TRAFFIC ANALYSIS REPORT

FOR

BROWNSTONE DEVELOPMENT

CEDAR BROOK WAY

CITY OF SHERWOOD

SUBMITTED BY

CHARBONNEAU
ENGINEERING LLC

October 2013

Project 13-19

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Project 13-19

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TABLE OF CONTENTS

INTRODUCTION **1**
TRAFFIC ANALYSIS CONSIDERATIONS **1**
SITE DESCRIPTION, STREETS, AND CRITICAL INTERSECTIONS **2**
ON-SITE CIRCULATION **3**
TRAFFIC OPERATIONAL ANALYSIS **3**
VEHICULAR TRIP GENERATION **4**
CAPACITY ANALYSIS **6**
SIGHT DISTANCE **7**
TURN LANE WARRANTS **7**
TRAFFIC SIGNAL WARRANTS **8**
ACCIDENT HISTORY **8**
PEDESTRIANS, BICYCLES, & BUSES **8**
SUMMARY AND RECOMMENDATIONS **9**
APPENDIX **10**

- Vicinity Map — Figure 'a'
- Site Plan — Figure 'b'
- Traffic Control & Lane Configuration — Figure 'c'
- Traffic Flow Diagrams
  - Figure 1 — Raw Volumes - AM & PM Peak Hour Intersections
  - Figure 2 — Seasonally Adjusted Hwy 99W PM Peak Hour Volumes (30th HV)
  - Figure 3a — Year 2016 AM Peak Hour Background Traffic
  - Figure 3b — Year 2016 PM Peak Hour Background Traffic
  - Figure 4 — Year 2035 AM Peak Hour Background Traffic
  - Figure 5a — Trip Distribution & Assignment, AM Peak Hour
  - Figure 5b — Trip Distribution & Assignment, PM Peak Hour
  - Figure 5c — Trip Distribution & Assignment, AM Peak Hour - Zone Change
  - Figure 6a — Year 2016 AM Peak Hour Total Traffic
  - Figure 6b — Year 2016 PM Peak Hour Total Traffic
  - Figure 7 — Year 2035 AM Peak Hour Total Traffic
- Traffic Count Data
- Seasonal Adjustment Factor Table
- Handley Street Future AM Peak Hour Volumes
- Peak Hour Signal Warrant
- Accident History Summary (furnished by ODOT)
- Traffix Capacity Analysis Worksheets

INTRODUCTION

This traffic study has been prepared to document and evaluate the traffic operational and safety conditions for the Brownstone Development site in Sherwood, Oregon. The proposed development plan includes construction of 18 single-family housing units and 50 townhomes for a total of 68 residential units. The project development will occur on the northwest side of SW Pacific Highway (Hwy 99W) between Cedar Brook Way and Meinecke Road.

The study area was defined as the surrounding neighborhood including Hwy 99W, Meinecke Road, and SW Handley Street. The site is located on tax lot #2S130CD13400 on 5.77 acres and is highlighted on the vicinity map (Figure 'a') in the appendix. The property is currently vacant.

The property is zoned commercial and the proposed residential use necessitates a rezone.

TRAFFIC ANALYSIS CONSIDERATIONS

The project scope was established from discussion with the City of Sherwood and Oregon Department of Transportation (ODOT). Effectively, the traffic study was conducted according to the City's & ODOT's traffic analysis requirements and guidelines. The following important elements are identified and covered in the study.

- Inventory and record pertinent information such as traffic control devices, circulation patterns, lane configuration, pedestrian & bicycle facilities, parking conditions, and street characteristics.
- Record volume data on typical weekdays during the AM and PM peak traffic hours as specified by the agencies.
- Conduct traffic counts on Hwy 99W at Cedar Brook Way and Meinecke Road and on Handley Street at Copper Terrace and Elwert Road.
- As the development will require a rezone of the property from commercial to residential use a year 2035 analysis period was included in the study.
- Computation of trip generation for the development based on the ITE Trip Generation manual using average rates for single-family housing (code #210) and townhomes (code #230) for the proposed development. For comparison purposes identification of the trip generation for site buildout under the current (commercial) zoning using shopping center (code #820) and fast-food restaurant (code #933).
- Preparation of a trip distribution plan considering existing counts & circulation patterns, historical traffic study results, and engineering judgment.
- Application of a seasonal adjustment factor to the raw volume counts on Hwy 99W to equate to the summertime peak hour volumes.
- Application of a one percent annual traffic growth rate based on historical data provided by ODOT. For Handley Street the City provided the future AM peak hour volumes.
- Review the MUTCD peak hour signal warrant at the study intersections to verify if the traffic criterion is met.
- Level of service (LOS) analysis of the study intersections to measure the vehicle delay and volume-to-capacity (v/c) for comparison to City and ODOT standards.
- Verification of intersection sight distance at the proposed access locations on Meinecke Road and on Cedar Brook Way.

- Review of traffic crash data furnished by ODOT and determination of the intersection crash rates at the study intersections.

SITE DESCRIPTION, STREETS, AND CRITICAL INTERSECTIONS

The Brownstone residential development will be located on the northwest side of Hwy 99W between Cedar Brook Way and Meinecke Road in Sherwood. Figure 'b' illustrates the site plan and access conditions associated with the project. One access will be located on the property's northerly side on Cedar Brook Way and a second access is proposed on the site's south side to Meinecke Road. New access to Hwy 99W is not planned.

The table below summarizes the study area roadways, classification, width, number of lanes, and posted speed. The lane configuration for each study intersection is presented on Figure 'c'.

Roadway	Classification	Width (FEET)	Lanes (#)	Speed (MPH)	Bike Lanes	Sidewalks
Pacific Highway (Highway 99W)	Statewide Highway (NHS Freight Route)	110-130	4-6	45-55	Both sides	Intermittent
Cedar Brook Way	Local Street	32	2	25[1]	Both sides	Both sides
Meinecke Parkway	Local Street	42	2	not posted	Both sides	Both sides
Meinecke Road	Minor Arterial	63	2	not posted	Both sides	North side
Handley Street	Local Street	37	2	not posted	No	Both sides
Elwert Road	Major Collector	22-37	2	25-35	No	No
Copper Terrace	Local Street	28	2	25	No	East sides

[1] Speed estimated.

Cedar Brook Way and Pacific Highway (Highway 99W) is a tee-shaped intersection with stop control on the Cedar Brook Way approach. Cedar Brook Way and Pacific Highway (Highway 99W) operates as a right-only intersection.

Proposed site accesses and Cedar Brook Way will be tee-shaped intersection with stop-control on the site access approach.

Proposed site accesses and Meinecke Road will be tee-shaped intersection with stop-control on the site access approach. Meinecke Road currently contains a landscaped median.

Meinecke Parkway and Cedar Brook Way is a single-lane roundabout with three approaches that are controlled with yield signs. Crosswalks are provided on each approach of the roundabout.

Meinecke Parkway/Meinecke Road and Pacific Highway (Highway 99W) is a four-legged intersection with permitted left turn phasing on the Meinecke Parkway and Meinecke Road approaches and protected left turn phasing on the Pacific Highway (Highway 99W) approaches. Crosswalks are provided on all but the east approach.

Handley Street at Elwert Road is a tee-shaped intersection with stop-control on the Handley Street approach.

Handley Street at Copper Terrace is a tee-shaped intersection with stop-control on all of the approaches.

ON-SITE CIRCULATION

Along the site's frontage sidewalk will be constructed on Cedar Brook Way adjacent to the property. Sidewalks will also be constructed on the new streets built within the development to provide pedestrian connectivity to the adjacent properties.

With construction of the Cedar Brook Way extension north of Meinecke Road a bicycle lane will be striped on each side of the road segment.

Vehicular access for the site will be provided at two proposed private driveway locations on the Cedar Brook Way and Meinecke Road. On-site circulation will be provided such that vehicles (and pedestrians and bicycles) can travel between the site and the adjacent Creekview Condominiums development.

TRAFFIC OPERATIONAL ANALYSIS

In order to evaluate traffic flow and delay in the area several intersections were analyzed for level of service (LOS) conditions including volume/capacity and safety. The study intersections included Hwy 99W at Cedar Brook Way and Meinecke Road and Handley Street at Copper Terrace and Elwert Road. The intersection Volume/Capacity (v/c) and level of service (LOS) results were completed for the AM peak hours on Handley Street and the PM peak hours on Hwy 99W as stipulated by the agencies. The following scenarios were evaluated.

- Year 2013 Existing Traffic (seasonally adjusted volumes)
- Year 2016 Background Traffic
- Year 2016 Total Traffic
- Year 2035 Background
- Year 2035 Total Traffic

In order to perform the LOS analysis at the critical intersections manual traffic counts were conducted during the AM peak (7:00-9:00 AM) and PM peak (4:00-6:00 PM) traffic hours in August and September, 2013. A copy of the traffic counts are included in the report's appendix.

The peak hour counts are presented on Figure 1. The diagram illustrates the turning movement volumes (raw data) for the AM peak hour on Handley Street and the PM peak hour on Hwy 99W. For projects occurring on highway systems having volume fluctuations throughout the year it may be necessary to apply an adjustment factor to equate the volumes to the peak-season traffic conditions evident on Hwy 99W. The methodology documented in ODOT's APM guidelines was followed in order to develop the adjusted volumes. The peak hour volumes shown on Figure 2 takes into account application of the seasonal adjustment factor (+1%).

Additionally ODOT has confirmed that it was necessary to apply a 1%/year traffic growth factor to obtain the year 2016 background traffic scenario. The City provided the future year background AM peak hour volumes on Handley Street. The year 2016 background traffic for Handley Street is shown on Figure 3a. The year 2016 background traffic for Hwy 99W is shown on Figure 3b. The year 2035 background traffic is shown on Figure 4.

The year 2016 total traffic associated with the AM peak hour on Handley Street is shown on Figure 6a and the year 2016 total traffic for Hwy 99W is shown on Figure 6b. The year 2035 total traffic for Handley Street is illustrated on Figure 7. The total traffic is the summation of background traffic volumes and site generated traffic.

VEHICULAR TRIP GENERATION

Trip rates presented in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 8th Edition, were utilized to estimate the site's trip generation. Table 1 presents the number of trips projected to be generated by the proposed housing units (18 single-family homes & 50 tonwhomes). The trip generation due to the Brownstone Development will total 463 daily trips, 36 AM peak hour trips, and 44 PM peak hour trips.

The trip generation was also calculated for comparison purposes under the current commercial zoning. A potential development plan for commercial could include 62,000 square feet of shopping center and a fast-food restaurant facility. For this scenario the trip generation is shown in Table 1a. After accounting for pass-by traffic the net trip generation for the commercial uses will total 3,736 trips per day with 96 AM peak hour trips and 171 PM peak hour trips.

In comparing the two scenarios it has been verified that the residential development will generate only 12% of the daily commercial-related trips and 38% of the AM peak hour commercial trips and 26% of the PM peak hour commercial trips.

Table 1 Trip Generation Summary - Proposed Residential Use

ITE Land Use	Units	Weekday						
		ADT	AM Peak Hour			PM Peak Hour		
			Total	Enter	Exit	Total	Enter	Exit
Single-Family (#210)	18							
Generation Rate[1]		9.57	0.75	25%	75%	1.01	63%	37%
Site Trips		**172**	**14**	4	10	**18**	11	7
Residential Condo/Townh	50							
Generation Rate[1]		5.81	0.44	17%	83%	0.52	67%	33%
Site Trips		**291**	**22**	4	18	**26**	17	9
Total	68	**463**	**36**	8	28	**44**	28	16

[1] Source: *Trip Generation, 8th Edition, ITE, 2008, average rates.*

Table 1a Trip Generation Summary - Commercial Use (not proposed)

ITE Land Use	Units (sq.ft.)	Weekday						
		ADT	AM Peak Hour			PM Peak Hour		
			Total	Enter	Exit	Total	Enter	Exit
Shopping Center (#820)	62,000							
Generation Rate[1]		42.94	1.00	61%	39%	3.73	49%	51%
Total Driveway Trips		**2,662**	**62**	38	24	**231**	113	118
Pass-By Rate[2]			0%			34%		
Pass-By Trips			0	0	0	79	39	40
Net New Trips			**62**	38	24	**152**	74	78
Fast-Food without Drive-	1,500							
Generation Rate[1]		716.0	43.87	60%	40%	26.15	51%	49%
Total Driveway Trips		**1,074**	**66**	40	26	**39**	20	19
Pass-By Rate[2]			49%			50%		
Pass-By Trips			32	19	13	20	10	10
Net New Trips			**34**	21	13	**19**	10	9
Pass-By Total			***32***	*19*	*13*	***99***	*49*	*50*
Net New Site Total	63,500	**3,736**	**96**	59	37	**171**	84	87

[1] Source: *Trip Generation, 8th Edition, ITE, 2008, average rates.*

Trip distribution is based on existing traffic patterns, count data, site access, and engineering judgment. Figures 5a & 5b illustrate the trip distribution and assignments related to the AM & PM peak hours. Figure 5c shows the trip distribution & assignments associated under the current commercial zoning scenario.

CAPACITY ANALYSIS

Capacity analyses were performed to determine the levels of service for the weekday peak hours. Traffix was used to determine the level of service and v/c ratios for the scenarios considered. The program is based on the Highway Capacity Manual methodology.

ODOT uses the v/c ratio to measure performance of its highways. Sherwood's Transportation System Plan (TSP) identifies 'For statewide freight within the Metro area (i.e. ORE 99W through Sherwood), intersections are required to operate at a volume-to-capacity ratio (v/c) of 0.95 or better (2040 Concept Area) and 0.90 or better (Non-Concept Area). Additionally, alternate highway mobility standards have been defined for specifically designated areas within Metro's boundaries. Specifically, Corridors (as 99W is designated) have a maximum v/c ratio of 0.99 for both the first and second hours.'

Mitigation is required if the project traffic impacts cause the v/c to exceed this standard. If the v/c is already exceeding the standard, the project would be required to mitigate its traffic impacts only if the v/c was worsened.

Table 2 indicates that the study intersections will experience LOS 'D' or better during the AM and PM peak hours through the year 2016 and year 2035 total traffic scenarios. On Hwy 99W the intersection at Meinecke Parkway/Meinecke Road will operate with a v/c ratio of 0.75 through the year 2016 total traffic scenario and meets the required operational standard.

Based on the results of the capacity analysis intersection improvements are not necessary.

Table 2 Capacity Analysis Summary

Intersection	Int Cont	Peak Hour	Traffic Scenario																			
			2013 Existing (30HV)				2016 Background				2016 Total Traffic				2035 ZC Background				2035 ZC Total Traffic			
			Crit. Mov't	LOS	Delay	v/c	Crit. Mov't	LOS	Delay	v/c	Crit. Mov't	LOS	Delay	v/c	Crit. Mov't	LOS	Delay	v/c	Crit. Mov't	LOS	Delay	v/c
Hwy 99/Meinecke Rd	Sig	PM	SB	B	16.0	0.72	SB	B	18.3	0.74	SB	B	18.3	0.75	-	-	-	-	-	-	-	-
Hwy 99/Cedar Brook Way	Stop	PM	EB-R	C	24.3	-	EB-R	D	25.7	-	EB-R	D	26.0	-	-	-	-	-	-	-	-	-
Handley Street/Copper Terrace	Stop	AM	EB	A	8.9	0.32	EB	A	8.9	0.34	EB	A	8.9	0.34	WB	A	9.6	0.41	WB	A	9.7	0.42
Handley Street/Elwert Rd	Stop	AM	WB	B	12.8	-	WB	B	13.0	-	WS	B	13.2	-	WB	B	14.9	-	WB	C	15.2	-
Meinecke Rd/Site Access	Stop	PM	-	-	-	-	-	-	-	-	SB	A	9.3	-	-	-	-	-	-	-	-	-

Notes: 2000 *Highway Capacity Manual* methodology used in analysis. NB - Northbound, Crit. Mov't - Critical movement or critical approach.

Generally, LOS 'A', 'B', 'C', and 'D' are desirable service levels ranging from no vehicle delays to average or longer than average delays in the peak hours. Level 'E' represents long delays indicating signalization warrants need to be reviewed and signals considered only if warrants are met. Level 'F' indicates that intersection improvements, such as widening and signalization, may be considered. According to the *Highway Capacity Manual* (HCM), the following delay times are associated with the LOS at stop controlled unsignalized and signalized intersections.

Level of Service criteria defined in the Highway Capacity Manual.

Level of Service (LOS)	Unsignalized Control Stopped Delay (sec/veh)	Signalized Control Stopped Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 15	> 10 and ≤ 20
C	> 15 and ≤ 25	> 20 and ≤ 35
D	> 25 and ≤ 35	> 35 and ≤ 55
E	> 35 and ≤ 50	> 55 and ≤ 80
F	> 50	> 80

SIGHT DISTANCE

Sight distance at the proposed access location on Cedar Brook Way cannot physically be reviewed in the field as the remaining segment of Cedar Brook Way is not constructed. Using a speed of 25MPH corresponds to a sight distance requirement of 280 feet according to AASHTO. If the new extension of Cedar Brook Way is posted at 25MPH it will be necessary to maintain at least the minimum required sight distance (280 feet). Obstructions to the sightlines by signing, vegetation, building structures, parking, or other items that restrict the sight distance to less than the minimum standard will not be permitted.

Sight distance at the south proposed access on Meinecke Road is currently unobstructed in both directions. The adjacent intersections to the southeast (Hwy 99W) and northwest (Cedar Brook Way - roundabout) are visible without any restrictions and must be maintained.

TURN LANE WARRANTS

The proposed access on Meinecke Road will be restricted to right turn movements due to the existing center raised median. As a result no left turn warrant was evaluated at this location.

