SOUTH PARK SUB AREA
AND HIGH SCHOOL ROAD CORRIDOR
TRANSPORTATION ANALYSIS

FINAL REPORT

Prepared for:

Teton County Planning and Development
200 S. Willow Street, PO Box 1727
Jackson, WY 83001

Prepared by:

Felsburg Holt & Ullevig
6300 South Syracuse Way, Suite 600
Centennial, Colorado 80111
303/721-1440

Project Manager: Jeffrey M. Ream, P.E., PTOE

FHU Reference No. 09-076
June 23, 2010

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

I. INTRODUCTION

A. Project Background

Teton County is considering a northerly extension of Tribal Trail Road (Connector) to intersect with WY 22 in the proximity of the WY 22/Coyote Road intersection. While the Wyoming Department of Transportation (WYDOT) has created a travel demand forecasting model for Teton County that provides insight on the "macro" impacts on the surrounding road network, Teton County would like a better understanding of the Connector impacts on a more localized scale. In particular, Teton County is concerned about the Connector's effects on High School Road and other roadways in the South Park area during the school term, including key intersection level of service analysis and identification of non-motorized user safety issues.

To address these issues, a study area was developed that encompassed the entire South Park area of the County, to assist in determining impacts created by traffic that has an origin or destination within the South Park Area (local traffic), and traffic that passes through South Park on the roads within the study area (through traffic). The project boundaries, for purposes of the network analysis, are generally described as follows:

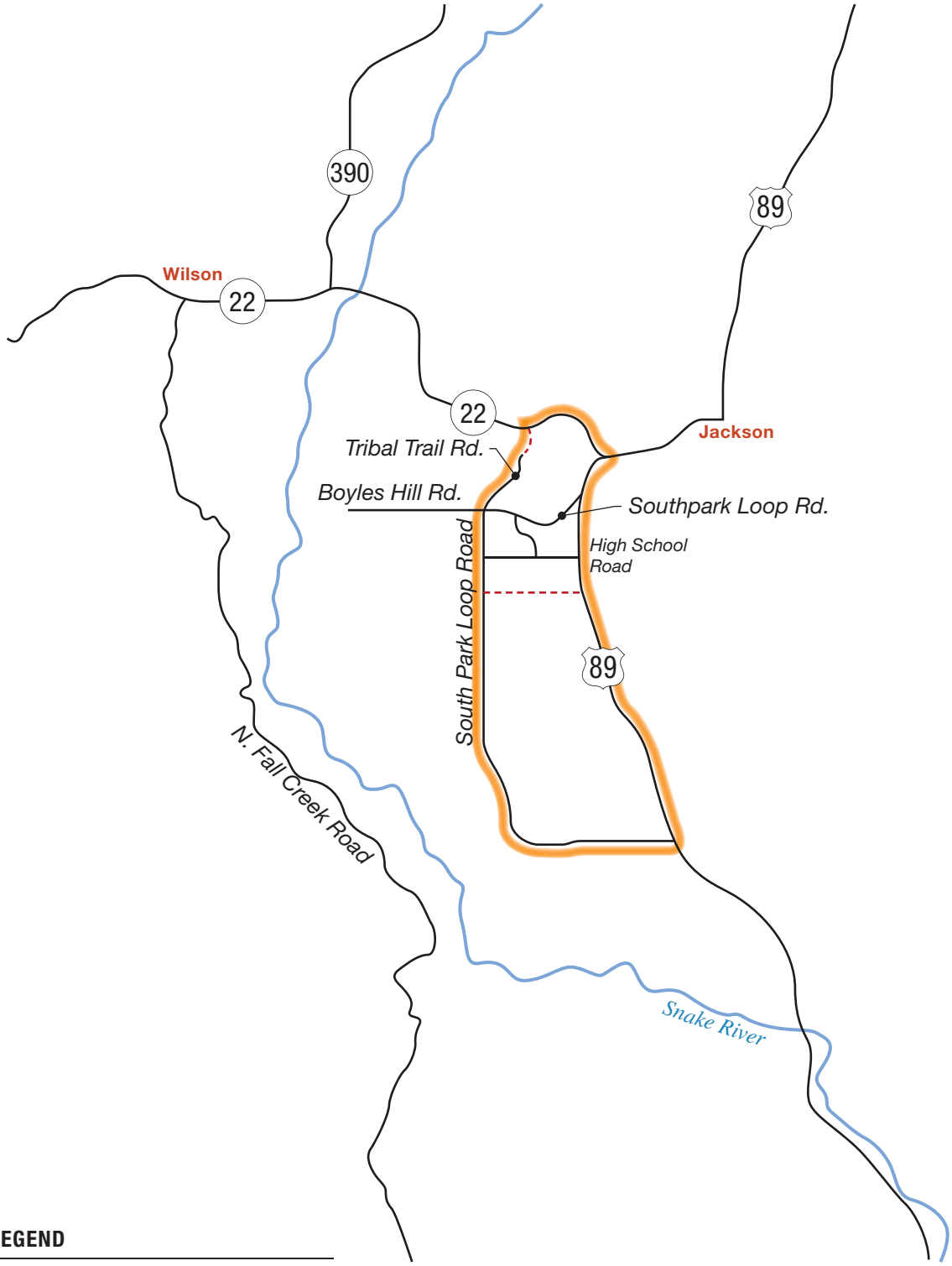
- East boundary - US Highway 26, 89, 189, 191 (WY 89)
- West boundary - South Park Loop Road and Tribal Trail Road
- North boundary – WY 22
- South boundary – South Park Loop Road

Figure 1 shows the study area and the site vicinity.

B. Study Purpose

The purpose of this study was to conduct detailed traffic analyses of the South Park Study Area road system for four roadway scenario and identify intersection/road corridor modifications that would address level of service concerns and non-motorized user safety issues. The scenarios studied included:

- **Existing Conditions** - This scenario examines traffic impacts created on the current road system under current traffic volumes. For the purpose of this analysis, the year 2008 was used.
- **Existing Volumes with Tribal Trail Connector** - This scenario examines traffic impacts in the study area if Tribal Trail was currently available as a travel route.
- **Year 2030 Baseline Conditions** - This scenario examines the traffic impacts associated with long range forecasted traffic volumes for the year 2030. It assumes that the only change to the road system in the study area would be the addition of an east-west connector roadway, located south of High School Road, that would be constructed in conjunction with development in that part of South Park.
- **Year 2030 Conditions with Tribal Trail Connector** – This scenario examines the traffic impacts associated with long-range traffic volumes, the new east-west connector, and the Tribal Trail Connector available as a travel option in the area.



LEGEND

= Study Area

= Potential Future Road

Figure 1
Vicinity Map

FELSBURG HOLT & ULLEVIG

NORTH

II. EXISTING CONDITIONS

A. Roadway Network

The existing roadway network within the study area includes:

- **WY 89** – WY 89 provides the connection between the Town of Jackson and Hoback Junction and other communities to the south. From Town through the study area it is a four-lane roadway with a continuous center left turn lane, but it narrows to two lanes with left turn lanes at key intersections south of the south South Park Loop Road intersection. The Wyoming Department of Transportation (WYDOT) is currently conducting an Environmental Impact Statement that is considering widening options for the two lane section. From Town to High School Road the posted speed limit is 35 mph, which then increases to 55 mph from that point south.
- **WY 22** – WY 22 provides the connection between the Town of Jackson and Wilson, Teton Village and Teton Pass to the west. It is a four lane road with a 35 mph speed limit from the WY 89 intersection to Spring Gulch Road, then a two lane road with a 45 mph speed limit in winter and 55 mph speed limit in summer from that point west.
- **South Park Loop Road** – South Park Loop Road is an east-west collector roadway that runs along the south end of the study area, turns north and continues up to Tribal Trail Road/Boyles Hill Road, then turns east and connects back to WY 89. The north WY 89 intersection is signalized, but all other intersections along the road are unsignalized, including the south intersection with WY 89.
- **High School Road** – High School Road is an east-west collector roadway in the northern portion of the study area that connects South Park Loop Road to WY 89. As its name suggests, Jackson High School is located along the south side of the road about halfway between WY 89 and South Park Loop Road, with Colter Elementary School located on the north side of the road opposite the high school. As such, High School Road experiences significant activity, both vehicle and pedestrian, at the beginning and end of the school day. The WY 89 intersection is signalized (the southern-most signal on the highway), the Middle School Road intersection has all-way stop control, and all other intersections have two-way stop control.
- **Tribal Trail Road** – Tribal Trail Road extends north from the South Park Loop Road/Boyles Hill Road intersection into a residential neighborhood. It currently terminates at Cherokee Lane about ¼ mile south of WY 22, but Teton County documents that date as far back as 1983 have identified the possibility of extending it from its current terminus north to the highway to provide a connection for the South Park area and help ease traffic at the WY 22/WY 89 intersection (the Y).

B. Surrounding Land Use

Currently the study area can be distinctly divided into two areas. From High School road north, the study area consists of suburban residential development on the west side and commercial development on the east along WY 89. South of High School Road the study area takes on a more rural feel of primarily ranch land and large lot residential properties, with industrial/commercial development located along WY 89 north of the south South Park Loop Road intersection. The Rafter J Ranch and Melody Ranch properties provide some higher density residential development along WY 89 near the south end of the study area, as well.

C. Traffic Conditions

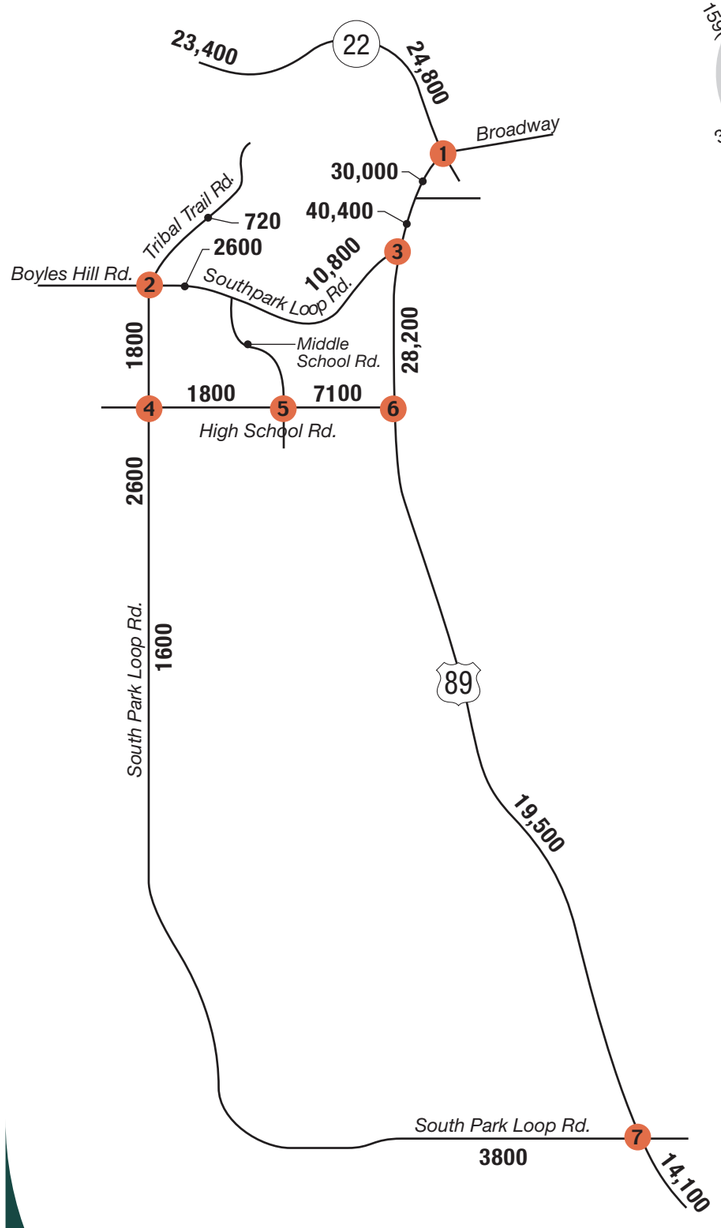
Traffic Volumes

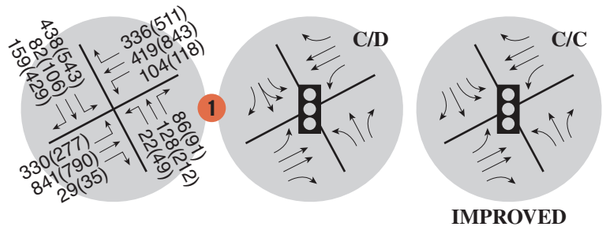
Existing weekday peak hour and daily traffic volumes along vicinity roadways are shown on **Figure 2**. Peak hour and daily volume information was collected from several sources, including WYDOT (2006), the Teton Meadows Ranch Traffic Impact Analysis (July 2007 and February 2008), and an origin-destination study conducted for this project (July 2009). These data were compared and adjusted to reflect a common year (2008). As the figure indicates, traffic volumes on WY 89 are at their lowest at the south end of the study area (14,100 vehicles per day (vpd)) and steadily increase toward town, peaking at 40,400 vpd just north of the north South Park Loop Road intersection Meanwhile, volumes on WY 22 are at their highest just north of the Y (24,800 vpd), then drop slightly to 23,400 vpd in the vicinity of Coyote Road where the Connector would intersect the highway.

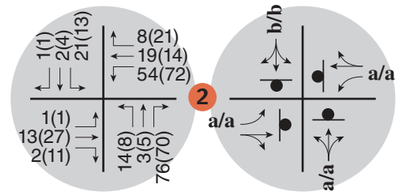
South Park Loop Road carries 3,800 vpd just west of the south WY 89 intersection, drops down to 1,600 vpd west of Melody Ranch, then increases slowly as it turns north, peaking at 2,600 vpd just south of High School Road then dropping slightly just north of there. Once it turns east at Boyles Hill Road traffic increases steadily until it reaches 10,800 vpd just west of the north WY 89 intersection.

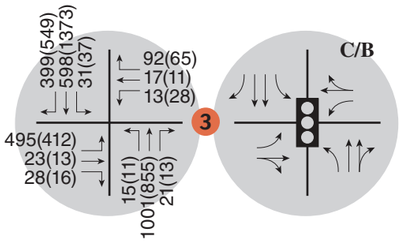
High School Road carries approximately 7,100 vpd just west of WY 89, with Gregory Lane and the High School drawing off significant volumes so that traffic drops to 1,800 vpd east of South Park Loop Road.

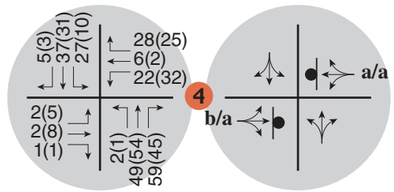
Tribal Trail Road currently carries around 700 vpd, which is consistent with its current function as a neighborhood collector road.

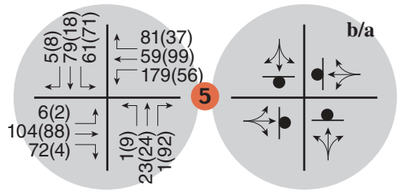


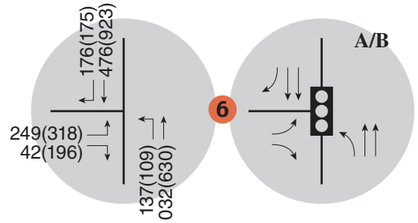


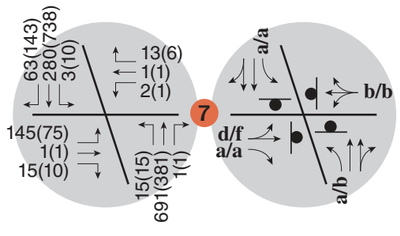












LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
X/X	=	AM/PM Peak Hour Signalized Intersection Level of Service
x/x	=	AM/PM Peak Hour Unsignalized Intersection Level of Service
	=	Potential Future Road
X	=	Intersection Number
XX%	=	Site Trip Distribution
	=	Stop Sign
	=	Traffic Signal

Figure 2
Existing Traffic Conditions

NORTH

Traffic Operations

Traffic operations were evaluated according to techniques documented in the Highway Capacity Manual, Transportation Research Board (TRB), 2000. Level of Service (LOS) is a qualitative measure of traffic operational conditions, based on roadway capacity and vehicle delay. Levels of service are described by a letter designation ranging from A to F, with LOS A representing the best possible operating conditions and LOS F representing over-capacity, or congested conditions. At signalized intersections an overall level of service is reported, representing a weighted average vehicle delay for all movements. For unsignalized intersections, levels of service are calculated for each movement that must yield the right-of-way to other traffic movements; levels of service are not calculated for free-flow movements, as they are not subject to intersection delay.

To assess the sufficiency of traffic operations at each intersection, two different sets of level of service standards are used within the study area. For intersections on state highways, WYDOT's level of service standard of LOS C or better applies, while for intersections of non-state highways, Teton County's level of service standard of LOS D or better applies.

Figure 2 shows current levels of service at the key intersections within the study area during the morning (7-9 AM) and afternoon (4-6 PM) peak periods. As the figure indicates, all three of the unsignalized non-state highway intersections in the study area operate at LOS B or better and therefore meet Teton County's Level of Service Standard (LOS D or better).

For the four intersections along state highways, two--the WY 89/North South Park Loop Road and WY 89/High School Road intersections--operate at LOS C or better during both peak periods and therefore meet WYDOT's standard.

At the WY 22/WY 89 signalized intersection, afternoon operations currently perform at LOS D, which exceeds WYDOT's standard. Reconstructing the north leg of the intersection to provide dual left turn lanes, a through lane and a right turn lane would improve operations to LOS C in the afternoon and therefore enable it to meet the standard.

At the unsignalized WY 89/South Park Loop Road intersection the eastbound left turn operates at LOS F during the PM peak hour and thus also exceeds WYDOT's standard. With a traffic signal the intersection would operate at LOS A in the afternoon and meet the standard. However, it should be noted that is not uncommon for movements from driveways and side streets along higher volume roadways to experience poor levels of service, and, as noted in Chapter 17 (Unsignalized Intersections) of the Highway Capacity Manual (2000):

> *In evaluating the overall performance of two-way stop control intersections, it is important to consider measures of effectiveness in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95th percentile queue lengths. By focusing on a single measure of effectiveness for the worst movement only, such as delay for the minor street left turn, users may make less effective traffic control decisions.*

In the afternoon, the volume to capacity (v/c) ratio for the left turn movement is 0.57, with a 95th percentile queue length (generally regarded as the longest anticipated queue) of 75 feet, which is about three vehicles. These measures indicate the movement is operating under capacity (the v/c ratio is less than 1.0) with relatively minor backups during that period, and suggests the intersection would not necessarily need to be signalized. In other words, while a signal would be needed to meet WYDOT's level of service standard, the intersection currently functions adequately based on other measures. Given this, no improvements would be recommended for existing conditions.

Based on the analysis, it would appear that the existing road system would need one roadway improvement to meet County and/or WYDOT level of service standards under current traffic volume levels:

- **WY 22/WY 89** – Widen the north leg of this intersection to provide dual southbound left turn lanes, a through lane and a right turn lane.

All levels of service worksheets are included in Appendix E.

High School Road Traffic Operations

As noted above, all intersections in the north study area operate at levels of service that meet Teton County's standards. For High School Road, the signalized intersection at WY 89 operates at LOS A in the morning and LOS B in the afternoon, the unsignalized all-way stop at Middle School Road operates at LOS B in the morning and LOS A in the afternoon and the High School Road approaches at South Park Loop Road operate at LOS A/B in the morning and LOS A in the afternoon.

While these represent excellent to very good levels of service in general, the presence of the high school does create localized periods of congestion immediately before and immediately after school. In those cases, the drop off/pick up area within the high school fills up with vehicles and traffic spills back onto High School Road. These queues peak around five minutes before school begins and five minutes after it ends, and extend from the Middle School Road intersection east to the Smith's parking lot. At no time over the course of several days of observations did the queue extend into the High School Road intersection, but that may occur with either an expansion of school enrollment or increased westbound traffic volumes on High School Road during those localized periods.

A discussion of nonmotorized conditions on High School Road and other roadways in the north study area is presented in Section VII of this study.

III. EXISTING CONDITIONS WITH TRIBAL TRAIL CONNECTOR

A. Origin Destination Study

To assist in determining traffic projections for the Tribal Trail Connector, an origin-destination study was conducted in July 2009. The O-D study was undertaken to provide field data that quantifies the traffic volume that could potentially use the proposed Connector to WY 22 west of town. The intent of the study was to quantify the traffic volumes traveling between the West End (i.e., Teton Pass, Wilson and the Teton Village Road) and the north end of South Park (local traffic); south South Park (also local traffic); and areas south of Jackson (through traffic), so survey stations were set up on the west side, in north South Park, in south South Park and on WY 89 south of South Park. This field data was then used in conjunction with Teton County's travel demand forecasting model to project traffic volumes on that road in both the near term and long term. A detailed summary of the O-D study methodology and results is provided in Appendix B.

Table 1 summarizes the overall traffic forecast for travel between the West End, South Park and areas south of town and provides the percentage of traffic from each area relative to the total traffic volume on WY 22 on the west side. As the table indicates, approximately 6,150 vehicles per day travel between those areas, which represents 27 percent of the total daily traffic volume on WY 22 at the Snake River Bridge. Of that total, approximately 2,690 vpd (12 percent) is from the north end of South Park, 1,710 vpd (seven percent) is from south South Park, and 1,710 (eight percent) is through traffic from south of town.

Table 1. Origin Destination Study Results

Between	Total Daily Volume	West-South Forecast Volume	Percent Of Total
Hwy 22 east of Hwy 390	23,100	6,150	27%
And			
North South Park Loop		1,730	8%
High School Road		960	4%
North South Park Total		**2,690**	**12%**
Big Trail Drive		410	2%
South South Park Loop Road		500	2%
Other South South Park Road and Driveways		800	3%
South South Park Total		**1,710**	**7%**
Combined South Park Total		**4,400**	**19%**
Hwy 89 South of South Park Loop		1,750	8%
Through Traffic Total		**1,750**	**8%**

It should be noted that the above volumes represent the total traffic travelling between the west side and the south end that might potentially use the Connector, but it does not represent an actual traffic forecast for that road, since it is anticipated that some drivers will continue to use WY 89 and WY 22 even after the extension is complete and some traffic may use the Connector to travel between the west side and the Town of Jackson.

B. Travel Demand Forecasting Model

As noted previously, WYDOT developed a travel demand forecasting model for Teton County to assist in providing future traffic projections throughout the area. For this analysis, the WYDOT model was updated with the most recent existing socio-economic forecasts from the comprehensive plan (data compiled in April 2010) and then calibrated to reflect the existing traffic volumes within the South Park study area. Once the initial calibration was complete, as a further check, the model's traffic forecasts of travel between the West End, South Park and south of town were compared to the results of the O-D study. Table 2 shows the comparison and indicates the model does a reasonable job of match the O-D study results, forecasting both south of town to west side and South Park to west side trips within two percent of the O-D study results.

Table 2. Comparison of O-D Study Results and Model Travel Forecasts

Location	Daily Volume[1]	O-D Study Trips		Model Volume	Model Trips[2]	
		South of Town	South Park		South of Town	South Park
Hwy 22 east of Hwy 390	23,100	1,750	4,400	29,073	1,697	4,799
		8%	19%		6%	17%
		West of Town			**West of Town**	
Hwy 89 S of South Park Loop	14,050	1,750		13,652	1,697	
		12%			12%	

1. July 2008 Count
2. Existing (2008) High School Road Travel Demand Forecasting Model

C. Traffic Forecasts for Tribal Trail Connector

The calibrated travel demand model was then used to forecast travel pattern changes that would result from the Tribal Trail Connector under existing traffic conditions. First, a select link analysis was conducted for the Connector to determine the trip distribution on the local roads within the study area and to determine the ultimate destinations within the community of all trips using the new link.

Figure 3 shows the results of the select link analysis for the Connector. As the figure indicates, the vast majority of the Connector traffic (70 percent) would use the east-west segment of South Park Loop Road at the north end of the study area to travel between the Connector and either the local neighborhood/schools/businesses on the west side of WY 89 (in the case of local trips) or WY 89 (in the case of through trips).

Figure 3
Distribution of Existing Tribal Trail Connector Traffic on Study Area Roads

FELSBURG HOLT & ULLEVIG

Furthermore, as indicated in the figure and in Table 3, a relatively high portion of the traffic on the Connector is from local trips that have origins or destinations within the South Park area; over 60 percent of the traffic on the Connector is local traffic that already uses the South Park study area road system. Of the 3,600 through trips using the Connector, roughly two out of three are headed to and from town and only one out of three is headed to and from south of town.

As a final note, the model forecasts indicate that approximately 72 percent of the through trips between south of Town and the west side would shift to the Connector (1,225 out of 1,700 vpd).

Table 3. Existing Tribal Trail Connector Traffic by Destination

Between	And	Volume	Percent
West Side	South Park[1] (local)	4,960	55%
	Town (through)	2,330	26%
	South of Town (through)	1,225	13%
South Park	Town (local)	500	6%
	Total	**9,015**	
	Local Traffic	5,460	61%
	Through Traffic	3,555	39%

1. Local trips include trips to/from the developments on the east side of WY 89 between South Park Loop Road and High School Road. If those 750 daily trips are re-classified as through trips, the percentages change to 52 percent local and 48 percent through trips.

Connector Traffic Using High School Road

High School Road is the second most popular travel route for Connector traffic, but it is projected to carry far less traffic than the north end of South Park Loop Road in the near term. As Figure 3 indicates, the west end of High School Road would only attract nine percent of Connector traffic (roughly 850 vpd). Around 200 vpd of these trips are local traffic with origins or destinations along High School Road and the rest (650 vpd) is traffic that travels the length of High School Road to WY 89 and continues south to either other parts of South Park or out of the study area.

D. Overall Traffic Forecasts for South Park Study Area

Since the Connector attracts local trips from within South Park in addition to through trips, its construction will result in changes to existing travel patterns that will increase traffic on some study area roads and decrease traffic on others.

For instance, a person living along High School Road heading to the west side currently travels east to WY 89 then north to the Y and WY 22, but with the new Connector might travel west to South Park Loop Road, then north to WY 22 via Tribal Trail Road. As a result, their change in travel pattern would reduce traffic on the east end of High School Road and the north part of WY 89 by one trip, but would add a trip to the west end of High School Road and the north part of South Park Loop Road.

At the same time a vehicle travelling north on WY 89 might shift over to the Connector using High School Road, further reducing traffic on WY 89 by one trip north of there, replacing the local trip on the east end of High School Road from above, and adding an additional trip to the west end of High School Road and the north part of South Park Loop Road.

The net result of these two travel pattern changes would be two fewer trips on the north part of WY 89, no change in trips on the east end of High School Road, and two additional trips on the west end of High School Road and the north part of South Park Loop Road. With the Connector, it would be anticipated that similar types of trip changes would occur throughout the study area, and therefore change overall traffic forecasts on each link of most of the study area roads.

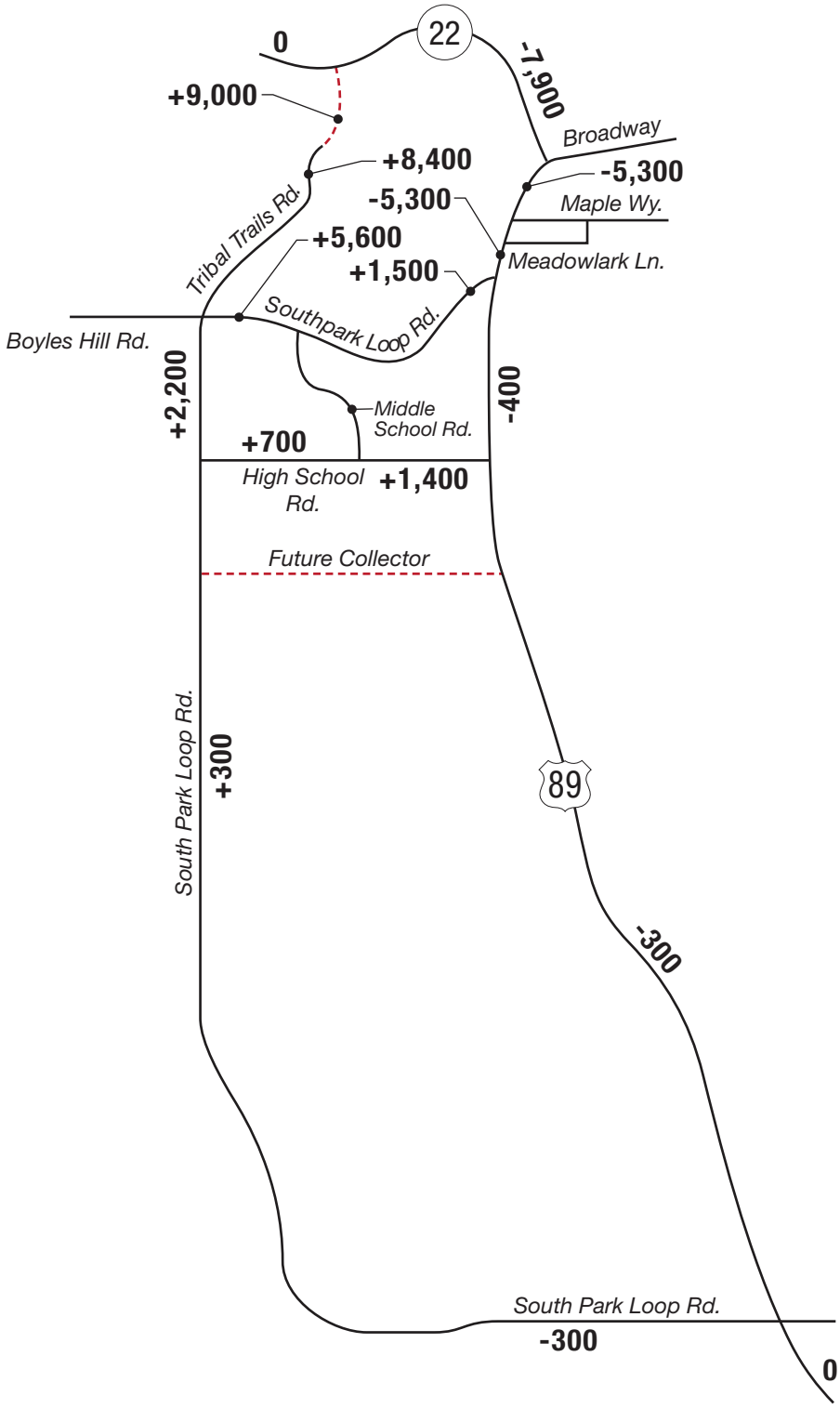
So, to determine the overall net changes in traffic on study area roadways that result from the Connector's construction, model runs were conducted both with and without the Connector, and the difference between the two model runs was applied to the existing traffic volumes on the road network for each critical roadway link. The net changes in daily traffic resulting from the Connector are presented in **Figure 4** and the overall traffic forecasts for the study area are presented in **Figure 5**.

Traffic Operations

Figure 5 also shows the projected levels of service at each key intersection within the study area. As the figure indicates, all four signalized intersections along state highways in the study area continue to operate at LOS C or better during both peak hours and therefore meet WYDOT's Level of Service Standards. Of particular note, the shift in traffic away from the Y due to the Connector improves operations there from LOS D in the afternoon today, with an average delay per vehicle of 39 seconds, to LOS C with an average delay of 23 seconds per vehicle. This equates to an overall reduction of approximately 23 vehicle-hours of delay each day during the afternoon peak hour alone.

Similarly, all three unsignalized non-state highway intersections in the north part of the study area operate at LOS B or better and therefore also meet Teton County's level of service standard (while traffic volumes increase because of the Connector, they still remain at a level where the current traffic control and lane geometry can adequately accommodate them). It should be noted that construction of the Connector would require a change in traffic control at the South Park Loop Road/Tribal Trail Road intersection from two-way stop control to all-way stop control, and no roadway geometry improvements (such as additional turn lanes) would be required there.

Based on the traffic volume forecasts for Tribal Trail Road and the Connector, it would appear that the appropriate lane geometry would be one lane in each direction. This geometry will allow traffic from the existing local roads along it to turn left out of their neighborhoods with relatively minor delays (around 10-15 seconds per vehicle, which represents LOS B/C conditions).



LEGEND

XXXX = Overall Volume Change

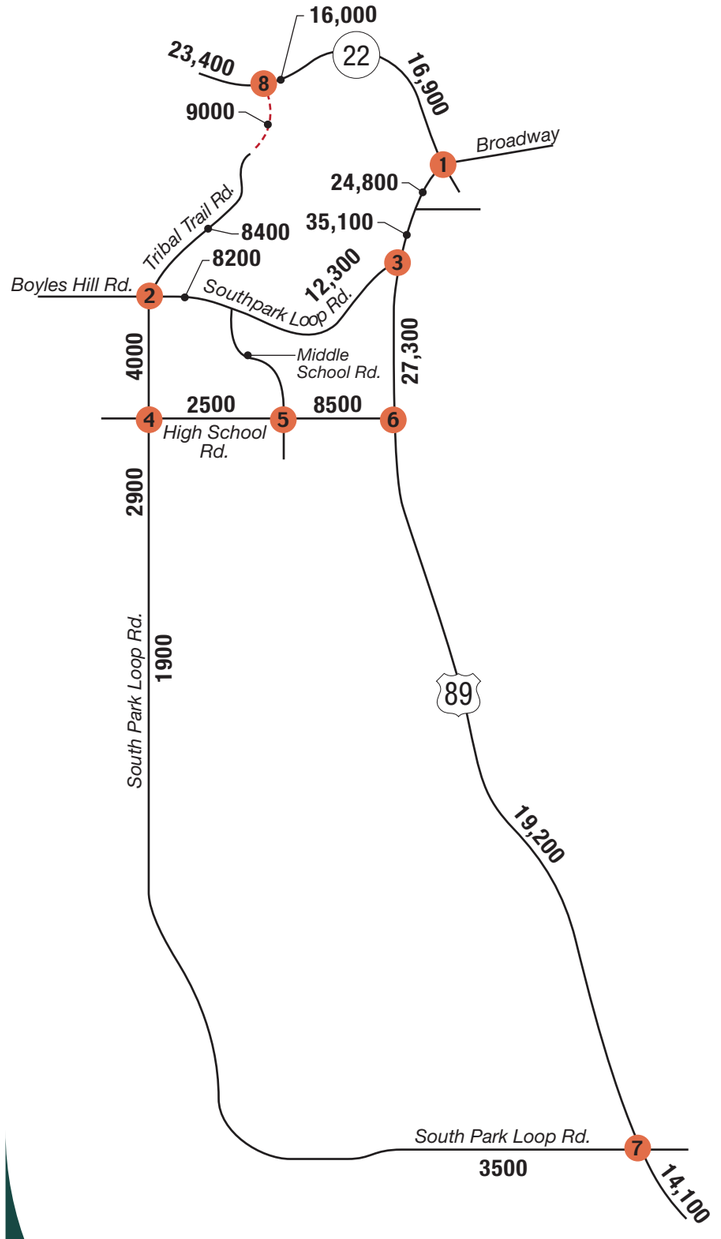
= Potential Future Road

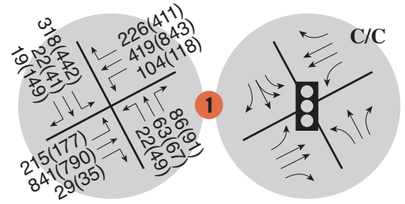
Figure 4

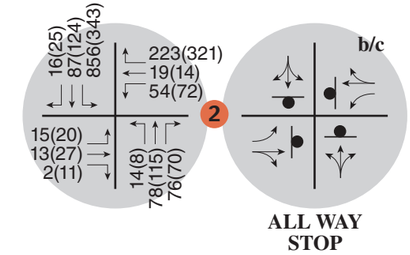
Overall Changes in Existing Traffic Volumes Resulting from Tribal Trail Connection

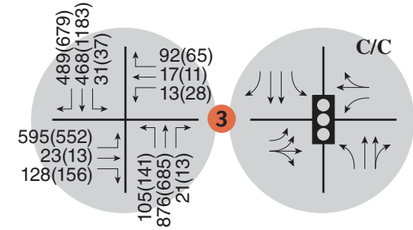
FELSBURG HOLT & ULLEVIG

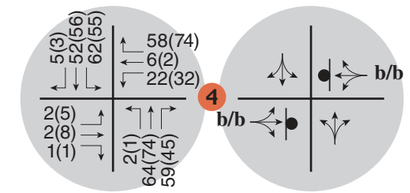
NORTH

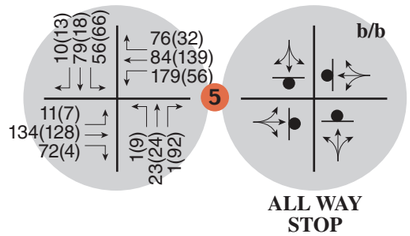


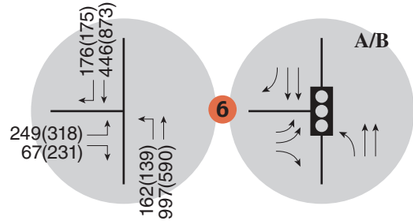


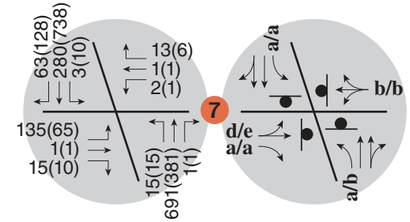


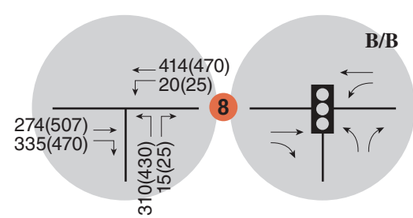












LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
X/X	=	AM/PM Peak Hour Signalized Intersection Level of Service
x/x	=	AM/PM Peak Hour Unsignalized Intersection Level of Service
	=	Potential Future Road
X	=	Intersection Number
XX%	=	Site Trip Distribution
	=	Stop Sign
	=	Traffic Signal

Figure 5
Existing Traffic Conditions with
Tribal Trail Road Connection

NORTH

The only location that exceeds WYDOT's standard is at the unsignalized WY 89/South Park Loop Road intersection, where the eastbound left turn operates at LOS E during the PM peak hour. In the afternoon, the volume to capacity (v/c) ratio for the left turn movement is 0.45, with a 95th percentile queue length of 50 feet, or two vehicles. These conditions are slightly better than they are currently because the Connector draws a small volume of traffic from the developments in the southwest portion of the study area away from this location (roughly 300 vpd). As a result, the movement continues to operate under capacity (the v/c ratio is less than 1.0) with relatively minor queuing during that periods, and would not warrant any improvements.

Based on the analysis, it would appear that the road system could adequately accommodate the immediate changes in travel patterns and traffic volumes that would result from constructing the Tribal Trail Connector, with the appropriate laneage and traffic control provided on the new Connector and one minor improvement to the existing road system:

- **WY 22/Tribal Trail Connector** – Signalize this new intersection and provide an eastbound right turn lane, a westbound left turn lane and separate northbound left and right turn lanes.
- **Tribal Trail Road** – Construct the Connector as a two lane road. The road's should be designed to a 30 mph design speed to maintain reasonable travel speeds and discourage it's use as a cut-through route.
- **South Park Loop Road/Tribal Trail Road** – convert this existing intersection from two way stop control to all-way stop control.

High School Road Traffic Operations

For High School Road, Figure 4 indicates that construction of the Connector would increase traffic on the east end by approximately 1,400 vpd and on the west end by 700 vpd, while Figure 5 indicates that these traffic volume changes are slight enough that they don't significantly change levels of service from existing conditions. Specifically, with the increased traffic the signalized intersection at WY 89 would continue to operate at LOS A in the morning and LOS B in the afternoon, the unsignalized all way stop at Middle School Road would continue to operate at LOS B in the morning but drop from LOS A to LOS B in the afternoon and the High School Road approaches at South Park Loop Road would drop from LOS A/B to LOS B in the morning and from LOS A to LOS B in the afternoon. So although there would be some additional delay associated with the increased traffic, overall corridor operations would continue to be very good.

It should be noted, however, that the localized congestion created by the high school will continue to occur with the Connector, and that if any increases in traffic due to the Connector occur during those short periods before and after school, it might result in traffic queues spilling back past the Smith's parking lot into the WY 89 intersection. It seems more likely, however, that Connector traffic would avoid High School Road during those brief periods of school activity and instead use north South Park Loop Road.

IV. 2030 FUTURE BACKROUND TRAFFIC CONDITIONS

A. Road System Changes

One road system change was assumed for the 2030 background analysis. Teton County is considering constructing a new connector road between WY 89 and South Park Loop Road south of High School Road to accommodate future development associated with that part of the study area, so for the purpose of this analysis, that new connector was assumed to be completed by 2030 and a part of the background road system.

B. 2030 Traffic Forecasts

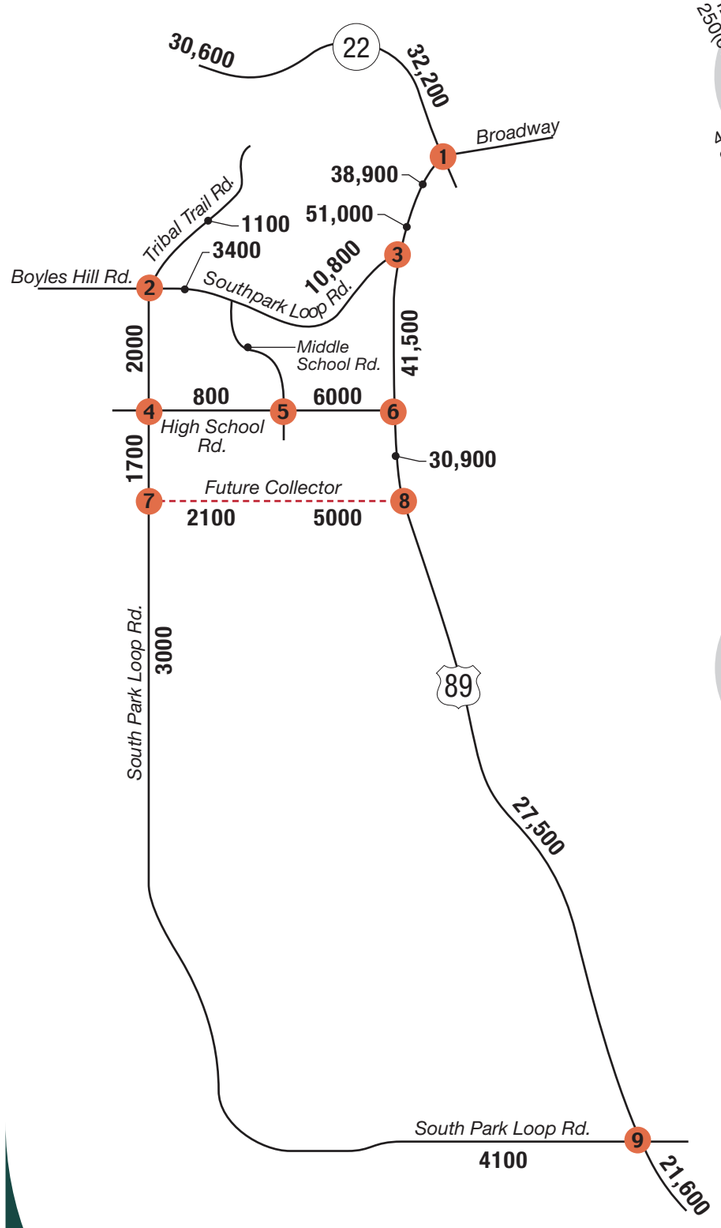
The WYDOT travel demand model used to generate the existing traffic volume forecasts discussed above was also used to generate future traffic conditions. To achieve this, the socio-economic data that had been developed for the Teton County Comprehensive Plan Update (from April 2010) was input into the baseline travel demand model that consisted of the existing road network plus the new connector roadway. The resulting traffic forecast were used in conjunction with the forecasts from the existing conditions model to develop growth rates for each link in the sub area, which were then applied to the existing traffic counts on those links. **Figure 6** shows the projected 2030 baseline traffic conditions that resulted from this process. As the figure indicates, the new east-west connector south of High School Road is anticipated to carry 5,000 vpd on the east end and 2,100 vpd on the west end. Around 60 percent of this traffic is from the new development planned for that part of South Park, while the other 40 percent (2,000 vpd) is traffic that has shifted away from South Park Loop Road and High School Road. As a result of this shift, the 2030 traffic forecasts for north South Park Loop Road just west of WY 89 is 10,800 vpd, which is the same as existing volumes, while the future forecast for High School Road is 6,000 vpd, or 1,100 vpd less than existing conditions.

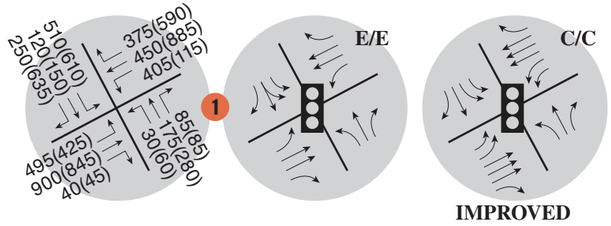
It is also worth noting that 2030 baseline traffic forecasts on WY 89 would exceed 50,000 vpd north of South Park Loop Road and traffic forecasts on WY 22 north of the Y exceed 40,000 vpd. The volume forecast for WY 89 would be at or above the upper capacity threshold for a four lane arterial, which would lead to longer periods of higher congestion and call for the widening of that road to six lanes.

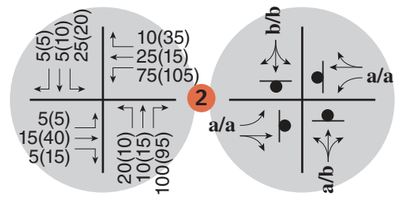
Traffic Operations

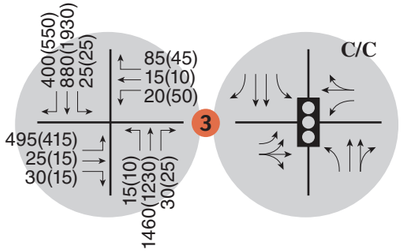
Figure 6 also shows the projected levels of service at each key intersection within the study area. As the figure indicates, under baseline conditions, the Y intersection would operate at LOS E in both the morning and afternoon. To meet WYDOT's LOS C Standard, WY 89 would need to be widened to six lanes in each direction through the area (i.e. between north South Park Loop Road and Pearl Street) and the intersection would need to be widened to provide dual left turn lanes on the eastbound, westbound and southbound approaches.

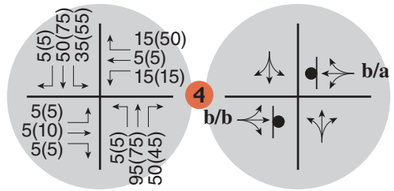
The north WY 89/South Park Loop Road and WY 89/High School Road intersections both operate at LOS C or better and therefore meet WYDOT's standard.

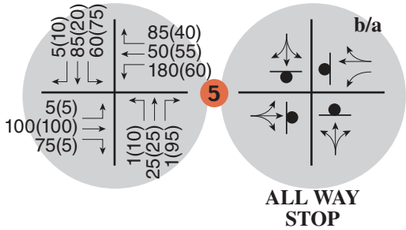


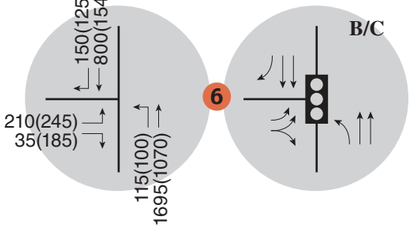


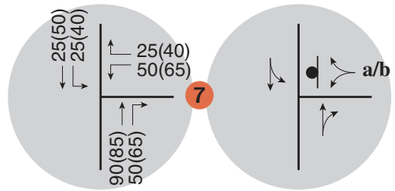


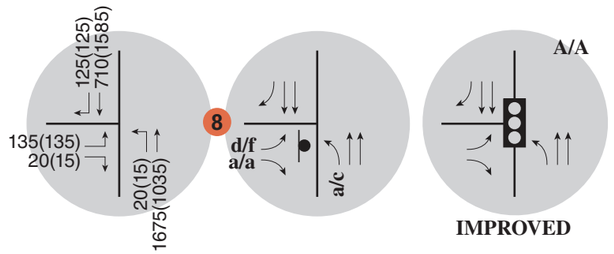


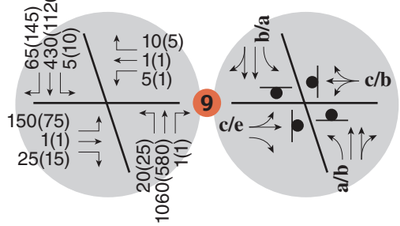












LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
X/X	=	AM/PM Peak Hour Signalized Intersection Level of Service
x/x	=	AM/PM Peak Hour Unsignalized Intersection Level of Service
	=	Potential Future Road
X	=	Intersection Number
XX%	=	Site Trip Distribution
	=	Stop Sign
	=	Traffic Signal

Figure 6
2030 Baseline Traffic Conditions

FELSBURG HOLT & ULLEVIG

NORTH

At the WY 89/New East-West Connector Road intersection, outbound left turns would operate at LOS F in the afternoon peak period. The v/c ratio would exceed 1.0 and 95th percentile queues are projected to be around 10 vehicles, which would indicate that the intersection would be better served by a traffic signal.

At the south WY 89/South Park Loop Road intersection, eastbound left turns would continue to operate at LOS E during the PM peak hour, and the v/c ratio and projected queues would also continue to be similar to what occurs there today, largely because future traffic volumes are projected to be quite similar to existing volumes. As a result, it would appear that location would not warrant any improvements in the long term.

All three of the existing unsignalized non-state highway intersections in the north part of the study area operate at LOS B or better and therefore also meet Teton County's level of service standard (while traffic volumes increase as a result of further development throughout the area, they still remain at a level where the current traffic control and lane geometry can adequately accommodate them). The unsignalized intersection of the new east-west connector road and South Park Loop Road would also operate at LOS B or better.

Based on the analysis, it would appear that the baseline road system would need the following improvements to adequately accommodate 2030 baseline traffic forecasts:

- **WY 89** – Widen the highway to three through lanes in each direction between north South Park Loop Road and Pearl Street.
- **WY 89/WY 22 (aka the Y)** – Widen this intersection to provide two eastbound left turn lanes, two westbound turn lanes and two southbound left turn lanes.
- **WY 89/New Connector** – At this new intersection, install a traffic signal and provide a northbound left turn lane, a southbound right turn lane, and separate eastbound left and right lanes.

High School Road Traffic Operations

As noted above, future traffic volumes on High School Road are forecast to drop by around 1,100 vpd from existing conditions due to the construction of the new east-west connector roadway to the south. As a result, traffic operations on High School Road are anticipated to be similar to existing conditions, even with increased development in the South Park area. Specifically, while the signalized intersection at WY 89/High School Road would drop from LOS A to LOS B in the morning and from LOS B to LOS C in the afternoon due to increased through traffic on the highway, the unsignalized all way stop at Middle School Road would continue to operate at LOS B in the morning and LOS A in the afternoon and the High School Road approaches at South Park Loop Road would operate at LOS B in the morning and LOS A/B in the afternoon.

The reduction in traffic volumes may also reduce the length of the queues during the localized congestion immediately before and immediately after school, but it is anticipated that nearly all of the traffic on High School Road during those periods is associated with the high school, so residents should not expect any dramatic change from current conditions. In other words, instead of vehicles back up to the Smith's parking lot, in the future they may instead only back up to just beyond Gregory Lane, but in either case roadway travelers caught up in that congestion would experience similar delays.

