	7.0			14.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1	2.5	1.9	0.4	0.6	0.0	0.2	0.0			0.1	
Delay (s)	16.2	22.7	21.5	17.2	19.5	15.8	8.5	7.0			14.7	
Level of Service	B	C	C	B	B	B	A	A			B	
Approach Delay (s)		22.0			19.1			8.3			14.7	
Approach LOS		C			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			18.5				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			51.8%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 Roundabout
3: Sylvan Lake Rd & US 6

Existing
AM

Intersection							
Intersection Delay, s/veh	6.7						
Intersection LOS	A						
Approach	EB	WB	NB	SB			
Entry Lanes	1	2	2	1			
Conflicting Circle Lanes	2	2	2	2			
Adj Approach Flow, veh/h	487	392	433	11			
Demand Flow Rate, veh/h	496	400	442	11			
Vehicles Circulating, veh/h	63	179	426	505			
Vehicles Exiting, veh/h	453	689	60	74			
Follow-Up Headway, s	3.186	3.186	3.186	3.186			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	7.0	5.6	7.4	4.7			
Approach LOS	A	A	A	A			
Lane	Left	Bypass	Left	Right	Left	Right	Left
Designated Moves	LT	R	LT	TR	LTR	R	LTR
Assumed Moves	LT	R	LT	TR	LTR	R	LTR
RT Channelized	Yield						
Lane Util	1.000		0.470	0.530	0.471	0.529	1.000
Critical Headway, s	4.113		4.293	4.113	4.293	4.113	4.113
Entry Flow, veh/h	423	73	188	212	208	234	11
Cap Entry Lane, veh/h	1081	1064	988	997	821	839	793
Entry HV Adj Factor	0.981	0.980	0.980	0.980	0.979	0.981	0.986
Flow Entry, veh/h	415	72	184	208	204	230	11
Cap Entry, veh/h	1060	1043	968	976	804	823	782
V/C Ratio	0.391	0.069	0.190	0.213	0.253	0.279	0.014
Control Delay, s/veh	7.5	4.1	5.5	5.7	7.3	7.5	4.7
LOS	A	A	A	A	A	A	A
95th %tile Queue, veh	2	0	1	1	1	1	0

Intersection							
Intersection Delay, s/veh	7.8						
Intersection LOS	A						
Approach	EB	WB		NB		SB	
Entry Lanes	1	2		2		1	
Conflicting Circle Lanes	2	2		2		2	
Adj Approach Flow, veh/h	628	847		140		0	
Demand Flow Rate, veh/h	640	864		142		0	
Vehicles Circulating, veh/h	149	82		490		923	
Vehicles Exiting, veh/h	774	550		149		23	
Follow-Up Headway, s	3.186	3.186		3.186		3.186	
Ped Vol Crossing Leg, #/h	0	0		0		0	
Ped Cap Adj	1.000	1.000		1.000		1.000	
Approach Delay, s/veh	8.4	7.8		5.5		0.0	
Approach LOS	A	A		A		-	
Lane	Left	Bypass	Left	Right	Left	Right	Left
Designated Moves	LT	R	LT	TR	LTR	R	LTR
Assumed Moves	LT	R	LT	TR	LT	R	LTR
RT Channelized	Yield						
Lane Util	1.000		0.470	0.530	0.521	0.479	1.000
Critical Headway, s	4.113		4.293	4.113	4.293	4.113	4.113
Entry Flow, veh/h	490	150	406	458	74	68	0
Cap Entry Lane, veh/h	1018	974	1063	1067	782	802	592
Entry HV Adj Factor	0.981	0.980	0.981	0.980	0.986	0.985	1.000
Flow Entry, veh/h	481	147	398	449	73	67	0
Cap Entry, veh/h	998	954	1042	1046	772	790	592
V/C Ratio	0.481	0.154	0.382	0.429	0.095	0.085	0.000
Control Delay, s/veh	9.3	5.2	7.5	8.2	5.6	5.4	6.1
LOS	A	A	A	A	A	A	A
95th %tile Queue, veh	3	1	2	2	0	0	0

