

AUG 06 2013

KITTITAS COUNTY
PUBLICWORKS

August 6th, 2013

Kittitas County Department of Public Works
Kirk Holmes, Director
411 North Ruby Street
Ellensburg, WA 98926

RE: **Reecer Ranch Plat (LP-12-00001) Waiver Request**

Mr. Holmes,

The Reecer Ranch Plat (LP-12-00001) application has recently been deemed complete by Kittitas County Community Development Services Department. The applicant has also been required, by your department, to perform a Transportation Impact Analysis (TIA) for this project since this project will be exceeding the 9 peak hour trip generation requirement. Pursuant to Kittitas County Code 12.10.040.10 and on behalf of the applicant please accept this letter as requesting a waiver from the Transportation Impact Analysis requirement.

Background Information:

The applicant has submitted a 33 lot plat application that is proposing direct access to the following roads, Dry Creek, Faust Road and Old Hwy Ten. The following subject Roads/Intersections that apply to the Reecer Ranch Plat (LP-12-00001):

- Faust Rd at Dry Creek Rd
- Faust Rd at Old Hwy 10
- Reecer Creek Rd at Dry Creek Rd
- Reecer Creek Rd at Old Hwy 10
- Reecer Creek Rd at University Way

Level of Service:

Pursuant to the Kittitas County Transportation Plan with a future projection to year 2025 the Level of Service for the subject roads are as follows:

Kittitas County Jurisdiction

Dry Creek Rd at Faust Rd	= A
Dry Creek Rd at Reecer Creek Rd	= C
University Way at Reecer Creek Rd	= E

WSDOT Jurisdiction

SR97 at Dry Creek Road	= C
SR10 at SR97	= B
SR97 at Faust Rd at	= C

Supportive information:

In 2007/2008 the applicant proposed a development directly off of Reecer Creek Road (Palomino Fields Plat (P-07-31)). As part of this project a Transportation Impact Analysis (TIA) for 120 units was required (See Attachment TIA). This TIA, on file with the County, conducted an analysis of the subject roads/intersections that are applicable to this proposal. The Palomino Fields TIA found the following conclusions:

- In the AM and PM peak hours with the development in place in 2012, all study intersections are forecast to operate at LOS-B or better. All study intersection satisfy the city's LOS standard of LOS-D.
- It is anticipated that this development will be required to assist in payment for the signal planned at the Reecer Creek Rd at University Way intersection, as a condition of the Black Horse at Whiskey Creek pipeline development. A proportionate share contribution to this intersection improvement is appropriate. Of the 1,393 PM peak hour trips through this intersection in 2012, 82 (6.2%) are attributable to this development. The proportionate share of the anticipated \$200,000 signal cost is then \$12,450.

Breakdown with the Reecer Ranch Proposal:

Under this new proposal Faust Road would add an additional 63 trips north of Dry Creek road & 27 trips south of Dry Creek road for a total of 90 trips. Dry Creek Road would add a total of 153 trips. Old Hwy Ten would add a total of 54 trips.

The Reecer Ranch Plat has been designed taking advantage of the multiple roads accessing this proposal thereby dissipating the traffic impact at any



single point/intersection location. Furthermore with the Palomino Field Transportation Impact Analysis identifying the following roads/intersections (Faust Rd at Dry Creek Rd, Faust Rd at Old Hwy 10, Reecer Creek Rd at Dry Creek Rd, Reecer Creek Rd at Old Hwy 10, & Reecer Creek Rd at University Way) would all operate at a LOS B or better during the AM & PM peak hours. With the additional trips from the Reecer Ranch Plat proposal along with the proposed transportation network we believe that the Level of Service will not drop below a LOS C for any of the existing roads.

With the aforementioned, and on behalf of the applicant I would like to request that the TIA requirement be waived as a requirement for this proposal.

Best regards,

Chad Bala

CC: Pat Deneen, Teanaway Ridge LLC

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TIA ATTACHMENT
8-6-2013
Waiver Request For
LP-12-00001

PALOMINO FIELDS SINGLE-FAMILY RESIDENTIAL DEVELOPMENT

Kittitas County, Washington

Transportation Impact Analysis

February 2008

Prepared for:
Terra Design Group
PO Box 686
Cle Elum, WA 98922
and
Kittitas County

Prepared by:
Transportation Solutions, Inc.



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PROPOSED DEVELOPMENT

This report documents the traffic conditions associated with the construction and occupation of the Palomino Fields residential development in Kittitas County, Washington.

PURPOSE OF REPORT AND STUDY OBJECTIVES

The purpose of this report is to identify potential traffic related impacts generated by occupancy of the proposed development and, where appropriate, outline improvements to minimize or eliminate such impacts.

This study follows the guidelines set forth by Kittitas County's Traffic Impact Analysis Requirements and conforms to the general format and intent of the State Environmental Policy Act (SEPA) guidelines. As part of this analysis, TSI consulted with County staff and participated in a scoping meeting on August 29, 2007, to determine the extents of this analysis.

DESCRIPTION OF DEVELOPMENT

Terra Design Group is proposing a 120-unit single-family residential development in unincorporated Kittitas County, northwest of the City of Ellensburg. This development, known as Palomino Fields, is proposed for property located west of Reecer Creek Rd between Bender Rd and Bowers Rd. Two access points are proposed, the south access at Bender Rd and the north access at Bowers Rd. A vicinity map is included as Figure 1. A site plan showing the preliminary lot layout is included as Figure 2.

Completion of construction and full-occupancy of Palomino Fields is anticipated by 2009.



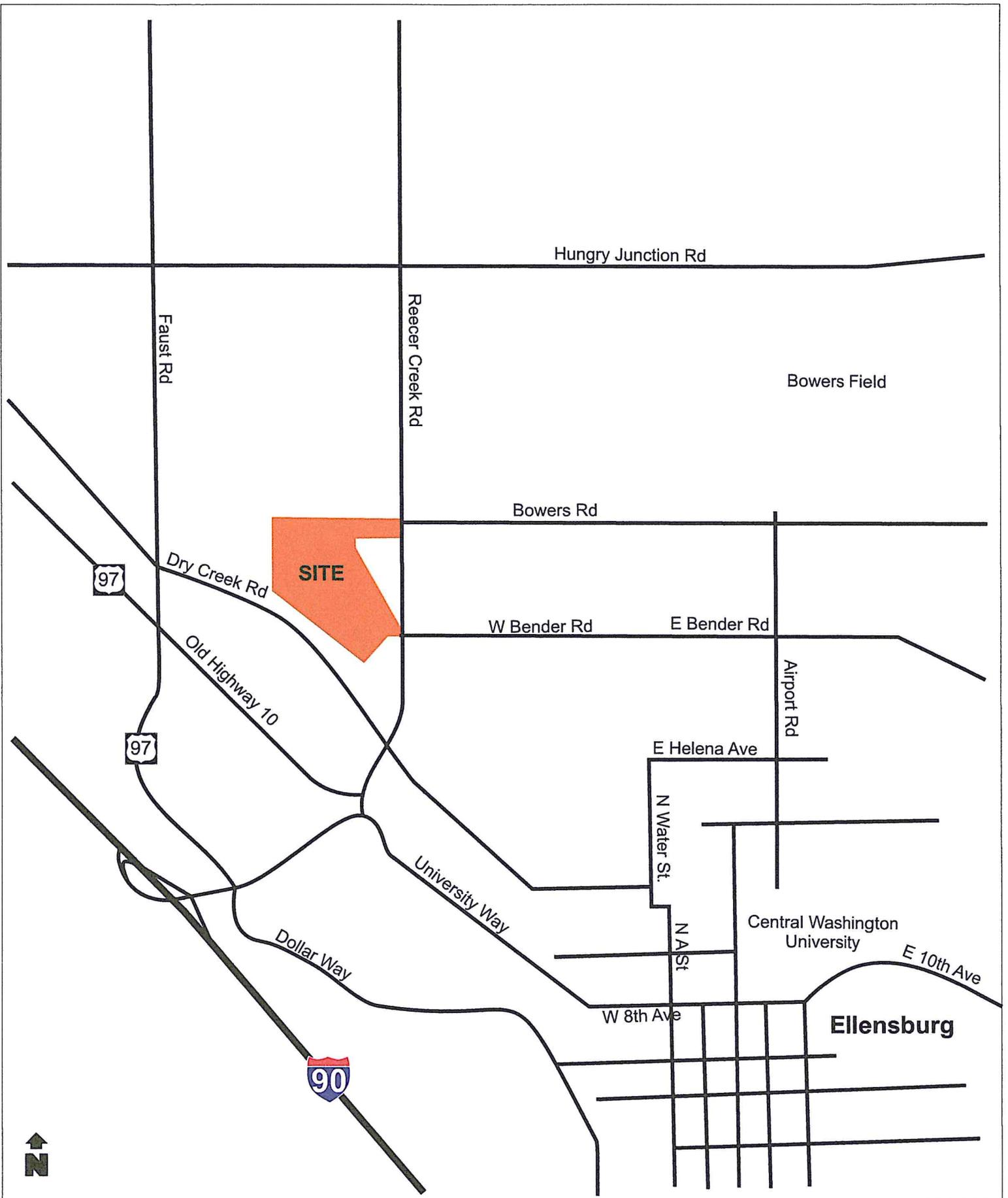


Figure 1: Vicinity Map



Figure 2: Site Plan



EXISTING CONDITIONS

This section of the report describes existing transportation conditions near Palomino Fields and includes a description of the local zoning, street network, traffic controls, traffic volumes, transit service, pedestrian facilities, and safety components. This section serves as a basis for subsequent analysis of forecasted transportation conditions with the development.

STUDY AREA

Palomino Fields is located in Kittitas County, Washington, generally north of Bender Rd and the John Wayne Trail, south of Bowers Rd and west of Reecer Creek Rd. This is to the northwest of central Ellensburg, and just north of Interstate 90. The site is currently zoned S (Suburban). The study area includes adjacent roadways as well as nearby roadways connecting directly to either Reecer Creek Rd or Faust Rd.

SITE ACCESSIBILITY

Study Area Roadway System

The study area for this analysis includes the intersections described in Table 1, including the site accesses off of Reecer Creek Rd. Significant roadways within this study area and near the site are described in Table 2.

TABLE 1: INTERSECTION INVENTORY

ID	Intersection	Control
1	Reecer Creek Rd at University Way	One-Way Stop
2	Reecer Creek Rd at Old Hwy 10	One-Way Stop
3	Reecer Creek Rd at Dry Creek Rd	Two-Way Stop
4	Reecer Creek Rd at Bender Rd	One-Way Stop
5	Reecer Creek Rd at Bowers Rd	One-Way Stop
6	Faust Rd at Old Hwy 10	All-Way Stop
7	Faust Rd at Dry Creek Rd	Two-Way Stop

Existing Traffic Volumes

At the request of County staff, TSI evaluated this development's impacts during the morning (AM) and afternoon (PM) peak hour periods. The traditional AM peak hour occurs between 7:00 and 9:00 AM and the traditional PM peak hour occurs between 4:00 and 6:00 PM. The peak hour within these two-hour periods is identified as the 60-minute interval associated with the greatest four consecutive 15-minute traffic volumes. The PM peak hour period typically represents the time when the combination of background and development-generated traffic volumes are highest, thus resulting in the greatest potential traffic impact.



TABLE 2: ROAD NETWORK

Street Name	Classification	Orientation	Cross Section
Reecer Creek Rd	Major Collector	North/South	2 Lanes
Old Hwy 10	Reecer Creek Rd at Old Hwy 10	Northwest /Southeast	2 Lanes
Dry Creek Rd	Major Collector	Northwest /Southeast	2 Lanes
Bender Rd	Major Collector	East/West	2 Lanes
Bowers Rd	Major Collector	East/West	2 Lanes
Faust Rd	Major Collector	North/South	2 Lanes
University Way	Other Principal Arterial	Northwest /Southeast to Southwest /Northeast	2 Lanes
Interstate 90	Interstate Highway	Northwest /Southeast	4 Lanes

TSI obtained existing AM and PM peak hour traffic volumes based on turning movement counts conducted by Trafficount on Wednesday, October 3 and Thursday, October 4, 2007. These counts were conducted during the same period listed above. Figure 3 and Figure 4 illustrate the AM and PM 2007 existing peak hour traffic volumes.

Existing Safety and Capacity Deficiencies

No capacity or geometric deficiencies were noted on the roadways or intersections listed in Tables 1 and 2 above. Existing intersection operations are noted later in this report.

Accident Analysis

Collisions occurring in the last three years (2004 to 2006) within this development’s study area are summarized in Table 3. There were 15 total collisions at intersections in this study area during this period. Collision and ADT data were obtained from County and the Washington State Department of Transportation.

An intersection with a collision rate of greater than 1.0 collisions per million entering vehicles is generally considered unsafe. The collision data in Table 3 do not indicate any high accident locations within this study area.

Public Transportation Service

Public transit is relatively limited in the development area. Central Transit operates a morning and an evening route in central Ellensburg. The nearest stop location to this development is located at E 14th Ave and D Street.

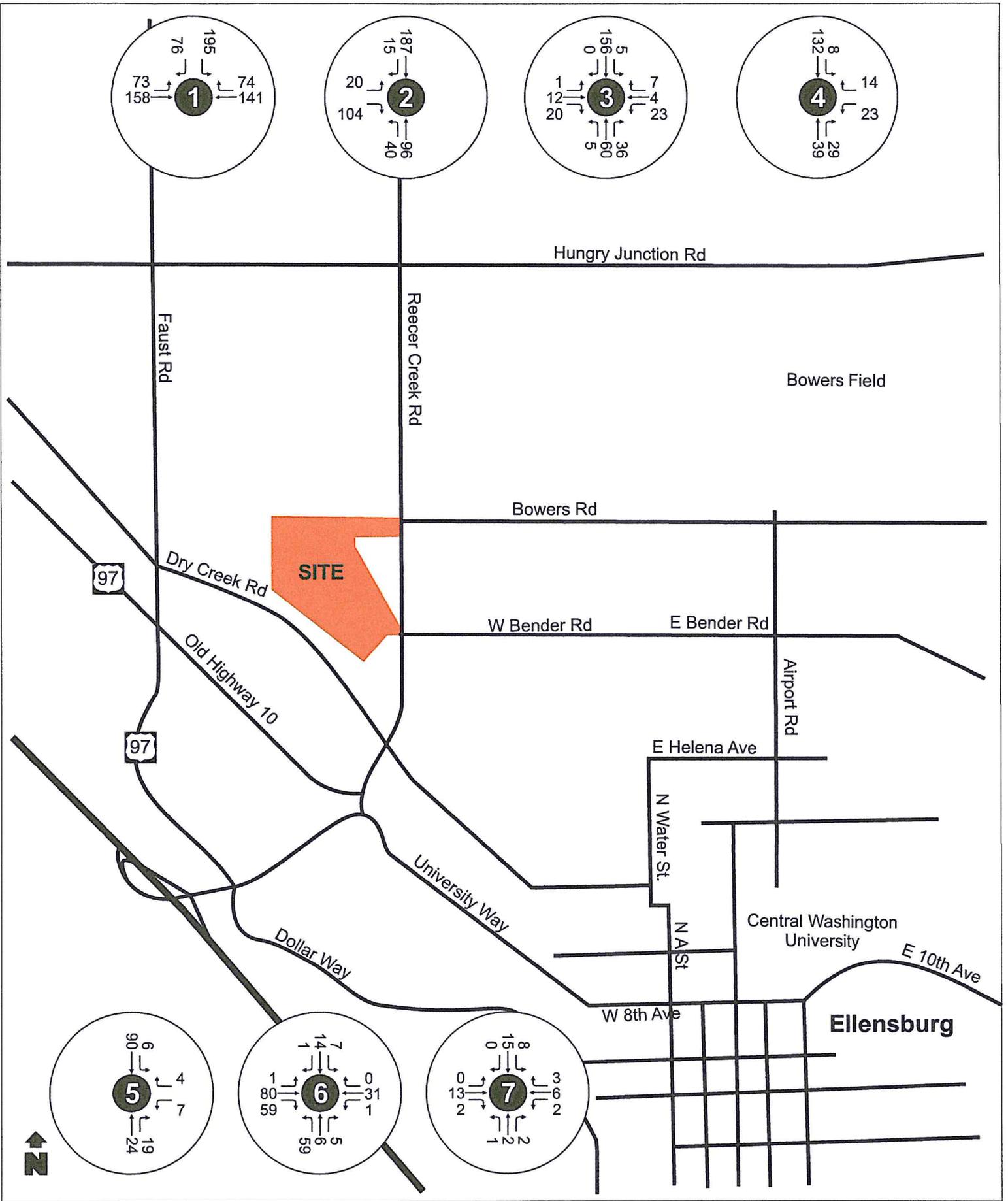


Figure 3: 2007 Existing AM Peak Hour Volumes

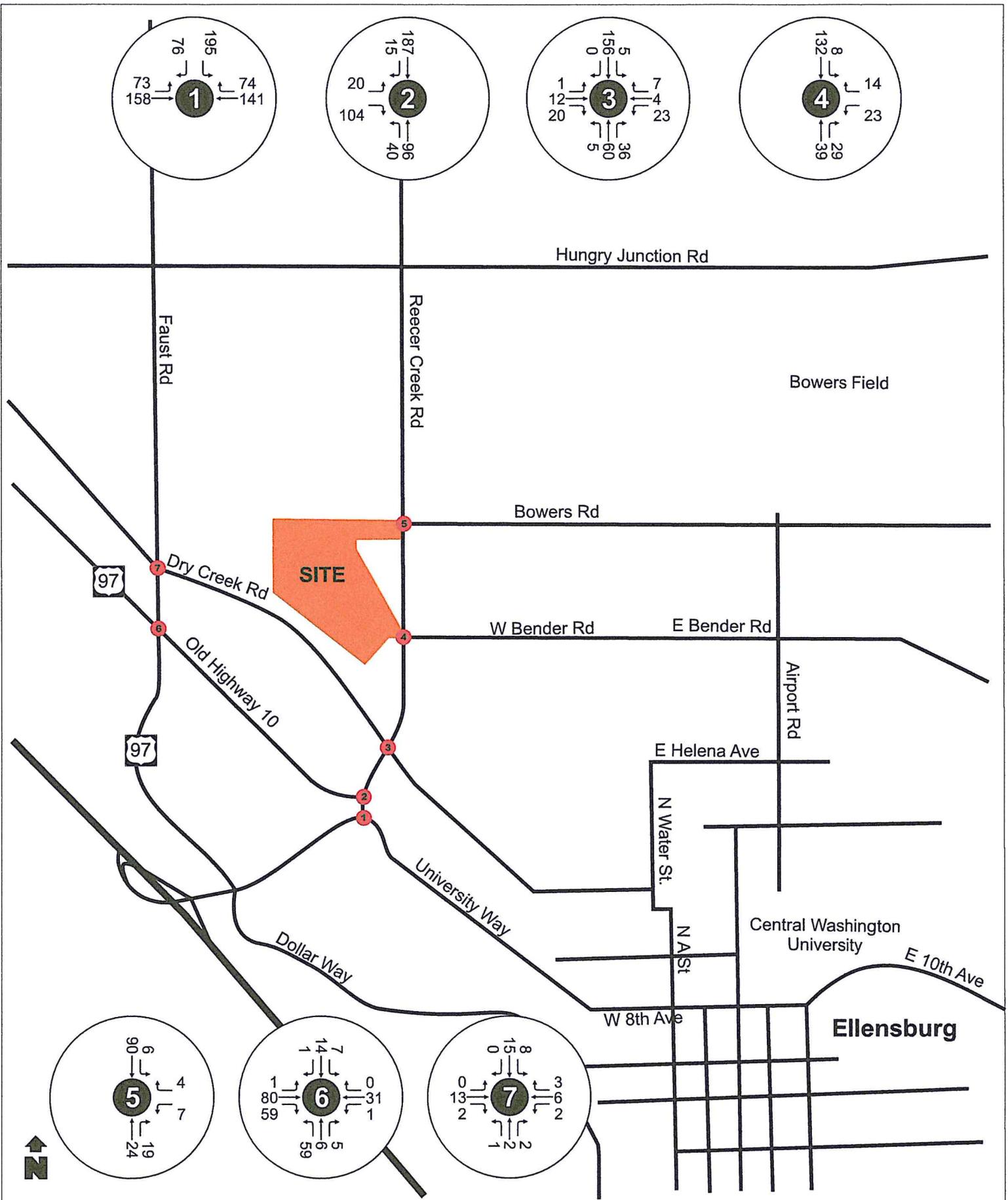


Figure 3: 2007 Existing AM Peak Hour Volumes

TABLE 3: COLLISION HISTORY

ID	Intersection	Collisions	ADT of Cross Streets	Annual Collision Rate ³
1	Reecer Creek Rd at University Way	3	3883 ²	0.71
2	Reecer Creek Rd at Old Hwy 10	5	5131	0.89
3	Reecer Creek Rd at Dry Creek Rd	3	3240	0.85
4	Reecer Creek Rd at Bender Rd	2	3383	0.54
5	Reecer Creek Rd at Bowers Rd	1	1674	0.55
6	Faust Rd at Old Hwy 10	1 ¹	3642	0.25
7	Faust Rd at Dry Creek Rd	No Data	No Data	--

¹ Data provided by WSDOT.

² No ADT volumes available for University Way; thus the collision rate at this location should be considerably lower than presented here.

³ Collision rate is expressed in terms of million entering vehicles (MEV).

Non-Motorized Transportation

This development is located in a suburban/rural setting. Roadways near the site are built according to the County’s rural standard, which includes gravel shoulders and no bike lanes or sidewalks.

The John Wayne Trail is directly south of the site, and offers pedestrian and bicycle opportunities.

Other Transportation Modes

Bowers Field is a local airport located approximately 1.5 miles east of the site and north of Ellensburg. The airport does not offer national or international connections.