V. 2030 FUTURE TRAFFIC CONDITIONS WITH TRIBAL TRAIL CONNECTOR

A. Traffic Forecasts for Tribal Trail Connector

The travel demand model used to project the above 2030 baseline traffic conditions was also used to forecast future travel pattern changes that would result from the Tribal Trail Connector. To do so, the Connector was added to the baseline road system in the model, and traffic forecasts were developed based on the most recent (April 2010) socio-economic forecasts for the County from the Comprehensive Plan update.

As was done for existing conditions with the Connector, a select link analysis was conducted for future traffic on the Connector to determine travel routing on the local roads and to determine the ultimate destinations within the community of all trips using the new link. **Figure 7** shows the results of the select link analysis for the Connector. As the figure indicates, while most Connector traffic uses the east-west segment of South Park Loop Road at the north end of the study area (similar to existing conditions with the Connector), in the future a much greater percentage of Connector traffic shifts down to High School Road. This is likely a result of increased traffic and higher congestion on WY 89 north of High School Road in the future, which increases delays at the north WY 89/South Park Loop Road intersection and makes shifting over to the new Connector on a road further south a more appealing option.

Furthermore, as indicated in the figure and in Table 4, in the future a higher portion of the traffic on the Connector would be from trips that have origins or destinations within the South Park area; 70 percent of the trips in the future would be local trips, versus 60 percent in the existing analysis. Additionally, of the 4,000 through trips using the Connector, only one out of four are headed to and from town (down significantly from two out of three in the existing analysis) and three out of four is headed to and from south of town. This shift away from using the Connector as alternate route into town may also be a result of increased traffic and congestion on WY 89 north of South Park Loop Road; with fewer trips and less congestion on WY 22 and shorter delays at the Y, staying on that road would become the more appealing travel option for trips between the West End and town.

The model forecasts also indicate that approximately 86 percent of the through trips between south of Town and the West End would shift to the Connector (3,200 out of 3,700 vpd), an increase of 14 percent from the 72 percent under existing volumes.

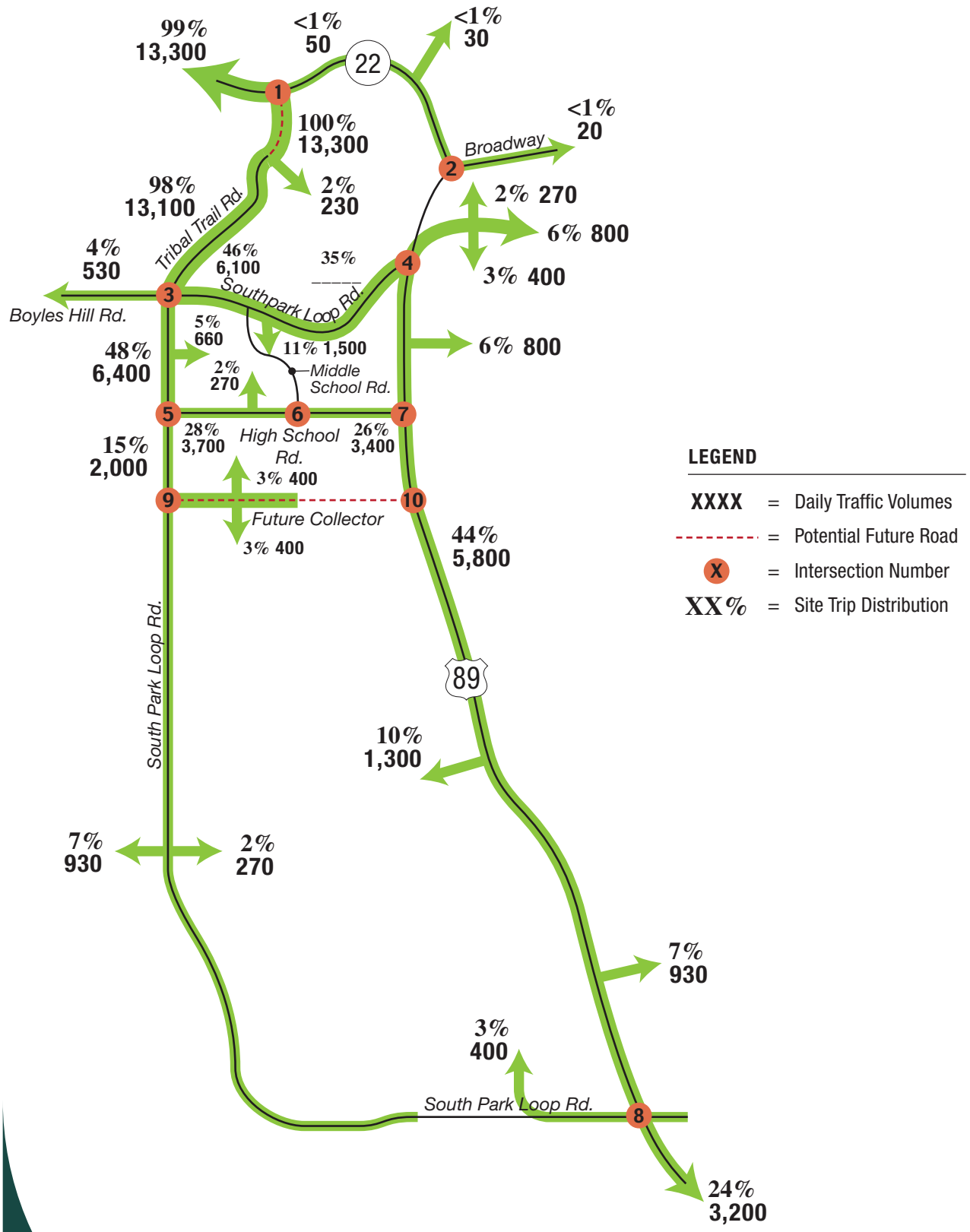


Figure 7
Distribution of Future Tribal Trail Connector Traffic on Study Area Roads

FELSBURG HOLT & ULLEVIG

NORTH

Table 4. 2030 Tribal Trail Connector Traffic by Destination

Between	And	Volume	Percent
West Side	South Park[1] (local)	9,250	69%
	South of Town (through)	3,180	24%
	Town (through)	855	6%
South Park	Town (local)	35	<1%
	Total	**13,320**	
	Local Traffic	9,285	70%
	Through Traffic	4,035	30%

1. Local trips include trips to/from the developments on the east side of WY 89 between South Park Loop Road and High School Road. If those 785 daily trips are re-classified as through trips, the percentages change to 64 percent local and 36 percent through trips.

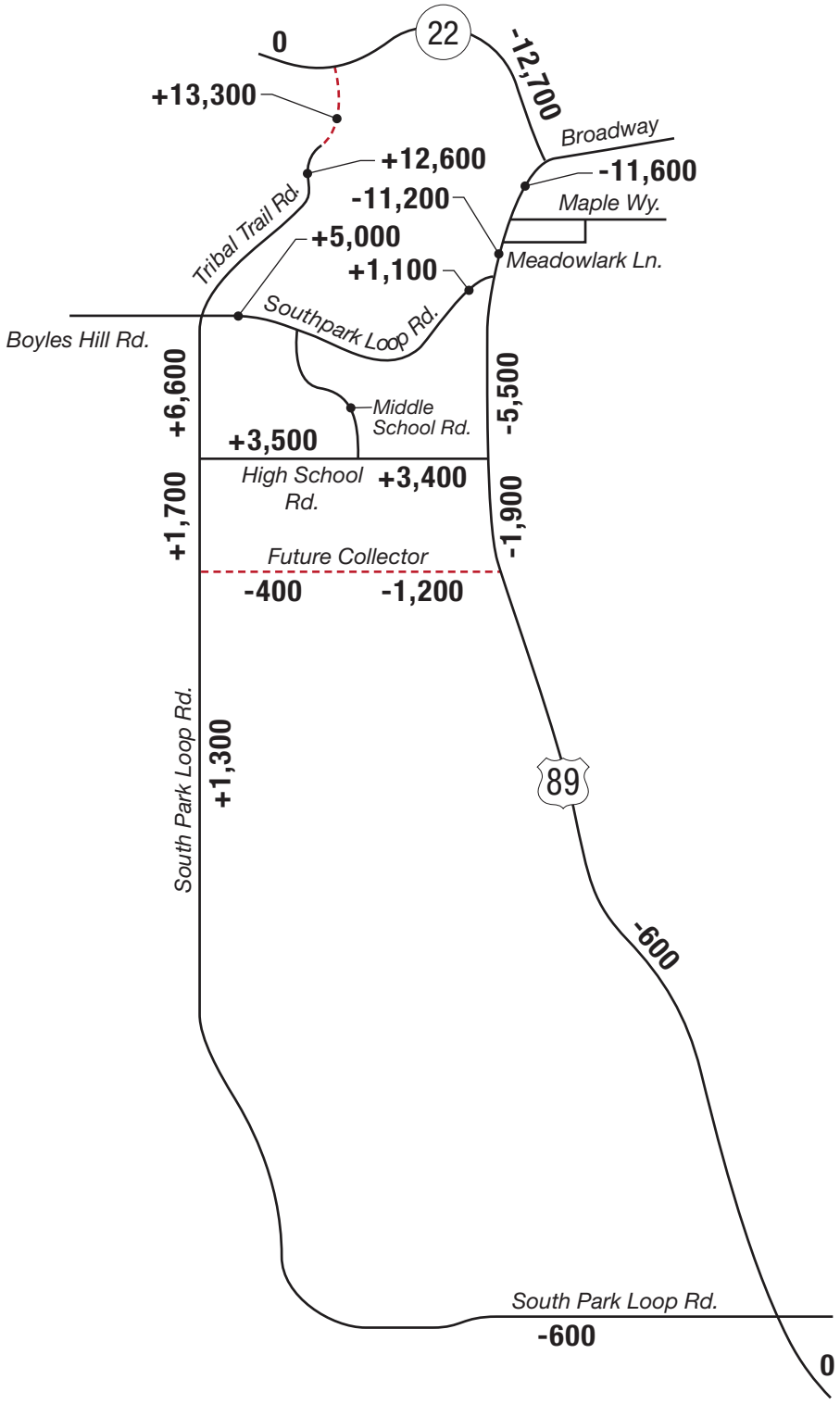
As a final note, construction of the Connector is forecast to reduce the travel demand on WY 89 north of north South Park Loop Road and on the new east-west connector south of High School Road over baseline conditions. As a result, volumes on the highway would peak at 39,700 vpd and not appear to require widening of the roadway. Meanwhile, volumes on the new collector are anticipated to be 3,800 vpd on the east end near WY 89 and 1,700 vpd on the west end near South Park Loop Road.

Connector Traffic Using High School Road

As noted above, High School Road becomes a much more popular travel route for Connector traffic in the long term future than it is in the near term. As Figure 3 indicates, the west end of High School Road would attract 28 percent of Connector traffic (roughly 3,700 vpd). As with existing volumes, around 200 vpd of these trips are local traffic with origins or destinations along High School Road while the rest (3,500 vpd) is traffic that travels the length of High School Road to WY 89 and continues south to either other parts of South Park or out of the study area.

B. Overall Traffic Forecasts for South Park Study Area

As with the existing analysis of the Tribal Trail Connector, to determine the overall net changes in traffic on study area roadways in the future that result from the Connector's construction, model runs were conducted both with and without the Connector, and the difference between the two model runs was applied to the 2030 baseline traffic volumes on the road network for each critical roadway link. The net changes in daily traffic resulting from the Connector are presented in **Figure 8** and the overall traffic forecasts for the study area are presented in **Figure 9**.



LEGEND

XXXX = Overall Volume Change

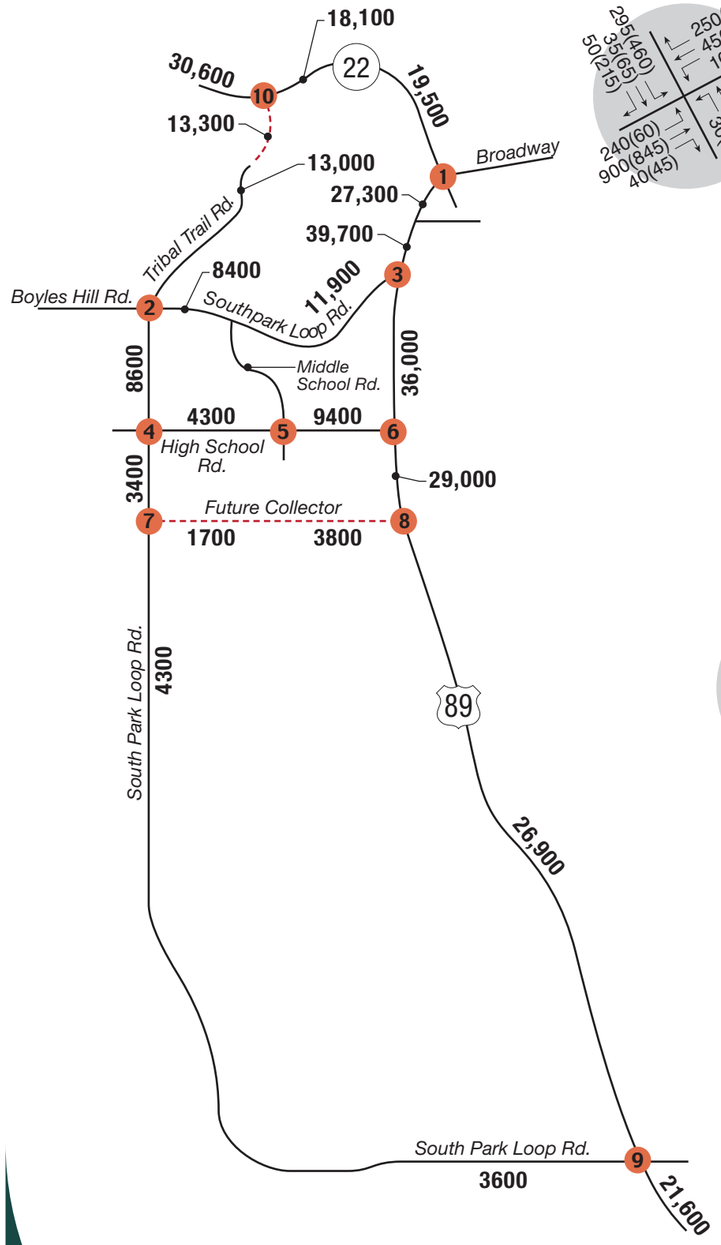
= Potential Future Road

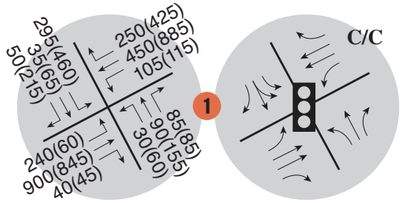
Figure 8

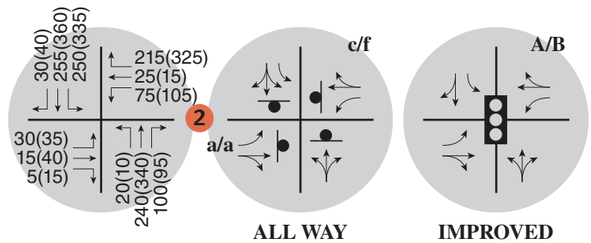
Overall Changes in Traffic Volumes from 2030 Baseline Conditions Resulting from Tribal Trail Connector

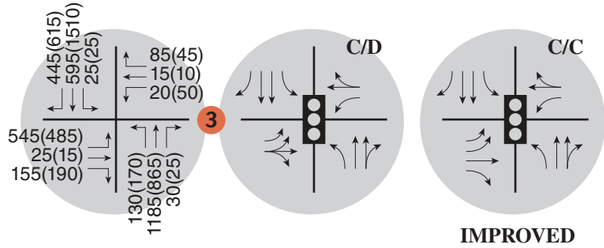
FELSBURG HOLT & ULLEVIG

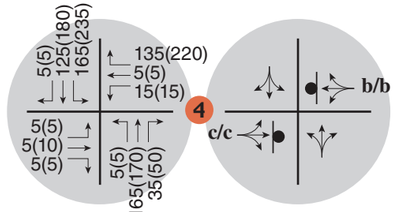
NORTH

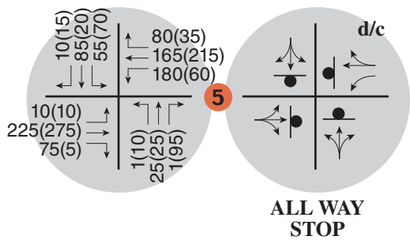


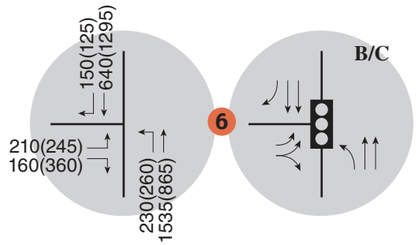


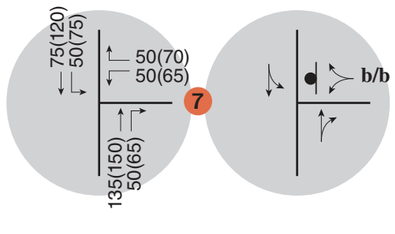


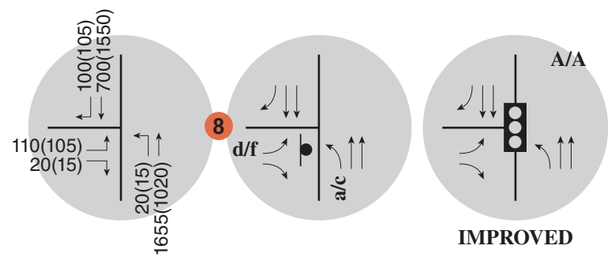


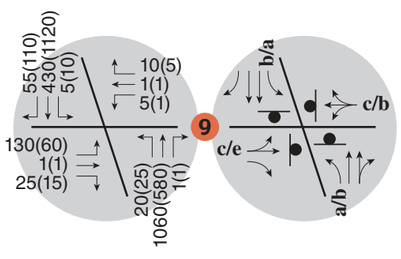












LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
X/X	=	AM/PM Peak Hour Signalized Intersection Level of Service
x/x	=	AM/PM Peak Hour Unsignalized Intersection Level of Service
	=	Potential Future Road
X	=	Intersection Number
XX%	=	Site Trip Distribution
	=	Stop Sign
	=	Traffic Signal

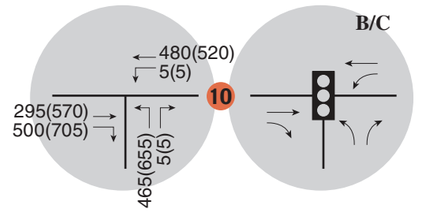


Figure 9
2030 Overall Traffic Conditions
with Tribal Trail Connector

FELSBURG HOLT & ULLEVIG

NORTH

Traffic Operations

Figure 9 also shows the projected levels of service at each key intersection within the study area. Of particular note, the shift in traffic away from the Y due to the Connector would enable that intersection to operate at LOS C during both peak periods without any need for improvements, with delays that are similar to or slightly better than conditions today.

The north WY 89/South Park Loop Road intersection would operate at LOS D in the afternoon with the Connector and therefore exceed WYDOT's level of service standard. Widening the eastbound approach to provide dual left turn lanes and a shared through/right turn lane would improve operations there to LOS C in the afternoon and thus meet the standard.

The traffic shift also requires a change in traffic control at the unsignalized South Park Loop Road/Tribal Trail Road intersection, which would need to be upgraded from all-way stop control (identified as appropriate traffic control for existing volumes with the Connector) to either a signalized intersection or a roundabout. No roadway geometry improvements (such as additional turn lanes) would be required there, however. Based on the future traffic volume forecasts for Tribal Trail Road and the Connector, it would appear that the appropriate lane geometry would continue to be one lane in each direction (two lane cross-section). This geometry will allow traffic from the existing local roads along it to turn left out of their neighborhoods with delays that are slightly longer than in the near term, yet are still reasonable (around 30 seconds per vehicle, which represents LOS D conditions), and continue to discourage the use of the road as a high speed cut-through route.

The remaining unsignalized intersections in the north study area operate at LOS B or better and therefore would continue to meet Teton County's level of service standard (while traffic volumes increase because of the Connector, they still remain at a level where the current traffic control and lane geometry can adequately accommodate them). The new east-west connector road south of High School Road would also operate at LOS B or better at the South Park Loop Road intersection, but outbound left turns at its intersection with WY 89 would operate at LOS F in the afternoon peak period. With a traffic signal the intersection would operate at LOS A during both peak periods and meet WYDOT level of service standards.

At the south WY 89/South Park Loop Road intersection, eastbound left turns would continue to operate at LOS E during the PM peak hour as they do under existing conditions, and the v/c ratio and projected queues would also continue to be similar to what occurs there today, largely because future traffic volumes are projected to be quite similar to existing volumes. As a result, it would appear that location would not warrant any improvements in the long term.

Based on the analysis, it would appear that the future road system with the Tribal Trail Connector would need the following improvements to adequately accommodate 2030 baseline traffic forecasts:

- **WY 22/Tribal Trail Connector** – Signalize this new intersection and provide an eastbound right turn lane, a westbound left turn lane and separate northbound left and right turn lanes.

- **Tribal Trail Road Connector** – Construct the Connector as a two lane road with a 30 mph design speed to maintain reasonable travel speeds and discourage it's use as a cut-through route.
- **Tribal Trail Road/South Park Loop Road** – Upgrade the traffic control from all way stop control to a signalized intersection.
- **WY 89/North South Park Loop Road** – Widen the eastbound approach to provide dual left turn lanes and a shared through/right turn lane.
- **WY 89/New East-West Connector** – Signalize this new intersection and provide a northbound left turn lane, a southbound right turn lane, and separate eastbound left and right lanes.

High School Road Traffic Operations

Future traffic volumes on High School Road with the Connector are forecast to increase to 9,400 vpd west of WY 89, or roughly 2,300 vpd more than existing conditions. As a result, traffic operations on that road are anticipated to be slightly more congested than they currently are. Specifically, the signalized intersection at WY 89/High School Road would drop from LOS A to LOS B in the morning and from LOS B to LOS C in the afternoon, the unsignalized all-way stop at Middle School Road would drop from LOS B to LOS D in the morning and from LOS A to LOS C in the afternoon and the High School Road approaches at South Park Loop Road would drop from LOS A/B to LOS B/C in the morning and from LOS A/B to LOS B/C in the afternoon.

As with all other scenarios, the localized congestion created by the high school will continue to occur with Connector, and if any of forecast traffic increases in the long term with the Connector occur during those short periods before and after school, it might result in traffic queues spilling back past the Smith's parking lot into the WY 89 intersection. It seems more likely, however, that Connector traffic would avoid High School Road during those brief periods of school activity and instead use north South Park Loop Road.

VI. PUBLIC COMMENT

The above information was presented to the community in a public meeting in early June, 2010. In that meeting South Park residents expressed their concerns with use of the Tribal Trail Connector as a cut-through route by traffic that does not have an origin or destination within South Park, and that to avoid that, the focus should be improving the Y first before building the Connector. They also expressed concerns about the design of the road to collector standards being insufficient to control travel speeds, and offered up the potential of switching some of the existing neighborhood intersections on Tribal Trail Road north of Boyles Hill Road from stop-sign controlled to roundabouts as a means of addressing both cut-through traffic use and travel speeds. This would appear to be a reasonable solution to those problems from a traffic engineering perspective and should be explored as a potential alternative as the project moves forward. Other comments included:

- An additional origin-destination study of winter time travel patterns in the area to capture skier traffic and school traffic.
- An origin-destination study of traffic specifically using High School Road.
- A ban on commercial traffic use of the Tribal Trail Connector, if it is constructed.
- Analyze impacts on wildlife of the Tribal Trail Connector.
- Further analysis of the safety and traffic impacts of the proposed WY 22/Tribal Trail Connector traffic signal.
- A travel time analysis of the new connector travel route versus the existing Y travel route.
- A noise analysis of the neighborhood with and without the Tribal Trail Connector.

All written comments from the public meeting, as well as a review letter and two follow up clarification letters of the draft version of this transportation analysis prepared by Save Historic Jackson Hole's transportation consultant, have been included in Appendix A of this study. This information has been compiled here for use in the development of future alternatives and analysis scenarios for the project.

VII. NONMOTORIZED ANALYSIS

In addition to the above traffic assessment, an evaluation of existing conditions that affect the safety of non-motorized users within the High School Road Corridor study area was conducted. The types of non-motorized users include recreational bicyclists and pedestrians, commuter bicyclists, and school children biking or walking to and from school. The study area encompasses four schools: Colter Elementary, Jackson Hole Middle, Jackson Hole High, and Summit High Schools. Therefore, the evaluation provides a particular focus on school zone signing and pavement markings relative to current standards contained in the *Manual on Uniform Traffic Control Devices*, FHWA, 2003. Other physical features that influence safety or functionality, including separate bike/ped paths, sidewalks, on-street bike lanes, roadway geometrics, and traffic control, have also been considered.

A. Data Collection

A field data collection effort was conducted in June, 2009. As an initial step, a meeting was held with Mr. Brian Schilling, Pathways Coordinator for the Jackson Hole Community Pathways program. The purpose of the meeting was to gain an understanding of the local perspectives relative to operational or safety concerns with non-motorized travel within the study area. During the meeting, Mr. Schilling identified the following issues:

- The Town has recently restriped High School Road to add bike lanes. A westbound left-turn lane at the High School has also been added.
- A large number of students ride bikes to school from the Rafter J neighborhood, many of whom are elementary school kids.
- There is a separated bike path along High School Road from WY 89 west to Middle School Road. The Town has plans to extend this path to South Park Loop Road.
- The Town is considering installing roundabouts as a means to reduce vehicle speeds and calm traffic at five intersections within the school area: at High School Road/Gregory Lane, High School Road/Jackson Hole High School east access, High School Road/Middle School Road, Middle School Road/Blair Drive, and Blair Drive/South Park Loop Road.
- There are established bike/ped crossings along South Park Loop Road at three intersections; at High School Road, Rangeview Drive, and Blair Drive. These non-motorized crossings connect the Cottonwood Park neighborhood to the existing bike path located along the west side of South Park Loop Road.
- There is a need for improved on-street bike facilities at the east end of High School Road. The new left-turn lane for the high school has also reduced the available space for bike lanes.

Following the meeting, a field inventory of existing non-motorized conditions was conducted within the study area. The inventory included traffic control devices, pavement markings, and roadway geometrics for the following study area roads:

- High School Road, WY 89 to South Park Loop Road
- South Park Loop Road, High School Road to WY 89
- Middle School Road, High School Road to Blair Drive
- Tribal Trail Road, South Park Loop Road to northern terminus

A photographic log was compiled, and existing conditions and potential deficiencies relative to bicycle and pedestrian travel modes were observed.

B. Existing Deficiencies

High School Road

This two-lane collector roadway extends east-west between WY 89 and South Park Loop Road. Vehicular travel lanes are generally 12 feet in width, with the remainder of the paved way striped for on-street bicycle use. The on-street bike lane varies in width, from approximately eight feet west of Middle School Road to none adjacent to the westbound left-turn lane that has been striped at the western High School access (aligning with Middle School Road). Between WY 89 and Middle School Road, a separate, paved bike/ped path runs along the north side of High School Road. This path has some discontinuity adjacent to the Smith's building.

With the exception of the traffic signal at WY 89, traffic control along High School Road is unsignalized, with all-way STOP sign control at the east high school access and at Middle School Road. Two-way stop control is used on minor cross street approaches and on westbound High School Road at South Park Loop Road.

Several speed limits are posted along High School Road: adjacent to Colter Elementary and Jackson Hole High Schools, a reduced speed zone of 20 mph (7:00 AM to 4:00 PM) is established by school zone signing. West of the school zone, the speed limit is posted 25 mph. East of the school zone, the eastbound direction is posted 30 mph, while the westbound direction is not posted.

Based on the inventory of existing conditions, the following deficiencies were observed along High School Road (all nonmotorized figures are provided in Appendix C):

- A masonry trash enclosure at Smith's creates a sight distance hazard for users of the bike/ped path, as shown in **Figure 1**.
- The separate bike/ped path becomes discontinuous adjacent to the Smith's building, with bike traffic diverted onto the roadway; pedestrians have the option to use the sidewalk along the building. **Figure 2** is a view looking westbound at the diversion point.
- A bike/ped crossing near the east edge of the high school does not have crosswalk pavement marking, as shown on **Figure 3**.
- Several school zone signs are yellow, rather than the high-visibility fluorescent yellow-green color used on most of the school zone signs in this area. **Figures 4** and **5** illustrate this issue.
- In addition to the incorrect coloring, the S1-1 school crosswalk sign shown in **Figure 5** is obsolete (crosswalk bars) and is used as an advance warning sign. The use of the older style S1-1 is typical throughout the study area.

- **Figure 6** shows the westbound view approaching South Park Loop Road. Two old edge stripes are still visible and may create confusion for on-street bicyclists and motorists.
- **Figure 7** shows an existing R2-1 Speed Limit 20 sign on eastbound High School Road within the school zone. As the school zone is posted 20 mph between the hours of 7:00 AM and 4:00 PM, this sign gives a conflicting message.
- **Figure 8** shows an existing R2-1 Speed Limit 30 sign on eastbound High School Road just east of the school zone. This is inconsistent with the remainder of the roadway, which is posted 25 mph except within the school zone during school hours.
- The recent addition of the westbound left turn lane into the high school creates narrow shoulders for on-street bike use, as depicted on **Figure 9**.
- **Figure 10** gives the eastbound view at Middle School Road. The westbound left-turn lane creates a through-lane off-set for eastbound motorists; note the white minivan straddling the centerline.

Middle School Road

Middle School Road is a two-lane local roadway which provides access for Colter Elementary, Summit High, and Jackson Hole Middle Schools. It extends north from High School Road to Blair Drive (a neighborhood minor collector). The typical cross section consists of two travel lanes and no shoulders. A separate, paved bike/ped path is provided along the east side starting at High School Road; the path crosses over to the west side approaching the middle school. Traffic control consists of all-way STOP signs at High School Road and at Blair Drive. The posted speed limit is 20 mph.

The following deficiencies related to non-motorized use were observed along Middle School Road:

- The view north at the first school crosswalk is shown on **Figure 11**. The S1-1 signs denoting the crosswalk are inconsistent; on the right is an old style S1-1 sign (with cross bars). There is no advance warning sign on the northbound approach to this crossing.
- **Figure 12** is the view south at the same crossing, showing mismatched S1-1 signs and worn pavement markings. Worn crosswalk paint is typical throughout the study area.
- **Figure 13** is the view southbound along Blair Drive approaching the intersection with Middle School Road. Note the obsolete S1-1 sign used as an advance warning sign for the school zone.

Tribal Trail Road

This two-lane collector roadway extends north from the South Park Loop Road/Boyle Hill Road intersection, providing access for residential users. The roadway is discontinuous just beyond Cherokee Lane. The basic cross section includes two 12-foot travel lanes and four-foot shoulders; a southbound left-turn lane to eastbound South Park Loop Road is provided. Traffic control consists of a STOP sign on southbound Tribal Trail Road at South Park Loop Road/Boyle Hill Road, and minor cross street approaches are also STOP sign controlled. A separate, paved bike/ped lane runs along the east side of the roadway, beginning just north of Seneca Lane. The speed limit on Tribal Trail Road is posted at 35 mph.

During the field inventory of existing conditions, the following deficiency was observed:

- As shown on **Figure 14**, the southbound left-turn lane creates a southbound through-lane misalignment at the South Park Loop Road/Boyle Hill Road intersection.

South Park Loop Road

South Park Loop Road is a two-lane collector road that extends west from WY 89 through residential neighborhoods south of town, curving north to Boyle Hill Road, then east to intersect again with WY 89 within Jackson. The study area includes the north-south segment between High School Road and Boyle Hill Road and the east-west segment from Tribal Trail Road to WY 89. The cross-section on the north-south segment consists of two 11-foot lanes with no shoulders. A separate, paved bike/ped path is provided along the west side of the roadway. Traffic control consists of a STOP sign on the northbound approach at Boyle Hill Road, with STOP sign control on minor cross-street approaches. The speed limit on this segment is posted 40 mph.

The east-west segment has a wider cross section, with 12-foot lanes and four-foot shoulders. A separate bike/ped path extends along the south side from Tribal Trail Road to Blair Drive; east of this point, an attached four-foot sidewalk is provided. Traffic control is unsignalized, with STOP signs on the minor cross-street approaches to South Park Loop Road. The speed limit on this segment is posted 30 mph, except within a signed school zone (approaching Blair Drive), which is signed 20 mph, 7:00 AM to 4:00 PM.

Based on the inventory of existing conditions, the following deficiencies were observed along South Park Loop Road:

- The north-south segment is very narrow, with willow trees closely lining the roadway. **Figure 15** depicts the narrow cross section and potential sight distance issues due to roadside vegetation. The 40 mph speed limit seems uncomfortably high, and a recent speed study by the Teton County Sheriff's Office indicates the 85th percentile speed at 33 mph.
- **Figure 16** shows a bike/ped crossing at Rangeview Drive. The crosswalk pavement markings are much worn. This crossing is not signed, either with crossing signs or with advance warning signs.
- **Figure 17** is a view looking west at the bike/ped crossing at High School Road. This crossing is not signed and the pavement is not marked. It should be noted that the willow trees which line South Park Loop Road restrict sight distance for motorists approaching the crossing.
- **Figure 18** is a view west of the bike/ped crossing at Boyle Hill Road. There is no crosswalk pavement marking.
- The pedestrian crossing at White House Drive is depicted on **Figure 19**. There are warning signs at the crossing; however, no advance warning signs are present. There is no crosswalk pavement marking.
- **Figure 20** is a view east towards Blair Drive. The advance school warning sign assembly incorrectly uses an obsolete style S1-1 sign.

- The westbound advance school warning sign approaching Blair Drive is yellow, rather than fluorescent yellow green. **Figure 21** shows this sign, which is partially obscured by vegetation.
- There is an unsigned, unmarked, crossing for an unpaved pedestrian trail at the rear of the middle school accessing a mountainside trail. **Figure 22** is a view north from the middle school property of the crossing.

C. Improvement Recommendations

Based on the above existing deficiencies, the following improvements are recommended:

General

- Replace any yellow warning signs within the school zones with fluorescent yellow-green signs.
- As existing obsolete style S1-1 signs (with cross bars) become faded or damaged, replace them with new style S1-1 signs (without cross bars). Advance school warning sign installations should include W16-9p supplemental AHEAD plaques. School crossing sign installations should include W16-7P Down Arrow supplemental plaques. All new school zone signs and supplemental plaques should be fluorescent yellow-green in color.
- Refresh worn crosswalk pavement markings throughout the study area.
- Maintain vegetation away from signs.

High School Road

- Relocate, when feasible, the masonry trash enclosure adjacent to the bike/ped path at Smith's to improve sight lines to path users for motorists exiting the parking lot.
- Provide crosswalk pavement marking at the bike/ped path crossing near the eastern high school property line.
- Remove extraneous edge line pavement markings where present.
- Remove the existing R2-1 Speed Limit 20 mph sign on eastbound High School Road within the school zone. This sign conflicts with the school zone signs.
- Replace the existing eastbound R2-1 Speed Limit 30 mph sign just beyond the eastern high school boundary with a new Speed Limit 25 mph sign, to be consistent with the rest of High School Road.
- Widen the cross section through the new left-turn lane at the high school access to provide shoulders for on-street bicycle use.
- Widen the cross section west of Middle School Road to provide redirect striping (or, alternatively, an eastbound left-turn lane) and improve lane alignment for eastbound through-movements.

Middle School Road

- Provide an advance school warning sign assembly (S1-1, W16-9p) on the northbound approach prior to the first crosswalk.

South Park Loop Road

- Widen the cross section on the north-south segment to provide sufficient paved shoulders for on-street bicycle use.
- Lower the posted speed limit on the north-south segment to reflect recent speed studies.
- Trim roadside vegetation to improve sight distance at bike/ped crossings.
- Widen the cross section just south of Boyle Hill Road to provide either redirect striping or a northbound left-turn lane to improve lane alignment for southbound through-movements from Tribal Trail Road.
- Provide advance warning sign assemblies (W11-1, W16-9p) on the northbound and southbound approaches prior to the existing bike/ped crossing at High School Road. Install crosswalk pavement marking across South Park Loop Road at this location. Provide crossing sign assemblies (W11-1. W16-7p), northbound and southbound, at the crosswalk.
- Provide advance warning sign assemblies (W11-1, W16-9p) on the northbound and southbound approaches prior to the existing bike/ped crossing at Rangeview Drive. Provide crossing sign assemblies (W11-1, W16-7p), northbound and southbound, at the crosswalk.
- Provide advance warning sign assemblies (W11-1, W16-9p) on the northbound and southbound approaches prior to the existing bike/ped crossing at Boyle Hill Road. Install crosswalk pavement marking across South Park Loop Road at this location.
- Install crosswalk pavement marking at the existing crossing at White House Drive. Provide advance warning sign assemblies (W11-2, W16-9p) on the eastbound and westbound approaches prior to the crossing.
- Provide crosswalk warning sign assemblies (W11-2, W16-7p) on eastbound and westbound South Park Loop Road at the trail crossing at the rear of the middle school. Install crosswalk pavement marking at this location.

The above recommendations will help improve safety within the study area for non-motorized users and school children.

Roundabouts

Other potential improvements, such as roundabouts at select school zone intersections, will help reduce vehicle speeds and discourage cut-through traffic. Roundabouts tend to reduce the frequency and severity of accidents, including pedestrian-vehicle collisions, in comparison to conventional signalized or two-way STOP controlled intersections. Studies in Europe, where roundabouts are more common, indicate a potential 75 percent reduction in pedestrian accidents; in the United States, studies suggest the potential reduction is 30 to 40 percent. Factors that contribute to the safety benefits of roundabouts include:

- Reduced vehicle speeds (15 to 20 mph)
- Simplified vehicle movements (right-turns only)
- Half as many pedestrian/vehicle conflict points
- The splitter islands allow pedestrians to cross one direction of traffic at a time

All-way STOP sign controlled conventional intersections are typically safer than roundabouts for pedestrians, and blind pedestrians in particular. Because pedestrian crosswalks are provided at the splitter islands and away from the intersection, travel paths for pedestrians may be longer and less convenient.

Roundabouts generally do not provide the same level of safety benefits for bicyclists. Typically, it is better to remove bikes from vehicular traffic onto a separate path, or merge them directly with traffic through the roundabout. However, because of the reduced speeds and same-direction travel, the severity of bike/vehicle collisions tends to be less with roundabouts.

VIII. SUMMARY AND RECOMMENDATIONS

Teton County is considering a northerly extension of Tribal Trail Road (Connector) to intersect with WY 22 in the proximity of the WY 22/Coyote Road intersection. The purpose of this study was to conduct detailed traffic analyses of the South Park Study Area road system, including the High School Road corridor, for four roadway scenario and identify intersection/road corridor modifications that would address level of service concerns and non-motorized user safety issues. The scenarios studied included:

- Existing Conditions
- Existing Volumes with Tribal Trail Connector
- Year 2030 Baseline Conditions
- Year 2030 Conditions with Tribal Trail Connector

Traffic Analysis Summary

The traffic analysis indicated the following:

Under **existing conditions**, traffic volumes on WY 89 are at their lowest at the south end of the study area (14,100 vehicles per day (vpd)) and steadily increase toward town, peaking at 40,400 vpd just north of the north South Park Loop Road intersection. Meanwhile, volumes on WY 22 are at their highest just north of the Y (24,800 vpd), then drop slightly to 23,400 vpd in the vicinity of Coyote Road where the Connector would intersect the highway.

The north end of South Park Loop Road is the highest volume non-highway road in the study area, carrying 10,800 vpd just west just west of the north WY 89 intersection. High School Road carries approximately 7,100 vpd just west of WY 89, and south South Park Loop Road carries 3,800 vpd just west of WY 89. Traffic on all three roads decreases significantly as one travels west through the study area. Tribal Trail Road currently carries around 700 vpd, which is consistent with its current function as a neighborhood collector road.

Based on the analysis, it would appear that the existing road system would need one roadway improvement to meet County and/or WYDOT level of service standards under current traffic volume levels:

- **WY 22/WY 89** – Widen the north leg of this intersection to provide dual southbound left turn lanes.

Under **existing conditions with the Connector**, over 60 percent of the 9,000 vpd on the Connector is local traffic that already uses the South Park study area road system (5,400 vpd), and of the 3,600 through trips using the Connector, roughly two out of three are headed to and from town and only one out of three is headed to and from south of town. The vast majority of the Connector traffic (6,200 vpd, or 70 percent) would use the east-west segment of South Park Loop Road at the north end of the study area to travel between the Connector and either the local neighborhoods on the west side of WY 89 (in the case of local trips) or WY 89 (in the case of through trips).

High School Road is the second most popular travel route for Connector traffic, but it is projected to carry far less traffic than the north end of South Park Loop Road in the near term. The west end of High School Road would attract 850 vpd of Connector trips, with around 200 vpd of these trips being local traffic with origins or destinations along High School Road and 650 vpd traffic that travels the length of High School Road to WY 89 and continues south to either other parts of South Park or out of the study area.

Based on the analysis, it would appear that the road system could adequately accommodate the immediate changes in travel patterns and traffic volumes that would result from constructing the Tribal Trail Connector, with the appropriate laneage and traffic control provided on the new Connector and one minor improvement to the existing road system:

- **WY 22/Tribal Trail Connector** – Signalize this new intersection and provide an eastbound right turn lane, a westbound left turn lane and separate northbound left and right turn lanes.
- **Tribal Trail Road** – Construct the Connector as a two lane road with a 30 mph design speed to maintain reasonable travel speeds and discourage it's use as a cut-through route.
- **South Park Loop Road/Tribal Trail Road** – Convert this intersection from two-way stop control to all-way stop control.

Under **2030 background traffic conditions**, a new east-west connector would be constructed south of High School Road. The new connector is anticipated to carry 5,000 vpd on the east end and 2,100 vpd on the west end. Around 60 percent of this traffic is from the new development planned for that part of South Park, with the other 40 percent (2,000 vpd) being traffic that has shifted away from South Park Loop Road and High School Road. As a result of this shift, the 2030 traffic forecasts for north South Park Loop Road just west of WY 89 is 10,800 vpd, which is the same as existing volumes, while the future forecast for High School Road is 6,000 vpd, or 1,100 vpd less than existing conditions.

It is also worth noting that 2030 background traffic forecasts on WY 89 would exceed 50,000 vpd north of South Park Loop Road and traffic forecasts on WY 22 north of the Y exceed 40,000 vpd. At these volumes the Y would operate at LOS E during both peak periods and exceed the County's level of service standard. Furthermore, the volume forecast for WY 89 would be at or above the upper capacity threshold for a four lane arterial, which would lead to longer periods of higher congestion and call for the widening of that road to six lanes.

Based on the analysis, it would appear that the baseline road system would need the following improvements to adequately accommodate 2030 baseline traffic forecasts:

- **WY 89** – Widen the highway to three through lanes in each direction between north South Park Loop Road and Pearl Street.
- **WY 89/WY 22** – Widen this intersection to provide two eastbound left turn lanes, two westbound turn lanes and two southbound left turn lanes.
- **WY 89/New East-West Connector** – At this new intersection, install a traffic signal and provide a northbound left turn lane, a southbound right turn lane, and separate eastbound left and right lanes.

Under **2030 traffic conditions with the Connector**, while most Connector traffic uses the east-west segment of South Park Loop Road at the north end of the study area, a much greater percentage of Connector traffic shifts down to High School Road than under existing conditions. This is likely a result of increased traffic and higher congestion on WY 89 north of High School Road in the future, which increases delays at the WY 89/north South Park Loop Road intersection and makes shifting over to the new Connector on a road further south a more appealing option.

Furthermore, in the future a higher portion of the traffic on the Connector would be from local trips that have origins or destinations within the South Park area; 70 percent of the trips in the future would be local trips, versus 60 percent in the existing analysis. Additionally, of the 4,000 through trips using the Connector, only one out of four are headed to and from town (down significantly from two out of three in the existing analysis) and three out of four is headed to and from south of town. This shift away from using the Connector as an alternate route into town may also be a result of increased traffic and congestion on WY 89 north of South Park Loop Road; with fewer trips and less congestion on WY 22 and shorter delays at the Y, staying on that road would become the more appealing travel option for trips between the west side and town.

Finally, construction of the Connector is forecast to reduce the travel demand on WY 89 north of north South Park Loop Road and on the new east-west Connector south of High School Road over baseline conditions. As a result, volumes on the highway would peak at 39,700 vpd and not appear to require widening of the roadway. Of particular note, the shift in traffic away from the Y due to the Connector would enable that intersection to operate at LOS C during both peak periods without any need for improvements, with delays that are similar to or slightly better than conditions today.

Based on the analysis, it would appear that the future road system with the Tribal Trail Connector would need the following improvements to adequately accommodate 2030 baseline traffic forecasts:

- **WY 22/Tribal Trail Connector** – Signalize this new intersection and provide an eastbound right turn lane, a westbound left turn lane and separate northbound left and right turn lanes.
- **Tribal Trail Road Connector** – Construct the Connector as a two lane road with a 30 mph design speed to maintain reasonable travel speeds and discourage it's use as a cut-through route.
- **Tribal Trail Road/South Park Loop Road** – Upgrade the traffic control from all way stop control to a signalized intersection.
- **WY 89/North South Park Loop Road** – Widen the eastbound approach to provide dual left turn lanes and a shared through/right turn lane.
- **WY 89/New East-West Connector** – Signalize this new intersection and provide a northbound left turn lane, a southbound right turn lane, and separate eastbound left and right lanes.

In summary, the following roadway improvements are recommended for each of the four scenarios studied:

Existing Conditions

- **WY 22/WY 89** – Widen the north leg of this intersection to provide dual southbound left turn lanes.

Existing Volumes with Tribal Trail Connector

- **WY 22/Tribal Trail Connector** – Signalize this new intersection and provide an eastbound right turn lane, a westbound left turn lane and separate northbound left and right turn lanes.
- **Tribal Trail Road Connector** – Construct the Connector as a two lane road with a 30 mph design speed to maintain reasonable travel speeds and discourage it's use as a cut-through route.
- **South Park Loop Road/Tribal Trail Road** – Convert this intersection from two way stop control to all-way stop control.

Year 2030 Baseline Conditions

- **WY 89** – Widen this highway to three through lanes in each direction between north South Park Loop Road and Pearl Street.
- **WY 89/WY 22** – Widen this intersection to provide two eastbound left turn lanes and two southbound left turn lanes.
- **WY 89/New East-West Connector** – At this new intersection, install a traffic signal and provide a northbound left turn lane, a southbound right turn lane, and separate eastbound left and right lanes.

Year 2030 Conditions with Tribal Trail Connector

- **WY 22/Tribal Trail Connector** – Signalize this new intersection and provide an eastbound right turn lane, a westbound left turn lane and separate northbound left and right turn lanes.
- **Tribal Trail Road Connector** – Construct the Connector as a two lane road with a 30 mph design speed to maintain reasonable travel speeds and discourage it's use as a cut-through route.
- **Tribal Trail Road/South Park Loop Road** – Upgrade the traffic control from all way stop control to a signalized intersection or roundabout.
- **WY 89/North South Park Loop Road** – Widen the eastbound approach to provide dual left turn lanes and a shared through/right turn lane.
- **WY 89/New East-West Connector** – Signalize this new intersection and provide a northbound left turn lane, a southbound right turn lane, and separate eastbound left and right lanes.

Summary of Public Comments on the Traffic Analysis

The above information was presented to the community in a public meeting in early June, 2010. In that meeting South Park residents reiterated their concerns with use of the Tribal Trail Connector as a cut-through route by traffic that does not have an origin or destination within South Park, and that the focus should be improving the Y first before building the Connector. They also expressed concerns about the design of the road to collector standards being insufficient to control travel speeds, and offered up the potential of switching some of the existing neighborhood intersections on Tribal Trail Road north of Boyles Hill Road from stop-sign controlled to roundabouts as a means of addressing both cut-through traffic use and travel speeds. This would appear to be a reasonable solution to those problems from a traffic engineering perspective and should be explored as a potential alternative as the project moves forward. Other comments included:

- An additional origin-destination study of winter time travel patterns in the area to capture skier traffic and school traffic.
- A ban on commercial traffic use of the Tribal Trail Connector, if it is constructed.
- Analyze impacts on wildlife of the Tribal Trail Connector.
- Further analysis of the safety and traffic impacts of the proposed WY 22/Tribal Trail Connector traffic signal.
- A travel time analysis of the new connector travel route versus the existing Y travel route.
- A noise analysis of the neighborhood with and without the Tribal Trail Connector.

Nonmotorized System Summary

In addition to the above, the following nonmotorized improvements are recommended for the study area around High School Road:

General

- Replace any yellow warning signs within the school zones with fluorescent yellow-green signs.
- As existing obsolete style S1-1 signs (with cross bars) become faded or damaged, replace them with new style S1-1 signs (without cross bars). Advance school warning sign installations should include W16-9p supplemental AHEAD plaques. School crossing sign installations should include W16-7P Down Arrow supplemental plaques. All new school zone signs and supplemental plaques should be fluorescent yellow-green in color.
- Refresh worn crosswalk pavement markings throughout the study area.
- Maintain vegetation away from signs.

High School Road

- Relocate, when feasible, the masonry trash enclosure adjacent to the bike/ped path at Smith's to improve sight lines to path users for motorists exiting the parking lot.
- Provide crosswalk pavement marking at the bike/ped path crossing near the eastern high school property line.
- Remove extraneous edge line pavement markings where present.
- Remove the existing R2-1 Speed Limit 20 mph sign on eastbound High School Road within the school zone. This sign conflicts with the school zone signs.
- Replace the existing eastbound R2-1 Speed Limit 30 mph sign just beyond the eastern high school boundary with a new Speed Limit 25 mph sign, to be consistent with the rest of High School Road.
- Widen the cross section through the new left-turn lane at the high school access to provide shoulders for on-street bicycle use.
- Widen the cross section west of Middle School Road to provide redirect striping (or, alternatively, an eastbound left-turn lane) and improve lane alignment for eastbound through-movements.

Middle School Road

- Provide an advance school warning sign assembly (S1-1, W16-9p) on the northbound approach prior to the first crosswalk.

South Park Loop Road

- Widen the cross section on the north-south segment to provide sufficient paved shoulders for on-street bicycle use.
- Lower the posted speed limit on the north-south segment to reflect recent speed studies.
- Trim roadside vegetation to improve sight distance at bike/ped crossings.
- Widen the cross section just south of Boyle Hill Road to provide either redirect striping or a northbound left-turn lane to improve lane alignment for southbound through-movements from Tribal Trail Road.
- Provide advance warning sign assemblies (W11-1, W16-9p) on the northbound and southbound approaches prior to the existing bike/ped crossing at High School Road. Install crosswalk pavement marking across South Park Loop Road at this location. Provide crossing sign assemblies (W11-1. W16-7p), northbound and southbound, at the crosswalk.
- Provide advance warning sign assemblies (W11-1, W16-9p) on the northbound and southbound approaches prior to the existing bike/ped crossing at Rangeview Drive. Provide crossing sign assemblies (W11-1, W16-7p), northbound and southbound, at the crosswalk.
- Provide advance warning sign assemblies (W11-1, W16-9p) on the northbound and southbound approaches prior to the existing bike/ped crossing at Boyle Hill Road. Install crosswalk pavement marking across South Park Loop Road at this location.