Intersection							
Intersection Delay, s/veh	11.4						
Intersection LOS	B						
Approach	EB		WB		NB		SB
Entry Lanes	1		2		2		1
Conflicting Circle Lanes	2		2		2		2
Adj Approach Flow, veh/h	576		576		1087		15
Demand Flow Rate, veh/h	587		588		1109		15
Vehicles Circulating, veh/h	365		510		321		1032
Vehicles Exiting, veh/h	682		920		360		66
Follow-Up Headway, s	3.186		3.186		3.186		3.186
Ped Vol Crossing Leg, #/h	0		0		0		0
Ped Cap Adj	1.000		1.000		1.000		1.000
Approach Delay, s/veh	8.6		9.9		13.7		6.9
Approach LOS	A		A		B		A
Lane	Left	Bypass	Left	Right	Left	Right	Left
Designated Moves	LT	R	LT	TR	LTR	R	LTR
Assumed Moves	LT	R	L	TR	LTR	R	LTR
RT Channelized		Yield					
Lane Util	1.000		0.604	0.396	0.470	0.530	1.000
Critical Headway, s	4.113		4.293	4.113	4.293	4.113	4.113
Entry Flow, veh/h	316	271	355	233	521	588	15
Cap Entry Lane, veh/h	875	788	771	791	888	903	549
Entry HV Adj Factor	0.981	0.980	0.980	0.980	0.981	0.980	0.993
Flow Entry, veh/h	310	266	348	228	511	576	15
Cap Entry, veh/h	859	773	756	775	871	884	545
V/C Ratio	0.361	0.344	0.461	0.295	0.587	0.651	0.027
Control Delay, s/veh	8.3	8.8	11.1	8.0	12.8	14.6	6.9
LOS	A	A	B	A	B	B	A
95th %tile Queue, veh	2	2	2	1	4	5	0

Intersection							
Intersection Delay, s/veh	20.5						
Intersection LOS	C						
Approach	EB		WB		NB		SB
Entry Lanes	1		2		2		1
Conflicting Circle Lanes	2		2		2		2
Adj Approach Flow, veh/h	826		1261		586		15
Demand Flow Rate, veh/h	842		1287		598		15
Vehicles Circulating, veh/h	731		287		348		1519
Vehicles Exiting, veh/h	803		659		726		55
Follow-Up Headway, s	3.186		3.186		3.186		3.186
Ped Vol Crossing Leg, #/h	0		0		0		0
Ped Cap Adj	1.000		1.000		1.000		1.000
Approach Delay, s/veh	33.7		17.7		8.0		9.9
Approach LOS	D		C		A		A
Lane	Left	Bypass	Left	Right	Left	Right	Left
Designated Moves	LT	R	LT	TR	LTR	R	LTR
Assumed Moves	LT	R	L	TR	LTR	R	LTR
RT Channelized		Yield					
Lane Util	1.000		0.560	0.440	0.470	0.530	1.000
Critical Headway, s	4.113		4.293	4.113	4.293	4.113	4.113
Entry Flow, veh/h	343	499	721	566	281	317	15
Cap Entry Lane, veh/h	677	547	911	924	870	886	390
Entry HV Adj Factor	0.982	0.980	0.981	0.980	0.980	0.980	0.993
Flow Entry, veh/h	337	489	707	554	275	311	15
Cap Entry, veh/h	665	536	893	905	853	868	388
V/C Ratio	0.506	0.912	0.791	0.612	0.323	0.358	0.038
Control Delay, s/veh	13.4	47.6	21.4	13.1	7.8	8.2	9.9
LOS	B	E	C	B	A	A	A
95th %tile Queue, veh	3	11	8	4	1	2	0

Intersection							
Intersection Delay, s/veh	11.4						
Intersection LOS	B						
Approach	EB	WB		NB		SB	
Entry Lanes	1	2		2		1	
Conflicting Circle Lanes	2	2		2		2	
Adj Approach Flow, veh/h	625	570		1043		15	
Demand Flow Rate, veh/h	637	582		1063		15	
Vehicles Circulating, veh/h	243	498		398		1014	
Vehicles Exiting, veh/h	786	963		238		66	
Follow-Up Headway, s	3.186	3.186		3.186		3.186	
Ped Vol Crossing Leg, #/h	0	0		0		0	
Ped Cap Adj	1.000	1.000		1.000		1.000	
Approach Delay, s/veh	8.0	9.2		14.6		6.8	
Approach LOS	A	A		B		A	
Lane	Left	Bypass	Left	Right	Left	Right	Left
Designated Moves	LT	R	LT	TR	LTR	R	LTR
Assumed Moves	LT	R	LT	TR	LTR	R	LTR
RT Channelized	Yield						
Lane Util	1.000		0.471	0.529	0.470	0.530	1.000
Critical Headway, s	4.113		4.293	4.113	4.293	4.113	4.113
Entry Flow, veh/h	393	244	274	308	500	563	15
Cap Entry Lane, veh/h	953	891	778	797	838	855	556
Entry HV Adj Factor	0.981	0.980	0.978	0.981	0.980	0.982	0.993
Flow Entry, veh/h	386	239	268	302	490	553	15
Cap Entry, veh/h	935	873	761	782	822	840	552
V/C Ratio	0.412	0.274	0.352	0.386	0.596	0.658	0.027
Control Delay, s/veh	8.6	7.0	9.0	9.4	13.6	15.4	6.8
LOS	A	A	A	A	B	C	A
95th %tile Queue, veh	2	1	2	2	4	5	0