FORECASTED TRAFFIC

Palomino Fields is anticipated to be constructed and occupied by 2009. County staff requested a 5-year analysis period for evaluating development generated impacts. Thus, this section outlines the assumptions and steps taken to forecast 2012 future traffic volumes without and with the development. Included in this section are discussions of the potential impacts of additional automobile traffic in the site vicinity generated by growth in the area and the incremental traffic volumes associated with this development.

BACKGROUND TRAFFIC VOLUMES

This section of the report describes 2012 ‘without’ Palomino Fields (background) traffic volumes. Background traffic volumes are those traffic volumes present on the roadways without any of the new traffic volumes generated from the proposed

development. Background traffic volumes are made up of regional traffic growth and pipeline development traffic. Pipeline development traffic volumes are the trips generated by other development applications approved though not yet constructed. This section will serve as a basis for evaluating cumulative traffic impacts and isolating development specific impacts for the future 'with' development condition.

County staff indicated a 5.0% annual background growth rate be used in this analysis.

One pipeline development, known as Black Horse at Whiskey Creek, was identified by County staff to generate traffic near the Palomino Fields site. Black Horse at Whiskey Creek is a single-family residential development proposed with 375 single-family homes and is located at the intersection of Reece Creek Rd and Bender Rd. This development is anticipated to be occupied by 2012 and was forecasted to generate 3,579 weekday daily trips, 281 AM peak hour trips (70 in and 210 out)¹, and 378 PM peak hour trips (238 in and 140 out). As a condition of development a traffic signal is required at the intersection of Reecer Creek Rd and University Way.

Figure 5 and Figure 6 illustrate the AM and PM peak hour background traffic volumes which include pipeline traffic generated from Black Horse at Whiskey Creek and the background traffic growth.

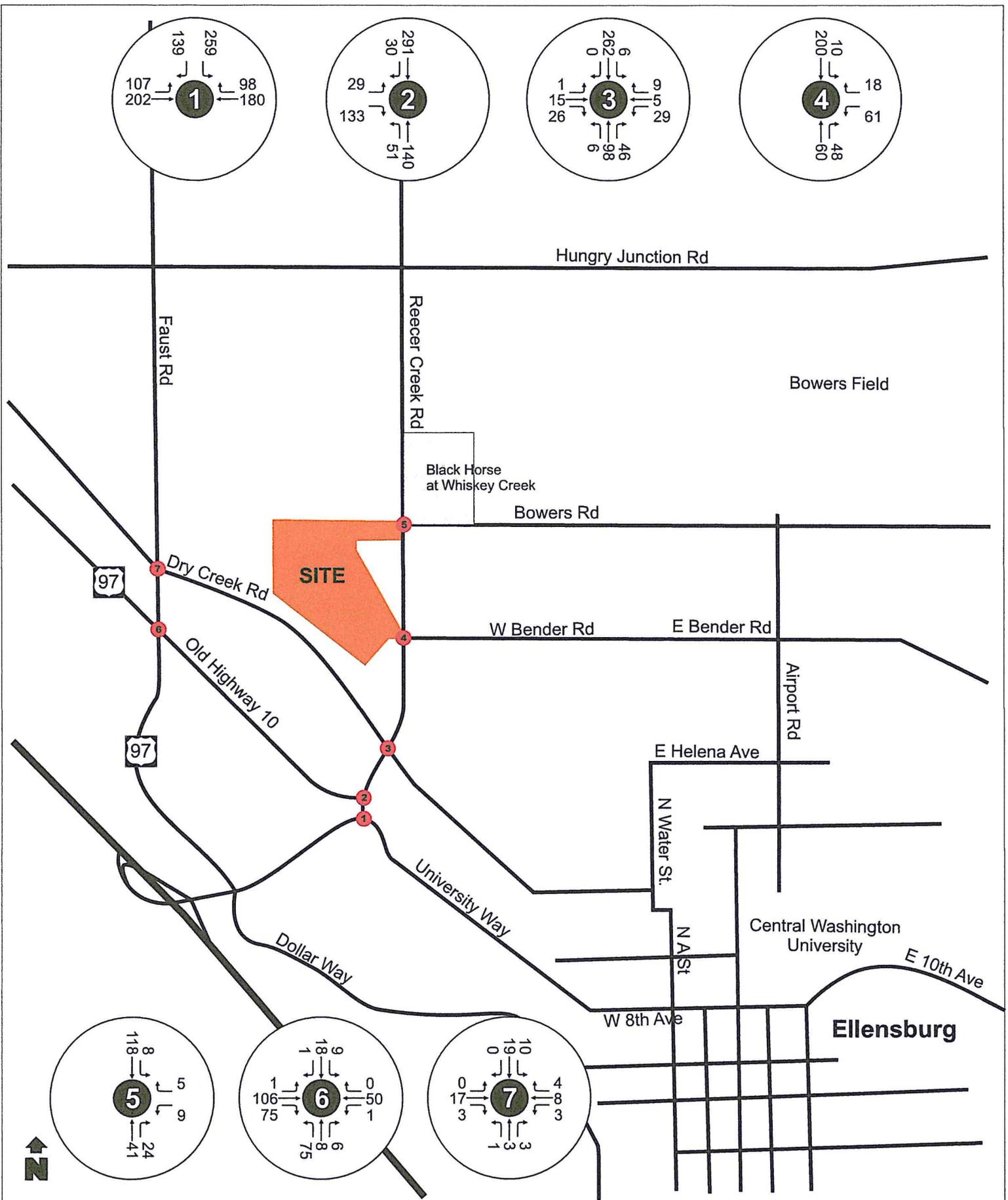
SITE TRAFFIC

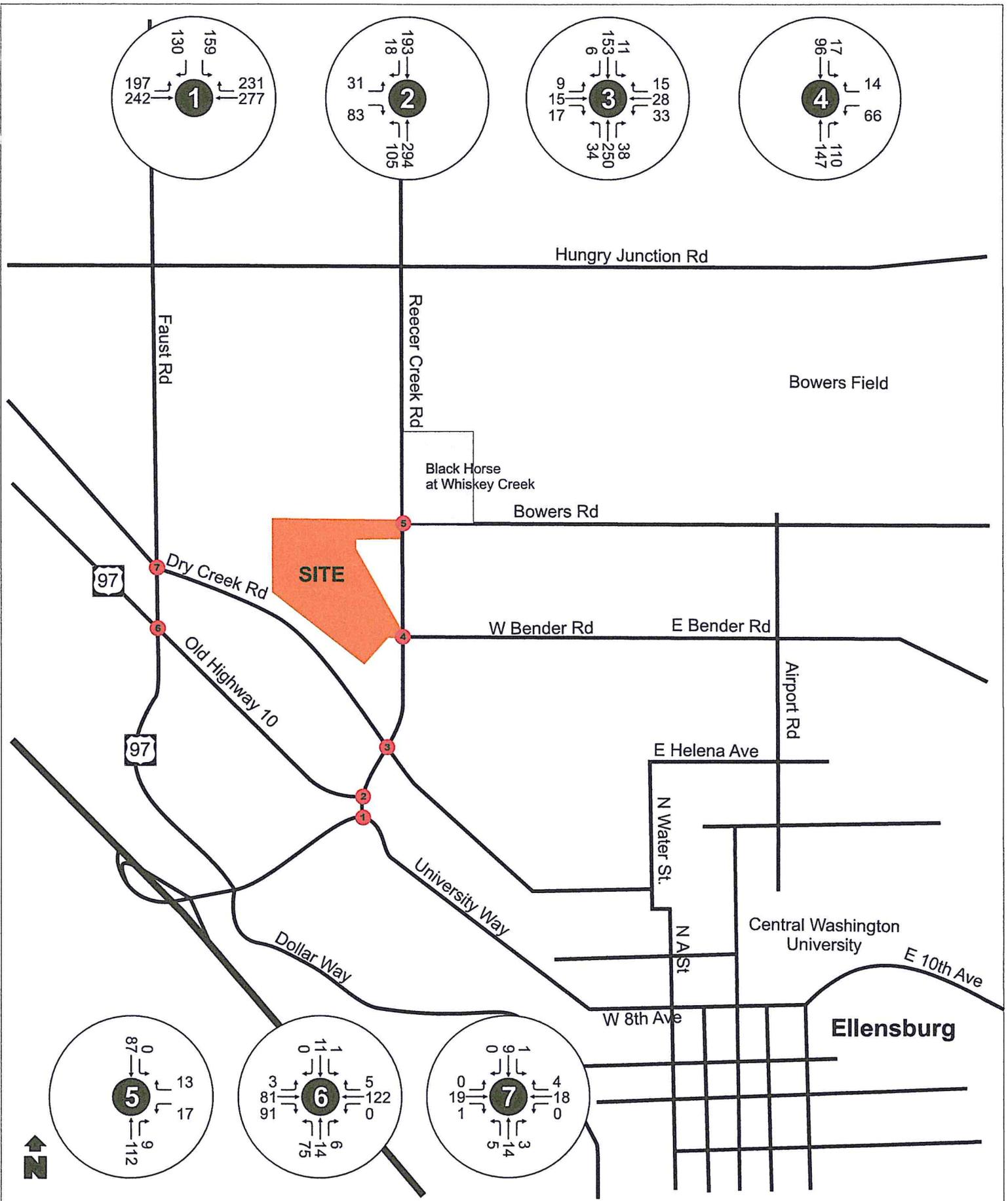
This section of the report analyzes the forecasted traffic volumes associated with the proposed Palomino Fields development. The forecasted conditions with Palomino Fields will be compared with the background traffic conditions to determine any associated impacts with the addition of the proposed development.

TSI uses a generally accepted transportation planning approach that includes the following steps for forecasting travel demand:

- *Trip Generation*: Trips produced by the occupancy of the development.
- *Mode Split*: Proportion of trips by travel mode (automobile, transit, other).
- *Trip Distribution*: Origins/destinations and routes of trips.
- *Travel Assignment*: Number of new trips using the street network by route.

¹ The AM peak hour trips generated by Black Horse at Whiskey Creek were not included in this pipeline development's traffic analysis. The AM peak hour trip generation was calculated by TSI using trip rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation, 7th Edition* for single-family land uses.





Trip Generation and Mode Split

Trip rates from ITE’s *Trip Generation* were used to calculate vehicle trips associated with the development of Palomino Fields. Palomino Fields is to include 120 single-family homes. The ITE LUC used to describe the proposed use is LUC 210, “Single-Family Detached Housing.” Table 4 summarizes the weekday daily, AM peak hour and PM peak hour trip generation for the proposed Palomino Fields development.

TABLE 4: PROPOSED DEVELOPMENT TRIP GENERATION SUMMARY

Period	Dwelling Units	ITE Rate	Distribution		Total Trips		
			in	out	In	out	Total
Weekday	120	10.25	50%	50%	615	615	1230
AM Peak Hour	120	0.78	25%	75%	23	70	93
PM Peak Hour	120	1.05	63%	37%	80	47	127

The future 2012 impact from this development onto the surrounding road network is 1,230 new weekday daily trips, 93 new AM peak hour trips (split 25% in and 75% out), and 127 new PM peak hour trips (split 63% in and 37% out).

For this analysis, the mode split travel to and from this development were considered to take place by personal automobile without any deduction for pedestrian, bicycle, or transit trips.

Trip Distribution and Travel Assignment

Trip distribution for this development was initially based on the trip distribution used in the Black Horse at Whiskey Creek TIA. The trip distribution from Black Horse at Whiskey Creek was adjusted for Palomino Fields based on a field visit and intersection turning movement volumes. Compared to Black Horse at Whiskey Creek trip distribution more Palomino Fields trips are assumed to and from Interstate 90 and to and from Ellensburg via University Way; whereas, most Black Horse at Whiskey Creek trips are assumed to and from Ellensburg via W Bender Rd.

The peak hour trip distributions and travel assignments for the proposed development are shown in Figure 7 and Figure 8. The AM and PM peak hour trip distributions are assumed to be similar.

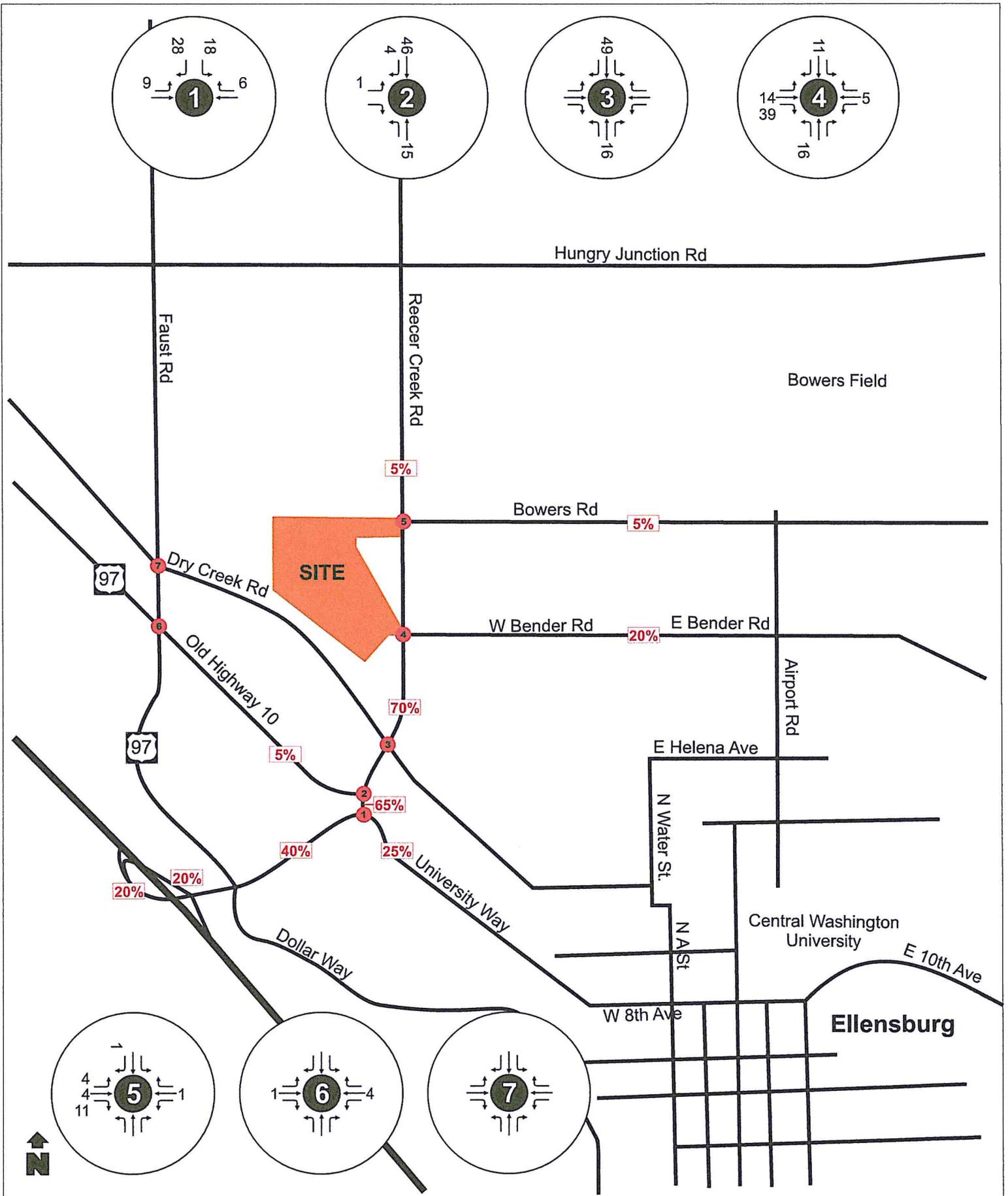


Figure 7: AM Peak Hour Trip Distribution and Assignment

**Palomino Fields
Kittitas County, WA**

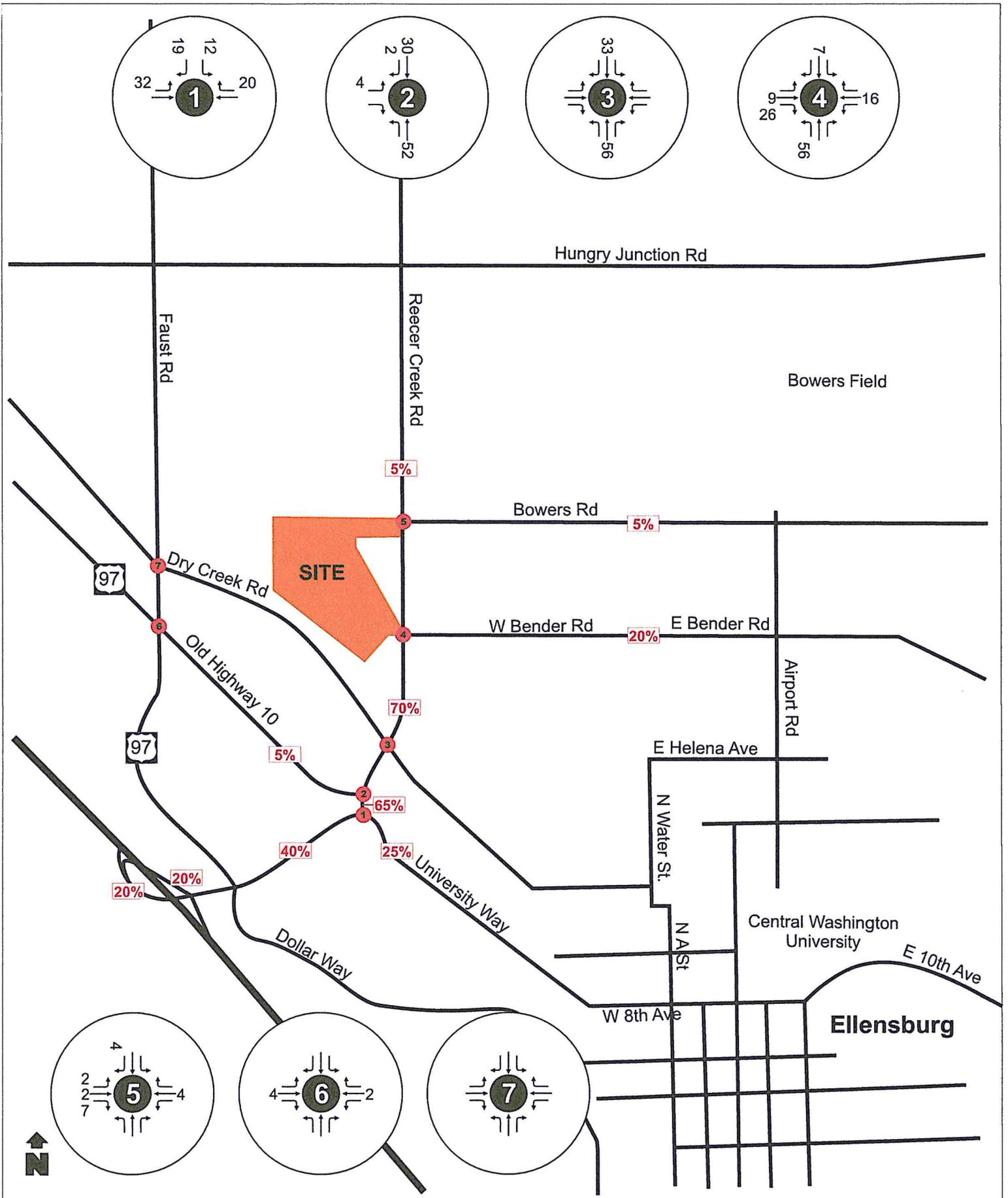


Figure 8: PM Peak Hour Trip Distribution and Assignment

**Palomino Fields
Kittitas County, WA**



TOTAL NETWORK TRAFFIC

The new peak hour trips generated to and from this development, shown in Figure 7 and Figure 8, were superimposed onto the background traffic volumes (Figure 4 and Figure 5) to forecast the future 2012 traffic conditions with the Palomino Fields development. The peak hour future 2012 traffic conditions with the Palomino Fields development are illustrated in Figure 9 and Figure 10.