- Install crosswalk pavement marking at the existing crossing at White House Drive. Provide advance warning sign assemblies (W11-2, W16-9p) on the eastbound and westbound approaches prior to the crossing.
- Provide crosswalk warning sign assemblies (W11-2, W16-7p) on eastbound and westbound South Park Loop Road at the trail crossing at the rear of the middle school. Install crosswalk pavement marking at this location.

APPENDIX A PUBLIC COMMENT

From: Dennis Jesse
Sent: Wednesday, June 16, 2010 9:47 PM
To: Paula Stevens
Cc: admin@jacksontetonplan.com; Town Council; County Commissioners
Subject: Tribal Trails Connection

Paula,

Thank you for the presentation Tuesday. Your management of the meeting was excellent.

A few points that I would like to make:

There is no reference to the impact of a traffic light on HWY 22 as to how it will affect general traffic on 22. I believe it is one of, if not, the busiest roads in the state. Will this not "Kink the Hose" and hinder flow of traffic and also create opportunity for accidents?

Is High School road a not place to look at traffic reduction in the interest of student safety instead of the proposed and I would say, radical increase?

Shouldn't South of Town to West Bank/ Teton Village and reverse traffic be studied during school and ski seasons?

If through trips are to be discouraged as I believe was the intent, wouldn't a "time of travel" element need to be included to really judge which way travelers would prefer.

The way to town from the proposed new South Park/Hereford Ranch development would be HS road.

High School Road is the obvious main link in this connector and should not be considered for traffic increases at all let alone of this of this volume. The South Park connection should be built from HWY 89 first or concurrently with the Tribal Trails connection to keep the burden off of HS Rd.

This proposed project, if built, would drastically affect the unstudied "sound envelope" of quiet working class neighborhoods.

Thank you,

Dennis Jesse

From: Linda Aurelio/IIS/SEB/Varian
To: dick.aurelio
Date: 06/14/2010 01:09 PM
Subject: TTCR

Paula,
Please submit my comments to the June 22nd meeting as follows:

Overall concern regarding the benefits versus unacceptable risk of the proposed TTCR still remains the biggest objection. The glaring and immediate benefits of improvements at the Y are our obvious, first step solution.

Benefits of traffic alleviation at the Y through the new construction of the TTCR have been projected in the FHU report, but to what risk to our neighbors, school age children and wildlife ? Projected vehicles per day (vpd) numbers of 9,000 are compared to the numbers now using Pearl Street (west of Cache) and Snow King at Flat Creek Bridge. Neither Pearl Street or Snow King have the dense neighborhood housing or school zone areas that are seen in the Tribal Trail neighborhood streets where the proposed TTCR will be built. Subsequent traffic off the Connector will pour through the side streets of South Loop Park and High School Road with untold consequences. By 2030,vpd would be equal to numbers at North Cache at town square !
Despite repeated community opinion to wildlife values, no mention has been made of the abundant wildlife that also inhabits and migrates thru this area and the probable impact consequences. An environmental impact study to determine those effects has not yet been considered.
Current development in the area has made the TTCR an outdated idea, and the FHU data proves it. The TTCR is too great a risk to our entire South Park neighborhoods, multiple schools and quality of life. This connector is a slippery slope to cut thru drivers and unsafe road conditions in residential neighborhoods. There are real lives and neighborhoods at the mercy of unnecessary, heavy traffic volumes. These numbers will pose unacceptable risk versus benefit.

The logical, first step in solving the benefit versus risk question is to take a look at established intersections and public roadways to see if there are ways to make traffic improvement benefits with much less risk. One obvious solution is to make improvements at the Y intersection. The FHU report also indicates that by immediately implementing new left hand turn lanes, traffic flow at the Y would be improved significantly. This seems to be the obvious solution without risk, and at lower/no costs to Jackson residents. This solution benefits all residents of Jackson on a daily basis. Future improvements at the Y would continue to allow traffic flow patterns to keep pace with growth and other planned roadway improvements along WY22 and 89.

It will take the cooperation of Town, County and WYDOT to make improvements at the Y as the priority for our residents. I commend the TAC's work in promoting the idea to separate Y improvements from future WY22 widening plans, and Town's adoption of this idea. County Commissioners and WYDOT now have to get on board. Our first priority should be improvements at the Y intersection. Clear and sound interpretation of the FHU data would indicate the TTCR project be denied due to current 2010 development and population density constraints. Clear interpretation of the FHU data points to the priority of Y intersection updates for immediate consideration and implementation as the solution we all seek.

Regards,
Linda Aurelio
Indian Spring Ranch

From: Kathy Tompkins
Sent: Monday, June 14, 2010 1:14 PM
To: Paula Stevens
Cc: County Commissioners; Barbara Ankeny; Ben Ellis; Bob Lenz; Town Council; Hank Phibbs; Jeff Daugherty; Judy Gordon; Kristy Bruner; lelandchris@hotmail.com; Linda Aurelio; Mark B Forwards; Paul Vogelheim; Irina Adams; Sean O'Malley; southpark@bresnan.net; Armond Acri; Becky Tillson; Tina Korpi; Andy Weenig
Subject: Comment on the draft transportation analysis plan for High School Road/South Park Sub Area

Hi Paula,
Could you submit the below comments for me on the draft analysis plan for High School Road/South Park Sub
Area.
Thanks, Kathy

Dear County and Town Officials,

I attended the presentation for the draft analysis transportation Plan for High School Road/South Park Sub Area and the Tribal Trails Connector on June 8th and found it painted too rosy a picture of what would happen to our neighborhoods. It avoids the 800 pound gorilla in the room. Improving the the Y first. The plan doesn't treat its findings seriously with the inadequate traffic calming solutions it offers. The forecasts shows the connector fails at South Park Loop Road at Maverick and Route 89. It gets so congested that traffic then diverts to High School Road anyway and the new parallel connector road (south of High School Road, connecting Route 89 and South Park Loop Road) does not pull the traffic it is intended for. It only winds up expanding the area for development. Adding a traffic light to the Tribal Trails connector at Route 22 will encourage cut through by regional traffic. They won't want to sit and wait for the light if they can use the right turn lane to cut through local neighborhoods and avoid stopping all together.

I have read articles about other towns and cities where the neighborhood HOAs are saddled with the cost of local traffic calming to keep cut through traffic out. They can't keep up with the costs and the cut through driving which has become an art or science to drivers looking for short cuts. It is a never ending battle to take back the neighborhood. Almost never a good outcome.

The draft doesn't properly account for how Gregory Lane commercial traffic will then use the connector on their way back from the west bank past all the schools on west HSR to Gregory Lane. The South Park Loop Road/Maverick/Route 89 diverter being congested as forecasted in the analysis diverts the commercial traffic to HSR. This adds to the traffic congestion at the end of the school day on HSR. There are six schools using HSR. The traffic will be even more congested on days when there are sports activities and after school functions happening. That is almost everyday during the school year. The solution is to ban all commercial traffic from using the TTC. But won't that negate the reasoning for the connector? The traffic would then be added back to Route 22 and the Y. It looks and sounds like a catch 22 scenario.

The loser right from the beginning in the analysis is the Ellingwood and Cottonwood Flats neighborhoods butting up to Northern South Park Loop Road by literally just feet. They were not mentioned except to lower the speed limit to 30 mph on South Park Loop Road. Indian Trails Road would be a speedway with 5 extra feet on each side for bikes and extra footage for turning lanes. That will only exacerbate the speeding problems by giving the driver a sense of open space for higher speeds. We had the speed limit lowered to 25 mph on west High School Road because of the speedway perception problem. It helped a little, but the commercial traffic and most drivers ignore the new lower speed limit anyway. The speed will increase with more traffic thinking the same way. Pack Mentality.

In reponse to Mr. Ream's opinion (the senior transportation engineer for Felsburg, Holt and Ullevig contracted for the draft analysis) on waiting for community voice along with or vs. neighborhood voice, the community uses High School Road for their children. We as a community have already spoken out in the comprehensive plan against making High School Road more congested and unsafe for all our families. Whether it be development proposals or the Tribal Trails Connector proposal. I might be jumping the gun on waiting for community response but I thought I would throw it out there along with the 800 pound gorilla that seems to be overlooked.

Let's improve the Y first. Then maybe we can put off using the neighborhood roads around High School Road and Northern South Park as a bypass for our regional roadways and intersections for a while.

If we are going the federal route for funding I would think the analysis would fair poorly against the federal general objectives of traffic calming.

US Department of Transportation
Federal Highway Administration

General Objectives of Traffic Calming
To encourage citizen involvement in the traffic calming process by incorporating the preferences and requirements of the citizens,
To reduce vehicular speeds,
To promote safe and pleasant conditions for motorists, bicyclists, pedestrians, and residents,
To improve the environment and livability of neighborhood streets
To improve real and perceived safety for nonmotorized users of the streets,
To discourage use of residential streets by non-citizens cut through vehicular traffic.

Below is part of just one article I read about the deterioration of neighborhoods affected by cut through traffic, whether a suburb of a city or a town. I can offer more examples if you would like me too.

Greater hill Neighborhood Washington DC
· **Cut-through Commuter & Commercial Motor-vehicle Traffic is a Chronic Systemic Problem**
· It is time, we as a Greater Capitol Hill community, look at cut-through commuter and commercial motor-vehicle traffic as a chronic systemic problem. In order for our community to truly thrive as a livable, walkable and bikable village, we need to shift vehicular-traffic routes, for instance regional and city rush-hours, from the neighborhood street grid to existing principle arterials and commercial corridors. These motorist/vehicles create hostile, inhabitable environments throughout our community, from our parks and schools to our residential streets, and divide neighborhoods, making it treacherous for residents to access (walking, cycling or even driving) their own community amenities.

Sincerely, Kathy Tompkins

Cottonwood Park, Jackson, Wy.

From: linda.aurelio@
Sent: Wednesday, June 09, 2010 8:41 AM
To: Paula Stevens
Cc: County Commissioners; Jeff.Ream; Sandy Birdyshaw; anacri_wy@msn.com; Rich Bloom
Subject: RE: Public presentation of South Park Sub Area and High School Road Transportation Analysis

(PKS)Very recently, The Transportation Advisory Committee recommended that WYDOT consider separating reconstruction of the Y from the larger WY 22 project. The Town Council endorsed the TAC's recommendation and has sent written comment to this effect to WYDOT. The County Commission has not taken up this matter yet.) (LA) I am aware of the May 24th meeting , and Town's adoption of your recommendation to separate the reconstruction process. County now needs to get on board with this idea, together with WYDOT to move forward. I commend your efforts so far in recognizing this, but as our Technical Advisory Committee, your group should be bringing all parties together. Is there a plan to do so ?
Thank you for your follow up. My opinion remains, as you are aware, that redesign of the Y must be done before any secondary new road construction is permitted. This order of priority would ensure traffic volumes would not be diverted onto secondary new roads to avoid delays at existing major intersections, but would be used as intended, by local residents only.
Regards,
linda

Linda,

Thanks for your comments regarding the above study. I've inserted my thoughts/responses below.

As you know, the planned next step in this process is to complete a Purpose and Need Statement, the draft version of which will be discussed during a public meeting on June 22nd. The meeting will be held in the commons area of the Jackson Hole Middle School (6:30 pm-8:00 pm).

Regards.

Paula

Paula K. Stevens
Associate Planning Director
Teton County Planning & Development
200 S Willow Street
PO Box 1727
Jackson, WY 83001
307-733-3959
307-733-4451 (fax)

From: linda.aurelio@
Sent: Saturday, June 05, 2010 3:08 PM
To: Paula Stevens
Cc: County Commissioners
Subject: Re: Public presentation of South Park Sub Area and High School Road Transportation Analysis

Paula,
Thank you very much for the traffic analysis results/ attachments. I will be out of town for this important meeting, but will look forward to our continued discussions.
questions/comments:

On page 6/7 "existing road system would need one roadway improvement to met County and/or WYDOT level of service standards under current traffic volume levels. WY 22/WY 89- Widen the north leg of the intersection to provide dual southbound left turn lanes, a through lane and a right turn lane."
Presume you are referring to the 'Y'. (PKS – Yes. WY 22/US 89 is the "Y". Since any infrastructure that is built must be designed to accommodate traffic well into the future, the existing conditions analysis was included only as a means of comparing existing system deficiencies to what we can, reasonably, expect will be needed in the future (2030). The consultant's work indicates there are system deficiencies right now and that those deficiencies will intensify in the coming years.) This action seems understated, (PKS - I realize that anecdotally the deficiency may seem greater, but the technical analysis shows otherwise. A significant benefit of the addition of a southbound left turn lane is that it would allow for the north and south legs of the intersection to operate more efficiently. Right now, the northbound and southbound legs operate consecutively rather than simultaneously because the southbound leg has a combined southbound thru/left turn lane that doesn't permit simultaneous turning movements from the north and south. Separating these movements will permit these legs to operate at the same time, thereby enhancing the efficiency of the entire intersection.) but if it is as simple as that, why haven't we done this improvement already ? (PKS – The Y falls under the jurisdiction of WYDOT and has long been envisioned as part of the reconstruction of WY 22, which has been postponed due to financial constraints and project prioritization by WYDOT. Very recently, The Transportation Advisory Committee recommended that WYDOT consider separating reconstruction of the Y from the larger WY 22 project. The Town Council endorsed the TAC's recommendation and has sent written comment to this effect to WYDOT. The County Commission has not taken up this matter yet.) What thoughts are given to doing this upgrade first, **before** creating the TTCR to establish how the traffic numbers flow ? We can not look at developing new roads until current roadways/intersections are upgraded to capacity. This is the only way to ensure that connector roads will not be used as cut through routes. Posting a speed limit of 30mph will not discourage cutting thru our neighborhoods if the Y traffic is not improved FIRST. (PKS – The "Future Baseline" portion of the analysis does what you've described and enumerates the roadway system modifications that would be necessary if the Tribal Trail Road connector isn't constructed. Regarding the question of speed, the analysis recommends the road be designed, not just posted, for 30 mph. There is a significant difference between the two, which will make a difference regarding how fast vehicles can travel along the road.)

The report details the concerns of direct impact of non-motorized traffic around our schools with the TTCR. "Future traffic volumes on High School Road with the Connector are forecast to increase to 9,400vpd west of WY 89, roughly more that 2,300vpd than existing conditions." I believe sidewalks, improved signs, bike/ped lanes and roundabouts are ideas that should be implemented immediately. Only then, we can even begin to consider adding traffic loads near our school age children. (PKS - The report included recommendations to improve the safety of nonmotorized travelers, and the Town recently completed a roundabout study for some intersections in the study area. Since nearly all the roads in the study area are in the Town, I would encourage you to contact their Public Works staff for more information regarding their priorities and planned projects.)

Lastly, this report gives no consideration to wildlife impact in the area. It is established that

hundreds of wildlife habitat the South Park region. What considerations have been made for their safely in the additional vpd analysis ? (PKS - This was strictly a number's exercise, so wildlife impacts were not part of the scope. If construction of the road moves forward, an environmental review process will be undertaken to look at wildlife and other considerations.)

regards,
linda

From: Tennyson-Ankeny Construction
Sent: Friday, June 11, 2010 5:58 PM
To: Paula Stevens
Subject: Tribal Trails Road and its affect on High School Road

Hello Paula:
I apologize in advance for this email being so succinct, but I am rather pressed for time, but want to express a few concerns I have in regards to the Tribal Trails Connector being built.

I disagree with the Origin-Destination Study Results (on Page 5 of the handout) presented to the public on Tuesday, June 8th. After hearing the presentation, the results should be inconclusive. Inter-community** trips during a school session period were not obtained. There are hundreds of vehicle trips each school day that affect High School Road that do not even use Highway 89, originating from:

**
High Country Subdivision
Indian Trails Subdivision
Blair Apartments
The condos, townhomes and apartments bordering White House Drive and South Park Loop
Cottonwood Park
Homes and condos along Boyles Hill Road
Homes on Ely Springs Road
Indian Springs Ranch
Commercial and Residential Apartments and Condos along Gregory Lane
South Park Ranches
Shootin' Iron Ranches
Three Creek Ranch
Polo Ranches
Melody Ranch
Dairyland Estates

All these neighborhoods can easily contribute vehicle use counts a few times a day drive up and down High School Road to go to:
Any of the 6 schools off of High School Road (including home for lunch and back)
Shop at Smith's Grocery & Pharmacy
Visit any of the commercial properties along High School Road, Gregory Lane, Boyles Hill Road or South Park Loop
Or just visiting other community area neighborhoods

A comment was made that the heavy traffic times are only when school begins and when it ends. I disagree. Please check out traffic between 11:30am and 1:00pm and 5pm and 6:15pm Monday thru Friday. Even in the summer, although school months (9 months a year) can be worse.

My main concern is what High School Road will become if the Tribal Trails Connector opens and an East-West Collector Road in the Porter Estate does not get developed. I feel the East-West Collector must open first before the Tribal Trails Road is completed, regardless if there is no development in the Porter Estate. A September 2009 letter from Robert Gill to the Town and County suggests he wishes to continue to ranch into the unforeseeable future. Why would Robert Gill agree to a road going through his ranchland? If this is the case, my suggestion is to table the Tribal Trails Road until a COMPLETE East-West Collector Road has been established. High School Road will never be able to handle the cut-through traffic that TTR would produce. No one traveling south (or north, for that matter) will want to continue traveling 40mph down South Park

Loop when they can head up (or down) High School Road, hit the stop light and venture down the highway at 55mph. Of course, most will use High School Road.

In the June 8th meeting, I thought I heard that Indian Springs as already extended use of their road in an emergency situation.

If TTR was established and no East-West Collector was built, you'll be needing a stop light for the corners of High School Road and Gregory Lane, High School Road and Middle School Road, Corner Creek Lane and High School Road (both being too close to each other for stop and go traffic), Rangeview Drive and High School Road. Sounds like a mess to me.

Fixing the 'Y' should be sought after first. If that should fail, then look into other options. Please do not waste any more time researching the TTR without a (COMPLETELY THROUGH - SPL to Hwy 89) East-West Collector Road.

And then there is the emotional side of things ... in completing the TTR and not an East-West Collector beforehand, you'll be responsible for the deterioration of many neighborhoods and their home's values (just slap them in the face at the same time).

Why not try fixing the 'Y' first?

Thanks for your time.

Barbara Ankeny
Cottonwood Park

ROBERT BERNSTEIN, P.E.
Consulting Transportation Engineer/Planner

June 2, 2010

Mr. Armond Acri
Save Historic Jackson Hole
PO Box 8205
Jackson, WY 83002

SUBJECT: Comments on Draft Teton County South Park Area and High School Road Corridor Transportation Analysis

Dear Mr. Acri,

I have reviewed the May 14, 2010, Draft *South Park Area and High School Road Corridor Transportation Analysis*, prepared by Teton County consultant FHU. As you recall, on a number of occasions over the last year we have requested –verbally and in writing – that the study provide certain specific analysis results that we need to see/review in order to be able to understand and accept study results, not to mention to be able to explain them to our TTCR/South Park area neighborhood constituencies. We also asked that the requested results be provided to us for review in a timely way (i.e., that the County give us enough time to review and comment without impacting the study schedule).

For the most part, the requested technical information has been provided as requested (although – due to the less-than-user-friendly software package used – the data were not as clear and easily-compiled/understood as I'd hoped.). The available review time leading up to the proposed June 8 meeting is inadequate, as there is insufficient time for me to (a) absorb what was done and what was left out; (b) communicate my findings/advice to you, (c) specify additional work and major modifications needed, and (d) have the County make the necessary revisions. I guess we will need to let the chips fall where they may, per the following discussion.

PURPOSE OF TRIBAL TRAILS CONNECTOR ROAD (TTCR)

From the Community's perspective, the sole legitimate traffic-related purpose of TTCR would be to provide a direct linkage between South Park/TTCR area neighborhoods and WY22 that doesn't require community traffic to travel out-of-direction to the east and unnecessary use of US89 and The Y. The local streets and collectors serving the South Park/TTCR area (South Park Loop, High School Rd, etc) and the land uses adjacent to them are neither designed nor intended to carry other traffic (i.e., traffic without an origin or destination in the community or simply circumventing congested intersections). Even the County's insufficiently-defined functional class "system" makes this clear.

507 - 18th Avenue East
Seattle, Washington 98112
RBernstein.CE76@GTalumni.org
(206) 325-4320
fax (206) 325-4318

The County's thus-far inexplicitly-stated purpose for the TTCR seems to be to provide that direct linkage between South Park/TTCR area neighborhoods and WY22, but primarily as a relief for the US89 and The Y, and not just for local traffic. Unless and until the County's attitude about/approach to TTCR is brought closer into line with that of the community, it is hard to see how WYDOT and community design cooperation happens.

Suggestion: It may be useful to take a little time to resolve this "Purpose" issue now, if for no other reason than to better foster community and public agency interaction.

NECESSARY ANALYSIS UNAVAILABLE

An analysis critical to community understanding of existing conditions and how to proceed is missing, and I suggest that the Draft Report is not ready for productive review until that analysis is provided. The missing analysis is that of a road system scenario in which (a) TTCR is used only by *appropriate* HSRC/South Park area traffic, and (b) any inappropriate through traffic that the traffic model thinks that TTCR might attract instead remains on the highway system (WY22 and US89).

(btw: this is an analysis I anticipated having to do for SHJH, although it would be better for the sake of analytical consistency, etc, if the County were to do it. However, given the County's compressed schedule and withholding of information – still don't have the Synchro intersection analysis files requested at the outset – I have neither the time nor the input data to do so at this time in time for the imminent June 8 meeting.)

"Appropriate" and "Inappropriate" HSRC/South Park area traffic

According to the County's traffic forecasting/assignment model, as compiled in the Draft Report, of the 9,000 daily traffic that would use TTCR were it open today, only about 3,000 (33%) has an origin or destination in the South Park/HSRC Area and does not use US89 enroute. This is 'appropriate' HSRC/South Park area traffic, according to the community-understood purpose of TTCR. The remaining 6,000 TTCR traffic – including traffic enroute to/from south of the South Park area; traffic simply avoiding The Y and shortcutting back to US89; and traffic enroute to streets on the east side of Broadway – can and should continue to use WY22 and US89, as these are the arterials designed/intended to carry such traffic, while South Park Loop, High School Road, Tribal Trails, etc are not.

Similarly, of the 13,300 daily traffic that would use TTCR in 2030 per the Draft Report, 5,300 (39%) is 'appropriate' HSRC/South Park area traffic, and the remaining 8,000 should continue to use WY22 and US89.

It should be recognized that because the scenario analyzed in the Draft Report shows the entire 9,000 (extg) and 13,300 (2030) daily traffic using TTCR, the use of South Park area streets by 6,000 (extg) and 8,000 (2030) inappropriate TTCR through traffic is validated. Furthermore, this also means that under the 'with-TTCR' scenarios, WY22 and US89 are

presumed to be carrying 6,000 (extg) and 8,000 (2030) *less* daily traffic than they should be, and as a consequence, the means of accommodating this traffic on WY22 and US89 are ignored in the list of recommended improvements.

PREMATURE TO RECOMMEND IMPROVEMENTS

Presentation of the Draft Report "as is" – particularly with the list of improvements for the "with-TTCR" scenario – sends the message that the traffic forecasts and analyses are being used not to simply 'inform' plan development as they should be, but also to 'dictate' plan development. There is no questioning of the appropriateness or desirability of the TTCR traffic assigned by the model – only acceptance thereof, and a list of improvements needed to support it.

Unless and until the "appropriate-use-of-TTCR" scenario described above is analyzed – and the TTCR, WY22, US89, AND "Y" improvements necessary to support it are identified – presentation of any list of recommended improvements is premature at best, and can be counterproductive toward the goal of gaining community and agency agreement on a program of improvements for the area.

NEXT STEPS

STEP 1: [*this is what we are doing now*] Change the discussion from comparative LOS, and establish the fact that South Park/HSRC roads should carry local traffic ONLY (per definitions above), and that South Park/HSRC roads are neither designed nor intended to carry by-pass through traffic past neighbors' homes, regardless of capacity and LOS issues elsewhere on State/County roads. (Part of this Step is quantifying the volume of appropriate local traffic – which I have d0ne above – and constantly referring to that as the TTCR volume, NOT the model-generated volume, which includes unacceptable through volume as well.)

STEP 2: [*this is what we are getting into now*] Establish and promote the fact that the State Highways and County Arterials – WY22 and US89 in particular in this case – are the facilities that are intended to carry through non-local traffic, and must be improved to do so. (Part of this Step is quantifying the volume of through traffic that must be accommodated by the State Highways and County Arterial system, and constantly referring to that volume as the WY22, The Y, and US89 volumes, and NOT using the model-assigned volume, which diverts some through traffic through the community).

STEP 3: Determine the State Highway and County Arterial improvements needed to accommodate the through traffic on the regional highway system BEFORE any kind of reasonable, practical judgment can be made on TTCR, because TTCR is clearly a matter that is secondary to providing adequate regional capacity of the regional highway system..

In addition to the above, I have attached a few technical comments that are important enough to put in writing, but are not the primary thrust of my comments at this time. If you have any questions or if you need additional information, please contact me.

Sincerely,

Robert Bernstein, P.E.

Summary of Qualifications. I have Bachelor's and Master's degrees in Civil Engineering (from Georgia Tech and Northwestern University, respectively), and I am a registered professional engineer in Oregon, Washington, California, Idaho, Georgia, and New Jersey. I have over 30 years of transportation planning and traffic engineering experience, including five years with the City of Portland, Oregon, and seven years as Senior Transportation Engineer with the Puget Sound Council of Governments. In these positions and as a private consultant, I have served as project traffic engineer and transportation planner on dozens of arterial and highway conceptual design studies in Oregon, Washington, California, and Georgia. I have prepared the transportation element for a dozen city and county comprehensive plans, and I have conducted numerous regional and subregional travel demand forecasting studies, traffic operations and safety analyses, and neighborhood traffic management studies. In addition, I have provided on-call development review services for several cities in Oregon, Washington, and California, and over the last 25 years I have provided expert assistance on development-related traffic issues to over 100 community and neighborhood groups in Oregon, Washington, and throughout the West.

Technical Attachment:
Underestimate of delay and overstatement of LOS in calculations

The Synchro [intersection analysis] model used to do the traffic operational analyses for the contained two factors for left turn movements that result in less delay and better LOS in the analysis results than one would find in the real world. The model employed an excessive saturation flow rate[1] for left turns and an excessive lane utilization factor[2] for dual left turns, which caused the analyses inherently assume that left turn movements are more efficient than they really are, and as a consequence, the intersection analysis results show the intersections functioning much better than they really will.

Use of correct left turn saturation flow rates and dual left lane utilization factors yields the results compiled in **Table 1**.

[tbd: need Synchro intersection analysis files requested from County

– OR –

a lot of time to replicate data entry]

[1] "Saturation flow rate" is the maximum flow rate at which traffic can move through a given intersection. The saturation flow rate used in the Synchro model was 1,900 veh/hr for all turning and through movements at all intersections. Though this flow rate is appropriate for through movements, it is excessive for turning movements, for which actual saturation flow rates are in the 1,200-1,500 veh/hr range. A vast quantity of research and observation over the years has found that the average headway (i.e., the time gap between vehicles) of traffic moving through intersections at maximum flow rates (saturated conditions) is 1.9–2.0 seconds per vehicle, which translates to 1,800–1,900 vehicles per hour. Similar data for turning movements, however, indicate average headways of 2.5–3.0 seconds per vehicle, which translate to saturation flow rates for turns of 1,200–1,450 vehicles per hour.

[2] "Lane utilization factor" is used to specify the relative utilization of the available lanes in a given intersection approach. A lane utilization factor of 1.0 indicates that all lanes are being used equally. The Synchro model uses a default lane utilization factor of 0.97 for dual left turn lanes, which indicates that the volume in one of the two lanes is 94% of the volume in the other. This lane utilization factor may not be appropriate for WY22 and U89 dual left turn lanes, especially onto sidestreets, because the two left turn lanes will not be used equally at those locations. A lane utilization factor of 0.75 (volume in one of the two lanes is half of the volume in the other), at most, should be used to analyze these intersections.

ROBERT BERNSTEIN, P.E.
Consulting Transportation Engineer/Planner

June 18, 2010

Mr. Sean O'Malley, County Engineer
Teton County Public Works Dept
320 S King St
Jackson, WY 83001

Ms. Paula Stevens, Asst Director
Teton County Planning Dept
200 S Willow St
Jackson, WY 83001

SUBJECT: Clarifications of Issues Associated with Draft Teton County South Park Area and High School Road Corridor Transportation Analysis

Dear Sean and Paula,

Based on the report drafts, the Town/County/public correspondence, the meeting summaries, and other materials I have seen recently, it seems that several key technical and procedural points have gotten off track a bit; the purpose of this letter is to clarify those points.

REPRESENTATION/COMMUNITY PERSPECTIVE

Expressing the technical concerns of the people who live and/or work in the TTCR/South Park area.

As you know, my formal clients are Save Historic Jackson Hole and several of the individual neighborhoods in the Tribal Trails Connector Road (TTCR) area. For the last 2+ years I have been providing technical and procedural advice to these groups in much the same way that you advise and serve County elected and appointed officials; i.e., I am serving as these community groups' technical staff.

Inasmuch as my clients are part of the Teton County/South Park area community, I am assisting "the community" by helping it to enunciate its concerns about road and transportation planning issues. To my knowledge, no one has ever claimed that my clients totally and completely represent the entire community to the exclusion of any other group or individual – although in fact it is worth noting that the level of coordination and cooperation amongst the various neighborhoods and environmental groups in the area is extraordinary in my experience.

507 - 18th Avenue East
Seattle, Washington 98112
RBernstein.CE76@GTalumni.org
(206) 325-4320
fax (206) 325-4318

NEED & PURPOSE OF TRIBAL TRAILS CONNECTOR ROAD (TTCR)

Defining the Need and Purpose of the proposed project from the perspective of the people who live and/or work in the TTCR/South Park area.

The Need & Purpose Statement (NPS) the County is developing is a required element of the environmental process that is defined by the Federal and State governments to ensure that Federal and State funds are used wisely and efficiently; that the proposed facility has a demonstrable need and usefulness within the local and regional highway/transportation system. Such an NPS is an important and useful document, and needs to be completed. Although it is not clear that such an NPS is required in the case of the County TTCR Project, such an NPS is an important and useful document, and should be completed.

That being said, however, it should be recognized that the traffic-centric, road-system-focused perspective of the Federal/State NPS clearly does NOT adequately address the concerns and perspective of many residents in the surrounding HSRC/South Park area, whose concerns are just as legitimate and germane as the Federal/State system concerns. **Thus there is a need to enunciate a Need & Purpose Statement from a community perspective in order to help guide this project in a way that makes it compatible with the values and needs of the surrounding community**. If we are truly trying to come up with the right project in the right place, then BOTH NPS's are needed, and both can/must be used to develop such a project.

From what I've heard in the community and from what I've seen of other projects and plans elsewhere, a community NPS could be stated fairly succinctly:

> The sole traffic-related purpose of TTCR should be to provide a direct linkage between South Park/TTCR area neighborhoods and WY22 that doesn't require community traffic to travel out-of-direction to the east and doesn't require unnecessary use of US89 and The Y. The local streets and collectors serving the South Park/TTCR area (South Park Loop, High School Rd, etc) and the land uses adjacent to them are neither designed nor intended to carry other traffic (i.e., traffic without an origin or destination in the community or traffic simply circumventing congested intersections).

There is nothing in Federal, State, or County regulations that would prevent County government from working with its citizenry to establish such guidelines or requirements for the proposed TTCR; in fact many/most local governments already have such considerations adopted into their Transportation Plans explicitly or in the form of functional classification definitions for arterials, collectors, etc, that discourage and/or prohibit through traffic on some streets.

COORDINATION WITH STATE HIGHWAY IMPROVEMENTS

Regional/State roads should be improved to accommodate Regional/State traffic demands as a first priority; County roads through residential communities should not be used to accommodate regional traffic.

A corollary to the community NPS is that the State Highways and County Arterials – WY22 and US89 in particular in this case – are the facilities that are intended to carry through non-local traffic, and must be improved to do so. Accordingly, the State Highway and County Arterial improvements needed to accommodate the through traffic on the regional highway system need to be determined BEFORE any kind of reasonable, practical judgment can be made on TTCR, because TTCR is clearly a matter that is secondary to providing adequate regional capacity of the regional highway system. After this current rush of TTCR/South Park area analyses are complete, a truly comprehensive, coordinated, multi-agency assessment of the improvements needed on WY22, The Y, Broadway, and US89 intersections/interchanges through South Park should be done PRIOR to further TTCR project development. The resultant set of regional roadway system improvements should inform and guide the TTCR project, not the other way around!

LOCAL TRAFFIC VS THROUGH TRAFFIC

Only about 33% of the traffic expected to use the TTCR as proposed would be Local traffic according to the community's definition of through and local traffic. The other 67% is traffic that can/should remain on the Regional/State road system.

Much of the discussion of TTCR impact and acceptability hinges on the terms "local traffic" and "through traffic," and those terms are too easily manipulated. In terms of the perspective of the TTCR/South Park area community, the terms are defined as follows (using the traffic origin-destination information developed for the HSRC/South Park area)

- According to the County's traffic forecasting/assignment model, as compiled in the Draft Report, of the 9,000 daily traffic that would use TTCR were it open today, only about 3,000 (33%) has an origin or destination in the South Park/HSRC Area and does not use US89 enroute. This is "appropriate" Local HSRC/South Park area traffic, according to the community-understood purpose of TTCR.

- The remaining 6,000 TTCR traffic – including traffic enroute to/from south of the South Park area; traffic simply avoiding The Y and shortcutting back to US89; and traffic enroute to streets on the east side of Broadway – is inappropriate Through traffic that can and should continue to use WY22 and US89, as these are the arterials designed/intended to carry such traffic, while South Park Loop, High School Road, Tribal Trails, etc are not.

- Similarly, of the 13,300 daily traffic that would use TTCR in 2030 per the Draft Report, 5,300 (39%) is appropriate Local HSRC/South Park area traffic, and the remaining 8,000 is inappropriate Through traffic that should continue to use WY22 and US89.

- It should be recognized that because the scenario analyzed in the Draft Report shows the entire 9,000 (extg) and 13,300 (2030) daily traffic using TTCR, the use of South Park area streets by 6,000 (extg) and 8,000 (2030) inappropriate TTCR through traffic is validated. Furthermore, this also means that under the 'with-TTCR' scenarios, WY22 and US89 are presumed to be carrying 6,000 (extg) and 8,000 (2030) *less* daily traffic than they should be, and as a consequence, the means of accommodating this traffic on WY22 and US89 are ignored in the list of recommended improvements.

TRAFFIC ANALYSIS RESULTS

I am disappointed that you and your consultant are unwilling/unable to provide copies of the Synchro intersection analysis computer files used to do your HSRC/South Park area analyses. You have nothing to gain by withholding this information, and in fact the opportunity to have a more robust review and evaluation of the analysis results – which make those results more valuable – is being lost.

Aside from the fact that anyone with any experience with the useful and widely-used Synchro software package knows that the printed output reports do NOT document all the analysis inputs and outputs, the fact is that you provided similar documentation for the HSRC/South Park area trip generation analysis, begging the question why complete intersection analysis should be withheld? (The trip generation analysis was done on an Excel spreadsheet, and the Excel spreadsheet with your input data, results, and computations was provided to us. I used my licensed Excel spreadsheet software to open the file and review the information you provided. This is all I was asking for in terms of intersection analysis: i.e., for you to provide the Synchro files with the input data and results, and I would use my licensed Synchro software to open the files and review the information.)

Hope this was useful. If you have any questions or if you need additional information, please contact me.

Sincerely,

Robert Bernstein, P.E.

cc: Armond Acri, Save Historic Jackson Hole
Linda Aurelio
Jeff Ream, FHU

Summary of Qualifications. I have Bachelor's and Master's degrees in Civil Engineering (from Georgia Tech and Northwestern University, respectively), and I am a registered professional engineer in Oregon, Washington, California, Idaho, Georgia, and New Jersey. I have over 34 years of transportation planning and traffic engineering experience, including five years with the City of Portland, Oregon, and seven years as Senior Transportation Engineer with the Puget Sound Council of Governments. In these positions and as a private consultant, I have served as project traffic engineer and transportation planner on dozens of arterial and highway conceptual design studies in Oregon, Washington, California, and Georgia. I have prepared the transportation element for a dozen city and county comprehensive plans, and I have conducted numerous regional and subregional travel demand forecasting studies, traffic operations and safety analyses, and neighborhood traffic management studies. In addition, I have provided on-call development review services for several cities in Oregon, Washington, and California, and over the last 25 years I have provided expert assistance on development-related traffic issues to over 100 community and neighborhood groups in Oregon, Washington, and throughout the West.

ROBERT BERNSTEIN, P.E.
Consulting Transportation Engineer/Planner

June 22, 2010

Mr. Sean O'Malley, County Engineer
Teton County Public Works Dept
320 S King St
Jackson, WY 83001

Ms. Paula Stevens, Asst Director
Teton County Planning Dept
200 S Willow St
Jackson, WY 83001

SUBJECT: Through Traffic vs Local Traffic in the High School Road Corridor (HSRC) – South Park area Transportation Analyses

Dear Sean and Paula,

I appreciate the opportunity to further clarify this vexsome issue/definition that seems to lie at the root of most misunderstandings about the desirability of the Tribal Trails Connector Road (TTCR).

Need for TTCR

My clients' assertion – as expressed to the best of my ability in my June 18, 2010, letter – is that from the perspective of "the neighbors" (i.e., the TTCR/South Park area communities),

> The sole traffic-related purpose of TTCR should be to provide a direct linkage between South Park/TTCR area neighborhoods and WY22 that does not require community traffic to travel out-of-direction to the east and does not require unnecessary use of US89 and The Y. The local streets and collectors serving the South Park/TTCR area (South Park Loop, High School Rd, etc) and the land uses adjacent to them – see photos below – are neither designed nor intended to carry other traffic (i.e., traffic without an origin or destination in the community or traffic simply circumventing congested intersections).

TTCR Fatal Flaw

A corollary, also expressed in my June 18 letter, is that the State Highways and County Arterials – WY22 and US89 in particular in this case – are the facilities that are intended to carry through non-local traffic, and must be improved to do so. Accordingly, the State Highway and County Arterial improvements needed to accommodate the through traffic on the regional

507 - 18th Avenue East
Seattle, Washington 98112
RBernstein.CE76@GTalumni.org
(206) 325-4320
fax (206) 325-4318

highway system need to be determined BEFORE any kind of reasonable, practical judgment can be made on TTCR, because TTCR is clearly a matter that is secondary to providing adequate regional capacity of the regional highway system. After this current rush of TTCR/South Park area analyses are complete, a truly comprehensive, coordinated, multi-agency assessment of the improvements needed on WY22, The Y, Broadway, and US89 intersections/interchanges through South Park should be done PRIOR to further TTCR project development. The resultant set of regional roadway system improvements should inform and guide the TTCR project, not the other way around!

HSRC–South Park Area Neighborhood Roads
(*these are not regional or even county-wide through routes*)

HSRC–South Park Area Neighborhood Roads
(continued)

LOCAL TRAFFIC VS THROUGH TRAFFIC

As shown on the attached Figure 3 from the HSRC/South Park Area Study draft report, only about 33% of the traffic expected to use the TTCR as proposed would be Local traffic according to the community's definition of through and local traffic. The other 67% is traffic that can/should remain on the Regional/State road system.

Much of the discussion of TTCR impact and acceptability hinges on the terms "local traffic" and "through traffic," and there seem to be multiple definitions of those terms, depending on who one is talking to. In terms of the perspective of the TTCR/South Park area community, the terms are defined as follows (using the traffic origin-destination information developed for the HSRC/South Park area)

- Traffic for which TTCR is needed - i.e., South Park/TTCR area neighborhood traffic enroute to/from WY22 that otherwise would have to travel out-of-direction to and via US89 – is the "community-defined" Local traffic, and the only traffic that TTCR should accommodate. (According to the draft traffic study, this local traffic comprises only 34% of TTCR traffic.

- WY22 traffic enroute to/from areas east of Broadway should stay on WY22. It would be counterproductive and inappropriate to build TTCR in order to be able to divert this regional traffic off the state highway/arterial network and onto TTCR/South Park area neighborhood streets simply to avoid making the primary system improvements needed (e.g., at The Y). The 37% of potential TTCR traffic making this diversion constitutes a negative impact for the community, not a justification for the project.

- WY22 traffic enroute to/from communities and businesses in the south end of South Park via US89 should continue to use WY22 and The Y. It would be counterproductive and inappropriate to build TTCR as a means of diverting this ostensibly local traffic (14% of potential TTCR traffic) onto TTCR/South Park area neighborhood streets simply as a means of short-cutting The Y and other State Hwy congestion points. (Cut-through traffic is undesirable and impacts neighborhoods regardless of whether the cut-through is inter-regional or from one part of the neighborhood to another...)

- WY22 traffic enroute to/from US89 south of South Park (14% of potential TTCR traffic) clearly should remain on the regional highway system and should not use TTCR/South Park area neighborhood streets as a means of short-cutting The Y and other State Hwy congestion points.

As discussion proceeds and further study results become available, it becomes more and more clear that advancing the TTCR at this time is premature. The Y is the key point in the Town/County/State street/hwy system, and a comprehensive set of feasible improvements must be identified and set in motion before TTCR can be properly considered.

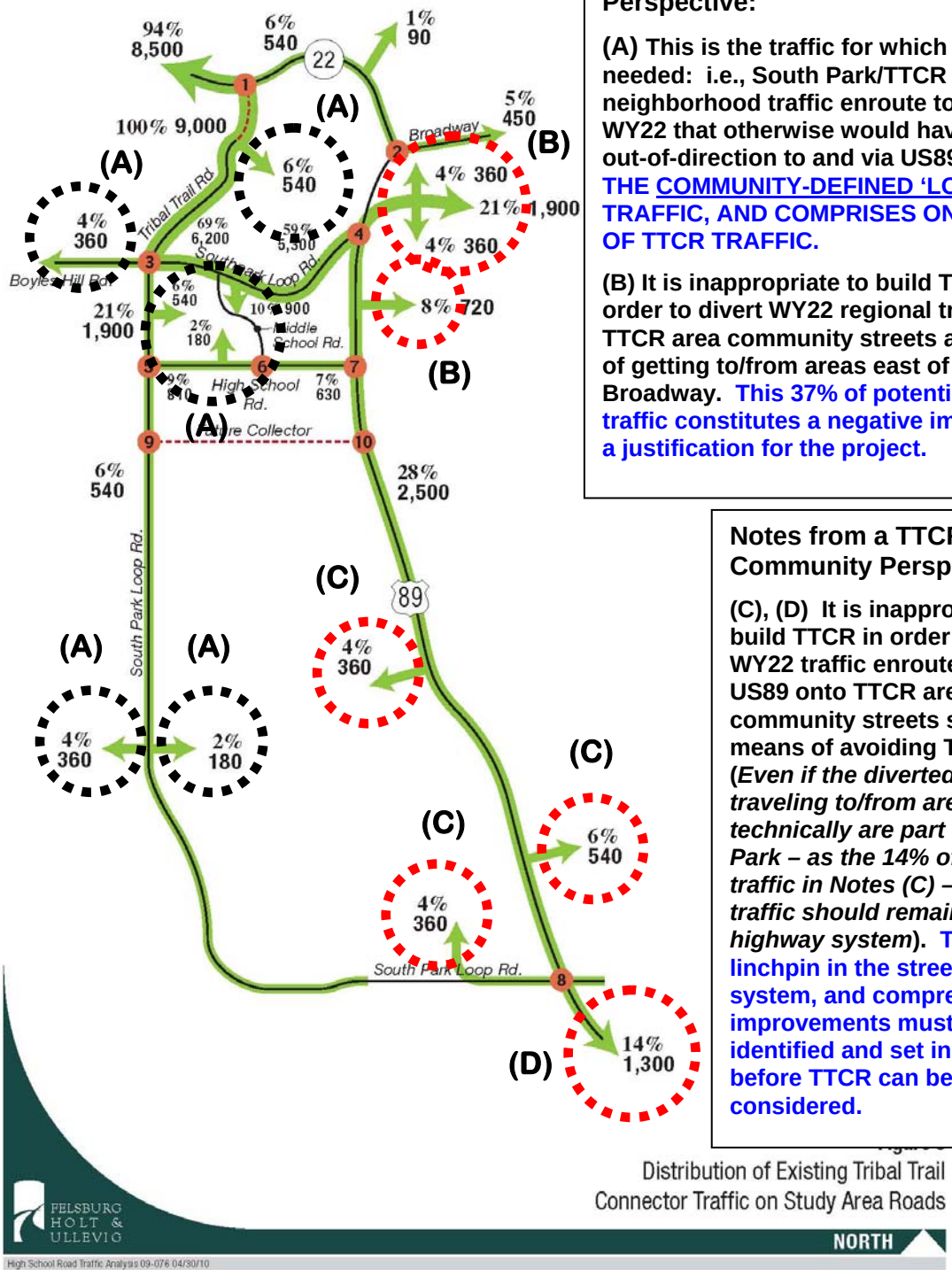
Hope this was useful. If you have any questions or if you need additional information, please contact me.

Sincerely,

Robert Bernstein, P.E.

cc: Armond Acri, Save Historic Jackson Hole
Linda Aurelio
Jeff Ream, FHU

Summary of Qualifications. I have Bachelor's and Master's degrees in Civil Engineering (from Georgia Tech and Northwestern University, respectively), and I am a registered professional engineer in Oregon, Washington, California, Idaho, Georgia, and New Jersey. I have over 34 years of transportation planning and traffic engineering experience, including five years with the City of Portland, Oregon, and seven years as Senior Transportation Engineer with the Puget Sound Council of Governments. In these positions and as a private consultant, I have served as project traffic engineer and transportation planner on dozens of arterial and highway conceptual design studies in Oregon, Washington, California, and Georgia. I have prepared the transportation element for a dozen city and county comprehensive plans, and I have conducted numerous regional and subregional travel demand forecasting studies, traffic operations and safety analyses, and neighborhood traffic management studies. In addition, I have provided on-call development review services for several cities in Oregon, Washington, and California, and over the last 25 years I have provided expert assistance on development-related traffic issues to over 100 community and neighborhood groups in Oregon, Washington, and throughout the West.



Distribution of Existing Tribal Trail Connector Traffic on Study Area Roads

Notes from a TTCR/So Pk Community Perspective:

(A) This is the traffic for which TTCR is needed: i.e., South Park/TTCR area neighborhood traffic enroute to/from WY22 that otherwise would have to travel out-of-direction to and via US89. THIS IS THE COMMUNITY-DEFINED 'LOCAL' TRAFFIC, AND COMPRISES ONLY 34% OF TTCR TRAFFIC.

(B) It is inappropriate to build TTCR in order to divert WY22 regional traffic onto TTCR area community streets as a means of getting to/from areas east of Broadway. This 37% of potential TTCR traffic constitutes a negative impact, not a justification for the project.

Notes from a TTCR/So Pk Community Perspective:

(C), (D) It is inappropriate to build TTCR in order to divert WY22 traffic enroute to/from US89 onto TTCR area community streets simply as a means of avoiding The Y (*Even if the diverted traffic is traveling to/from areas that technically are part of South Park – as the 14% of TTCR traffic in Notes (C) – that traffic should remain on the highway system*). The Y is the linchpin in the street/hwy system, and comprehensive improvements must be identified and set in motion before TTCR can be properly considered.

APPENDIX B ORIGIN-DESTINATION STUDY

FELSBURG HOLT & ULLEVIG

25 years of engineering paths to transportation solutions

MEMORANDUM

TO: Paula Stevens, Associate Planning Director, Teton County Planning and Development

FROM: Jeff Ream, P.E., PTOE, Felsburg Holt & Ullevig

DATE: April 30, 2010

SUBJECT: High School Road Corridor Traffic Analysis
Origin-Destination Study Results
FHU Reference No. 09-076-01

This memorandum summarizes the results of the origin-destination study (O-D study) conducted for the High School Road Corridor Traffic Analysis project. The O-D study was undertaken to provide field data that quantifies the traffic volume that could potentially use the proposed Tribal Trail Road extension to WY 22 west of town. This field data will be used in conjunction with Teton County's travel demand forecasting model to project traffic volumes on that road in both the near term and long term.

DATA COLLECTION

The O-D study was conducted on Tuesday, July 14, 2009 to capture typical mid-week conditions in the summer. Based on Wyoming Department of Transportation (WYDOT) data, July has the highest average daily traffic volumes of the year, so the data collected represents conditions during the peak travel period. The intent of the study was to quantify the traffic volumes traveling between the west side (i.e., Teton Pass, Wilson and the Teton Village Road) and the north end of South Park (local traffic); south South Park (also local traffic); and areas south of Jackson (through traffic), so survey stations were set up at the following locations (**Figure 1**):

West Side

- On WY 22 between the WY 22/WY 390 (Teton Village Road) intersection and the Snake River Bridge.

North End of South Park

- On North South Park Loop Road west of the WY 89 intersection; and
- On High School Road west of the WY 89 intersection;

South South Park

- On Big Trail Drive west of the WY 89 intersection; and
- On South Park Loop Road west of the WY 89 intersection

6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832
www.fhueng.com info@fhueng.com

South of Jackson

- On WY 89 south of the South Park Loop Road intersection

At each survey location two person teams recorded license plate numbers of vehicles travelling in both directions on the roadway from 7 AM to 10 AM, 11 AM to 2 PM, and 3 PM to 7 PM to capture travel data in both the morning and afternoon peak periods as well as the mid-day travel period. To the best extent possible the surveyors recorded plate numbers for all of the vehicles on the road during the nine hours of data collection so that the data set represented a significant portion of the total daily traffic on each roadway.

Table 1 compares the number of license plates recorded at each survey station with the typical total daily traffic (24-hour count) for that roadway, and indicates that in each case over half of the total daily traffic was captured in the nine hour study period.

Table 1. Study Period Data Captured Versus 24-hour Daily Volumes

Location	Plates Recorded	Daily Volume	Percent Captured
Hwy 22 east of Hwy 390	14,094	23,100[1]	61%
North South Park Loop Road	6,379	10,120[2]	63%
High School Road	4,006	7,100[3]	56%
Big Trail Drive	1,848	3,260[4]	57%[4]
South South Park Loop Road	2,241	3,600[1]	62%
Hwy 89 South of South Park Loop Road	7,170	14,100[1]	51%

1. July 2008 count
2. Forecast based on the May 2009 peak hour count at the WY 89/North South Park Loop Road intersection.
3. February 2008 count
4. Forecast based on the percent of plates captured at the other four south end locations.

Unfortunately, because of the high traffic volumes at each station (particularly the West Side station) it was not possible to collect data on the number of bicycle riders at each location, as had been requested by Friends of Pathways.

Since the purpose of the study was to provide an assessment of potential travel on the Tribal Trail Road extension, the plates at the west side location were matched up with plates at each of the five south locations. Travel between any pair of south end sites was not recorded (e.g. between South South Park Loop Road and High School Road), since those vehicles would not use the proposed extension. Furthermore, plate matching was only conducted within each study time period and not across time periods, so if, for example, a vehicle passed the west side site in the morning and then a south end site in the mid day or evening, it would not have been matched, since it was assumed that such traffic had an interim destination in town or north of town and therefore would not shift to the Tribal Trail extension if it were provided.