Intersection				
Intersection Delay, s/veh	10.3			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	256	457	435	321
Demand Flow Rate, veh/h	261	466	443	328
Vehicles Circulating, veh/h	300	471	311	361
Vehicles Exiting, veh/h	389	283	250	576
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.0	13.3	10.2	8.5
Approach LOS	A	B	B	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	4.113	4.113	4.113	4.113
Entry Flow, veh/h	261	466	443	328
Cap Entry Lane, veh/h	916	813	909	878
Entry HV Adj Factor	0.980	0.980	0.981	0.979
Flow Entry, veh/h	256	457	435	321
Cap Entry, veh/h	898	797	892	859
V/C Ratio	0.285	0.573	0.487	0.374
Control Delay, s/veh	7.0	13.3	10.2	8.5
LOS	A	B	B	A
95th %tile Queue, veh	1	4	3	2

Intersection							
Intersection Delay, s/veh	15.4						
Intersection LOS	C						
Approach	EB	WB	NB	SB			
Entry Lanes	1	2	2	1			
Conflicting Circle Lanes	2	2	2	2			
Adj Approach Flow, veh/h	935	1207	521	15			
Demand Flow Rate, veh/h	953	1231	531	15			
Vehicles Circulating, veh/h	581	254	476	1430			
Vehicles Exiting, veh/h	864	753	576	55			
Follow-Up Headway, s	3.186	3.186	3.186	3.186			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	20.7	14.4	8.5	9.2			
Approach LOS	C	B	A	A			
Lane	Left	Bypass	Left	Right	Left	Right	Left
Designated Moves	LT	R	LT	TR	LTR	R	LTR
Assumed Moves	LT	R	LT	TR	LTR	R	LTR
RT Channelized	Yield						
Lane Util	1.000		0.470	0.530	0.471	0.529	1.000
Critical Headway, s	4.113		4.293	4.113	4.293	4.113	4.113
Entry Flow, veh/h	471	482	579	652	250	281	15
Cap Entry Lane, veh/h	752	635	934	946	791	810	415
Entry HV Adj Factor	0.981	0.980	0.979	0.981	0.979	0.982	0.993
Flow Entry, veh/h	462	473	567	640	245	276	15
Cap Entry, veh/h	738	623	915	928	774	796	413
V/C Ratio	0.626	0.760	0.620	0.689	0.316	0.347	0.036
Control Delay, s/veh	15.8	25.5	13.2	15.5	8.4	8.6	9.2
LOS	C	D	B	C	A	A	A
95th %tile Queue, veh	4	7	4	6	1	2	0

Intersection				
Intersection Delay, s/veh	10.8			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	354	261	294	571
Demand Flow Rate, veh/h	361	266	299	582
Vehicles Circulating, veh/h	504	327	466	277
Vehicles Exiting, veh/h	355	438	399	316
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.7	7.3	8.9	13.4
Approach LOS	B	A	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	4.113	4.113	4.113	4.113
Entry Flow, veh/h	361	266	299	582
Cap Entry Lane, veh/h	794	899	815	931
Entry HV Adj Factor	0.980	0.981	0.982	0.980
Flow Entry, veh/h	354	261	294	571
Cap Entry, veh/h	778	882	801	912
V/C Ratio	0.455	0.296	0.367	0.625
Control Delay, s/veh	10.7	7.3	8.9	13.4
LOS	B	A	A	B
95th %tile Queue, veh	2	1	2	5

Intersection							
Intersection Delay, s/veh	14.7						
Intersection LOS	B						
Approach	EB	WB	NB	SB			
Entry Lanes	1	2	2	1			
Conflicting Circle Lanes	2	2	2	2			
Adj Approach Flow, veh/h	625	619	1288	15			
Demand Flow Rate, veh/h	637	632	1314	15			
Vehicles Circulating, veh/h	409	615	321	1181			
Vehicles Exiting, veh/h	787	1020	404	66			
Follow-Up Headway, s	3.186	3.186	3.186	3.186			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	9.7	12.3	18.4	7.7			
Approach LOS	A	B	C	A			
Lane	Left	Bypass	Left	Right	Left	Right	Left
Designated Moves	LT	R	LT	TR	LTR	R	LTR
Assumed Moves	LT	R	L	TR	LTR	R	LTR
RT Channelized	Yield						
Lane Util	1.000		0.631	0.369	0.470	0.530	1.000
Critical Headway, s	4.113		4.293	4.113	4.293	4.113	4.113
Entry Flow, veh/h	316	321	399	233	618	696	15
Cap Entry Lane, veh/h	849	754	712	735	888	903	494
Entry HV Adj Factor	0.981	0.980	0.980	0.980	0.979	0.981	0.993
Flow Entry, veh/h	310	315	391	228	605	683	15
Cap Entry, veh/h	833	740	698	720	870	885	491
V/C Ratio	0.372	0.426	0.560	0.317	0.696	0.771	0.030
Control Delay, s/veh	8.7	10.6	14.3	8.9	16.5	20.2	7.7
LOS	A	B	B	A	C	C	A
95th %tile Queue, veh	2	2	4	1	6	8	0