At the site's northerly access on Cedar Brook Way a left turn lane will not be required due to the low peak hour volumes (existing PM peak hour volume = 112) on Cedar Brook Way.

TRAFFIC SIGNAL WARRANTS

The peak hour signal warrant described in the Manual on Uniform Traffic Control Devices (MUTCD) was reviewed in order to document the signal warrant conditions at the stop controlled intersections on Handley Street. The results indicate that for the AM peak hour the warrant is not met through the year 2035 total traffic scenario based on the low volume levels. Therefore, no signal improvements are recommended.

ACCIDENT HISTORY

Five years of crash data covering the period year 2007 through year 2011 for the study intersections on Hwy 99W and on Handley Street was requested from ODOT staff. A summary of the crash frequencies and rates is presented in Table 3.

The resulting crash rates were less than 0.22 MEV (crashes per million entering vehicles per year) at each of the locations. These rates are less than 1.0 MEV or the critical rate at which further investigation and safety measures normally should be considered. As a result of the analysis no additional safety improvements are proposed.

Table 3 Crash Rate Summary

Intersection	Accident History (Years)	Number of Accidents	Accidents per year	Annual Traffic Entering (veh/yr)	Accident rate per M.E.V.*
Hwy 99 and SW Meinecke Parkway	5	14	2.8	13437180	**0.21**
Hwy 99 and SW Cedar Brook Way	5	1	0.2	7841703	**0.03**
Handley Street at Elwert Road	5	0	0.0	258590	**0.00**
Handley Street at Copper Terrace	5	0	0.0	1219902	**0.00**

* M.E.V. - million entering vehicles.

PEDESTRIANS, BICYCLES, & BUSES

There are existing sidewalks along Meinecke Road on both sides adjacent to the Brownstone Development property. On the completed portions of Cedar Brook Way sidewalk is present on both sides of the street. Sidewalk will be constructed with the development on the Cedar Brook Way extension and on the streets constructed within the development site.

Bike lanes are present on Meinecke Road between Hwy 99W and the roundabout at Cedar Brook Way and on Cedar Brook Way south of the roundabout. Bike lanes will be added on the extension of Cedar Brook Way constructed with the development.

Transit service is provided by Tri-Met. Route #12 (Barbur Boulevard) and Route #94 (Sherwood/Pacific Highway Express) travel along Barbur Boulevard, Pacific Highway (Highway 99W), and Sherwood Boulevard, between Portland City Center and the Sherwood City Hall. Route #12 travels on weekdays and weekends; Route #94 travels on weekdays only. The nearest

transit stop is more than ¾-mile to the northeast on Langer Drive near its intersection with Sherwood Boulevard.

SUMMARY AND RECOMMENDATIONS

The traffic study has documented the operational and safety conditions for the Brownstone Development site in Sherwood, Oregon. The proposed development plan will include construction of 18 single-family housing units and 50 townhomes for a total of 68 residential units. The project development will occur on the northwest side of SW Pacific Highway (Hwy 99W) between Cedar Brook Way and Meinecke Road.

The trip generation for the residential development will total 463 daily trips, 36 AM peak hour trips, and 44 PM peak hour trips. The trip generation was also calculated for comparison purposes under the current zoning as commercial use. A potential commercial development plan may include up to 62,000 square feet of shopping center and a restaurant such as a fast-food establishment. For this scenario the trip generation would total 3,736 trips per day with 96 AM peak hour trips and 171 PM peak hour trips. A comparison of the two scenarios determined the proposed residential use will generate only 12% of the daily commercial number of trips. In the AM peak hour the residential use will generate 38% of the commercial trips and in the PM peak hour 26% of commercial trips. As a result the Brownstone Development will have only a marginal traffic impact on the transportation system compared to development built under the existing zoning.

Sight distance at the proposed access location on Cedar Brook Way cannot physically be reviewed in the field as the remaining segment of Cedar Brook Way is not constructed. It will be necessary to maintain at least the minimum required sight distance (280 feet based on 25MPH, AASHTO standard). Obstructions to the sightlines by signing, vegetation, building structures, parking, or other items that restrict the sight distance to less than the minimum standard will not be permitted. Sight distance at the south proposed access on Meinecke Road is currently unobstructed in both directions. The adjacent intersections to the southeast (Hwy 99W) and northwest (Cedar Brook Way) are visible without any restrictions and must be maintained.

Based on the peak hour signal warrant no additional signals are warranted.

The capacity analysis determined that the study intersections will experience LOS 'D' or better during the AM and PM peak hours through the year 2016 and year 2035 total traffic scenarios. On Hwy 99W the intersection at Meinecke Parkway/Meinecke Road will operate with a v/c ratio of 0.75 through the year 2016 total traffic scenario and meets the required operational standard. Based on the results of the capacity analysis intersection improvements are not necessary.

Five years of crash data covering the period year 2007 through year 2011 for the study intersections on Hwy 99W and on Handley Street was requested from ODOT staff. The resulting crash rates were less than 0.22 MEV (crashes per million entering vehicles per year) at each of the locations. These rates are less than 1.0 MEV or the critical rate at which further investigation and safety measures normally should be considered. As a result of the analysis no additional safety improvements are proposed.

APPENDIX

- Vicinity Map — Figure 'a'
- Site Plan — Figure 'b'
- Traffic Control & Lane Configuration — Figure 'c'
- Traffic Flow Diagrams
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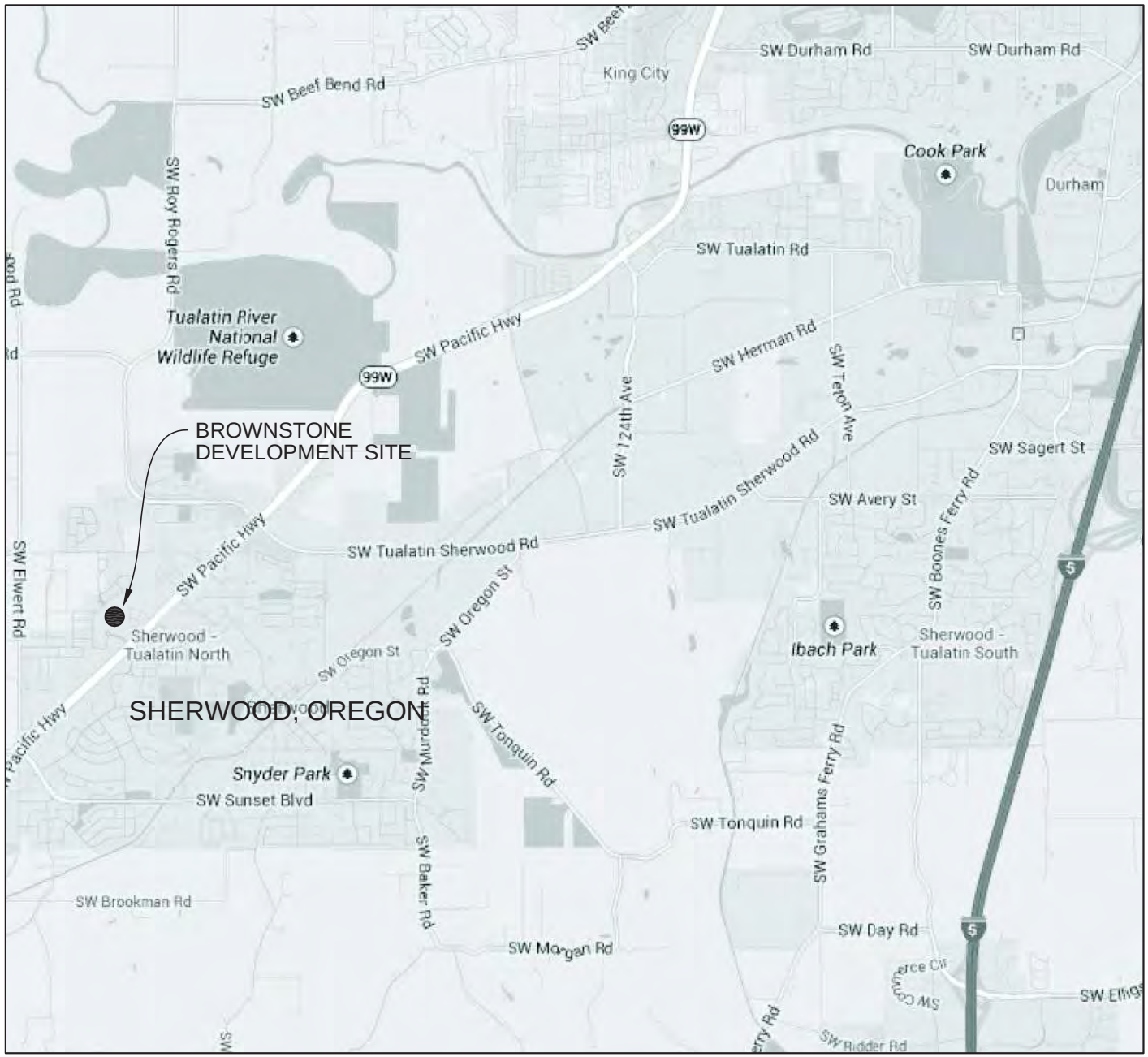

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NO SCALE

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NOTES:

VICINITY MAP

BROWNSTONE DEVELOPMENT - SHERWOOD

FIGURE

a

NO SCALE

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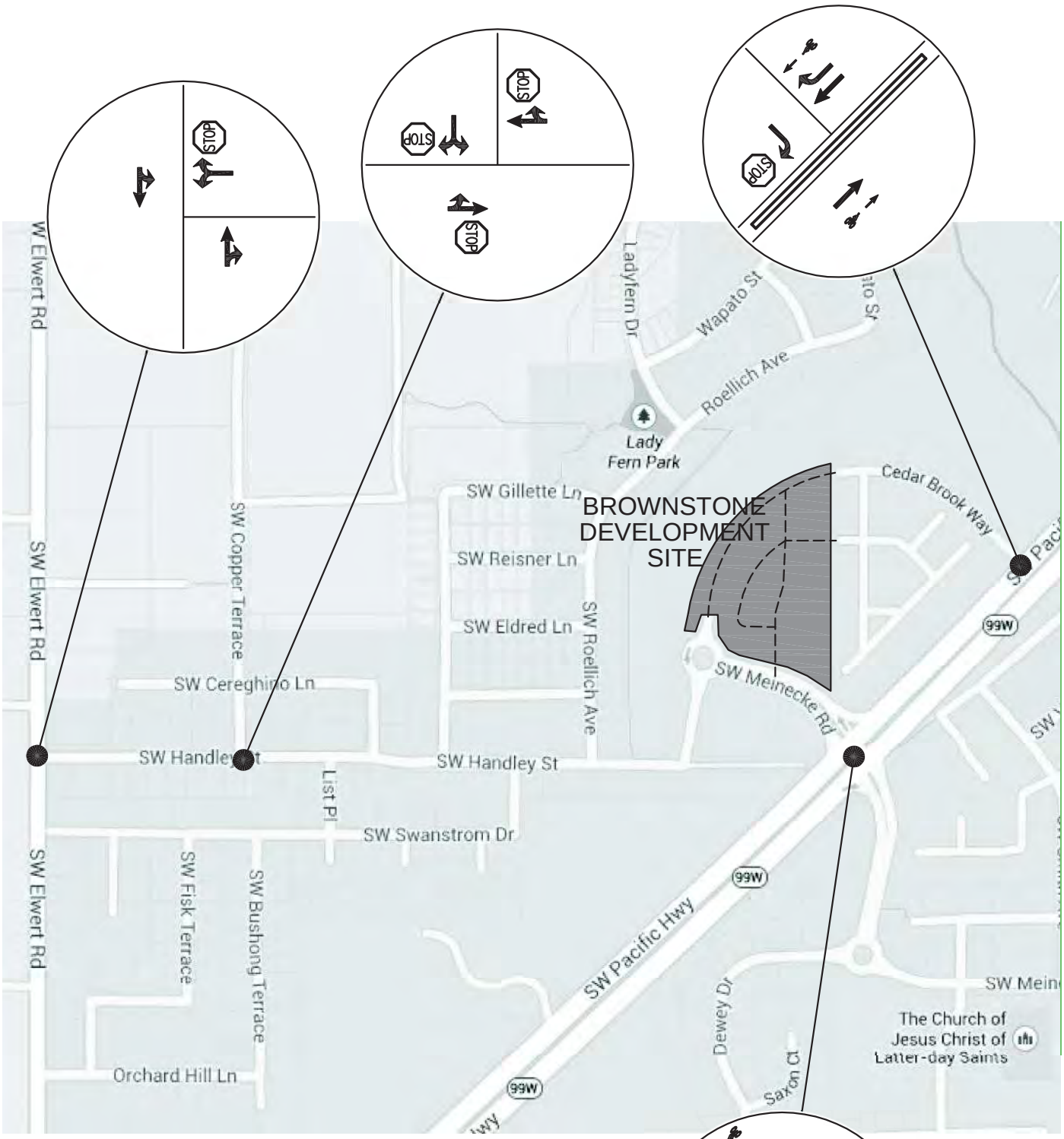
NOTES:

SITE PLAN

BROWNSTONE DEVELOPMENT - SHERWOOD

FIGURE

b



LEGEND

- EXISTING/PROPOSED CHANNELIZATION
- BICYCLE LANE
- SIGNALIZED INTERSECTION
- STOP CONTROLLED APPROACH
- YIELD CONTROLLED APPROACH
- SIGN

N

NO SCALE

FILE NAME: Brownstone Dev Sherwood Figures 14SEP13.dwg

PLOT DATE: 9/14/2013

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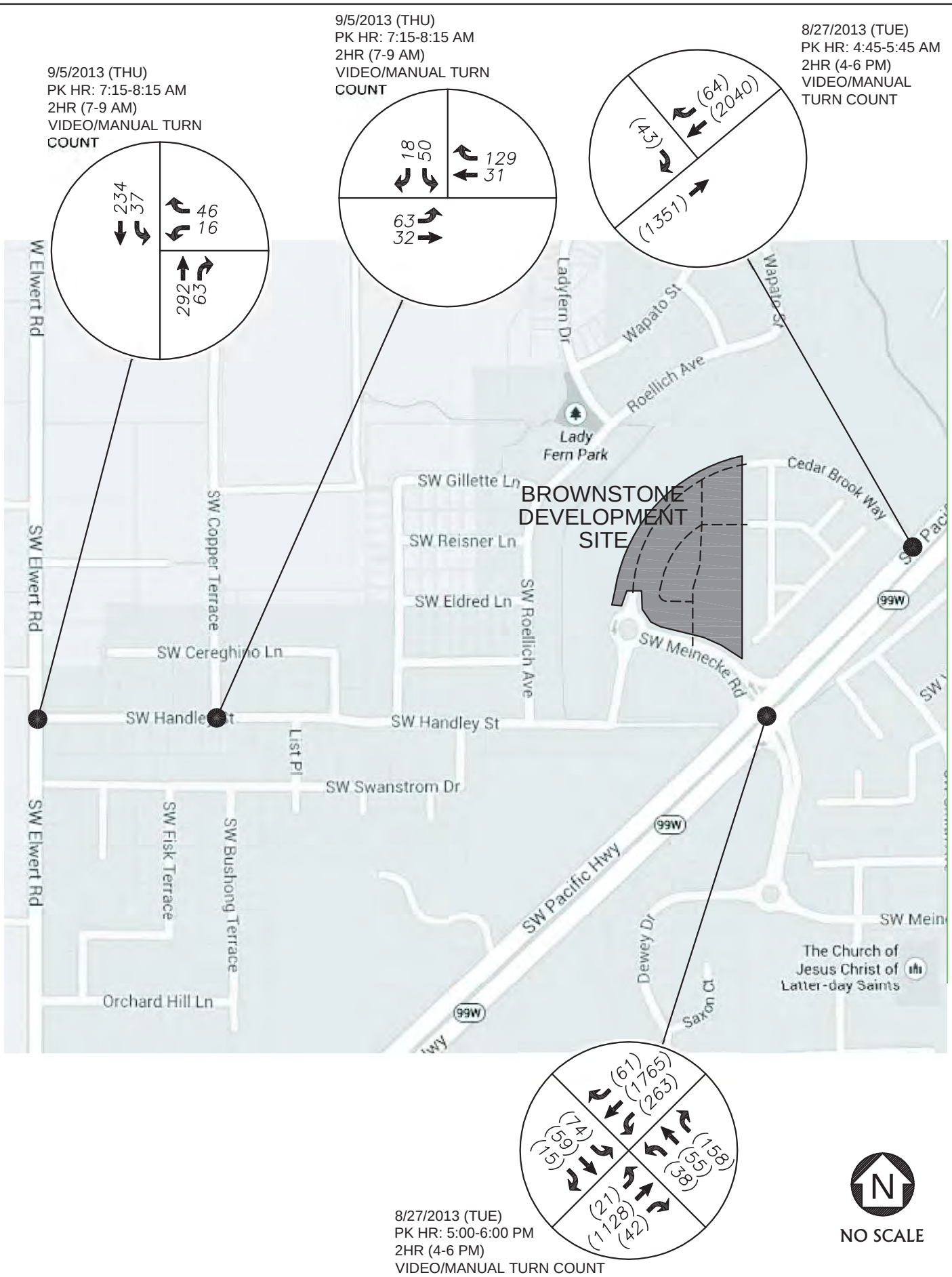
PROJECT: 13.19 - Brownstone Dev.