TRAFFIC ANALYSIS

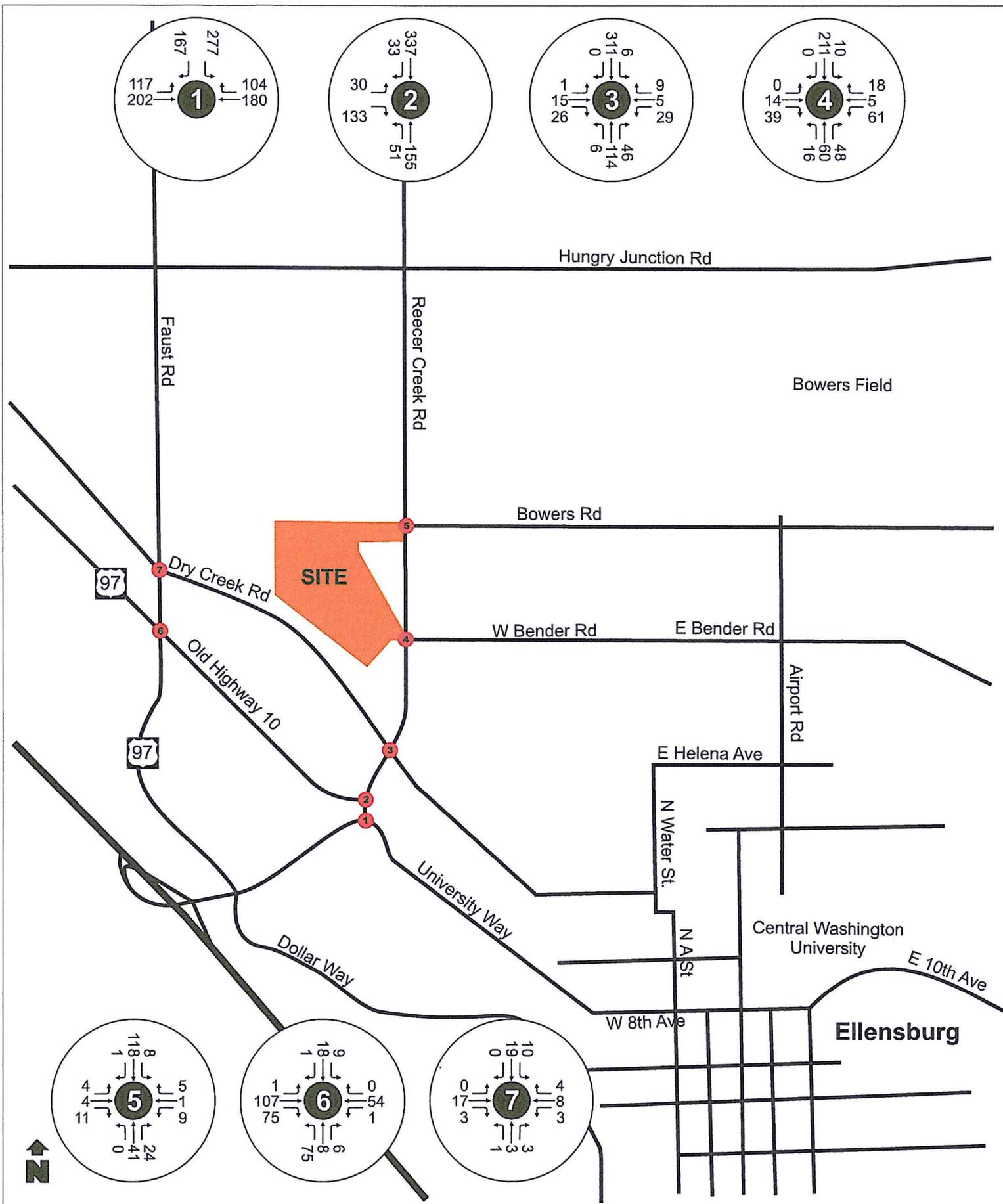
This section of the report considers traffic operations at the site accesses and intersections listed in Table 1 under existing, future background and future with development conditions. Traffic safety, site circulation and queuing are also considered.

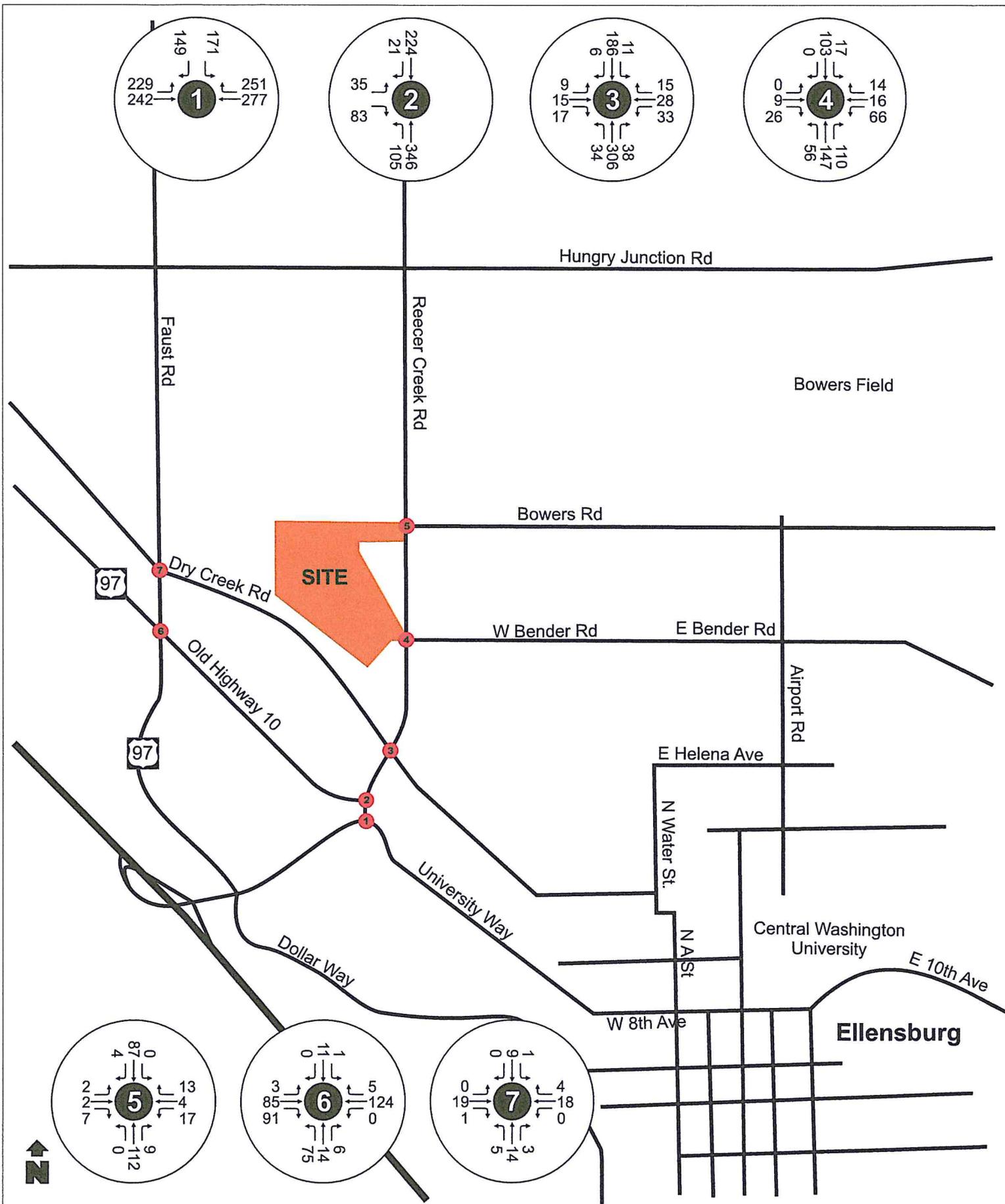
CAPACITY AND LEVEL OF SERVICE

Level of service is a measure of the ability of a given intersection to serve the traffic volumes using the street network. The Transportation Research Board developed the LOS methodology used in making this evaluation, and it is described in the *Highway Capacity Manual (HCM)*, 2000 update. Intersection LOS calculations were performed using the Synchro, version 7, computer program.

For signalized and all-way stop-sign controlled intersections, LOS is based on the average vehicle delay for all movements. For two-way and one-way stop-sign controlled intersections, LOS is based on the vehicle delay of the most congested approach. Vehicular delays for both signalized and unsignalized intersections are divided into grade levels ranging from LOS-A, which indicates little or no congestion and delay, to LOS-F, which reflects overcapacity conditions with long delays. Although these letter designations provide a simple basis for comparison, seconds of controlled delay should be used as the exact measure of comparison.

Kittitas County considers LOS-D acceptable for intersections in an urban environment, and LOS-C acceptable for intersections in a rural environment. Where intersections border the urban area boundary, the higher standard (LOS-C) applies. All intersections in the study area were considered rural based upon County road classifications, and the LOS-C standard was applied for this analysis.





**Figure 10: 2012 Future With the Development
PM Peak Hour Volumes**

**Palomino Fields
Kittitas County, WA**



Level of service (LOS) analysis under existing, future background and future with development conditions was performed for the intersections identified in Table 1. A summary of LOS and seconds of delay is shown below in Table 5. All three conditions are shown side by side for comparison.

For analysis of future background and future with development LOS conditions, a traffic signal was assumed at the Reecer Creek Rd and University Way intersection as identified from the Black Horse at Whiskey Creek pipeline development.

Table 5 shows that, in general, intersection delays increase slightly between the future background and future with the development conditions. All intersections perform at LOS-C or better with the development in place, which indicates that these intersections have more than adequate capacity with this development occupied.

The only intersection forecast to operate at LOS-C with the development is Reecer Creek Rd at Dry Creek Road. This intersection drops from LOS-B to LOS-C during the PM peak hour with an additional 1.9 seconds of vehicle delay between the background and with development conditions. This delay increase is not significant.

Traffic flow and intersection operations improve from LOS-C to LOS-A at the intersection of Reecer Creek Rd and University Way between the existing and background conditions. The improved operations are due to the installation of a traffic signal conditioned with the Black Horse at Whiskey Creek development.

TRAFFIC SAFETY

This section will evaluate the future with the proposed development forecasted safety conditions, including the potential effects of future collisions resulting from added development traffic and the potential impacts of sight distance at the proposed site access.

Development-Generated Collisions

The proposed development would add 93 new AM peak hour trips and 127 new PM peak hour trips to the surrounding road network, which is a small increase compared to the background traffic present without this development. The small increase in the traffic volumes within the study area caused by Palomino Fields coupled with the excess capacity of the semi-rural road network indicates no new collision problems should be anticipated with this development.

TABLE 5: LEVEL OF SERVICE SUMMARY

ID	AM PEAK HOUR		Existing 2007		Background 2012		With Development 2012	
	Intersection ¹		LOS	Delay ²	LOS	Delay ²	LOS	Delay ²
1	Reecer Creek Rd at University Way	SB/Avg.	C ³	15.8	A ³	6.5	A ³	7.4
2	Reecer Creek Rd at Old Hwy 10	EB	B	10.3	B	11.8	B	12.4
3	Reecer Creek Rd at Dry Creek Rd	EB	B	10.0	B	11.2	B	11.8
		WB	B	10.7	B	12.6	B	13.5
4	Reecer Creek Rd at Bender Rd	EB	-	-	-	-	B	10.5
		WB	A	9.5	B	10.8	B	12.8
5	Reecer Creek Rd at Bowers Rd	EB	-	-	-	-	A	9.5
		WB	A	9.0	A	9.3	A	9.6
6	Faust Rd at Old Hwy 10	Avg.	A	7.8	A	8.2	A	8.2
7	Faust Rd at Dry Creek Rd	NB	A	8.8	A	8.9	A	8.9
		SB	A	9.1	A	9.2	A	9.2

ID	PM PEAK HOUR		Existing 2007		Background 2012		With Development 2012	
	Intersection ¹		LOS	Delay ²	LOS	Delay ²	LOS	Delay ²
1	Reecer Creek Rd at University Way	SB/Avg.	C ³	18.6	A ³	6.7	A ³	8.1
2	Reecer Creek Rd at Old Hwy 10	EB	A	9.9	B	11.8	B	12.8
3	Reecer Creek Rd at Dry Creek Rd	EB	B	10.7	B	12.6	B	13.7
		WB	B	11.7	B	14.9	C	16.8
4	Reecer Creek Rd at Bender Rd	EB	-	-	-	-	B	10.3
		WB	A	9.8	B	11.3	B	15.1
5	Reecer Creek Rd at Bowers Rd	EB	-	-	-	-	A	9.4
		WB	A	9.2	A	9.5	A	9.9
6	Faust Rd at Old Hwy 10	Avg.	A	7.8	A	8.3	A	8.3
7	Faust Rd at Dry Creek Rd	NB	A	9.1	A	9.1	A	9.1
		SB	A	9.3	A	9.3	A	9.3

1. Level of service and delay are reported for each controlled approach for unsignalized intersections.

2. Delay is expressed in seconds.

3. In the existing condition this intersection is unsignalized and the southbound approach LOS is reported. In the 2012 background and with development conditions this intersection is signalized and the average LOS is reported.

Sight Distance Analysis

There are no sight distance issues along Reecer Creek Rd at either the access at Bender Rd or the Access at Bowers Rd. Reecer Creek Rd extends north and south from the site with no significant shifts in the horizontal alignment of the roadway.



SITE CIRCULATION

As indicated in Figure 2, Palomino Fields will access the local road network at Bender Rd and Bowers Rd along Reecer Creek Rd, adding a fourth leg to each of these intersections. Lots within the development will be served by two generally north-south roads. Five other local access streets will provide connections between the two longer roads. The northernmost east-west roadway will be an extension of Bowers Rd; this extension will then be stubbed out on the western property boundary, providing for future connections for properties to the west and a possible connection through to Faust Rd. Based on this plat layout, all lots are adequately served with two (and potentially three) routes into the neighborhood.

QUEUING

Both access points onto the local road network were evaluated in terms of queuing using SimTraffic software. SimTraffic uses a 20 foot car length as the default design vehicle and vehicle spacing of 5 feet for queuing simulations. The anticipated 95th percentile queues on each controlled approach are indicated in Table 6. Based on this analysis, no significant queuing issues are expected.

TABLE 6: QUEUING SUMMARY

ID	Intersection		95 th % Queue (feet)	
			AM	PM
4	Reecer Creek Rd at Bender Rd	EB	48	48
		WB	57	62
5	Reecer Creek Rd at Bowers Rd	EB	39	34
		WB	32	44

LEFT-TURN LANE WARRANT: REECER CREEK RD AT BENDER RD

County staff requested left-turn lane warrants² be evaluated at the Reecer Creek Rd and Bender Rd intersection. The 2012 future with development northbound left-turn volume forecast at this intersection, 16 AM peak hour vehicles (Figure 9) and 56 PM peak hour vehicles (Figure 10), do not warrant construction of a left-turn lane at this intersection. Figure 11 illustrates the left-turn storage lane warrant criteria and includes the forecasted 2012 with development volumes.

² Left-turn storage lane warrants were evaluated using criteria included in the Highway Research Board of National Academies publication *Highway Research Record 211, Volume Warrants for Left-Turn Storage Lanes at Unsignalized Intersections*.

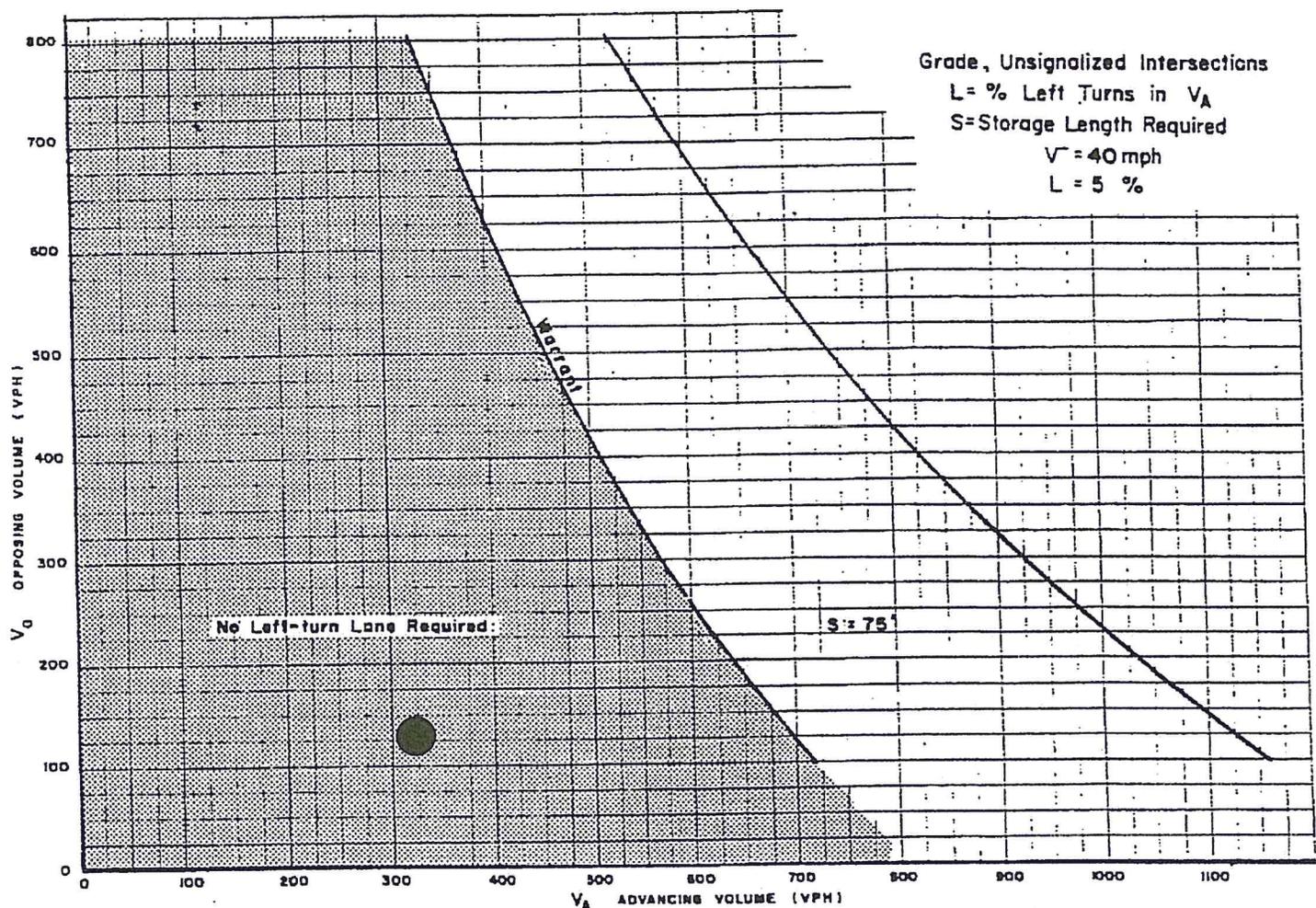


Figure 2. Warrant for left-turn storage lanes on two-lane highways.

L = 18%
 $V_A = 312$
 $V_O = 120$

Source: Highway Research Board of National Academies. *Highway Research Record 211, Volume Warrants for Left-Turn Storage Lanes at Unsignalized Intersections.*



FINDINGS AND CONCLUSIONS

Following are the conclusions of this analysis:

- This development is expected to generate 1,230 new weekday daily trips, 93 new AM peak hour trips (split 25% in and 75% out), and 127 new PM peak hour trips (split 63% in and 37% out).
- The site layout allows for two connections to Reecer Creek Rd, with an additional stub to the western property boundary for future connections.
- Queuing at the two access points to Reecer Creek Rd is not expected to be problematic; vehicles exiting the site should not queue more than two vehicles at a time.
- Both accesses onto Reecer Creek Rd are forecasted to operate at LOS-B or better in both the AM and PM peak hours.
- In the AM and PM peak hours with the development in place in 2012, all study intersections are forecast to operate at LOS-B or better. All study intersection satisfy the city's LOS standard of LOS-D
- It is anticipated that this development will be required to assist in payment for the signal planned at the Reecer Creek Rd at University Way intersection, as a condition of the Black Horse at Whiskey Creek pipeline development. A proportionate share contribution to this intersection improvement is appropriate. Of the 1,393 PM peak hour trips through this intersection in 2012, 82 (6.2%) are attributable to this development. The proportionate share of the anticipated \$200,000 signal cost is then \$12,450.