Intersection				
Intersection Delay, s/veh	12.7			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	0	592	402	566
Demand Flow Rate, veh/h	0	604	410	577
Vehicles Circulating, veh/h	627	388	377	50
Vehicles Exiting, veh/h	0	399	250	942
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	17.1	10.3	9.7
Approach LOS	-	C	B	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	4.113	4.113	4.113	4.113
Entry Flow, veh/h	0	604	410	577
Cap Entry Lane, veh/h	729	861	868	1091
Entry HV Adj Factor	1.000	0.980	0.981	0.981
Flow Entry, veh/h	0	592	402	566
Cap Entry, veh/h	729	844	852	1070
V/C Ratio	0.000	0.701	0.472	0.529
Control Delay, s/veh	4.9	17.1	10.3	9.7
LOS	A	C	B	A
95th %tile Queue, veh	0	6	3	3

Intersection				
Intersection Delay, s/veh	9.3			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	218	326	375	180
Demand Flow Rate, veh/h	222	332	383	184
Vehicles Circulating, veh/h	316	422	183	565
Vehicles Exiting, veh/h	433	144	355	189
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.4	11.1	8.6	9.4
Approach LOS	A	B	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	222	332	383	184
Cap Entry Lane, veh/h	824	741	941	642
Entry HV Adj Factor	0.980	0.981	0.979	0.981
Flow Entry, veh/h	218	326	375	180
Cap Entry, veh/h	807	727	921	630
V/C Ratio	0.269	0.448	0.407	0.287
Control Delay, s/veh	7.4	11.1	8.6	9.4
LOS	A	B	A	A
95th %tile Queue, veh	1	2	2	1

Intersection							
Intersection Delay, s/veh	46.7						
Intersection LOS	E						
Approach	EB	WB	NB	SB			
Entry Lanes	1	2	2	1			
Conflicting Circle Lanes	2	2	2	2			
Adj Approach Flow, veh/h	935	1358	706	15			
Demand Flow Rate, veh/h	953	1386	720	15			
Vehicles Circulating, veh/h	830	354	348	1685			
Vehicles Exiting, veh/h	870	714	825	55			
Follow-Up Headway, s	3.186	3.186	3.186	3.186			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	99.7	30.2	9.1	11.1			
Approach LOS	F	D	A	B			
Lane	Left	Bypass	Left	Right	Left	Right	Left
Designated Moves	LT	R	LT	TR	LTR	R	LTR
Assumed Moves	LT	R	L	TR	LTR	R	LTR
RT Channelized	Yield						
Lane Util	1.000		0.592	0.408	0.469	0.531	1.000
Critical Headway, s	4.113		4.293	4.113	4.293	4.113	4.113
Entry Flow, veh/h	343	610	820	566	338	382	15
Cap Entry Lane, veh/h	632	495	866	882	870	886	347
Entry HV Adj Factor	0.982	0.980	0.980	0.980	0.982	0.979	0.993
Flow Entry, veh/h	337	598	804	554	332	374	15
Cap Entry, veh/h	620	485	850	864	854	867	345
V/C Ratio	0.543	1.232	0.946	0.642	0.388	0.431	0.043
Control Delay, s/veh	15.2	147.2	41.1	14.5	8.8	9.4	11.1
LOS	C	F	E	B	A	A	B
95th %tile Queue, veh	3	24	15	5	2	2	0

Intersection				
Intersection Delay, s/veh	16.4			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	0	348	272	913
Demand Flow Rate, veh/h	0	355	277	931
Vehicles Circulating, veh/h	953	255	554	22
Vehicles Exiting, veh/h	0	576	399	588
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	8.1	9.3	21.7
Approach LOS	-	A	A	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	4.113	4.113	4.113	4.113
Entry Flow, veh/h	0	355	277	931
Cap Entry Lane, veh/h	580	945	767	1113
Entry HV Adj Factor	1.000	0.980	0.982	0.980
Flow Entry, veh/h	0	348	272	913
Cap Entry, veh/h	580	927	753	1091
V/C Ratio	0.000	0.376	0.361	0.837
Control Delay, s/veh	6.2	8.1	9.3	21.7
LOS	A	A	A	C
95th %tile Queue, veh	0	2	2	10

Intersection				
Intersection Delay, s/veh	9.4			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	435	184	196	348
Demand Flow Rate, veh/h	444	188	200	355
Vehicles Circulating, veh/h	311	249	372	221
Vehicles Exiting, veh/h	265	322	383	216
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.1	6.4	7.6	8.6
Approach LOS	B	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	444	188	200	355
Cap Entry Lane, veh/h	828	881	779	906
Entry HV Adj Factor	0.979	0.980	0.978	0.980
Flow Entry, veh/h	435	184	196	348
Cap Entry, veh/h	811	863	762	888
V/C Ratio	0.536	0.213	0.257	0.392
Control Delay, s/veh	12.1	6.4	7.6	8.6
LOS	B	A	A	A
95th %tile Queue, veh	3	1	1	2