NOTES:

STUDY AREA INTERSECTIONS WITH LANE CONFIGURATIONS AND CONTROL DEVICES

FIGURE

C



FILE NAME: Brownstone Dev Sherwood Figures 14SEP13.dwg

PLOT DATE: 9/14/2013

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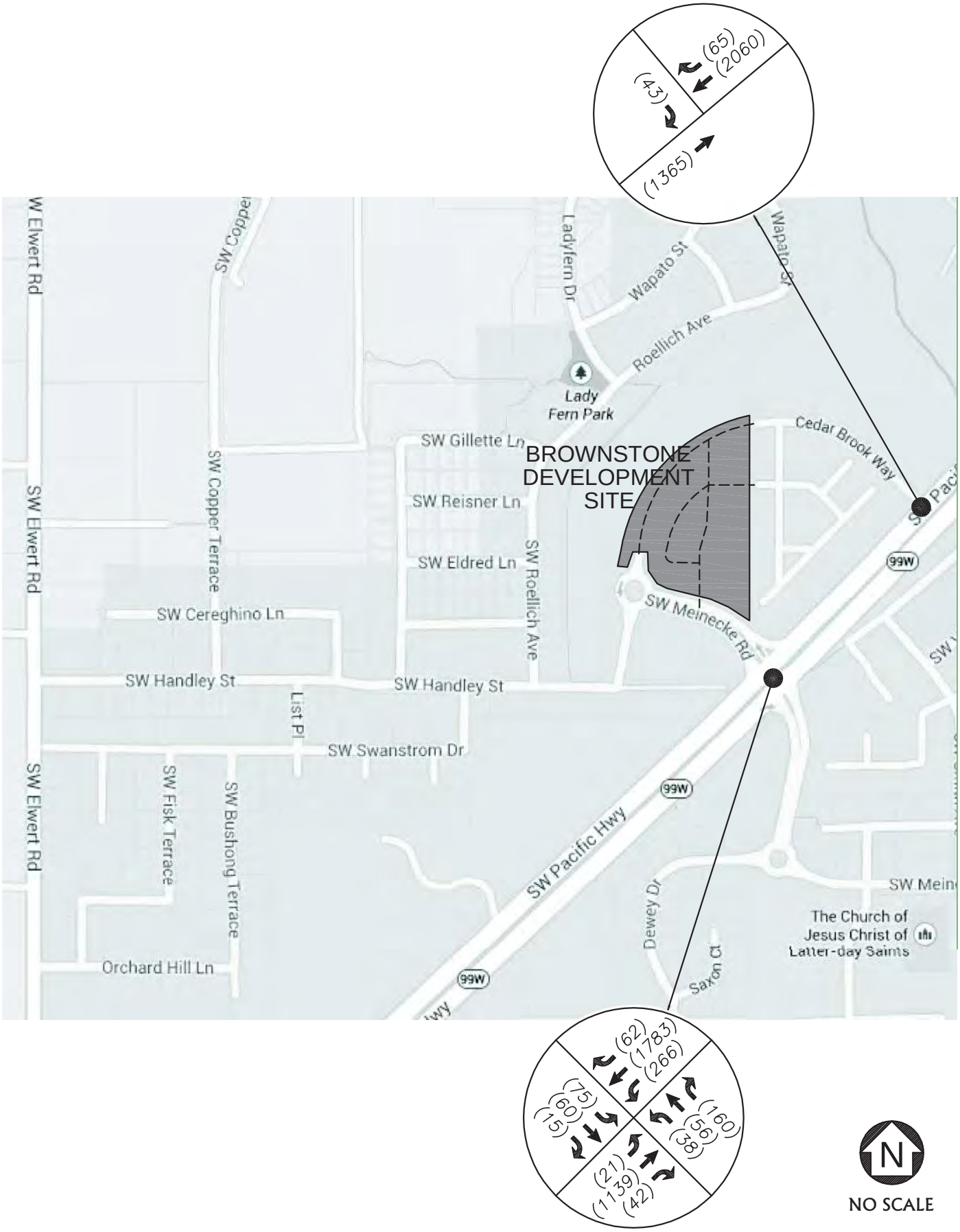
PROJECT: 13.19 - Brownstone Dev.

NOTES:

2013 - AM (PM) PEAK HOUR EXISTING RAW TRAFFIC VOLUMES AT STUDY AREA INTERSECTIONS

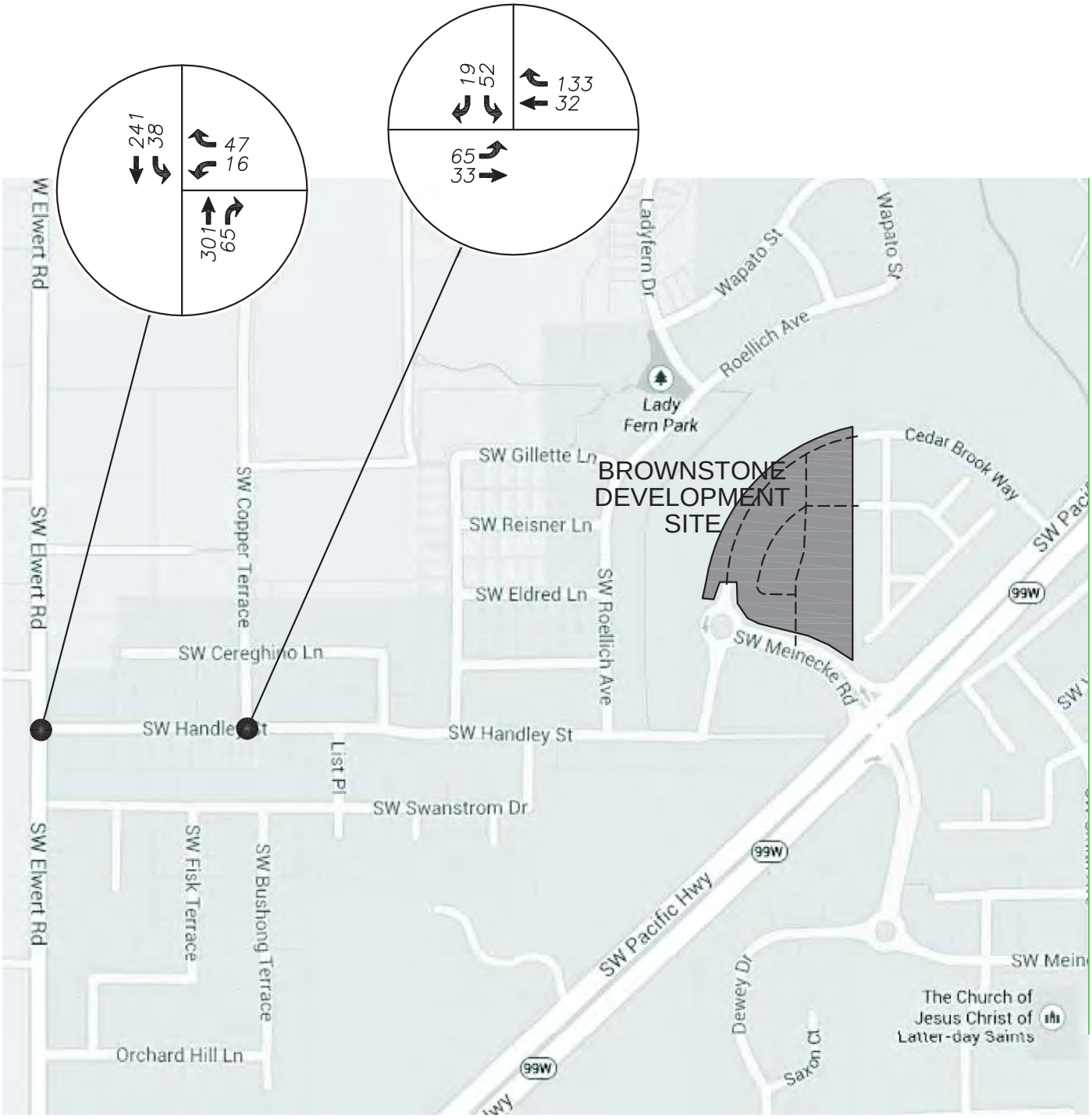
FIGURE 1



FILE NAME: Brownstone Dev Sherwood Figures 14SEP13.dwg

PLOT DATE: 9/14/2013

CHARBONNEAU ENGINEERING LLC PROJECT: 13.19 - Brownstone Dev.	NOTES:	2013 - ADJUSTED TO 30HV TRAFFIC VOLUMES AT STUDY AREA INTERSECTIONS	FIGURE 2



NO SCALE

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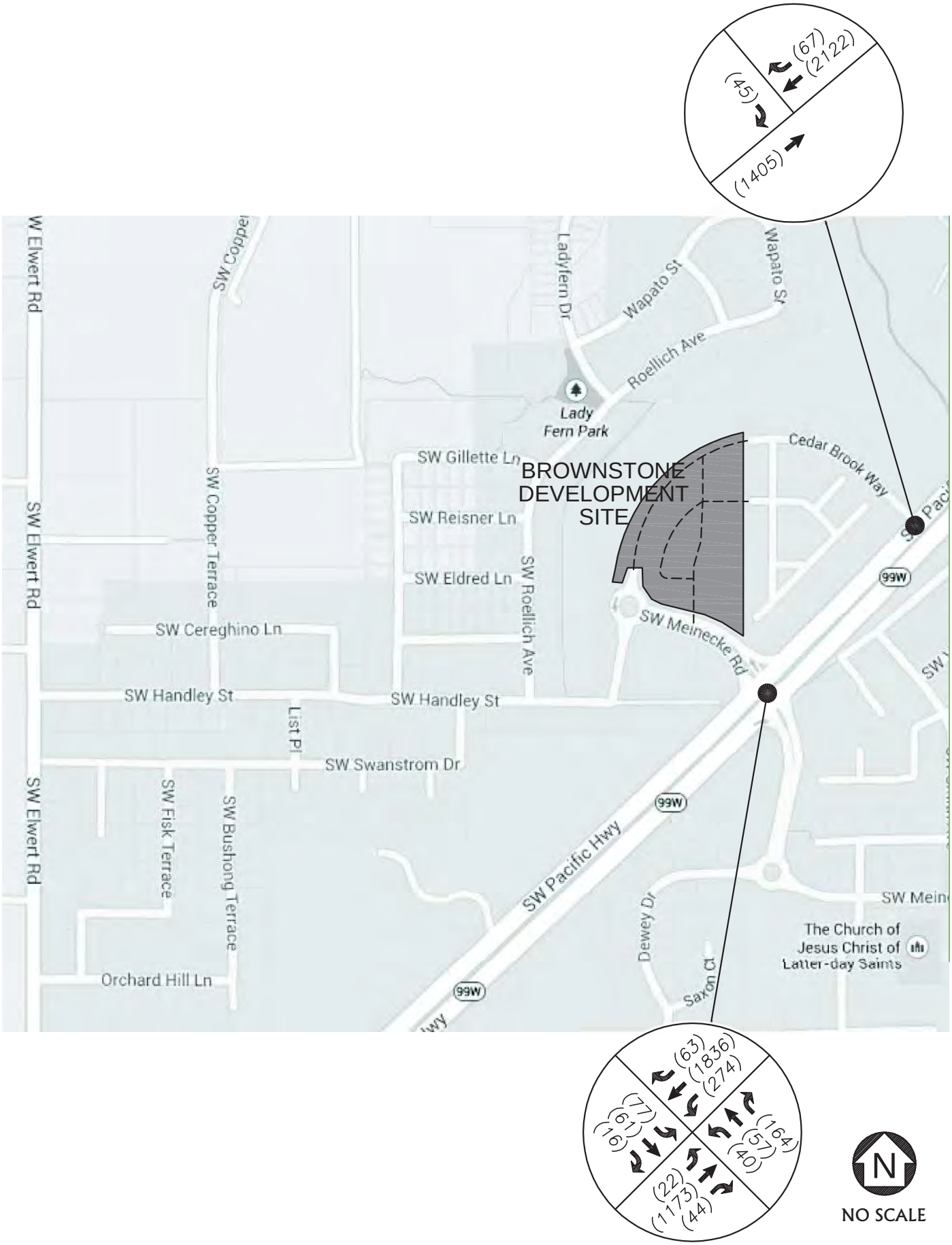
CHARBONNEAU ENGINEERING LLC

PROJECT: 13.19 - Brownstone Dev.

NOTES:
2016 BACKGROUND TRAFFIC = 1% GROWTH PER YEAR FOR 3 YEARS (3%)

AM PEAK HOUR
2016 BACKGROUND TRAFFIC
AT STUDY AREA INTERSECTIONS

FIGURE
3a



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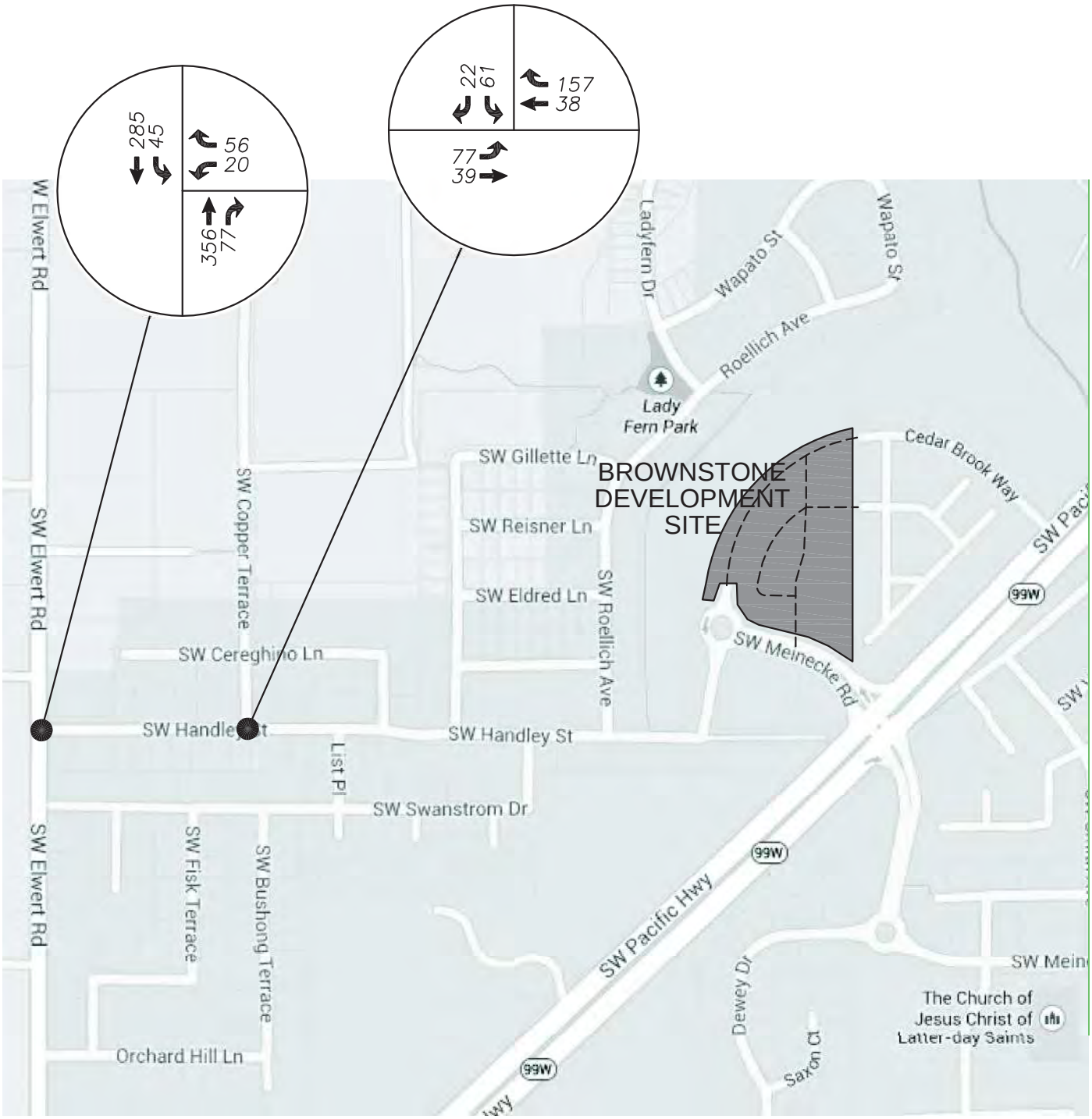
NOTES:
2016 BACKGROUND TRAFFIC = 1% GROWTH PER YEAR FOR 3 YEARS (3%)