STUDY RESULTS

Table 2 summarizes the overall study results and provides percentages related to the total daily traffic on WY 22 on the west side of the Snake River. As the table indicates, approximately 5,000 vehicles (22 percent of the WY 22 traffic on the west side) has origins or destinations south of town. Of that total, 12 percent is from the north end of South Park, four percent is from south South Park, and six percent is through traffic from south of town.

Table 2. South Park Local and Through Traffic on WY 22 as a Percentage of WY 22 Traffic

Between	Total Recorded	Total Matched	Percent of Total	Forecast Volume
Hwy 22 east of Hwy 390	14,094	3,063	22%	5,020
And				
North South Park Loop		1,091	8%	1,790
High School Road		539	4%	880
North South Park Total			**12%**	**2,670**
Big Trail Drive		231	2%	380
South South Park Loop Road		311	2%	510
South South Park Total			**4%**	**890**
Hwy 89 South of South Park Loop		891	6%	1,460
Through Traffic Total			**6%**	**1,460**

The matched license plate data was also examined as it related to the total daily traffic volume at each south end study location, as shown in Table 3. The results are similar to those in Table 2, but show a slightly higher overall traffic volume forecast due to the variation in the percentage of plates captured at each location. The most significant change was at the station on WY 89 south of South Park Loop Road, which increased by 290 vehicles per day because a lower percentage of plates were captured there than at the other locations. To present a more conservative scenario, the slightly higher forecast of 5,350 vehicles per day (vpd) yielded by the methodology summarized in Table 3 was selected as the base west-south traffic volume forecast.

Table 3. South Park Local and Through Traffic on WY 22 as a Percentage of Traffic at Each South Station

Location	Total Recorded	Total Matched	Percent of Total	Forecast Volume
North South Park Loop	6,379	1,091	17%	1,730
High School Road	4,006	539	13%	960
North South Park Total				**2,690**
Big Trail Drive	1,848	231	13%	410
South South Park Loop Road	2,241	311	14%	500
South South Park Total				**910**
Hwy 89 South of South Park Loop	7,170	891	12%	1,750
Through Traffic Total				**1,750**
Base Daily Traffic Volume Forecast for West End-South End Travel				**5,350**

Traffic Volume Adjustments

While the origin-destination survey included survey stations on all of the significant traffic volume roadways in the South Park area, several of the lower volume roads and driveways immediately north of South South Park Loop Road were omitted to help streamline the data collection process. West-South traffic from that area was forecast based on the data collected at the other south end stations, as shown in Table 4. For the two roads in that area that access primarily residential property, the west-south traffic percentage was forecast based on the data from the Big Trail Drive and South South Park Loop Road stations, which also access primarily residential property. For the commercial driveways, the North South Park Loop Road and High School Road data was used to forecast west-south travel, since the land uses in North South Park includes commercial development. These percentages were then applied to the total daily traffic volumes for each location to determine the west-south traffic forecast. Based on this methodology, approximately 800 vpd is forecast to travel between the west side and the roads and businesses that area, which increases the total west-south traffic volume forecast to 6,150 vpd.

Table 4. Traffic Volume Adjustments for Additional South Park Roads and Driveways

Location	West-South Percentage	Daily Volume	Forecast Volume
Tensleep Drive	13%[1]	3,170[3]	420
Canadian Drive	13%[1]	1,310[3]	170
Meadow Drive	13%[1]	330[3]	40
Traffic from WY 89 Development North of SPLR	16%[2]	1,110[4]	170
		Subtotal	*800*
Base Volume Forecast (from Table 3)			*5,350*
Total Daily Traffic Volume Forecast for West End-South End Travel			**6,150**

1. Forecast based on Big Trail Drive and South South Park Loop Road Station data (since those road access primarily residential land uses).
2. Forecast based on North South Park Loop Road and High School Road Station data (since there are some commercial uses on those roads).
3. 2006 WYDOT Traffic Count. WYDOT counts in that year indicated that daily volumes on WY 89 south of SPLR were similar to the July 2008 count there, and volumes on SPLR were 150 vpd lower in 2008 than 2006. Thus it was determined that the other 2006 counts would be reasonably representative of current conditions.
4. Forecast from the 2006 WYDOT counts on WY 89 immediately north of SPLR and 1 mile north of SPLR

SUMMARY

Table 5 summarizes the overall traffic forecast for travel between the west side, South Park and areas south of town and provides the percentage of traffic from each area relative to the total traffic volume on WY 22 on the west side. As the table indicates, approximately 6,150 vehicles per day travel between those areas, which represents 27 percent of the total daily traffic volume on WY 22 on the west side. Of that total, approximately 2,690 vpd (12 percent) is from the north end of South Park, 1,710 vpd (seven percent) is from south South Park, and 1,710 (eight percent) is through traffic from south of town.

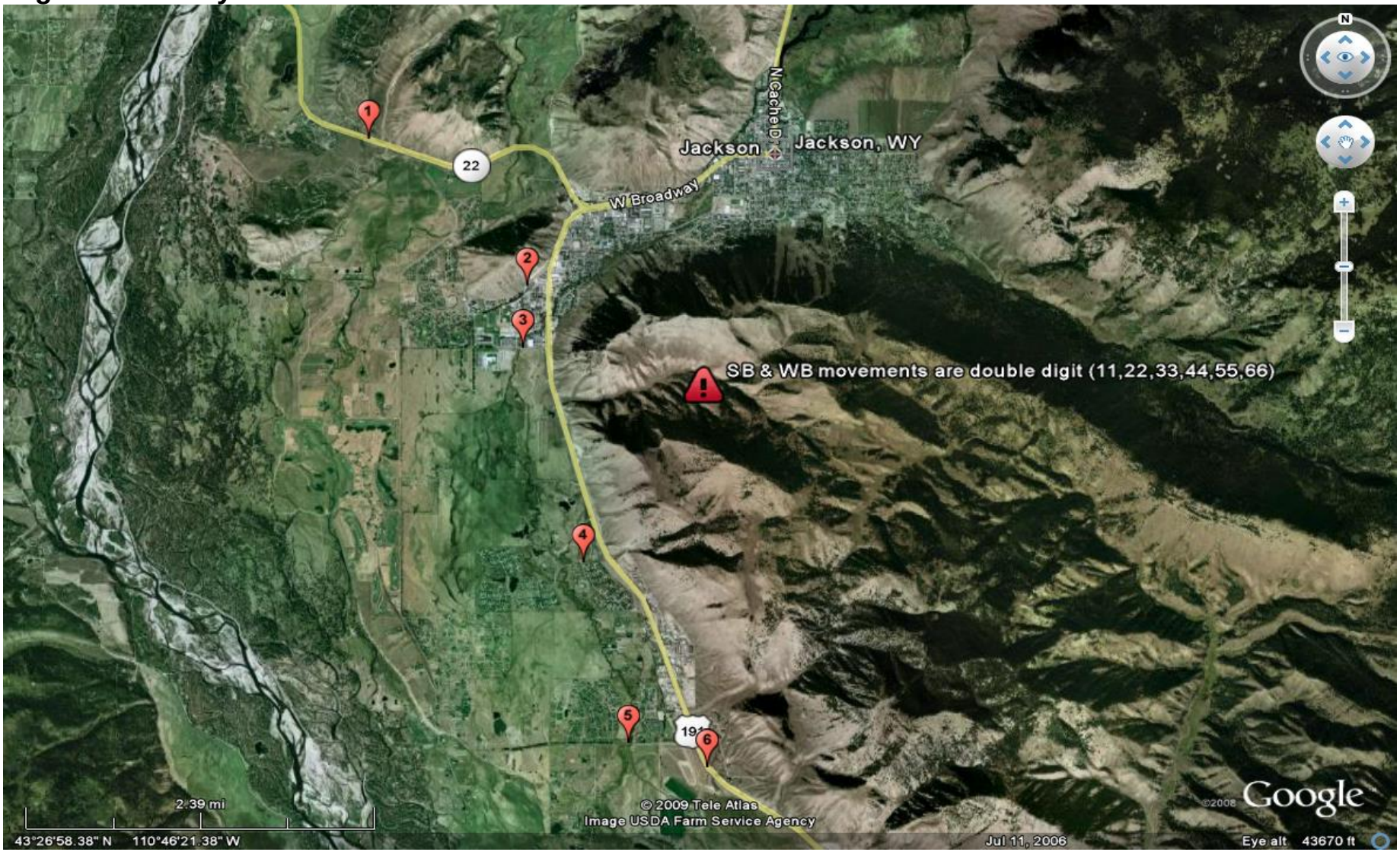
Table 2. Overall Traffic Forecasts Between the West Side, South Park and South of Town

Between	Total Daily Volume	West-South Forecast Volume	Percent Of Total
Hwy 22 east of Hwy 390	23,100	6,150	27%
And			
North South Park Loop		1,730	8%
High School Road		960	4%
North South Park Total		**2,690**	**12%**
Big Trail Drive		410	2%
South South Park Loop Road		500	2%
Other South South Park Road and Driveways		800	3%
South South Park Total		**1,710**	**7%**
Hwy 89 South of South Park Loop		1,750	8%
Through Traffic Total		**1,750**	**8%**

It should be noted that the above volumes represent the total traffic travelling between the west side and the south end that might potentially use the Tribal Trail Road extension, but it does not represent an actual traffic forecast for that road. The traffic forecasts for Tribal Trail Road would be a somewhat lower subset of this total, since it is anticipated that some drivers will continue to use WY 89 and WY 22 even after the extension is complete. The traffic forecast for Tribal Trail Road is the next task to be completed for this project, and will be conducted once the Teton County travel demand model is updated with the current comprehensive plan land use data.

If you have any questions or comments regarding the above information, please give me a call.

Figure 1: Survey Locations



APPENDIX C NONMOTORIZED CONDITIONS FIGURES

1. High School Road, view east of trash enclosure

2. High School Road, view west adjacent to Smith's

3. High School Road, view west, bike/ped crossing

4. High School Road, view west, yellow supplemental plaque

5. High School Road, view west, yellow school sign

6. High School Road, view west toward South Park Loop Road

7. High School Road, view east, conflicting speed limit sign

8. High School Road, view east, inconsistent speed limit sign

9. High School Road, view east, left turn lane, shoulders

10. High School Road, view east, through-lane off-set

11. Middle School Road, view north, inconsistent school signs

12. Middle School Road, view south, inconsistent school signs

13. Blair Drive, view south, obsolete sign

14. Tribal Trail Road, view south, through-lane off-set

15. South Park Loop Road, view south, typical cross section

16. South Park Loop Road, view east from Rangeview Drive crossing

17. South Park Loop Road, view west at High School Road crossing

18. South Park Loop Road, view west at Boyle Hill Road crossing

19. South Park Loop Road, view east at White House Drive crossing

20. South Park Loop Road, view east towards Blair Drive

21. South Park Loop Road, view west at yellow school sign

22. South Park Loop Road, view north from Middle School at trail crossing

APPENDIX D TRAFFIC COUNTS

WYDOT Traffic Counts

Counter #	RouteName	CntrLoc	2006	2002	1997	1996	1991
10	AIRPORT ROAD	WEST OF U.S. 26-89-189-191	2814	2576	2298	2441	2168
15	ANTELOPE FLATS ROAD	EAST OF US 26-89-189-191	789	533		632	
20	ASPIN-TETON PINES ENTRANCE	WEST OF WYO 390	1484	3201	6452	5299	3630
22	BAR Y ROAD	NORTH OF WYO 22	282	220		235	
25	BLAIR DRIVE	EAST OF SOUTH PARK LOOP ROAD	180	222			
26	BLAIR DRIVE	SOUTH OF SOUTH PARK LOOP ROAD	1543	1339			
28	BOYLES HILL ROAD	WEST OF SOUTH PARK LOOP ROAD	786	1046			
30	BROADWAY WESTBOUND	NORTHEAST OF PEARL AVENUE	15480	14227		17448	13508
31	BROADWAY EASTBOUND	NORTHEAST OF PEARL AVENUE	16118	14691		15801	13508
36	BROADWAY WESTBOUND	WEST OF CACHE DRIVE	9576	9076	6603	9808	6009
37	BROADWAY EASTBOUND	WEST OF CACHE DRIVE	8557	10416	11535	11879	6009
40	BROADWAY WESTBOUND	EAST OF CACHE DRIVE	5100	6239		5796	4105
41	BROADWAY EASTBOUND	EAST OF CACHE DRIVE	5545	5456		5659	4106
46	BROADWAY WESTBOUND	EAST OF WILLOW STREET	5235	4987		5033	3723
47	BROADWAY EASTBOUND	EAST OF WILLOW STREET	4585	4208		4503	3724
50	BROADWAY	EAST OF GROS VENTRE STREET	8384	8686		8447	7000
55	BROADWAY	EAST OF REDMOND STREET	2750	3258		3270	3768
60	BROADWAY	EAST OF RANCHER STREET	1054	1149	1021	1170	802
70	CACHE DRIVE	NORTH OF SNOW KING AVENUE	1683	2422		2650	3723
75	CACHE DRIVE	SOUTH OF SIMPSON AVENUE	3678	3733		4203	3212
79	CACHE DRIVE	SOUTH PEARL AVENUE	4238	3017			
80	CACHE DRIVE	SOUTH OF BROADWAY	5046	5119		5588	3928
86	CACHE DRIVE NORTHBOUND	NORTH OF BROADWAY	8357	5887	8580	9040	5783
87	CACHE DRIVE SOUTHBOUND	NORTH OF BROADWAY	6225	6225	6760	6635	5783
90	CACHE DRIVE NORTHBOUND	NORTH OF GILL AVENUE	7928	7166		7628	7757
91	CACHE DRIVE SOUTHBOUND	NORTH OF GILL AVENUE	7270	6883		8793	7757
96	CACHE DRIVE NORTHBOUND	NORTH OF MERCILL AVENUE	9139	8222		9011	9024
97	CACHE DRIVE SOUTHBOUND	NORTH OF MERCILL AVENUE	9267	8351		9801	9025
110	CACHE CREEK DRIVE	EAST OF REDMOND STREET	1638	1733		1736	1650
115	CACHE CREEK DRIVE	EAST OF RANCHER STREET	790	525		925	592
118	CLUBHOUSE DRIVE	WEST OF WYO 390	1783	1247		1536	
130	FALL CREEK ROAD	SOUTH OF WYO 22	2639		2604	2694	2423
135	FALL CREEK ROAD	.8 MILE SOUTH OF WYO 22	2515			2200	1946
140	FALL CREEK ROAD	1.8 MILE SOUTH OF WYO 22	1851	629		1549	770
145	FALL CREEK ROAD	2.8 MILE SOUTH OF WYO 22	1106	198		706	621
150	FALL CREEK ROAD	8 MILE SOUTH OF WYO 22	313	159		223	188
160	FLAT CREEK DRIVE	SOUTH OF U.S. 26-89-189-191	4303	3437		7687	6064
162	FLAT CREEK DRIVE	NORTH OF KELLY AVE	3267	2875			
163	FLAT CREEK DRIVE	SOUTH OF KELLY AVE	2442	2909			
165	FLAT CREEK DRIVE	NORTH OF SNOW KING AVENUE	2984	3059		7638	3748
170	GILL AVENUE	WEST OF CACHE DRIVE	3943	4172		3631	4701

175	GILL AVENUE	EAST OF CACHE DRIVE	5387	5788		5798	4124
180	GLENWOOD STREET	SOUTH OF BROADWAY	1135	2190			
185	GLENWOOD STREET	NORTH OF BROADWAY	1841	1207			
190	GOLDFINCH ROAD	SOUTH OF WYO 22	1001	741		1053	
195	GREEN LANE	SOUTH OF WYO 22	479	599			
200	GREGORY LANE	NORTH OF HIGH SCHOOL ROAD	3099	2252		2365	1766
205	GREGORY LANE	SOUTH OF SOUTH PARK ROAD	5045	4429		3693	
215	GROS VENTRE ROAD	EAST OF U.S. 26-89-189-191	1723	1416	1849	2025	1642
230	HANSON AVENUE	EAST OF CACHE DRIVE	600	479		657	523
235	HANSON AVENUE	EAST OF WILLOW STREET	1348	1383		1660	1136
240	HANSON AVENUE	EAST OF GROS VENTRE STREET	1299	1285		1345	926
245	HANSON AVENUE	EAST OF REDMOND STREET	1328	1507		1377	360
260	HENRY'S ROAD	EAST OF U.S. 26-89-189-191	328	140		165	124
263	HENRY'S ROAD	SOUTH OF SWINGING BRIDGE ROAD	358	376			
268	HIGH SCHOOL DRIVE	NORTH OF HIGH SCHOOL ROAD	941	773			
270	HIGH SCHOOL ROAD	WEST OF U.S. 26-89-189-191	6857	5396		5257	3483
275	HIGH SCHOOL ROAD	IN FRONT OF HIGH SCHOOL	5009	3563		3306	2639
280	HIGH SCHOOL ROAD	EAST OF SOUTH PARK ROAD	1748	734		959	
281	HIGH SCHOOL ROAD	WEST OF SOUTH PARK ROAD	204	55			
300	JACKSON STREET	NORTH OF BROADWAY	3595	3774		4739	6499
308	JACKSON STREET	NORTH OF KELLY AVENUE	662	223			
309	KELLY AVENUE	EAST OF FLAT CREEK DRIVE	1628	1998			
310	KELLY AVENUE	WEST OF MILLWARD STREET	2080	2285		5835	2340
315	KELLY AVENUE	WEST OF CACHE DRIVE	2807	2744		5811	3975
320	KELLY AVENUE	EAST OF CACHE DRIVE	2812	2793		4856	3487
325	KELLY AVENUE	EAST OF WILLOW STREET	2748	3366		3101	3456
330	KELLY AVENUE	WEST OF REDMOND STREET	3278	2687		2728	3149
335	KINGS HIGHWAY	WEST OF SPRING GULCH ROAD	444	717		690	
340	MAPLE WAY	EAST OF U.S. 26-89-189-191	10981			6840	7224
345	MAPLE WAY	WEST OF POWDERHORN LANE	9937	8794		7372	4851
350	MAPLE WAY	WEST OF SCOTT LANE	7980	2925		6403	5236
353	MEADOW ROAD	WEST OF U.S. 26-89-189-191	333	328			
355	BUFFALO WAY	SOUTH OF U.S. 26-89-189-191	7586	7832			
360	MEADOWLARK LANE	EAST OF U.S. 26-89-189-191	1647	2005		2527	1734
370	MERCILL AVENUE	WEST OF CACHE DRIVE	5165	4425		4669	3426
380	MILLWARD STREET	NORTH OF SNOW KING AVENUE	2609	2372		2197	2422
382	MILLWARD STREET	NORTH OF KELLY AVENUE	3296	3215		3521	2846
384	MILLWARD STREET	SOUTH OF BROADWAY	4393	4298		5623	4596
386	MILLWARD STREET	NORTH OF BROADWAY	9203	7897		8967	7680
388	MILLWARD STREET	AT FLAT CREEK BRIDGE	237	234		222	212
390	MOOSE-WILSON ROAD	NORTH OF TETEON VILLAGE ROAD	3247	2169	2433	1947	1711
395	MOOSE-WILSON ROAD	2 MILE NORTH OF TETON VILLAGE	1596	1515		1703	1258

398	MOOSE-WILSON ROAD	SOUTH OF TETON PARK ROAD	1691	1589	1998	1541	1323
410	NELSON DRIVE	NORTH OF BROADWAY	591	582	525	571	388
415	NETHERCOTT LANE	WEST OF WYO 390	1291	1143			
419	NORTH LAKE CIRCLE DRIVE	NORTH OF SOUTH LAKE CIRCLE DRIVE	934	3034		813	
420	PEARL AVENUE	EAST OF U.S. 26-89-189-191	10723	9998	10545	12533	8885
424	PEARL AVENUE	EAST OF MILLWARD STREET	8894	9477			
425	PEARL AVENUE	WEST OF CACHE DRIVE	9410	9368		10559	11848
430	PEARL AVENUE	EAST OF CACHE DRIVE	7155	6870		7005	5560
435	PEARL AVENUE	EAST OF WILLOW STREET	2519	2184		2438	2532
450	POWDERHORN LANE	SOUTH OF MAPLE WAY	5040	4976		4444	2621
455	POWDERHORN LANE	NORTH OF MAPLE WAY	4805	4888		4696	2184
460	POWDERHORN LANE	SOUTH OF U.S. 26-89-189-191	4563	4656		4521	3806
470	RANCHER STREET	SOUTH OF HANSON AVENUE	417	453		437	396
475	RANCHER STREET	SOUTH OF SIMPSON AVENUE	596	525		584	1093
480	RANCHER STREET	SOUTH OF BROADWAY	629	408		724	932
485	RANGEVIEW DRIVE	NORTH OF HIGH SCHOOL ROAD	869	725			
486	RANGEVIEW DRIVE	WEST OF SOUTH PARK LOOP RD S OF BLAIR DRIVE	518	329			
490	REDMOND STREET	NORTH OF HALL AVENUE	3146	3109		2649	3042
495	REDMOND STREET	SOUTH OF SIMPSON AVENUE	3001	3106		2517	3079
500	REDMOND STREET	SOUTH OF BROADWAY	3217	3098		2439	2336
520	SAGE BRUSH ROAD	WEST OF U.S. 26-89-189-191	3467	3592		3011	2845
523	SAGE BRUSH ROAD	WEST OF SPRING GULCH ROAD	1106	1193		1086	1005
530	SCOTT LANE	SOUTH OF U.S. 26-89-189-191	4241	3970		4149	4374
533	SIMPSON AVENUE	WEST OF REDMOND STREET	560	618			844
534	SIMPSON AVENUE	WEST OF RANCHER STREET	338	331		246	511
535	SNOW KING AVENUE	EAST OF SCOTT LANE	10367	9915		7924	8911
537	SNOW KING AVENUE	AT FLAT CREEK BRIDGE	9438	3697	7602	7159	8673
542	SNOW KING AVENUE	EAST OF FLAT CREEK DRIVE	7653	7444		8514	8215
546	SNOW KING AVENUE	EAST OF MILLWARD STREET	4216	6325		1873	7539
550	SNOW KING AVENUE	EAST OF CACHE DRIVE	6077	5244		2907	6113
580	SOUTH PARK ROAD (NORTH END)	WEST OF U.S. 26-89-189-191	10824	9625		6403	3518
585	SOUTH PARK ROAD	EAST OF BOYLES HILL ROAD	2604	2484		1218	1572
590	SOUTH PARK ROAD	SOUTH OF BOYLES HILL ROAD	1155	1353		831	1089
595	SOUTH PARK ROAD	NORTH OF HIGH SCHOOL ROAD	1662	1217		791	973
600	SOUTH PARK ROAD	SOUTH OF HIGH SCHOOL ROAD	2610	1400		1299	
610	SOUTH PARK ROAD	2 MILE SOUTH OF HIGH SCHOOL ROAD	1586	1281	707	1200	485
615	SOUTH PARK ROAD (SOUTH END)	1.5 WEST OF U.S. 26-89-189-191	1222	740	512	552	490
620	SOUTH PARK ROAD (SOUTH END)	WEST OF U.S. 26-89-189-191	3758	2838	2417	1181	860
630	SPRING GULCH ROAD	NORTH OF WYO 22	4045	3087		2242	2164
632	SPRING GULCH ROAD	.8 MILE NORTH OF WYO 22	2125	1621		1298	1125
635	SPRING GULCH ROAD	4 MILE SOUTH OF SAGE BRUSH ROAD	1874	1368			
637	SPRING GULCH ROAD	AT GROS VENTRE RIVER BRIDGE	1459	1585		1038	880

638	SPRING GULCH ROAD	.25 MILE NORTH OF GROS VENTRE RIVER BRIDGE	1594	1645		1245	
640	SPRING GULCH ROAD	SOUTH OF SAGE BRUSH ROAD	2023	2097		1813	1807
641	SPRING GULCH ROAD	NORTH OF SAGE BRUSH ROAD	1895	1498		1431	1184
644	SPRING GULCH ROAD	1 MILE NORTH OF SAGE BRUSH ROAD	1336	1257		1145	975
648	SPRING GULCH ROAD	2.2 MILE NORTH OF SAGE BRUSH ROAD	505	510		382	
680	SWINGING BRIDGE ROAD	EAST OF U.S. 26-89-189-191	365	384		238	191
690	TENSLEEP ROAD	WEST OF U.S. 26-89-189-191	3169	2864	2749	2773	2656
700	TETON PARK ROAD	WEST OF MOOSE JCT	10094	7532	7416	5891	5862
710	TETON PARK ROAD	AT SNAKE RIVER BRIDGE	5996	7375	5918	5827	4264
715	TETON PARK ROAD	.5 MILE NORTH OF MOOSE-WILSON	4829	6522	6351	4846	5081
720	TETON PARK ROAD	1.5 MILE NORTH OF MOOSE-WILSON	4709	4787	5957	4761	4122
730	TETON VILLAGE ROAD	WEST OF WYO 390	8365	7413	6452	5040	6798
735	TRIBAL TRAIL ROAD	NORTH OF SOUTH PARK LOOP ROAD	717	558			
740	UN-NAMED ROAD	WEST OF U.S. 26-89-189-191 NORTH OF MEADOW DR	1309	912			
750	U.S. 189-191	EAST OF HOBACK JCT	3970	4013		3956	3418
755	U.S. 26-89	SOUTH OF HOBACK JCT	7085	6092		5324	5112
760	U.S. 26-89-189-191	NORTH OF HOBACK JCT	9921	9770		8573	7782
765	U.S. 26-89-189-191	SOUTH OF HENRY'S ROAD	10134	10515	8887	8944	8160
770	U.S. 26-89-189-191	NORTH OF HENRY'S ROAD	10285	10441		8866	9681
775	U.S. 26-89-189-191	NORTH OF EVANS ROAD	13075	12354	10744	10629	11221
778	U.S. 26-89-189-191	NORTH OF SOUTH PARK FEEDGROUNDS ROAD	14141	13079		10961	
780	U.S. 26-89-189-191	SOUTH OF SOUTH PARK ROAD (SOUTH)	14141	13079	11440	11176	11322
785	U.S. 26-89-189-191	NORTH OF SOUTH PARK ROAD (SOUTH)	16016	15401	13362	11901	11713
790	U.S. 26-89-189-191	1 MILE NORTH OF SOUTH PARK ROAD	18771	17611		12989	13296
793	U.S. 26-89-189-191	SOUTH OF TENSLEEP ROAD	18996	17894	15526	13657	
795	U.S. 26-89-189-191	NORTH OF TENSLEEP ROAD	19572	20383	17878	16818	14434
800	U.S. 26-89-189-191 NORTHBOUND	AT FLAT CREEK BRIDGE	14013	10106	11456	11281	9679
801	U.S. 26-89-189-191 SOUTHBOUND	AT FLAT CREEK BRIDGE	14160	10031	10720	10387	9679
804	U.S. 26-89-189-191 NORTHBOUND	SOUTH OF SOUTH PARK ROAD (NORTH)	15375	13421	13059	13188	10357
805	U.S. 26-89-189-191 SOUTHBOUND	SOUTH OF SOUTH PARK ROAD (NORTH)	14908	12395	11932	11737	10357
808	U.S. 26-89-189-191 NORTHBOUND	NORTH OF SOUTH PARK ROAD (NORTH END)	20317	17783	15903		
809	U.S. 26-89-189-191 SOUTHBOUND	NORTH OF SOUTH PARK ROAD (NORTH END)	20084	17120	14180		
810	U.S. 26-89-189-191 NORTHBOUND	NORTH OF MEADOWLARK LANE	19980	18167		15118	12205
811	U.S. 26-89-189-191 SOUTHBOUND	NORTH OF MEADOWLARK LANE	19762	16956		14883	12206
816	U.S. 26-89-189-191 NORTHBOUND	SOUTH OF WYO 22	15610	16003	14003	14419	10827
817	U.S. 26-89-189-191 SOUTHBOUND	SOUTH OF WYO 22	17615	13864	12269	13749	10827
820	U.S. 26-89-189-191 WESTBOUND	WEST OF SCOTT LANE	20444	20069	16859	18997	14641
821	U.S. 26-89-189-191 EASTBOUND	WEST OF SCOTT LANE	20950	21084	18076	18530	16040
826	U.S. 26-89-189-191 WESTBOUND	WEST OF VIRGINIAN LANE	21082	19629		20239	17542
827	U.S. 26-89-189-191 EASTBOUND	WEST OF VIRGINIAN LANE	21972	20851		20094	15927
830	U.S. 26-89-189-191 WESTBOUND	WEST OF FLAT CREEKDRIVE	21688	19554		21338	20175
831	U.S. 26-89-189-191 EASTBOUND	WEST OF FLAT CREEK DRIVE	22377	19961		21064	19468

850	U.S. 26-89-189-191 NORTHBOUND	AT FLAT CREEK BRIDGE NORTH OF MERCILL AVENUE	7842		8309	7680	6893
851	U.S. 26-89-189-191 SOUTHBOUND	AT FLAT CREEK BRIDGE NORTH OF MERCILL AVENUE	8262		8309	8189	6894
857	U.S. 26-89-189-191	1 MILE N OF FLAT CREEK BRIDGE	14451	14347			
860	U.S. 26-89-189-191	3 MILE SOUTH OF SAGE BRUSH ROAD	14187	15389		13762	11794
865	U.S. 26-89-189-191	SOUTH OF SAGE BRUSH ROAD	13767	15640	15333	13772	12289
870	U.S. 26-89-189-191	NORTH OF SAGE BRUSH ROAD	11220	11194		11516	10756
875	U.S. 26-89-189-191	SOUTH OF AIRPORT ROAD	11115	11292	12338	11556	10744
880	U.S. 26-89-189-191	NORTH OF AIRPORT ROAD	9099	9570	10758	9917	9309
883	U.S. 26-89-189-191	NORTH OF MEADOW ROAD	8906	9516			
885	U.S. 26-89-189-191	SOUTH OF MOOSE JCT	9042	9462	11755	9780	9009
890	U.S. 26-89-189-191	NORTH OF MOOSE JCT	6413	5201	8098	6873	6445
895	U.S. 26-89-189-191	NORTH OF ANTELOPE FLATS	5800	4811	7497	6200	5772
900	WALTON RANCH ROAD	NORTH OF WYO 22	187	666		975	
910	VIRGINIAN LANE	SOUTH OF U.S. 26-89-189-191	4084	3290		2997	3244
912	WHITEHOUSE DRIVE	SOUTH OF SOUTH PARK LOOP ROAD	862	722			
920	WENZEL LANE	SOUTH OF WYO 22	887	793		833	718
930	WILLOW STREET	NORTH OF SNOW KING AVENUE	2205	2284		1215	1721
935	WILLOW STREET	SOUTH OF SIMPSON AVENUE	3314	3366		3288	3087
940	WILLOW STREET	SOUTH OF BROADWAY	4454	5139		5417	4661
945	WILLOW STREET	NORTH OF DELONEY AVENUE	3237	3295		3352	2849
950	WYO 22	NORTHWEST OF U.S. 26-89-189-191	24819			19835	17170
953	WYO 22	SE OF SPRING GULCH RD	24908	20402			
955	WYO 22	WEST OF SPRING GULCH ROAD	23376	19825		18931	17813
958	WYO 22	EAST OF BAR Y RD	23173	19972			
960	WYO 22	.66 MILE EAST OF SNAKE RIVER	22755	19514	18286	17879	15913
965	WYO 22	EAST OF WYO 390	22796	22682	19105	17718	16675
970	WYO 22	WEST OF WYO 390	13701	13948	10980	10456	8670
975	WYO 22	EAST OF WENZEL LANE	13244	13609		10217	8392
976	WYO 22	EAST OF 2ND ST (WILSON)	11942				
977	WYO 22	WEST OF 2ND STREET (WILSON)	11521		9473		
978	WYO 22	EAST OF WEST STREET (WILSON)	10060	12995	8870		
980	WYO 22	WEST OF WEST STREET (WILSON)	7562	10617		7578	7856
985	WYO 22	WEST OF FALL CREEK ROAD	7562	7692		4744	4224
990	WYO 22	.6 MILE WEST OF FALL CREEK ROAD	7573	6893	4822	4547	2356
1000	WYO 390	NORTH OF WYO 22	16527	16623	13867	12630	14449
1001	WYO 390	SOUTH OF LEEPER LANE	15900	16265			
1005	WYO 390	.5 MILE NORTH OF LEEPER LANE	15100	15424		11816	11328
1010	WYO 390	1 MILE NORTH OF NETHERCOTT LANE	13698	14304		10790	9716
1015	WYO 390	1.5 MILE NORTH OF NETHERCOTT LANE	13039	13610		9967	9292
1018	WYO 390	SOUTH OF NORTH LAKE CREEK DRIVE	12132	10845			
1020	WYO 390	2 MILE NORTH OF NETHERCOTT LANE	10239	10325		6877	6913
1025	WYO 390	2.5 MILE SOUTH OF TETON VILLAGE	8217	8123		5244	7102

1030	WYO 390	SOUTH OF TETON VILLAGE ROAD	8243	7639	6492	5081	6757
2000	2ND STREET (WILSON)	NORTH OF WYO 22	850	1213		1336	1307
2010	FISH CREEK ROAD (WILSON)	NORTH OF MAIN STREET	1371	1303	260	1403	1146
2015	H-H-R RANCH ROAD (WILSON)	NORTH OF WYO 22	1313				
2020	WEST STREET (WILSON)	NORTH OF WYO 22	1064	921	844	1031	1212

Teton Meadows Ranch
Project N0. 06-057
Intersection Traffic Turning Movements
Date: 02/12/2008

Rendezvous Engineering, P.C.
P.O. Box 4858
Jackson, WY 83001

Intersection: **East Bound and West Bound Traffic Only on High School Road (counters parked in Community Bible Church Car Park)**
Counts By: JH (9:00 am - 4:00 pm) KT / DW (6:00 pm - 10:00 pm)

Intersection: **High School Road and South Park Loop Road**

Start Time	End Time	J East Bound Turn North	K East Bound Straight Thru	L East Bound Turn South	I West Bound Turn South	H West Bound Straight Thru	G West Bound Turn North	C North Bound Turn West	A North Bound Straight Thru	B North Bound Turn East	E South Bound Turn East	D South Bound Straight Thru	F South Bound Turn West	East Bound High School Rd	West Bound High School Rd	Total
Morning - February 12, 2008																
6:00 AM	6:15 AM						1		5		1	1		1	1	2
6:15 AM	6:30 AM						3	3	2	3				3	3	6
6:30 AM	6:45 AM				3		1	3	7	4		1		4	4	8
6:45 AM	7:00 AM				2		3		5		1	5		1	5	6
7:00 AM	7:15 AM				1		2		7	8	5	3		13	3	16
7:15 AM	7:30 AM	1			1		1	1	10	31	13	6		44	2	46
7:30 AM	7:45 AM				4		9	1	16	6	10	15	2	16	13	29
7:45 AM	8:00 AM	1	1		12	2	10		12	12	2	11	1	15	24	39
8:00 AM	8:15 AM		1		4	4	7		10	8	1	4	2	10	15	25
8:15 AM	8:30 AM				6		3		8	7	3	12	5	10	9	19
8:30 AM	8:45 AM		2		16	3	5		15	9	4	10		15	24	39
8:45 AM	9:00 AM		2	1	6		3		4	6		8	1	8	9	17
9:00 AM	9:15 AM													10	10	20
9:15 AM	9:30 AM													14	7	21
9:30 AM	9:45 AM													12	12	24
9:45 AM	10:00 AM													14	6	20
10:00 AM	10:15 AM													8	9	17
10:15 AM	10:30 AM													8	10	18
10:30 AM	10:45 AM													6	6	12
10:45 AM	11:00 AM													14	7	21
11:00 AM	11:15 AM													9	6	15
11:15 AM	11:30 AM													6	10	16
11:30 AM	11:45 AM													8	6	14
11:45 AM	12:00 PM													8	5	13
	Subtotal	2	6	1	55	9	48	8	101	94	40	76	11	257	206	463
Afternoon - February 12, 2008																
12:00 PM	12:15 PM													14	11	25
12:15 PM	12:30 PM													8	10	18
12:30 PM	12:45 PM													11	20	31
12:45 PM	1:00 PM													10	9	19
1:00 PM	1:15 PM													18	15	33
1:15 PM	1:30 PM													7	12	19
1:30 PM	1:45 PM													8	10	18
1:45 PM	2:00 PM													10	11	21
2:00 PM	2:15 PM													10	15	25
2:15 PM	2:30 PM													12	11	23
2:30 PM	2:45 PM													9	8	17
2:45 PM	3:00 PM													7	18	25
3:00 PM	3:15 PM													7	4	11
3:15 PM	3:30 PM													9	15	24
3:30 PM	3:45 PM													6	14	20
3:45 PM	4:00 PM													5	6	11
4:00 PM	4:15 PM				2		7		8	7	4	5		11	9	20
4:15 PM	4:30 PM				7		7		13	9	4	8		13	14	27
4:30 PM	4:45 PM	4	4		7		5		13	13	3	4	1	20	12	32
4:45 PM	5:00 PM	1			5	1	9		18	14		8		14	15	29
5:00 PM	5:15 PM		3		9		6		15	6	6	8	2	15	15	30
5:15 PM	5:30 PM		1		13	1	8		7	11	1	10		13	22	35

Teton Meadows Ranch
Project N0. 06-057
Intersection Traffic Turning Movements
Date: 02/12/2008

Rendezvous Engineering, P.C.
P.O. Box 4858
Jackson, WY 83001

Intersection: **East Bound and West Bound Traffic Only on High School Road (counters parked in Community Bible Church Car Park)**
Counts By: JH (9:00 am - 4:00 pm) KT / DW (6:00 pm - 10:00 pm)

Intersection: **High School Road and South Park Loop Road**

Start Time	End Time	J East Bound Turn North	K East Bound Straight Thru	L East Bound Turn South	I West Bound Turn South	H West Bound Straight Thru	G West Bound Turn North	C North Bound Turn West	A North Bound Straight Thru	B North Bound Turn East	E South Bound Turn East	D South Bound Straight Thru	F South Bound Turn West	East Bound High School Rd	West Bound High School Rd	Total
5:30 PM	5:45 PM				6		4		13	8	3	11		11	10	21
5:45 PM	6:00 PM		1	1	4	1	4		11	8	3	7		12	9	21
	Subtotal	5	9	1	53	3	50	0	98	76	24	61	3	260	295	555
Evening - February 12, 2008																
6:00 PM	6:15 PM													9	10	19
6:15 PM	6:30 PM													4	18	22
6:30 PM	6:45 PM													12	8	20
6:45 PM	7:00 PM													5	8	13
7:00 PM	7:15 PM													6	3	9
7:15 PM	7:30 PM													4	5	9
7:30 PM	7:45 PM													2	7	9
7:45 PM	8:00 PM													0	5	5
8:00 PM	8:15 PM													6	9	15
8:15 PM	8:30 PM													3	2	5
8:30 PM	8:45 PM													1	11	12
8:45 PM	9:00 PM													2	1	3
9:00 PM	9:15 PM													1	3	4
9:15 PM	9:30 PM													1	3	4
9:30 PM	9:45 PM													0	4	4
9:45 PM	10:00 PM													1	2	3
	Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	57	99	156
10:00 PM	6:00 AM	Estimate												25	15	40
Total		7	15	2	108	12	98	8	199	170	64	137	14	599	615	1214

Teton Meadows Ranch
Project N0. 06-057
Intersection Traffic Turning Movements
Date: 02/12/2008

Rendezvous Engineering, P.C.
P.O. Box 4858
Jackson, WY 83001

Intersection: **East Bound and West Bound Traffic Only on High School Road (counters were parked in car park of Bell Fitness)**
Counts By: GM (9:00 am - 4:00 pm) GH (6:00 pm - 10:00 pm)

Intersection: **High School Road and Highway 89**

Start Time	End Time	E East Bound Turn North	F East Bound Turn South	B North Bound Turn West	A North Bound Straight Thru	C South Bound Straight Thru	D South Bound Turn West	G East Bound High School Rd	H West Bound High School Rd	Total
Morning - February 12, 2008										
6:00 AM	6:15 AM	3	2	3	40	18	5	5	8	13
6:15 AM	6:30 AM	8	3	12	52	9	13	11	25	36
6:30 AM	6:45 AM	17	4	19	67	15	7	21	26	47
6:45 AM	7:00 AM	16	10	17	84	38	17	26	34	60
7:00 AM	7:15 AM	18	8	50	92	33	58	26	108	134
7:15 AM	7:30 AM	54	14	54	67	58	55	68	109	177
7:30 AM	7:45 AM	50	11	49	145	57	55	61	104	165
7:45 AM	8:00 AM	62	12	40	191	60	31	74	71	145
8:00 AM	8:15 AM	55	8	40	160	51	46	63	86	149
8:15 AM	8:30 AM	48	12	27	151	47	39	60	66	126
8:30 AM	8:45 AM	77	8	36	179	55	55	85	91	176
8:45 AM	9:00 AM	74	15	16	160	58	44	89	60	149
9:00 AM	9:15 AM							20	27	47
9:15 AM	9:30 AM							38	33	71
9:30 AM	9:45 AM							34	30	64
9:45 AM	10:00 AM							32	28	60
10:00 AM	10:15 AM							37	32	69
10:15 AM	10:30 AM							34	31	65
10:30 AM	10:45 AM							31	32	63
10:45 AM	11:00 AM							30	25	55
11:00 AM	11:15 AM							40	35	75
11:15 AM	11:30 AM							76	43	119
11:30 AM	11:45 AM							45	55	100
11:45 AM	12:00 Noon							45	60	105
	Subtotal	438	88	312	1145	419	383	1051	1219	2270
Afternoon - February 12, 2008										
12:00 Noon	12:15 PM							53	55	108
12:15 PM	12:30 PM							40	39	79
12:30 PM	12:45 PM							23	35	58
12:45 PM	1:00 PM							40	35	75
1:00 PM	1:15 PM							59	51	110
1:15 PM	1:30 PM							56	41	97
1:30 PM	1:45 PM							48	50	98
1:45 PM	2:00 PM							54	46	100
2:00 PM	2:15 PM							32	60	92
2:15 PM	2:30 PM							56	41	97
2:30 PM	2:45 PM							60	80	140
2:45 PM	3:00 PM							140	58	198
3:00 PM	3:15 PM							56	43	99
3:15 PM	3:30 PM							65	89	154
3:30 PM	3.45 PM							115	116	231
3.45 PM	4:00 PM							38	41	79
4:00 PM	4:15 PM	63	21	25	80	121	42	84	67	151
4:15 PM	4:30 PM	64	32	20	87	129	51	96	71	167
4:30 PM	4:45 PM	69	34	21	93	135	46	103	67	170
4:45 PM	5:00 PM	87	49	26	98	173	26	136	52	188
5:00 PM	5:15 PM	72	45	37	102	214	45	117	82	199
5:15 PM	5:30 PM	63	32	17	88	197	55	95	72	167
5:30 PM	5:45 PM	88	65	26	75	189	44	153	70	223
5:45 PM	6:00 PM	37	23	21	60	166	46	60	67	127
	Subtotal	543	301	193	683	1324	355	1779	1428	3207
Evening - February 12, 2008										
6:00 PM	6:15 PM							96	62	158
6:15 PM	6:30 PM							84	63	147
6:30 PM	6:45 PM							62	91	153
6:45 PM	7:00 PM							55	40	95
7:00 PM	7:15 PM							32	32	64
7:15 PM	7:30 PM							34	33	67
7:30 PM	7:45 PM							40	22	62
7:45 PM	8:00 PM							49	19	68
8:00 PM	8:15 PM							67	34	101
8:15 PM	8:30 PM							25	23	48
8:30 PM	8:45 PM							22	17	39
8:45 PM	9:00 PM							20	21	41
9:00 PM	9:15 PM							28	19	47
9:15 PM	9:30 PM							10	11	21
9:30 PM	9:45 PM							8	20	28
9:45 PM	10:00 PM							11	9	20
	Subtotal	0	0	0	0	0	0	643	516	1159
10:00 PM	6:00 AM	Estimate						150	300	450
Total		981	389	505	1828	1743	738	3623	3463	7086

L2 Data Collection

Project #: FELS0002
Type: Volume / Direction
Tech: Vawdrey / Judd
Counter: 17751

1770 W. State St. #204
Boise, Idaho 83702
(208) 860-7554

S Park Loop b Boyle Hill and High School Rd VOL
Date Start: 14-May-09
Date End: 15-May-09
South Pk b Boyle Hill and High School Rd
Jackson, Wyoming

Start Time	14-May-09 Thu	SB	NB	Total
12:00 AM		2	0	2
12:15		1	0	1
12:30		1	0	1
12:45		0	0	0
01:00		0	1	1
01:15		0	0	0
01:30		0	0	0
01:45		0	0	0
02:00		0	1	1
02:15		0	0	0
02:30		0	0	0
02:45		0	0	0
03:00		0	0	0
03:15		0	0	0
03:30		0	0	0
03:45		0	0	0
04:00		0	0	0
04:15		0	0	0
04:30		0	0	0
04:45		0	0	0
05:00		0	1	1
05:15		0	1	1
05:30		0	0	0
05:45		2	0	2
06:00		1	5	6
06:15		5	3	8
06:30		8	5	13
06:45		20	4	24
07:00		**18**	9	27
07:15		**31**	25	**56**
07:30		**18**	27	**45**
07:45		**21**	17	**38**
08:00		15	**25**	**40**
08:15		17	**30**	47
08:30		21	**22**	43
08:45		14	**26**	40
09:00		17	16	33
09:15		9	8	17
09:30		6	17	23
09:45		13	13	26
10:00		13	17	30
10:15		5	16	21
10:30		14	7	21
10:45		9	9	18
11:00		12	11	23
11:15		6	31	37
11:30		12	20	32
11:45		11	18	29
Total		322	385	707
Percent		45.5%	54.5%	
Peak		07:00	08:00	07:15
Vol.		88	103	179
P.H.F.		0.710	0.858	0.799

L2 Data Collection

Project #: FELS0002
Type: Volume / Direction
Tech: Vawdrey / Judd
Counter: 17751

1770 W. State St. #204
Boise, Idaho 83702
(208) 860-7554

S Park Loop b Boyle Hill and High School Rd VOL
Date Start: 14-May-09
Date End: 15-May-09
South Pk b Boyle Hill and High School Rd
Jackson, Wyoming

Start Time	14-May-09 Thu	SB	NB	Total
12:00 PM		11	24	35
12:15		17	15	32
12:30		9	9	18
12:45		16	13	29
01:00		20	11	31
01:15		19	15	34
01:30		18	18	36
01:45		14	19	33
02:00		19	14	33
02:15		15	11	26
02:30		14	16	30
02:45		12	18	30
03:00		16	26	42
03:15		22	16	38
03:30		18	10	28
03:45		12	16	28
04:00		17	**24**	41
04:15		16	**18**	34
04:30		16	**28**	44
04:45		18	**21**	39
05:00		**25**	20	**45**
05:15		**20**	16	**36**
05:30		**23**	23	**46**
05:45		**20**	20	**40**
06:00		20	22	42
06:15		15	13	28
06:30		6	12	18
06:45		10	12	22
07:00		6	5	11
07:15		10	11	21
07:30		7	7	14
07:45		5	7	12
08:00		6	4	10
08:15		9	6	15
08:30		1	6	7
08:45		7	6	13
09:00		9	5	14
09:15		1	2	3
09:30		0	5	5
09:45		1	1	2
10:00		3	2	5
10:15		2	2	4
10:30		1	1	2
10:45		3	3	6
11:00		0	1	1
11:15		1	0	1
11:30		4	0	4
11:45		0	0	0
Total		534	554	1088
Percent		49.1%	50.9%	
Peak		17:00	16:00	17:00
Vol.		88	91	167
P.H.F.		0.880	0.813	0.908
Grand Total		856	939	1795
Percent		47.7%	52.3%	

ADT ADT 1,795 AADT 1,795

All Traffic Data Services, Inc.
9660 W 44th Ave
Wheat Ridge, CO 80033
www.alltrafficdata.net

US 191 S/O S. PARK LOOP

Site Code: 10.5

Start Time	17-Jul-07 Tue	SB
12:00 AM		31
01:00		12
02:00		12
03:00		8
04:00		18
05:00		52
06:00		150
07:00		261
08:00		401
09:00		409
10:00		386
11:00		**446**
12:00 PM		441
01:00		475
02:00		440
03:00		572
04:00		647
05:00		**824**
06:00		537
07:00		364
08:00		260
09:00		256
10:00		185
11:00		90
Total		7277
AM Peak		11:00
Vol.		446
PM Peak		17:00
Vol.		824
Total		7277
ADT	Not Calculated	

All Traffic Data Services, Inc.
9660 W 44th Ave
Wheat Ridge, CO 80033
www.alltrafficdata.net

US 191 S/O S PARK LOOP

Site Code: 10

Start Time	17-Jul-07 Tue	NB
12:00 AM		22
01:00		13
02:00		6
03:00		10
04:00		32
05:00		86
06:00		376
07:00		**738**
08:00		626
09:00		426
10:00		434
11:00		484
12:00 PM		437
01:00		386
02:00		**470**
03:00		448
04:00		404
05:00		406
06:00		338
07:00		210
08:00		156
09:00		118
10:00		102
11:00		50
Total		6778
AM Peak		07:00
Vol.		738
PM Peak		14:00
Vol.		470
Total		6778
ADT		Not Calculated

L2 Data Collection

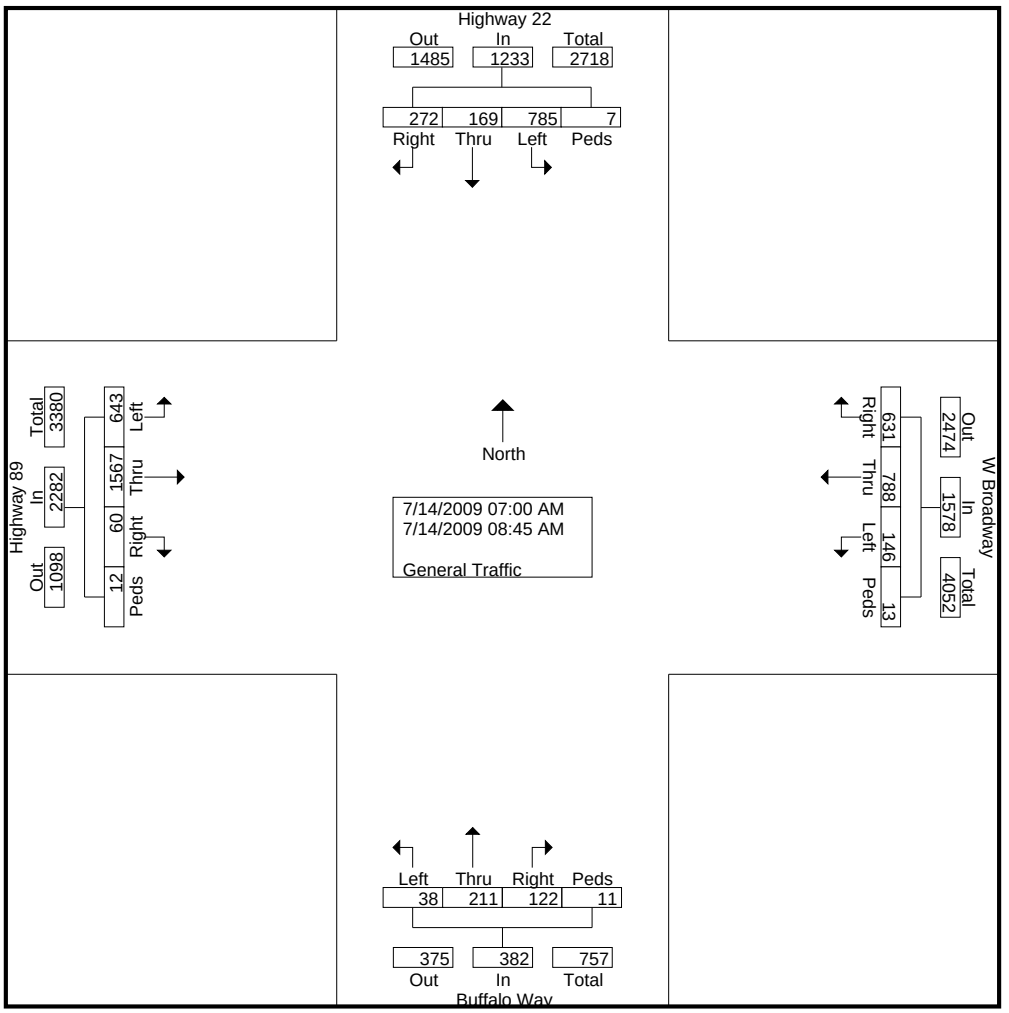
1770 W. State Street #204
Boise, Idaho 83702
Idaho (208) 860-7554 Utah (801) 413-2993