Intersection							
Intersection Delay, s/veh	11.4						
Intersection LOS	B						
Approach	EB	WB		NB		SB	
Entry Lanes	1	2		2		1	
Conflicting Circle Lanes	2	2		2		2	
Adj Approach Flow, veh/h	625	570		1043		15	
Demand Flow Rate, veh/h	637	582		1063		15	
Vehicles Circulating, veh/h	243	498		398		1014	
Vehicles Exiting, veh/h	786	963		238		66	
Follow-Up Headway, s	3.186	3.186		3.186		3.186	
Ped Vol Crossing Leg, #/h	0	0		0		0	
Ped Cap Adj	1.000	1.000		1.000		1.000	
Approach Delay, s/veh	8.0	9.2		14.6		6.8	
Approach LOS	A	A		B		A	
Lane	Left	Bypass	Left	Right	Left	Right	Left
Designated Moves	LT	R	LT	TR	LTR	R	LTR
Assumed Moves	LT	R	LT	TR	LTR	R	LTR
RT Channelized	Yield						
Lane Util	1.000		0.471	0.529	0.470	0.530	1.000
Critical Headway, s	4.113		4.293	4.113	4.293	4.113	4.113
Entry Flow, veh/h	393	244	274	308	500	563	15
Cap Entry Lane, veh/h	953	891	778	797	838	855	556
Entry HV Adj Factor	0.981	0.980	0.978	0.981	0.980	0.982	0.993
Flow Entry, veh/h	386	239	268	302	490	553	15
Cap Entry, veh/h	935	873	761	782	822	840	552
V/C Ratio	0.412	0.274	0.352	0.386	0.596	0.658	0.027
Control Delay, s/veh	8.6	7.0	9.0	9.4	13.6	15.4	6.8
LOS	A	A	A	A	B	C	A
95th %tile Queue, veh	2	1	2	2	4	5	0

Intersection				
Intersection Delay, s/veh	16.7			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	310	668	435	365
Demand Flow Rate, veh/h	316	682	443	372
Vehicles Circulating, veh/h	322	471	388	499
Vehicles Exiting, veh/h	549	360	250	654
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.0	27.5	11.3	10.9
Approach LOS	A	D	B	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	4.113	4.113	4.113	4.113
Entry Flow, veh/h	316	682	443	372
Cap Entry Lane, veh/h	902	813	861	797
Entry HV Adj Factor	0.980	0.980	0.981	0.981
Flow Entry, veh/h	310	668	435	365
Cap Entry, veh/h	884	796	845	782
V/C Ratio	0.350	0.839	0.514	0.467
Control Delay, s/veh	8.0	27.5	11.3	10.9
LOS	A	D	B	B
95th %tile Queue, veh	2	10	3	3

Intersection				
Intersection Delay, s/veh	8.6			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	179	327	375	213
Demand Flow Rate, veh/h	183	333	383	218
Vehicles Circulating, veh/h	184	422	178	305
Vehicles Exiting, veh/h	339	139	189	450
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.8	11.2	8.5	7.3
Approach LOS	A	B	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	183	333	383	218
Cap Entry Lane, veh/h	940	741	946	833
Entry HV Adj Factor	0.978	0.981	0.979	0.977
Flow Entry, veh/h	179	327	375	213
Cap Entry, veh/h	919	727	926	814
V/C Ratio	0.195	0.449	0.405	0.262
Control Delay, s/veh	5.8	11.2	8.5	7.3
LOS	A	B	A	A
95th %tile Queue, veh	1	2	2	1

Intersection							
Intersection Delay, s/veh	15.4						
Intersection LOS	C						
Approach	EB	WB	NB	SB			
Entry Lanes	1	2	2	1			
Conflicting Circle Lanes	2	2	2	2			
Adj Approach Flow, veh/h	935	1207	521	15			
Demand Flow Rate, veh/h	953	1231	531	15			
Vehicles Circulating, veh/h	581	254	476	1430			
Vehicles Exiting, veh/h	864	753	576	55			
Follow-Up Headway, s	3.186	3.186	3.186	3.186			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	20.7	14.4	8.5	9.2			
Approach LOS	C	B	A	A			
Lane	Left	Bypass	Left	Right	Left	Right	Left
Designated Moves	LT	R	LT	TR	LTR	R	LTR
Assumed Moves	LT	R	LT	TR	LTR	R	LTR
RT Channelized	Yield						
Lane Util	1.000		0.470	0.530	0.471	0.529	1.000
Critical Headway, s	4.113		4.293	4.113	4.293	4.113	4.113
Entry Flow, veh/h	471	482	579	652	250	281	15
Cap Entry Lane, veh/h	752	635	934	946	791	810	415
Entry HV Adj Factor	0.981	0.980	0.979	0.981	0.979	0.982	0.993
Flow Entry, veh/h	462	473	567	640	245	276	15
Cap Entry, veh/h	738	623	915	928	774	796	413
V/C Ratio	0.626	0.760	0.620	0.689	0.316	0.347	0.036
Control Delay, s/veh	15.8	25.5	13.2	15.5	8.4	8.6	9.2
LOS	C	D	B	C	A	A	A
95th %tile Queue, veh	4	7	4	6	1	2	0