(PM) PEAK HOUR
2016 BACKGROUND TRAFFIC
AT STUDY AREA INTERSECTIONS

FIGURE
3b



NO SCALE

FILE NAME: Brownstone Dev Sherwood Figures 14SEP13.dwg

PLOT DATE: 9/14/2013

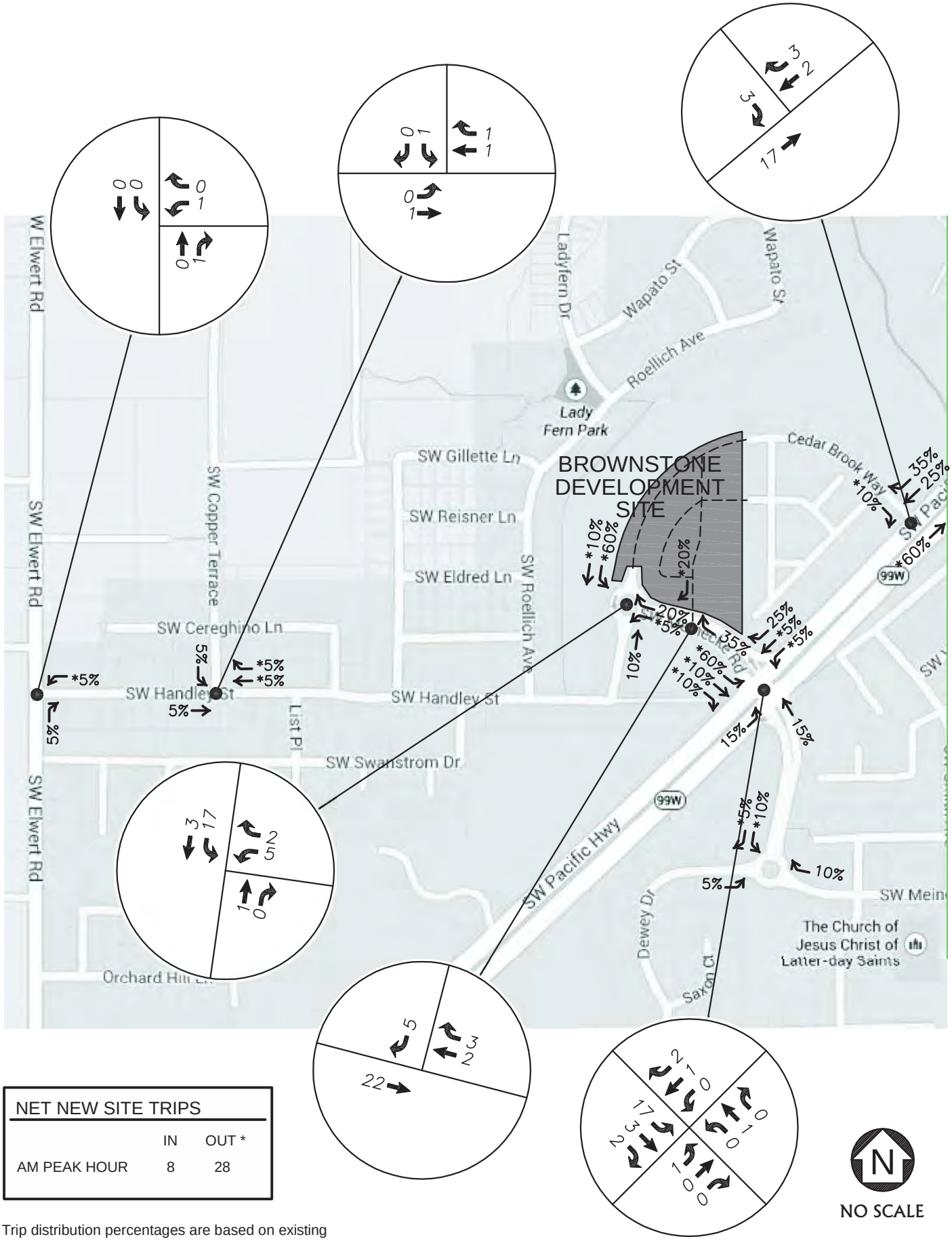
CHARBONNEAU ENGINEERING LLC

PROJECT: 13.19 - Brownstone Dev.

NOTES:
2035 BACKGROUND TRAFFIC = 1% GROWTH PER YEAR FOR 22 YEARS (22%)

AM PEAK HOUR
2035 BACKGROUND TRAFFIC
AT STUDY AREA INTERSECTIONS

FIGURE
4



Trip distribution percentages are based on existing traffic patterns and engineering judgement.

FILE NAME: Bonaventure Tigard Figures 01JUL13.dwg

PLOT DATE: 7/4/2013

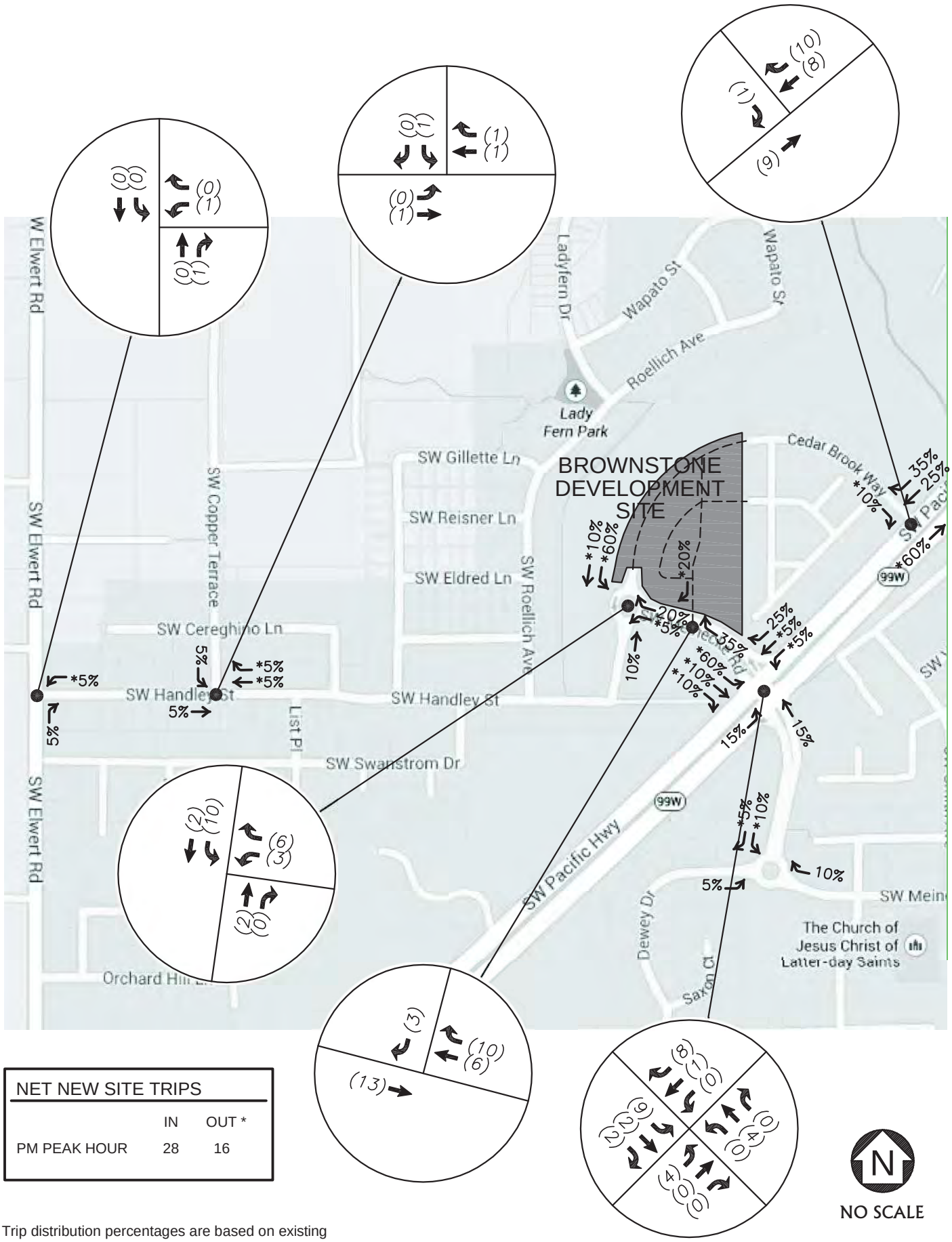
CHARBONNEAU ENGINEERING LLC

PROJECT: 13.14 - Bonav. Tigard

NOTES:
Trip Generation based on standard ITE rates for shopping center (code 210) and fast-food restaurant (code 230).

AM PEAK HOUR DISTRIBUTION & ASSIGNMENTS OF TRAFFIC FOR BROWNSTONE

FIGURE 5a



NET NEW SITE TRIPS	IN	OUT *
PM PEAK HOUR	28	16

Trip distribution percentages are based on existing traffic patterns and engineering judgement.

N

NO SCALE

FILE NAME: Bonaventure Tigard Figures 01JUL13.dwg

PLOT DATE: 7/4/2013

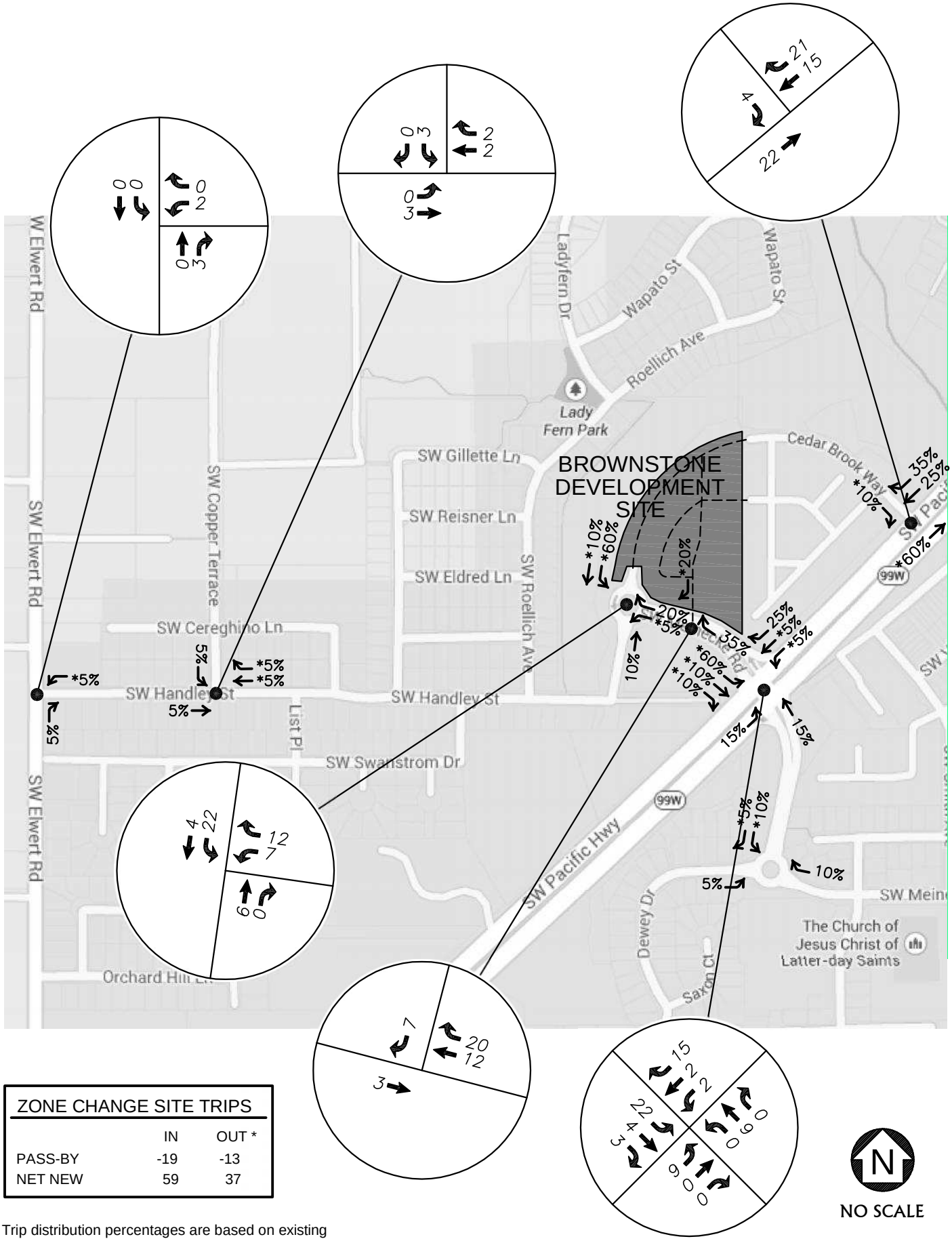
CHARBONNEAU ENGINEERING LLC

PROJECT: 13.14 - Bonav. Tigard

NOTES:
Trip Generation based on standard ITE rates for single family home (code 210) and condo/townhome (code 230).

(PM) PEAK HOUR DISTRIBUTION & ASSIGNMENTS OF TRAFFIC FOR BROWNSTONE

FIGURE 5b



ZONE CHANGE SITE TRIPS		
	IN	OUT *
PASS-BY	-19	-13
NET NEW	59	37

Trip distribution percentages are based on existing traffic patterns and engineering judgement.

CHARBONNEAU ENGINEERING LLC

PROJECT: 13.14 - Bonav. Tigard

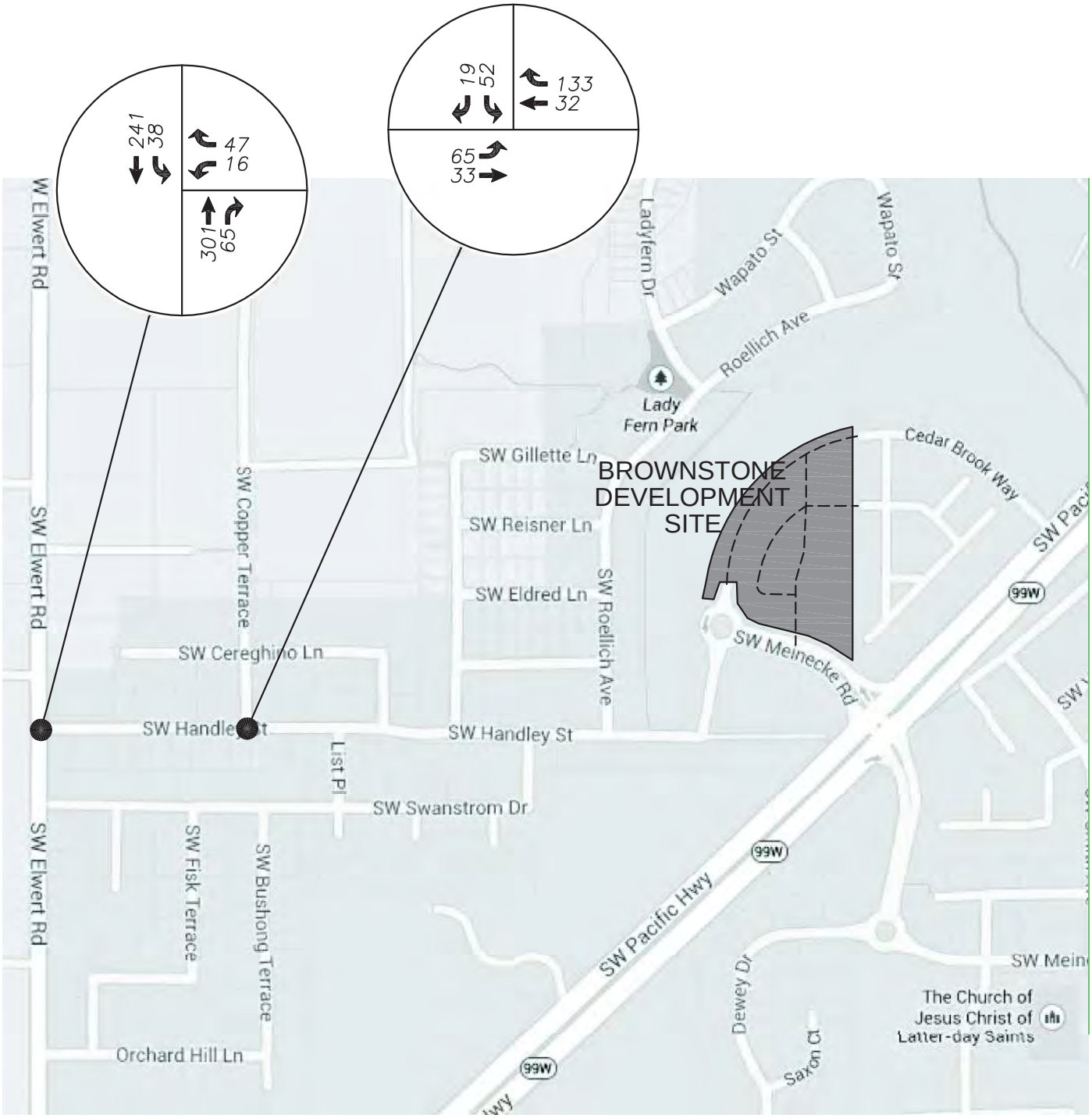
NOTES:
Trip Generation based on standard ITE rates for shopping center (code 820) and fast-food restaurant (code 933).