Tech: Brad / Kate
Intersection: Hwy 22, Hwy 89, Broadway
City, State: Jackson Hole, Wyoming
Control: Signalized

File Name : Hwy 22 89 Broadway AM
Site Code : 1
Start Date : 7/14/2009
Page No : 1

Groups Printed- General Traffic

	Highway 22 From North					W Broadway From East					Buffalo Way From South					Highway 89 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	39	15	41	0	95	54	62	6	0	122	5	8	4	0	17	3	126	64	0	193	427
07:15 AM	30	17	59	1	107	54	85	10	2	151	10	15	3	2	30	11	162	87	2	262	550
07:30 AM	27	20	115	0	162	91	85	8	2	186	9	25	6	0	40	5	191	89	3	288	676
07:45 AM	17	35	132	3	187	96	137	18	3	254	12	37	3	5	57	12	247	73	1	333	831
Total	113	87	347	4	551	295	369	42	7	713	36	85	16	7	144	31	726	313	6	1076	2484
08:00 AM	45	14	101	0	160	85	104	22	1	212	17	41	6	0	64	7	204	85	1	297	733
08:15 AM	23	20	102	1	146	64	106	24	4	198	16	30	5	2	53	10	204	86	1	301	698
08:30 AM	26	28	100	0	154	84	104	27	0	215	25	29	7	2	63	5	200	71	2	278	710
08:45 AM	65	20	135	2	222	103	105	31	1	240	28	26	4	0	58	7	233	88	2	330	850
Total	159	82	438	3	682	336	419	104	6	865	86	126	22	4	238	29	841	330	6	1206	2991
Grand Total	272	169	785	7	1233	631	788	146	13	1578	122	211	38	11	382	60	1567	643	12	2282	5475
Apprch %	22.1	13.7	63.7	0.6		40	49.9	9.3	0.8		31.9	55.2	9.9	2.9		2.6	68.7	28.2	0.5		
Total %	5	3.1	14.3	0.1	22.5	11.5	14.4	2.7	0.2	28.8	2.2	3.9	0.7	0.2	7	1.1	28.6	11.7	0.2	41.7	



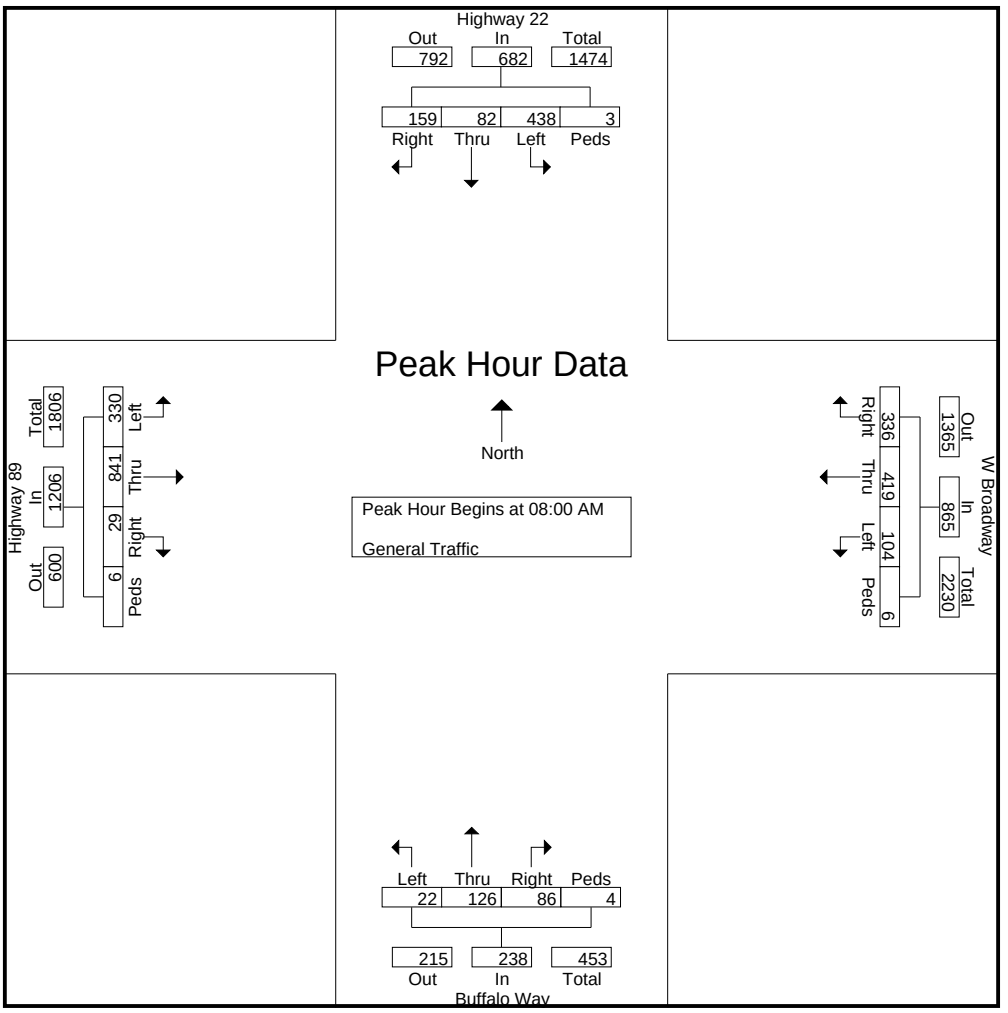
L2 Data Collection

1770 W. State Street #204
Boise, Idaho 83702
Idaho (208) 860-7554 Utah (801) 413-2993

Tech: Brad / Kate
Intersection: Hwy 22, Hwy 89, Broadway
City, State: Jackson Hole, Wyoming
Control: Signalized

File Name : Hwy 22 89 Broadway AM
Site Code : 1
Start Date : 7/14/2009

	Highway 22 From North					W Broadway From East					Buffalo Way From South					Highway 89 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	45	14	101	0	160	85	104	22	1	212	17	**41**	6	0	**64**	7	204	85	1	297	733
08:15 AM	23	20	102	1	146	64	**106**	24	**4**	198	16	30	5	**2**	53	**10**	204	86	1	301	698
08:30 AM	26	**28**	100	0	154	84	104	27	0	215	25	29	**7**	2	63	5	200	71	**2**	278	710
08:45 AM	**65**	20	**135**	**2**	**222**	**103**	105	**31**	1	**240**	**28**	26	4	0	58	7	**233**	**88**	2	**330**	**850**
Total Volume	159	82	438	3	682	336	419	104	6	865	86	126	22	4	238	29	841	330	6	1206	2991
% App. Total	23.3	12	64.2	0.4		38.8	48.4	12	0.7		36.1	52.9	9.2	1.7		2.4	69.7	27.4	0.5		
PHF	.612	.732	.811	.375	.768	.816	.988	.839	.375	.901	.768	.768	.786	.500	.930	.725	.902	.938	.750	.914	.880



L2 Data Collection

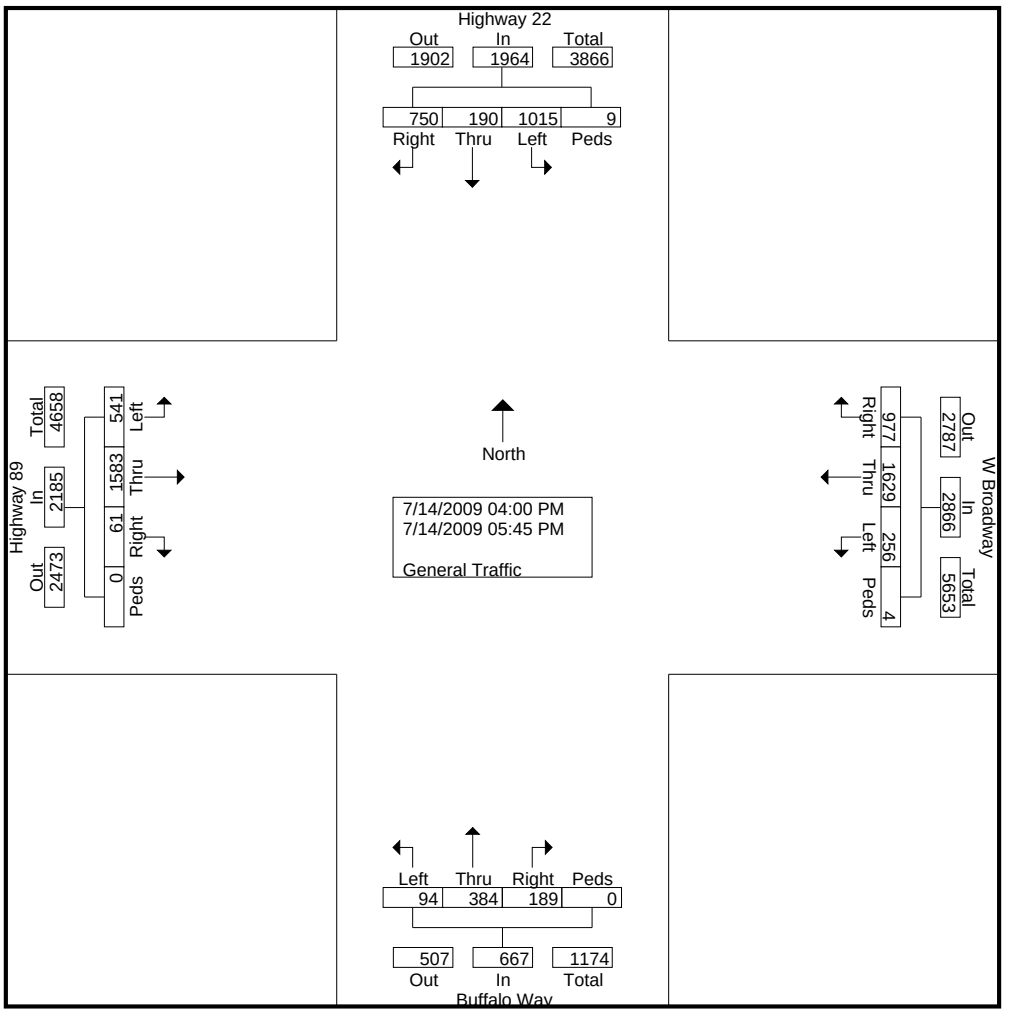
1770 W. State Street #204
Boise, Idaho 83702
Idaho (208) 860-7554 Utah (801) 413-2993

Tech: Reed / Gary
Intersection: Hwy 22, Hwy 89, Broadway
City, State: Jackson Hole, Wyoming
Control: Signalized

File Name : Hwy 22 89 Broadway PM
Site Code : 1
Start Date : 7/14/2009
Page No : 1

Groups Printed- General Traffic

	Highway 22 From North					W Broadway From East					Buffalo Way From South					Highway 89 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	67	18	129	0	214	105	196	37	1	339	32	43	12	0	87	7	189	53	0	249	889
04:15 PM	88	23	118	2	231	110	186	36	0	332	18	34	12	0	64	6	200	67	0	273	900
04:30 PM	60	14	104	1	179	104	187	40	0	331	26	39	11	0	76	5	184	79	0	268	854
04:45 PM	121	27	138	0	286	115	215	27	1	358	27	44	14	0	85	11	222	69	0	302	1031
Total	336	82	489	3	910	434	784	140	2	1360	103	160	49	0	312	29	795	268	0	1092	3674
05:00 PM	110	27	138	3	278	118	226	45	0	389	19	46	14	0	79	7	187	71	0	265	1011
05:15 PM	108	29	142	2	281	132	203	26	0	361	33	60	13	0	106	11	192	75	0	278	1026
05:30 PM	90	23	124	1	238	146	199	20	2	367	12	62	8	0	82	6	189	62	0	257	944
05:45 PM	106	29	122	0	257	147	217	25	0	389	22	56	10	0	88	8	220	65	0	293	1027
Total	414	108	526	6	1054	543	845	116	2	1506	86	224	45	0	355	32	788	273	0	1093	4008
Grand Total	750	190	1015	9	1964	977	1629	256	4	2866	189	384	94	0	667	61	1583	541	0	2185	7682
Apprch %	38.2	9.7	51.7	0.5		34.1	56.8	8.9	0.1		28.3	57.6	14.1	0		2.8	72.4	24.8	0		
Total %	9.8	2.5	13.2	0.1	25.6	12.7	21.2	3.3	0.1	37.3	2.5	5	1.2	0	8.7	0.8	20.6	7	0	28.4	



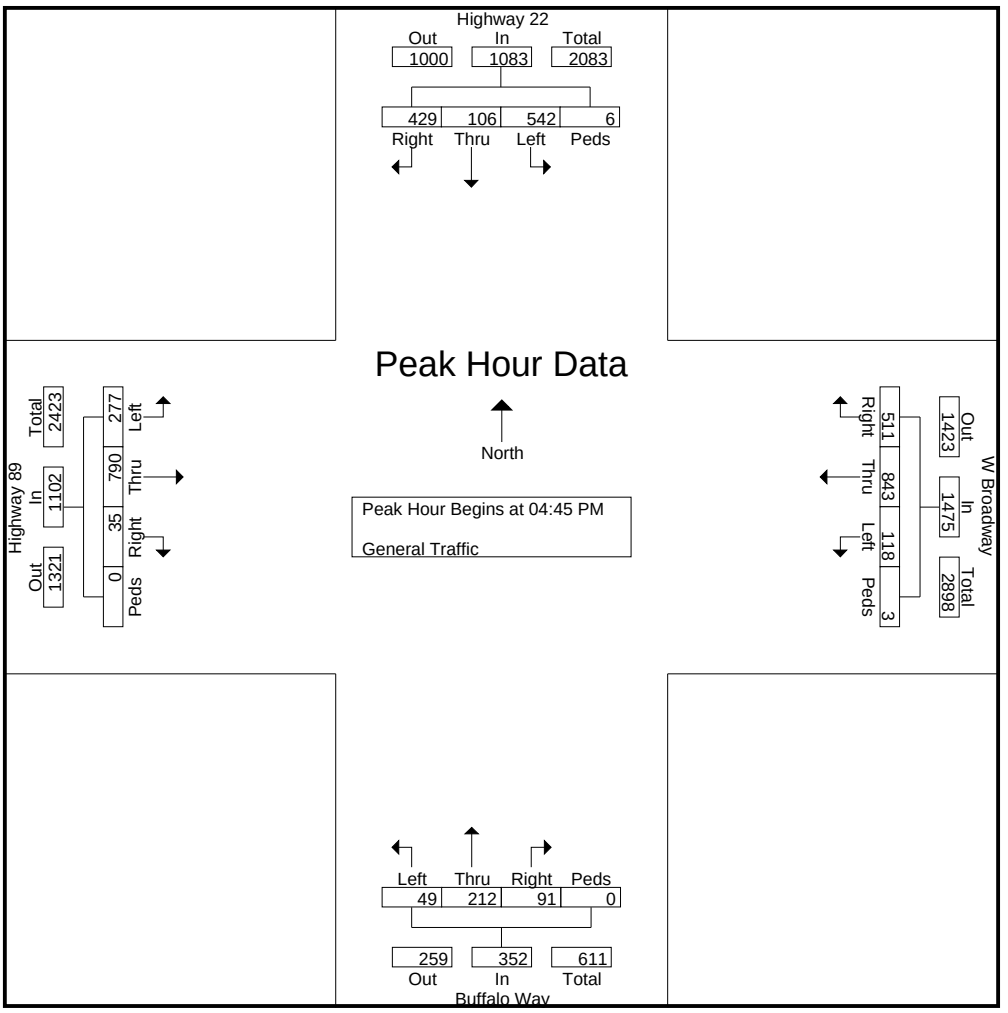
L2 Data Collection

1770 W. State Street #204
Boise, Idaho 83702
Idaho (208) 860-7554 Utah (801) 413-2993

Tech: Reed / Gary
Intersection: Hwy 22, Hwy 89, Broadway
City, State: Jackson Hole, Wyoming
Control: Signalized

File Name : Hwy 22 89 Broadway PM
Site Code : 1
Start Date : 7/14/2009
Page No : 2

	Highway 22 From North					W Broadway From East					Buffalo Way From South					Highway 89 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**121**	27	138	0	**286**	115	215	27	1	358	27	44	**14**	0	85	**11**	**222**	69	0	**302**	**1031**
05:00 PM	110	27	138	**3**	278	118	**226**	**45**	0	**389**	19	46	14	0	79	7	187	71	0	265	1011
05:15 PM	108	**29**	**142**	2	281	132	203	26	0	361	**33**	60	13	0	**106**	11	192	**75**	0	278	1026
05:30 PM	90	23	124	1	238	**146**	199	20	**2**	367	12	**62**	8	0	82	6	189	62	0	257	944
Total Volume	429	106	542	6	1083	511	843	118	3	1475	91	212	49	0	352	35	790	277	0	1102	4012
% App. Total	39.6	9.8	50	0.6		34.6	57.2	8	0.2		25.9	60.2	13.9	0		3.2	71.7	25.1	0		
PHF	.886	.914	.954	.500	.947	.875	.933	.656	.375	.948	.689	.855	.875	.000	.830	.795	.890	.923	.000	.912	.973



L2 Data Collection

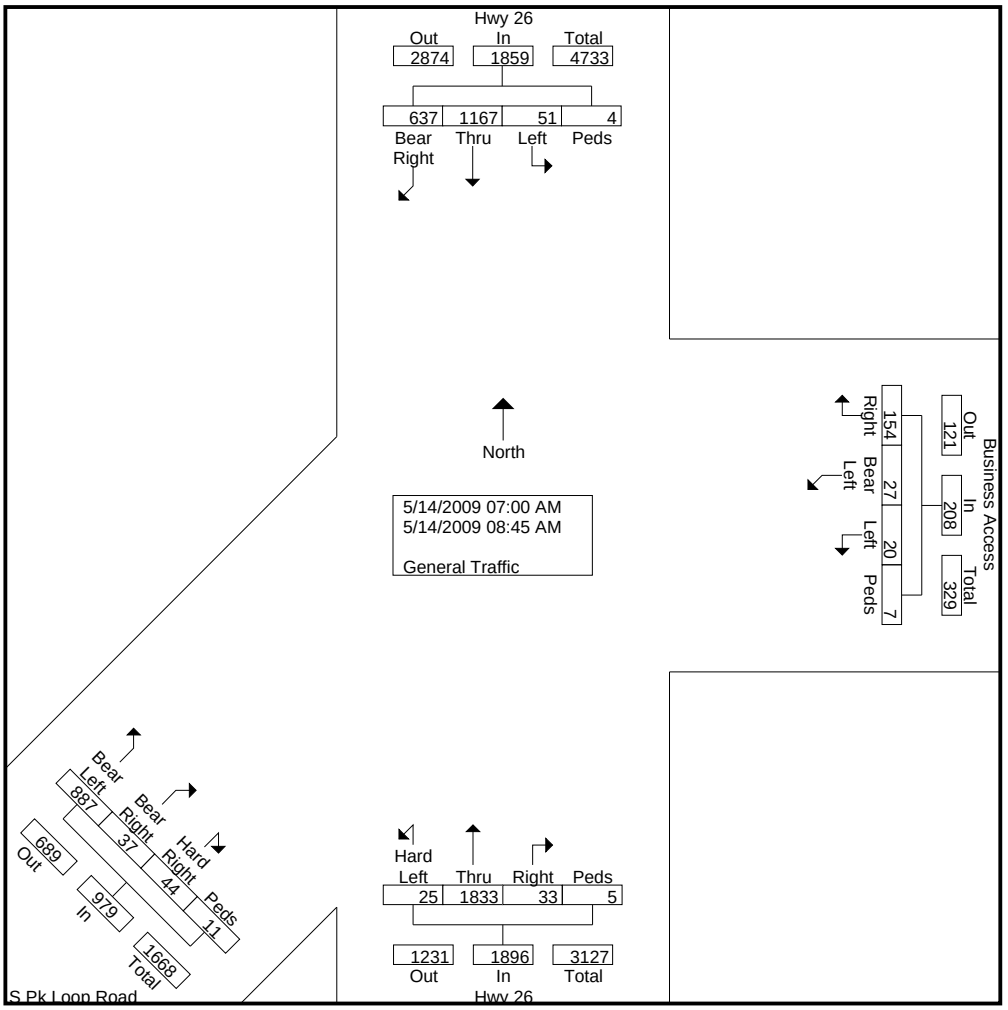
1770 State Street #204
Boise, Idaho
(208) 860-7554

Tech: Judd
Intersection: Hwy 26 and South Park Loop
City, State: Jackson, Wyoming
Control: Signalized

File Name : Hwy 26 S. Park Loop AM
Site Code : 00000001
Start Date : 5/14/2009
Page No : 1

Groups Printed- General Traffic

	Hwy 26 From North					S Pk Loop Road From Southwest					Business Access From East					Hwy 26 From South					
Start Time	Bear Right	Thru	Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Peds	App. Total	Right	Bear Left	Left	Peds	App. Total	Right	Thru	Hard Left	Peds	App. Total	Int. Total
07:00 AM	73	100	2	0	175	1	6	58	0	65	14	6	1	0	21	3	118	1	0	122	383
07:15 AM	148	174	6	0	328	4	4	115	2	125	33	2	1	0	36	7	195	7	0	209	698
07:30 AM	91	120	7	0	218	10	11	154	0	175	18	7	4	0	29	4	253	2	0	259	681
07:45 AM	96	180	14	1	291	7	5	108	4	124	26	5	3	2	36	3	320	4	2	329	780
Total	408	574	29	1	1012	22	26	435	6	489	91	20	9	2	122	17	886	14	2	919	2542
08:00 AM	64	124	4	0	192	7	3	118	0	128	15	3	5	0	23	7	233	2	0	242	585
08:15 AM	48	140	5	0	193	6	2	109	2	119	10	1	3	0	14	1	211	3	2	217	543
08:30 AM	62	170	6	1	239	4	2	117	1	124	20	0	1	2	23	6	205	3	1	215	601
08:45 AM	55	159	7	2	223	5	4	108	2	119	18	3	2	3	26	2	298	3	0	303	671
Total	229	593	22	3	847	22	11	452	5	490	63	7	11	5	86	16	947	11	3	977	2400
Grand Total	637	1167	51	4	1859	44	37	887	11	979	154	27	20	7	208	33	1833	25	5	1896	4942
Apprch %	34.3	62.8	2.7	0.2		4.5	3.8	90.6	1.1		74	13	9.6	3.4		1.7	96.7	1.3	0.3		
Total %	12.9	23.6	1	0.1	37.6	0.9	0.7	17.9	0.2	19.8	3.1	0.5	0.4	0.1	4.2	0.7	37.1	0.5	0.1	38.4	



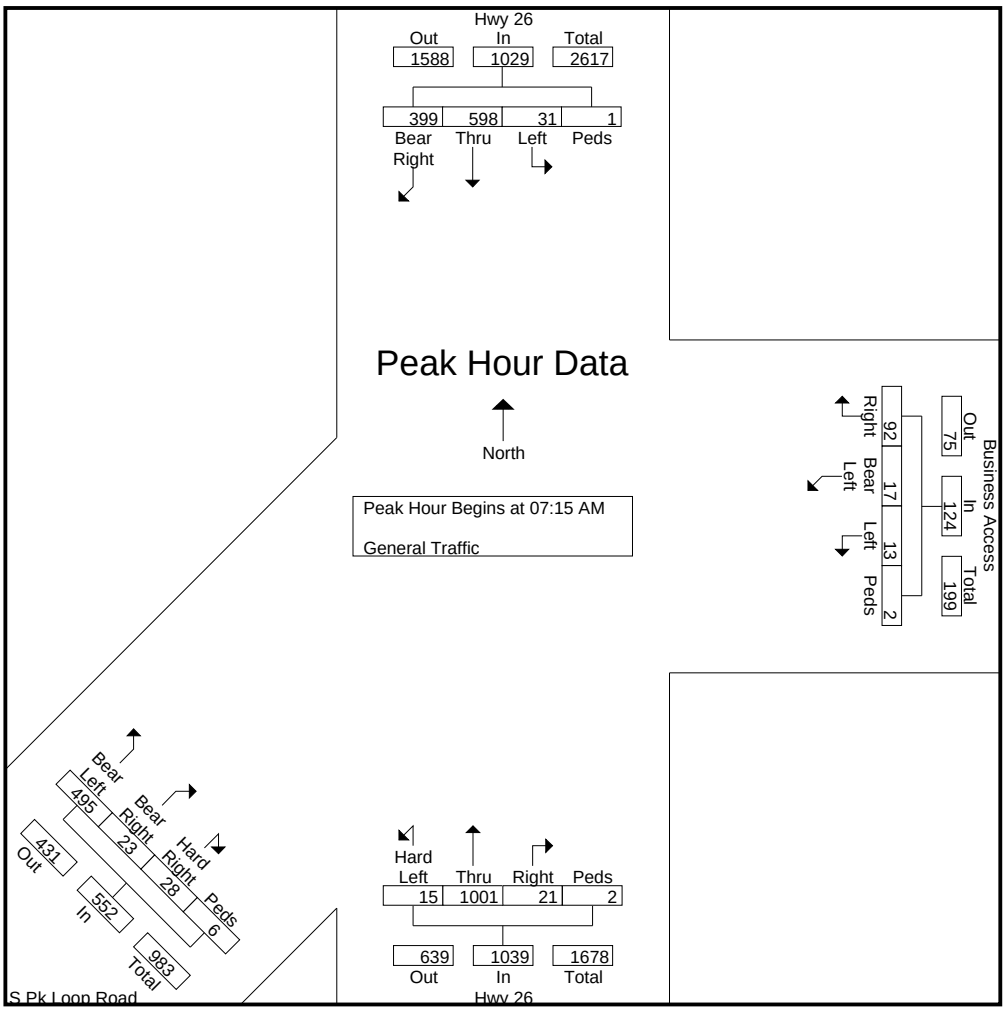
L2 Data Collection

1770 State Street #204
Boise, Idaho
(208) 860-7554

Tech: Judd
Intersection: Hwy 26 and South Park Loop
City, State: Jackson, Wyoming
Control: Signalized

File Name : Hwy 26 S. Park Loop AM
Site Code : 00000001
Start Date : 5/14/2009
Page No : 2

	Hwy 26 From North					S Pk Loop Road From Southwest					Business Access From East					Hwy 26 From South					
Start Time	Bear Right	Thru	Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Peds	App. Total	Right	Bear Left	Left	Peds	App. Total	Right	Thru	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**148**	174	6	0	**328**	4	4	115	2	125	**33**	2	1	0	**36**	**7**	195	**7**	0	209	698
07:30 AM	91	120	7	0	218	**10**	**11**	**154**	0	**175**	18	**7**	4	0	29	4	253	2	0	259	681
07:45 AM	96	**180**	**14**	**1**	291	7	5	108	**4**	124	26	5	3	**2**	36	3	**320**	4	**2**	**329**	**780**
08:00 AM	64	124	4	0	192	7	3	118	0	128	15	3	**5**	0	23	7	233	2	0	242	585
Total Volume	399	598	31	1	1029	28	23	495	6	552	92	17	13	2	124	21	1001	15	2	1039	2744
% App. Total	38.8	58.1	3	0.1		5.1	4.2	89.7	1.1		74.2	13.7	10.5	1.6		2	96.3	1.4	0.2		
PHF	.674	.831	.554	.250	.784	.700	.523	.804	.375	.789	.697	.607	.650	.250	.861	.750	.782	.536	.250	.790	.879



L2 Data Collection

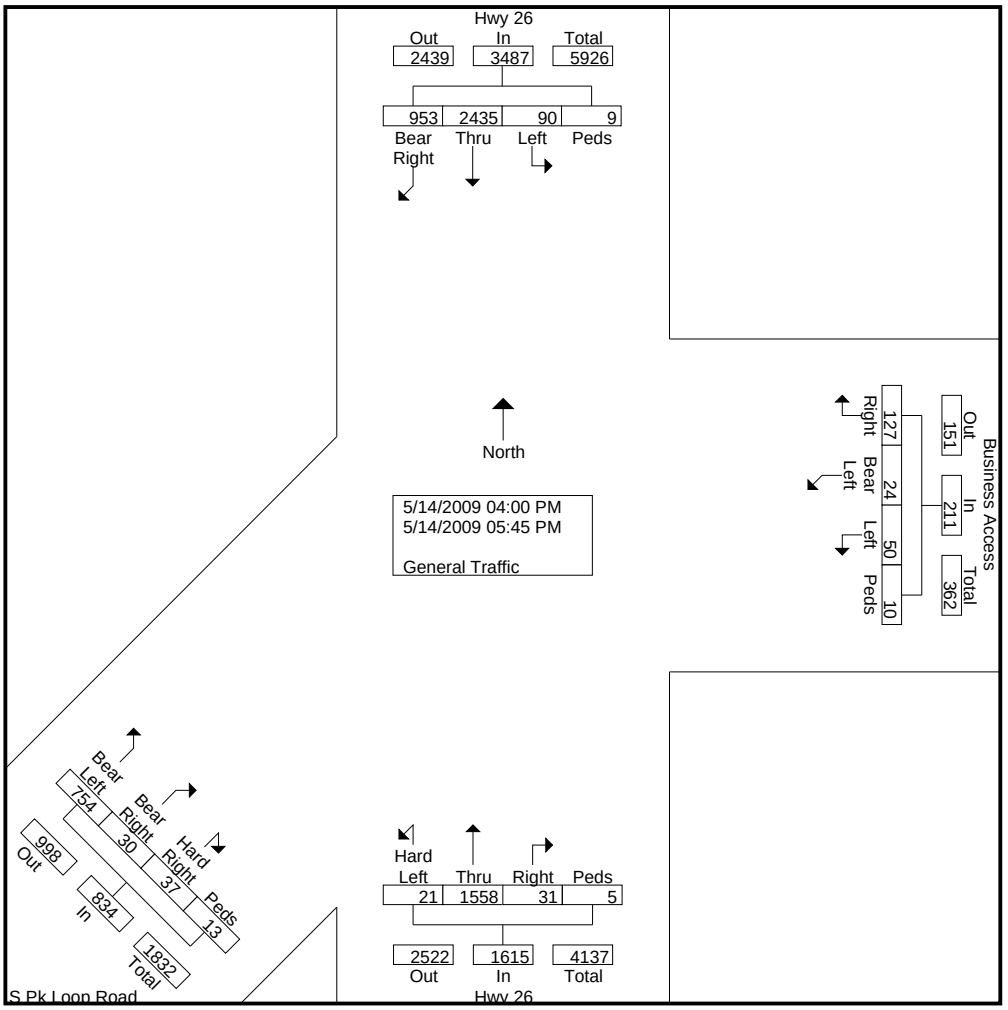
1770 State Street #204
Boise, Idaho
(208) 860-7554

Tech: Judd
Intersection: Hwy 26 and South Park Loop
City, State: Jackson, Wyoming
Control: Signalized

File Name : Hwy 26 S. Park Loop PM
Site Code : 00000001
Start Date : 5/14/2009
Page No : 1

Groups Printed- General Traffic

	Hwy 26 From North					S Pk Loop Road From Southwest					Business Access From East					Hwy 26 From South					
Start Time	Bear Right	Thru	Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Peds	App. Total	Right	Bear Left	Left	Peds	App. Total	Right	Thru	Hard Left	Peds	App. Total	Int. Total
04:00 PM	96	227	15	1	339	8	6	91	0	105	22	2	8	3	35	8	189	0	0	197	676
04:15 PM	86	245	23	0	354	4	7	83	0	94	13	6	6	1	26	5	160	4	1	170	644
04:30 PM	113	298	18	1	430	2	6	99	5	112	17	1	10	4	32	4	237	2	2	245	819
04:45 PM	148	320	7	1	476	4	4	112	3	123	23	2	6	1	32	5	174	3	0	182	813
Total	443	1090	63	3	1599	18	23	385	8	434	75	11	30	9	125	22	760	9	3	794	2952
05:00 PM	142	384	7	4	537	3	1	98	0	102	11	0	6	0	17	0	241	4	0	245	901
05:15 PM	146	371	5	1	523	7	2	103	3	115	14	8	6	0	28	4	203	2	2	211	877
05:30 PM	106	336	13	0	455	5	2	74	1	82	12	2	5	0	19	2	176	5	0	183	739
05:45 PM	116	254	2	1	373	4	2	94	1	101	15	3	3	1	22	3	178	1	0	182	678
Total	510	1345	27	6	1888	19	7	369	5	400	52	13	20	1	86	9	798	12	2	821	3195
Grand Total	953	2435	90	9	3487	37	30	754	13	834	127	24	50	10	211	31	1558	21	5	1615	6147
Apprch %	27.3	69.8	2.6	0.3		4.4	3.6	90.4	1.6		60.2	11.4	23.7	4.7		1.9	96.5	1.3	0.3		
Total %	15.5	39.6	1.5	0.1	56.7	0.6	0.5	12.3	0.2	13.6	2.1	0.4	0.8	0.2	3.4	0.5	25.3	0.3	0.1	26.3	



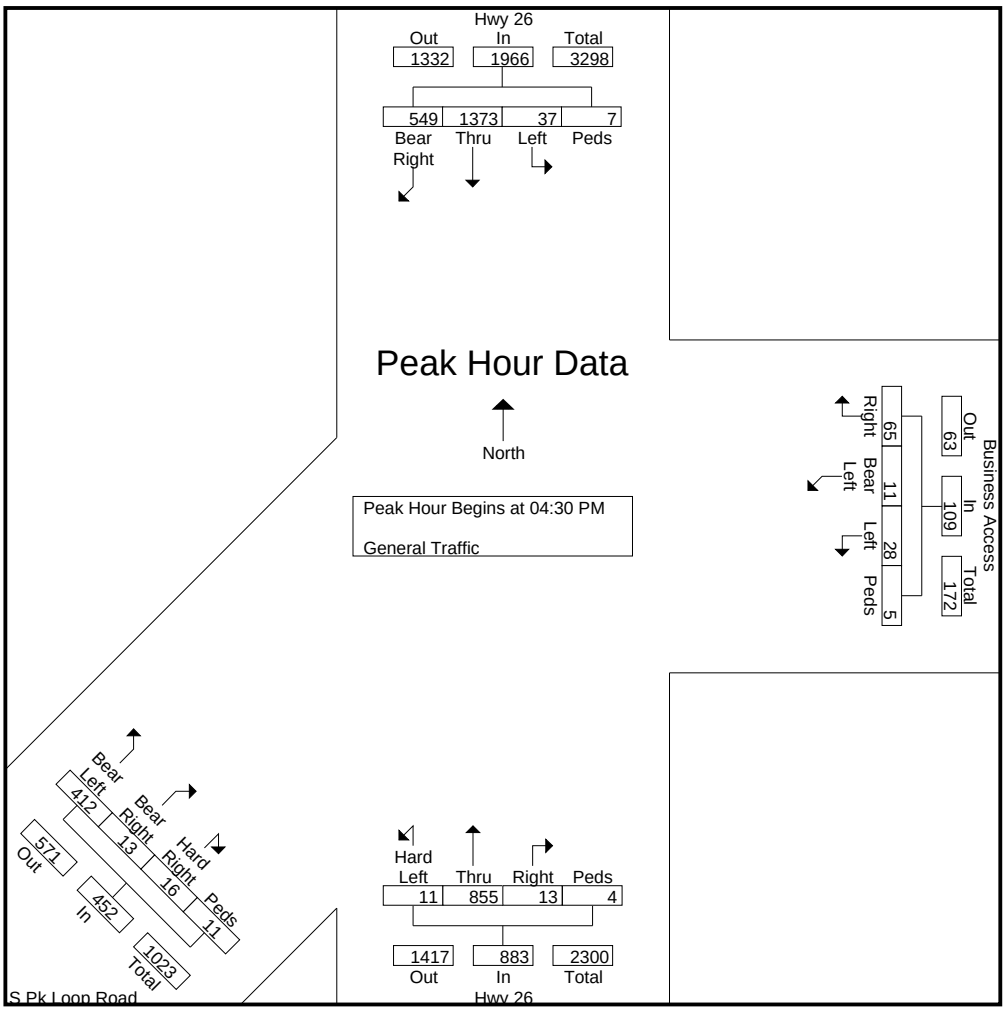
L2 Data Collection

1770 State Street #204
Boise, Idaho
(208) 860-7554

Tech: Judd
Intersection: Hwy 26 and South Park Loop
City, State: Jackson, Wyoming
Control: Signalized

File Name : Hwy 26 S. Park Loop PM
Site Code : 00000001
Start Date : 5/14/2009
Page No : 2

	Hwy 26 From North					S Pk Loop Road From Southwest					Business Access From East					Hwy 26 From South					
Start Time	Bear Right	Thru	Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Peds	App. Total	Right	Bear Left	Left	Peds	App. Total	Right	Thru	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	113	298	**18**	1	430	2	**6**	99	**5**	112	17	1	**10**	**4**	**32**	4	237	2	**2**	**245**	819
04:45 PM	**148**	320	7	1	476	4	4	**112**	3	**123**	**23**	2	6	1	32	**5**	174	3	0	182	813
05:00 PM	142	**384**	7	**4**	**537**	3	1	98	0	102	11	0	6	0	17	0	**241**	**4**	0	245	**901**
05:15 PM	146	371	5	1	523	**7**	2	103	3	115	14	**8**	6	0	28	4	203	2	2	211	877
Total Volume	549	1373	37	7	1966	16	13	412	11	452	65	11	28	5	109	13	855	11	4	883	3410
% App. Total	27.9	69.8	1.9	0.4		3.5	2.9	91.2	2.4		59.6	10.1	25.7	4.6		1.5	96.8	1.2	0.5		
PHF	.927	.894	.514	.438	.915	.571	.542	.920	.550	.919	.707	.344	.700	.313	.852	.650	.887	.688	.500	.901	.946



TABULAR SUMMARY OF TURNING MOVEMENT COUNTS

Name: JMR **Date:** 2/7/2008 **Location:** Teton County
Project Name: Teton Meadows Ranch **Project #:** 07-203
Intersection of: High School Road **and** WY 89

Street:	High School Road			High School Road			WY 89			WY 89			Total All	Hour Total
Time	East Bound			West Bound			North Bound			South Bound				
Begins	L	T	R	L	T	R	L	T	R	1	T	R		
7:00	18		8				50	92			33	58	259	259
7:15	54		14				54	67			58	55	302	561
7:30	50		11				49	145			57	55	367	928
7:45	62		12				40	191			60	31	396	1324
8:00	55		8				40	160			51	46	360	1425
8:15	48		13				27	151			47	39	325	1448
8:30	77		8				26	179			55	55	400	1481
8:45	74		15				16	160			58	44	367	1452
Peak Hour	**242**	**0**	**41**	**0**	**0**	**0**	**133**	**681**	**0**	**0**	**213**	**171**		**1481**

Peak Hour Factor = 1481 / (4 × 400) = **0.926**

MJR

TABULAR SUMMARY OF TURNING MOVEMENT COUNTS

Name: JMR **Date:** 2/12/2008 **Location:** Teton County
Project Name: Teton Meadows Ranch **Project #:** 07-203
Intersection of: High School Road **and** WY 89

Street:	High School Road			High School Road			WY 89			WY 89			Total All	Hour Total
Time	East Bound			West Bound			North Bound			South Bound				
Begins	L	T	R	L	T	R	L	T	R	L	T	R		
4:00	63		21				25	80			121	42	352	352
4:15	64		32				20	87			129	51	383	735
4:30	69		34				21	93			135	46	398	1133
4:45	87		49				26	98			173	26	459	1592
5:00	72		45				37	102			214	45	515	1755
5:15	63		32				17	88			197	55	452	1824
5:30	88		65				26	75			189	44	487	1913
5:45	37		23				21	60			166	46	353	1807
Peak Hour	**310**	**0**	**191**	**0**	**0**	**0**	**106**	**363**	**0**	**0**	**773**	**170**		**1913**

Peak Hour Factor = 1913 / (4 × 515) = **0.929**

MJR

TABULAR SUMMARY OF TURNING MOVEMENT COUNTS

Name: JMR **Date:** 2/7/2008 **Location:** Teton County
Project Name: Teton Meadows Ranch **Project #:** 07-203
Intersection of: South SPLR **and** WY 89

Street:	South SPLR			South SPLR			WY 89			WY 89			Total All	Hour Total
Time Begins	East Bound			West Bound			North Bound			South Bound				
	L	T	R	L	T	R	L	T	R	1	T	R		
7:00	21	0	2	0	0	5	5	120	0	0	48	20	221	221
7:15	29	0	0	0	0	1	8	145	0	0	65	15	263	484
7:30	35	0	6	0	0	1	2	204	0	1	68	3	320	804
7:45	36	0	3	0	0	5	3	195	0	0	52	15	309	1113
8:00	32	0	2	2	0	2	5	172	0	0	81	21	317	1209
8:15	42	0	4	0	0	5	5	120	0	2	79	24	281	1227
8:30	44	0	6	1	0	2	1	118	0	0	86	25	283	1190
8:45	39	0	3	0	1	3	5	124	0	0	85	14	274	1155
Peak Hour	**145**	**0**	**15**	**2**	**0**	**13**	**15**	**691**	**0**	**3**	**280**	**63**		**1227**

Peak Hour Factor = 1227 / (4 × 320) = **0.959**

MJR

TABULAR SUMMARY OF TURNING MOVEMENT COUNTS

Name: JMR **Date:** 2/12/2008 **Location:** Teton County
Project Name: Teton Meadows Ranch **Project #:** 07-203
Intersection of: South SPLR **and** WY 89

Street:	South SPLR			South SPLR			WY 89			WY 89			Total All	Hour Total
Time Begins	East Bound			West Bound			North Bound			South Bound				
	L	T	R	L	T	R	L	T	R	L	T	R		
4:00	29	0	5	0	0	1	5	63	1	0	86	20	210	210
4:15	13	2	1	2	0	0	7	90	1	1	108	21	246	456
4:30	28	0	3	0	0	1	6	104	0	5	13	32	192	648
4:45	32	0	2	1	1	0	3	70	0	5	153	29	296	944
5:00	24	0	1	0	0	4	2	104	0	2	202	34	373	1107
5:15	19	0	3	1	0	0	7	93	0	1	178	30	332	1193
5:30	13	0	2	0	0	1	1	104	1	2	180	25	329	1330
5:45	19	0	4	0	0	1	5	80	0	5	178	54	346	1380
Peak Hour	**75**	**0**	**10**	**1**	**0**	**6**	**15**	**381**	**1**	**10**	**738**	**143**		**1380**

Peak Hour Factor = 1380 / (4 × 373) = **0.925**

MJR

TABULAR SUMMARY OF TURNING MOVEMENT COUNTS

Name: JMR **Date:** 2/7/2008 **Location:** Teton County
Project Name: Teton Meadows Ranch **Project #:** 07-203
Intersection of: High School Road **and** South Park Loop Road

Street:	High School Road			High School Road			South Park Loop Road			South Park Loop Road			Total All	Hour Total
Time	East Bound			West Bound			North Bound			South Bound				
Begins	L	T	R	L	T	R	L	T	R	L	T	R		
7:00	0	0	0	1	0	2	0	7	8	5	3	0	26	26
7:15	1	0	0	1	0	1	1	10	31	13	6	0	64	90
7:30	0	0	0	4	0	9	1	16	6	10	15	2	63	153
7:45	1	1	0	12	2	10	0	12	12	2	11	1	64	217
8:00	0	1	0	4	4	7	0	10	8	1	4	2	41	232
8:15	0	0	0	6	0	3	0	8	7	3	12	5	44	212
8:30	0	2	0	16	3	5	0	15	9	4	10	0	64	213
8:45	0	2	1	6	0	3	0	4	6	0	8	1	31	180
Peak Hour	**2**	**2**	**0**	**21**	**6**	**27**	**2**	**48**	**57**	**26**	**36**	**5**		**232**

Peak Hour Factor = 232 / (4 × 64) = **0.906**

MJR

TABULAR SUMMARY OF TURNING MOVEMENT COUNTS

Name: JMR **Date:** **Location:** Teton County
Project Name: Teton Meadows Ranch **Project #:** 07-203
Intersection of: High School Road **and** South Park Loop Road

Street:	High School Road			High School Road			South Park Loop Road			South Park Loop Road			Total All	Hour Total
Time	East Bound			West Bound			North Bound			South Bound				
Begins	L	T	R	L	T	R	L	T	R	L	T	R		
4:00				2		7		8	7	4	5		33	33
4:15				7		7		13	9	4	8		48	81
4:30	4	4		7		5		13	13	3	4	1	54	135
4:45	1			5	1	9		18	14		8		56	191
5:00		3		9		6		15	6	6	8	2	55	213
5:15		1		13	1	8		7	11	1	10		52	217
5:30				6		4		13	8	3	11		45	208
5:45		1	1	4	1	4		11	8	3	7		40	192
Peak Hour	**5**	**8**	**0**	**34**	**2**	**28**	**0**	**53**	**44**	**10**	**30**	**3**		**217**

Peak Hour Factor = 217 / (4 × 56) = **0.969**

MJR

L2 Data Collection

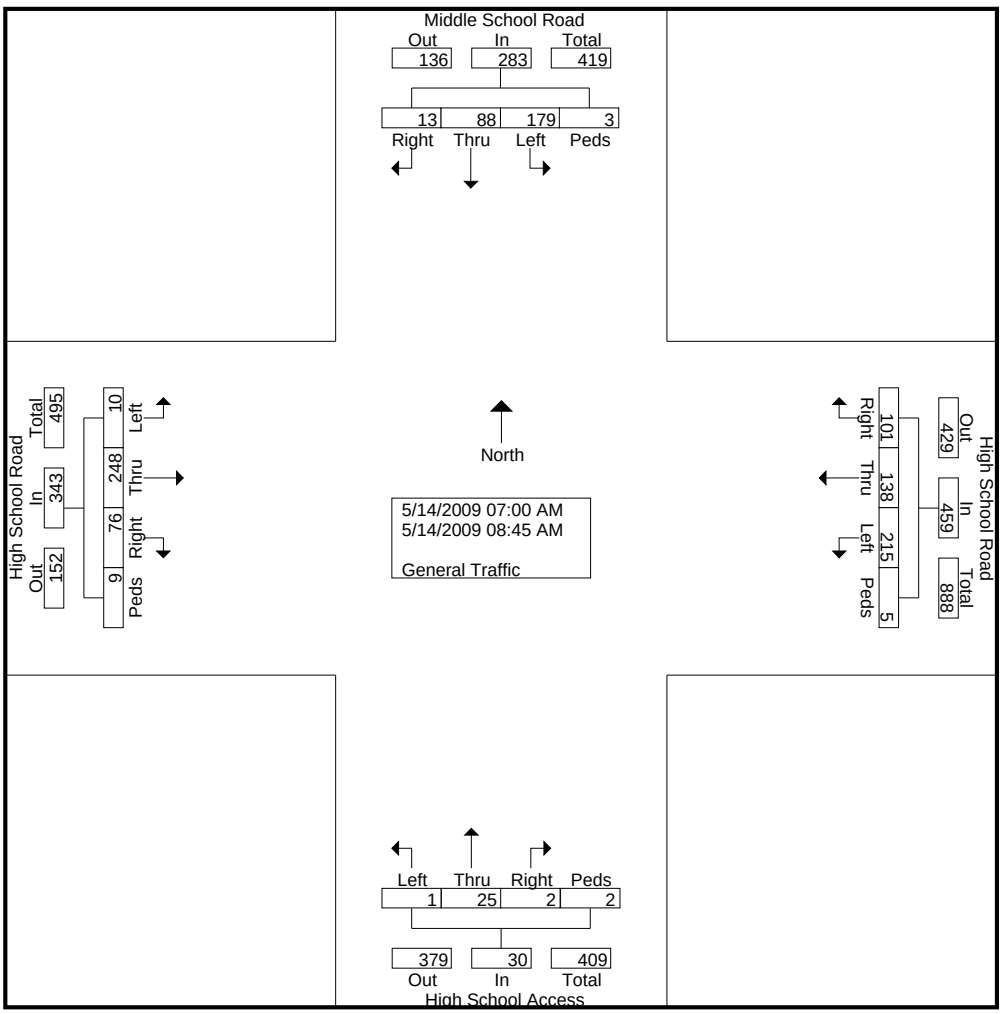
1770 West State Street #204
Boise, Idaho 83702
Idaho (208) 860-7554 Utah (801) 413-2993

Tech: Judd
Intersection: High School Rd / Middle Rd
City, State: Jackson, Wyoming
Control: All Stop

File Name : High Middle AM
Site Code : 3
Start Date : 5/14/2009
Page No : 1

Groups Printed- General Traffic

	Middle School Road From the North					High School Road From the East					High School Access From the South					High School Road From the West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	1	6	6	0	13	20	4	41	1	66	0	3	0	0	3	13	16	1	0	30	112
07:15 AM	1	51	19	1	72	32	12	88	1	133	0	17	0	1	18	44	24	2	3	73	296
07:30 AM	2	19	21	0	42	23	21	40	1	85	1	2	1	0	4	14	31	3	1	49	180
07:45 AM	1	3	15	0	19	6	22	10	1	39	0	1	0	0	1	1	33	0	0	34	93
Total	5	79	61	1	146	81	59	179	4	323	1	23	1	1	26	72	104	6	4	186	681
08:00 AM	0	2	14	1	17	6	23	2	1	32	0	0	0	0	0	0	33	1	1	35	84
08:15 AM	2	3	30	0	35	4	15	28	0	47	0	2	0	0	2	2	30	1	1	34	118
08:30 AM	5	2	48	0	55	6	17	3	0	26	1	0	0	1	2	1	44	0	3	48	131
08:45 AM	1	2	26	1	30	4	24	3	0	31	0	0	0	0	0	1	37	2	0	40	101
Total	8	9	118	2	137	20	79	36	1	136	1	2	0	1	4	4	144	4	5	157	434
Grand Total	13	88	179	3	283	101	138	215	5	459	2	25	1	2	30	76	248	10	9	343	1115
Apprch %	4.6	31.1	63.3	1.1		22	30.1	46.8	1.1		6.7	83.3	3.3	6.7		22.2	72.3	2.9	2.6		
Total %	1.2	7.9	16.1	0.3	25.4	9.1	12.4	19.3	0.4	41.2	0.2	2.2	0.1	0.2	2.7	6.8	22.2	0.9	0.8	30.8	



