

# Highland Park Subdivision Traffic Impact Analysis Report

## Final Report Supplement

Prepared For:  
J and S Development

Prepared By:



**HIGHLAND PARK SUBDIVISION  
TRAFFIC IMPACT ANALYSIS REPORT**

**FINAL REPORT  
SUPPLEMENT**

**Prepared For:  
J and S Development**

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## **I. INTRODUCTION**

The traffic impact study for the proposed Highland Park Subdivision (sometimes referred to as the project) was initiated in May, 2005. The majority of the traffic counts were conducted during May 2005. City staff indicated that considerable time has passed since the counts were initially obtained.

The most recent version of the traffic impact study (TIS) for the proposed project was completed in December, 2007. Subsequent to the December, 2007 TIS, the project site plan has changed with a slightly different dwelling unit combination and a different park location. City staff commented that changes to the site plan might result in changes to trip generation and distribution. A copy of the revised site plan is attached as Figure 1.

This memorandum has been prepared in response to City staff's comments to address the following issues:

- To ascertain if the counts need to be updated
- To address the changes to the trip generation and distribution resulting from the latest site plan (November, 2008), copy attached

## **II. 2008 TRIP COUNTS**

In response to the City staff comments, Omni-Means conducted counts at six critical intersections in the immediate vicinity of the project in October, 2008. The objective of comparing the counts at the critical intersections is to ascertain if the counts need to be updated at all of the study locations.

Figure 2 provides a comparison of 2005 and 2008 traffic volumes at the critical intersections in the vicinity of the project. With the exception of the PM peak hour volumes at the intersection of Churn Creek Road/Bodenhamer Boulevard intersection, the 2008 volumes are lower than 2005 volumes at all of the study locations for both AM and PM peak hours.

As noted above, the Churn Creek Road/Bodenhamer Boulevard intersection volumes for 2008 conditions were greater than the 2005 conditions during the PM peak hour. Therefore, the following items have been addressed:

- Level of service (LOS) for Existing and Short Term conditions with and without the project for 2008 PM peak hour conditions at the Churn Creek Road/Bodenhamer Boulevard intersection
- Equivalent Dwelling Units (EDU) thresholds at which the traffic impact to the Churn Creek Road/Bodenhamer Boulevard intersection will become significant

# Highland Park

## Site Diagram

November 6, 2008



Prepared for:



Prepared by:



### Legend

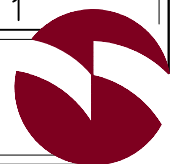
	Apartments	56
	Townhomes	110
	Cluster homes	48
	36' - 40' wide lots	51
	50' wide lots	55
	60' - 65' wide lots	59
	70' - 90' wide lots	41

Total Units: 420

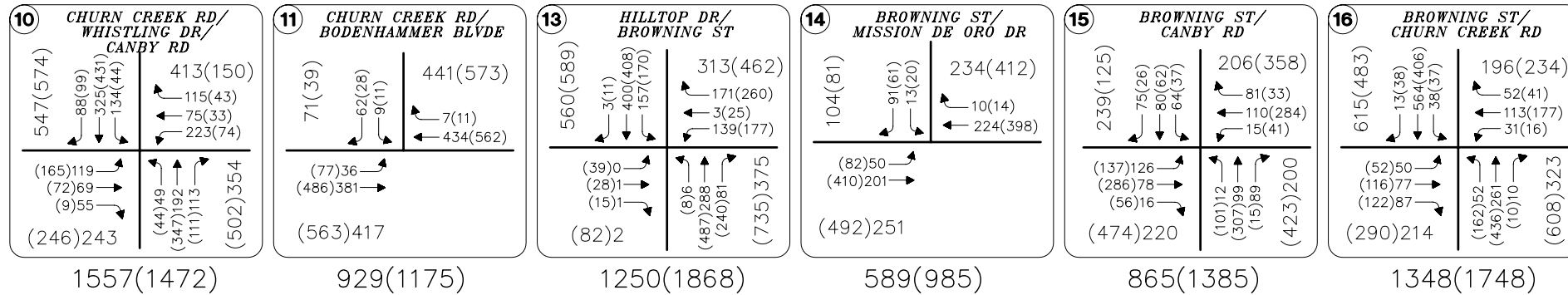
Highland Park Subvission - TIAR Supplement