APPENDIX A TURNING MOVEMENT COUNTS



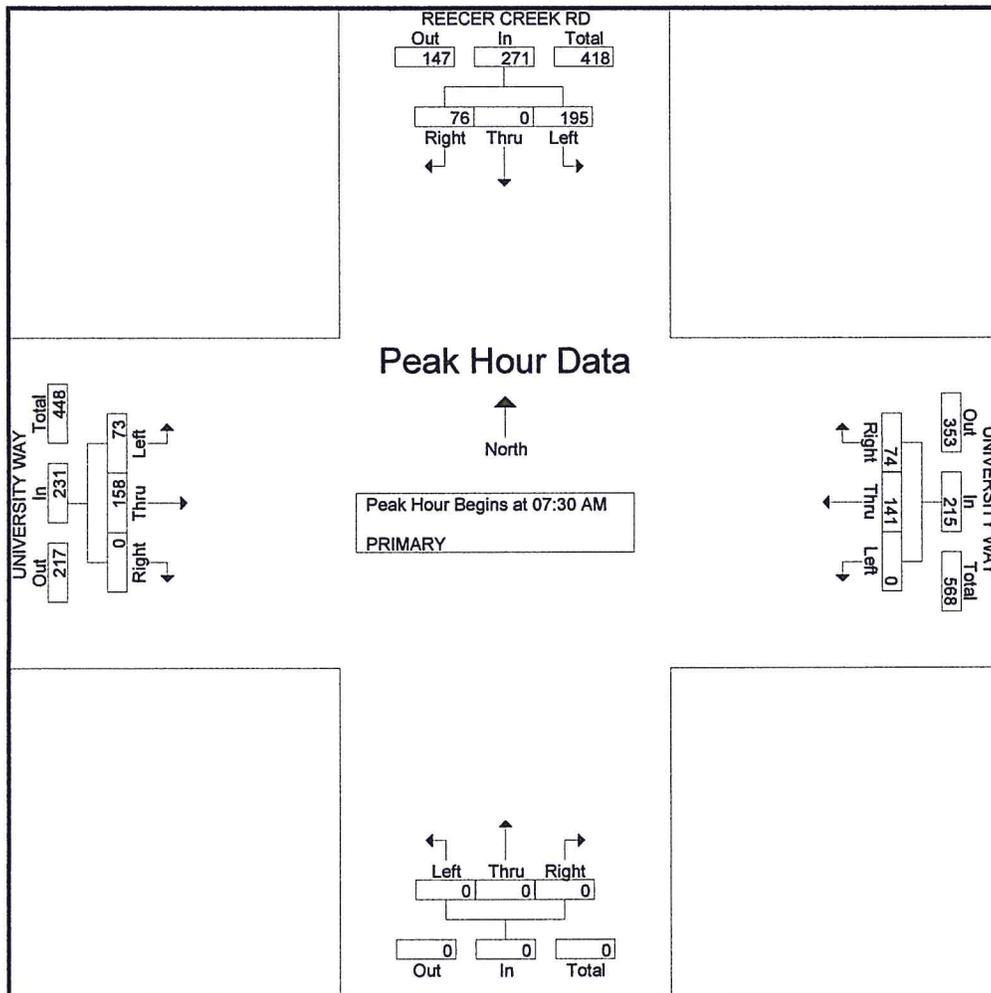
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ELLENSBURG, WASHINGTON
 REECER CREEK RD
 UNIVERSITY WAY
 LOC # 01A/ TSI07277M

File Name : TSI27701A
 Site Code : 0000001
 Start Date : 10/4/2007
 Page No : 2

Start Time	REECER CREEK RD From North				UNIVERSITY WAY From East				From South				UNIVERSITY WAY From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	19	0	62	81	21	38	0	59	0	0	0	0	0	39	17	56	198
07:45 AM	20	0	58	78	18	34	0	52	0	0	0	0	0	35	14	49	179
08:00 AM	22	0	35	57	16	34	0	50	0	0	0	0	0	47	25	72	179
08:15 AM	15	0	40	55	19	35	0	54	0	0	0	0	0	37	17	54	163
Total Volume	76	0	195	271	74	141	0	215	0	0	0	0	0	158	73	231	717
% App. Total	28	0	72		34.4	65.6	0		0	0	0	0	0	68.4	31.6		
PHF	.864	.000	.786	.836	.881	.928	.000	.911	.000	.000	.000	.000	.000	.840	.730	.802	.915



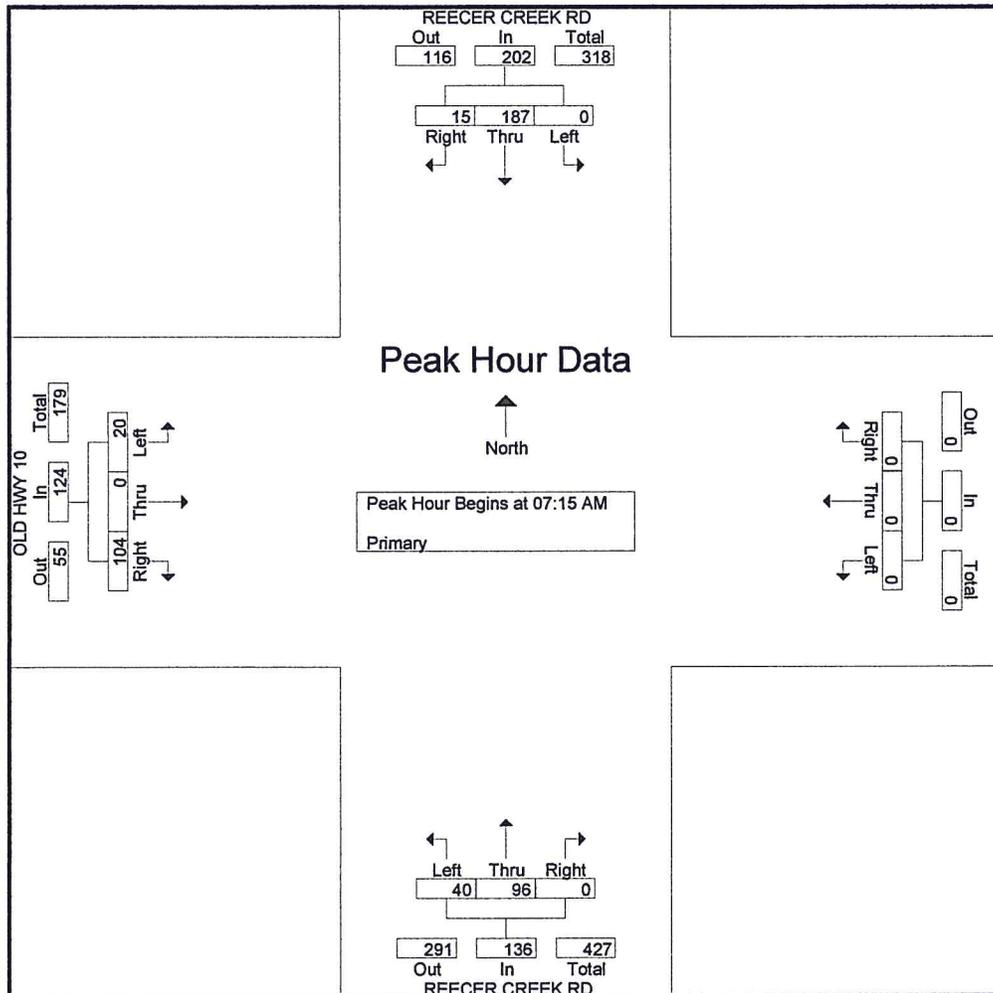
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ELLENSBURG, WASHINGTON
 REECER CREEK RD
 OLD HWY 10
 LOC # 02A TSI07271M

File Name : TSI27702A
 Site Code : 00000002
 Start Date : 10/4/2007
 Page No : 2

Start Time	REECER CREEK RD From North				From East				REECER CREEK RD From South				OLD HWY 10 From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	4	42	0	46	0	0	0	0	0	20	12	32	25	0	4	29	107
07:30 AM	6	58	0	62	0	0	0	0	0	26	12	38	29	0	8	37	137
07:45 AM	4	50	0	54	0	0	0	0	0	23	8	31	29	0	4	33	118
08:00 AM	1	39	0	40	0	0	0	0	0	27	8	35	21	0	4	25	100
Total Volume	15	187	0	202	0	0	0	0	0	96	40	136	104	0	20	124	462
% App. Total	7.4	92.6	0		0	0	0		0	70.6	29.4		83.9	0	16.1		
PHF	.625	.835	.000	.815	.000	.000	.000	.000	.000	.889	.833	.895	.897	.000	.625	.838	.843



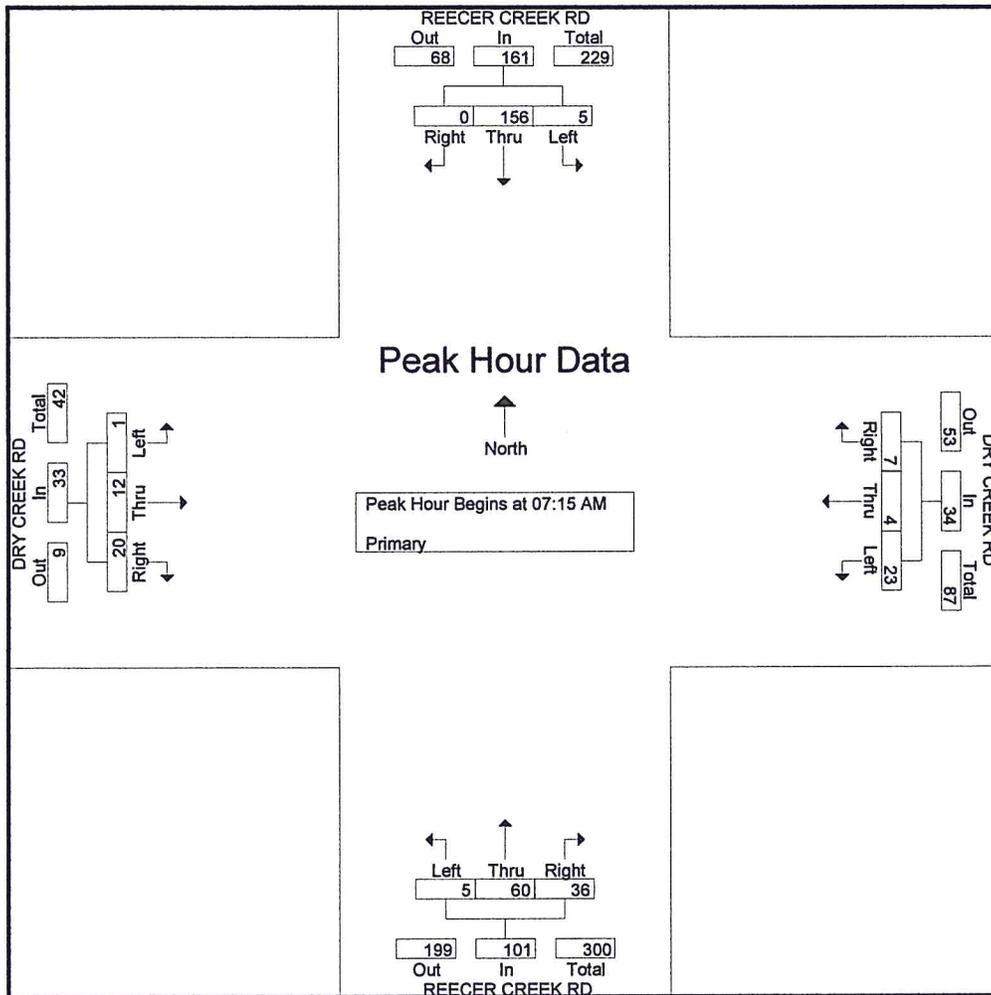
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ELLENSBURG, WASHINGTON
 REECER CREEK RD
 DRY CREEK RD
 LOC # 03A/ TSI07277M, GENE

File Name : TSI27603A
 Site Code : 00000003
 Start Date : 10/4/2007
 Page No : 2

Start Time	REECER CREEK RD From North				DRY CREEK RD From East				REECER CREEK RD From South				DRY CREEK RD From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	33	1	34	2	1	5	8	9	19	2	30	5	3	1	9	81
07:30 AM	0	41	1	42	0	1	8	9	8	14	0	22	6	2	0	8	81
07:45 AM	0	46	1	47	2	2	4	8	9	12	1	22	4	4	0	8	85
08:00 AM	0	36	2	38	3	0	6	9	10	15	2	27	5	3	0	8	82
Total Volume	0	156	5	161	7	4	23	34	36	60	5	101	20	12	1	33	329
% App. Total	0	96.9	3.1		20.6	11.8	67.6		35.6	59.4	5		60.6	36.4	3		
PHF	.000	.848	.625	.856	.583	.500	.719	.944	.900	.789	.625	.842	.833	.750	.250	.917	.968



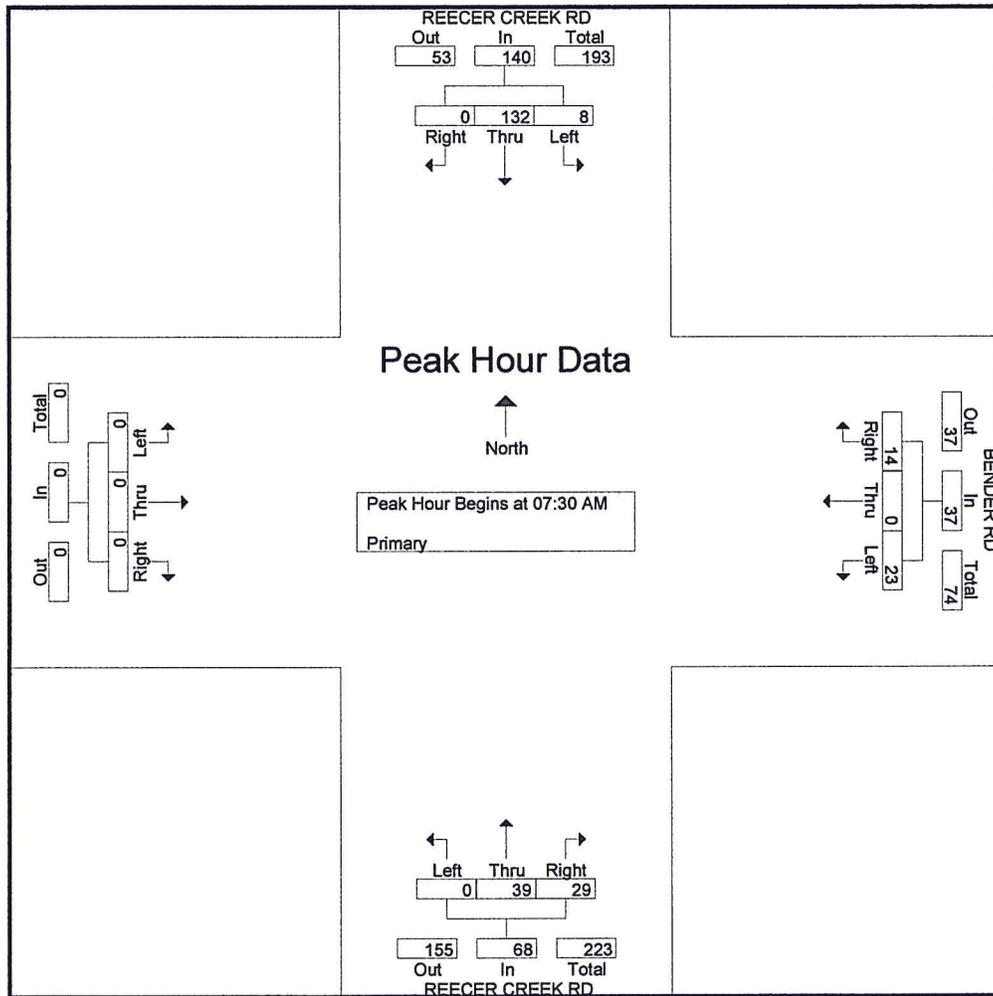
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ELLENSBURG, WASHINGTON
 REECER CREEK RD
 W BENDER RD
 LOC # 04A/ TSI07277M, GENE

File Name : TSI27704A
 Site Code : 00000004
 Start Date : 10/4/2007
 Page No : 2

Start Time	REECER CREEK RD From North				BENDER RD From East				REECER CREEK RD From South				From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	34	3	37	4	0	5	9	6	7	0	13	0	0	0	0	59
07:45 AM	0	39	2	41	5	0	6	11	4	12	0	16	0	0	0	0	68
08:00 AM	0	30	2	32	3	0	4	7	11	12	0	23	0	0	0	0	62
08:15 AM	0	29	1	30	2	0	8	10	8	8	0	16	0	0	0	0	56
Total Volume	0	132	8	140	14	0	23	37	29	39	0	68	0	0	0	0	245
% App. Total	0	94.3	5.7		37.8	0	62.2		42.6	57.4	0		0	0	0		
PHF	.000	.846	.667	.854	.700	.000	.719	.841	.659	.813	.000	.739	.000	.000	.000	.000	.901



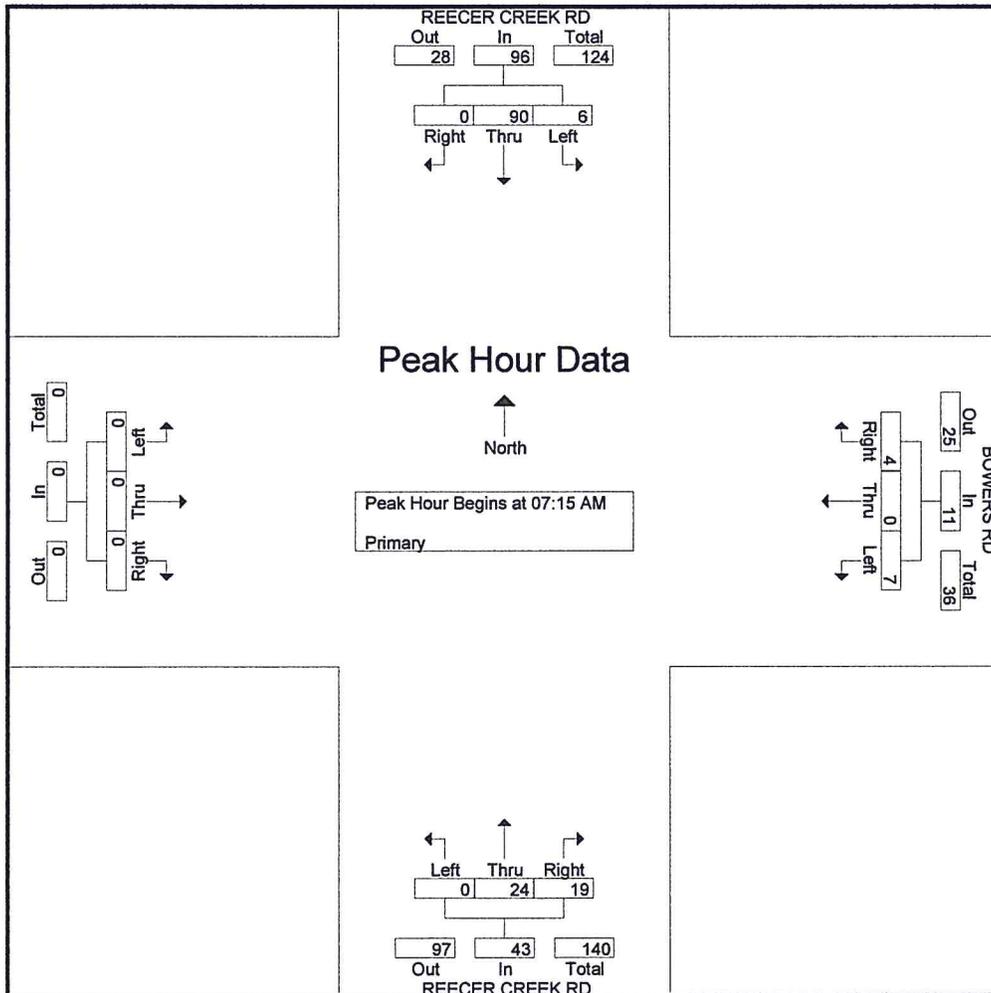
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ELLENSBURG, WASHINGTON
 REECER CREEK RD
 BOWERS RD
 LOC # 05A TSI07271M

File Name : TSI27605A
 Site Code : 00000005
 Start Date : 10/4/2007
 Page No : 2

Start Time	REECER CREEK RD From North				BOWERS RD From East				REECER CREEK RD From South				From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	22	2	24	3	0	1	4	4	5	0	9	0	0	0	0	37
07:30 AM	0	33	2	35	1	0	3	4	5	4	0	9	0	0	0	0	48
07:45 AM	0	18	1	19	0	0	2	2	8	8	0	16	0	0	0	0	37
08:00 AM	0	17	1	18	0	0	1	1	2	7	0	9	0	0	0	0	28
Total Volume	0	90	6	96	4	0	7	11	19	24	0	43	0	0	0	0	150
% App. Total	0	93.8	6.2		36.4	0	63.6		44.2	55.8	0		0	0	0		
PHF	.000	.682	.750	.686	.333	.000	.583	.688	.594	.750	.000	.672	.000	.000	.000	.000	.781



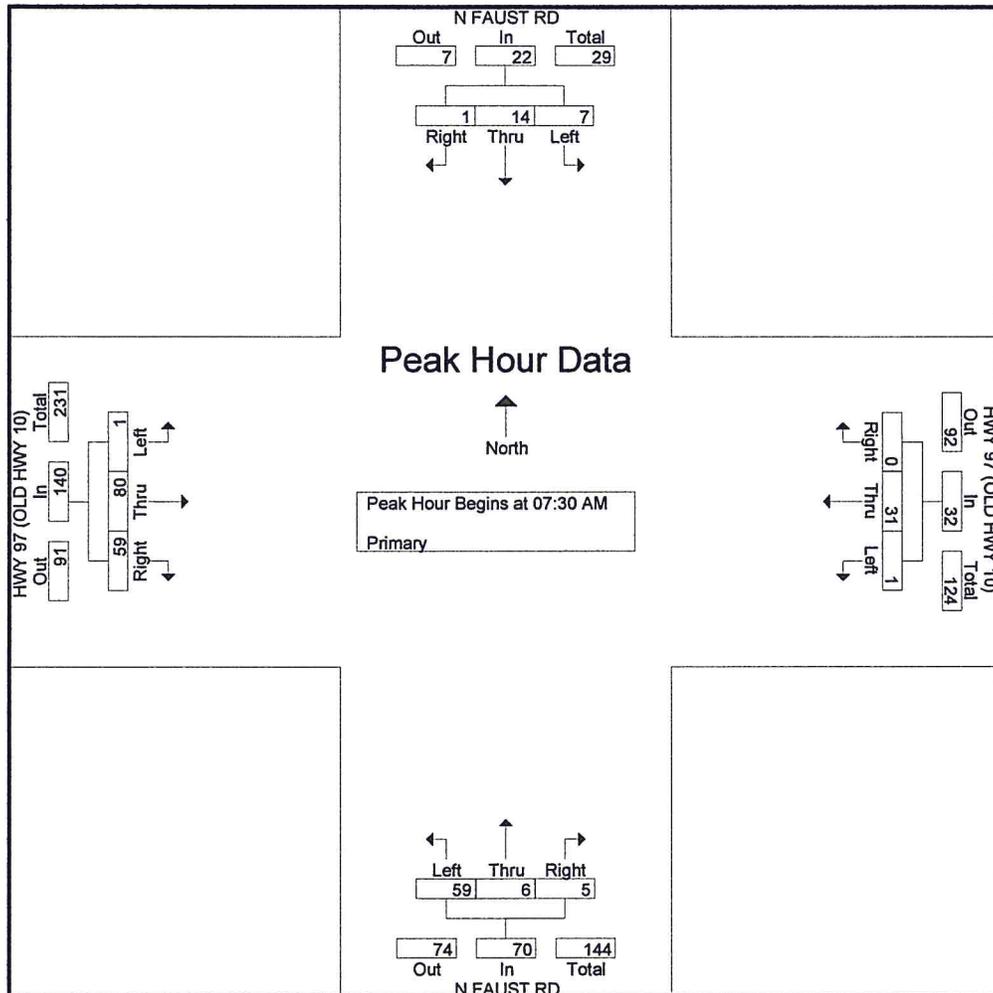
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ELLENSBURG, WASHINGTON
 N FAUST RD
 HWY 97 (OLD HWY 10)
 LOC # 06A TSI07271M