AM PEAK HOUR DISTRIBUTION & ASSIGNMENTS OF TRAFFIC FOR ZONE CHANGE

FIGURE 5c

FILE NAME: Bonaventure Tigard Figures 01JUL13.dwg

PLOT DATE: 7/4/2013



NO SCALE

FILE NAME: Brownstone Dev Sherwood Figures 14SEP13.dwg

PLOT DATE: 9/14/2013

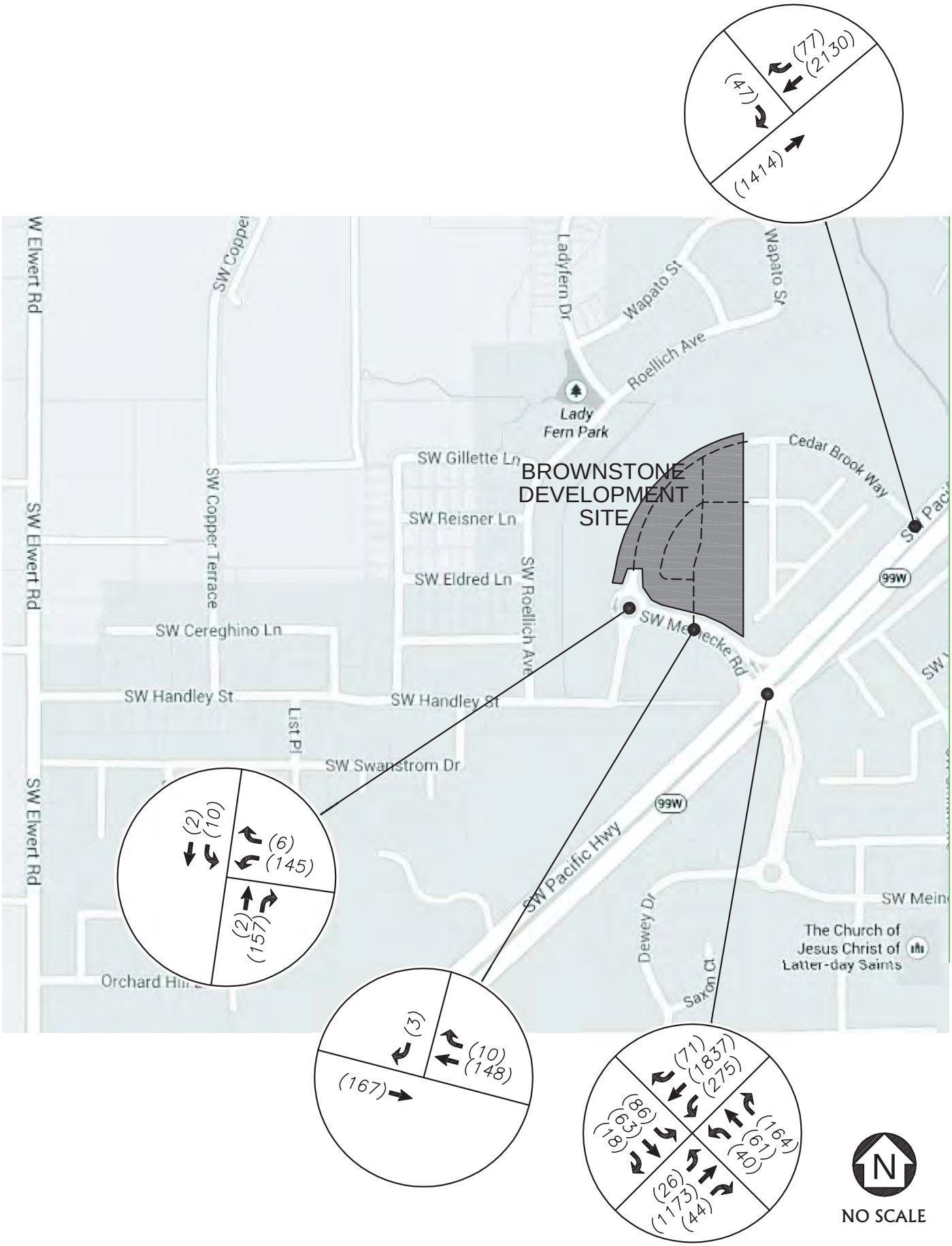
CHARBONNEAU ENGINEERING LLC

PROJECT: 13.19 - Brownstone Dev.

NOTES:
2016 AM PEAK HOUR TOTAL TRAFFIC = 2016 AM PEAK HOUR BACKGROUND TRAFFIC + TRIP ASSIGNMENTS FROM FIG 5a.

AM PEAK HOUR
2016 TOTAL TRAFFIC
AT STUDY AREA INTERSECTIONS

FIGURE
6a



FILE NAME: Brownstone Dev Sherwood Figures 14SEP13.dwg

PLOT DATE: 9/14/2013

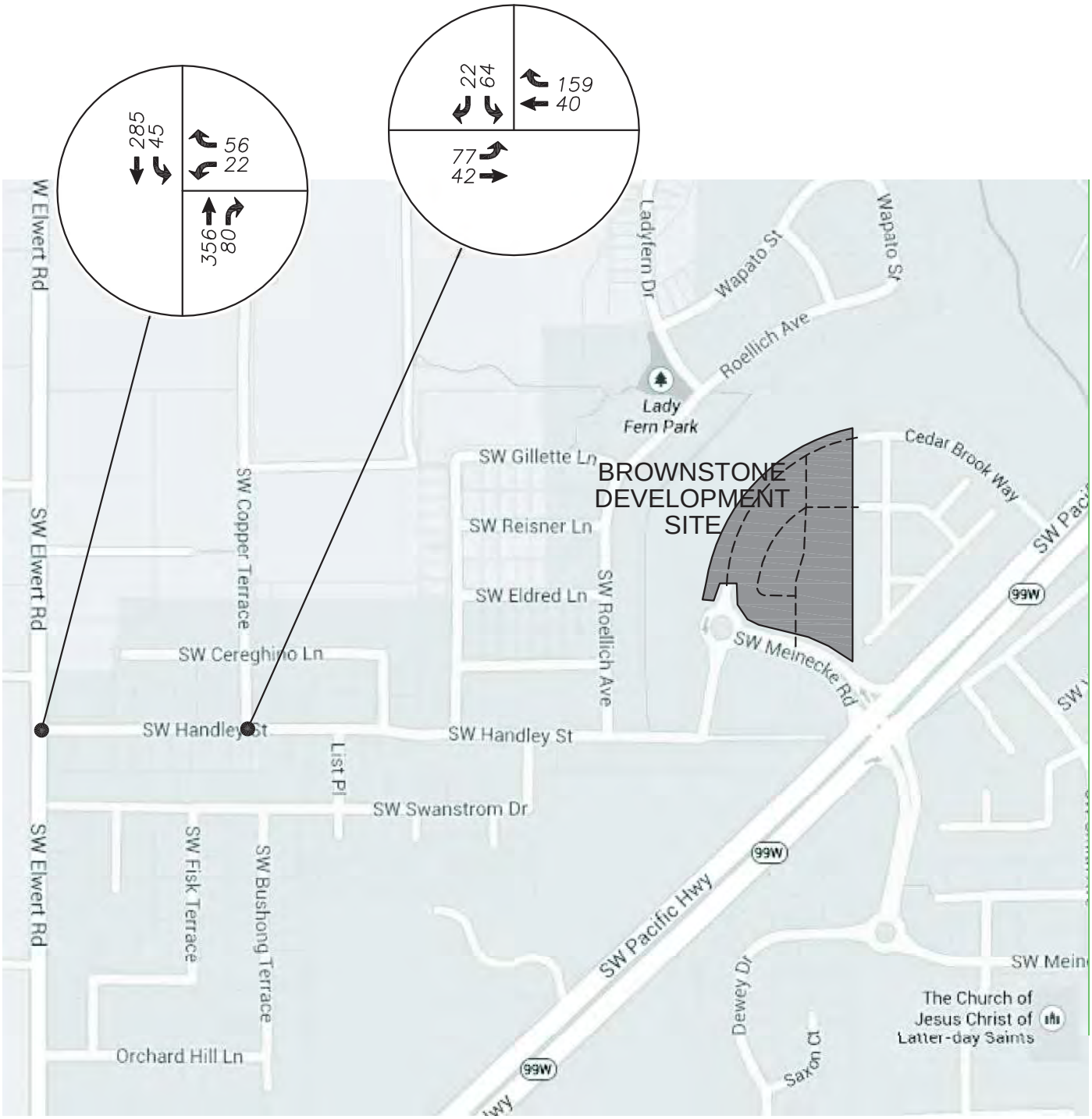
CHARBONNEAU ENGINEERING LLC

PROJECT: 13.19 - Brownstone Dev.

NOTES:
2016 (PM) PEAK HOUR TOTAL TRAFFIC = 2016 (PM) PEAK HOUR BACKGROUND TRAFFIC + TRIP ASSIGNMENTS FROM FIG 5b.

(PM) PEAK HOUR
2016 TOTAL TRAFFIC
AT STUDY AREA INTERSECTIONS

FIGURE
6b



NO SCALE

FILE NAME: Brownstone Dev Sherwood Figures 14SEP13.dwg

PLOT DATE: 9/14/2013

CHARBONNEAU ENGINEERING LLC

PROJECT: 13.19 - Brownstone Dev.

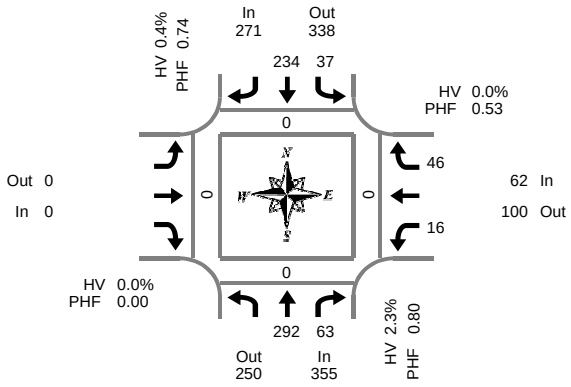
NOTES:
2035 AM PEAK HOUR TOTAL TRAFFIC = 2035 AM PEAK HOUR BACKGROUND TRAFFIC + TRIP ASSIGNMENTS FROM FIG 5c.

AM PEAK HOUR
2035 TOTAL TRAFFIC
AT STUDY AREA INTERSECTIONS

FIGURE
7

Total Vehicle Summary

Clay Carney
(503) 833-2740



Peak Hour Summary
7:15 AM to 8:15 AM

SW Elwert Rd & SW Handley St

Thursday, September 05, 2013
7:00 AM to 9:00 AM

15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW Elwert Rd				Southbound SW Elwert Rd				Eastbound SW Handley St				Westbound SW Handley St				Interval Total	Pedestrians Crosswalk			
		T	R	Bikes	L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
7:00 AM		67	2	0	2	36		0				0	2		3	0	112	0	0	0	0
7:15 AM		73	14	0	5	46		0				0	1		9	0	148	0	0	0	0
7:30 AM		81	30	0	20	71		0				0	5		6	0	213	0	0	0	0
7:45 AM		74	15	0	12	78		0				0	7		22	0	208	0	0	0	0
8:00 AM		64	4	0	0	39		0				0	3		9	0	119	0	0	0	0
8:15 AM		47	0	0	2	47		0				0	1		3	0	100	0	0	0	0
8:30 AM		46	3	0	0	36		0				0	1		4	0	90	0	0	0	0
8:45 AM		33	5	0	1	36		0				0	0		1	0	76	0	0	0	0
Total Survey		485	73	0	42	389		0				0	20		57	0	1,066	0	0	0	0

Peak Hour Summary
7:15 AM to 8:15 AM

By Approach	Northbound SW Elwert Rd				Southbound SW Elwert Rd				Eastbound SW Handley St				Westbound SW Handley St				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	355	250	605	0	271	338	609	0	0	0	0	0	62	100	162	0	688	0	0	0	0
%HV	2.3%				0.4%				0.0%				0.0%				1.3%				
PHF	0.80				0.74				0.00				0.53				0.81				

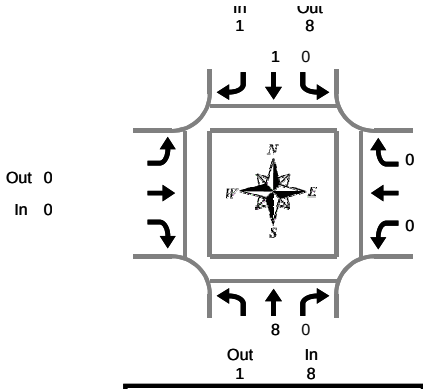
By Movement	Northbound SW Elwert Rd				Southbound SW Elwert Rd				Eastbound SW Handley St				Westbound SW Handley St				Total
		T	R	Total	L	T		Total				Total	L		R	Total	
Volume		292	63	355	37	234		271				0	16		46	62	688
%HV	NA	2.7%	0.0%	2.3%	0.0%	0.4%	NA	0.4%	NA	NA	NA	0.0%	0.0%	NA	0.0%	0.0%	1.3%
PHF		0.90	0.53	0.80	0.46	0.75		0.74				0.00	0.57		0.52	0.53	0.81

Rolling Hour Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW Elwert Rd				Southbound SW Elwert Rd				Eastbound SW Handley St				Westbound SW Handley St				Interval Total	Pedestrians Crosswalk			
		T	R	Bikes	L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
7:00 AM		295	61	0	39	231		0				0	15		40	0	681	0	0	0	0
7:15 AM		292	63	0	37	234		0				0	16		46	0	688	0	0	0	0
7:30 AM		266	49	0	34	235		0				0	16		40	0	640	0	0	0	0
7:45 AM		231	22	0	14	200		0				0	12		38	0	517	0	0	0	0
8:00 AM		190	12	0	3	158		0				0	5		17	0	385	0	0	0	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



SW Elwert Rd & SW Handley St

Thursday, September 05, 2013
7:00 AM to 9:00 AM

Peak Hour Summary
7:15 AM to 8:15 AM

Heavy Vehicle 15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW Elwert Rd				Southbound SW Elwert Rd				Eastbound SW Handley St				Westbound SW Handley St				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
7:00 AM		0	0	0	0	0		0				0	0		0	0	0
7:15 AM		3	0	3	0	1		1				0	0		0	0	4
7:30 AM		1	0	1	0	0		0				0	0		0	0	1
7:45 AM		2	0	2	0	0		0				0	0		0	0	2
8:00 AM		2	0	2	0	0		0				0	0		0	0	2
8:15 AM		1	0	1	0	1		1				0	0		0	0	2
8:30 AM		1	0	1	0	0		0				0	0		0	0	1
8:45 AM		1	0	1	0	1		1				0	0		0	0	2
Total Survey		11	0	11	0	3		3				0	0		0	0	14

Heavy Vehicle Peak Hour Summary
7:15 AM to 8:15 AM

By Approach	Northbound SW Elwert Rd			Southbound SW Elwert Rd			Eastbound SW Handley St			Westbound SW Handley St			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	8	1	9	1	8	9	0	0	0	0	0	0	9
PHF	0.33			0.13			0.00			0.00			0.32

By Movement	Northbound SW Elwert Rd				Southbound SW Elwert Rd				Eastbound SW Handley St				Westbound SW Handley St				Total
		T	R	Total	L	T		Total				Total	L		R	Total	
Volume		8	0	8	0	1		1				0	0		0	0	9
PHF		0.33	0.00	0.33	0.00	0.13		0.13				0.00	0.00		0.00	0.00	0.32

Heavy Vehicle Rolling Hour Summary
7:00 AM to 9:00 AM

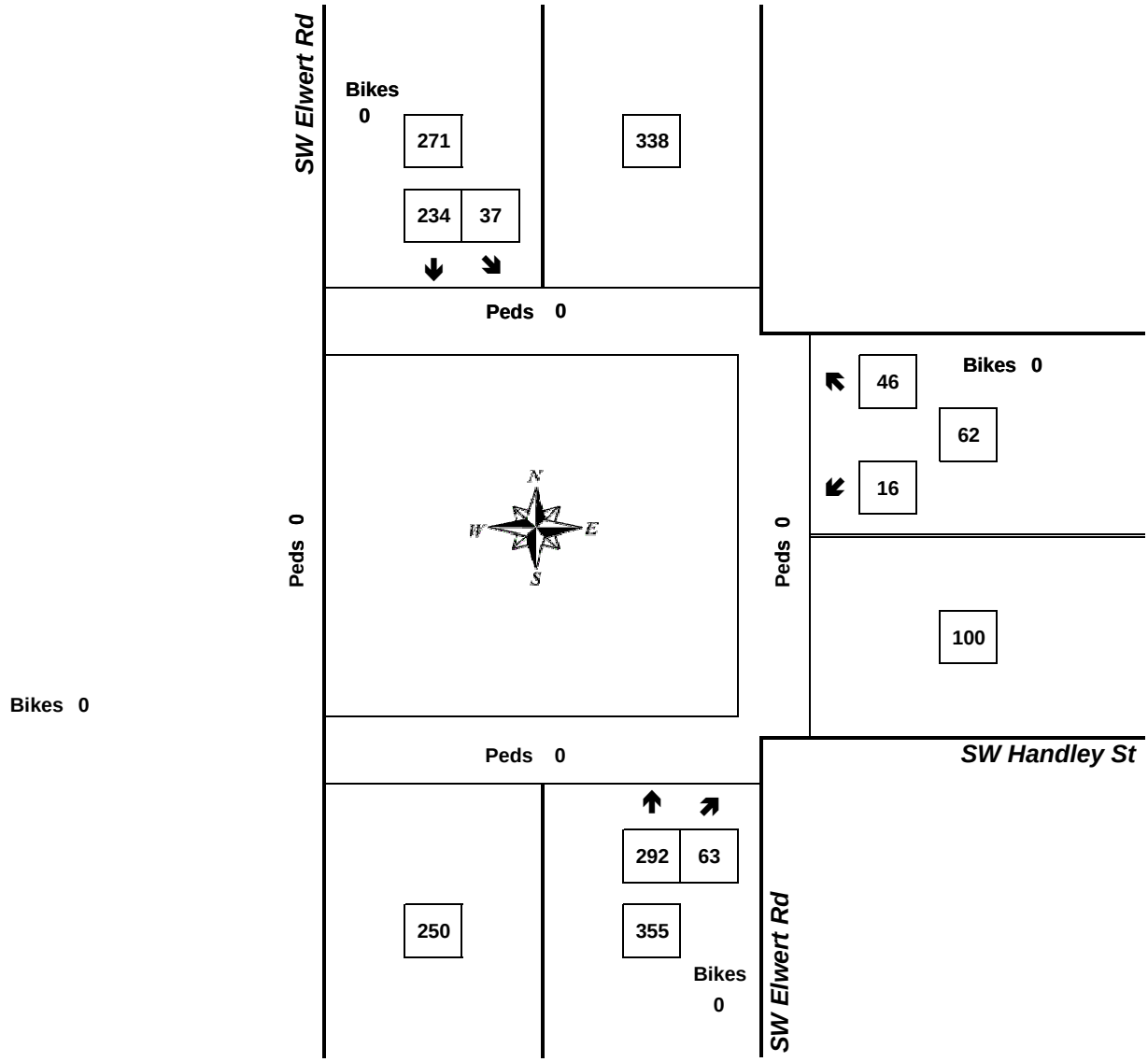
Interval Start Time	Northbound SW Elwert Rd				Southbound SW Elwert Rd				Eastbound SW Handley St				Westbound SW Handley St				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
7:00 AM		6	0	6	0	1		1				0	0		0	0	7
7:15 AM		8	0	8	0	1		1				0	0		0	0	9
7:30 AM		6	0	6	0	1		1				0	0		0	0	7
7:45 AM		6	0	6	0	1		1				0	0		0	0	7
8:00 AM		5	0	5	0	2		2				0	0		0	0	7