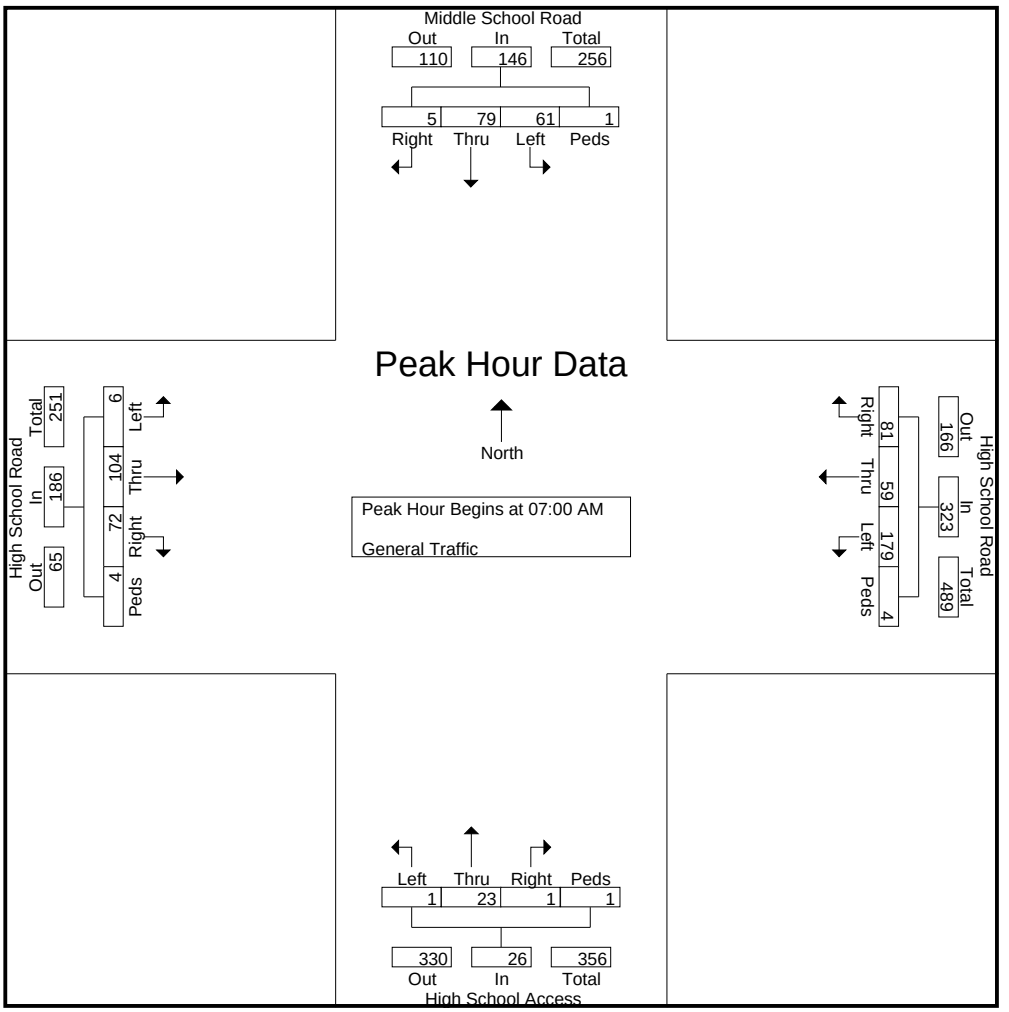
L2 Data Collection

1770 West State Street #204
Boise, Idaho 83702
Idaho (208) 860-7554 Utah (801) 413-2993

Tech: Judd
Intersection: High School Rd / Middle Rd
City, State: Jackson, Wyoming
Control: All Stop

File Name : High Middle AM
Site Code : 3
Start Date : 5/14/2009
Page No : 2

	Middle School Road From the North					High School Road From the East					High School Access From the South					High School Road From the West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	1	6	6	0	13	20	4	41	**1**	66	0	3	0	0	3	13	16	1	0	30	112
07:15 AM	1	**51**	19	**1**	**72**	**32**	12	**88**	1	**133**	0	**17**	0	**1**	**18**	**44**	24	2	**3**	**73**	**296**
07:30 AM	**2**	19	**21**	0	42	23	21	40	1	85	**1**	2	**1**	0	4	14	31	**3**	1	49	180
07:45 AM	1	3	15	0	19	6	**22**	10	1	39	0	1	0	0	1	1	**33**	0	0	34	93
Total Volume	5	79	61	1	146	81	59	179	4	323	1	23	1	1	26	72	104	6	4	186	681
% App. Total	3.4	54.1	41.8	0.7		25.1	18.3	55.4	1.2		3.8	88.5	3.8	3.8		38.7	55.9	3.2	2.2		
PHF	.625	.387	.726	.250	.507	.633	.670	.509	1.000	.607	.250	.338	.250	.250	.361	.409	.788	.500	.333	.637	.575



L2 Data Collection

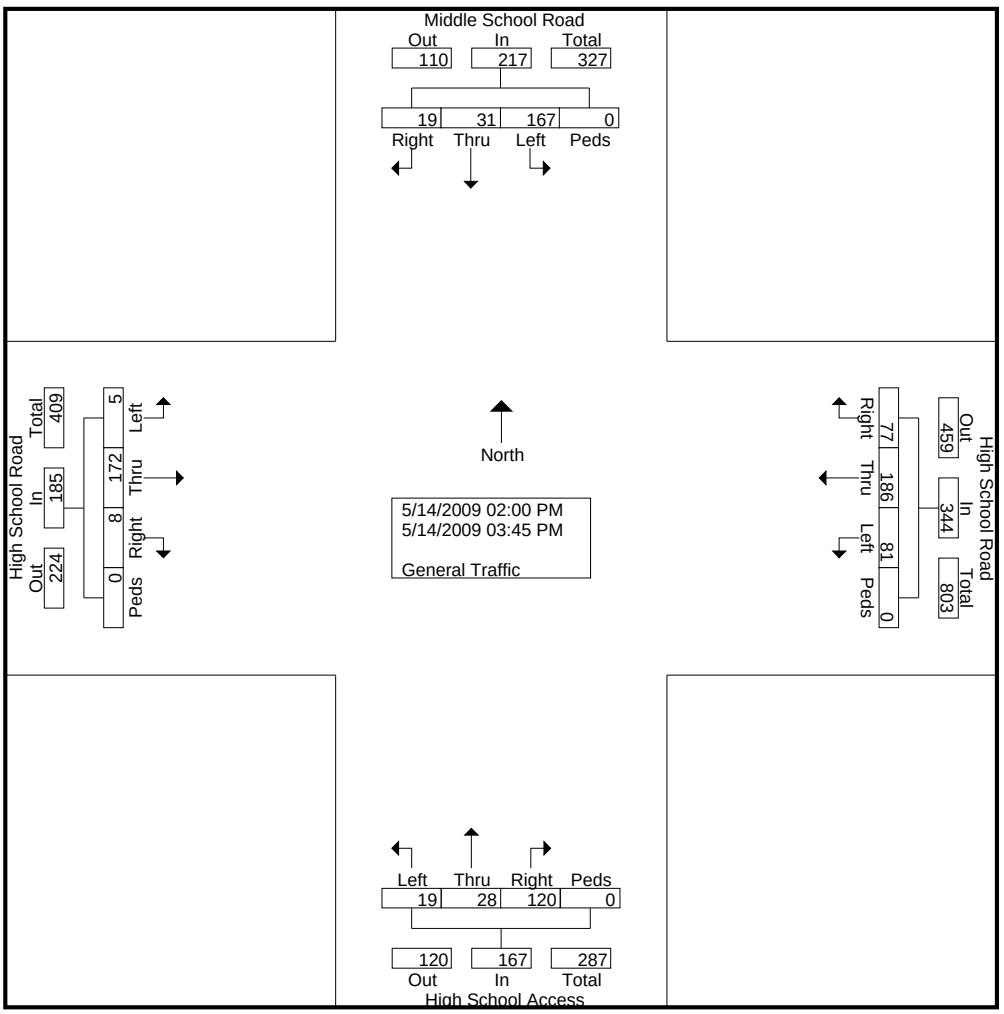
1770 West State Street #204
Boise, Idaho 83702
Idaho (208) 860-7554 Utah (801) 413-2993

Tech:
Intersection: High School Rd / Middle Rd
City, State: Jackson, Wyoming
Control: All Stop

File Name : High Middle PM
Site Code : 3
Start Date : 5/14/2009
Page No : 1

Groups Printed- General Traffic

	Middle School Road From the North					High School Road From the East					High School Access From the South					High School Road From the West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
02:00 PM	0	1	9	0	10	10	15	2	0	27	12	2	4	0	18	1	24	2	0	27	82
02:15 PM	0	4	1	0	5	17	23	6	0	46	7	0	2	0	9	3	17	0	0	20	80
02:30 PM	2	10	23	0	35	14	22	10	0	46	4	0	0	0	4	2	23	0	0	25	110
02:45 PM	1	3	20	0	24	8	32	14	0	54	61	17	6	0	84	2	20	1	0	23	185
Total	3	18	53	0	74	49	92	32	0	173	84	19	12	0	115	8	84	3	0	95	457
03:00 PM	2	5	15	0	22	10	20	20	0	50	17	5	0	0	22	0	21	0	0	21	115
03:15 PM	3	0	13	0	16	5	25	12	0	42	10	2	3	0	15	0	24	1	0	25	98
03:30 PM	10	6	60	0	76	7	30	9	0	46	4	1	2	0	7	0	27	0	0	27	156
03:45 PM	1	2	26	0	29	6	19	8	0	33	5	1	2	0	8	0	16	1	0	17	87
Total	16	13	114	0	143	28	94	49	0	171	36	9	7	0	52	0	88	2	0	90	456
Grand Total	19	31	167	0	217	77	186	81	0	344	120	28	19	0	167	8	172	5	0	185	913
Apprch %	8.8	14.3	77	0		22.4	54.1	23.5	0		71.9	16.8	11.4	0		4.3	93	2.7	0		
Total %	2.1	3.4	18.3	0	23.8	8.4	20.4	8.9	0	37.7	13.1	3.1	2.1	0	18.3	0.9	18.8	0.5	0	20.3	



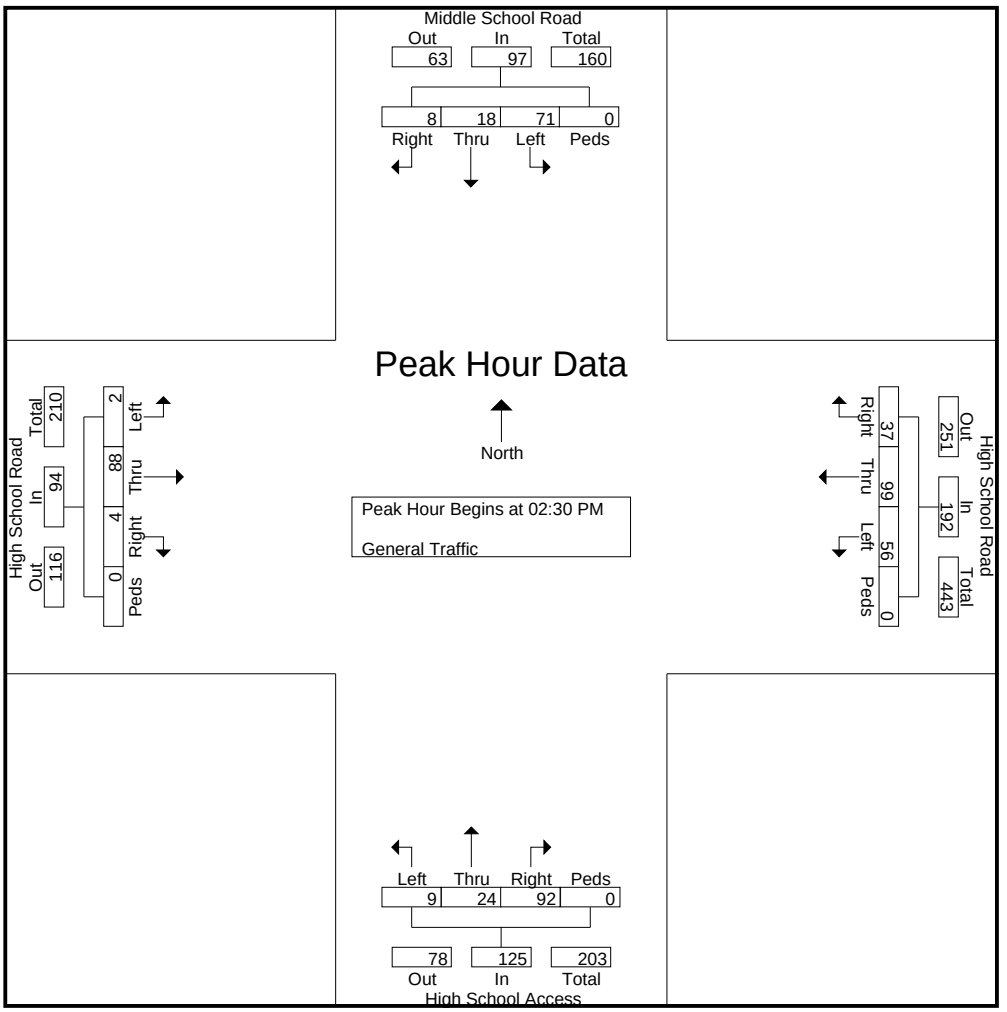
L2 Data Collection

1770 West State Street #204
Boise, Idaho 83702
Idaho (208) 860-7554 Utah (801) 413-2993

Tech:
Intersection: High School Rd / Middle Rd
City, State: Jackson, Wyoming
Control: All Stop

File Name : High Middle PM
Site Code : 3
Start Date : 5/14/2009
Page No : 2

	Middle School Road From the North					High School Road From the East					High School Access From the South					High School Road From the West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 02:30 PM																					
02:30 PM	2	**10**	**23**	0	**35**	**14**	22	10	0	46	4	0	0	0	4	**2**	23	0	0	**25**	110
02:45 PM	1	3	20	0	24	8	**32**	14	0	**54**	**61**	**17**	**6**	0	**84**	2	20	**1**	0	23	**185**
03:00 PM	2	5	15	0	22	10	20	**20**	0	50	17	5	0	0	22	0	21	0	0	21	115
03:15 PM	**3**	0	13	0	16	5	25	12	0	42	10	2	3	0	15	0	**24**	1	0	25	98
Total Volume	8	18	71	0	97	37	99	56	0	192	92	24	9	0	125	4	88	2	0	94	508
% App. Total	8.2	18.6	73.2	0		19.3	51.6	29.2	0		73.6	19.2	7.2	0		4.3	93.6	2.1	0		
PHF	.667	.450	.772	.000	.693	.661	.773	.700	.000	.889	.377	.353	.375	.000	.372	.500	.917	.500	.000	.940	.686



L2 Data Collection

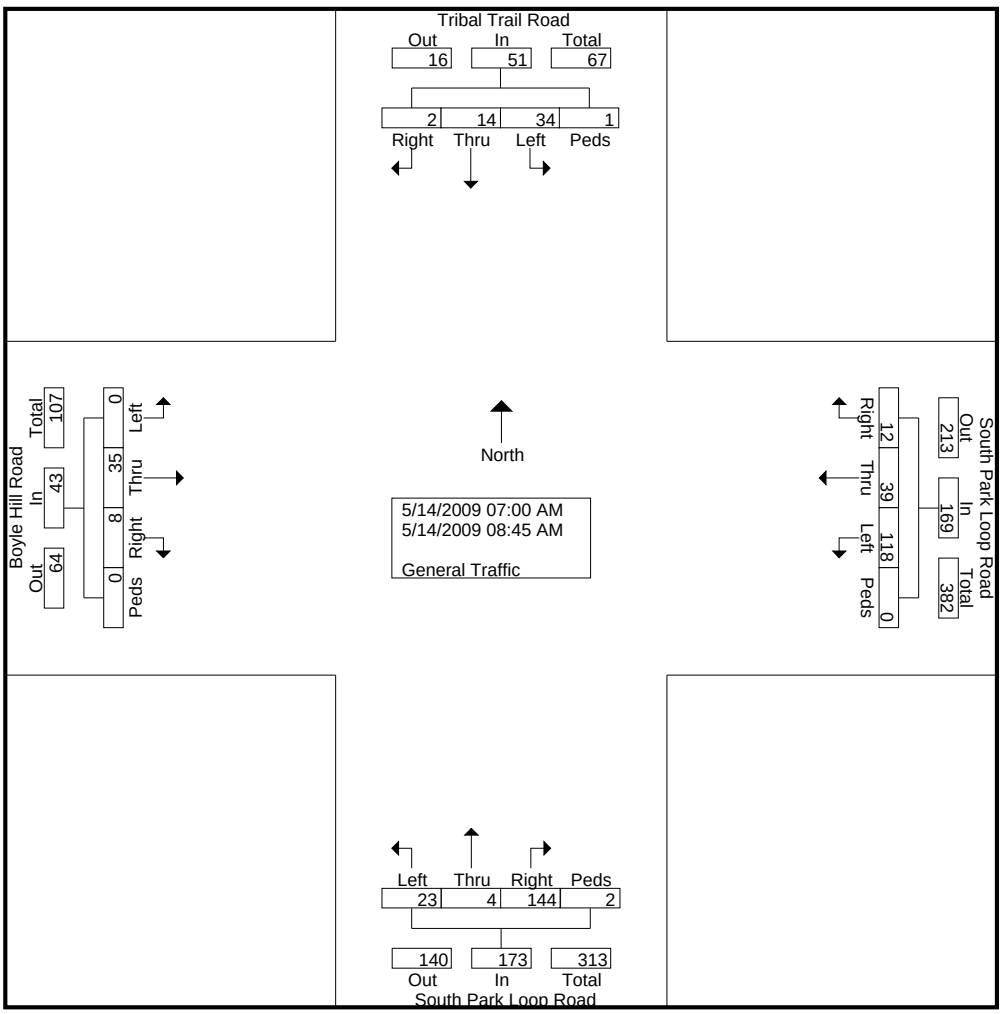
1770 West State Street #204
Boise, Idaho 83702
Idaho (208) 860-7554 Utah (801) 413-2993

Tech: Judd
Intersection: S. Park /Tribal / Boyle
City, State: Jackson, Wyoming
Control: Stop Sign

File Name : S Park Tribal Boyle AM
Site Code : 2
Start Date : 5/14/2009
Page No : 1

Groups Printed- General Traffic

	Tribal Trail Road From the North					South Park Loop Road From the East					South Park Loop Road From the South					Boyle Hill Road From the West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	3	4	0	7	0	5	16	0	21	6	0	1	0	7	1	5	0	0	6	41
07:15 AM	1	4	4	0	9	0	7	17	0	24	10	0	3	0	13	1	4	0	0	5	51
07:30 AM	0	1	3	0	4	2	4	18	0	24	19	2	4	0	25	0	2	0	0	2	55
07:45 AM	0	1	6	0	7	4	3	11	0	18	10	0	5	2	17	1	4	0	0	5	47
Total	1	9	17	0	27	6	19	62	0	87	45	2	13	2	62	3	15	0	0	18	194
08:00 AM	1	0	8	0	9	2	2	12	0	16	22	0	3	0	25	1	1	0	0	2	52
08:15 AM	0	0	4	0	4	0	10	13	0	23	25	1	2	0	28	0	6	0	0	6	61
08:30 AM	0	2	4	0	6	2	4	15	0	21	24	0	3	0	27	1	4	0	0	5	59
08:45 AM	0	3	1	1	5	2	4	16	0	22	28	1	2	0	31	3	9	0	0	12	70
Total	1	5	17	1	24	6	20	56	0	82	99	2	10	0	111	5	20	0	0	25	242
Grand Total	2	14	34	1	51	12	39	118	0	169	144	4	23	2	173	8	35	0	0	43	436
Apprch %	3.9	27.5	66.7	2		7.1	23.1	69.8	0		83.2	2.3	13.3	1.2		18.6	81.4	0	0		
Total %	0.5	3.2	7.8	0.2	11.7	2.8	8.9	27.1	0	38.8	33	0.9	5.3	0.5	39.7	1.8	8	0	0	9.9	



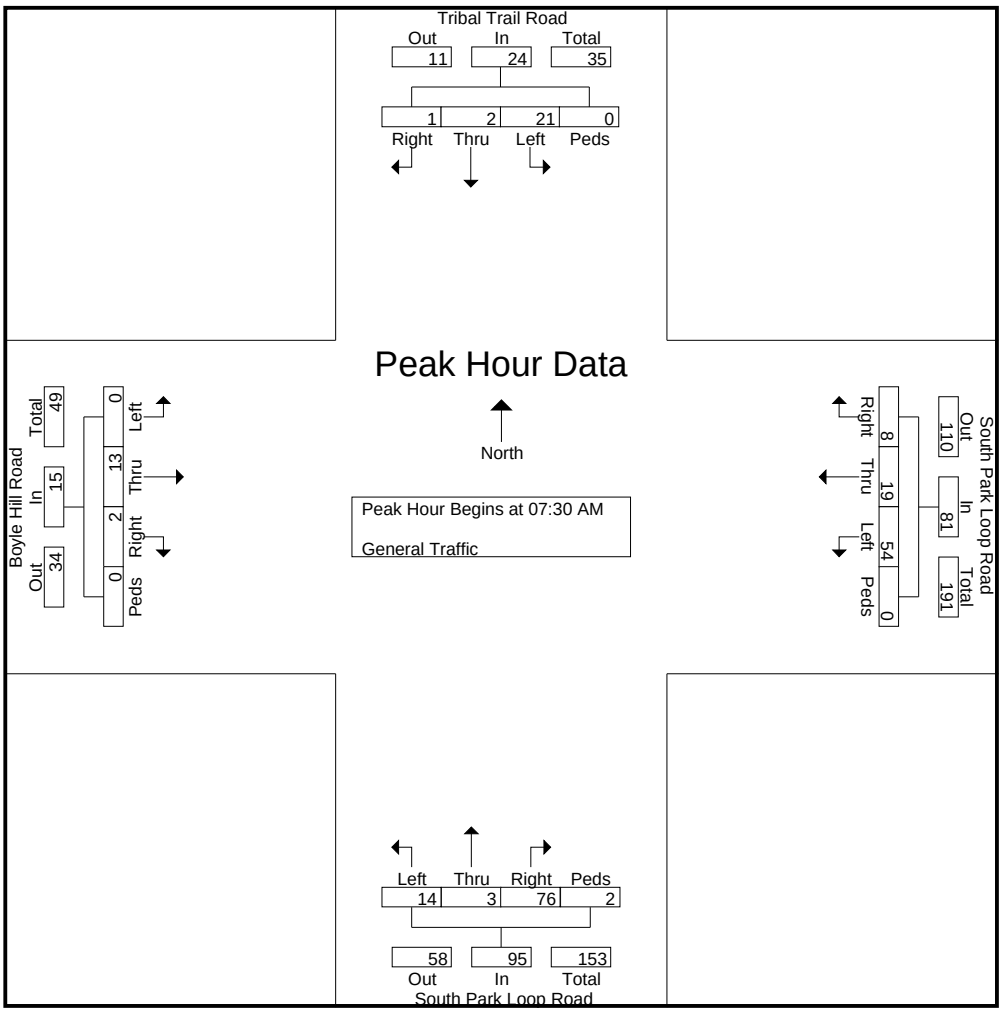
L2 Data Collection

1770 West State Street #204
Boise, Idaho 83702
Idaho (208) 860-7554 Utah (801) 413-2993

Tech: Judd
Intersection: S. Park /Tribal / Boyle
City, State: Jackson, Wyoming
Control: Stop Sign

File Name : S Park Tribal Boyle AM
Site Code : 2
Start Date : 5/14/2009
Page No : 2

	Tribal Trail Road From the North					South Park Loop Road From the East					South Park Loop Road From the South					Boyle Hill Road From the West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	**1**	3	0	4	2	4	**18**	0	**24**	19	**2**	4	0	25	0	2	0	0	2	55
07:45 AM	0	1	6	0	7	**4**	3	11	0	18	10	0	**5**	**2**	17	**1**	4	0	0	5	47
08:00 AM	**1**	0	**8**	0	**9**	2	2	12	0	16	22	0	3	0	25	1	1	0	0	2	52
08:15 AM	0	0	4	0	4	0	**10**	13	0	23	**25**	1	2	0	**28**	0	**6**	0	0	**6**	**61**
Total Volume	1	2	21	0	24	8	19	54	0	81	76	3	14	2	95	2	13	0	0	15	215
% App. Total	4.2	8.3	87.5	0		9.9	23.5	66.7	0		80	3.2	14.7	2.1		13.3	86.7	0	0		
PHF	.250	.500	.656	.000	.667	.500	.475	.750	.000	.844	.760	.375	.700	.250	.848	.500	.542	.000	.000	.625	.881



L2 Data Collection

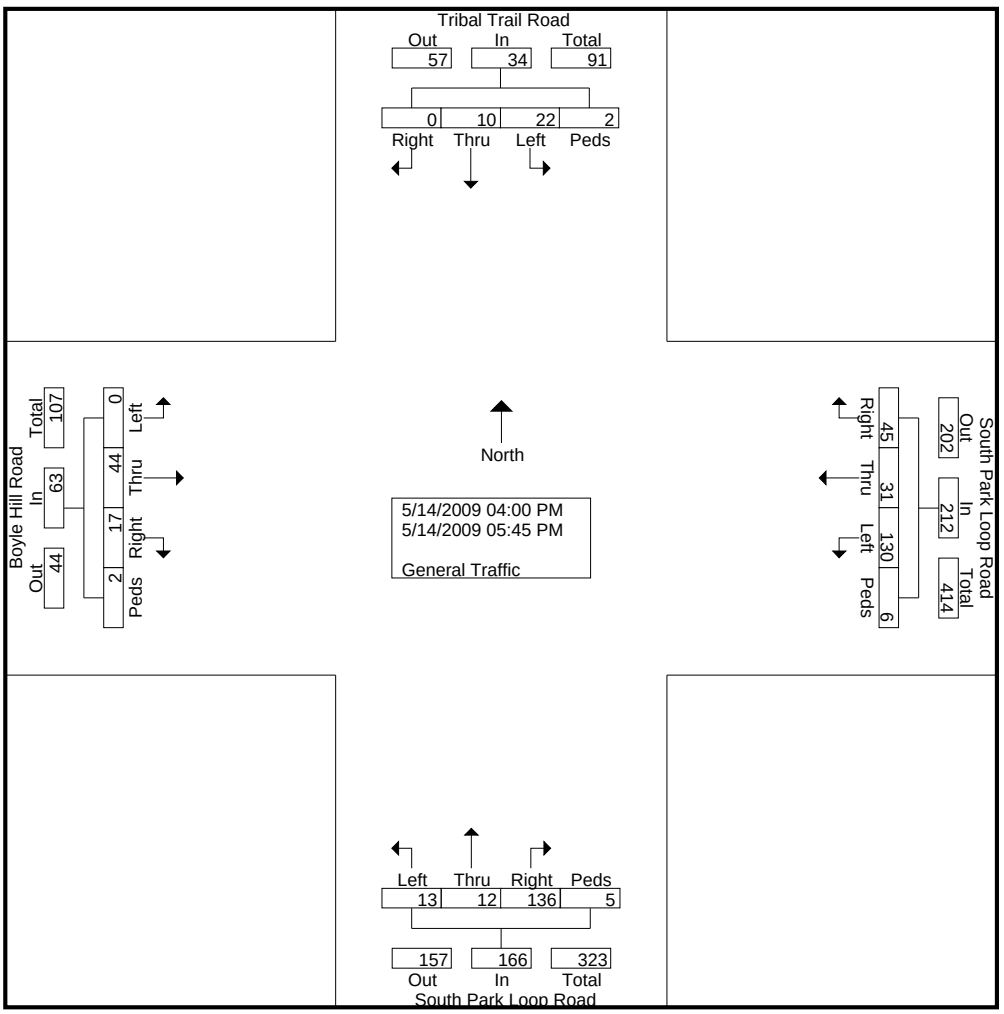
1770 West State Street #204
Boise, Idaho 83702
Idaho (208) 860-7554 Utah (801) 413-2993

Tech:
Intersection: S. Park /Tribal / Boyle
City, State: Jackson, Wyoming
Control: Stop Sign

File Name : S Park Tribal Boyle PM
Site Code : 2
Start Date : 5/14/2009
Page No : 1

Groups Printed- General Traffic

	Tribal Trail Road From the North					South Park Loop Road From the East					South Park Loop Road From the South					Boyle Hill Road From the West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	1	4	0	5	8	8	11	0	27	19	1	1	0	21	2	7	0	0	9	62
04:15 PM	0	1	3	1	5	3	2	15	1	21	13	2	3	0	18	0	4	0	0	4	48
04:30 PM	0	0	2	0	2	6	4	19	0	29	25	0	3	0	28	6	10	0	2	18	77
04:45 PM	0	2	3	0	5	6	4	15	0	25	20	0	0	0	20	0	9	0	0	9	59
Total	0	4	12	1	17	23	18	60	1	102	77	3	7	0	87	8	30	0	2	40	246
05:00 PM	0	1	3	0	4	8	3	21	1	33	16	2	2	0	20	3	6	0	0	9	66
05:15 PM	0	1	5	0	6	1	3	17	4	25	9	3	3	3	18	2	2	0	0	4	53
05:30 PM	0	3	2	1	6	6	5	17	0	28	19	2	0	2	23	2	3	0	0	5	62
05:45 PM	0	1	0	0	1	7	2	15	0	24	15	2	1	0	18	2	3	0	0	5	48
Total	0	6	10	1	17	22	13	70	5	110	59	9	6	5	79	9	14	0	0	23	229
Grand Total	0	10	22	2	34	45	31	130	6	212	136	12	13	5	166	17	44	0	2	63	475
Apprch %	0	29.4	64.7	5.9		21.2	14.6	61.3	2.8		81.9	7.2	7.8	3		27	69.8	0	3.2		
Total %	0	2.1	4.6	0.4	7.2	9.5	6.5	27.4	1.3	44.6	28.6	2.5	2.7	1.1	34.9	3.6	9.3	0	0.4	13.3	



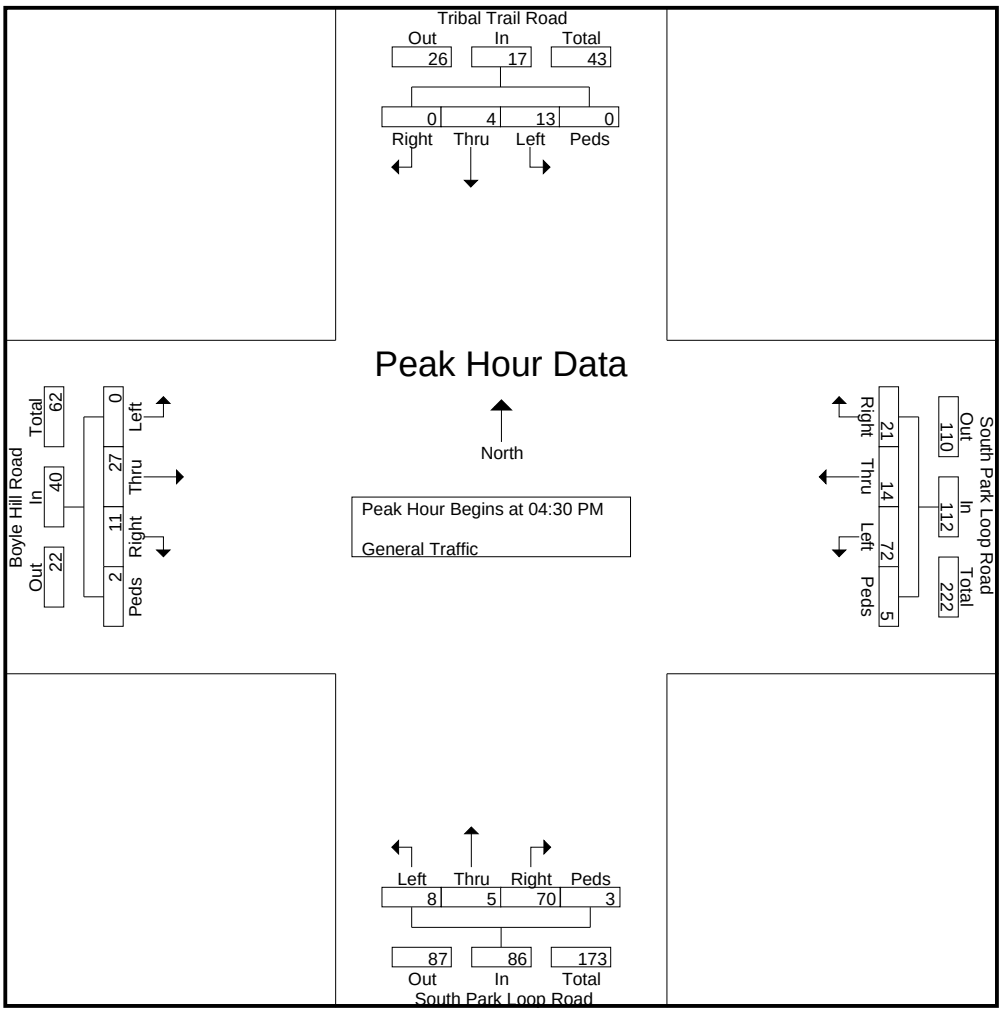
L2 Data Collection

1770 West State Street #204
Boise, Idaho 83702
Idaho (208) 860-7554 Utah (801) 413-2993

Tech:
Intersection: S. Park /Tribal / Boyle
City, State: Jackson, Wyoming
Control: Stop Sign

File Name : S Park Tribal Boyle PM
Site Code : 2
Start Date : 5/14/2009
Page No : 2

	Tribal Trail Road From the North					South Park Loop Road From the East					South Park Loop Road From the South					Boyle Hill Road From the West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	2	0	2	6	**4**	19	0	29	**25**	0	**3**	0	**28**	**6**	**10**	0	**2**	**18**	**77**
04:45 PM	0	**2**	3	0	5	6	4	15	0	25	20	0	0	0	20	0	9	0	0	9	59
05:00 PM	0	1	3	0	4	**8**	3	**21**	1	**33**	16	2	2	0	20	3	6	0	0	9	66
05:15 PM	0	1	**5**	0	**6**	1	3	17	**4**	25	9	**3**	3	**3**	18	2	2	0	0	4	53
Total Volume	0	4	13	0	17	21	14	72	5	112	70	5	8	3	86	11	27	0	2	40	255
% App. Total	0	23.5	76.5	0		18.8	12.5	64.3	4.5		81.4	5.8	9.3	3.5		27.5	67.5	0	5		
PHF	.000	.500	.650	.000	.708	.656	.875	.857	.313	.848	.700	.417	.667	.250	.768	.458	.675	.000	.250	.556	.828

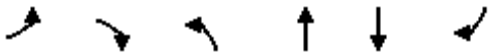


APPENDIX E LEVEL OF SERVICE ANALYSES

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	145	0	15	2	0	13	15	691	0	3	280	63
Sign Control		Stop			Stop			Free			Free	
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)	158	0	16	2	0	14	16	751	0	3	304	68
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			1									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	767	1129	186	951	1163	376	373			751		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	767	1129	186	951	1163	376	373			751		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	44	100	98	99	100	98	99			100		
cM capacity (veh/h)	281	199	824	207	190	622	1182			854		

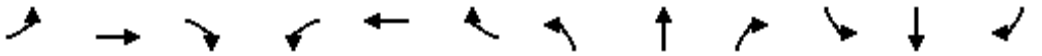
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	174	16	16	501	250	3	203	170
Volume Left	158	2	16	0	0	3	0	0
Volume Right	16	14	0	0	0	0	0	68
cSH	305	491	1182	1700	1700	854	1700	1700
Volume to Capacity	0.57	0.03	0.01	0.29	0.15	0.00	0.12	0.10
Queue Length 95th (ft)	83	3	1	0	0	0	0	0
Control Delay (s)	31.4	12.6	8.1	0.0	0.0	9.2	0.0	0.0
Lane LOS	D	B	A			A		
Approach Delay (s)	31.4	12.6	0.2			0.1		
Approach LOS	D	B						

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	40.5%	ICU Level of Service	A	
Analysis Period (min)	15			



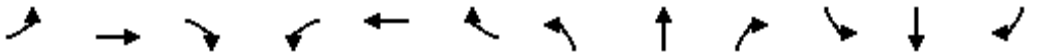
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	249	42	137	1032	476	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	6.0	6.0	6.0
Lane Util. Factor	0.97		1.00	0.95	0.95	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	0.96		0.95	1.00	1.00	1.00
Satd. Flow (prot)	3391		1770	3539	3539	1583
Flt Permitted	0.96		0.34	1.00	1.00	1.00
Satd. Flow (perm)	3391		631	3539	3539	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	268	45	147	1110	512	189
RTOR Reduction (vph)	25	0	0	0	0	130
Lane Group Flow (vph)	288	0	147	1110	512	60
Turn Type			pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	9.1		23.1	23.1	13.6	13.6
Effective Green, g (s)	9.1		23.1	23.1	13.6	13.6
Actuated g/C Ratio	0.21		0.53	0.53	0.31	0.31
Clearance Time (s)	5.0		5.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	714		456	1892	1114	498
v/s Ratio Prot	c0.08		0.03	c0.31	0.14	
v/s Ratio Perm			0.14			0.04
v/c Ratio	0.40		0.32	0.59	0.46	0.12
Uniform Delay, d1	14.7		5.4	6.8	11.9	10.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		0.4	0.5	0.3	0.1
Delay (s)	15.1		5.9	7.3	12.2	10.6
Level of Service	B		A	A	B	B
Approach Delay (s)	15.1			7.1	11.8	
Approach LOS	B			A	B	

Intersection Summary			
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	43.2	Sum of lost time (s)	11.0
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



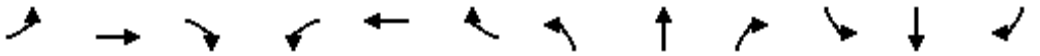
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	495	23	28	13	17	92	15	1001	21	31	598	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1674		1770	1626		1770	3528		1770	3539	1583
Flt Permitted	0.95	0.96		0.95	1.00		0.32	1.00		0.17	1.00	1.00
Satd. Flow (perm)	1681	1674		1770	1626		599	3528		316	3539	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	562	26	32	15	19	105	17	1138	24	35	680	453
RTOR Reduction (vph)	0	6	0	0	19	0	0	2	0	0	0	278
Lane Group Flow (vph)	309	305	0	15	105	0	17	1160	0	35	680	175
Turn Type	Split			Split			Perm			Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	14.7	14.7		7.7	7.7		23.6	23.6		23.6	23.6	23.6
Effective Green, g (s)	14.7	14.7		7.7	7.7		23.6	23.6		23.6	23.6	23.6
Actuated g/C Ratio	0.24	0.24		0.13	0.13		0.39	0.39		0.39	0.39	0.39
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
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)	405	403		223	205		232	1365		122	1369	612
v/s Ratio Prot	c0.18	0.18		0.01	c0.06			c0.33			0.19	
v/s Ratio Perm							0.03			0.11		0.11
v/c Ratio	0.76	0.76		0.07	0.51		0.07	0.85		0.29	0.50	0.29
Uniform Delay, d1	21.5	21.5		23.5	24.9		11.8	17.1		12.9	14.2	12.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.3	7.9		0.1	2.1		0.1	5.2		1.3	0.3	0.3
Delay (s)	29.8	29.4		23.6	27.0		11.9	22.2		14.2	14.5	13.2
Level of Service	C	C		C	C		B	C		B	B	B
Approach Delay (s)		29.6			26.7			22.1			14.0	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	20.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



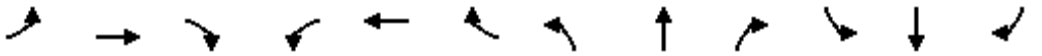
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	330	841	29	104	419	336	22	128	86	438	82	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1681	1711	1583
Flt Permitted	0.27	1.00	1.00	0.24	1.00	1.00	0.57	1.00	1.00	0.95	0.97	1.00
Satd. Flow (perm)	512	3539	1583	444	3539	1583	1063	1863	1583	1681	1711	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	375	956	33	118	476	382	25	145	98	498	93	181
RTOR Reduction (vph)	0	0	21	0	0	296	0	0	83	0	0	144
Lane Group Flow (vph)	375	956	12	118	476	86	25	145	15	294	297	37
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Split		Perm
Protected Phases	5	2		1	6			8		4	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	32.9	24.8	24.8	19.9	16.8	16.8	11.1	11.1	11.1	15.4	15.4	15.4
Effective Green, g (s)	32.9	24.8	24.8	19.9	16.8	16.8	11.1	11.1	11.1	15.4	15.4	15.4
Actuated g/C Ratio	0.44	0.33	0.33	0.27	0.23	0.23	0.15	0.15	0.15	0.21	0.21	0.21
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	414	1180	528	174	799	357	159	278	236	348	354	328
v/s Ratio Prot	c0.14	0.27		0.03	0.13			c0.08		c0.17	0.17	
v/s Ratio Perm	c0.27		0.01	0.15		0.05	0.02		0.01			0.02
v/c Ratio	0.91	0.81	0.02	0.68	0.60	0.24	0.16	0.52	0.06	0.84	0.84	0.11
Uniform Delay, d1	15.7	22.7	16.7	22.9	25.8	23.6	27.6	29.2	27.2	28.4	28.3	24.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	22.8	4.3	0.0	10.0	1.2	0.4	0.5	1.8	0.1	16.9	15.8	0.2
Delay (s)	38.6	27.0	16.7	33.0	27.0	23.9	28.0	31.0	27.3	45.2	44.1	24.1
Level of Service	D	C	B	C	C	C	C	C	C	D	D	C
Approach Delay (s)		29.9			26.5			29.3			39.9	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM Average Control Delay	31.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	74.4	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



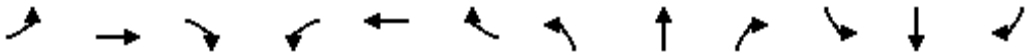
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	145	0	15	2	0	13	15	691	0	3	280	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.88		1.00	1.00		1.00	0.97	
Flt Protected		0.95	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583		1633		1770	3539		1770	3442	
Flt Permitted		0.75	1.00		0.95		0.53	1.00		0.37	1.00	
Satd. Flow (perm)		1392	1583		1562		988	3539		683	3442	
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)	158	0	16	2	0	14	16	751	0	3	304	68
RTOR Reduction (vph)	0	0	13	0	11	0	0	0	0	0	28	0
Lane Group Flow (vph)	0	158	3	0	5	0	16	751	0	3	344	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		8.3	8.3		8.3		19.9	19.9		19.9	19.9	
Effective Green, g (s)		8.3	8.3		8.3		19.9	19.9		19.9	19.9	
Actuated g/C Ratio		0.21	0.21		0.21		0.51	0.51		0.51	0.51	
Clearance Time (s)		5.0	5.0		5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		295	335		331		502	1797		347	1747	
v/s Ratio Prot								c0.21			0.10	
v/s Ratio Perm		c0.11	0.00		0.00		0.02			0.00		
v/c Ratio		0.54	0.01		0.01		0.03	0.42		0.01	0.20	
Uniform Delay, d1		13.7	12.2		12.2		4.8	6.0		4.8	5.3	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.9	0.0		0.0		0.0	0.2		0.0	0.1	
Delay (s)		15.6	12.2		12.2		4.9	6.2		4.8	5.3	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		15.3			12.2			6.2			5.3	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	39.2	Sum of lost time (s)	11.0
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	330	841	29	104	419	336	22	128	86	438	82	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.27	1.00	1.00	0.25	1.00	1.00	0.70	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	503	3539	1583	474	3539	1583	1298	1863	1583	3433	1863	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	375	956	33	118	476	382	25	145	98	498	93	181
RTOR Reduction (vph)	0	0	21	0	0	298	0	0	83	0	0	110
Lane Group Flow (vph)	375	956	12	118	476	84	25	145	15	498	93	71
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Prot		Perm
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	35.3	27.2	27.2	19.5	16.4	16.4	11.1	11.1	11.1	12.9	29.0	29.0
Effective Green, g (s)	35.3	27.2	27.2	19.5	16.4	16.4	11.1	11.1	11.1	12.9	29.0	29.0
Actuated g/C Ratio	0.48	0.37	0.37	0.26	0.22	0.22	0.15	0.15	0.15	0.17	0.39	0.39
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	476	1296	580	178	781	349	194	278	236	596	727	618
v/s Ratio Prot	c0.15	0.27		0.03	0.13			c0.08		c0.15	0.05	
v/s Ratio Perm	c0.23		0.01	0.15		0.05	0.02		0.01			0.04
v/c Ratio	0.79	0.74	0.02	0.66	0.61	0.24	0.13	0.52	0.06	0.84	0.13	0.11
Uniform Delay, d1	14.0	20.5	15.0	22.4	26.1	23.8	27.4	29.2	27.1	29.7	14.5	14.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.4	2.2	0.0	8.9	1.4	0.4	0.3	1.8	0.1	9.9	0.1	0.1
Delay (s)	22.4	22.7	15.1	31.3	27.4	24.2	27.7	30.9	27.2	39.5	14.6	14.5
Level of Service	C	C	B	C	C	C	C	C	C	D	B	B
Approach Delay (s)		22.4			26.6			29.3			30.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	6	104	72	179	59	81	1	23	1	61	79	5
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Hourly flow rate (vph)	10	179	124	309	102	140	2	40	2	105	136	9

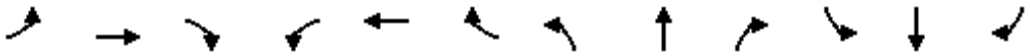
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	314	309	241	43	250
Volume Left (vph)	10	309	0	2	105
Volume Right (vph)	124	0	140	2	9
Hadj (s)	-0.20	0.53	-0.37	0.02	0.10
Departure Headway (s)	5.5	6.4	5.5	6.7	6.2
Degree Utilization, x	0.48	0.55	0.37	0.08	0.43
Capacity (veh/h)	618	543	632	449	541
Control Delay (s)	13.6	15.9	10.5	10.3	13.7
Approach Delay (s)	13.6	13.5		10.3	13.7
Approach LOS	B	B		B	B

Intersection Summary				
Delay	13.5			
HCM Level of Service	B			
Intersection Capacity Utilization	44.6%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	2	0	22	6	28	2	49	59	27	37	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	2	2	0	24	7	31	2	54	65	30	41	5
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	227	226	43	195	196	86	46			119		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	227	226	43	195	196	86	46			119		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	99	97	100			98		
cM capacity (veh/h)	688	659	1027	750	684	972	1562			1469		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	4	62	121	76
Volume Left	2	24	2	30
Volume Right	0	31	65	5
cSH	673	837	1562	1469
Volume to Capacity	0.01	0.07	0.00	0.02
Queue Length 95th (ft)	0	6	0	2
Control Delay (s)	10.4	9.6	0.1	3.0
Lane LOS	B	A	A	A
Approach Delay (s)	10.4	9.6	0.1	3.0
Approach LOS	B	A		

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	20.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	13	2	54	19	8	14	3	76	21	2	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1	15	2	61	22	9	16	3	86	24	2	1
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	31			17			165	172	16	254	168	26
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	31			17			165	172	16	254	168	26
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			98	100	92	96	100	100
cM capacity (veh/h)	1582			1600			773	693	1063	621	696	1050

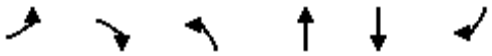
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1	17	61	31	106	27
Volume Left	1	0	61	0	16	24
Volume Right	0	2	0	9	86	1
cSH	1582	1700	1600	1700	990	638
Volume to Capacity	0.00	0.01	0.04	0.02	0.11	0.04
Queue Length 95th (ft)	0	0	3	0	9	3
Control Delay (s)	7.3	0.0	7.3	0.0	9.1	10.9
Lane LOS	A		A		A	B
Approach Delay (s)	0.5		4.9		9.1	10.9
Approach LOS					A	B

Intersection Summary				
Average Delay	7.0			
Intersection Capacity Utilization	21.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	75	1	10	1	1	6	15	381	1	10	738	143
Sign Control		Stop			Stop			Free			Free	
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)	82	1	11	1	1	7	16	414	1	11	802	155
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			1									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1148	1349	479	876	1427	208	958			415		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1148	1349	479	876	1427	208	958			415		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	45	99	98	100	99	99	98			99		
cM capacity (veh/h)	148	145	533	231	130	798	714			1140		

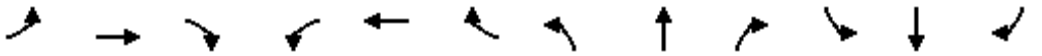
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	93	9	16	276	139	11	535	423
Volume Left	82	1	16	0	0	11	0	0
Volume Right	11	7	0	0	1	0	0	155
cSH	164	409	714	1700	1700	1140	1700	1700
Volume to Capacity	0.57	0.02	0.02	0.16	0.08	0.01	0.31	0.25
Queue Length 95th (ft)	74	2	2	0	0	1	0	0
Control Delay (s)	52.6	14.0	10.2	0.0	0.0	8.2	0.0	0.0
Lane LOS	F	B	B			A		
Approach Delay (s)	52.6	14.0	0.4			0.1		
Approach LOS	F	B						

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	42.5%	ICU Level of Service	A	
Analysis Period (min)	15			



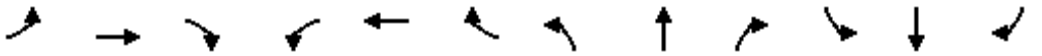
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	318	196	109	630	923	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	6.0	6.0	6.0
Lane Util. Factor	0.97		1.00	0.95	0.95	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	3305		1770	3539	3539	1583
Flt Permitted	0.97		0.16	1.00	1.00	1.00
Satd. Flow (perm)	3305		299	3539	3539	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	342	211	117	677	992	188
RTOR Reduction (vph)	164	0	0	0	0	114
Lane Group Flow (vph)	389	0	117	677	992	74
Turn Type			pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	11.2		28.5	28.5	19.9	19.9
Effective Green, g (s)	11.2		28.5	28.5	19.9	19.9
Actuated g/C Ratio	0.22		0.56	0.56	0.39	0.39
Clearance Time (s)	5.0		5.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	730		273	1989	1389	621
v/s Ratio Prot	c0.12		0.03	c0.19	c0.28	
v/s Ratio Perm			0.21			0.05
v/c Ratio	0.53		0.43	0.34	0.71	0.12
Uniform Delay, d1	17.4		6.9	6.0	13.0	9.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7		1.1	0.1	1.8	0.1
Delay (s)	18.2		8.0	6.1	14.8	9.9
Level of Service	B		A	A	B	A
Approach Delay (s)	18.2			6.4	14.0	
Approach LOS	B			A	B	

Intersection Summary			
HCM Average Control Delay	12.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	50.7	Sum of lost time (s)	17.0
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