File Name : TSI27706A
 Site Code : 00000006
 Start Date : 10/4/2007
 Page No : 2

Start Time	N FAUST RD From North				HWY 97 (OLD HWY 10) From East				N FAUST RD From South				HWY 97 (OLD HWY 10) From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	0	2	3	0	14	0	14	1	2	15	18	14	25	0	39	74
07:45 AM	0	8	1	9	0	6	1	7	1	2	12	15	13	23	0	36	67
08:00 AM	0	3	2	5	0	4	0	4	2	1	18	21	15	17	1	33	63
08:15 AM	0	3	2	5	0	7	0	7	1	1	14	16	17	15	0	32	60
Total Volume	1	14	7	22	0	31	1	32	5	6	59	70	59	80	1	140	264
% App. Total	4.5	63.6	31.8		0	96.9	3.1		7.1	8.6	84.3		42.1	57.1	0.7		
PHF	.250	.438	.875	.611	.000	.554	.250	.571	.625	.750	.819	.833	.868	.800	.250	.897	.892



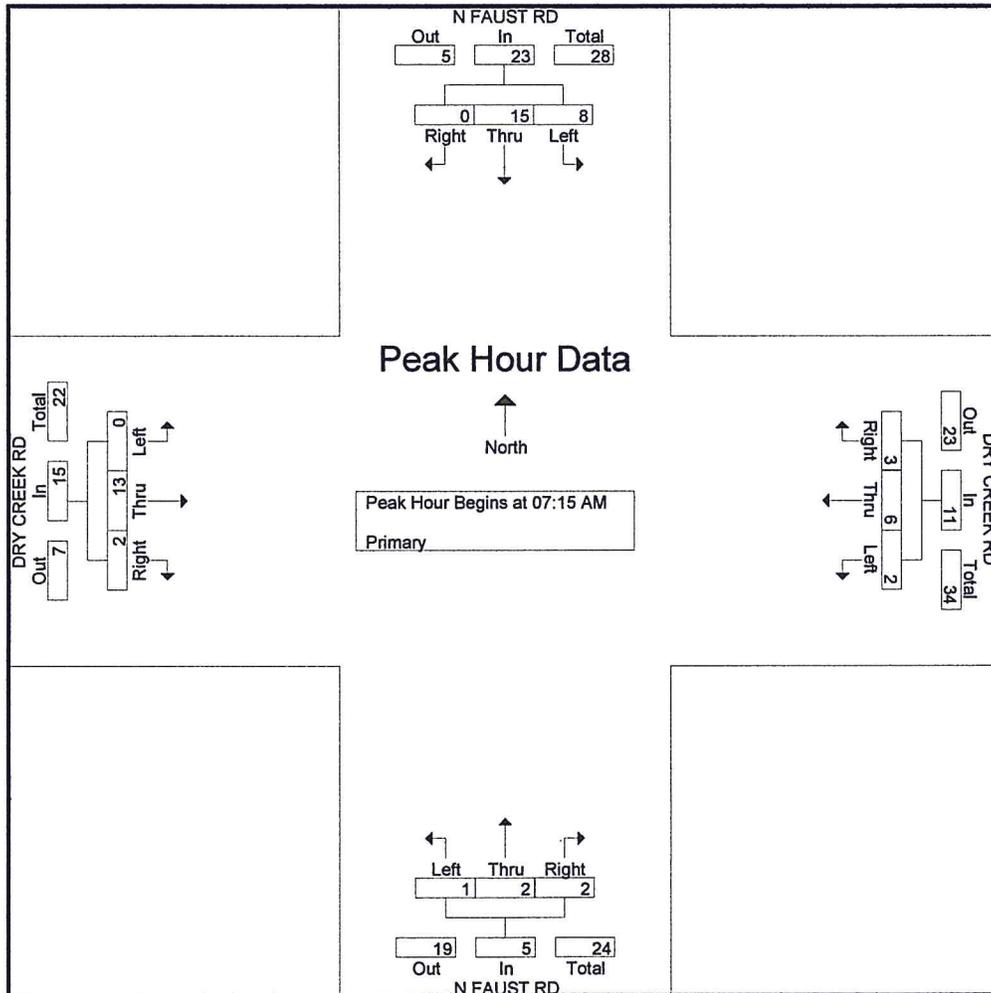
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ELLENSBURG, WASHINGTON
 N FAUST RD
 DRY CREEK RD
 LOC # 07/ TSI07277A, BRANDI

File Name : TSI27707A
 Site Code : 0000007
 Start Date : 10/4/2007
 Page No : 2

Start Time	N FAUST RD From North				DRY CREEK RD From East				N FAUST RD From South				DRY CREEK RD From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	2	1	3	0	1	0	1	0	1	0	1	0	4	0	4	9
07:30 AM	0	3	2	5	1	0	2	3	0	0	1	1	2	4	0	6	15
07:45 AM	0	6	2	8	1	1	0	2	0	1	0	1	0	4	0	4	15
08:00 AM	0	4	3	7	1	4	0	5	2	0	0	2	0	1	0	1	15
Total Volume	0	15	8	23	3	6	2	11	2	2	1	5	2	13	0	15	54
% App. Total	0	65.2	34.8		27.3	54.5	18.2		40	40	20		13.3	86.7	0		
PHF	.000	.625	.667	.719	.750	.375	.250	.550	.250	.500	.250	.625	.250	.813	.000	.625	.900



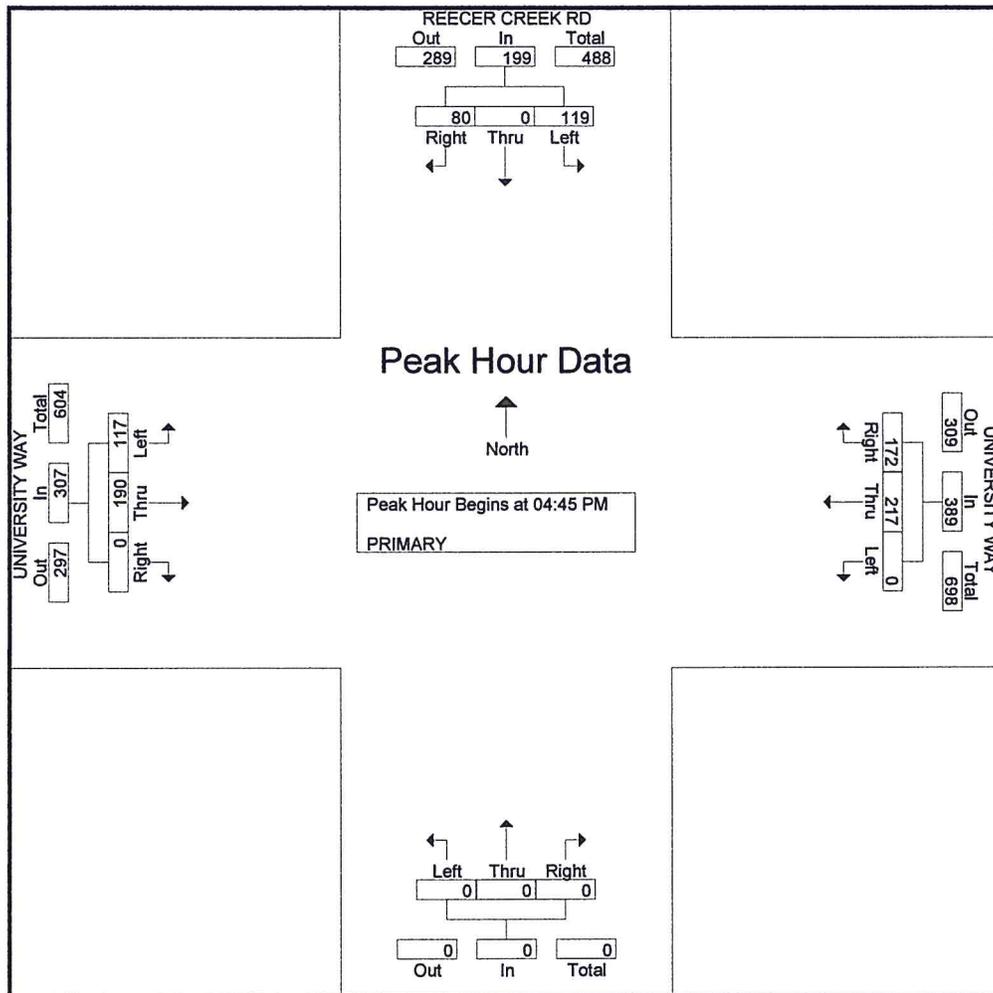
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ELLENSBURG, WASHINGTON
 REECER CREEK RD
 UNIVERSITY WAY
 LOC # 01P TSI07277M

File Name : TSI27601P
 Site Code : 00000001
 Start Date : 10/4/2007
 Page No : 2

Start Time	REECER CREEK RD From North				UNIVERSITY WAY From East				From South				UNIVERSITY WAY From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. 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	17	0	19	36	41	48	0	89	0	0	0	0	0	49	24	73	198
05:00 PM	21	0	39	60	53	58	0	111	0	0	0	0	0	64	30	94	265
05:15 PM	18	0	37	55	40	63	0	103	0	0	0	0	0	38	39	77	235
05:30 PM	24	0	24	48	38	48	0	86	0	0	0	0	0	39	24	63	197
Total Volume	80	0	119	199	172	217	0	389	0	0	0	0	0	190	117	307	895
% App. Total	40.2	0	59.8		44.2	55.8	0		0	0	0	0	0	61.9	38.1		
PHF	.833	.000	.763	.829	.811	.861	.000	.876	.000	.000	.000	.000	.000	.742	.750	.816	.844



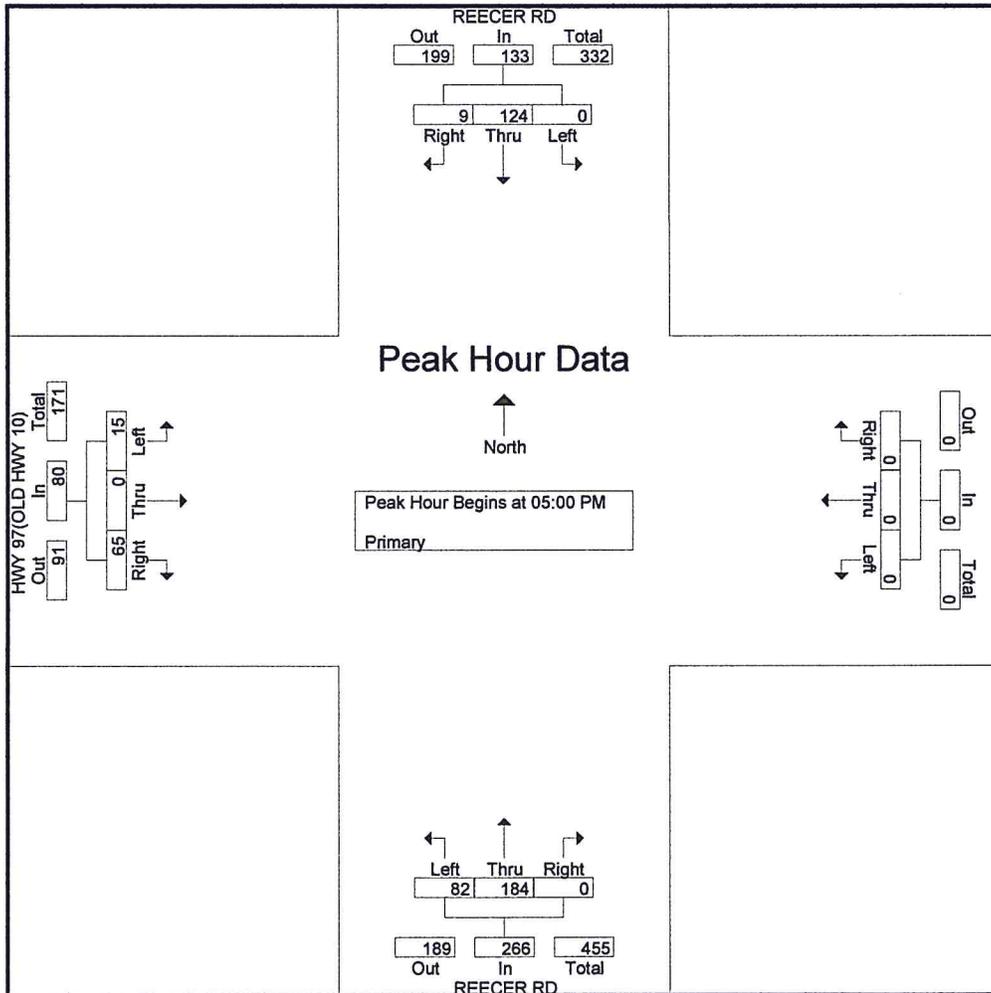
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ELLENSBURG, WASHINGTON
 REECER CREEK RD
 HWY 97 (OLD HWY 10)
 LOC # 02P TSI07276M

File Name : TSI27602P
 Site Code : 00000002
 Start Date : 10/3/2007
 Page No : 2

Start Time	REECER RD From North				From East				REECER RD From South				HWY 97(OLD HWY 10) From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	2	29	0	31	0	0	0	0	0	50	27	77	21	0	2	23	131
05:15 PM	4	34	0	38	0	0	0	0	0	53	21	74	15	0	5	20	132
05:30 PM	1	32	0	33	0	0	0	0	0	43	19	62	15	0	5	20	115
05:45 PM	2	29	0	31	0	0	0	0	0	38	15	53	14	0	3	17	101
Total Volume	9	124	0	133	0	0	0	0	0	184	82	266	65	0	15	80	479
% App. Total	6.8	93.2	0		0	0	0		0	69.2	30.8		81.2	0	18.8		
PHF	.563	.912	.000	.875	.000	.000	.000	.000	.000	.868	.759	.864	.774	.000	.750	.870	.907



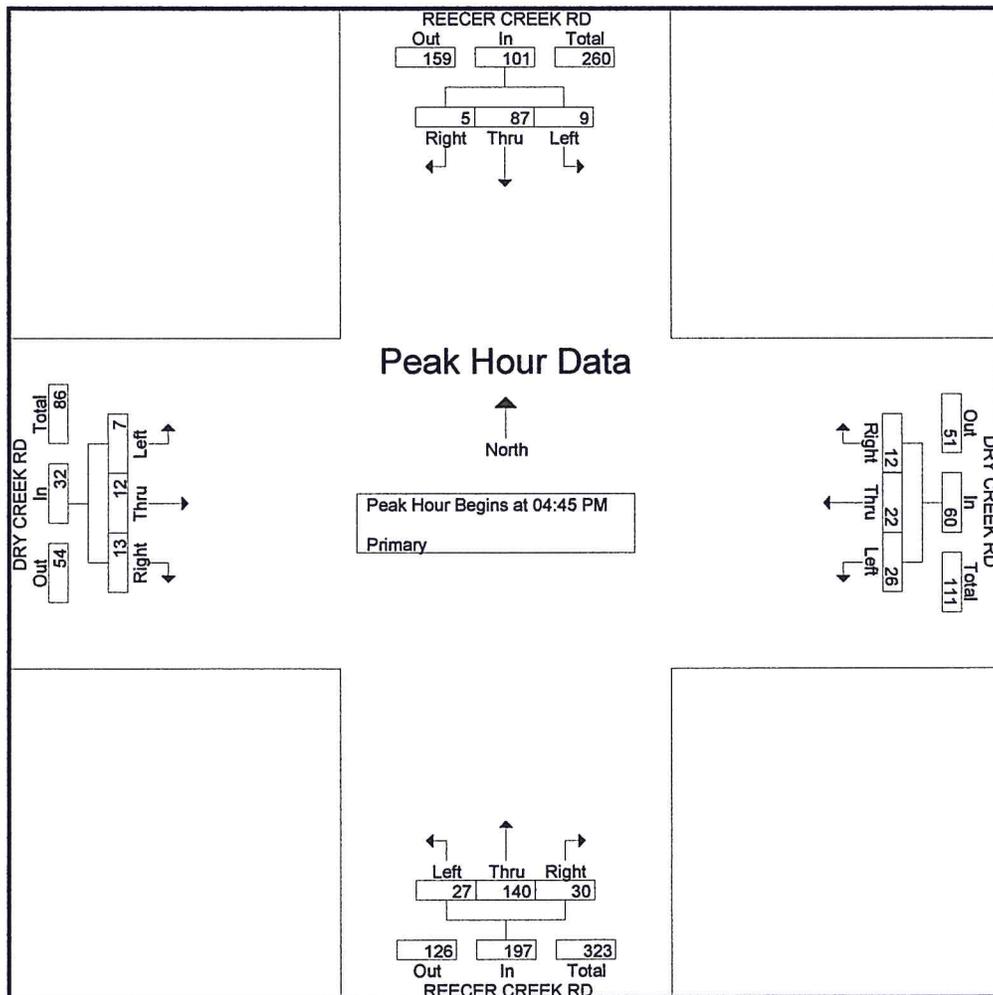
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ELLENSBURG, WASHINGTON
 REECER CREEK RD
 DRY CREEK RD
 LOC # 03P TSI07276M

File Name : TSI27603P
 Site Code : 00000003
 Start Date : 10/3/2007
 Page No : 2

Start Time	REECER CREEK RD From North				DRY CREEK RD From East				REECER CREEK RD From South				DRY CREEK RD From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. 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	2	20	1	23	2	2	3	7	5	27	5	37	4	4	3	11	78
05:00 PM	3	20	4	27	4	7	5	16	8	34	6	48	2	5	1	8	99
05:15 PM	0	23	2	25	5	8	11	24	9	47	7	63	5	1	1	7	119
05:30 PM	0	24	2	26	1	5	7	13	8	32	9	49	2	2	2	6	94
Total Volume	5	87	9	101	12	22	26	60	30	140	27	197	13	12	7	32	390
% App. Total	5	86.1	8.9		20	36.7	43.3		15.2	71.1	13.7		40.6	37.5	21.9		
PHF	.417	.906	.563	.935	.600	.688	.591	.625	.833	.745	.750	.782	.650	.600	.583	.727	.819



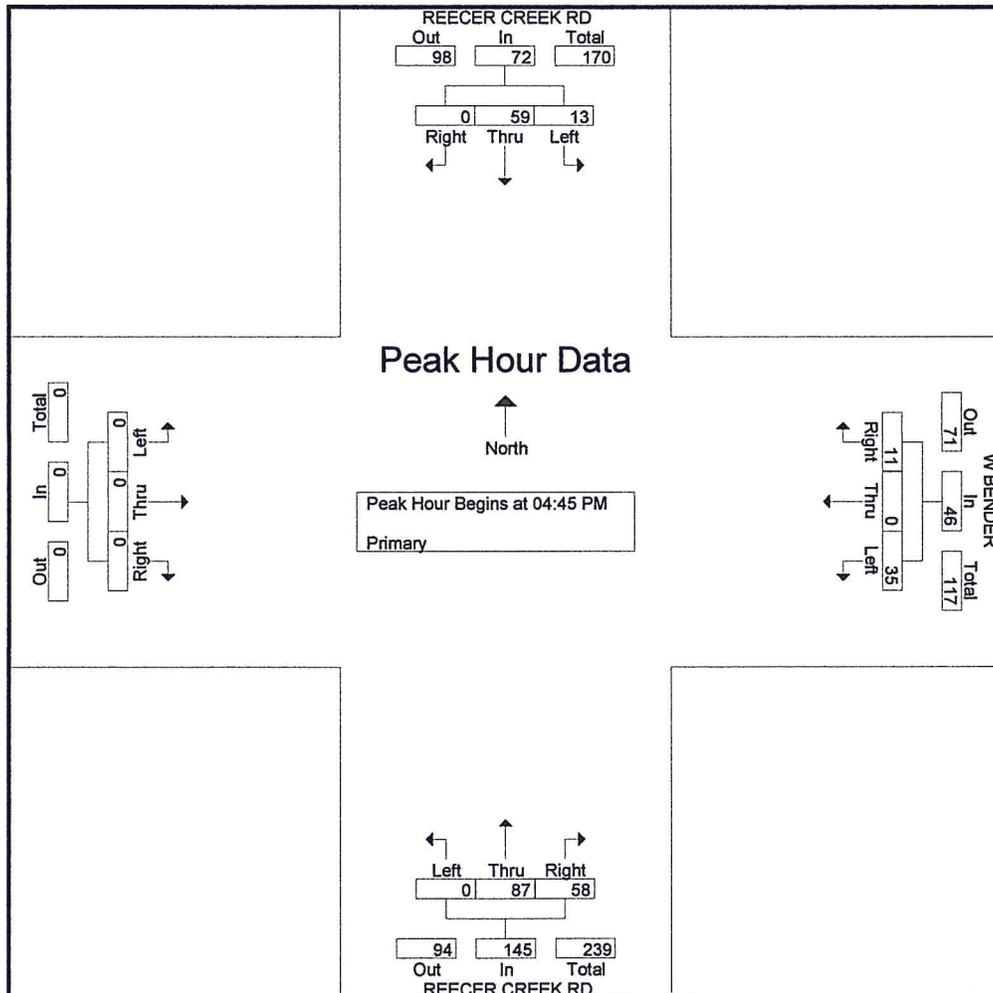
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ELLENSBURG, WASHINGTON
 REECER CREEK RD
 W BENDER RD
 LOC #04P TSI07276M

File Name : TSI27604P
 Site Code : 00000004
 Start Date : 10/3/2007
 Page No : 2

Start Time	REECER CREEK RD From North				W BENDER From East				REECER CREEK RD From South				From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. 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	0	15	1	16	2	0	6	8	12	19	0	31	0	0	0	0	55
05:00 PM	0	16	2	18	4	0	12	16	9	32	0	41	0	0	0	0	75
05:15 PM	0	10	5	15	2	0	8	10	21	19	0	40	0	0	0	0	65
05:30 PM	0	18	5	23	3	0	9	12	16	17	0	33	0	0	0	0	68
Total Volume	0	59	13	72	11	0	35	46	58	87	0	145	0	0	0	0	263
% App. Total	0	81.9	18.1		23.9	0	76.1		40	60	0		0	0	0		
PHF	.000	.819	.650	.783	.688	.000	.729	.719	.690	.680	.000	.884	.000	.000	.000	.000	.877