Intersection				
Intersection Delay, s/veh	15.8			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	500	386	294	653
Demand Flow Rate, veh/h	510	394	299	666
Vehicles Circulating, veh/h	588	327	699	361
Vehicles Exiting, veh/h	439	671	399	360
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	18.1	9.4	11.4	19.9
Approach LOS	C	A	B	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	4.113	4.113	4.113	4.113
Entry Flow, veh/h	510	394	299	666
Cap Entry Lane, veh/h	749	899	693	878
Entry HV Adj Factor	0.980	0.980	0.982	0.980
Flow Entry, veh/h	500	386	294	653
Cap Entry, veh/h	734	881	680	860
V/C Ratio	0.681	0.438	0.432	0.759
Control Delay, s/veh	18.1	9.4	11.4	19.9
LOS	C	A	B	C
95th %tile Queue, veh	5	2	2	7

Intersection				
Intersection Delay, s/veh	9.8			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	326	278	196	441
Demand Flow Rate, veh/h	333	283	200	450
Vehicles Circulating, veh/h	416	239	361	261
Vehicles Exiting, veh/h	295	322	388	261
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	11.1	7.6	7.5	11.2
Approach LOS	B	A	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	333	283	200	450
Cap Entry Lane, veh/h	745	890	788	870
Entry HV Adj Factor	0.978	0.982	0.980	0.980
Flow Entry, veh/h	326	278	196	441
Cap Entry, veh/h	729	874	772	853
V/C Ratio	0.447	0.318	0.254	0.517
Control Delay, s/veh	11.1	7.6	7.5	11.2
LOS	B	A	A	B
95th %tile Queue, veh	2	1	1	3

Intersection							
Intersection Delay, s/veh	11.0						
Intersection LOS	B						
Approach	EB		WB		NB		SB
Entry Lanes	1		2		2		1
Conflicting Circle Lanes	2		2		2		2
Adj Approach Flow, veh/h	636		570		983		21
Demand Flow Rate, veh/h	648		581		1003		21
Vehicles Circulating, veh/h	237		460		432		970
Vehicles Exiting, veh/h	754		975		232		71
Follow-Up Headway, s	3.186		3.186		3.186		3.186
Ped Vol Crossing Leg, #/h	0		0		0		0
Ped Cap Adj	1.000		1.000		1.000		1.000
Approach Delay, s/veh	8.3		8.9		14.2		6.8
Approach LOS	A		A		B		A
Lane	Left	Bypass	Left	Right	Left	Right	Left
Designated Moves	LT	R	LT	TR	LTR	R	LTR
Assumed Moves	LT	R	LT	TR	LTR	R	LTR
RT Channelized		Yield					
Lane Util	1.000		0.470	0.530	0.470	0.530	1.000
Critical Headway, s	4.113		4.293	4.113	4.293	4.113	4.113
Entry Flow, veh/h	427	221	273	308	471	532	21
Cap Entry Lane, veh/h	957	896	800	819	817	835	573
Entry HV Adj Factor	0.981	0.980	0.981	0.981	0.981	0.979	0.990
Flow Entry, veh/h	419	217	268	302	462	521	21
Cap Entry, veh/h	939	878	785	803	802	818	567
V/C Ratio	0.446	0.247	0.341	0.376	0.576	0.637	0.037
Control Delay, s/veh	9.1	6.7	8.6	9.0	13.3	15.0	6.8
LOS	A	A	A	A	B	B	A
95th %tile Queue, veh	2	1	2	2	4	5	0

Intersection				
Intersection Delay, s/veh	11.6			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	271	488	489	354
Demand Flow Rate, veh/h	276	497	499	361
Vehicles Circulating, veh/h	305	526	305	387
Vehicles Exiting, veh/h	443	278	276	636
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.3	15.7	11.5	9.4
Approach LOS	A	C	B	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	4.113	4.113	4.113	4.113
Entry Flow, veh/h	276	497	499	361
Cap Entry Lane, veh/h	913	782	913	862
Entry HV Adj Factor	0.981	0.981	0.980	0.980
Flow Entry, veh/h	271	488	489	354
Cap Entry, veh/h	895	767	894	844
V/C Ratio	0.302	0.636	0.547	0.419
Control Delay, s/veh	7.3	15.7	11.5	9.4
LOS	A	C	B	A
95th %tile Queue, veh	1	5	3	2