Figure 1

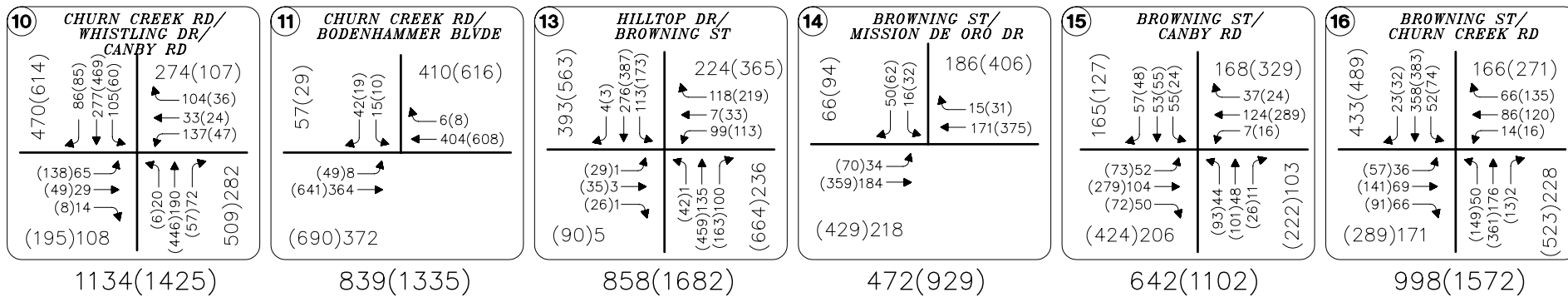
## Project Site Plan



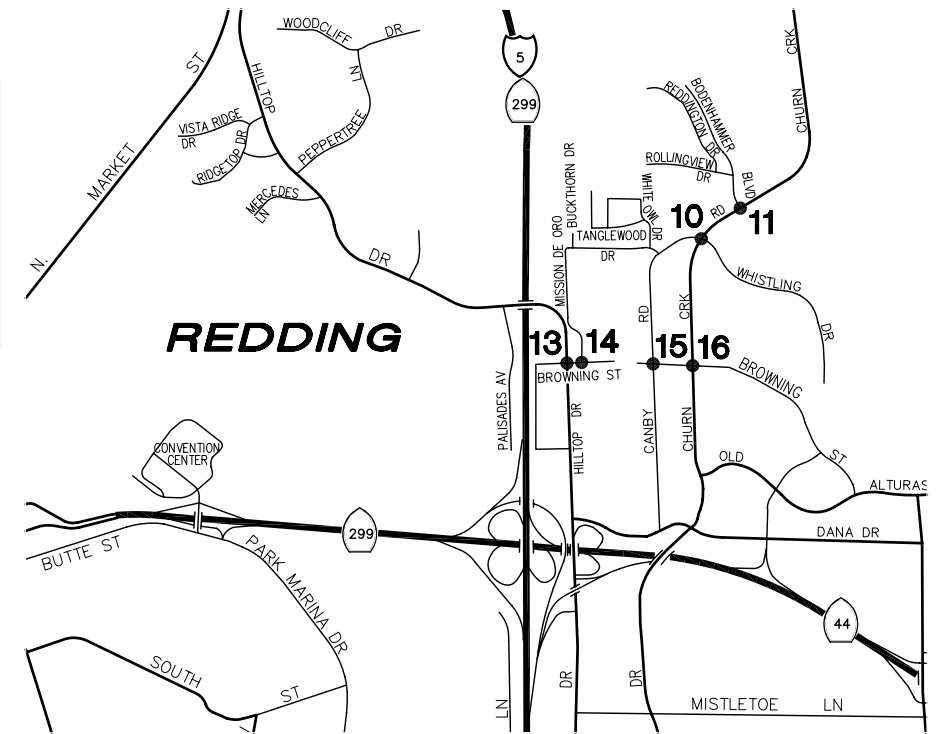
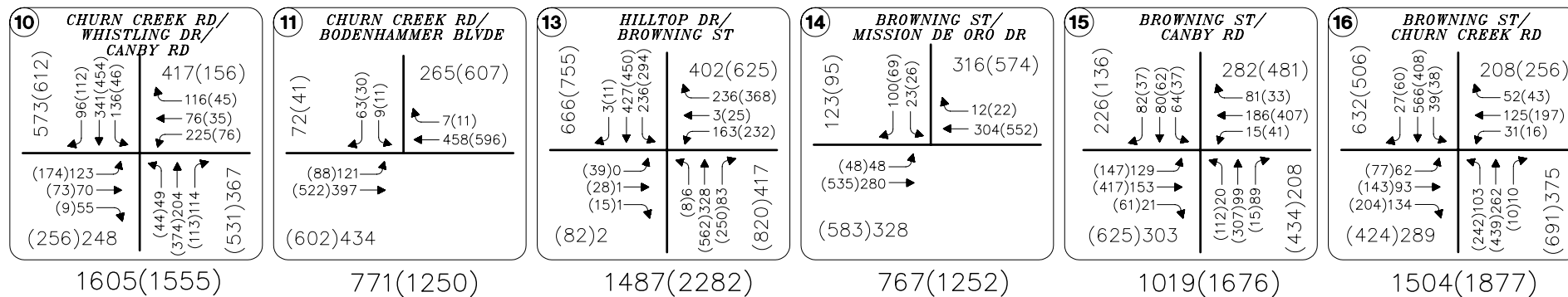
## 2005 Existing Traffic Volumes