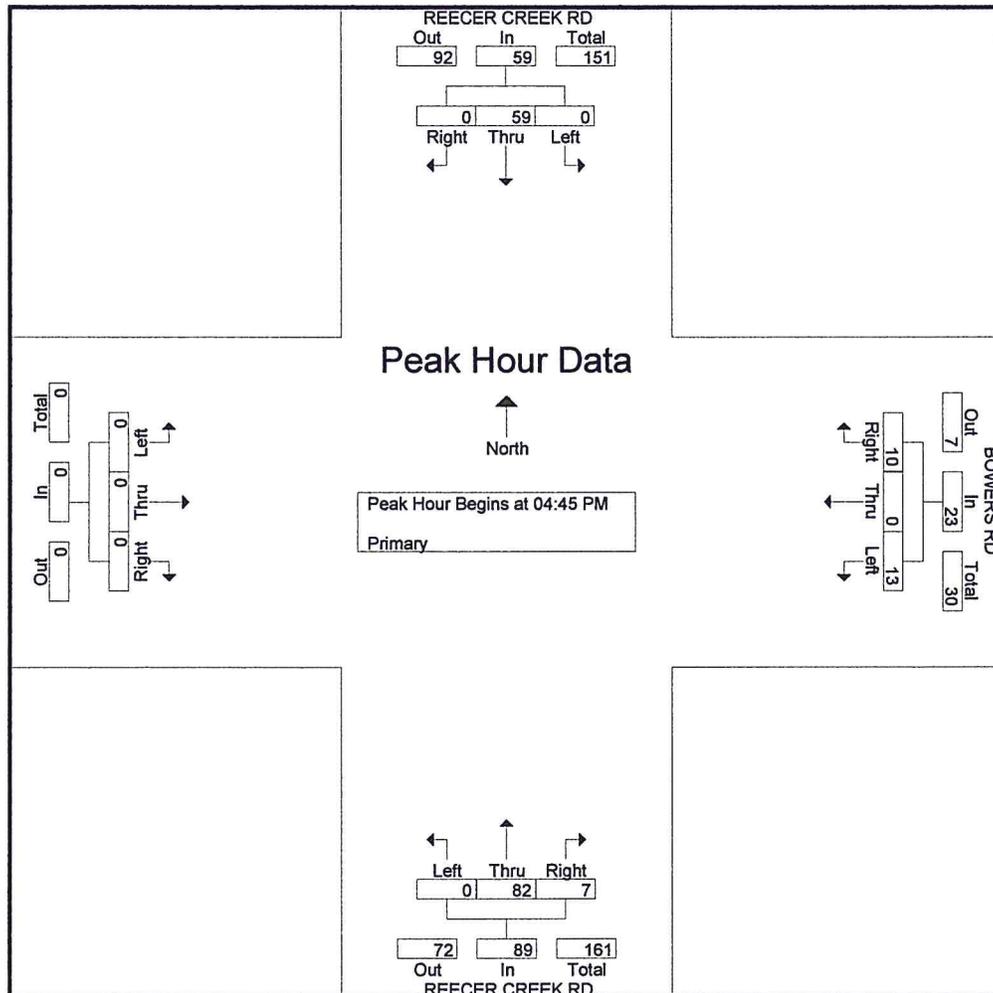
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ELLENSBURG, WASHINGTON
 REECER CREEK RD
 BOWERS RD
 LOC #05P TSI07277M

File Name : TSI27605P
 Site Code : 00000005
 Start Date : 10/3/2007
 Page No : 2

Start Time	REECER CREEK RD From North				BOWERS RD From East				REECER CREEK RD From South				From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. 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	0	11	0	11	5	0	4	9	0	14	0	14	0	0	0	0	34
05:00 PM	0	20	0	20	2	0	1	3	1	27	0	28	0	0	0	0	51
05:15 PM	0	18	0	18	2	0	0	2	4	28	0	32	0	0	0	0	62
05:30 PM	0	10	0	10	1	0	8	9	2	13	0	15	0	0	0	0	34
Total Volume	0	59	0	59	10	0	13	23	7	82	0	89	0	0	0	0	171
% App. Total	0	100	0		43.5	0	56.5		7.9	92.1	0		0	0	0		
PHF	.000	.738	.000	.738	.500	.000	.406	.639	.438	.732	.000	.695	.000	.000	.000	.000	.822



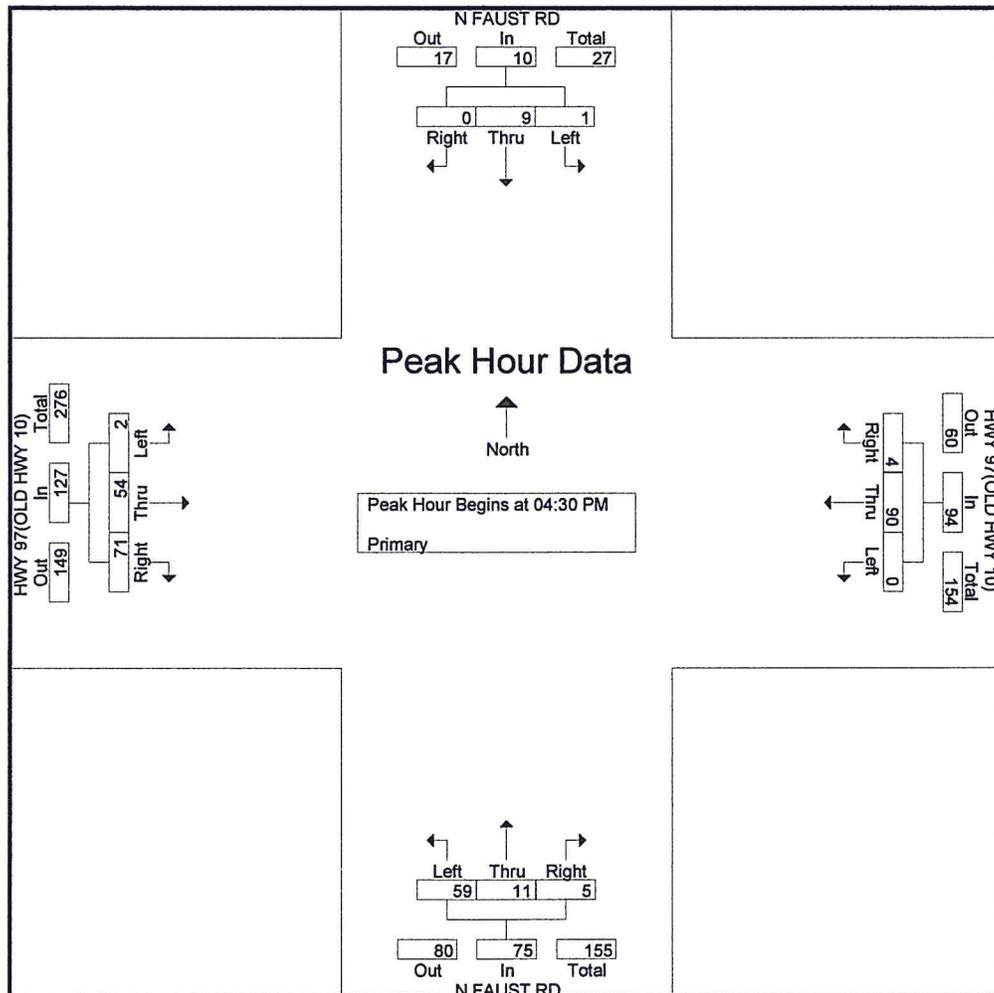
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ELLENSBURG, WASHINGTON
 N FAUST RD
 HWY 97 (OLD HWY 10)
 LOC #06P TSI07276M

File Name : TSI27606P
 Site Code : 00000006
 Start Date : 10/3/2007
 Page No : 2

Start Time	N FAUST RD From North				HWY 97(OLD HWY 10) From East				N FAUST RD From South				HWY 97(OLD HWY 10) From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	3	1	4	1	28	0	29	0	1	14	15	18	15	0	33	81
04:45 PM	0	3	0	3	1	20	0	21	1	3	16	20	17	11	1	29	73
05:00 PM	0	1	0	1	2	20	0	22	2	3	13	18	23	12	0	35	76
05:15 PM	0	2	0	2	0	22	0	22	2	4	16	22	13	16	1	30	76
Total Volume	0	9	1	10	4	90	0	94	5	11	59	75	71	54	2	127	306
% App. Total	0	90	10		4.3	95.7	0		6.7	14.7	78.7		55.9	42.5	1.6		
PHF	.000	.750	.250	.625	.500	.804	.000	.810	.625	.688	.922	.852	.772	.844	.500	.907	.944



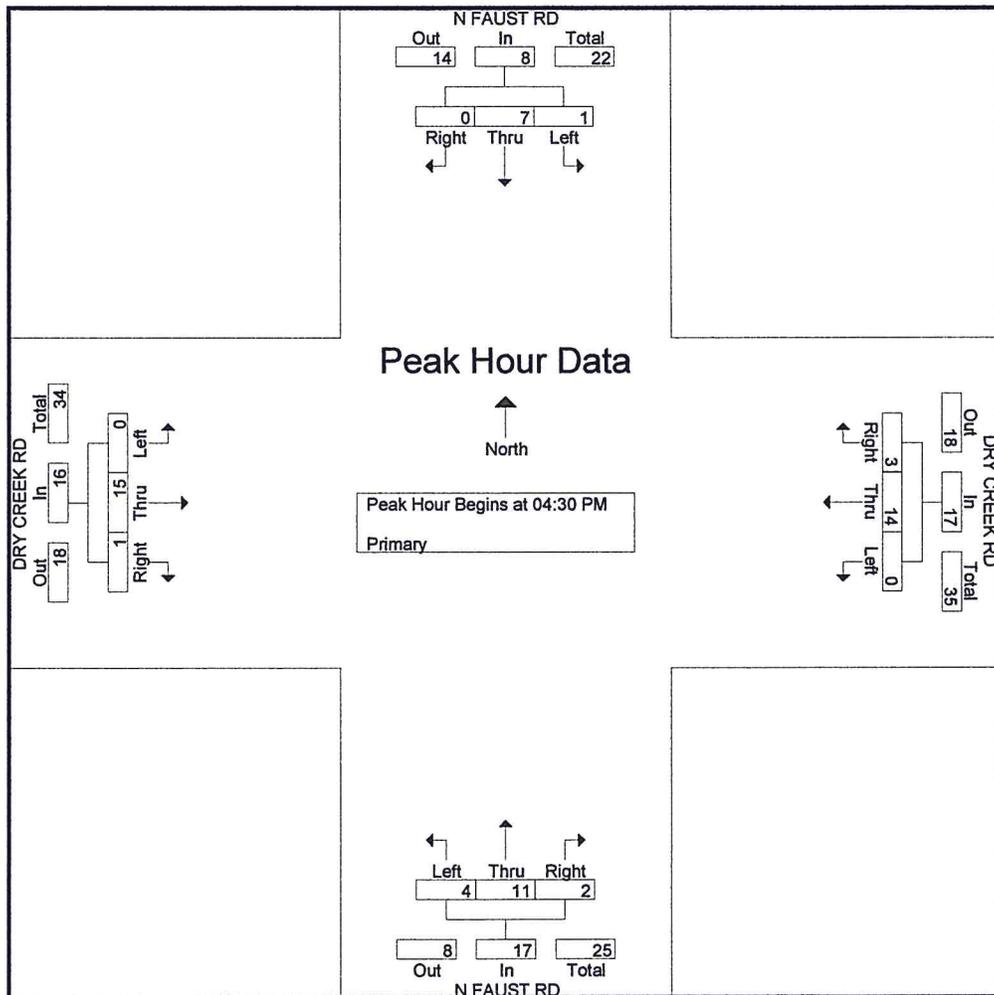
TRAFFICCOUNT, INC.

P.O. BOX 2508
 OLYMPIA, WASHINGTON 98507
 (360) 491-8116

ELLENSBURG, WASHINGTON
 N FAUST RD
 DRY CREEK RD
 LOC #07P TSI07276M

File Name : TSI27607P
 Site Code : 00000007
 Start Date : 10/3/2007
 Page No : 2

Start Time	N FAUST RD From North				DRY CREEK RD From East				N FAUST RD From South				DRY CREEK RD From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	4	0	4	1	6	0	7	0	2	0	2	0	6	0	6	19
04:45 PM	0	2	0	2	0	3	0	3	1	4	1	6	0	3	0	3	14
05:00 PM	0	0	0	0	1	1	0	2	1	2	1	4	1	3	0	4	10
05:15 PM	0	1	1	2	1	4	0	5	0	3	2	5	0	3	0	3	15
Total Volume	0	7	1	8	3	14	0	17	2	11	4	17	1	15	0	16	58
% App. Total	0	87.5	12.5		17.6	82.4	0		11.8	64.7	23.5		6.2	93.8	0		
PHF	.000	.438	.250	.500	.750	.583	.000	.607	.500	.688	.500	.708	.250	.625	.000	.667	.763





APPENDIX B INTERSECTION OPERATIONS ANALYSIS REPORTS

HCM Unsignalized Intersection Capacity Analysis
 1: University Way & Reecer Creek Rd

HCM Unsignalized Intersection Capacity Analysis
 2: Old Highway 10 & Reecer Creek Rd

Existing 2007 Conditions
 AM Peak Hour

Existing 2007 Conditions
 AM Peak Hour

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lanes	1	1	1	1	1	1
Volume (veh/h)	73	158	141	74	195	76
Sign Control	Free	Free	Free	Free	Slop	Slop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	79	172	153	80	212	83
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None	None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked	234				524	193
vC, conflicting volume						
vC1, stage 1 conf vol	234				524	193
vC2, stage 2 conf vol	4.1				6.4	6.2
vCu, unblocked vol						
IC, single (s)	2.2				3.5	3.3
IC, 2 stage (s)	94				56	90
IF (s)	1334				483	848
p0 queue free %						
cM capacity (veh/h)						
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	79	172	234	212	83	83
Volume Left	79	0	0	212	0	0
Volume Right	0	0	80	0	83	83
cSH	1334	1700	1700	483	848	848
Volume to Capacity	0.06	0.10	0.14	0.44	0.10	0.10
Queue Length 95th (ft)	5	0	0	55	8	8
Control Delay (s)	7.9	0.0	0.0	18.1	9.7	9.7
Lane LOS	A	A	C	C	A	A
Approach Delay (s)	2.5		0.0	15.8		
Approach LOS			C	C		
Intersection Summary						
Average Delay						6.8
Intersection Capacity Utilization						36.8%
Analysis Period (min)						15
					ICU Level of Service	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lanes	1	1	1	1	1	1
Volume (veh/h)	20	104	40	96	187	15
Sign Control	Slop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	113	43	104	203	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		4				
Median type				None	None	None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked	403	211	220			
vC, conflicting volume						
vC1, stage 1 conf vol	403	211	220			
vC2, stage 2 conf vol	6.4	6.2	4.1			
vCu, unblocked vol						
IC, single (s)	3.5	3.3	2.2			
IC, 2 stage (s)	96	86	97			
IF (s)	584	829	1350			
p0 queue free %						
cM capacity (veh/h)						
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 1	
Volume Total	135	43	104	220	220	
Volume Left	22	43	0	0	0	
Volume Right	113	0	0	16	16	
cSH	988	1350	1700	1700	1700	
Volume to Capacity	0.14	0.03	0.06	0.13	0.13	
Queue Length 95th (ft)	12	2	0	0	0	
Control Delay (s)	10.3	7.8	0.0	0.0	0.0	
Lane LOS	B	A	A	A	A	
Approach Delay (s)	10.3	2.3		0.0		
Approach LOS	B	B				
Intersection Summary						
Average Delay						3.4
Intersection Capacity Utilization						27.4%
Analysis Period (min)						15
					ICU Level of Service	A

HCM Unsignalized Intersection Capacity Analysis Existing 2007 Conditions AM Peak Hour
 3: Dry Creek Rd & Reecer Creek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes	0	<1>	0	0	<1>	0	1	1	0	1	1	0
Volume (veh/h)	1	12	20	23	4	7	5	60	36	5	156	0
Sign Control	Stop	Stop	Stop	Stop	0%	0%	Free	Free	Free	Free	Free	0%
Grade	0%	0%	0%	0%	0%	0%	0%	0%	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)	1	13	22	25	4	8	5	65	39	5	170	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)							None	None	None	None	None	None
Median type												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	266	296	170	304	276	85	170			104		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol	266	296	170	304	276	85	170			104		
vCu, unblocked vol	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
IC, 2 stage (s)												
IF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	98	98	96	99	99	100			100		
cM capacity (veh/h)	674	611	874	618	627	974	1408			1487		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	36	37	5	104	5	170						
Volume Left	1	25	5	0	5	0						
Volume Right	22	8	0	39	0	0						
cSH	750	670	1408	1700	1487	1700						
Volume to Capacity	0.05	0.06	0.00	0.06	0.00	0.10						
Queue Length 95th (ft)	4	4	0	0	0	0						
Control Delay (s)	10.0	10.7	7.6	0.0	7.4	0.0						
Lane LOS	B	B	A	A	A	A						
Approach Delay (s)	10.0	10.7	0.4	0.2	0.2	0.2						
Approach LOS	B	B	B	B	B	B						
Intersection Summary												
Average Delay	2.3											
Intersection Capacity Utilization	23.5%											
ICU Level of Service	A											
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis Existing 2007 Conditions AM Peak Hour
 4: Bender Rd & Reecer Creek Rd

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lanes	1>	0	1>	0	0	<1
Volume (veh/h)	23	14	39	29	8	132
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	15	42	32	9	143
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)			None	None	None	None
Median type						
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	219	58			74	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol	219	58			74	
vCu, unblocked vol	6.4	6.2			4.1	
IC, 2 stage (s)						
IF (s)	3.5	3.3			2.2	
p0 queue free %	97	98			99	
cM capacity (veh/h)	765	1008			1526	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	40	74	152			
Volume Left	25	0	9			
Volume Right	15	32	0			
cSH	842	1700	1526			
Volume to Capacity	0.05	0.04	0.01			
Queue Length 95th (ft)	4	0	0			
Control Delay (s)	9.5	0.0	0.5			
Lane LOS	A	A	A			
Approach Delay (s)	9.5	0.0	0.5			
Approach LOS	A	A	A			
Intersection Summary						
Average Delay	1.7					
Intersection Capacity Utilization	23.5%					
ICU Level of Service	A					
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
 5: Bowers Rd & Reece Creek Rd

Existing 2007 Conditions
 AM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lanes	1>	0	1>	0	0	<1
Volume (veh/h)	7	4	24	19	6	90
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	4	26	21	7	98
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						
vC1, stage 1 cont vol	147	36				47
vC2, stage 2 cont vol						
vCu, unblocked vol	147	36				47
fC, single (s)	6.4	6.2				4.1
fC, 2 stage (s)						
fF (s)	3.5	3.3				2.2
p0 queue free %	99	100				100
cM capacity (veh/h)	841	1036				1561
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	12	47	104			
Volume Left	8	0	7			
Volume Right	4	21	0			
cSH	903	1700	1561			
Volume to Capacity	0.01	0.03	0.00			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	9.0	0.0	0.5			
Lane LOS	A	A	A			
Approach Delay (s)	9.0	0.0	0.5			
Approach LOS	A	A	A			
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			19.7%			ICU Level of Service
Analysis Period (min)			15			A

HCM Unsignalized Intersection Capacity Analysis
 6: Hwy 97 & Old Highway 10

Existing 2007 Conditions
 AM Peak Hour

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lanes	0	<1>	0	0	<1>	0	0	<1>	0	0	0	<1>
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Volume (vph)	59	6	5	7	14	1	1	80	59	1	31	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)	64	7	5	8	15	1	1	87	64	1	34	0
Direction, Lane #	NB 1	SB 1	SE 1	NW 1								
Volume Total (vph)	76	24	152	35								
Volume Left (vph)	64	8	1	1								
Volume Right (vph)	5	1	64	0								
Head (s)	0.16	0.07	-0.22	0.04								
Departure Headway (s)	4.5	4.4	4.0	4.3								
Degree Utilization, x	0.09	0.03	0.17	0.04								
Capacity (veh/h)	764	758	885	803								
Control Delay (s)	7.9	7.6	7.7	7.5								
Approach Delay (s)	7.9	7.6	7.7	7.5								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			7.8									
HCM Level of Service			A									
Intersection Capacity Utilization			23.8%									ICU Level of Service
Analysis Period (min)			15									A

HCM Unsignalized Intersection Capacity Analysis Existing 2007 Conditions
 7: Dry Creek Rd & Faust Rd AM Peak Hour

Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lanes	<1>	0	0	<1>	<1>	0	0	<1>	0	<1>	0
Volume (veh/h)	2	6	3	1	2	2	8	15	0	13	2
Sign Control	Free			Stop				Stop		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
Hourly flow rate (vph)	2	7	3	1	2	2	9	16	0	14	2
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	16			36	29	15	31	29	8		
vC1, stage 1 conf vol											
vC2, stage 2 conf vol	16			36	29	15	31	29	8		
vCu, unblocked vol	4.1			7.1	6.5	6.2	7.1	6.5	6.2		
IC, 1 stage (s)											
IC, 2 stage (s)	2.2			3.5	4.0	3.3	3.5	4.0	3.3		
pf (s)	100			100	100	100	99	98	100		
p0 queue free %	1601			955	862	1064	972	863	1074		
cM capacity (veh/h)											
Direction, Lane #	WB 1	NB 1	SB 1	SE 1							
Volume Total	12	5	25	16							
Volume Left	2	1	9	0							
Volume Right	3	2	0	2							
cSH	1601	953	898	1610							
Volume to Capacity	0.00	0.01	0.03	0.00							
Queue Length 95th (ft)	0	0	2	0							
Control Delay (s)	1.3	8.8	9.1	0.0							
Lane LOS	A	A	A	A							
Approach Delay (s)	1.3	8.8	9.1	0.0							
Approach LOS	A	A	A	A							
Intersection Summary											
Average Delay				5.0							
Intersection Capacity Utilization				20.0%			ICU Level of Service			A	
Analysis Period (min)				15							