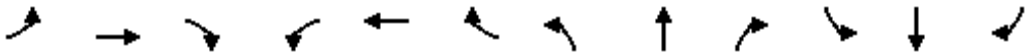
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	412	13	16	28	11	65	11	855	13	37	1373	549
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.99		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1677		1770	1625		1770	3531		1770	3539	1583
Flt Permitted	0.95	0.96		0.95	1.00		0.14	1.00		0.23	1.00	1.00
Satd. Flow (perm)	1681	1677		1770	1625		261	3531		434	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	434	14	17	29	12	68	12	900	14	39	1445	578
RTOR Reduction (vph)	0	4	0	0	49	0	0	1	0	0	0	312
Lane Group Flow (vph)	234	227	0	29	31	0	12	913	0	39	1445	266
Turn Type	Split			Split			Perm			Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	13.0	13.0		5.6	5.6		28.6	28.6		28.6	28.6	28.6
Effective Green, g (s)	13.0	13.0		5.6	5.6		28.6	28.6		28.6	28.6	28.6
Actuated g/C Ratio	0.21	0.21		0.09	0.09		0.46	0.46		0.46	0.46	0.46
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
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)	351	350		159	146		120	1624		200	1627	728
v/s Ratio Prot	c0.14	0.14		0.02	c0.02			0.26			c0.41	
v/s Ratio Perm							0.05			0.09		0.17
v/c Ratio	0.67	0.65		0.18	0.21		0.10	0.56		0.20	0.89	0.37
Uniform Delay, d1	22.6	22.5		26.2	26.3		9.5	12.2		10.0	15.3	10.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.7	4.1		0.6	0.7		0.4	0.4		0.5	6.3	0.3
Delay (s)	27.3	26.6		26.7	27.0		9.9	12.7		10.4	21.6	11.2
Level of Service	C	C		C	C		A	B		B	C	B
Approach Delay (s)		27.0			26.9			12.7			18.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	62.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



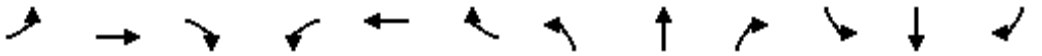
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	277	790	35	118	843	511	49	212	91	542	106	429
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1681	1712	1583
Flt Permitted	0.14	1.00	1.00	0.22	1.00	1.00	0.55	1.00	1.00	0.95	0.97	1.00
Satd. Flow (perm)	257	3539	1583	416	3539	1583	1021	1863	1583	1681	1712	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	286	814	36	122	869	527	51	219	94	559	109	442
RTOR Reduction (vph)	0	0	24	0	0	383	0	0	79	0	0	323
Lane Group Flow (vph)	286	814	12	122	869	144	51	219	15	330	338	119
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Split		Perm
Protected Phases	5	2		1	6			8		4	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	40.0	29.0	29.0	30.0	24.0	24.0	14.1	14.1	14.1	19.0	19.0	19.0
Effective Green, g (s)	40.0	29.0	29.0	30.0	24.0	24.0	14.1	14.1	14.1	19.0	19.0	19.0
Actuated g/C Ratio	0.45	0.33	0.33	0.34	0.27	0.27	0.16	0.16	0.16	0.22	0.22	0.22
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	306	1165	521	234	964	431	163	298	253	363	369	341
v/s Ratio Prot	c0.12	0.23		0.04	0.25			c0.12		0.20	c0.20	
v/s Ratio Perm	c0.31		0.01	0.14		0.09	0.05		0.01			0.08
v/c Ratio	0.93	0.70	0.02	0.52	0.90	0.33	0.31	0.73	0.06	0.91	0.92	0.35
Uniform Delay, d1	21.3	25.7	20.0	21.1	30.9	25.6	32.7	35.2	31.4	33.7	33.8	29.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	34.4	1.9	0.0	2.1	11.4	0.5	1.1	9.1	0.1	25.6	26.7	0.6
Delay (s)	55.7	27.6	20.0	23.2	42.3	26.1	33.8	44.3	31.5	59.3	60.5	29.9
Level of Service	E	C	B	C	D	C	C	D	C	E	E	C
Approach Delay (s)		34.4			35.2			39.5			48.0	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM Average Control Delay	38.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	88.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



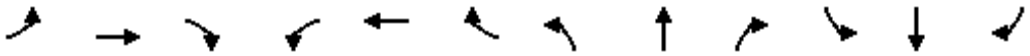
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	1	10	1	1	6	15	381	1	10	738	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.90		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1775	1583		1658		1770	3538		1770	3453	
Flt Permitted		0.95	1.00		0.95		0.30	1.00		0.51	1.00	
Satd. Flow (perm)		1763	1583		1579		557	3538		948	3453	
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)	82	1	11	1	1	7	16	414	1	11	802	155
RTOR Reduction (vph)	0	0	10	0	6	0	0	0	0	0	25	0
Lane Group Flow (vph)	0	83	1	0	3	0	16	415	0	11	932	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		4.2	4.2		4.2		16.0	16.0		16.0	16.0	
Effective Green, g (s)		4.2	4.2		4.2		16.0	16.0		16.0	16.0	
Actuated g/C Ratio		0.13	0.13		0.13		0.51	0.51		0.51	0.51	
Clearance Time (s)		5.0	5.0		5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		237	213		213		286	1814		486	1771	
v/s Ratio Prot								0.12			c0.27	
v/s Ratio Perm		c0.05	0.00		0.00		0.03			0.01		
v/c Ratio		0.35	0.01		0.01		0.06	0.23		0.02	0.53	
Uniform Delay, d1		12.3	11.7		11.7		3.8	4.2		3.7	5.1	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9	0.0		0.0		0.1	0.1		0.0	0.3	
Delay (s)		13.2	11.7		11.7		3.9	4.3		3.8	5.4	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		13.0			11.7			4.2			5.3	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	31.2	Sum of lost time (s)	11.0
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	277	790	35	118	843	511	49	212	91	542	106	429
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.18	1.00	1.00	0.27	1.00	1.00	0.69	1.00	1.00	0.37	1.00	1.00
Satd. Flow (perm)	328	3539	1583	500	3539	1583	1279	1863	1583	1345	1863	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	286	814	36	122	869	527	51	219	94	559	109	442
RTOR Reduction (vph)	0	0	23	0	0	291	0	0	76	0	0	135
Lane Group Flow (vph)	286	814	13	122	869	236	51	219	18	559	109	307
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	pm+pt		Perm
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	28.7	22.7	22.7	22.9	19.8	19.8	12.2	12.2	12.2	21.2	21.2	21.2
Effective Green, g (s)	28.7	22.7	22.7	22.9	19.8	19.8	12.2	12.2	12.2	21.2	21.2	21.2
Actuated g/C Ratio	0.46	0.37	0.37	0.37	0.32	0.32	0.20	0.20	0.20	0.34	0.34	0.34
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	291	1296	580	248	1130	506	252	367	311	595	637	541
v/s Ratio Prot	c0.10	0.23		0.02	0.25			0.12		c0.06	0.06	
v/s Ratio Perm	c0.36		0.01	0.16		0.15	0.04		0.01	c0.26		0.19
v/c Ratio	0.98	0.63	0.02	0.49	0.77	0.47	0.20	0.60	0.06	0.94	0.17	0.57
Uniform Delay, d1	13.4	16.2	12.6	13.4	19.0	16.9	20.8	22.7	20.2	20.0	14.3	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	47.7	1.0	0.0	1.5	3.2	0.7	0.4	2.6	0.1	22.7	0.1	1.4
Delay (s)	61.2	17.1	12.6	15.0	22.2	17.6	21.2	25.3	20.3	42.7	14.4	18.0
Level of Service	E	B	B	B	C	B	C	C	C	D	B	B
Approach Delay (s)		28.1			20.0			23.4			30.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	2	88	4	56	99	37	9	24	92	71	18	8
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	3	128	6	81	143	54	13	35	133	103	26	12

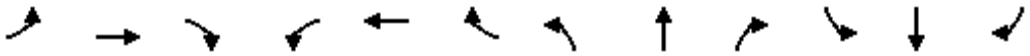
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	136	81	197	181	141
Volume Left (vph)	3	81	0	13	103
Volume Right (vph)	6	0	54	133	12
Hadj (s)	0.01	0.53	-0.16	-0.39	0.13
Departure Headway (s)	5.3	6.0	5.3	4.8	5.4
Degree Utilization, x	0.20	0.14	0.29	0.24	0.21
Capacity (veh/h)	629	563	638	692	616
Control Delay (s)	9.5	8.8	9.3	9.3	9.8
Approach Delay (s)	9.5	9.2		9.3	9.8
Approach LOS	A	A		A	A

Intersection Summary				
Delay	9.4			
HCM Level of Service	A			
Intersection Capacity Utilization	28.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	8	1	32	2	29	1	54	45	10	31	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	5	8	1	33	2	30	1	56	46	10	32	3
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	166	158	34	140	137	79	35			102		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	166	158	34	140	137	79	35			102		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	100	96	100	97	100			99		
cM capacity (veh/h)	768	728	1040	817	749	982	1576			1490		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	14	65	103	45
Volume Left	5	33	1	10
Volume Right	1	30	46	3
cSH	759	883	1576	1490
Volume to Capacity	0.02	0.07	0.00	0.01
Queue Length 95th (ft)	1	6	0	1
Control Delay (s)	9.8	9.4	0.1	1.7
Lane LOS	A	A	A	A
Approach Delay (s)	9.8	9.4	0.1	1.7
Approach LOS	A	A		

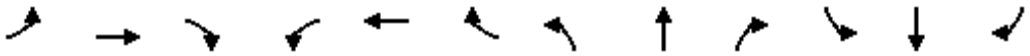
Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	21.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	27	11	72	14	21	8	5	70	13	4	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	1	33	13	87	17	25	10	6	84	16	5	1
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	42			46			236	257	39	325	251	30
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	42			46			236	257	39	325	251	30
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			94			99	99	92	97	99	100
cM capacity (veh/h)	1567			1562			683	610	1032	548	615	1045

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1	46	87	42	100	22
Volume Left	1	0	87	0	10	16
Volume Right	0	13	0	25	84	1
cSH	1567	1700	1562	1700	946	577
Volume to Capacity	0.00	0.03	0.06	0.02	0.11	0.04
Queue Length 95th (ft)	0	0	4	0	9	3
Control Delay (s)	7.3	0.0	7.4	0.0	9.3	11.5
Lane LOS	A		A		A	B
Approach Delay (s)	0.2		5.0		9.3	11.5
Approach LOS					A	B

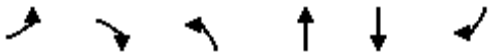
Intersection Summary				
Average Delay	6.1			
Intersection Capacity Utilization	22.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	135	1	15	2	1	13	15	691	1	3	280	58
Sign Control		Stop			Stop			Free			Free	
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)	147	1	16	2	1	14	16	751	1	3	304	63
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			1									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	765	1127	184	952	1158	376	367			752		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	765	1127	184	952	1158	376	367			752		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	48	99	98	99	99	98	99			100		
cM capacity (veh/h)	281	200	827	206	191	621	1188			853		

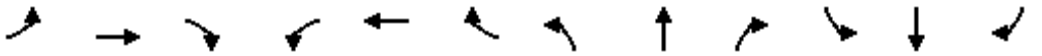
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	164	17	16	501	251	3	203	164
Volume Left	147	2	16	0	0	3	0	0
Volume Right	16	14	0	0	1	0	0	63
cSH	305	446	1188	1700	1700	853	1700	1700
Volume to Capacity	0.54	0.04	0.01	0.29	0.15	0.00	0.12	0.10
Queue Length 95th (ft)	75	3	1	0	0	0	0	0
Control Delay (s)	29.7	13.4	8.1	0.0	0.0	9.2	0.0	0.0
Lane LOS	D	B	A			A		
Approach Delay (s)	29.7	13.4	0.2			0.1		
Approach LOS	D	B						

Intersection Summary				
Average Delay	4.0			
Intersection Capacity Utilization	40.0%	ICU Level of Service	A	
Analysis Period (min)	15			



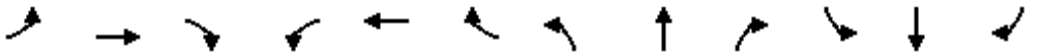
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	249	67	162	997	446	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	6.0	6.0	6.0
Lane Util. Factor	0.97		1.00	0.95	0.95	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	0.96		0.95	1.00	1.00	1.00
Satd. Flow (prot)	3366		1770	3539	3539	1583
Flt Permitted	0.96		0.35	1.00	1.00	1.00
Satd. Flow (perm)	3366		650	3539	3539	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	268	72	174	1072	480	189
RTOR Reduction (vph)	47	0	0	0	0	132
Lane Group Flow (vph)	293	0	174	1072	480	57
Turn Type			pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	9.3		24.3	24.3	13.5	13.5
Effective Green, g (s)	9.3		24.3	24.3	13.5	13.5
Actuated g/C Ratio	0.21		0.54	0.54	0.30	0.30
Clearance Time (s)	5.0		5.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	702		500	1928	1071	479
v/s Ratio Prot	c0.09		0.05	c0.30	0.14	
v/s Ratio Perm			0.14			0.04
v/c Ratio	0.42		0.35	0.56	0.45	0.12
Uniform Delay, d1	15.3		5.5	6.6	12.5	11.2
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		0.4	0.4	0.3	0.1
Delay (s)	15.7		5.9	7.0	12.8	11.4
Level of Service	B		A	A	B	B
Approach Delay (s)	15.7			6.8	12.4	
Approach LOS	B			A	B	

Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	44.6	Sum of lost time (s)	11.0
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



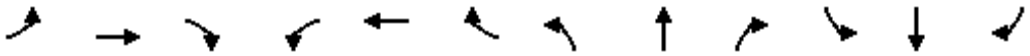
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	595	23	128	13	17	92	105	876	21	31	468	489
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.97		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1629		1770	1626		1770	3527		1770	3539	1583
Flt Permitted	0.95	0.97		0.95	1.00		0.39	1.00		0.20	1.00	1.00
Satd. Flow (perm)	1681	1629		1770	1626		735	3527		367	3539	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	676	26	145	15	19	105	119	995	24	35	532	556
RTOR Reduction (vph)	0	26	0	0	20	0	0	2	0	0	0	374
Lane Group Flow (vph)	433	388	0	15	104	0	119	1017	0	35	532	182
Turn Type	Split			Split			Perm			Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	18.8	18.8		7.8	7.8		20.3	20.3		20.3	20.3	20.3
Effective Green, g (s)	18.8	18.8		7.8	7.8		20.3	20.3		20.3	20.3	20.3
Actuated g/C Ratio	0.30	0.30		0.13	0.13		0.33	0.33		0.33	0.33	0.33
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
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)	511	495		223	205		241	1157		120	1161	519
v/s Ratio Prot	c0.26	0.24		0.01	c0.06			c0.29			0.15	
v/s Ratio Perm							0.16			0.10		0.12
v/c Ratio	0.85	0.78		0.07	0.51		0.49	0.88		0.29	0.46	0.35
Uniform Delay, d1	20.2	19.7		23.8	25.3		16.7	19.6		15.5	16.5	15.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	12.3	7.9		0.1	2.0		1.6	7.8		1.4	0.3	0.4
Delay (s)	32.5	27.6		24.0	27.2		18.3	27.5		16.8	16.7	16.2
Level of Service	C	C		C	C		B	C		B	B	B
Approach Delay (s)		30.1			26.9			26.5			16.5	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	61.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	215	841	29	104	419	226	22	63	86	318	22	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1681	1696	1583
Flt Permitted	0.31	1.00	1.00	0.23	1.00	1.00	0.63	1.00	1.00	0.95	0.96	1.00
Satd. Flow (perm)	573	3539	1583	433	3539	1583	1172	1863	1583	1681	1696	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	244	956	33	118	476	257	25	72	98	361	25	22
RTOR Reduction (vph)	0	0	20	0	0	191	0	0	89	0	0	18
Lane Group Flow (vph)	244	956	13	118	476	66	25	72	9	191	195	4
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Split		Perm
Protected Phases	5	2		1	6			8		4	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	32.5	24.6	24.6	20.1	17.2	17.2	6.4	6.4	6.4	12.6	12.6	12.6
Effective Green, g (s)	32.5	24.6	24.6	20.1	17.2	17.2	6.4	6.4	6.4	12.6	12.6	12.6
Actuated g/C Ratio	0.49	0.37	0.37	0.30	0.26	0.26	0.10	0.10	0.10	0.19	0.19	0.19
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	465	1309	586	189	915	409	113	179	152	319	321	300
v/s Ratio Prot	c0.08	c0.27		0.03	0.13			c0.04		0.11	c0.11	
v/s Ratio Perm	0.18		0.01	0.16		0.04	0.02		0.01			0.00
v/c Ratio	0.52	0.73	0.02	0.62	0.52	0.16	0.22	0.40	0.06	0.60	0.61	0.01
Uniform Delay, d1	10.7	18.1	13.3	18.0	21.1	19.1	27.7	28.3	27.3	24.6	24.7	21.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	2.1	0.0	6.3	0.5	0.2	1.0	1.5	0.2	3.0	3.2	0.0
Delay (s)	11.8	20.2	13.3	24.3	21.7	19.3	28.7	29.7	27.5	27.7	27.9	21.9
Level of Service	B	C	B	C	C	B	C	C	C	C	C	C
Approach Delay (s)		18.4			21.3			28.5			27.5	
Approach LOS		B			C			C			C	

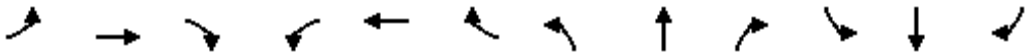
Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	66.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	11	134	72	179	84	76	1	23	1	56	79	10
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Hourly flow rate (vph)	19	231	124	309	145	131	2	40	2	97	136	17

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	374	309	276	43	250
Volume Left (vph)	19	309	0	2	97
Volume Right (vph)	124	0	131	2	17
Hadj (s)	-0.15	0.53	-0.30	0.02	0.07
Departure Headway (s)	5.6	6.6	5.7	7.0	6.4
Degree Utilization, x	0.59	0.56	0.44	0.08	0.44
Capacity (veh/h)	611	532	609	424	522
Control Delay (s)	16.3	16.5	11.9	10.6	14.3
Approach Delay (s)	16.3	14.3		10.6	14.3
Approach LOS	C	B		B	B

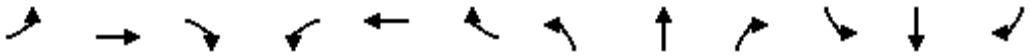
Intersection Summary				
Delay	14.8			
HCM Level of Service	B			
Intersection Capacity Utilization	46.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	2	1	22	6	58	2	64	59	62	52	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	2	2	1	24	7	64	2	70	65	68	57	5
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	370	336	60	305	306	103	63			135		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	370	336	60	305	306	103	63			135		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	96	99	93	100			95		
cM capacity (veh/h)	522	557	1006	620	578	952	1540			1449		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	95	137	131
Volume Left	2	24	2	68
Volume Right	1	64	65	5
cSH	594	806	1540	1449
Volume to Capacity	0.01	0.12	0.00	0.05
Queue Length 95th (ft)	1	10	0	4
Control Delay (s)	11.1	10.1	0.1	4.1
Lane LOS	B	B	A	A
Approach Delay (s)	11.1	10.1	0.1	4.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	29.4%	ICU Level of Service	A	
Analysis Period (min)	15			



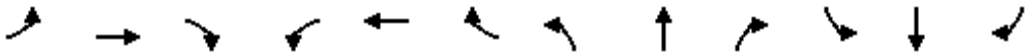
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	15	13	2	54	19	225	14	80	76	255	85	15
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	17	15	2	61	22	256	16	91	86	290	97	17

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total (vph)	17	17	61	277	193	290	114
Volume Left (vph)	17	0	61	0	16	290	0
Volume Right (vph)	0	2	0	256	86	0	17
Hadj (s)	0.53	-0.06	0.53	-0.61	-0.22	0.53	-0.07
Departure Headway (s)	7.3	6.7	6.8	5.6	5.9	6.4	5.8
Degree Utilization, x	0.03	0.03	0.12	0.43	0.32	0.51	0.18
Capacity (veh/h)	442	478	499	607	581	547	599
Control Delay (s)	9.4	8.7	9.5	11.7	11.6	14.6	8.8
Approach Delay (s)	9.1		11.3		11.6	13.0	
Approach LOS	A		B		B	B	

Intersection Summary				
Delay	12.0			
HCM Level of Service	B			
Intersection Capacity Utilization	48.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	274	335	20	414	310	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	6.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	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)	1863	1583	1770	1863	1770	1583
Flt Permitted	1.00	1.00	0.43	1.00	0.95	1.00
Satd. Flow (perm)	1863	1583	795	1863	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	298	364	22	450	337	16
RTOR Reduction (vph)	0	247	0	0	0	11
Lane Group Flow (vph)	298	117	22	450	337	5
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	14.1	14.1	19.6	19.6	13.3	13.3
Effective Green, g (s)	14.1	14.1	19.6	19.6	13.3	13.3
Actuated g/C Ratio	0.32	0.32	0.45	0.45	0.30	0.30
Clearance Time (s)	6.0	6.0	5.0	6.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	598	508	366	832	536	480
v/s Ratio Prot	0.16		0.00	c0.24	c0.19	
v/s Ratio Perm		0.07	0.03			0.00
v/c Ratio	0.50	0.23	0.06	0.54	0.63	0.01
Uniform Delay, d1	12.0	10.9	7.1	8.9	13.2	10.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	0.1	0.7	2.3	0.0
Delay (s)	12.7	11.2	7.2	9.6	15.5	10.7
Level of Service	B	B	A	A	B	B
Approach Delay (s)	11.8			9.5	15.3	
Approach LOS	B			A	B	

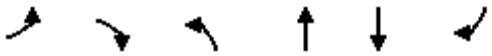
Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	43.9	Sum of lost time (s)	11.0
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	60	1	10	1	1	6	15	381	1	10	738	110
Sign Control		Stop			Stop			Free			Free	
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)	65	1	11	1	1	7	16	414	1	11	802	120
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			1									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1130	1332	461	876	1391	208	922			415		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1130	1332	461	876	1391	208	922			415		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	57	99	98	100	99	99	98			99		
cM capacity (veh/h)	152	148	547	231	137	798	737			1140		

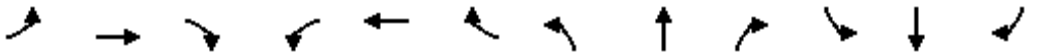
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	77	9	16	276	139	11	535	387
Volume Left	65	1	16	0	0	11	0	0
Volume Right	11	7	0	0	1	0	0	120
cSH	173	418	737	1700	1700	1140	1700	1700
Volume to Capacity	0.45	0.02	0.02	0.16	0.08	0.01	0.31	0.23
Queue Length 95th (ft)	51	2	2	0	0	1	0	0
Control Delay (s)	41.4	13.8	10.0	0.0	0.0	8.2	0.0	0.0
Lane LOS	E	B	A			A		
Approach Delay (s)	41.4	13.8	0.4			0.1		
Approach LOS	E	B						

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	40.6%	ICU Level of Service	A	
Analysis Period (min)	15			



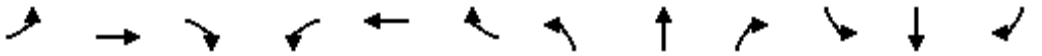
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	318	231	139	590	873	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	6.0	6.0	6.0
Lane Util. Factor	0.97		1.00	0.95	0.95	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	3291		1770	3539	3539	1583
Flt Permitted	0.97		0.17	1.00	1.00	1.00
Satd. Flow (perm)	3291		315	3539	3539	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	342	248	149	634	939	188
RTOR Reduction (vph)	176	0	0	0	0	116
Lane Group Flow (vph)	414	0	149	634	939	72
Turn Type			pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	11.4		27.7	27.7	19.1	19.1
Effective Green, g (s)	11.4		27.7	27.7	19.1	19.1
Actuated g/C Ratio	0.23		0.55	0.55	0.38	0.38
Clearance Time (s)	5.0		5.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	749		279	1957	1349	603
v/s Ratio Prot	c0.13		c0.04	0.18	c0.27	
v/s Ratio Perm			0.26			0.05
v/c Ratio	0.55		0.53	0.32	0.70	0.12
Uniform Delay, d1	17.1		7.0	6.1	13.1	10.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9		2.0	0.1	1.6	0.1
Delay (s)	18.0		9.0	6.2	14.6	10.1
Level of Service	B		A	A	B	B
Approach Delay (s)	18.0			6.7	13.9	
Approach LOS	B			A	B	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	50.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



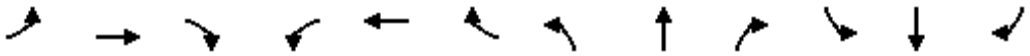
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	552	13	156	28	11	65	141	685	13	37	1183	679
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.97		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1610		1770	1625		1770	3529		1770	3539	1583
Flt Permitted	0.95	0.97		0.95	1.00		0.12	1.00		0.32	1.00	1.00
Satd. Flow (perm)	1681	1610		1770	1625		224	3529		588	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	581	14	164	29	12	68	148	721	14	39	1245	715
RTOR Reduction (vph)	0	35	0	0	63	0	0	2	0	0	0	375
Lane Group Flow (vph)	389	335	0	29	17	0	148	733	0	39	1245	340
Turn Type	Split			Split			Perm			Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	16.1	16.1		5.6	5.6		33.2	33.2		33.2	33.2	33.2
Effective Green, g (s)	16.1	16.1		5.6	5.6		33.2	33.2		33.2	33.2	33.2
Actuated g/C Ratio	0.23	0.23		0.08	0.08		0.47	0.47		0.47	0.47	0.47
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
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)	387	371		142	130		106	1676		279	1681	752
v/s Ratio Prot	c0.23	0.21		c0.02	0.01			0.21			0.35	
v/s Ratio Perm							c0.66			0.07		0.21
v/c Ratio	1.01	0.90		0.20	0.13		1.40	0.44		0.14	0.74	0.45
Uniform Delay, d1	26.9	26.1		30.1	29.9		18.4	12.2		10.3	14.9	12.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	47.0	24.5		0.7	0.5		225.6	0.2		0.2	1.8	0.4
Delay (s)	73.9	50.6		30.8	30.4		243.9	12.3		10.6	16.7	12.7
Level of Service	E	D		C	C		F	B		B	B	B
Approach Delay (s)		62.6			30.5			51.2			15.1	
Approach LOS		E			C			D			B	

Intersection Summary			
HCM Average Control Delay	33.7	HCM Level of Service	C
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	69.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	117	790	35	118	843	411	49	67	91	442	41	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1681	1699	1583
Flt Permitted	0.19	1.00	1.00	0.21	1.00	1.00	0.60	1.00	1.00	0.95	0.96	1.00
Satd. Flow (perm)	348	3539	1583	400	3539	1583	1110	1863	1583	1681	1699	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	121	814	36	122	869	424	51	69	94	456	42	154
RTOR Reduction (vph)	0	0	23	0	0	273	0	0	85	0	0	120
Lane Group Flow (vph)	121	814	13	122	869	151	51	69	9	246	252	34
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Split		Perm
Protected Phases	5	2		1	6			8		4	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	30.7	26.4	26.4	30.7	26.4	26.4	7.2	7.2	7.2	16.3	16.3	16.3
Effective Green, g (s)	30.7	26.4	26.4	30.7	26.4	26.4	7.2	7.2	7.2	16.3	16.3	16.3
Actuated g/C Ratio	0.41	0.36	0.36	0.41	0.36	0.36	0.10	0.10	0.10	0.22	0.22	0.22
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226	1259	563	245	1259	563	108	181	154	369	373	348
v/s Ratio Prot	c0.03	0.23		0.03	c0.25			0.04		0.15	c0.15	
v/s Ratio Perm	0.19		0.01	0.18		0.10	c0.05		0.01			0.02
v/c Ratio	0.54	0.65	0.02	0.50	0.69	0.27	0.47	0.38	0.06	0.67	0.68	0.10
Uniform Delay, d1	14.8	20.0	15.5	14.5	20.4	17.0	31.7	31.4	30.4	26.5	26.5	23.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	1.2	0.0	1.6	1.6	0.3	3.2	1.3	0.2	4.5	4.8	0.1
Delay (s)	17.2	21.1	15.5	16.1	22.1	17.3	34.9	32.8	30.6	31.0	31.3	23.2
Level of Service	B	C	B	B	C	B	C	C	C	C	C	C
Approach Delay (s)		20.4			20.1			32.3			29.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	74.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	7	128	4	56	139	37	9	24	92	66	18	13
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Hourly flow rate (vph)	10	188	6	82	204	54	13	35	135	97	26	19

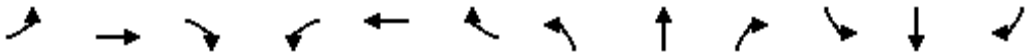
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	204	82	259	184	143
Volume Left (vph)	10	82	0	13	97
Volume Right (vph)	6	0	54	135	19
Hadj (s)	0.03	0.53	-0.11	-0.39	0.09
Departure Headway (s)	5.5	6.2	5.6	5.2	5.7
Degree Utilization, x	0.31	0.14	0.40	0.27	0.23
Capacity (veh/h)	610	548	614	620	566
Control Delay (s)	10.9	9.1	11.1	10.1	10.4
Approach Delay (s)	10.9	10.6		10.1	10.4
Approach LOS	B	B		B	B

Intersection Summary				
Delay	10.5			
HCM Level of Service	B			
Intersection Capacity Utilization	39.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	8	1	32	2	74	1	74	45	55	56	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	5	8	1	33	2	76	1	76	46	57	58	3
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	352	297	59	279	276	99	61			123		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	352	297	59	279	276	99	61			123		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	100	95	100	92	100			96		
cM capacity (veh/h)	537	590	1006	645	607	956	1542			1464		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	14	111	124	118
Volume Left	5	33	1	57
Volume Right	1	76	46	3
cSH	587	829	1542	1464
Volume to Capacity	0.02	0.13	0.00	0.04
Queue Length 95th (ft)	2	12	0	3
Control Delay (s)	11.3	10.0	0.1	3.8
Lane LOS	B	B	A	A
Approach Delay (s)	11.3	10.0	0.1	3.8
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.7			
Intersection Capacity Utilization	27.4%	ICU Level of Service	A	
Analysis Period (min)	15			



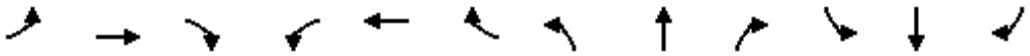
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	20	27	11	72	14	320	8	115	70	345	125	25
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	23	31	12	82	16	364	9	131	80	392	142	28

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total (vph)	23	43	82	380	219	392	170
Volume Left (vph)	23	0	82	0	9	392	0
Volume Right (vph)	0	13	0	364	80	0	28
Hadj (s)	0.53	-0.17	0.53	-0.64	-0.18	0.53	-0.08
Departure Headway (s)	8.4	7.7	7.5	6.3	6.8	7.1	6.5
Degree Utilization, x	0.05	0.09	0.17	0.67	0.41	0.77	0.31
Capacity (veh/h)	383	417	456	544	496	498	539
Control Delay (s)	10.6	10.2	10.9	19.9	14.5	28.9	11.1
Approach Delay (s)	10.4		18.3		14.5	23.5	
Approach LOS	B		C		B	C	

Intersection Summary				
Delay	19.5			
HCM Level of Service	C			
Intersection Capacity Utilization	60.4%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	507	470	25	470	430	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	6.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	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)	1863	1583	1770	1863	1770	1583
Flt Permitted	1.00	1.00	0.19	1.00	0.95	1.00
Satd. Flow (perm)	1863	1583	354	1863	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	551	511	27	511	467	27
RTOR Reduction (vph)	0	327	0	0	0	18
Lane Group Flow (vph)	551	184	27	511	467	9
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	19.4	19.4	25.8	25.8	17.2	17.2
Effective Green, g (s)	19.4	19.4	25.8	25.8	17.2	17.2
Actuated g/C Ratio	0.36	0.36	0.48	0.48	0.32	0.32
Clearance Time (s)	6.0	6.0	5.0	6.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	669	569	206	890	564	504
v/s Ratio Prot	c0.30		0.00	c0.27	c0.26	
v/s Ratio Perm		0.12	0.06			0.01
v/c Ratio	0.82	0.32	0.13	0.57	0.83	0.02
Uniform Delay, d1	15.7	12.5	9.4	10.1	17.0	12.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.1	0.3	0.3	0.9	9.7	0.0
Delay (s)	23.9	12.9	9.7	11.0	26.8	12.6
Level of Service	C	B	A	B	C	B
Approach Delay (s)	18.6			11.0	26.0	
Approach LOS	B			B	C	

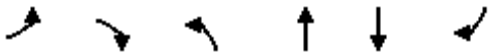
Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	54.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	150	1	25	5	1	10	20	1060	1	5	430	65
Sign Control		Stop			Stop			Free			Free	
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)	163	1	27	5	1	11	22	1152	1	5	467	71
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			1									
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1145	1710	269	1455	1745	577	538			1153		
vC1, stage 1 conf vol	514	514		1196	1196							
vC2, stage 2 conf vol	631	1197		259	549							
vCu, unblocked vol	1145	1710	269	1455	1745	577	538			1153		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	52	100	96	97	100	98	98			99		
cM capacity (veh/h)	339	227	729	186	228	460	1026			602		

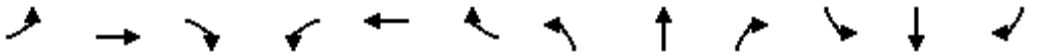
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	191	17	22	768	385	5	312	226
Volume Left	163	5	22	0	0	5	0	0
Volume Right	27	11	0	0	1	0	0	71
cSH	380	302	1026	1700	1700	602	1700	1700
Volume to Capacity	0.50	0.06	0.02	0.45	0.23	0.01	0.18	0.13
Queue Length 95th (ft)	68	5	2	0	0	1	0	0
Control Delay (s)	23.7	17.7	8.6	0.0	0.0	11.0	0.0	0.0
Lane LOS	C	C	A			B		
Approach Delay (s)	23.7	17.7	0.2			0.1		
Approach LOS	C	C						

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	51.0%	ICU Level of Service	A	
Analysis Period (min)	15			



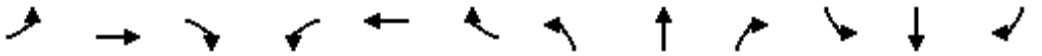
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	210	35	115	1695	800	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	6.0	6.0	6.0
Lane Util. Factor	0.97		1.00	0.95	0.95	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	0.96		0.95	1.00	1.00	1.00
Satd. Flow (prot)	3391		1770	3539	3539	1583
Flt Permitted	0.96		0.23	1.00	1.00	1.00
Satd. Flow (perm)	3391		420	3539	3539	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	226	38	124	1823	860	161
RTOR Reduction (vph)	27	0	0	0	0	90
Lane Group Flow (vph)	237	0	124	1823	860	71
Turn Type			pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	8.9		32.9	32.9	23.3	23.3
Effective Green, g (s)	8.9		32.9	32.9	23.3	23.3
Actuated g/C Ratio	0.17		0.62	0.62	0.44	0.44
Clearance Time (s)	5.0		5.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	572		379	2205	1562	699
v/s Ratio Prot	c0.07		0.03	c0.52	0.24	
v/s Ratio Perm			0.18			0.04
v/c Ratio	0.42		0.33	0.83	0.55	0.10
Uniform Delay, d1	19.6		5.0	7.7	10.9	8.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		0.5	2.7	0.4	0.1
Delay (s)	20.1		5.5	10.4	11.3	8.7
Level of Service	C		A	B	B	A
Approach Delay (s)	20.1			10.1	10.9	
Approach LOS	C			B	B	

Intersection Summary			
HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	52.8	Sum of lost time (s)	11.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	495	25	30	20	15	85	15	1460	30	25	880	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1674		1770	1625		1770	3529		1770	3539	1583
Flt Permitted	0.95	0.96		0.95	1.00		0.21	1.00		0.09	1.00	1.00
Satd. Flow (perm)	1681	1674		1770	1625		382	3529		176	3539	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	562	28	34	23	17	97	17	1659	34	28	1000	455
RTOR Reduction (vph)	0	5	0	0	10	0	0	1	0	0	0	224
Lane Group Flow (vph)	315	304	0	23	104	0	17	1692	0	28	1000	231
Turn Type	Split			Split			Perm			Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	17.1	17.1		9.1	9.1		42.4	42.4		42.4	42.4	42.4
Effective Green, g (s)	17.1	17.1		9.1	9.1		42.4	42.4		42.4	42.4	42.4
Actuated g/C Ratio	0.20	0.20		0.11	0.11		0.51	0.51		0.51	0.51	0.51
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
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)	344	342		193	177		194	1790		89	1795	803
v/s Ratio Prot	c0.19	0.18		0.01	c0.06			c0.48			0.28	
v/s Ratio Perm							0.04			0.16		0.15
v/c Ratio	0.92	0.89		0.12	0.59		0.09	0.94		0.31	0.56	0.29
Uniform Delay, d1	32.5	32.3		33.6	35.5		10.6	19.5		12.1	14.2	11.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	28.0	23.3		0.3	4.9		0.2	10.9		2.0	0.4	0.2
Delay (s)	60.5	55.6		33.9	40.4		10.8	30.4		14.1	14.5	12.1
Level of Service	E	E		C	D		B	C		B	B	B
Approach Delay (s)		58.1			39.3			30.2			13.8	
Approach LOS		E			D			C			B	

Intersection Summary			
HCM Average Control Delay	28.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	83.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

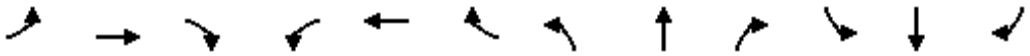


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	495	900	40	105	450	375	30	175	85	510	120	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1681	1716	1583
Flt Permitted	0.23	1.00	1.00	0.25	1.00	1.00	0.54	1.00	1.00	0.95	0.97	1.00
Satd. Flow (perm)	430	3539	1583	457	3539	1583	998	1863	1583	1681	1716	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	562	1023	45	119	511	426	34	199	97	580	136	284
RTOR Reduction (vph)	0	0	28	0	0	336	0	0	81	0	0	225
Lane Group Flow (vph)	562	1023	17	119	511	90	34	199	16	354	362	59
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Split		Perm
Protected Phases	5	2		1	6			8		4	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	33.3	25.2	25.2	19.4	16.3	16.3	12.8	12.8	12.8	16.1	16.1	16.1
Effective Green, g (s)	33.3	25.2	25.2	19.4	16.3	16.3	12.8	12.8	12.8	16.1	16.1	16.1
Actuated g/C Ratio	0.43	0.33	0.33	0.25	0.21	0.21	0.17	0.17	0.17	0.21	0.21	0.21
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	394	1155	517	168	747	334	165	309	262	351	358	330
v/s Ratio Prot	c0.22	0.29		0.03	0.14			c0.11		0.21	c0.21	
v/s Ratio Perm	c0.39		0.01	0.15		0.06	0.03		0.01			0.04
v/c Ratio	1.43	0.89	0.03	0.71	0.68	0.27	0.21	0.64	0.06	1.01	1.01	0.18
Uniform Delay, d1	17.9	24.6	17.7	25.6	28.1	25.5	27.8	30.1	27.1	30.6	30.6	25.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	206.1	8.4	0.0	12.8	2.6	0.4	0.6	4.5	0.1	50.2	50.4	0.3
Delay (s)	224.1	33.0	17.7	38.4	30.7	25.9	28.4	34.6	27.2	80.8	81.0	25.4
Level of Service	F	C	B	D	C	C	C	C	C	F	F	C
Approach Delay (s)		98.5			29.6			31.8			65.1	
Approach LOS		F			C			C			E	

Intersection Summary			
HCM Average Control Delay	66.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	77.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	495	900	40	105	450	375	30	175	85	510	120	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.67	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1248	1863	1583	3433	1863	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	562	1023	45	119	511	426	34	199	97	580	136	284
RTOR Reduction (vph)	0	0	0	0	0	334	0	0	81	0	0	170
Lane Group Flow (vph)	562	1023	45	119	511	92	34	199	16	580	136	114
Turn Type	Prot		Free	Prot		Perm	Perm		Perm	Prot		Perm
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases			Free			6	8		8			4
Actuated Green, G (s)	15.6	27.3	80.0	5.5	17.2	17.2	13.2	13.2	13.2	14.0	32.2	32.2
Effective Green, g (s)	15.6	27.3	80.0	5.5	17.2	17.2	13.2	13.2	13.2	14.0	32.2	32.2
Actuated g/C Ratio	0.20	0.34	1.00	0.07	0.22	0.22	0.16	0.16	0.16	0.18	0.40	0.40
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	669	1735	1583	236	1093	340	206	307	261	601	750	637
v/s Ratio Prot	c0.16	c0.20		0.03	0.10			c0.11		c0.17	0.07	
v/s Ratio Perm			0.03			0.06	0.03		0.01			0.07
v/c Ratio	0.84	0.59	0.03	0.50	0.47	0.27	0.17	0.65	0.06	0.97	0.18	0.18
Uniform Delay, d1	31.0	21.7	0.0	35.9	27.4	26.2	28.7	31.2	28.2	32.8	15.4	15.4
Progression Factor	0.87	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	0.6	0.0	1.7	1.4	1.9	0.4	4.7	0.1	27.9	0.1	0.1
Delay (s)	31.0	18.0	0.0	37.6	28.8	28.1	29.0	35.9	28.3	60.7	15.5	15.5
Level of Service	C	B	A	D	C	C	C	D	C	E	B	B
Approach Delay (s)		22.0			29.5			32.9			41.7	
Approach LOS		C			C			C			D	

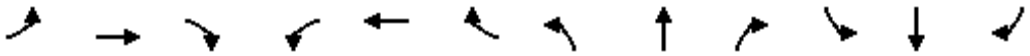
Intersection Summary			
HCM Average Control Delay	29.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	5	100	75	180	50	85	1	25	1	60	85	5
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Hourly flow rate (vph)	9	172	129	310	86	147	2	43	2	103	147	9

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	310	310	233	47	259
Volume Left (vph)	9	310	0	2	103
Volume Right (vph)	129	0	147	2	9
Hadj (s)	-0.21	0.53	-0.41	0.02	0.09
Departure Headway (s)	5.6	6.5	5.5	6.7	6.2
Degree Utilization, x	0.48	0.56	0.36	0.09	0.44
Capacity (veh/h)	613	538	630	448	542
Control Delay (s)	13.6	16.2	10.4	10.3	14.0
Approach Delay (s)	13.6	13.7		10.3	14.0
Approach LOS	B	B		B	B

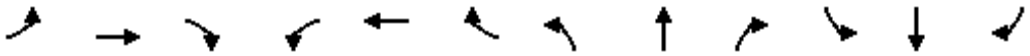
Intersection Summary				
Delay	13.6			
HCM Level of Service	B			
Intersection Capacity Utilization	44.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	5	15	5	15	5	95	35	35	50	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	5	5	16	5	16	5	104	38	38	55	5
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	288	58	277	272	124	60			143		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	288	288	58	277	272	124	60			143		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	97	99	98	100			97		
cM capacity (veh/h)	633	603	1008	651	616	927	1543			1440		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	38	148	99
Volume Left	5	16	5	38
Volume Right	5	16	38	5
cSH	709	739	1543	1440
Volume to Capacity	0.02	0.05	0.00	0.03
Queue Length 95th (ft)	2	4	0	2
Control Delay (s)	10.2	10.1	0.3	3.1
Lane LOS	B	B	A	A
Approach Delay (s)	10.2	10.1	0.3	3.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	25.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	15	5	75	25	10	20	10	100	25	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	6	17	6	85	28	11	23	11	114	28	6	6
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	40			23			239	241	20	352	239	34
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	40			23			239	241	20	352	239	34
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			97	98	89	94	99	99
cM capacity (veh/h)	1570			1593			676	622	1058	507	625	1039

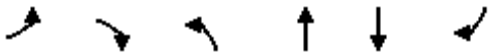
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	6	23	85	40	148	40
Volume Left	6	0	85	0	23	28
Volume Right	0	6	0	11	114	6
cSH	1570	1700	1593	1700	927	564
Volume to Capacity	0.00	0.01	0.05	0.02	0.16	0.07
Queue Length 95th (ft)	0	0	4	0	14	6
Control Delay (s)	7.3	0.0	7.4	0.0	9.6	11.9
Lane LOS	A		A		A	B
Approach Delay (s)	1.5		5.0		9.6	11.9
Approach LOS					A	B

Intersection Summary				
Average Delay	7.5			
Intersection Capacity Utilization	25.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	50	25	90	50	25	25
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	27	98	54	27	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	207	125			152	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	207	125			152	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	97			98	
cM capacity (veh/h)	767	926			1429	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	82	152	54
Volume Left	54	0	27
Volume Right	27	54	0
cSH	813	1700	1429
Volume to Capacity	0.10	0.09	0.02
Queue Length 95th (ft)	8	0	1
Control Delay (s)	9.9	0.0	3.9
Lane LOS	A		A
Approach Delay (s)	9.9	0.0	3.9
Approach LOS	A		

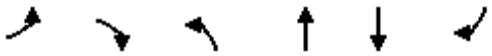
Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	135	20	20	1675	710	125
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	147	22	22	1821	772	136
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1726	386	908			
vC1, stage 1 conf vol	772					
vC2, stage 2 conf vol	954					
vCu, unblocked vol	1726	386	908			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	44	96	97			
cM capacity (veh/h)	260	612	746			

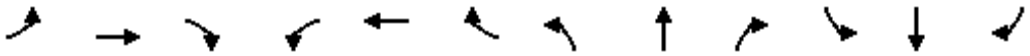
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	168	22	910	910	386	386	136
Volume Left	147	22	0	0	0	0	0
Volume Right	22	0	0	0	0	0	136
cSH	299	746	1700	1700	1700	1700	1700
Volume to Capacity	0.56	0.03	0.54	0.54	0.23	0.23	0.08
Queue Length 95th (ft)	81	2	0	0	0	0	0
Control Delay (s)	32.2	10.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	A					
Approach Delay (s)	32.2	0.1			0.0		
Approach LOS	D						

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	135	20	20	1675	710	125
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	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.35	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	649	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	22	22	1821	772	136
RTOR Reduction (vph)	0	19	0	0	0	34
Lane Group Flow (vph)	147	3	22	1821	772	102
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	11.8	11.8	60.2	60.2	60.2	60.2
Effective Green, g (s)	11.8	11.8	60.2	60.2	60.2	60.2
Actuated g/C Ratio	0.15	0.15	0.75	0.75	0.75	0.75
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)	261	233	488	2663	2663	1191
v/s Ratio Prot	c0.08			c0.51	0.22	
v/s Ratio Perm		0.00	0.03			0.06
v/c Ratio	0.56	0.01	0.05	0.68	0.29	0.09
Uniform Delay, d1	31.7	29.1	2.5	5.0	3.1	2.6
Progression Factor	1.00	1.00	1.00	1.00	0.06	0.00
Incremental Delay, d2	2.8	0.0	0.2	1.4	0.3	0.1
Delay (s)	34.5	29.2	2.7	6.5	0.5	0.1
Level of Service	C	C	A	A	A	A
Approach Delay (s)	33.8			6.4	0.4	
Approach LOS	C			A	A	

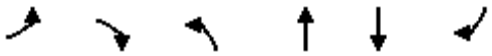
Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	75	1	15	1	1	5	25	580	1	10	1120	145
Sign Control		Stop			Stop			Free			Free	
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)	82	1	16	1	1	5	27	630	1	11	1217	158
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			1									
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1693	2004	688	1324	2082	316	1375			632		
vC1, stage 1 conf vol	1318	1318		685	685							
vC2, stage 2 conf vol	376	686		639	1397							
vCu, unblocked vol	1693	2004	688	1324	2082	316	1375			632		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	48	99	96	100	99	99	95			99		
cM capacity (veh/h)	156	196	389	281	162	680	495			947		

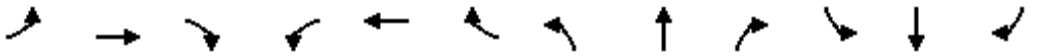
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	99	8	27	420	211	11	812	563
Volume Left	82	1	27	0	0	11	0	0
Volume Right	16	5	0	0	1	0	0	158
cSH	181	410	495	1700	1700	947	1700	1700
Volume to Capacity	0.55	0.02	0.05	0.25	0.12	0.01	0.48	0.33
Queue Length 95th (ft)	71	1	4	0	0	1	0	0
Control Delay (s)	46.6	13.9	12.7	0.0	0.0	8.8	0.0	0.0
Lane LOS	E	B	B			A		
Approach Delay (s)	46.6	13.9	0.5			0.1		
Approach LOS	E	B						

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	53.1%	ICU Level of Service	A	
Analysis Period (min)	15			



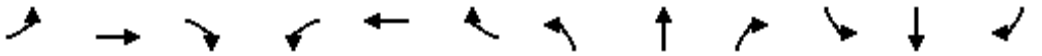
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	245	185	100	1070	1540	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	6.0	6.0	6.0
Lane Util. Factor	0.97		1.00	0.95	0.95	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	3287		1770	3539	3539	1583
Flt Permitted	0.97		0.14	1.00	1.00	1.00
Satd. Flow (perm)	3287		254	3539	3539	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	263	199	108	1151	1656	134
RTOR Reduction (vph)	128	0	0	0	0	73
Lane Group Flow (vph)	334	0	108	1151	1656	61
Turn Type			pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	10.4		32.3	32.3	24.3	24.3
Effective Green, g (s)	10.4		32.3	32.3	24.3	24.3
Actuated g/C Ratio	0.19		0.60	0.60	0.45	0.45
Clearance Time (s)	5.0		5.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	637		237	2129	1601	716
v/s Ratio Prot	c0.10		0.03	c0.33	c0.47	
v/s Ratio Perm			0.25			0.04
v/c Ratio	0.52		0.46	0.54	1.03	0.08
Uniform Delay, d1	19.4		10.9	6.3	14.7	8.4
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8		1.4	0.3	31.9	0.1
Delay (s)	20.2		12.3	6.6	46.6	8.4
Level of Service	C		B	A	D	A
Approach Delay (s)	20.2			7.1	43.7	
Approach LOS	C			A	D	

Intersection Summary			
HCM Average Control Delay	27.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	53.7	Sum of lost time (s)	17.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



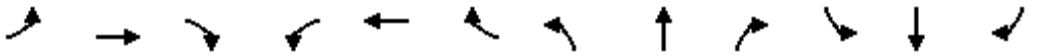
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	415	15	15	50	15	45	10	1230	25	25	1930	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.99		1.00	0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1679		1770	1654		1770	3529		1770	3539	1583
Flt Permitted	0.95	0.96		0.95	1.00		0.09	1.00		0.12	1.00	1.00
Satd. Flow (perm)	1681	1679		1770	1654		171	3529		230	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	437	16	16	53	16	47	11	1295	26	26	2032	579
RTOR Reduction (vph)	0	3	0	0	28	0	0	1	0	0	0	262
Lane Group Flow (vph)	236	230	0	53	35	0	11	1320	0	26	2032	317
Turn Type	Split			Split			Perm			Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	14.5	14.5		6.5	6.5		43.5	43.5		43.5	43.5	43.5
Effective Green, g (s)	14.5	14.5		6.5	6.5		43.5	43.5		43.5	43.5	43.5
Actuated g/C Ratio	0.18	0.18		0.08	0.08		0.55	0.55		0.55	0.55	0.55
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
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)	307	306		145	135		94	1931		126	1936	866
v/s Ratio Prot	c0.14	0.14		c0.03	0.02			0.37			c0.57	
v/s Ratio Perm							0.06			0.11		0.20
v/c Ratio	0.77	0.75		0.37	0.26		0.12	0.68		0.21	1.05	0.37
Uniform Delay, d1	30.9	30.8		34.5	34.2		8.7	13.0		9.2	18.0	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	11.0	9.9		1.6	1.0		0.6	1.0		0.8	34.9	0.3
Delay (s)	41.9	40.7		36.1	35.2		9.3	14.0		10.0	52.9	10.5
Level of Service	D	D		D	D		A	B		B	D	B
Approach Delay (s)		41.3			35.6			14.0			43.2	
Approach LOS		D			D			B			D	