## 2008 Existing Traffic Volumes

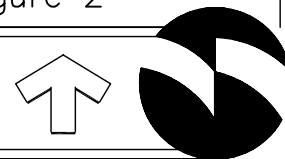


## Short Term No Project Traffic Volumes



**LEGEND:**

- xx - AM PEAK HOUR VOLUMES
- (xx) - PM PEAK HOUR VOLUMES
- XX(XX) - AM(PM) APPROACH VOLUME TOTALS
- XX(XX) - AM(PM) INTERSECTION VOLUMES TOTALS



**EXISTING CONDITIONS**

Table 1 provides the Existing PM peak hour intersection LOS and also provides the LOS for 2005 conditions for comparison.

**TABLE 1  
EXISTING CONDITIONS: INTERSECTION LEVELS-OF-SERVICE**

#	Intersection	Control Type	Target LOS	2008 Counts PM Peak Hour			2005 Counts PM Peak Hour		
				Delay	LOS	Warrant Met?	Delay	LOS	Warrant Met?
11	Churn Creek Rd./Bodenhammer Blvd.	TWSC	C	23.1	C	No	18.7	C	No

Notes:

TWSC = Two Way Stop Control, LOS and Delay = worst case movement's LOS and Delay for TWSC intersections

AWSC = All Way Stop Control

Warrant = Peak hour volume based signal warrant

As shown in Table 1, the intersection is projected to operate at an acceptable LOS for the PM peak hour with the revised 2008 volumes.

**SHORT TERM NO PROJECT CONDITIONS**

Short Term No Project conditions were derived by superimposing traffic from approved/pending developments onto the 2008 traffic volumes. For a list of approved/pending please refer to the December 2007 traffic report.

Table 2 provides the Short Term No Project PM peak hour intersection levels of service and also provides Short Term No Project as documented within the December 2007 report for comparison purposes.

**TABLE 2  
SHORT TERM NO PROJECT CONDITIONS: INTERSECTION LEVELS-OF-SERVICE**

#	Intersection	Control Type	Target LOS	2008 Counts PM Peak Hour			2005 Counts PM Peak Hour		
				Delay	LOS	Warrant Met?	Delay	LOS	Warrant Met?
11	Churn Creek Rd./Bodenhammer Blvd.	TWSC	C	25.4	D	No	20.3	C	No

Notes:

TWSC = Two Way Stop Control, LOS and Delay = worst case movement's LOS and Delay for TWSC intersections

AWSC = All Way Stop Control

Warrant = Peak hour volume based signal warrant

With the updated 2008 volumes, the Churn Creek Road/Bodenhamer Boulevard intersection is projected to operate at an unacceptable LOS during the PM peak hour under Short Term No project conditions.