Intersection							
Intersection Delay, s/veh	15.0						
Intersection LOS	B						
Approach	EB	WB	NB	SB			
Entry Lanes	1	2	2	1			
Conflicting Circle Lanes	2	2	2	2			
Adj Approach Flow, veh/h	919	1249	494	15			
Demand Flow Rate, veh/h	937	1275	503	15			
Vehicles Circulating, veh/h	564	248	498	1468			
Vehicles Exiting, veh/h	919	753	559	55			
Follow-Up Headway, s	3.186	3.186	3.186	3.186			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	18.4	15.1	8.4	9.5			
Approach LOS	C	C	A	A			
Lane	Left	Bypass	Left	Right	Left	Right	Left
Designated Moves	LT	R	LT	TR	LTR	R	LTR
Assumed Moves	LT	R	LT	TR	LTR	R	LTR
RT Channelized	Yield						
Lane Util	1.000		0.470	0.530	0.469	0.531	1.000
Critical Headway, s	4.113		4.293	4.113	4.293	4.113	4.113
Entry Flow, veh/h	493	444	599	676	236	267	15
Cap Entry Lane, veh/h	761	646	938	950	778	797	404
Entry HV Adj Factor	0.981	0.980	0.980	0.980	0.984	0.980	0.993
Flow Entry, veh/h	484	435	587	662	232	262	15
Cap Entry, veh/h	747	633	920	930	765	782	402
V/C Ratio	0.648	0.687	0.638	0.712	0.303	0.335	0.037
Control Delay, s/veh	16.5	20.6	13.7	16.4	8.3	8.6	9.5
LOS	C	C	B	C	A	A	A
95th %tile Queue, veh	5	5	5	6	1	1	0

Intersection				
Intersection Delay, s/veh	11.6			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	380	277	326	625
Demand Flow Rate, veh/h	387	283	333	637
Vehicles Circulating, veh/h	554	277	497	222
Vehicles Exiting, veh/h	305	553	444	338
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.1	7.2	10.0	14.1
Approach LOS	B	A	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	4.113	4.113	4.113	4.113
Entry Flow, veh/h	387	283	333	637
Cap Entry Lane, veh/h	767	931	798	967
Entry HV Adj Factor	0.981	0.978	0.980	0.981
Flow Entry, veh/h	380	277	326	625
Cap Entry, veh/h	752	910	782	949
V/C Ratio	0.505	0.304	0.417	0.659
Control Delay, s/veh	12.1	7.2	10.0	14.1
LOS	B	A	A	B
95th %tile Queue, veh	3	1	2	5

Intersection							
Intersection Delay, s/veh	14.3						
Intersection LOS	B						
Approach	EB	WB		NB		SB	
Entry Lanes	1	2		2		1	
Conflicting Circle Lanes	2	2		2		2	
Adj Approach Flow, veh/h	695	635		1174		21	
Demand Flow Rate, veh/h	708	648		1198		21	
Vehicles Circulating, veh/h	276	560		442		1137	
Vehicles Exiting, veh/h	882	1080		271		71	
Follow-Up Headway, s	3.186	3.186		3.186		3.186	
Ped Vol Crossing Leg, #/h	0	0		0		0	
Ped Cap Adj	1.000	1.000		1.000		1.000	
Approach Delay, s/veh	9.0	10.7		19.5		7.6	
Approach LOS	A	B		C		A	
Lane	Left	Bypass	Left	Right	Left	Right	Left
Designated Moves	LT	R	LT	TR	LTR	R	LTR
Assumed Moves	LT	R	LT	TR	LTR	R	LTR
RT Channelized	Yield						
Lane Util	1.000		0.471	0.529	0.470	0.530	1.000
Critical Headway, s	4.113		4.293	4.113	4.293	4.113	4.113
Entry Flow, veh/h	437	271	305	343	563	635	21
Cap Entry Lane, veh/h	931	862	742	764	811	829	510
Entry HV Adj Factor	0.981	0.980	0.979	0.982	0.980	0.980	0.990
Flow Entry, veh/h	429	266	299	337	552	622	21
Cap Entry, veh/h	914	845	727	750	795	812	505
V/C Ratio	0.469	0.315	0.411	0.449	0.694	0.766	0.041
Control Delay, s/veh	9.7	7.8	10.4	10.9	17.6	21.2	7.6
LOS	A	A	B	B	C	C	A
95th %tile Queue, veh	3	1	2	2	6	7	0