Intersection Summary			
HCM Average Control Delay	34.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	79.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



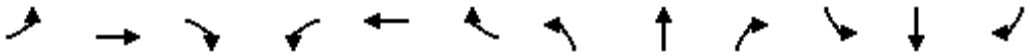
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	425	845	45	115	885	590	60	280	85	610	150	635
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1681	1718	1583
Flt Permitted	0.14	1.00	1.00	0.23	1.00	1.00	0.52	1.00	1.00	0.95	0.97	1.00
Satd. Flow (perm)	266	3539	1583	421	3539	1583	968	1863	1583	1681	1718	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	438	871	46	119	912	608	62	289	88	629	155	655
RTOR Reduction (vph)	0	0	30	0	0	374	0	0	73	0	0	357
Lane Group Flow (vph)	438	871	16	119	912	234	62	289	15	390	394	298
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Split		Perm
Protected Phases	5	2		1	6			8		4	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	42.0	31.0	31.0	29.0	23.0	23.0	15.6	15.6	15.6	17.0	17.0	17.0
Effective Green, g (s)	42.0	31.0	31.0	29.0	23.0	23.0	15.6	15.6	15.6	17.0	17.0	17.0
Actuated g/C Ratio	0.47	0.35	0.35	0.32	0.26	0.26	0.17	0.17	0.17	0.19	0.19	0.19
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	360	1224	548	227	908	406	169	324	276	319	326	300
v/s Ratio Prot	c0.19	0.25		0.04	0.26			c0.16		c0.23	0.23	
v/s Ratio Perm	c0.38		0.01	0.13		0.15	0.06		0.01			0.19
v/c Ratio	1.22	0.71	0.03	0.52	1.00	0.58	0.37	0.89	0.06	1.22	1.21	0.99
Uniform Delay, d1	24.7	25.4	19.4	22.3	33.3	29.1	32.6	36.2	30.9	36.3	36.3	36.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	120.3	2.0	0.0	2.2	30.9	2.0	1.4	25.0	0.1	125.0	119.1	49.6
Delay (s)	145.0	27.4	19.4	24.5	64.2	31.0	34.0	61.1	30.9	161.3	155.4	85.9
Level of Service	F	C	B	C	E	C	C	E	C	F	F	F
Approach Delay (s)		65.1			49.0			51.3			125.3	
Approach LOS		E			D			D			F	

Intersection Summary			
HCM Average Control Delay	76.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	89.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	100.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	425	845	45	115	885	590	60	280	85	610	150	635
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.66	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1227	1863	1583	3433	1863	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	438	871	46	119	912	608	62	289	88	629	155	655
RTOR Reduction (vph)	0	0	0	0	0	400	0	0	71	0	0	155
Lane Group Flow (vph)	438	871	46	119	912	208	62	289	17	629	155	500
Turn Type	Prot		Free	Prot		Perm	Perm		Perm	Prot		Perm
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases			Free			6	8		8			4
Actuated Green, G (s)	12.0	25.1	80.0	4.8	17.9	17.9	15.1	15.1	15.1	15.0	35.1	35.1
Effective Green, g (s)	12.0	25.1	80.0	4.8	17.9	17.9	15.1	15.1	15.1	15.0	35.1	35.1
Actuated g/C Ratio	0.15	0.31	1.00	0.06	0.22	0.22	0.19	0.19	0.19	0.19	0.44	0.44
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	515	1595	1583	206	1138	354	232	352	299	644	817	695
v/s Ratio Prot	c0.13	0.17		0.03	c0.18			0.16		c0.18	0.08	
v/s Ratio Perm			0.03			0.13	0.05		0.01			c0.32
v/c Ratio	0.85	0.55	0.03	0.58	0.80	0.59	0.27	0.82	0.06	0.98	0.19	0.72
Uniform Delay, d1	33.1	22.7	0.0	36.6	29.4	27.8	27.7	31.2	26.6	32.3	13.7	18.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.7	1.3	0.0	3.9	4.1	2.5	0.6	14.2	0.1	29.4	0.1	3.6
Delay (s)	45.8	24.1	0.0	40.5	33.5	30.2	28.3	45.4	26.7	61.7	13.9	22.0
Level of Service	D	C	A	D	C	C	C	D	C	E	B	C
Approach Delay (s)		30.3			32.8			39.2			38.5	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	34.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	5	100	5	60	55	40	10	25	95	75	20	10
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	7	145	7	87	80	58	14	36	138	109	29	14

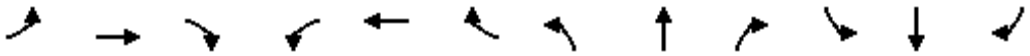
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	159	87	138	188	152
Volume Left (vph)	7	87	0	14	109
Volume Right (vph)	7	0	58	138	14
Hadj (s)	0.02	0.53	-0.26	-0.39	0.12
Departure Headway (s)	5.2	6.1	5.3	4.7	5.3
Degree Utilization, x	0.23	0.15	0.20	0.25	0.22
Capacity (veh/h)	634	553	635	701	626
Control Delay (s)	9.8	9.0	8.5	9.3	9.8
Approach Delay (s)	9.8	8.6		9.3	9.8
Approach LOS	A	A		A	A

Intersection Summary				
Delay	9.3			
HCM Level of Service	A			
Intersection Capacity Utilization	29.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	10	5	15	5	50	5	75	50	55	75	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	5	10	5	15	5	52	5	77	52	57	77	5
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	361	332	80	317	309	103	82			129		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	361	332	80	317	309	103	82			129		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	98	99	97	99	95	100			96		
cM capacity (veh/h)	541	563	980	603	580	952	1515			1457		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	21	72	134	139
Volume Left	5	15	5	57
Volume Right	5	52	52	5
cSH	623	814	1515	1457
Volume to Capacity	0.03	0.09	0.00	0.04
Queue Length 95th (ft)	3	7	0	3
Control Delay (s)	11.0	9.9	0.3	3.3
Lane LOS	B	A	A	A
Approach Delay (s)	11.0	9.9	0.3	3.3
Approach LOS	B	A		

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	29.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	40	15	105	15	35	10	15	95	20	10	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	6	48	18	127	18	42	12	18	114	24	12	6
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	60			66			352	383	57	476	370	39
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	60			66			352	383	57	476	370	39
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			92			98	96	89	94	98	99
cM capacity (veh/h)	1543			1535			550	503	1009	402	511	1032

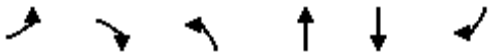
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	6	66	127	60	145	42
Volume Left	6	0	127	0	12	24
Volume Right	0	18	0	42	114	6
cSH	1543	1700	1535	1700	844	472
Volume to Capacity	0.00	0.04	0.08	0.04	0.17	0.09
Queue Length 95th (ft)	0	0	7	0	15	7
Control Delay (s)	7.3	0.0	7.6	0.0	10.1	13.4
Lane LOS	A		A		B	B
Approach Delay (s)	0.6		5.1		10.1	13.4
Approach LOS					B	B

Intersection Summary				
Average Delay	6.8			
Intersection Capacity Utilization	27.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	65	40	85	65	40	50
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	43	92	71	43	54
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	269	128			163	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	269	128			163	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	95			97	
cM capacity (veh/h)	698	922			1416	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	114	163	98
Volume Left	71	0	43
Volume Right	43	71	0
cSH	769	1700	1416
Volume to Capacity	0.15	0.10	0.03
Queue Length 95th (ft)	13	0	2
Control Delay (s)	10.5	0.0	3.5
Lane LOS	B		A
Approach Delay (s)	10.5	0.0	3.5
Approach LOS	B		

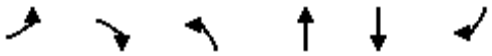
Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	135	15	15	1035	1585	140
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	147	16	16	1125	1723	152
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2318	861	1875			
vC1, stage 1 conf vol	1723					
vC2, stage 2 conf vol	595					
vCu, unblocked vol	2318	861	1875			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	95	95			
cM capacity (veh/h)	123	299	317			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	163	16	562	562	861	861	152
Volume Left	147	16	0	0	0	0	0
Volume Right	16	0	0	0	0	0	152
cSH	134	317	1700	1700	1700	1700	1700
Volume to Capacity	1.22	0.05	0.33	0.33	0.51	0.51	0.09
Queue Length 95th (ft)	246	4	0	0	0	0	0
Control Delay (s)	211.9	17.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	C					
Approach Delay (s)	211.9	0.2			0.0		
Approach LOS	F						

Intersection Summary			
Average Delay	11.0		
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	135	15	15	1035	1585	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.10	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	195	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	16	16	1125	1723	152
RTOR Reduction (vph)	0	14	0	0	0	35
Lane Group Flow (vph)	147	2	16	1125	1723	117
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	13.2	13.2	76.8	76.8	76.8	76.8
Effective Green, g (s)	13.2	13.2	76.8	76.8	76.8	76.8
Actuated g/C Ratio	0.13	0.13	0.77	0.77	0.77	0.77
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	234	209	150	2718	2718	1216
v/s Ratio Prot	c0.08			0.32	c0.49	
v/s Ratio Perm		0.00	0.08			0.07
v/c Ratio	0.63	0.01	0.11	0.41	0.63	0.10
Uniform Delay, d1	41.1	37.7	2.9	3.9	5.2	2.9
Progression Factor	1.00	1.00	1.00	1.00	0.25	0.03
Incremental Delay, d2	5.2	0.0	1.4	0.5	0.8	0.1
Delay (s)	46.3	37.7	4.4	4.4	2.1	0.2
Level of Service	D	D	A	A	A	A
Approach Delay (s)	45.4			4.4	1.9	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

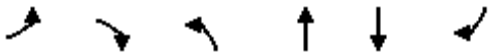
HCM Unsignalized Intersection Capacity Analysis
1: S. Park Loop Rd. & WY 89

4/27/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	130	1	25	5	1	15	20	1060	1	5	430	55
Sign Control		Stop			Stop			Free			Free	
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)	141	1	27	5	1	16	22	1152	1	5	467	60
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			1									
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1145	1705	264	1455	1734	577	527			1153		
vC1, stage 1 conf vol	508	508		1196	1196							
vC2, stage 2 conf vol	636	1197		259	538							
vCu, unblocked vol	1145	1705	264	1455	1734	577	527			1153		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	58	100	96	97	100	96	98			99		
cM capacity (veh/h)	336	227	735	186	229	460	1036			602		

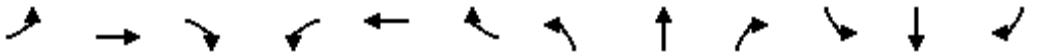
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	170	23	22	768	385	5	312	216
Volume Left	141	5	22	0	0	5	0	0
Volume Right	27	16	0	0	1	0	0	60
cSH	383	329	1036	1700	1700	602	1700	1700
Volume to Capacity	0.44	0.07	0.02	0.45	0.23	0.01	0.18	0.13
Queue Length 95th (ft)	55	6	2	0	0	1	0	0
Control Delay (s)	21.7	16.8	8.5	0.0	0.0	11.0	0.0	0.0
Lane LOS	C	C	A			B		
Approach Delay (s)	21.7	16.8	0.2			0.1		
Approach LOS	C	C						

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	49.9%	ICU Level of Service	A	
Analysis Period (min)	15			



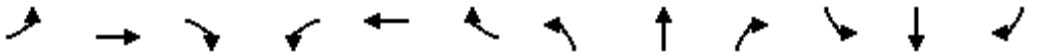
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	210	160	230	1535	640	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	6.0	6.0	6.0
Lane Util. Factor	0.97		1.00	0.95	0.95	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	3286		1770	3539	3539	1583
Flt Permitted	0.97		0.25	1.00	1.00	1.00
Satd. Flow (perm)	3286		473	3539	3539	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	226	172	247	1651	688	161
RTOR Reduction (vph)	141	0	0	0	0	108
Lane Group Flow (vph)	257	0	247	1651	688	53
Turn Type			pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	9.0		29.5	29.5	16.2	16.2
Effective Green, g (s)	9.0		29.5	29.5	16.2	16.2
Actuated g/C Ratio	0.18		0.60	0.60	0.33	0.33
Clearance Time (s)	5.0		5.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	597		499	2109	1158	518
v/s Ratio Prot	c0.08		0.08	c0.47	0.19	
v/s Ratio Perm			0.21			0.03
v/c Ratio	0.43		0.49	0.78	0.59	0.10
Uniform Delay, d1	18.0		5.5	7.6	13.9	11.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		0.8	2.0	0.8	0.1
Delay (s)	18.5		6.3	9.5	14.7	11.7
Level of Service	B		A	A	B	B
Approach Delay (s)	18.5			9.1	14.1	
Approach LOS	B			A	B	

Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	49.5	Sum of lost time (s)	11.0
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



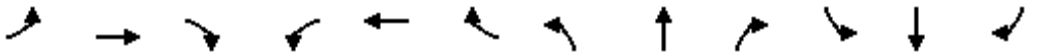
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	545	25	155	20	15	85	130	1185	30	25	595	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.98		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1614		1770	1625		1770	3526		1770	3539	1583
Flt Permitted	0.95	0.98		0.95	1.00		0.32	1.00		0.14	1.00	1.00
Satd. Flow (perm)	1681	1614		1770	1625		592	3526		254	3539	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	619	28	176	23	17	97	148	1347	34	28	676	506
RTOR Reduction (vph)	0	34	0	0	18	0	0	2	0	0	0	302
Lane Group Flow (vph)	421	368	0	23	96	0	148	1379	0	28	676	204
Turn Type	Split			Split			Perm			Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	20.2	20.2		8.2	8.2		29.3	29.3		29.3	29.3	29.3
Effective Green, g (s)	20.2	20.2		8.2	8.2		29.3	29.3		29.3	29.3	29.3
Actuated g/C Ratio	0.28	0.28		0.11	0.11		0.40	0.40		0.40	0.40	0.40
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
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)	467	448		200	183		239	1421		102	1426	638
v/s Ratio Prot	c0.25	0.23		0.01	c0.06			c0.39			0.19	
v/s Ratio Perm							0.25			0.11		0.13
v/c Ratio	0.90	0.82		0.12	0.53		0.62	0.97		0.27	0.47	0.32
Uniform Delay, d1	25.3	24.6		29.0	30.4		17.3	21.3		14.6	16.0	14.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	20.3	11.5		0.3	2.7		4.7	17.3		1.5	0.3	0.3
Delay (s)	45.6	36.1		29.2	33.1		22.0	38.5		16.0	16.3	15.2
Level of Service	D	D		C	C		C	D		B	B	B
Approach Delay (s)		41.0			32.5			36.9			15.8	
Approach LOS		D			C			D			B	

Intersection Summary			
HCM Average Control Delay	30.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	72.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



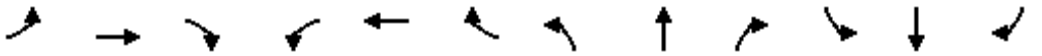
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	545	25	155	20	15	85	130	1185	30	25	595	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.87		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1622		1770	1625		1770	3526		1770	3539	1583
Flt Permitted	0.95	1.00		0.63	1.00		0.28	1.00		0.10	1.00	1.00
Satd. Flow (perm)	3433	1622		1173	1625		519	3526		195	3539	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	619	28	176	23	17	97	148	1347	34	28	676	506
RTOR Reduction (vph)	0	122	0	0	90	0	0	2	0	0	0	291
Lane Group Flow (vph)	619	82	0	23	24	0	148	1379	0	28	676	215
Turn Type	Prot			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases				8			2			6		6
Actuated Green, G (s)	16.0	27.6		6.6	6.6		52.4	44.7		41.0	38.3	38.3
Effective Green, g (s)	16.0	27.6		6.6	6.6		52.4	44.7		41.0	38.3	38.3
Actuated g/C Ratio	0.18	0.31		0.07	0.07		0.58	0.50		0.46	0.43	0.43
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
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)	610	497		86	119		429	1751		136	1506	674
v/s Ratio Prot	c0.18	0.05			0.01		c0.03	c0.39		0.01	0.19	
v/s Ratio Perm				c0.02			0.17			0.09		0.14
v/c Ratio	1.01	0.16		0.27	0.20		0.34	0.79		0.21	0.45	0.32
Uniform Delay, d1	37.0	22.8		39.4	39.2		9.7	18.7		15.8	18.4	17.2
Progression Factor	1.00	1.00		1.00	1.00		0.72	0.71		0.64	0.58	0.19
Incremental Delay, d2	40.2	0.2		1.7	0.8		0.4	2.9		0.7	1.0	1.2
Delay (s)	77.2	22.9		41.1	40.1		7.4	16.3		10.9	11.6	4.5
Level of Service	E	C		D	D		A	B		B	B	A
Approach Delay (s)		63.7			40.2			15.4			8.6	
Approach LOS		E			D			B			A	

Intersection Summary			
HCM Average Control Delay	24.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



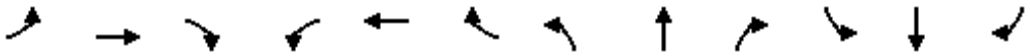
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	545	25	155	20	15	85	130	1185	30	25	595	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.98		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1614		1770	1625		1770	3526		1770	3539	1583
Flt Permitted	0.95	0.98		0.95	1.00		0.27	1.00		0.09	1.00	1.00
Satd. Flow (perm)	1681	1614		1770	1625		495	3526		167	3539	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	619	28	176	23	17	97	148	1347	34	28	676	506
RTOR Reduction (vph)	0	26	0	0	77	0	0	2	0	0	0	301
Lane Group Flow (vph)	421	376	0	23	37	0	148	1379	0	28	676	205
Turn Type	Split			Split			pm+pt			pm+pt		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases							2			6		6
Actuated Green, G (s)	27.0	27.0		8.4	8.4		59.6	50.6		48.5	44.5	44.5
Effective Green, g (s)	27.0	27.0		8.4	8.4		59.6	50.6		48.5	44.5	44.5
Actuated g/C Ratio	0.25	0.25		0.08	0.08		0.54	0.46		0.44	0.40	0.40
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
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)	413	396		135	124		385	1622		132	1432	640
v/s Ratio Prot	c0.25	0.23		0.01	c0.02		c0.04	c0.39		0.01	0.19	
v/s Ratio Perm							0.17			0.09		0.13
v/c Ratio	1.02	0.95		0.17	0.30		0.38	0.85		0.21	0.47	0.32
Uniform Delay, d1	41.5	40.8		47.5	48.0		14.1	26.3		21.6	24.1	22.4
Progression Factor	1.00	1.00		1.00	1.00		0.83	0.82		0.75	0.68	0.21
Incremental Delay, d2	49.3	32.6		0.6	1.4		0.5	4.7		0.8	1.1	1.3
Delay (s)	90.8	73.4		48.1	49.4		12.3	26.4		17.0	17.4	6.0
Level of Service	F	E		D	D		B	C		B	B	A
Approach Delay (s)		82.3			49.2			25.0			12.6	
Approach LOS		F			D			C			B	

Intersection Summary			
HCM Average Control Delay	34.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	240	900	40	105	450	250	30	90	85	295	35	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1681	1703	1583
Flt Permitted	0.29	1.00	1.00	0.22	1.00	1.00	0.63	1.00	1.00	0.95	0.96	1.00
Satd. Flow (perm)	543	3539	1583	405	3539	1583	1181	1863	1583	1681	1703	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	273	1023	45	119	511	284	34	102	97	335	40	57
RTOR Reduction (vph)	0	0	26	0	0	207	0	0	86	0	0	46
Lane Group Flow (vph)	273	1023	19	119	511	77	34	102	11	188	187	11
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Split		Perm
Protected Phases	5	2		1	6			8		4	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	32.9	25.0	25.0	21.3	18.4	18.4	7.4	7.4	7.4	12.5	12.5	12.5
Effective Green, g (s)	32.9	25.0	25.0	21.3	18.4	18.4	7.4	7.4	7.4	12.5	12.5	12.5
Actuated g/C Ratio	0.49	0.37	0.37	0.31	0.27	0.27	0.11	0.11	0.11	0.18	0.18	0.18
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	435	1305	584	186	960	430	129	203	173	310	314	292
v/s Ratio Prot	c0.09	c0.29		0.03	0.14			c0.05		c0.11	0.11	
v/s Ratio Perm	0.22		0.01	0.17		0.05	0.03		0.01			0.01
v/c Ratio	0.63	0.78	0.03	0.64	0.53	0.18	0.26	0.50	0.06	0.61	0.60	0.04
Uniform Delay, d1	11.4	19.0	13.7	18.3	21.0	18.9	27.7	28.5	27.1	25.4	25.3	22.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	3.2	0.0	7.0	0.6	0.2	1.1	2.0	0.1	3.3	3.0	0.1
Delay (s)	14.3	22.2	13.7	25.4	21.6	19.1	28.8	30.4	27.2	28.7	28.4	22.8
Level of Service	B	C	B	C	C	B	C	C	C	C	C	C
Approach Delay (s)		20.3			21.3			28.9			27.8	
Approach LOS		C			C			C			C	

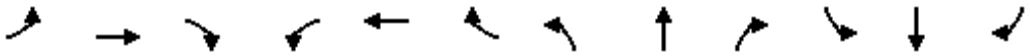
Intersection Summary			
HCM Average Control Delay	22.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	67.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	225	75	180	165	80	1	25	1	55	85	10
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Hourly flow rate (vph)	17	388	129	310	284	138	2	43	2	95	147	17

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	534	310	422	47	259
Volume Left (vph)	17	310	0	2	95
Volume Right (vph)	129	0	138	2	17
Hadj (s)	-0.10	0.53	-0.19	0.02	0.07
Departure Headway (s)	6.1	7.1	6.4	8.1	7.1
Degree Utilization, x	0.90	0.61	0.75	0.10	0.51
Capacity (veh/h)	585	490	553	409	485
Control Delay (s)	41.4	19.5	24.5	12.0	17.4
Approach Delay (s)	41.4	22.4		12.0	17.4
Approach LOS	E	C		B	C

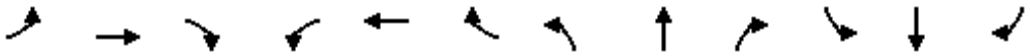
Intersection Summary				
Delay	27.7			
HCM Level of Service	D			
Intersection Capacity Utilization	55.3%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	5	15	5	135	5	165	35	165	125	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	5	5	16	5	148	5	181	38	181	137	5
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	865	734	140	723	717	201	143			220		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	865	734	140	723	717	201	143			220		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	98	99	94	98	82	100			87		
cM capacity (veh/h)	199	300	908	300	306	840	1440			1350		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	170	225	324
Volume Left	5	16	5	181
Volume Right	5	148	38	5
cSH	317	683	1440	1350
Volume to Capacity	0.05	0.25	0.00	0.13
Queue Length 95th (ft)	4	25	0	12
Control Delay (s)	17.0	12.0	0.2	5.0
Lane LOS	C	B	A	A
Approach Delay (s)	17.0	12.0	0.2	5.0
Approach LOS	C	B		

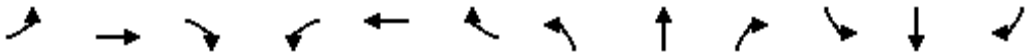
Intersection Summary				
Average Delay	5.4			
Intersection Capacity Utilization	47.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	30	15	5	75	25	215	20	240	100	250	255	30
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	34	17	6	85	28	244	23	273	114	284	290	34

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total (vph)	34	23	85	273	409	284	324
Volume Left (vph)	34	0	85	0	23	284	0
Volume Right (vph)	0	6	0	244	114	0	34
Hadj (s)	0.53	-0.14	0.53	-0.59	-0.12	0.53	-0.04
Departure Headway (s)	8.8	8.1	7.9	6.8	6.6	7.2	6.6
Degree Utilization, x	0.08	0.05	0.19	0.52	0.75	0.57	0.59
Capacity (veh/h)	378	407	429	497	535	491	526
Control Delay (s)	11.4	10.3	11.6	15.6	26.4	17.9	17.5
Approach Delay (s)	11.0		14.6		26.4	17.7	
Approach LOS	B		B		D	C	

Intersection Summary				
Delay	19.1			
HCM Level of Service	C			
Intersection Capacity Utilization	66.3%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	15	5	75	25	215	20	240	100	250	255	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.87			0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	1790		1770	1612			1788		1770	1833	
Flt Permitted	0.44	1.00		0.74	1.00			0.98		0.55	1.00	
Satd. Flow (perm)	819	1790		1383	1612			1749		1034	1833	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	34	17	6	85	28	244	23	273	114	284	290	34
RTOR Reduction (vph)	0	5	0	0	204	0	0	18	0	0	6	0
Lane Group Flow (vph)	34	18	0	85	68	0	0	392	0	284	318	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	9.1	9.1		9.1	9.1			35.9		35.9	35.9	
Effective Green, g (s)	9.1	9.1		9.1	9.1			35.9		35.9	35.9	
Actuated g/C Ratio	0.17	0.17		0.17	0.17			0.65		0.65	0.65	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	136	296		229	267			1142		675	1196	
v/s Ratio Prot		0.01			0.04						0.17	
v/s Ratio Perm	0.04			c0.06				0.22		c0.27		
v/c Ratio	0.25	0.06		0.37	0.26			0.34		0.42	0.27	
Uniform Delay, d1	20.0	19.3		20.4	20.0			4.3		4.6	4.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00		0.95	0.92	
Incremental Delay, d2	1.0	0.1		1.0	0.5			0.8		1.7	0.5	
Delay (s)	20.9	19.4		21.4	20.5			5.1		6.0	4.2	
Level of Service	C	B		C	C			A		A	A	
Approach Delay (s)		20.3			20.7			5.1			5.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: AM 2030 with Tribal Trail

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South	SPLR										
3L	L	22	2.0	0.494	15.7	LOS B	4.4	111.0	0.70	0.88	28.4
8T	T	261	2.0	0.496	10.1	LOS B	4.4	111.0	0.70	0.76	30.5
8R	R	109	2.0	0.496	11.0	LOS B	4.4	111.0	0.70	0.73	30.5
Approach		391	2.0	0.496	10.6	LOS B	4.4	111.0	0.70	0.76	30.4
East	SPLR										
1L	L	82	2.0	0.438	15.2	LOS B	3.7	92.7	0.67	0.83	28.4
6T	T	27	2.0	0.438	9.6	LOS A	3.7	92.7	0.67	0.72	30.3
6R	R	234	2.0	0.439	10.5	LOS B	3.7	92.7	0.67	0.70	30.3
Approach		342	2.0	0.439	11.5	LOS B	3.7	92.7	0.67	0.73	29.8
North	Tribal Trail										
7L	L	272	2.0	0.545	13.4	LOS B	5.7	144.5	0.53	0.72	29.2
4T	T	277	2.0	0.545	7.8	LOS A	5.7	144.5	0.53	0.56	31.0
4R	R	33	2.0	0.543	8.7	LOS A	5.7	144.5	0.53	0.58	30.9
Approach		582	2.0	0.544	10.5	LOS B	5.7	144.5	0.53	0.64	30.1
West	Boyles Hill										
5L	L	33	2.0	0.096	17.1	LOS B	0.6	16.4	0.69	0.84	27.3
2T	T	16	2.0	0.096	11.5	LOS B	0.6	16.4	0.69	0.74	29.5
2R	R	5	2.0	0.095	12.3	LOS B	0.6	16.4	0.69	0.70	29.2
Approach		54	2.0	0.096	14.9	LOS B	0.6	16.4	0.69	0.79	28.1
All Vehicles		1370	2.0	0.545	11.0	LOS B	5.7	144.5	0.62	0.70	30.0

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.

SIDRA INTERSECTION

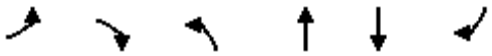
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	295	500	5	480	465	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	6.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted	1.00	1.00	0.40	1.00	0.95	1.00
Satd. Flow (perm)	1863	1583	744	1863	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	321	543	5	522	505	5
RTOR Reduction (vph)	0	363	0	0	0	3
Lane Group Flow (vph)	321	180	5	522	505	2
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	17.1	17.1	22.7	22.7	18.0	18.0
Effective Green, g (s)	17.1	17.1	22.7	22.7	18.0	18.0
Actuated g/C Ratio	0.33	0.33	0.44	0.44	0.35	0.35
Clearance Time (s)	6.0	6.0	5.0	6.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	616	524	339	818	616	551
v/s Ratio Prot	0.17		0.00	c0.28	c0.29	
v/s Ratio Perm		0.11	0.01			0.00
v/c Ratio	0.52	0.34	0.01	0.64	0.82	0.00
Uniform Delay, d1	14.0	13.1	8.6	11.3	15.4	11.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.4	0.0	1.6	8.4	0.0
Delay (s)	14.8	13.5	8.6	12.9	23.8	11.0
Level of Service	B	B	A	B	C	B
Approach Delay (s)	13.9			12.9	23.6	
Approach LOS	B			B	C	

Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	51.7	Sum of lost time (s)	11.0
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	50	50	135	50	50	75
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	54	147	54	54	82
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	364	174			201	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	364	174			201	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	94			96	
cM capacity (veh/h)	610	870			1371	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	109	201	136
Volume Left	54	0	54
Volume Right	54	54	0
cSH	717	1700	1371
Volume to Capacity	0.15	0.12	0.04
Queue Length 95th (ft)	13	0	3
Control Delay (s)	10.9	0.0	3.3
Lane LOS	B		A
Approach Delay (s)	10.9	0.0	3.3
Approach LOS	B		

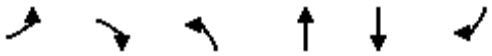
Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	32.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	110	20	20	1655	700	100
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	120	22	22	1799	761	109
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1704	380	870			
vC1, stage 1 conf vol	761					
vC2, stage 2 conf vol	943					
vCu, unblocked vol	1704	380	870			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	55	96	97			
cM capacity (veh/h)	264	617	771			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	141	22	899	899	380	380	109
Volume Left	120	22	0	0	0	0	0
Volume Right	22	0	0	0	0	0	109
cSH	313	771	1700	1700	1700	1700	1700
Volume to Capacity	0.45	0.03	0.53	0.53	0.22	0.22	0.06
Queue Length 95th (ft)	56	2	0	0	0	0	0
Control Delay (s)	26.6	9.8	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	A					
Approach Delay (s)	26.6	0.1			0.0		
Approach LOS	D						

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

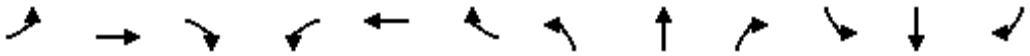


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	110	20	20	1655	700	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.36	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	672	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	22	22	1799	761	109
RTOR Reduction (vph)	0	19	0	0	0	27
Lane Group Flow (vph)	120	3	22	1799	761	82
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	11.4	11.4	67.6	67.6	67.6	67.6
Effective Green, g (s)	11.4	11.4	67.6	67.6	67.6	67.6
Actuated g/C Ratio	0.13	0.13	0.75	0.75	0.75	0.75
Clearance Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	224	201	505	2658	2658	1189
v/s Ratio Prot	c0.07			c0.51	0.22	
v/s Ratio Perm		0.00	0.03			0.05
v/c Ratio	0.54	0.01	0.04	0.68	0.29	0.07
Uniform Delay, d1	36.8	34.4	2.9	5.7	3.6	2.9
Progression Factor	1.00	1.00	1.00	1.00	0.21	0.12
Incremental Delay, d2	2.5	0.0	0.2	1.4	0.3	0.1
Delay (s)	39.3	34.4	3.0	7.1	1.0	0.5
Level of Service	D	C	A	A	A	A
Approach Delay (s)	38.5			7.0	0.9	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	6.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
1: S. Park Loop Rd. & WY 89

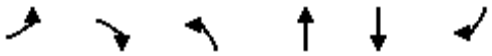
4/27/2010



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	60	1	15	1	1	5	25	580	1	10	1120	110
Sign Control		Stop			Stop			Free			Free	
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)	65	1	16	1	1	5	27	630	1	11	1217	120
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			1									
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1674	1985	668	1324	2044	316	1337			632		
vC1, stage 1 conf vol	1299	1299		685	685							
vC2, stage 2 conf vol	376	686		639	1359							
vCu, unblocked vol	1674	1985	668	1324	2044	316	1337			632		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	59	99	96	100	99	99	95			99		
cM capacity (veh/h)	161	199	400	282	170	680	512			947		

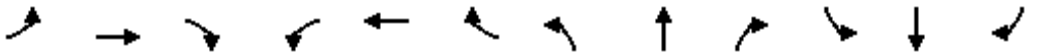
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	83	8	27	420	211	11	812	525
Volume Left	65	1	27	0	0	11	0	0
Volume Right	16	5	0	0	1	0	0	120
cSH	192	417	512	1700	1700	947	1700	1700
Volume to Capacity	0.43	0.02	0.05	0.25	0.12	0.01	0.48	0.31
Queue Length 95th (ft)	50	1	4	0	0	1	0	0
Control Delay (s)	37.3	13.8	12.4	0.0	0.0	8.8	0.0	0.0
Lane LOS	E	B	B			A		
Approach Delay (s)	37.3	13.8	0.5			0.1		
Approach LOS	E	B						

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	51.2%	ICU Level of Service	A	
Analysis Period (min)	15			



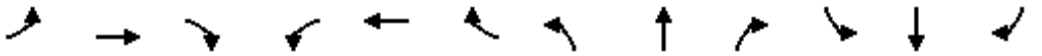
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	245	360	260	865	1295	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	6.0	6.0	6.0
Lane Util. Factor	0.97		1.00	0.95	0.95	1.00
Frt	0.91		1.00	1.00	1.00	0.85
Flt Protected	0.98		0.95	1.00	1.00	1.00
Satd. Flow (prot)	3226		1770	3539	3539	1583
Flt Permitted	0.98		0.12	1.00	1.00	1.00
Satd. Flow (perm)	3226		215	3539	3539	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	263	387	280	930	1392	134
RTOR Reduction (vph)	169	0	0	0	0	74
Lane Group Flow (vph)	481	0	280	930	1392	60
Turn Type			pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	13.7		41.7	41.7	29.7	29.7
Effective Green, g (s)	13.7		41.7	41.7	29.7	29.7
Actuated g/C Ratio	0.21		0.63	0.63	0.45	0.45
Clearance Time (s)	5.0		5.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	666		299	2223	1583	708
v/s Ratio Prot	c0.15		c0.10	0.26	0.39	
v/s Ratio Perm			c0.49			0.04
v/c Ratio	0.72		0.94	0.42	0.88	0.08
Uniform Delay, d1	24.6		16.1	6.2	16.7	10.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9		35.3	0.1	5.9	0.1
Delay (s)	28.4		51.4	6.4	22.6	10.6
Level of Service	C		D	A	C	B
Approach Delay (s)	28.4			16.8	21.6	
Approach LOS	C			B	C	

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	66.4	Sum of lost time (s)	10.0
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



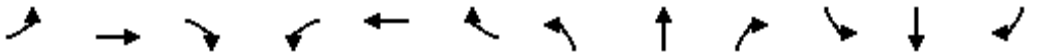
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	485	15	190	50	10	45	170	865	25	25	1510	615
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.92		1.00	0.88		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.98		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1589		1770	1636		1770	3524		1770	3539	1583
Flt Permitted	0.95	0.98		0.95	1.00		0.12	1.00		0.22	1.00	1.00
Satd. Flow (perm)	1681	1589		1770	1636		224	3524		412	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	511	16	200	53	11	47	179	911	26	26	1589	647
RTOR Reduction (vph)	0	56	0	0	43	0	0	2	0	0	0	343
Lane Group Flow (vph)	373	298	0	53	15	0	179	935	0	26	1589	304
Turn Type	Split			Split			Perm			Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	16.1	16.1		6.3	6.3		33.2	33.2		33.2	33.2	33.2
Effective Green, g (s)	16.1	16.1		6.3	6.3		33.2	33.2		33.2	33.2	33.2
Actuated g/C Ratio	0.23	0.23		0.09	0.09		0.47	0.47		0.47	0.47	0.47
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
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)	383	362		158	146		105	1657		194	1664	744
v/s Ratio Prot	c0.22	0.19		c0.03	0.01			0.27			0.45	
v/s Ratio Perm							c0.80			0.06		0.19
v/c Ratio	0.97	0.82		0.34	0.10		1.70	0.56		0.13	0.95	0.41
Uniform Delay, d1	27.0	25.9		30.2	29.6		18.7	13.5		10.6	18.0	12.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	38.8	13.9		1.3	0.3		354.3	0.4		0.3	12.9	0.4
Delay (s)	65.8	39.8		31.4	29.9		373.0	13.9		10.9	30.9	12.6
Level of Service	E	D		C	C		F	B		B	C	B
Approach Delay (s)		53.2			30.6			71.5			25.4	
Approach LOS		D			C			E			C	

Intersection Summary			
HCM Average Control Delay	42.5	HCM Level of Service	D
HCM Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	70.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



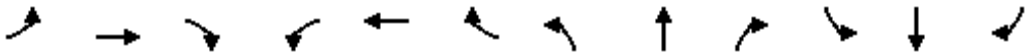
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	485	15	190	50	10	45	170	865	25	25	1510	615
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.86		1.00	0.88		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1604		1770	1636		1770	3524		1770	3539	1583
Flt Permitted	0.95	1.00		0.62	1.00		0.08	1.00		0.28	1.00	1.00
Satd. Flow (perm)	3433	1604		1161	1636		152	3524		516	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	511	16	200	53	11	47	179	911	26	26	1589	647
RTOR Reduction (vph)	0	69	0	0	43	0	0	2	0	0	0	363
Lane Group Flow (vph)	511	147	0	53	15	0	179	935	0	26	1589	284
Turn Type	Prot			Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases				8			2			6		6
Actuated Green, G (s)	16.0	29.9		8.9	8.9		60.1	52.7		46.3	43.9	43.9
Effective Green, g (s)	16.0	29.9		8.9	8.9		60.1	52.7		46.3	43.9	43.9
Actuated g/C Ratio	0.16	0.30		0.09	0.09		0.60	0.53		0.46	0.44	0.44
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
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)	549	480		103	146		273	1857		269	1554	695
v/s Ratio Prot	c0.15	0.09			0.01		c0.07	0.27		0.00	c0.45	
v/s Ratio Perm				c0.05			0.32			0.04		0.18
v/c Ratio	0.93	0.31		0.51	0.10		0.66	0.50		0.10	1.02	0.41
Uniform Delay, d1	41.5	27.0		43.5	41.9		23.2	15.2		14.7	28.0	19.2
Progression Factor	1.00	1.00		1.00	1.00		0.53	0.92		0.67	0.65	0.02
Incremental Delay, d2	22.7	0.4		4.3	0.3		5.1	0.9		0.2	28.4	1.7
Delay (s)	64.1	27.4		47.8	42.2		17.4	14.9		9.9	46.5	2.2
Level of Service	E	C		D	D		B	B		A	D	A
Approach Delay (s)		53.2			44.9			15.3			33.4	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM Average Control Delay	32.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	845	45	115	885	425	60	155	85	460	65	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1681	1705	1583
Flt Permitted	0.15	1.00	1.00	0.16	1.00	1.00	0.58	1.00	1.00	0.95	0.96	1.00
Satd. Flow (perm)	287	3539	1583	291	3539	1583	1089	1863	1583	1681	1705	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	62	871	46	119	912	438	62	160	88	474	67	222
RTOR Reduction (vph)	0	0	30	0	0	289	0	0	75	0	0	173
Lane Group Flow (vph)	62	871	16	119	912	149	62	160	13	270	271	49
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Split		Perm
Protected Phases	5	2		1	6			8		4	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	29.0	26.1	26.1	30.6	26.9	26.9	12.1	12.1	12.1	17.4	17.4	17.4
Effective Green, g (s)	29.0	26.1	26.1	30.6	26.9	26.9	12.1	12.1	12.1	17.4	17.4	17.4
Actuated g/C Ratio	0.37	0.33	0.33	0.39	0.34	0.34	0.15	0.15	0.15	0.22	0.22	0.22
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	159	1165	521	181	1200	537	166	284	242	369	374	347
v/s Ratio Prot	0.01	0.25		c0.03	c0.26			c0.09		c0.16	0.16	
v/s Ratio Perm	0.13		0.01	0.22		0.09	0.06		0.01			0.03
v/c Ratio	0.39	0.75	0.03	0.66	0.76	0.28	0.37	0.56	0.06	0.73	0.72	0.14
Uniform Delay, d1	17.8	23.7	18.0	17.6	23.3	19.1	30.2	31.2	28.7	28.8	28.7	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	2.7	0.0	8.3	2.9	0.3	1.4	2.6	0.1	7.3	6.8	0.2
Delay (s)	19.4	26.3	18.0	25.9	26.2	19.4	31.6	33.7	28.8	36.1	35.5	25.1
Level of Service	B	C	B	C	C	B	C	C	C	D	D	C
Approach Delay (s)		25.5			24.2			31.9			32.7	
Approach LOS		C			C			C			C	

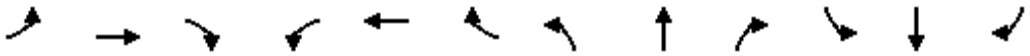
Intersection Summary			
HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	79.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	275	5	60	215	35	10	25	95	70	20	15
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Hourly flow rate (vph)	15	404	7	88	316	51	15	37	140	103	29	22

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	426	88	368	191	154
Volume Left (vph)	15	88	0	15	103
Volume Right (vph)	7	0	51	140	22
Hadj (s)	0.03	0.53	-0.06	-0.39	0.08
Departure Headway (s)	6.1	7.0	6.3	6.5	7.0
Degree Utilization, x	0.72	0.17	0.65	0.34	0.30
Capacity (veh/h)	426	492	541	482	435
Control Delay (s)	22.9	10.2	19.1	12.8	13.0
Approach Delay (s)	22.9	17.4		12.8	13.0
Approach LOS	C	C		B	B

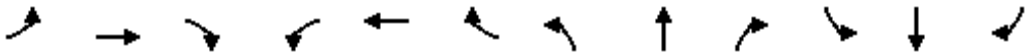
Intersection Summary				
Delay	18.0			
HCM Level of Service	C			
Intersection Capacity Utilization	51.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	10	5	15	5	220	5	170	50	235	180	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	5	10	5	15	5	227	5	175	52	242	186	5
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	1113	910	188	894	887	201	191			227		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1113	910	188	894	887	201	191			227		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	95	99	93	98	73	100			82		
cM capacity (veh/h)	114	224	854	216	231	840	1383			1342		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	21	247	232	433
Volume Left	5	15	5	242
Volume Right	5	227	52	5
cSH	212	680	1383	1342
Volume to Capacity	0.10	0.36	0.00	0.18
Queue Length 95th (ft)	8	42	0	16
Control Delay (s)	23.8	13.3	0.2	5.4
Lane LOS	C	B	A	A
Approach Delay (s)	23.8	13.3	0.2	5.4
Approach LOS	C	B		

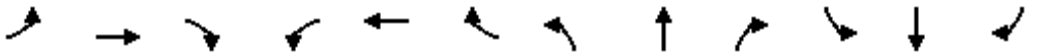
Intersection Summary				
Average Delay	6.6			
Intersection Capacity Utilization	60.6%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	35	40	15	105	15	325	10	340	95	335	360	40
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	40	45	17	119	17	369	11	386	108	381	409	45

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total (vph)	40	63	119	386	506	381	455
Volume Left (vph)	40	0	119	0	11	381	0
Volume Right (vph)	0	17	0	369	108	0	45
Hadj (s)	0.53	-0.16	0.53	-0.64	-0.09	0.53	-0.04
Departure Headway (s)	9.7	9.1	8.6	7.5	7.6	8.2	7.7
Degree Utilization, x	0.11	0.16	0.29	0.80	1.07	0.87	0.97
Capacity (veh/h)	350	375	406	473	481	433	465
Control Delay (s)	12.7	12.6	13.9	33.3	88.8	44.8	60.7
Approach Delay (s)	12.6		28.7		88.8	53.5	
Approach LOS	B		D		F	F	

Intersection Summary				
Delay	54.1			
HCM Level of Service	F			
Intersection Capacity Utilization	83.2%	ICU Level of Service	E	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	40	15	105	15	325	10	340	95	335	360	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.86		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1786		1770	1596		1770	1802		1770	1835	
Flt Permitted	0.39	1.00		0.72	1.00		0.47	1.00		0.44	1.00	
Satd. Flow (perm)	723	1786		1335	1596		873	1802		816	1835	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	40	45	17	119	17	369	11	386	108	381	409	45
RTOR Reduction (vph)	0	13	0	0	292	0	0	16	0	0	6	0
Lane Group Flow (vph)	40	49	0	119	94	0	11	478	0	381	448	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	10.3	10.3		10.3	10.3		28.8	28.8		28.8	28.8	
Effective Green, g (s)	10.3	10.3		10.3	10.3		28.8	28.8		28.8	28.8	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	152	375		280	335		512	1057		479	1076	
v/s Ratio Prot		0.03			0.06			0.27			0.24	
v/s Ratio Perm	0.06			c0.09			0.01			c0.47		
v/c Ratio	0.26	0.13		0.42	0.28		0.02	0.45		0.80	0.42	
Uniform Delay, d1	16.2	15.8		16.8	16.3		4.2	5.7		7.9	5.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.2		1.0	0.5		0.0	0.3		8.9	0.3	
Delay (s)	17.2	15.9		17.9	16.8		4.3	6.0		16.7	5.8	
Level of Service	B	B		B	B		A	A		B	A	
Approach Delay (s)		16.4			17.0			6.0			10.8	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	49.1	Sum of lost time (s)	10.0
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: PM 2030 with Tribal Trail

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South	SPLR										
3L	L	11	2.0	0.725	22.1	LOS C	9.6	244.1	0.92	1.10	25.3
8T	T	370	2.0	0.716	16.6	LOS B	9.6	244.1	0.92	1.07	26.9
8R	R	103	2.0	0.717	17.4	LOS B	9.6	244.1	0.92	0.98	26.7
Approach		484	2.0	0.716	16.9	LOS C	9.6	244.1	0.92	1.05	26.8
East	SPLR										
1L	L	114	2.0	0.709	21.3	LOS C	9.5	242.0	0.93	1.06	25.4
6T	T	16	2.0	0.709	15.7	LOS B	9.5	242.0	0.93	1.04	26.9
6R	R	353	2.0	0.709	16.6	LOS B	9.5	242.0	0.93	0.96	26.8
Approach		484	2.0	0.710	17.7	LOS C	9.5	242.0	0.93	0.98	26.4
North	Tribal Trail										
7L	L	364	2.0	0.751	14.4	LOS B	11.4	288.4	0.79	0.70	28.9
4T	T	391	2.0	0.750	8.8	LOS A	11.4	288.4	0.79	0.63	29.8
4R	R	43	2.0	0.750	9.7	LOS A	11.4	288.4	0.79	0.62	30.0
Approach		799	2.0	0.750	11.4	LOS B	11.4	288.4	0.79	0.66	29.4
West	Boyles Hill										
5L	L	38	2.0	0.250	20.8	LOS C	1.9	48.6	0.87	0.98	25.6
2T	T	43	2.0	0.251	15.2	LOS B	1.9	48.6	0.87	0.93	27.3
2R	R	16	2.0	0.251	16.1	LOS B	1.9	48.6	0.87	0.81	27.2
Approach		98	2.0	0.251	17.5	LOS C	1.9	48.6	0.87	0.93	26.6
All Vehicles		1864	2.0	0.751	14.8	LOS B	11.4	288.4	0.87	0.86	27.7

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS C. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout LOS Method: Same as Signalised Intersections.
Roundabout Capacity Model: SIDRA Standard.

SIDRA INTERSECTION

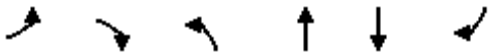
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	570	705	5	520	655	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	6.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted	1.00	1.00	0.13	1.00	0.95	1.00
Satd. Flow (perm)	1863	1583	240	1863	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	620	766	5	565	712	5
RTOR Reduction (vph)	0	492	0	0	0	3
Lane Group Flow (vph)	620	274	5	565	712	2
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	26.0	26.0	31.7	31.7	30.1	30.1
Effective Green, g (s)	26.0	26.0	31.7	31.7	30.1	30.1
Actuated g/C Ratio	0.36	0.36	0.44	0.44	0.41	0.41
Clearance Time (s)	6.0	6.0	5.0	6.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	665	565	119	811	732	655
v/s Ratio Prot	c0.33		0.00	c0.30	c0.40	
v/s Ratio Perm		0.17	0.02			0.00
v/c Ratio	0.93	0.48	0.04	0.70	0.97	0.00
Uniform Delay, d1	22.6	18.2	15.5	16.7	20.9	12.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.0	0.7	0.1	2.6	26.4	0.0
Delay (s)	42.5	18.8	15.6	19.3	47.4	12.5
Level of Service	D	B	B	B	D	B
Approach Delay (s)	29.4			19.2	47.2	
Approach LOS	C			B	D	

Intersection Summary			
HCM Average Control Delay	32.0	HCM Level of Service	C
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	72.8	Sum of lost time (s)	17.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	65	70	150	65	75	120
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	76	163	71	82	130
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	492	198			234	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	492	198			234	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	91			94	
cM capacity (veh/h)	503	843			1334	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	147	234	212
Volume Left	71	0	82
Volume Right	76	71	0
cSH	636	1700	1334
Volume to Capacity	0.23	0.14	0.06
Queue Length 95th (ft)	22	0	5
Control Delay (s)	12.3	0.0	3.3
Lane LOS	B		A
Approach Delay (s)	12.3	0.0	3.3
Approach LOS	B		

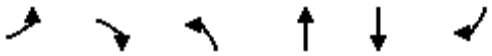
Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	105	15	15	1020	1550	105
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	114	16	16	1109	1685	114
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2272	842	1799			
vC1, stage 1 conf vol	1685					
vC2, stage 2 conf vol	587					
vCu, unblocked vol	2272	842	1799			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	11	95	95			
cM capacity (veh/h)	128	307	339			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	130	16	554	554	842	842	114
Volume Left	114	16	0	0	0	0	0
Volume Right	16	0	0	0	0	0	114
cSH	147	339	1700	1700	1700	1700	1700
Volume to Capacity	0.89	0.05	0.33	0.33	0.50	0.50	0.07
Queue Length 95th (ft)	151	4	0	0	0	0	0
Control Delay (s)	104.3	16.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	C					
Approach Delay (s)	104.3	0.2			0.0		
Approach LOS	F						

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	105	15	15	1020	1550	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.11	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	212	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	16	16	1109	1685	114
RTOR Reduction (vph)	0	14	0	0	0	26
Lane Group Flow (vph)	114	2	16	1109	1685	88
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	11.7	11.7	77.3	77.3	77.3	77.3
Effective Green, g (s)	11.7	11.7	77.3	77.3	77.3	77.3
Actuated g/C Ratio	0.12	0.12	0.77	0.77	0.77	0.77
Clearance Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	207	185	164	2736	2736	1224
v/s Ratio Prot	c0.06			0.31	c0.48	
v/s Ratio Perm		0.00	0.08			0.06
v/c Ratio	0.55	0.01	0.10	0.41	0.62	0.07
Uniform Delay, d1	41.7	39.0	2.8	3.8	4.9	2.7
Progression Factor	1.00	1.00	1.00	1.00	0.09	0.00
Incremental Delay, d2	3.1	0.0	1.2	0.4	0.7	0.1
Delay (s)	44.8	39.1	4.0	4.2	1.1	0.1
Level of Service	D	D	A	A	A	A
Approach Delay (s)	44.1			4.2	1.1	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			