**SHORT TERM PLUS PROJECT CONDITIONS**

Short Term Plus Project conditions were derived by superimposing traffic from the proposed project onto the Short Term No Project traffic conditions.

Table 3 provides the Short Term Plus Project PM peak hour intersection levels of service and also provides Short Term Plus Project as documented within the December 2007 report for comparison purposes.

**TABLE 3  
SHORT TERM PLUS PROJECT CONDITIONS: INTERSECTION LEVELS-OF-SERVICE**

#	Intersection	Control Type	Target LOS	2008 Counts PM Peak Hour			2005 Counts PM Peak Hour		
				Delay	LOS	Warrant Met?	Delay	LOS	Warrant Met?
11	Churn Creek Rd./Bodenhammer Blvd.	TWSC	C	46.2	E	No	32.9	D	No

Notes:

TWSC = Two Way Stop Control, LOS and Delay = worst case movement's LOS and Delay for TWSC intersections

AWSC = All Way Stop Control

Warrant = Peak hour volume based signal warrant

The intersection is projected to operate at an unacceptable LOS under Short Term Plus Project conditions.

### III. MITIGATION TIMING FOR THE CHURN CREEK ROAD/BODENHAMER BOULEVARD INTERSECTION

The following methodology was utilized to determine the timing requirements for Short Term Signalization Improvements recommended within the December 2007 study using the 2008 count information:

- Convert the project traffic to Equivalent Dwelling Units (EDU's)
- Perform a short-term conditions analysis for 50% project build-out and 100% project build-out
- Straight-line interpolate between the short-term "no project", "50% project build-out" and "100% project build-out" to determine the EDU thresholds at which facilities would become significant

Table 4 provides a comparison of intersection delay for the Churn Creek Road/Bodenhamer Boulevard intersection, and the number of EDU's that could be accommodated without project impact being significant per the 5-second threshold.

**TABLE 4  
COMPARISON OF INTERSECTION LEVELS OF SERVICE: SHORT TERM CONDITIONS**

#	Intersection	Control Type	Short Term No Project	50% Project Buildout	Full Project Buildout	Increase in Delay	Increase in Delay	EDU's that can be accommodated (w/o improvements)
			PM Pk Hr	PM Pk Hr	PM Pk Hr	PM Pk Hr	PM Pk Hr	
			Delay (ST1)	Delay (50%1)	Delay FB1	50%1 -ST1	FB1 -ST1	
11	Churn Creek Rd./Bodenhammer Blvd.	TWSC	25.4	30.3	46.2	4.9	20.8	210

As shown in Table 4, per the 5-second threshold criteria, approximately 210 units can be constructed before the signalization improvements would need to be implemented.

### IV. TRIP GENERATION/DISTRIBUTION

Table 5 provides trip generation associated with the most recent version of the site plan.

**TABLE 5  
TRIP GENERATION FOR THE PROPOSED HIGHLAND PARK SUBDIVISION (PER NOVEMBER, 2008 SITE PLAN)**

Landuse Category	Unit	Daily Trips Rate/Unit	AM Peak Rate/Unit			PM Peak Rate/Unit		
			Total	In	Out	Total	In	Out
Single Family Detached Housing (210)	per d.u.	9.81	0.75	25%	75%	1.00	63%	37%
Cluster Single Family Units (210)	per d.u.	11.03	0.90	25%	75%	1.15	63%	37%
Apartments (220)	per d.u.	8.70	0.55	20%	80%	0.86	65%	35%
Residential Townhouse (230)	per d.u.	6.33	0.51	17%	83%	0.59	67%	33%
Park	per acre	50.00	2.00	80%	20%	4.00	41%	59%
Landuse Description	Quantity	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
			Total	In	Out	Total	In	Out
Single Family Units <sup>1</sup>	206	2022	154	39	115	205	129	76
Cluster Single Family Units <sup>1</sup>	48	529	43	11	32	55	35	20
Apartments <sup>1</sup>	56	487	31	6	25	48	31	17
Townhomes <sup>1</sup>	110	696	56	9	47	65	44	21
<i>Residential Portion - Totals</i>	<i>420</i>	<i>3734</i>	<i>284</i>	<i>65</i>	<i>219</i>	<i>373</i>	<i>239</i>	<i>134</i>
City Park <sup>2</sup>	7.00	350	14	11	3	28	11	17
15% Internal Trips Reduction <sup>3</sup>		-52	-2	-1	-1	-4	-2	-2
"Net New" Park Trips		298	12	10	2	24	9	15
<b>Highland Park Subdivision - TOTALS</b>		<b>4,032</b>	<b>296</b>	<b>75</b>	<b>221</b>	<b>397</b>	<b>248</b>	<b>149</b>
<i>Notes</i>								
1. Trip Generation for the Residential Portion of the project was derived using ITE Trip Generation Manual.								
2. Trip Generation for the Park was derived using SANDAG Trip Generation Manual.								
3. 15% of the trips associated with the park are assumed to stay within the project site based on Professional Engineering Judgement.								
The remaining 85% of the park trips ("Net New" Park trips) were distributed to the area roadways and intersection .								