HCM Signalized Intersection Capacity Analysis
 1: University Way & Reecer Creek Rd

HCM Unsignalized Intersection Capacity Analysis
 2: Old Highway 10 & Reecer Creek Rd

Background 2012 Conditions
 AM Peak Hour

Background 2012 Conditions
 AM Peak Hour

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (vph)	107	202	180	98	259	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1774	1770	1583	1583
Flt Permitted	0.58	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1072	1863	1774	1770	1583	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	220	196	107	282	151
RTOR Reduction (vph)	0	0	38	0	0	100
Lane Group Flow (vph)	116	220	265	0	282	51
Turn Type	Perm					
Protected Phases	4 8 6					
Permitted Phases	4					
Actuated Green, G (s)	7.4	7.4	7.4	7.8	7.8	7.8
Effective Green, g (s)	7.4	7.4	7.4	7.8	7.8	7.8
Actuated g/C Ratio	0.32	0.32	0.32	0.34	0.34	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	342	594	566	595	532	532
vis Ratio Prot	0.11	0.12	0.15	0.16	0.03	0.03
vis Ratio Perm	0.34	0.37	0.47	0.47	0.10	0.10
Uniform Delay, d1	6.0	6.1	6.3	6.1	5.3	5.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.4	0.6	0.6	0.1	0.1
Delay (s)	6.6	6.5	6.9	6.7	5.4	5.4
Level of Service	A	A	A	A	A	A
Approach Delay (s)	6.5	6.9	6.2	6.2	5.4	5.4
Approach LOS	A	A	A	A	A	A
Intersection Summary	HCM Level of Service A					
HCM Average Control Delay	6.5					
HCM Volume to Capacity ratio	0.47					
Actuated Cycle Length (s)	23.2					
Intersection Capacity Utilization	45.7%					
Analysis Period (min)	15					
c Critical Lane Group	15					

Movement	EBL	EBR	NBL	NBR	SWL	SWR
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (veh/h)	29	133	51	140	291	30
Sign Control	Free	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	145	55	152	316	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage	4					
Right turn flare (veh)	None					
Median type	None					
Median storage (veh)	None					
Upstream signal (ft)	163					
pX, platoon unblocked						
VC, conflicting volume	596	333	349			
VC1, stage 1 conf vol						
VC2, stage 2 conf vol	596	333	349			
VCu, unblocked vol	6.4	6.2	4.1			
IC, single (s)						
IC, 2 stage (s)						
IF (s)	3.5	3.3	2.2			
p0 queue free %	93	80	95			
cM capacity (veh/h)	445	709	1210			
Direction, Lane #	EB 1	NB 1	NB 2	SW 1	SW 1	
Volume Total	176	55	152	349		
Volume Left	32	55	0	0		
Volume Right	145	0	0	33		
cSH	864	1210	1700	1700		
Volume to Capacity	0.20	0.05	0.09	0.21		
Queue Length 95th (ft)	19	4	0	0		
Control Delay (s)	11.8	8.1	0.0	0.0		
Lane LOS	B	A	A	A		
Approach Delay (s)	11.8	2.2	0.0	0.0		
Approach LOS	B	B	A	A		
Intersection Summary	Average Delay 3.4					
Average Delay	3.4					
Intersection Capacity Utilization	34.6%					
Analysis Period (min)	15					
ICU Level of Service	A					

HCM Unsignalized Intersection Capacity Analysis
 4: Bender Rd & Reecer Creek Rd

HCM Unsignalized Intersection Capacity Analysis
 3: Dry Creek Rd & Reecer Creek Rd

Background 2012 Conditions
 AM Peak Hour

Background 2012 Conditions
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	15	26	29	5	9	6	98	46	6	262	0
Volume (veh/h)												
Sign Control	Stop	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	1	16	28	32	5	10	7	107	50	7	285	0
Hourly flow rate (vph)												
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked	430	467	285	479	442	132	285			157		
vC, conflicting volume												
vC1, stage 1 conf vol												
vC2, stage 2 conf vol	430	467	285	479	442	132	285			157		
vCu, unblocked vol	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
IC, 2 stage (s)												
IF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	97	96	93	99	99	99			100		
cM capacity (veh/h)	522	488	754	463	505	918	1277			1423		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	46	47	7	157	7	285						
Volume Left	1	32	7	0	7	0						
Volume Right	28	10	0	50	0	0						
cSH	626	522	1277	1700	1423	1700						
Volume to Capacity	0.07	0.09	0.01	0.09	0.00	0.17						
Queue Length 95th (ft)	6	7	0	0	0	0						
Control Delay (s)	11.2	12.6	7.8	0.0	7.5	0.0						
Lane LOS	B	B	A	A	A	A						
Approach Delay (s)	11.2	12.6	0.3	0.2								
Approach LOS	B	B										
Intersection Summary												
Average Delay	2.2											
Intersection Capacity Utilization	29.5%											
Analysis Period (min)	15											
ICU Level of Service	A											

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W					
Volume (veh/h)	61	18	60	48	10	200
Sign Control	Stop	0%	0%	0%	0%	0%
Grade	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	1	16	28	32	5	10
Hourly flow rate (vph)						
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked	330	91			117	
vC, conflicting volume						
vC1, stage 1 conf vol						
vC2, stage 2 conf vol	330	91			117	
vCu, unblocked vol	6.4	6.2			4.1	
IC, 2 stage (s)						
IF (s)	3.5	3.3			2.2	
p0 queue free %	90	98			99	
cM capacity (veh/h)	659	966			1471	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	86	117	228			
Volume Left	66	0	11			
Volume Right	20	52	0			
cSH	711	1700	1471			
Volume to Capacity	0.12	0.07	0.01			
Queue Length 95th (ft)	10	0	1			
Control Delay (s)	10.8	0.0	0.4			
Lane LOS	B	A	A			
Approach Delay (s)	10.8	0.0	0.4			
Approach LOS	B					
Intersection Summary						
Average Delay	2.4					
Intersection Capacity Utilization	28.9%					
Analysis Period (min)	15					
ICU Level of Service	A					

HCM Unsignalized Intersection Capacity Analysis
 5: Bowers Rd & Reece Creek Rd

Background 2012 Conditions
 AM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Volume (veh/h)	9	5	41	24	8	118
Sign Control	Stop	Stop	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	5	45	26	9	128
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	203	58			71	
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol	203	58			71	
IC, single (s)	6.4	6.2			4.1	
IC, 2 stage (s)						
IF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			99	
cM capacity (veh/h)	781	1009			1530	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	15	71	137			
Volume Left	10	0	9			
Volume Right	5	26	0			
cSH	849	1700	1530			
Volume to Capacity	0.02	0.04	0.01			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	9.3	0.0	0.5			
Lane LOS	A	A	A			
Approach Delay (s)	9.3	0.0	0.5			
Approach LOS	A	A	A			
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			22.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 6: Hwy 97 & Old Highway 10

Background 2012 Conditions
 AM Peak Hour

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SER	NWL	NWT	NWR
Lane Configurations	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Volume (vph)	75	8	6	9	18	1	106	75	1	50
Peak Hour Factor	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	9	7	10	20	1	115	82	1	54
Direction, Lane #	NB 1	SB 1	SE 1	NW 1						
Volume Total (vph)	97	30	198	55						
Volume Left (vph)	82	10	1	1						
Volume Right (vph)	7	1	82	0						
Head (s)	0.16	0.08	-0.21	0.04						
Departure Headway (s)	4.7	4.7	4.1	4.5						
Degree Utilization, x	0.13	0.04	0.22	0.07						
Capacity (veh/h)	730	718	858	766						
Control Delay (s)	8.3	7.8	8.2	7.8						
Approach Delay (s)	8.3	7.8	8.2	7.8						
Approach LOS	A	A	A	A						
Intersection Summary										
Delay			8.2							
HCM Level of Service			A							
Intersection Capacity Utilization			28.6%		ICU Level of Service					A
Analysis Period (min)			15							

HCM Unsignalized Intersection Capacity Analysis Background 2012 Conditions
 7: Dry Creek Rd & Faust Rd AM Peak Hour

Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SER
Lane Configurations	3	8	4	1	3	3	10	19	0	17
Volume (veh/h)	3	8	4	1	3	3	10	19	0	17
Sign Control	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Free	Free
Grade	0%	0%	0%	0%	0%	0%	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
Hourly flow rate (vph)	3	9	4	1	3	3	11	21	0	18
Pedestrians										
Lane Width (ft)										
Walking Speed (ft/s)										
Percent Blockage										
Right turn flare (veh)										
Median type										None
Median storage (veh)										
Upstream signal (ft)										
pX, platoon unblocked										
VC, conflicting volume										
VC1, stage 1 cont vol										
VC2, stage 2 cont vol										
vCu, unblocked vol										
IC, single (s)										
IC, 2 stage (s)										
fT (s)										
p0 queue free %										
cM capacity (veh/h)										
Direction, Lane #	WB 1	NB 1	SB 1	SE 1						
Volume Total	16	8	32	22						
Volume Left	3	1	11	0						
Volume Right	4	3	0	3						
cSH	1594	942	884	1605						
Volume to Capacity	0.00	0.01	0.04	0.00						
Queue Length 95th (ft)	0	1	3	0						
Control Delay (s)	1.5	8.9	9.2	0.0						
Lane LOS	A	A	A	A						
Approach Delay (s)	1.5	8.9	9.2	0.0						
Approach LOS	A	A	A	A						
Intersection Summary										
Average Delay	4.9									
Intersection Capacity Utilization	20.0%									
Analysis Period (min)	15									
ICU Level of Service	A									

HCM Signalized Intersection Capacity Analysis
 1: University Way & Reecer Creek Rd

With Development 2012 Conditions
 AM Peak Hour

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	EBL	EBT	WBT	WBR	SBL	SBR
Volume (vph)	117	202	180	104	277	167
Ideal Flow (vph/pl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	1.00	1.00	0.95	1.00	1.00	0.85
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1771	1770	1583	1583
Satd. Flow (perm)	1066	1863	1771	1770	1583	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	127	220	196	113	301	182
RTOR Reduction (vph)	0	0	42	0	0	107
Lane Group Flow (vph)	127	220	267	0	301	75
Turn Type	Perm					Perm
Protected Phases	4	8	8	6	6	6
Permitted Phases	4					6
Actuated Green, G (s)	8.0	8.0	8.0	11.3	11.3	11.3
Effective Green, g (s)	8.0	8.0	8.0	11.3	11.3	11.3
Actuated g/C Ratio	0.29	0.29	0.29	0.41	0.41	0.41
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)	312	546	519	733	655	655
v/s Ratio Prot	0.12	0.12	c0.15	0.37	0.05	0.05
v/s Ratio Perm	0.41	0.40	0.52	0.41	0.12	0.12
Uniform Delay, d1	7.7	7.7	8.0	5.6	4.9	4.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.5	0.9	0.4	0.1	0.1
Delay (s)	8.6	8.2	8.9	6.0	5.0	5.0
Level of Service	A	A	A	A	A	A
Approach Delay (s)	8.4	8.9	8.9	5.6	5.6	5.6
Approach LOS	A	A	A	A	A	A
Intersection Summary						
HCM Average Control Delay	7.4		7.4		HCM Level of Service	
HCM Volume to Capacity ratio	0.45		0.45		A	
Actuated Cycle Length (s)	27.3		27.3		Sum of lost time (s)	
Intersection Capacity Utilization	47.6%		47.6%		A	
Analysis Period (min)	15		15		ICU Level of Service	
c Critical Lane Group					A	

HCM Unsignalized Intersection Capacity Analysis
 2: Old Highway 10 & Reecer Creek Rd

With Development 2012 Conditions
 AM Peak Hour

Movement	EBL	EBR	NBL	NBR	SWL	SWR
Lane Configurations	EBL	EBR	NBL	NBR	SWL	SWR
Volume (veh/h)	30	133	51	155	337	33
Sign Control	Sloped	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	145	55	168	366	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage		4				
Right turn flare (veh)			None	None	None	None
Median type						
Median storage (veh)			163			
Upstream signal (ft)						
pX, platoon unblocked						
vC, confining volume	664	384	402			
vC1, stage 1 cont vol						
vC2, stage 2 cont vol	664	384	402			
vCu, unblocked vol	6.4	6.2	4.1			
IC, single (s)						
IC, 2 stage (s)						
IF (s)	3.5	3.3	2.2			
p0 queue free %	92	78	95			
cM capacity (veh/h)	405	663	1156			
Direction, Lane #	EB 1	NB 1	NB 2	SW 1		
Volume Total	177	55	168	402		
Volume Left	33	55	0	0		
Volume Right	145	0	0	36		
cSH	813	1156	1700	1700		
Volume to Capacity	0.22	0.05	0.10	0.24		
Queue Length 95th (ft)	21	4	0	0		
Control Delay (s)	12.4	8.3	0.0	0.0		
Lane LOS	B	A	A	A		
Approach Delay (s)	12.4	2.0	2.0	0.0		
Approach LOS	B	A	A	A		
Intersection Summary						
Average Delay	3.3		3.3		ICU Level of Service	
Intersection Capacity Utilization	37.3%		37.3%		A	
Analysis Period (min)	15		15		ICU Level of Service	
					A	

HCM Unsignalized Intersection Capacity Analysis
3: Dry Creek Rd & Reecer Creek Rd

HCM Unsignalized Intersection Capacity Analysis
4: Bender Rd & Reecer Creek Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh/h)	1	15	26	29	5	9	6	114	46	6	6	311
Sign Control	Stop	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Free
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)	1	16	28	32	5	10	7	124	50	7	7	338
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	501	538	338	549	513	149	338					174
vC, conflicting volume												
vC1, stage 1 cont vol	501	538	338	549	513	149	338					174
vC2, stage 2 cont vol	7.1	6.5	6.2	7.1	6.5	6.2	4.1					4.1
vCu, unblocked vol												
IC, single (s)												
IC, 2 stage (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2
p0 queue free %	100	96	96	92	99	99	99					100
cM capacity (veh/h)	468	445	704	413	460	898	1221					1403
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	46	47	7	174	7	338						
Volume Left	1	32	7	0	7	0						
Volume Right	28	10	0	50	0	0						
cSH	577	472	1221	1700	1403	1700						
Volume to Capacity	0.08	0.10	0.01	0.10	0.00	0.20						
Queue Length 95th (ft)	6	8	0	0	0	0						
Control Delay (s)	11.8	13.5	8.0	0.0	7.6	0.0						
Lane LOS	B	B	A	A	A	A						
Approach Delay (s)	11.8	13.5	0.3		0.1							
Approach LOS	B	B										
Intersection Summary												
Average Delay	2.1											
Intersection Capacity Utilization	32.1%											
Analysis Period (min)	15											
ICU Level of Service	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh/h)	0	14	39	61	5	18	16	60	48	10	211	0
Sign Control	Stop	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Free
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)	0	15	42	66	5	20	17	65	52	11	229	0
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	399	403	229	427	377	91	229					117
vC, conflicting volume												
vC1, stage 1 cont vol	399	403	229	427	377	91	229					117
vC2, stage 2 cont vol	7.1	6.5	6.2	7.1	6.5	6.2	4.1					4.1
vCu, unblocked vol												
IC, single (s)												
IC, 2 stage (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2
p0 queue free %	100	97	95	86	99	98	99					99
cM capacity (veh/h)	537	525	810	491	543	966	1339					1471
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	58	91	135	240								
Volume Left	0	66	17	11								
Volume Right	42	20	52	0								
cSH	708	552	1339	1471								
Volume to Capacity	0.08	0.17	0.01	0.01								
Queue Length 95th (ft)	7	15	1	1								
Control Delay (s)	10.5	12.8	1.1	0.4								
Lane LOS	B	B	A	A								
Approach Delay (s)	10.5	12.8	1.1	0.4								
Approach LOS	B	B										
Intersection Summary												
Average Delay	3.9											
Intersection Capacity Utilization	30.9%											
Analysis Period (min)	15											
ICU Level of Service	A											

HCM Unsignalized Intersection Capacity Analysis
 5: Bowers Rd & Reecer Creek Rd

With Development 2012 Conditions
 AM Peak Hour

Movement	EBL	EBT	EBR	WEL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	4	11	9	1	5	0	41	24	8	118	1
Sign Control	Stop	0%	0%	0%	0%	0%	0%	0%	0%	0%	Free	Free
Grade	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	4	4	4	12	10	1	5	0	45	26	9	128
Hourly flow rate (vph)	4	4	12	10	1	5	0	45	26	9	128	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
VC, conflicting volume												
VC1, stage 1 cont vol	210	217	129	218	204	58	129					71
VC2, stage 2 cont vol												
vCu, unblocked vol	210	217	129	218	204	58	129					71
IC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1					4.1
IC, 2 stage (s)												
IC, 3 stage (s)												
IC, 4 stage (s)												
p0 queue free %	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2
p0 queue free %	99	99	99	99	100	99	100					99
cM capacity (veh/h)	739	677	921	722	688	1009	1456					1530
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	21	16	71	138								
Volume Left	4	10	0	9								
Volume Right	12	5	26	1								
cSH	817	795	1456	1530								
Volume to Capacity	0.03	0.02	0.00	0.01								
Queue Length 95th (ft)	2	2	0	0								
Control Delay (s)	9.5	9.5	0.0	0.5								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.5	9.5	0.0	0.5								
Approach LOS	A	A	A	A								
Intersection Summary												
Average Delay	1.7											
Intersection Capacity Utilization	22.8%											
Analysis Period (min)	15											
	ICU Level of Service											
	A											

HCM Unsignalized Intersection Capacity Analysis
 6: Hwy 97 & Old Highway 10

With Development 2012 Conditions
 AM Peak Hour

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Volume (vph)	75	8	6	9	18	1	1	106	75	1	50	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	9	7	10	20	1	1	115	82	1	54	0
Direction, Lane #	NB 1	SB 1	SE 1	NW 1								
Volume Total (vph)	97	30	198	55								
Volume Left (vph)	82	10	1	1								
Volume Right (vph)	7	1	82	0								
HadJ (s)	0.16	0.08	-0.21	0.04								
Departure Headway (s)	4.7	4.7	4.1	4.5								
Degree Utilization, x	0.13	0.04	0.22	0.07								
Capacity (veh/h)	730	718	858	766								
Control Delay (s)	8.3	7.8	8.2	7.8								
Approach Delay (s)	8.3	7.8	8.2	7.8								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay	8.2											
HCM Level of Service	A											
Intersection Capacity Utilization	28.6%											
Analysis Period (min)	15											
	ICU Level of Service											
	A											

HCM Unsignalized Intersection Capacity Analysis With Development 2012 Conditions
 7: Dry Creek Rd & Faust Rd AM Peak Hour

Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations	3	8	4	1	3	3	10	19	0	17	3
Volume (veh/h)	Free	0%	0%	Stop	0%	Stop	0%	0%	0%	Free	0%
Sign Control	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Grade	3	9	4	1	3	3	11	21	0	18	3
Peak Hour Factor	Pedestrians										
Hourly flow rate (vph)	Lane Width (ft)										
Hourly flow rate (vph)	Walking Speed (ft/s)										
Pedestrians	Percent Blockage										
Lane Width (ft)	Right turn flare (veh)										
Walking Speed (ft/s)	Median type										
Percent Blockage	Median storage (veh)										
Right turn flare (veh)	Upstream signal (ft)										
Median type	pX, platoon unblocked										
Median storage (veh)	vC, conflicting volume										
Upstream signal (ft)	vC1, stage 1 cont vol										
pX, platoon unblocked	vC2, stage 2 cont vol										
vC, conflicting volume	vCu, unblocked vol										
vC1, stage 1 cont vol	tC, single (s)										
vC2, stage 2 cont vol	tC, 2 stage (s)										
vCu, unblocked vol	tF (s)										
tC, single (s)	p0 queue free %										
tC, 2 stage (s)	cM capacity (veh/h)										
tF (s)	Direction, Lane #										
p0 queue free %	WB 1										
cM capacity (veh/h)	NB 1										
Direction, Lane #	SB 1										
SE 1											
Volume Total	Volume Total										
Volume Left	Volume Left										
Volume Right	Volume Right										
cSH	cSH										
Volume to Capacity	Volume to Capacity										
Queue Length 95th (ft)	Queue Length 95th (ft)										
Control Delay (s)	Control Delay (s)										
Lane LOS	Lane LOS										
Approach Delay (s)	Approach Delay (s)										
Approach LOS	Approach LOS										
Intersection Summary											
Average Delay	Average Delay										
Intersection Capacity Utilization	Intersection Capacity Utilization										
Analysis Period (min)	Analysis Period (min)										

HCM Unsignalized Intersection Capacity Analysis
 1: University Way & Reecer Creek Rd

HCM Unsignalized Intersection Capacity Analysis
 2: Old Highway 10 & Reecer Creek Rd