Peak Hour Summary

Clay Carney
(503) 833-2740

SW Elwert Rd & SW Handley St

7:15 AM to 8:15 AM
Thursday, September 05, 2013

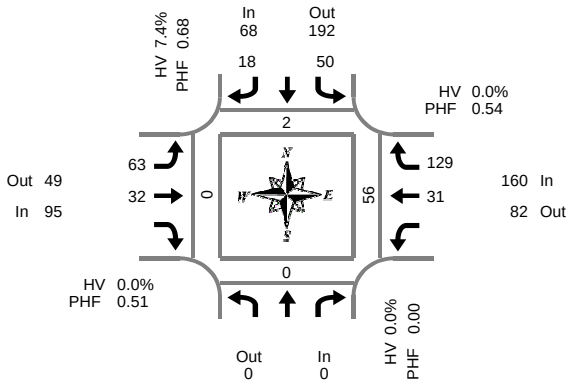


Approach	PHF	HV%	Volume
EB	0.00	0.0%	0
WB	0.53	0.0%	62
NB	0.80	2.3%	355
SB	0.74	0.4%	271
Intersection	0.81	1.3%	688

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

Clay Carney
(503) 833-2740



Peak Hour Summary
7:15 AM to 8:15 AM

SW Copper Terrace & SW Handley Rd

Thursday, September 05, 2013
7:00 AM to 9:00 AM

15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW Copper Terrace				Southbound SW Copper Terrace				Eastbound SW Handley Rd				Westbound SW Handley Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
7:00 AM				0	4		2	0	3	3		0		2	5	0	19	0	0	0	0
7:15 AM				0	16		2	0	16	3		0		6	14	0	57	0	0	1	0
7:30 AM				0	20		5	0	35	12		0		8	66	0	146	2	0	35	0
7:45 AM				0	5		7	0	10	15		0		9	43	0	89	0	0	16	0
8:00 AM				0	9		4	0	2	2		0		8	6	0	31	0	0	4	0
8:15 AM				0	1		2	0	1	2		0		4	3	0	13	0	0	1	0
8:30 AM				0	1		0	0	1	4		0		5	1	0	12	0	0	0	0
8:45 AM				0	2		1	0	3	2		0		1	0	0	9	0	0	0	0
Total Survey				0	58		23	0	71	43		0		43	138	0	376	2	0	57	0

Peak Hour Summary
7:15 AM to 8:15 AM

By Approach	Northbound SW Copper Terrace				Southbound SW Copper Terrace				Eastbound SW Handley Rd				Westbound SW Handley Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	0	0	0	68	192	260	0	95	49	144	0	160	82	242	0	323	2	0	56	0
%HV	0.0%				7.4%				0.0%				0.0%				1.5%				
PHF	0.00				0.68				0.51				0.54				0.55				

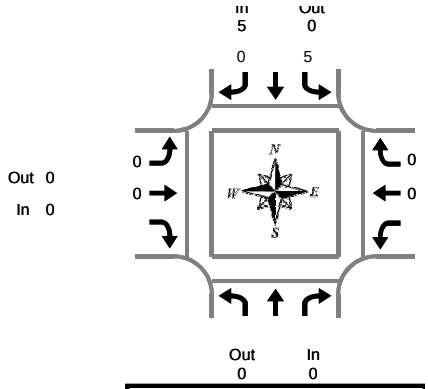
By Movement	Northbound SW Copper Terrace				Southbound SW Copper Terrace				Eastbound SW Handley Rd				Westbound SW Handley Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	50		18	68	63	32		95		31	129	160	323
%HV	NA	NA	NA	0.0%	10.0%	NA	0.0%	7.4%	0.0%	0.0%	NA	0.0%	NA	0.0%	0.0%	0.0%	1.5%
PHF				0.00	0.63		0.64	0.68	0.45	0.53		0.51		0.86	0.49	0.54	0.55

Rolling Hour Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW Copper Terrace				Southbound SW Copper Terrace				Eastbound SW Handley Rd				Westbound SW Handley Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
7:00 AM				0	45		16	0	64	33		0		25	128	0	311	2	0	52	0
7:15 AM				0	50		18	0	63	32		0		31	129	0	323	2	0	56	0
7:30 AM				0	35		18	0	48	31		0		29	118	0	279	2	0	56	0
7:45 AM				0	16		13	0	14	23		0		26	53	0	145	0	0	21	0
8:00 AM				0	13		7	0	7	10		0		18	10	0	65	0	0	5	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



SW Copper Terrace & SW Handley Rd

Thursday, September 05, 2013
7:00 AM to 9:00 AM

Peak Hour Summary
7:15 AM to 8:15 AM

Heavy Vehicle 15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW Copper Terrace				Southbound SW Copper Terrace				Eastbound SW Handley Rd				Westbound SW Handley Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
7:00 AM				0	0		0	0	0	0		0		0	0	0	0
7:15 AM				0	2		0	2	0	0		0		0	0	0	2
7:30 AM				0	1		0	1	0	0		0		0	0	0	1
7:45 AM				0	2		0	2	0	0		0		0	0	0	2
8:00 AM				0	0		0	0	0	0		0		0	0	0	0
8:15 AM				0	0		0	0	0	0		0		0	0	0	0
8:30 AM				0	0		0	0	0	0		0		0	0	0	0
8:45 AM				0	0		0	0	0	0		0		0	0	0	0
Total Survey				0	5		0	5	0	0		0		0	0	0	5

Heavy Vehicle Peak Hour Summary
7:15 AM to 8:15 AM

By Approach	Northbound SW Copper Terrace			Southbound SW Copper Terrace			Eastbound SW Handley Rd			Westbound SW Handley Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	5	0	5	0	0	0	0	5	5	5
PHF	0.00			0.25			0.00			0.00			0.25

By Movement	Northbound SW Copper Terrace				Southbound SW Copper Terrace				Eastbound SW Handley Rd				Westbound SW Handley Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	5		0	5	0	0		0		0	0	0	5
PHF				0.00	0.25		0.00	0.25	0.00	0.00		0.00		0.00	0.00	0.00	0.25

Heavy Vehicle Rolling Hour Summary
7:00 AM to 9:00 AM

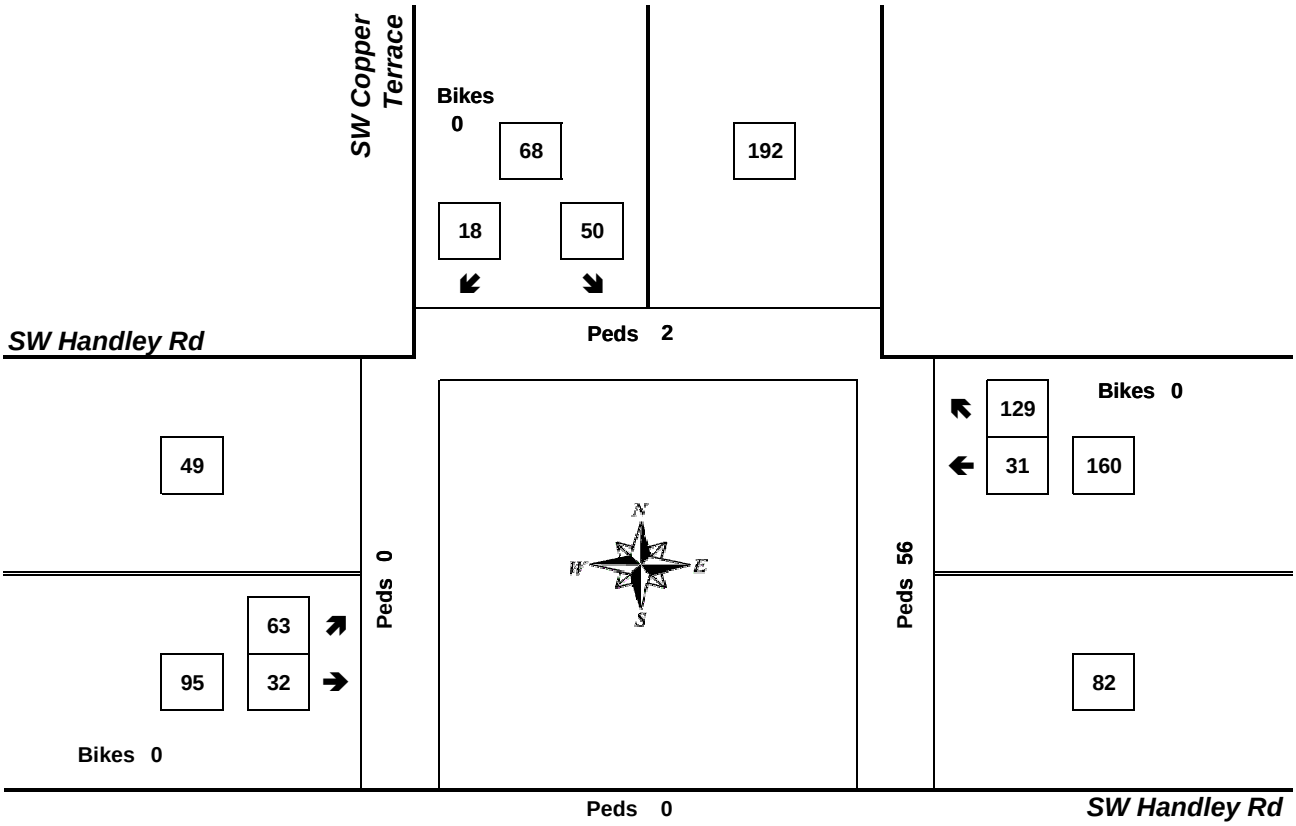
Interval Start Time	Northbound SW Copper Terrace				Southbound SW Copper Terrace				Eastbound SW Handley Rd				Westbound SW Handley Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
7:00 AM				0	5		0	5	0	0		0		0	0	0	5
7:15 AM				0	5		0	5	0	0		0		0	0	0	5
7:30 AM				0	3		0	3	0	0		0		0	0	0	3
7:45 AM				0	2		0	2	0	0		0		0	0	0	2
8:00 AM				0	0		0	0	0	0		0		0	0	0	0

Peak Hour Summary

Clay Carney
(503) 833-2740

SW Copper Terrace & SW Handley Rd

7:15 AM to 8:15 AM
Thursday, September 05, 2013

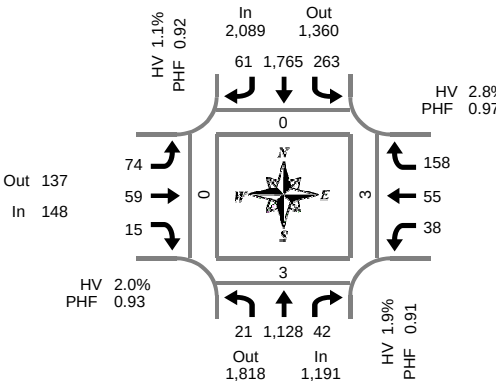


Approach	PHF	HV%	Volume
EB	0.51	0.0%	95
WB	0.54	0.0%	160
NB	0.00	0.0%	0
SB	0.68	7.4%	68
Intersection	0.55	1.5%	323

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

Clay Carney
(503) 833-2740



Peak Hour Summary
5:00 PM to 6:00 PM

Hwy 99 W & SW Meinecke Pkwy

Tuesday, August 27, 2013
4:00 PM to 6:00 PM

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99 W			Southbound Hwy 99 W			Eastbound SW Meinecke Pkwy			Westbound SW Meinecke Pkwy			Interval Total	Pedestrians Crosswalk			
	L	T	R	L	T	R	L	T	R	L	T	R		North	South	East	West
4:00 PM	4	291	12	49	429	10	13	13	6	9	6	31	873	0	2	0	0
4:15 PM	3	302	9	51	425	10	13	16	2	8	12	34	885	0	0	2	0
4:30 PM	5	302	12	59	426	13	19	11	4	11	12	40	914	0	1	1	0
4:45 PM	6	286	8	57	426	15	15	19	5	7	9	33	886	0	3	0	0
5:00 PM	3	269	12	62	432	12	20	13	1	5	14	44	887	0	2	0	0
5:15 PM	6	310	12	71	421	12	19	15	2	12	15	38	933	0	0	1	0
5:30 PM	7	255	10	64	483	18	16	18	6	12	12	34	935	0	0	2	0
5:45 PM	5	294	8	66	429	19	19	13	6	9	14	42	924	0	1	0	0
Total Survey	39	2,309	83	479	3,471	109	134	118	32	73	94	296	7,237	0	9	6	0

Peak Hour Summary
5:00 PM to 6:00 PM

By Approach	Northbound Hwy 99 W			Southbound Hwy 99 W			Eastbound SW Meinecke Pkwy			Westbound SW Meinecke Pkwy			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	1,191	1,818	3,009	2,089	1,360	3,449	148	137	285	251	364	615	3,679
%HV	1.9%			1.1%			2.0%			2.8%			1.5%
PHF	0.91			0.92			0.93			0.97			0.98

Pedestrians Crosswalk			
North	South	East	West
0	3	3	0

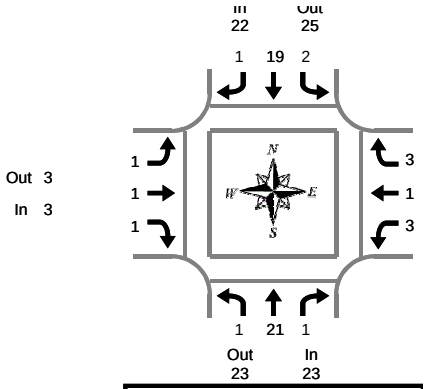
By Movement	Northbound Hwy 99 W			Southbound Hwy 99 W			Eastbound SW Meinecke Pkwy			Westbound SW Meinecke Pkwy			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Volume	21	1,128	42	263	1,765	61	74	59	15	38	55	158	3,679
%HV	4.8%	1.9%	2.4%	0.8%	1.1%	1.6%	1.4%	1.7%	6.7%	7.9%	1.8%	1.9%	1.5%
PHF	0.75	0.91	0.88	0.93	0.91	0.80	0.93	0.82	0.63	0.79	0.92	0.90	0.98

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99 W			Southbound Hwy 99 W			Eastbound SW Meinecke Pkwy			Westbound SW Meinecke Pkwy			Interval Total	Pedestrians Crosswalk			
	L	T	R	L	T	R	L	T	R	L	T	R		North	South	East	West
4:00 PM	18	1,181	41	216	1,706	48	60	59	17	35	39	138	3,558	0	6	3	0
4:15 PM	17	1,159	41	229	1,709	50	67	59	12	31	47	151	3,572	0	6	3	0
4:30 PM	20	1,167	44	249	1,705	52	73	58	12	35	50	155	3,620	0	6	2	0
4:45 PM	22	1,120	42	254	1,762	57	70	65	14	36	50	149	3,641	0	5	3	0
5:00 PM	21	1,128	42	263	1,765	61	74	59	15	38	55	158	3,679	0	3	3	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Peak Hour Summary
5:00 PM to 6:00 PM

Hwy 99 W & SW Meinecke Pkwy

Tuesday, August 27, 2013
4:00 PM to 6:00 PM

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99 W				Southbound Hwy 99 W				Eastbound SW Meinecke Pkwy				Westbound SW Meinecke Pkwy				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	8	2	10	1	10	0	11	2	0	0	2	0	0	1	1	24
4:15 PM	1	9	0	10	0	10	1	11	0	1	0	1	0	2	2	4	26
4:30 PM	0	13	1	14	0	15	0	15	1	0	0	1	1	1	0	2	32
4:45 PM	0	5	0	5	2	3	0	5	0	0	0	0	0	0	0	0	10
5:00 PM	0	4	0	4	0	5	0	5	0	1	0	1	2	1	2	5	15
5:15 PM	1	3	1	5	1	2	1	4	1	0	0	1	0	0	0	0	10
5:30 PM	0	8	0	8	0	6	0	6	0	0	1	1	1	0	0	1	16
5:45 PM	0	6	0	6	1	6	0	7	0	0	0	0	0	0	1	1	14
Total Survey	2	56	4	62	5	57	2	64	4	2	1	7	4	4	6	14	147

Heavy Vehicle Peak Hour Summary
5:00 PM to 6:00 PM

By Approach	Northbound Hwy 99 W			Southbound Hwy 99 W			Eastbound SW Meinecke Pkwy			Westbound SW Meinecke Pkwy			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	23	23	46	22	25	47	3	3	6	7	4	11	55
PHF	0.17			0.15			0.19			0.25			0.17

By Movement	Northbound Hwy 99 W				Southbound Hwy 99 W				Eastbound SW Meinecke Pkwy				Westbound SW Meinecke Pkwy				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	1	21	1	23	2	19	1	22	1	1	1	3	3	1	3	7	55
PHF	0.25	0.18	0.08	0.17	0.17	0.14	0.25	0.15	0.08	0.25	0.25	0.19	0.25	0.08	0.25	0.25	0.17