As shown in Table 5, the proposed Highland Park Subdivision development project is projected to generate 4,032 Weekday daily trips, 296 of which would occur during the AM peak hour, and 397 of which would occur during the PM peak hour.

### TRIP DISTRIBUTION

The trip distribution and assignment patterns would be the same as those presented within Figures 7A and 7B of the December, 2007 report, with the following exception:

- 13% (*instead of 10%*) of the project traffic would use Montcrest Drive/Whet Owl to eventually get to Tanglewood Drive.
- 43% (*instead of 46%*) of the project traffic would use Mission De Oro Drive to eventually get to Browning Street.

### WHET OWL WAY DAILY TRIPS ANALYSIS

The increase in project trips, due to changes in distribution/assignment as indicated above, has been quantified. Traffic from Vista Ridge Estates will use Whet Owl Way to get to Tanglewood Drive and therefore Whet Owl Way carries the maximum amount of traffic. Therefore, it is proposed to analyze the Whet Owl segment immediately north of Tanglewood Drive.

The existing volume on Whet Owl segment immediately north of Tanglewood Drive is derived by counting the existing residences within the Vista Ridge Estates from the aerial (<http://shrinkify.com/gq3>).

For purposes of the analysis, it is assumed that approximately 75 existing dwelling units are using Whet Owl Way to get to Tanglewood Drive. Per information from the ITE trip generation manual, these units generate 798 daily trips. Using the distribution mentioned above, addition of project traffic to the Whet Owl segment, immediately north of Tanglewood Drive, would bring the daily trips on the segment to approximately 1324 trips. Per information contained within page 14 of the December, 2007 TIS, the Whet Owl segment is expected to operate at acceptable LOS C conditions for all of the “plus project” conditions.

#### **MISSION DE ORO DAILY TRIPS ANALYSIS**

A previous Omni-Means technical memo (January 10, 2008), entitled *ADT calculation for Mission De Oro Drive*, concluded that the Mission De Oro Drive segment (north of Browning Street) would operate at acceptable LOS A conditions for all of the study scenarios. With revisions to the distribution/assignment as indicated above, the project traffic would be lower than that was identified within the January 10, 2008 technical memo. Therefore, it is anticipated that the Mission De Oro Drive segment (north of Browning Street) would operate at acceptable LOS A for all of the time periods.

#### **V. CONCLUSIONS**

1. With the exception of the Churn Creek Road/Bodenhammer Blvd. location, the year 2005 traffic counts provide a worse than current actual (conservative) condition. Therefore, there is not a reason to update all the traffic counts and analysis contained in the December 2007 traffic study.
2. Using the City’s significance criteria, signalization of the Churn Creek Road/Bodenmaher Boulevard intersection will be required at occupancy of the 211<sup>th</sup> dwelling unit.
3. When compared to the trip generation information from the December, 2007 TIS, the project as proposed (per November, 2008 site plan) generates 60, 1 and 7 fewer daily, AM peak and PM trips, respectively. Therefore, the conclusions and recommendations within the December, 2007 TIS will still be valid.
4. Even with increased project traffic on Whet Owl segment due to the revised trip distribution/assignment, the segment is still projected to operate at acceptable LOS C conditions.
5. With the revised trip distribution/assignment, it is anticipated that the Mission De Oro Drive segment (north of Browning Street) would operate at acceptable LOS A for all of the time periods.