Intersection				
Intersection Delay, s/veh	25.8			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	342	744	489	402
Demand Flow Rate, veh/h	349	759	499	410
Vehicles Circulating, veh/h	354	526	427	554
Vehicles Exiting, veh/h	610	400	276	731
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.8	48.7	13.6	12.8
Approach LOS	A	E	B	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	4.113	4.113	4.113	4.113
Entry Flow, veh/h	349	759	499	410
Cap Entry Lane, veh/h	882	782	838	767
Entry HV Adj Factor	0.981	0.981	0.980	0.980
Flow Entry, veh/h	342	744	489	402
Cap Entry, veh/h	865	767	821	751
V/C Ratio	0.396	0.971	0.595	0.535
Control Delay, s/veh	8.8	48.7	13.6	12.8
LOS	A	E	B	B
95th %tile Queue, veh	2	15	4	3

Intersection				
Intersection Delay, s/veh	10.6			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	211	380	440	250
Demand Flow Rate, veh/h	215	388	449	255
Vehicles Circulating, veh/h	216	493	210	360
Vehicles Exiting, veh/h	399	166	221	521
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.5	14.7	10.2	8.5
Approach LOS	A	B	B	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	215	388	449	255
Cap Entry Lane, veh/h	910	690	916	788
Entry HV Adj Factor	0.980	0.980	0.981	0.979
Flow Entry, veh/h	211	380	440	250
Cap Entry, veh/h	892	676	898	772
V/C Ratio	0.236	0.562	0.490	0.323
Control Delay, s/veh	6.5	14.7	10.2	8.5
LOS	A	B	B	A
95th %tile Queue, veh	1	4	3	1

Intersection							
Intersection Delay, s/veh	22.9						
Intersection LOS	C						
Approach	EB	WB	NB	SB			
Entry Lanes	1	2	2	1			
Conflicting Circle Lanes	2	2	2	2			
Adj Approach Flow, veh/h	1044	1353	608	15			
Demand Flow Rate, veh/h	1065	1381	621	15			
Vehicles Circulating, veh/h	653	310	526	1636			
Vehicles Exiting, veh/h	998	837	648	55			
Follow-Up Headway, s	3.186	3.186	3.186	3.186			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	34.2	20.2	10.0	10.7			
Approach LOS	D	C	A	B			
Lane	Left	Bypass	Left	Right	Left	Right	Left
Designated Moves	LT	R	LT	TR	LTR	R	LTR
Assumed Moves	LT	R	LT	TR	LTR	R	LTR
RT Channelized	Yield						
Lane Util	1.000		0.470	0.530	0.470	0.530	1.000
Critical Headway, s	4.113		4.293	4.113	4.293	4.113	4.113
Entry Flow, veh/h	521	544	649	732	292	329	15
Cap Entry Lane, veh/h	715	591	896	910	762	782	360
Entry HV Adj Factor	0.981	0.980	0.980	0.980	0.978	0.979	0.993
Flow Entry, veh/h	511	533	636	717	286	322	15
Cap Entry, veh/h	702	579	878	891	745	766	357
V/C Ratio	0.728	0.920	0.725	0.805	0.383	0.421	0.042
Control Delay, s/veh	21.2	46.6	17.7	22.4	9.7	10.2	10.7
LOS	C	E	C	C	A	B	B
95th %tile Queue, veh	6	12	6	9	2	2	0

Intersection				
Intersection Delay, s/veh	21.9			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	554	429	326	723
Demand Flow Rate, veh/h	565	438	333	737
Vehicles Circulating, veh/h	654	360	775	405
Vehicles Exiting, veh/h	488	748	444	393
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	25.6	10.8	13.7	29.4
Approach LOS	D	B	B	D
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	4.113	4.113	4.113	4.113
Entry Flow, veh/h	565	438	333	737
Cap Entry Lane, veh/h	715	878	657	851
Entry HV Adj Factor	0.981	0.979	0.980	0.981
Flow Entry, veh/h	554	429	326	723
Cap Entry, veh/h	701	860	643	835
V/C Ratio	0.790	0.499	0.507	0.866
Control Delay, s/veh	25.6	10.8	13.7	29.4
LOS	D	B	B	D
95th %tile Queue, veh	8	3	3	11

Intersection				
Intersection Delay, s/veh	11.2			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	380	217	228	511
Demand Flow Rate, veh/h	388	222	232	522
Vehicles Circulating, veh/h	483	271	416	194
Vehicles Exiting, veh/h	233	377	455	299
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	14.5	7.0	8.7	11.7
Approach LOS	B	A	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	388	222	232	522
Cap Entry Lane, veh/h	697	862	745	931
Entry HV Adj Factor	0.980	0.980	0.982	0.980
Flow Entry, veh/h	380	217	228	511
Cap Entry, veh/h	683	844	732	912
V/C Ratio	0.557	0.258	0.311	0.561
Control Delay, s/veh	14.5	7.0	8.7	11.7
LOS	B	A	A	B
95th %tile Queue, veh	3	1	1	4