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

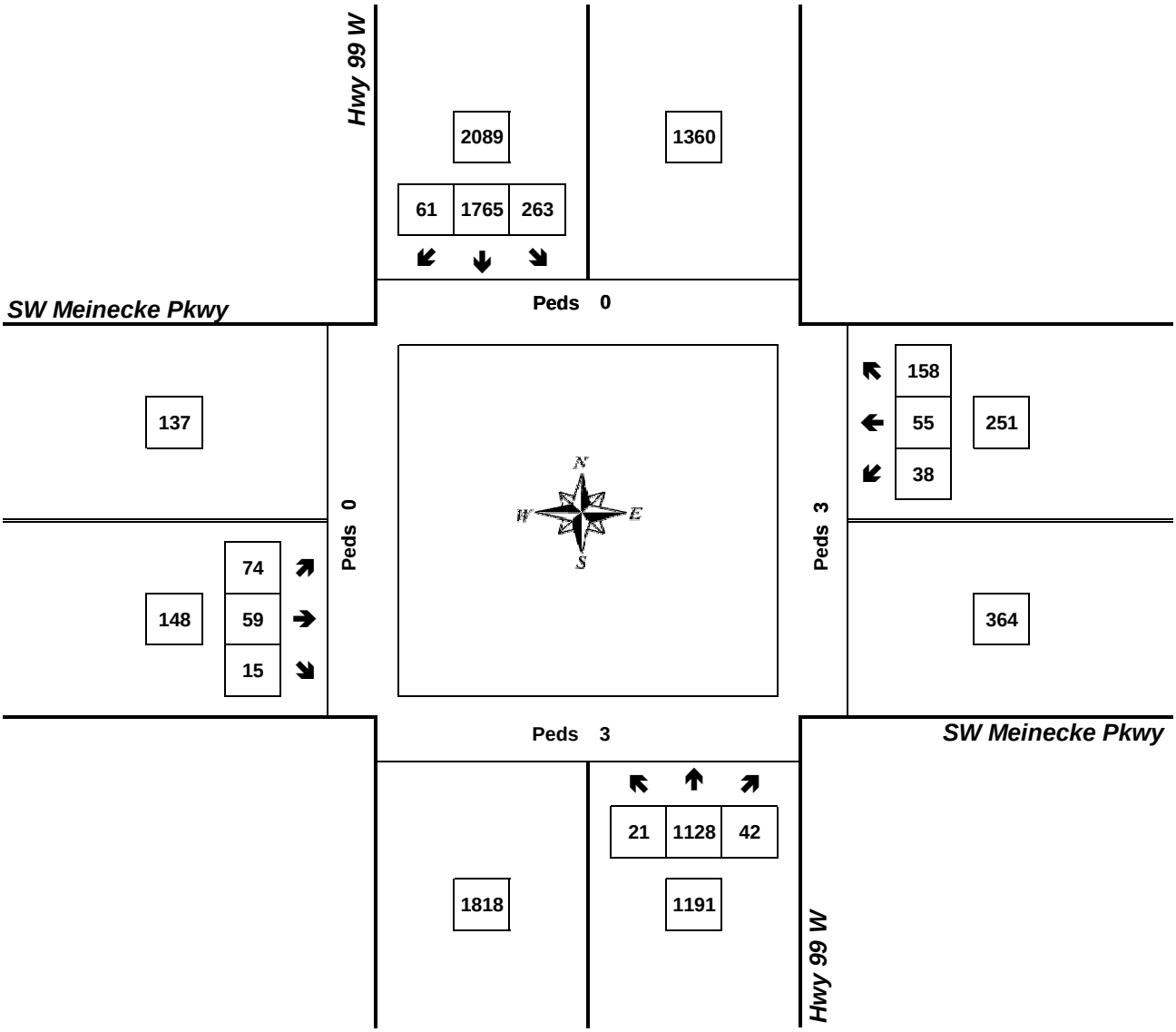
Interval Start Time	Northbound Hwy 99 W				Southbound Hwy 99 W				Eastbound SW Meinecke Pkwy				Westbound SW Meinecke Pkwy				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	1	35	3	39	3	38	1	42	3	1	0	4	1	3	3	7	92
4:15 PM	1	31	1	33	2	33	1	36	1	2	0	3	3	4	4	11	83
4:30 PM	1	25	2	28	3	25	1	29	2	1	0	3	3	2	2	7	67
4:45 PM	1	20	1	22	3	16	1	20	1	1	1	3	3	1	2	6	51
5:00 PM	1	21	1	23	2	19	1	22	1	1	1	3	3	1	3	7	55

Peak Hour Summary

Clay Carney
(503) 833-2740

Hwy 99 W & SW Meinecke Pkwy

5:00 PM to 6:00 PM
Tuesday, August 27, 2013

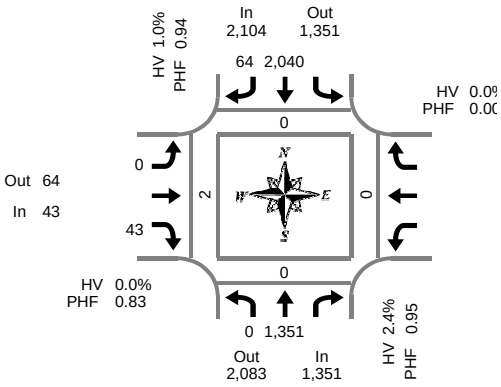


Approach	PHF	HV%	Volume
EB	0.93	2.0%	148
WB	0.97	2.8%	251
NB	0.91	1.9%	1,191
SB	0.92	1.1%	2,089
Intersection	0.98	1.5%	3,679

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

Clay Carney
(503) 833-2740



Hwy 99 W & SW Cedar Brook Way

Tuesday, August 27, 2013
4:00 PM to 6:00 PM

Peak Hour Summary
4:45 PM to 5:45 PM

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99 W			Southbound Hwy 99 W			Eastbound SW Cedar Brook Way			Westbound SW Cedar Brook Way			Interval Total	Pedestrians Crosswalk			
	L	T			T	R	L		R					North	South	East	West
4:00 PM	0	352			489	16	0		11				868	0	0	0	0
4:15 PM	0	353			476	21	0		16				866	0	0	0	0
4:30 PM	0	333			485	11	0		4				833	0	0	0	0
4:45 PM	0	353			505	15	0		6				879	0	0	0	0
5:00 PM	0	341			482	15	0		12				850	0	0	0	0
5:15 PM	0	355			505	22	0		13				895	0	0	0	1
5:30 PM	0	302			548	12	0		12				874	0	0	0	1
5:45 PM	0	337			485	20	0		15				857	0	0	0	0
Total Survey	0	2,726			3,975	132	0		89				6,922	0	0	0	2

Peak Hour Summary
4:45 PM to 5:45 PM

By Approach	Northbound Hwy 99 W			Southbound Hwy 99 W			Eastbound SW Cedar Brook Way			Westbound SW Cedar Brook Way			Total	Pedestrians Crosswalk			
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total		North	South	East	West
Volume	1,351	2,083	3,434	2,104	1,351	3,455	43	64	107	0	0	0	3,498	0	0	0	2
%HV	2.4%			1.0%			0.0%			0.0%			1.5%				
PHF	0.95			0.94			0.83			0.00			0.98				

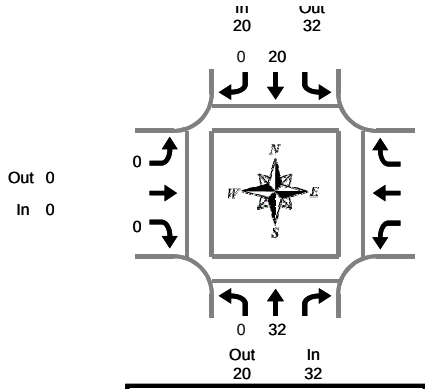
By Movement	Northbound Hwy 99 W			Southbound Hwy 99 W			Eastbound SW Cedar Brook Way			Westbound SW Cedar Brook Way			Total
	L	T			T	R	L		R				
Volume	0	1,351			2,040	64	0		43				3,498
%HV	0.0%	2.4%	NA	NA	1.0%	0.0%	0.0%	NA	0.0%	NA	NA	NA	1.5%
PHF	0.00	0.95			0.93	0.73	0.00		0.83				0.98

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99 W			Southbound Hwy 99 W			Eastbound SW Cedar Brook Way			Westbound SW Cedar Brook Way			Interval Total	Pedestrians Crosswalk			
	L	T			T	R	L		R					North	South	East	West
4:00 PM	0	1,391			1,955	63	0		37				3,446	0	0	0	0
4:15 PM	0	1,380			1,948	62	0		38				3,428	0	0	0	0
4:30 PM	0	1,382			1,977	63	0		35				3,457	0	0	0	1
4:45 PM	0	1,351			2,040	64	0		43				3,498	0	0	0	2
5:00 PM	0	1,335			2,020	69	0		52				3,476	0	0	0	2

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Peak Hour Summary
4:45 PM to 5:45 PM

Hwy 99 W & SW Cedar Brook Way

Tuesday, August 27, 2013
4:00 PM to 6:00 PM

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99 W				Southbound Hwy 99 W				Eastbound SW Cedar Brook Way				Westbound SW Cedar Brook Way				Interval Total
	L	T		Total		T	R	Total	L		R	Total				Total	
4:00 PM	0	19		19		12	0	12	0		0	0				0	31
4:15 PM	0	9		9		10	0	10	0		0	0				0	19
4:30 PM	0	2		2		15	0	15	0		0	0				0	17
4:45 PM	0	10		10		4	0	4	0		0	0				0	14
5:00 PM	0	9		9		4	0	4	0		0	0				0	13
5:15 PM	0	4		4		5	0	5	0		0	0				0	9
5:30 PM	0	9		9		7	0	7	0		0	0				0	16
5:45 PM	0	7		7		6	0	6	0		0	0				0	13
Total Survey	0	69		69		63	0	63	0		0	0				0	132

Heavy Vehicle Peak Hour Summary
4:45 PM to 5:45 PM

By Approach	Northbound Hwy 99 W			Southbound Hwy 99 W			Eastbound SW Cedar Brook Way			Westbound SW Cedar Brook Way			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	32	20	52	20	32	52	0	0	0	0	0	0	52
PHF	0.27			0.14			0.00			0.00			0.19

By Movement	Northbound Hwy 99 W				Southbound Hwy 99 W				Eastbound SW Cedar Brook Way				Westbound SW Cedar Brook Way				Total
	L	T		Total		T	R	Total	L		R	Total				Total	
Volume	0	32		32		20	0	20	0		0	0				0	52
PHF	0.00	0.27		0.27		0.14	0.00	0.14	0.00		0.00	0.00				0.00	0.19

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

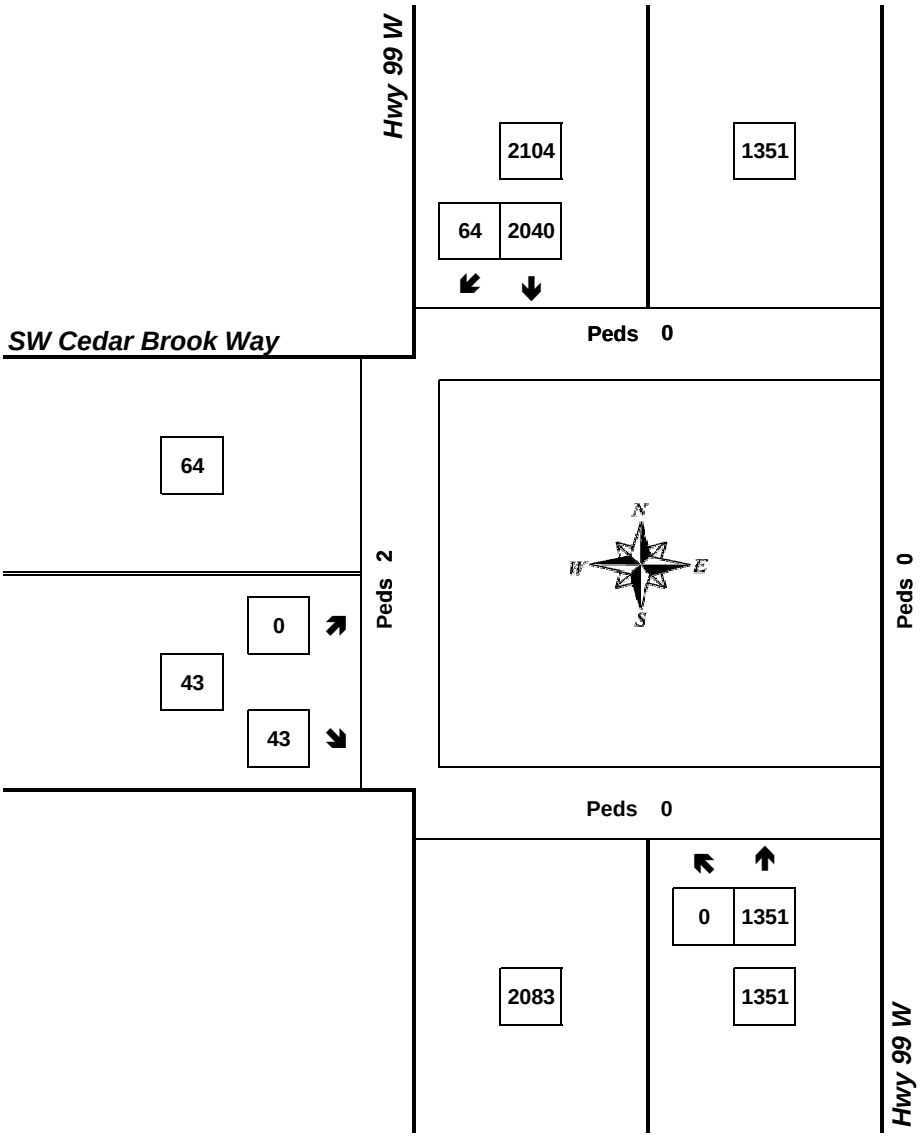
Interval Start Time	Northbound Hwy 99 W				Southbound Hwy 99 W				Eastbound SW Cedar Brook Way				Westbound SW Cedar Brook Way				Interval Total
	L	T		Total		T	R	Total	L		R	Total				Total	
4:00 PM	0	40		40		41	0	41	0		0	0				0	81
4:15 PM	0	30		30		33	0	33	0		0	0				0	63
4:30 PM	0	25		25		28	0	28	0		0	0				0	53
4:45 PM	0	32		32		20	0	20	0		0	0				0	52
5:00 PM	0	29		29		22	0	22	0		0	0				0	51

Peak Hour Summary

Clay Carney
(503) 833-2740

Hwy 99 W & SW Cedar Brook Way

4:45 PM to 5:45 PM
Tuesday, August 27, 2013



Approach	PHF	HV%	Volume
EB	0.83	0.0%	43
WB	0.00	0.0%	0
NB	0.95	2.4%	1,351
SB	0.94	1.0%	2,104
Intersection	0.98	1.5%	3,498

Count Period: 4:00 PM to 6:00 PM

Frank Charbonneau

From: BAUMGARTNER Douglas G [Douglas.G.BAUMGARTNER@odot.state.or.us]
Sent: Wednesday, August 21, 2013 2:42 PM
To: 'Frank Charbonneau'
Subject: RE: Brownstone Develp - Sherwood

Frank,

The 1% annual growth rate for this area will be appropriate since average annual traffic growth in this area over the past decade has been slightly less than 1%. August counts would not need to be seasonally adjusted.

Thanks,

Doug

Douglas Baumgartner, P.E.
ODOT Region 1 Traffic Analyst
123 NW Flanders Street
Portland, OR 97209-4012
503.731.8225
FAX 503.731.8259

From: Frank Charbonneau [mailto:Frank@CharbonneauEngineer.com]
Sent: Wednesday, August 21, 2013 9:28 AM
To: BAUMGARTNER Douglas G
Subject: RE: Brownstone Develp - Sherwood

Thanks Doug.

Are you okay with the 1% annual growth rate and 0% seasonal adjustment factor if the counts are done this month?

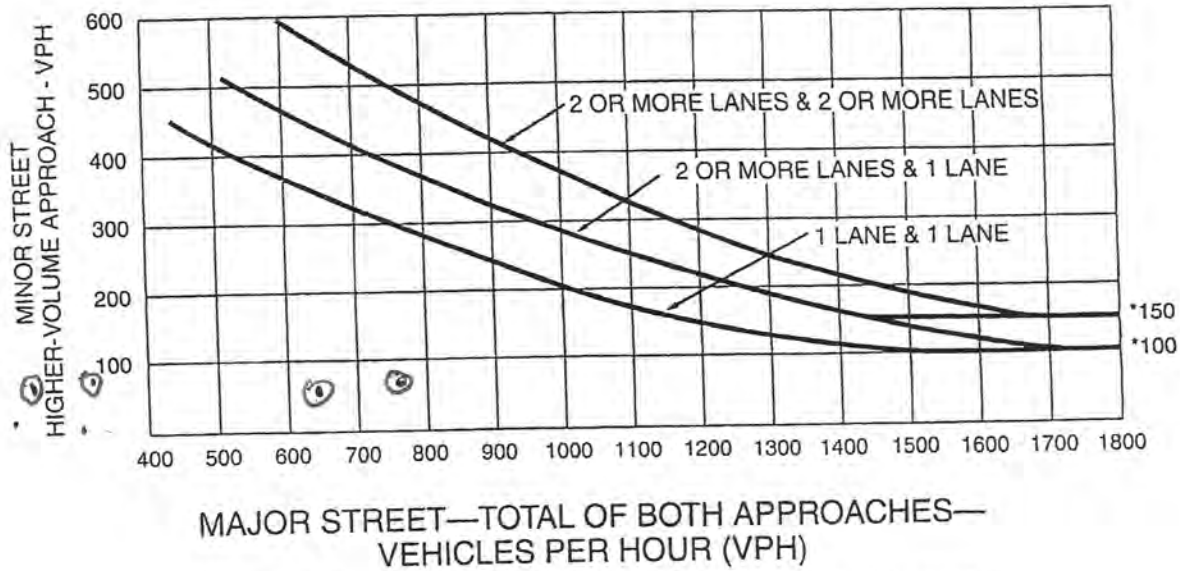
Frank

> -----Original Message-----
> **From:** BAUMGARTNER Douglas G [mailto:Douglas.G.BAUMGARTNER@odot.state.or.us]
> **Sent:** Tuesday, August 20, 2013 3:19 PM
> **To:** 'Frank Charbonneau'
> **Subject:** RE: Brownstone Develp - Sherwood
>
> Hi Frank,
>
> I have attached the traffic signal timing information for this intersection to this email. If you have any further questions please feel free to contact me.
>
> Thanks,
>
> Doug
>
> **Douglas Baumgartner, P.E.**
> ODOT Region 1 Traffic Analyst
> 123 NW Flanders Street
> Portland, OR 97209-4012

Sherwood Traffic Volumes

Intersection		Northbound			Southbound			Eastbound			Westbound		
North/South	East/West	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Existing Counts													
Copper Terrace	Handley	0	0	0	50	0	18	63	32	0	0	31	129
Elwert Road	Handley	0	292	63	37	234	0	0	0	0	16	0	46
2018													
Copper Terrace	Handley	0	0	0	55	0	20	65	65	0	0	40	135
Elwert Road	Handley	0	335	85	50	280	0	0	0	0	20	0	55
2035													
Copper Terrace	Handley	0	0	0	60	0	20	80	185	0	0	80	160
Elwert Road	Handley	0	485	165	100	435	0	0	0	0	25	0	75

Figure 4C-3. Warrant 3, Peak Hour



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

Peak hour volume warrant for signalization data.