Existing 2007 Conditions
 PM Peak Hour

Existing 2007 Conditions
 PM Peak Hour

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (veh/h)	117	190	217	172	119	80
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	127	207	236	187	129	87
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None	None	None	None	None	None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked	423				790	329
vC, conflicting volume						
vC1, stage 1 cont vol						
vC2, stage 2 cont vol	423				790	329
vCu, unblocked vol	4.1				6.4	6.2
IC, single (s)						
IC, 2 stage (s)	2.2				3.5	3.3
IF (s)	89				59	88
p0 queue free %						
cM capacity (veh/h)	1136				319	712
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	127	207	423	129	87	87
Volume Left	127	0	0	129	0	0
Volume Right	0	0	187	0	87	87
cSH	1136	1700	1700	319	712	712
Volume to Capacity	0.11	0.12	0.25	0.41	0.12	0.12
Queue Length 95th (ft)	9	0	0	47	10	10
Control Delay (s)	8.6	0.0	0.0	23.8	10.8	10.8
Lane LOS	A			C	C	B
Approach Delay (s)	3.3		0.0	18.6		
Approach LOS			C			
Intersection Summary						
Average Delay	5.2					
Intersection Capacity Utilization	45.0%					
Analysis Period (min)	15					
ICU Level of Service	A					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (veh/h)	15	65	82	184	124	9
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	71	89	200	135	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)			4			
Median type	None	None	None	None	None	None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked	518	140	145			
vC, conflicting volume						
vC1, stage 1 cont vol						
vC2, stage 2 cont vol	518	140	145			
vCu, unblocked vol	6.4	6.2	4.1			
IC, single (s)						
IC, 2 stage (s)	3.5	3.3	2.2			
IF (s)	97	92	94			
p0 queue free %						
cM capacity (veh/h)	486	908	1438			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 1	
Volume Total	87	89	200	145	145	
Volume Left	16	89	0	0	0	
Volume Right	71	0	0	10	10	
cSH	1118	1438	1700	1700	1700	
Volume to Capacity	0.08	0.06	0.12	0.09	0.09	
Queue Length 95th (ft)	6	5	0	0	0	
Control Delay (s)	9.9	7.7	0.0	0.0	0.0	
Lane LOS	A	A	A	A	A	
Approach Delay (s)	9.9	2.4		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay	3.0					
Intersection Capacity Utilization	24.9%					
Analysis Period (min)	15					
ICU Level of Service	A					

HCM Unsignalized Intersection Capacity Analysis
 3: Dry Creek Rd & Reecer Creek Rd

HCM Unsignalized Intersection Capacity Analysis
 4: Bender Rd & Reecer Creek Rd

Existing 2007 Conditions
 PM Peak Hour

Existing 2007 Conditions
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (veh/h)	7	12	13	26	22	12	27	140	30	9	87	5
Sign Control	Stop	0%	0%	Stop	0%	0%	Free	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%	0%	0%	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)	8	13	14	28	24	13	29	152	33	10	95	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None	None	None	None	None	None
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	353	360	97	362	347	168	100					185
vC1, stage 1 cont vol												
vC2, stage 2 cont vol												
vCu, unblocked vol	353	360	97	362	347	168	100					185
IC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1					4.1
IC, 2 stage (s)												
IF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2
pU queue free %	99	98	99	95	96	99	98					99
cM capacity (veh/h)	562	552	959	563	561	876	1493					1390
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total	35	65	29	185	10	100						
Volume Left	8	28	29	0	10	0						
Volume Right	14	13	0	33	0	5						
cSH	670	606	1493	1700	1390	1700						
Volume to Capacity	0.05	0.11	0.02	0.11	0.01	0.06						
Queue Length 95th (ft)	4	9	2	0	1	0						
Control Delay (s)	10.7	11.7	7.5	0.0	7.6	0.0						
Lane LOS	B	B	A	A	A	A						
Approach Delay (s)	10.7	11.7	1.0		0.7							
Approach LOS	B	B	A		A							
Intersection Summary												
Average Delay	3.4											
Intersection Capacity Utilization	22.0%											
Analysis Period (min)	15											
ICU Level of Service	A											

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (veh/h)	35	11	87	58	13	59
Sign Control	Stop	0%	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	12	95	63	14	64
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None	None	None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	218	126				158
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol	218	126				158
IC, single (s)	6.4	6.2				4.1
IC, 2 stage (s)						
IF (s)	3.5	3.3				2.2
pU queue free %	95	99				99
cM capacity (veh/h)	762	924				1422
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	50	158	78			
Volume Left	38	0	14			
Volume Right	12	63	0			
cSH	795	1700	1422			
Volume to Capacity	0.06	0.09	0.01			
Queue Length 95th (ft)	5	0	1			
Control Delay (s)	9.8	0.0	1.4			
Lane LOS	A	A	A			
Approach Delay (s)	9.8	0.0	1.4			
Approach LOS	A	A	A			
Intersection Summary						
Average Delay	2.1					
Intersection Capacity Utilization	24.3%					
Analysis Period (min)	15					
ICU Level of Service	A					

HCM Unsignalized Intersection Capacity Analysis
 5: Bowers Rd & Reecer Creek Rd

HCM Unsignalized Intersection Capacity Analysis
 6: Hwy 97 & Old Highway 10

Existing 2007 Conditions
 PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	13	10	82	7	0	59
Sign Control	Stop	Free	Free	0%	0%	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	11	89	8	0	64
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	157	93			97	
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
vCu, unblocked vol	157	93			97	
IC, single (s)	6.4	6.2			4.1	
IC, 2 stage (s)						
IF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			100	
cM capacity (veh/h)	834	964			1497	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	25	97	64			
Volume Left	14	0	0			
Volume Right	11	8	0			
cSH	886	1700	1497			
Volume to Capacity	0.03	0.06	0.00			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	9.2	0.0	0.0			
Lane LOS	A	A	A			
Approach Delay (s)	9.2	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Average Delay				1.2		
Intersection Capacity Utilization				14.7%	ICU Level of Service	
Analysis Period (min)				15	A	

HCM Unsignalized Intersection Capacity Analysis
 7: Dry Creek Rd & Faust Rd

Existing 2007 Conditions
 PM Peak Hour

Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (veh/h)	0	14	3	4	11	2	1	7	0	15	1
Sign Control	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free
Grade	0%	0%	0%	0%	0%	0%	0%	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
Hourly flow rate (vph)	0	15	3	4	12	2	1	8	0	16	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	17			38	35	17	42	34	17		
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	17			38	35	17	42	34	17		
tC, single (s)	4.1			7.1	6.5	6.2	7.1	6.5	6.2		
tC, 2 stage (s)											
tF, (s)	2.2			3.5	4.0	3.3	3.5	4.0	3.3		
p0 queue free %	100			100	99	100	100	99	100		
cM capacity (veh/h)	1600			961	857	1062	949	858	1062		
Direction, Lane #	WB 1	NB 1	SB 1	SE 1							
Volume Total	18	18	9	17							
Volume Left	0	4	1	0							
Volume Right	3	2	0	1							
cSH	1600	900	869	1598							
Volume to Capacity	0.00	0.02	0.01	0.00							
Queue Length 95th (ft)	0	2	1	0							
Control Delay (s)	0.0	9.1	9.2	0.0							
Lane LOS	A	A	A	A							
Approach Delay (s)	0.0	9.1	9.2	0.0							
Approach LOS	A	A	A	A							
Intersection Summary											
Average Delay										3.9	
Intersection Capacity Utilization										20.0%	ICU Level of Service
Analysis Period (min)										15	A

HCM Signalized Intersection Capacity Analysis
 1: University Way & Reecer Creek Rd

Background 2012 Conditions
 PM Peak Hour

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	197	242	277	231	159	130
Volume (vph)	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	0.95	1.00	0.94	1.00	0.85	1.00
Flt Protected	1770	1863	1748	1770	1583	1583
Satd. Flow (prot)	0.39	1.00	1.00	1.00	0.95	1.00
Flt Permitted	722	1863	1748	1770	1583	1583
Satd. Flow (perm)	0.92	0.92	0.92	0.92	0.92	0.92
Peak-hour factor, PHF	214	263	301	251	173	141
Adj. Flow (vph)	0	0	58	0	0	110
RTOR Reduction (vph)	214	263	494	0	173	31
Lane Group Flow (vph)	Perm					
Turn Type	Perm					
Protected Phases	4 8 6 6					
Permitted Phases	4					
Actuated Green, G (s)	17.5 17.5 17.5 17.5 7.1 7.1					
Effective Green, g (s)	17.5 17.5 17.5 17.5 7.1 7.1					
Actuated g/C Ratio	0.54 0.54 0.54 0.54 0.22 0.22					
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)	388 1000 938 385 345					
v/s Ratio Prot	0.30					
v/s Ratio Perm	0.14 0.28 c0.10 0.02					
v/c Ratio	0.55 0.26 0.53 0.45 0.09					
Uniform Delay, d1	5.0 4.1 4.9 11.1 10.2					
Progression Factor	1.00 1.00 1.00 1.00 1.00					
Incremental Delay, d2	1.7 0.1 0.5 0.8 0.1					
Delay (s)	6.7 4.2 5.4 11.9 10.3					
Level of Service	A A A B B					
Approach Delay (s)	5.3 5.4 11.2					
Approach LOS	A A A B B					
Intersection Summary						
HCM Average Control Delay	6.7 HCM Level of Service A					
HCM Volume to Capacity ratio	0.52					
Actuated Cycle Length (s)	32.6					
Sum of lost time (s)	8.0					
Intersection Capacity Utilization	56.4%					
ICU Level of Service	B					
Analysis Period (min)	15					
Analysis Period (min)	15					
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
 2: Old Highway 10 & Reecer Creek Rd

Background 2012 Conditions
 PM Peak Hour

Movement	EBL	EBR	NBL	NBR	SWL	SWR
Lane Configurations	31	83	105	294	193	18
Volume (veh/h)	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	34	90	114	320	210	20
Hourly flow rate (vph)	Pedestrians					
Lane Width (ft)	Lane Width (ft)					
Walking Speed (ft/s)	Walking Speed (ft/s)					
Percent Blockage	Percent Blockage					
Right turn flare (veh)	Right turn flare (veh)					
Median type	Median type					
Median storage (veh)	Median storage (veh)					
Upstream signal (ft)	Upstream signal (ft)					
pX, platoon unblocked	pX, platoon unblocked					
VC, conflicting volume	VC, conflicting volume					
VC1, stage 1 cont vol	VC1, stage 1 cont vol					
VC2, stage 2 cont vol	VC2, stage 2 cont vol					
vCu, unblocked vol	vCu, unblocked vol					
IC, single (s)	IC, single (s)					
IC, 2 stage (s)	IC, 2 stage (s)					
IF (s)	IF (s)					
p0 queue free %	p0 queue free %					
cM capacity (veh/h)	cM capacity (veh/h)					
Direction, Lane #	EB 1	NB 1	NB 2	SW 1	SW 1	
Volume Total	124	114	320	229	229	
Volume Left	34	114	0	0	0	
Volume Right	90	0	0	20	20	
cSH	1126	1339	1700	1700	1700	
Volume to Capacity	0.11	0.09	0.19	0.13	0.13	
Queue Length 95th (ft)	9	7	0	0	0	
Control Delay (s)	11.8	7.9	0.0	0.0	0.0	
Lane LOS	B	A	A	A	A	
Approach Delay (s)	11.8	2.1	0.0	0.0	0.0	
Approach LOS	B	B	A	A	A	
Intersection Summary						
Average Delay	3.0					
Intersection Capacity Utilization	30.9%					
ICU Level of Service	A					
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
 3: Dry Creek Rd & Reecer Creek Rd

HCM Unsignalized Intersection Capacity Analysis
 4: Bender Rd & Reecer Creek Rd

Background 2012 Conditions
 PM Peak Hour

Background 2012 Conditions
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	9	15	17	33	28	15	34	250	38	11	153	6
Volume (veh/h)												
Sign Control	Stop	0%	0%	0%	0%	0%	Free	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%	0%	0%	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)	10	16	18	36	30	16	37	272	41	12	166	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None	None	None	None	None	None
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
VC, conflicting volume	571	580	170	583	563	292	173					313
vC1, stage 1 cont vol												
vC2, stage 2 cont vol												
vCu, unblocked vol	571	580	170	583	563	292	173					313
IC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1					4.1
IC, 2 stage (s)												
IF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2
p0 queue free %	97	96	98	91	93	98	97					99
cM capacity (veh/h)	388	410	874	391	420	747	1404					1247
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	45	83	37	313	12	173						
Volume Left	10	36	37	0	12	0						
Volume Right	18	16	0	41	0	7						
cSH	518	444	1404	1700	1247	1700						
Volume to Capacity	0.09	0.19	0.03	0.18	0.01	0.10						
Queue Length 95th (ft)	7	17	2	0	1	0						
Control Delay (s)	12.6	14.9	7.6	0.0	7.9	0.0						
Lane LOS	B	B	A	A	A	A						
Approach Delay (s)	12.6	14.9	0.8		0.5							
Approach LOS	B	B										
Intersection Summary												
Average Delay	3.3											
Intersection Capacity Utilization	36.6%											
ICU Level of Service	A											
Analysis Period (min)	15											

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W					4
Volume (veh/h)	66	14	147	110	17	96
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	72	15	160	120	18	104
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None	None	None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
VC, conflicting volume	361	220				279
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol	361	220				279
IC, single (s)	6.4	6.2				4.1
IC, 2 stage (s)						
IF (s)	3.5	3.3				2.2
p0 queue free %	89	98				99
cM capacity (veh/h)	629	820				1283
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	87	279	123			
Volume Left	72	0	18			
Volume Right	15	120	0			
cSH	656	1700	1283			
Volume to Capacity	0.13	0.16	0.01			
Queue Length 95th (ft)	11	0	1			
Control Delay (s)	11.3	0.0	1.3			
Lane LOS	B	A	A			
Approach Delay (s)	11.3	0.0	1.3			
Approach LOS	B					
Intersection Summary						
Average Delay	2.3					
Intersection Capacity Utilization	30.7%					
ICU Level of Service	A					
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis Background 2012 Conditions
 5: Bowers Rd & Reecer Creek Rd PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑			↓
Volume (veh/h)	17	13	112	9	0	87
Sign Control	Stop	Free	Free	0%	0%	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	14	122	10	0	95
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	221	127			132	
vC1, stage 1 cont vol						
vC2, stage 2 cont vol						
vCu, unblocked vol	221	127			132	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF, (s)	3.5	3.3			2.2	
p0 queue free %	98	98			100	
cM capacity (veh/h)	767	924			1454	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	33	132	95			
Volume Left	18	0	0			
Volume Right	14	10	0			
cSH	828	1700	1454			
Volume to Capacity	0.04	0.08	0.00			
Queue Length 95th (ft)	3	0	0			
Control Delay (s)	9.5	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.5	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			16.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis Background 2012 Conditions
 6: Hwy 97 & Old Highway 10 PM Peak Hour

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SER	NWL	NWT	NWR
Lane Configurations		↑			↓				↔	↔
Sign Control		Stop			Stop				Stop	Stop
Volume (vph)	75	14	6	1	11	0	3	81	91	0
Peak Hour Factor	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	15	7	1	12	0	3	88	99	0
Direction, Lane #	NB 1	SB 1	SE 1	NW 1						
Volume Total (vph)	103	13	190	138						
Volume Left (vph)	82	1	3	0						
Volume Right (vph)	7	0	99	5						
HadJ (s)	0.15	0.05	-0.27	0.01						
Departure Headway (s)	4.8	4.8	4.1	4.4						
Degree Utilization, x	0.14	0.02	0.22	0.17						
Capacity (veh/h)	703	683	854	781						
Control Delay (s)	8.6	7.9	8.2	8.3						
Approach Delay (s)	8.6	7.9	8.2	8.3						
Approach LOS	A	A	A	A						
Intersection Summary										
Delay			8.3							
HCM Level of Service			A							
Intersection Capacity Utilization			31.0%		ICU Level of Service					A
Analysis Period (min)			15							

HCM Unsignalized Intersection Capacity Analysis
 7: Dry Creek Rd & Faust Rd

Background 2012 Conditions
 PM Peak Hour

Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations	BT			BT			BT			BT	
Volume (veh/h)	0	18	4	5	14	3	1	9	0	19	1
Sign Control	Free			Stop		Stop		0%		Free	
Grade	0%			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
Hourly flow rate (vph)	0	20	4	5	15	3	1	10	0	21	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											
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCU, unblocked vol											
IC, single (s)											
IC, 2 stage (s)											
IF (s)											
pl queue free %											
cM capacity (veh/h)											
Direction, Lane #	WB 1	NB 1	SB 1	SE 1							
Volume Total	24	24	11	22							
Volume Left	0	5	1	0							
Volume Right	4	3	0	1							
cSH	1594	892	856	1591							
Volume to Capacity	0.00	0.03	0.01	0.00							
Queue Length 95th (ft)	0	2	1	0							
Control Delay (s)	0.0	9.1	9.3	0.0							
Lane LOS	A	A	A	A							
Approach Delay (s)	0.0	9.1	9.3	0.0							
Approach LOS	A	A	A	A							
Intersection Summary											
Average Delay										4.0	
Intersection Capacity Utilization										20.0%	A
Analysis Period (min)										15	

HCM Unsignalized Intersection Capacity Analysis
 3: Dry Creek Rd & Reecer Creek Rd

HCM Unsignalized Intersection Capacity Analysis
 4: Bender Rd & Reecer Creek Rd

Movement	EBL	EBT	EBR	WEL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh/h)	9	15	17	33	28	15	34	306	38	11	186	6
Sign Control	Stop	0%	0%	Stop	0%	0%	Free	Free	0%	Free	0%	Free
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)	10	16	18	36	30	16	37	333	41	12	202	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median storage (veh)								None				None
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	667	677	205	680	660	353	209					374
vC1, stage 1 cont vol												
vC2, stage 2 cont vol												
vCu, unblocked vol	667	677	205	680	660	353	209					374
IC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1					4.1
IC, 2 stage (s)												
IF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2
p0 queue free %	97	95	98	89	92	98	97					99
cM capacity (veh/h)	331	361	835	335	369	690	1362					1185
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	45	83	37	374	12	209						
Volume Left	10	36	37	0	12	0						
Volume Right	18	16	0	41	0	7						
cSH	460	388	1362	1700	1185	1700						
Volume to Capacity	0.10	0.21	0.03	0.22	0.01	0.12						
Queue Length 95th (ft)	8	20	2	0	1	0						
Control Delay (s)	13.7	16.8	7.7	0.0	8.1	0.0						
Lane LOS	B	C	A	A	A	A						
Approach Delay (s)	13.7	16.8	0.7		0.4							
Approach LOS	B	C	C									
Intersection Summary												
Average Delay	3.1											
Intersection Capacity Utilization	39.5%											
ICU Level of Service	A											
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
 5: Bowers Rd & Reecer Creek Rd

HCM Unsignalized Intersection Capacity Analysis
 6: Hwy 97 & Old Highway 10

With Development 2012 Conditions
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (veh/h)	2	2	7	17	4	13	0	112	9	0	87	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%	0%	0%	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)	2	2	8	18	4	14	0	122	10	0	95	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None					
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume												
vC1, stage 1 conf vol	240	228	97	232	226	127	99					132
vC2, stage 2 conf vol												
vCu, unblocked vol	240	228	97	232	226	127	99					132
IC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1					4.1
IC, 2 stage (s)												
IF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2
p0 queue free %	100	100	99	97	99	98	100					100
cM capacity (veh/h)	700	671	960	715	674	924	1494					1454
Direction, Lane #	EB1	WB1	NB1	SB1								
Volume Total	12	37	132	99								
Volume Left	2	18	0	0								
Volume Right	8	14	10	4								
cSH	838	777	1494	1454								
Volume to Capacity	0.01	0.05	0.00	0.00								
Queue Length 95th (ft)	1	4	0	0								
Control Delay (s)	9.4	9.9	0.0	0.0								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.4	9.9	0.0	0.0								
Approach LOS	A	A	A	A								
Intersection Summary												
Average Delay	1.7											
Intersection Capacity Utilization	17.5%											
Analysis Period (min)	15											
ICU Level of Service	A											

HCM Unsignalized Intersection Capacity Analysis
 7: Dry Creek Rd & Faust Rd

With Development 2012 Conditions
 PM Peak Hour

Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations	W	W	W	N	N	N	S	S	S	W	W
Volume (veh/h)	0	18	4	5	14	3	1	9	0	19	1
Sign Control	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free
Grade	0%	0%	0%	0%	0%	0%	0%	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
Hourly flow rate (vph)	0	20	4	5	15	3	1	10	0	21	1
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type										None	
Median storage (veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume											
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCU, unblocked vol											
IC, single (s)											
IC, 2 stage (s)											
IE (s)											
p0 queue free %											
cM capacity (veh/h)											
Direction, Lane #	WB1	NB1	SB1	SE1							
Volume Total	24	24	11	22							
Volume Left	0	5	1	0							
Volume Right	4	3	0	1							
cSH	1594	892	856	1591							
Volume to Capacity	0.00	0.03	0.01	0.00							
Queue Length 95th (ft)	0	2	1	0							
Control Delay (s)	0.0	9.1	9.3	0.0							
Lane LOS	A	A	A	A							
Approach Delay (s)	0.0	9.1	9.3	0.0							
Approach LOS	A	A	A	A							
Intersection Summary											
Average Delay										4.0	
Intersection Capacity Utilization										20.0%	ICU Level of Service
Analysis Period (min)										15	A



APPENDIX C QUEUING AND BLOCKING REPORTS

Intersection: 4: Bender Rd & Reecer Creek Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	52	68	36	18
Average Queue (ft)	25	35	3	1
95th Queue (ft)	49	56	20	10
Link Distance (ft)	601	1386	395	811
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Bowers Rd & Reecer Creek Rd

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	31	31	6	12
Average Queue (ft)	13	9	0	0
95th Queue (ft)	37	31	4	6
Link Distance (ft)	376	1383	811	951
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Intersection: 4: Bender Rd & Reecer Creek Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	68	65	38	39
Average Queue (ft)	22	35	4	4
95th Queue (ft)	51	58	23	22
Link Distance (ft)	601	1386	395	811
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Bowers Rd & Reecer Creek Rd

Movement	EB	WB	NB
Directions Served	LR	LR	LTR
Maximum Queue (ft)	35	44	6
Average Queue (ft)	11	19	0
95th Queue (ft)	34	42	4
Link Distance (ft)	376	1383	811
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0