Intersection	Analysis Period	Major Street		Minor Street High Volume Approach		Signal Warranted?
		Volume (vph)	Lanes (#)	Volume (vph)	Lanes (#)	
Handley/Elwert	Yr 2035 Total AM	766	1	78	1	NO
" "	Yr 2016 Total AM	645	1	63	1	NO
Handley/Copper Terrace	Yr 2016 Total AM	263	1	71	1	NO
Handley/Copper Terrace	Yr 2035 Total AM	318	1	86	1	NO

Source: *Manual on Uniform Traffic Control Devices (MUTCD)*, Millenium Edition.

Frank Charbonneau

From: WARD Kimberlee S [Kimberlee.S.WARD@odot.state.or.us]
Sent: Wednesday, August 21, 2013 1:16 PM
To: 'Frank Charbonneau'
Cc: VOGEL Sylvia M
Subject: RE: Hwy 99W Crash Data Request - Req #130286

Hello Frank,

I ran queries for both of these intersections and there were *no crashes reported* for *either intersection* during the requested period of time.

Thank you Frank and hope you have a good afternoon,

Kim

Kim Ward
Crash Reporting Technician
Crash Analysis and Reporting Unit
Transportation Data Section
555 13th Street NE, Suite 2
Salem, Oregon 97301-4178
ph: (503) 986-4237
fax: (503) 986-4249
mailto: kimberlee.s.ward@odot.state.or.us

From: Frank Charbonneau [mailto:Frank@CharbonneauEngineer.com]
Sent: Wednesday, August 21, 2013 10:30 AM
To: WARD Kimberlee S
Cc: VOGEL Sylvia M
Subject: RE: Hwy 99W Crash Data Request - Req #130284

Kim -- Thank you for completing the request right away. This is really appreciated.

I forgot to put on yesterday's request two additional local city intersections. These are:

- SW Handley Street at Elwert Road
- SW Handley Street at Copper Terrace

Would you also prepare the crash summaries for these? Thanks.

Frank

> -----Original Message-----
> **From:** WARD Kimberlee S [mailto:Kimberlee.S.WARD@odot.state.or.us]
> **Sent:** Wednesday, August 21, 2013 9:45 AM
> **To:** 'Frank Charbonneau'
> **Cc:** VOGEL Sylvia M
> **Subject:** RE: Hwy 99W Crash Data Request - Req #130284

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Pacific Highway West 99W (091) @ SW Cedarbrook Way
January 1, 2007 through December 31, 2011

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2009														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2009 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FINAL TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0

Disclaimer: A higher number of crashes are reported for the 2011 data file compared to previous years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Pacific Highway West 99W (091) @ SW Meinecke Parkway/Road
January 1, 2007 through December 31, 2011

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2011														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2011 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2010														
ANGLE	0	1	0	1	0	4	0	0	1	0	1	1	0	0
REAR-END	0	1	0	1	0	2	0	0	1	0	1	1	0	0
TURNING MOVEMENTS	0	1	3	4	0	2	0	2	1	3	1	4	0	0
2010 TOTAL	0	3	3	6	0	8	0	2	3	3	3	6	0	0
YEAR: 2009														
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	1	0	1	0	1	0	1
REAR-END	0	2	0	2	0	2	0	0	2	2	0	2	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2009 TOTAL	0	3	1	4	0	3	0	2	2	4	0	4	0	1
YEAR: 2008														
REAR-END	0	1	0	1	0	2	1	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2008 TOTAL	0	1	1	2	0	2	1	2	0	2	0	2	0	0
YEAR: 2007														
REAR-END	0	0	1	1	0	0	0	1	0	0	1	1	0	0
2007 TOTAL	0	0	1	1	0	0	0	1	0	0	1	1	0	0
FINAL TOTAL	0	7	7	14	0	13	1	8	5	10	4	14	0	1

Disclaimer: A higher number of crashes are reported for the 2011 data file compared to previous years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

13.19 - BROWNSTONE DEV - SHERWOOD
EXISTING (30HV)
2013 AM PEAK HOUR TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 SW Handley St/SW Elwert Rd

Average Delay (sec/veh): 12.8 Worst Case Level Of Service: B

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1!	0	0
Volume Module: >> Count Date: 5 Sep 2013 << AM Peak																				
Base Vol:	0	292		63		37	234		0		0		0		0	16		0		46
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	0	292		63		37	234		0		0		0		0	16		0		46
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.81	0.81		0.81		0.81	0.81		0.81		0.81		0.81		0.81	0.81		0.81		0.81
PHF Volume:	0	360		78		46	289		0		0		0		0	20		0		57
Reduct Vol:	0	0		0		0	0		0		0		0		0	0		0		0
Final Vol.:	0	360		78		46	289		0		0		0		0	20		0		57
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx		xxxxx		4.1	xxxx		xxxxx		xxxxx		xxxx		xxxxx	6.4		xxxx		6.2
FollowUpTim:	xxxxx	xxxx		xxxxx		2.2	xxxx		xxxxx		xxxxx		xxxx		xxxxx	3.5		xxxx		3.3
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx		xxxxx		438	xxxx		xxxxx		xxxx		xxxx		xxxxx	780		xxxx		399
Potent Cap.:	xxxx	xxxx		xxxxx		1132	xxxx		xxxxx		xxxx		xxxx		xxxxx	367		xxxx		655
Move Cap.:	xxxx	xxxx		xxxxx		1132	xxxx		xxxxx		xxxx		xxxx		xxxxx	355		xxxx		655
Level Of Service Module:																				
Stopped Del:	xxxxx	xxxx		xxxxx		8.2	xxxx		xxxxx		xxxxx		xxxx		xxxxx	xxxxx		xxxx		xxxxx
LOS by Move:	*	*		*		A	*		*		*		*		*	*		*		*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx		xxxx		xxxxx	xxxx		538		xxxxx
Shrd StpDel:	xxxxx	xxxx		xxxxx		8.3	xxxx		xxxxx		xxxxx		xxxx		xxxxx	xxxxx		12.8		xxxxx
Shared LOS:	*	*		*		A	*		*		*		*		*	*		B		*
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					12.8				
ApproachLOS:	*					*					*					B				

```
------------------------------------------------------------------------------
                        13.19 - BROWNSTONE DEV - SHERWOOD
                                   EXISTING (30HV)
                      2013 PM PEAK HOUR TRAFFIC CONDITIONS
------------------------------------------------------------------------------
                        Level Of Service Computation Report
             2000 HCM Unsignalized Method (Base Volume Alternative)
******************************************************************************
Intersection #13 Hwy 99/Cedar Brook Way
******************************************************************************
Average Delay (sec/veh):     24.3           Worst Case Level Of Service:       C
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  2  0  0    0  0  2  0  1    0  0  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 27 Aug 2013 << PM Peak
Base Vol:       0 1351     0     0 2040    64     0    0    43     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0 1351     0     0 2040    64     0    0    43     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.98 0.98  0.98  0.98 0.98  0.98  0.98 0.98  0.98  0.98 0.98  0.98
PHF Volume:     0 1379     0     0 2082    65     0    0    44     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0 1379     0     0 2082    65     0    0    44     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   6.9 xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx  1041  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   230  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   230  xxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Stopped Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx  24.3 xxxxx xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     *    *     C     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx             24.3           xxxxxx
ApproachLOS:        *                *                C                *
```

13.19 - BROWNSTONE DEV - SHERWOOD
EXISTING (30HV)
2013 PM PEAK HOUR TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 Hwy 99/SW Meinecke Rd

Cycle (sec):	50	Critical Vol./Cap. (X):	0.722
Loss Time (sec):	12 (Y+R = 0 sec)	Average Crit Del (sec/veh):	16.0
Optimal Cycle:	50	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Ignore			Include			Ignore			Include		
Min. Green:	4	10	0	4	10	0	0	6	0	0	6	0
Lanes:	1 0 2 0 1			1 0 2 0 1			1 0 1 0 1			1 0 1 0 1		
Volume Module: >> Count Date: 27 Aug 2013 << PM Peak												
Base Vol:	21	1128	42	263	1765	61	74	59	15	38	55	158
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	21	1128	42	263	1765	61	74	59	15	38	55	158
User Adj:	1.00	1.00	0.00	1.00	1.00	0.50	1.00	1.00	0.00	1.00	1.00	0.50
PHF Adj:	0.98	0.98	0.00	0.98	0.98	0.98	0.98	0.98	0.00	0.98	0.98	0.98
PHF Volume:	21	1151	0	268	1801	31	76	60	0	39	56	81
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	1151	0	268	1801	31	76	60	0	39	56	81
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Final Vol.:	21	1151	0	268	1801	31	76	60	0	39	56	81
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.93	1.00	0.94	0.94	0.84	0.71	0.98	1.00	0.70	0.97	0.82
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1769	3538	1900	1787	3574	1599	1344	1862	1900	1326	1845	1565
Capacity Analysis Module:												
Vol/Sat:	0.01	0.33	0.00	0.15	0.50	0.02	0.06	0.03	0.00	0.03	0.03	0.05
Crit Moves:	****				****			****				
Green/Cycle:	0.08	0.44	0.00	0.20	0.56	0.56	0.12	0.12	0.00	0.12	0.12	0.12
Volume/Cap:	0.15	0.74	0.00	0.74	0.90	0.03	0.47	0.27	0.00	0.24	0.25	0.43
Delay/Veh:	21.9	13.7	0.0	26.8	15.7	5.0	22.7	20.7	0.0	20.7	20.6	22.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.9	13.7	0.0	26.8	15.7	5.0	22.7	20.7	0.0	20.7	20.6	22.0
BackOfQueue:	0	16	0	6	29	0	2	1	0	1	1	2

13.19 - BROWNSTONE DEV - SHERWOOD
EXISTING (30HV)
2013 AM PEAK HOUR TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #16 SW Handley St/SW Copper Terrace

Cycle (sec): 100 Critical Vol./Cap. (X): 0.324
Loss Time (sec): 0 (Y+R = 0 sec) Average Delay (sec/veh): 8.8
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Stop Sign						Stop Sign					
Rights:	Include						Include						Include						Include					
Min. Green:	0	0	0				0	0	0				0	0	0				0	0	0			
Lanes:	0	0	0	0	0		0	0	1!	0	0		0	1	0	0	0		0	0	0	1	0	
Volume Module: >> Count Date: 5 Sep 2013 << AM Peak																								
Base Vol:	0	0	0				50	0	18				63	32	0				0	31	129			
Growth Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
Initial Bse:	0	0	0				50	0	18				63	32	0				0	31	129			
User Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
PHF Adj:	0.55	0.55	0.55				0.55	0.55	0.55				0.55	0.55	0.55				0.55	0.55	0.55			
PHF Volume:	0	0	0				91	0	33				115	58	0				0	56	235			
Reduct Vol:	0	0	0				0	0	0				0	0	0				0	0	0			
Reduced Vol:	0	0	0				91	0	33				115	58	0				0	56	235			
PCE Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
MLF Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
Final Vol.:	0	0	0				91	0	33				115	58	0				0	56	235			
Saturation Flow Module:																								
Adjustment:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
Lanes:	0.00	0.00	0.00				0.74	0.00	0.26				0.66	0.34	0.00				0.00	0.19	0.81			
Final Sat.:	0	0	0				514	0	185				504	256	0				0	174	724			
Capacity Analysis Module:																								
Vol/Sat:	xxxx	xxxx	xxxx				0.18	xxxx	0.18				0.23	0.23	xxxx				xxxx	0.32	0.32			
Crit Moves:							****							****							****			
Delay/Veh:	0.0	0.0	0.0				8.7	0.0	8.7				8.9	8.9	0.0				0.0	8.7	8.7			
Delay Adj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
AdjDel/Veh:	0.0	0.0	0.0				8.7	0.0	8.7				8.9	8.9	0.0				0.0	8.7	8.7			
LOS by Move:	*	*	*				A	*	A				A	A	*				*	A	A			
ApproachDel:	xxxxxx						8.7						8.9						8.7					
Delay Adj:	xxxxx						1.00						1.00						1.00					
ApprAdjDel:	xxxxxx						8.7						8.9						8.7					
LOS by Appr:	*						A						A						A					

13.19 - BROWNSTONE DEV - SHERWOOD
BACKGROUND 2035 (ZONE CHANGE HORIZON)
AM PEAK HOUR TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #16 SW Handley St/SW Copper Terrace

Cycle (sec): 100 Critical Vol./Cap. (X): 0.410
Loss Time (sec): 0 (Y+R = 0 sec) Average Delay (sec/veh): 9.6
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	1	0	0	0	0
Volume Module: >> Count Date: 5 Sep 2013 << AM Peak																
Base Vol:	0	0	0		50	0	18		63	32	0		0	31	129	
Growth Adj:	1.22	1.22	1.22		1.22	1.22	1.22		1.22	1.22	1.22		1.22	1.22	1.22	
Initial Bse:	0	0	0		61	0	22		77	39	0		0	38	157	
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		61	0	22		77	39	0		0	38	157	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.55	0.55	0.55		0.55	0.55	0.55		0.55	0.55	0.55		0.55	0.55	0.55	
PHF Volume:	0	0	0		111	0	40		140	71	0		0	69	286	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		111	0	40		140	71	0		0	69	286	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Final Vol.:	0	0	0		111	0	40		140	71	0		0	69	286	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.00	0.00	0.00		0.73	0.01	0.26		0.66	0.34	0.00		0.00	0.19	0.81	
Final Sat.:	0	0	0		488	0	176		485	246	0		0	168	698	
Capacity Analysis Module:																
Vol/Sat:	xxxx	xxxx	xxxx		0.23	0.00	0.23		0.29	0.29	xxxx		xxxx	0.41	0.41	
Crit Moves:					****				****						****	
Delay/Veh:	0.0	0.0	0.0		9.4	9.4	9.4		9.6	9.6	0.0		0.0	9.7	9.7	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		9.4	9.4	9.4		9.6	9.6	0.0		0.0	9.7	9.7	
LOS by Move:	*	*	*		A	A	A		A	A	*		*	A	A	
ApproachDel:	xxxxxx				9.4				9.6				9.7			
Delay Adj:	xxxxx				1.00				1.00				1.00			
ApprAdjDel:	xxxxxx				9.4				9.6				9.7			
LOS by Appr:	*				A				A				A			

13.19 - BROWNSTONE DEV - SHERWOOD
BACKGROUND 2035 (ZONE CHANGE HORIZON)
AM PEAK HOUR TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SW Handley St/SW Elwert Rd

Average Delay (sec/veh): 14.9 Worst Case Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	1	0	0 1 0	0	0	0 0 0	0	0	0 0 1!	0	0
Volume Module: >> Count Date: 5 Sep 2013 << AM Peak												
Base Vol:	0	292	63	37	234	0	0	0	0	16	0	46
Growth Adj:	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
Initial Bse:	0	356	77	45	285	0	0	0	0	20	0	56
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	356	77	45	285	0	0	0	0	20	0	56
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
PHF Volume:	0	440	95	56	352	0	0	0	0	24	0	69
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	440	95	56	352	0	0	0	0	24	0	69
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	535	xxxx	xxxxx	xxxx	xxxx	xxxxx	951	xxxx	487
Potent Cap.:	xxxx	xxxx	xxxxx	1043	xxxx	xxxxx	xxxx	xxxx	xxxxx	291	xxxx	584
Move Cap.:	xxxx	xxxx	xxxxx	1043	xxxx	xxxxx	xxxx	xxxx	xxxxx	278	xxxx	584
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	455	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	8.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	14.9	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	B	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			14.9		
ApproachLOS:	*			*			*			B		

```
-------------------------------------------------------------------------------
                        13.19 - BROWNSTONE DEV - SHERWOOD
                                BACKGROUND TRAFFIC
                      2016 PM PEAK HOUR TRAFFIC CONDITIONS
-------------------------------------------------------------------------------
                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #13 Hwy 99/Cedar Brook Way
*******************************************************************************
Average Delay (sec/veh):     25.7           Worst Case Level Of Service:       D
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  2  0  0    0  0  2  0  1    0  0  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 27 Aug 2013 << PM Peak
Base Vol:       0 1351     0     0 2040    64     0    0    43     0    0     0
Growth Adj:  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03
Initial Bse:    0 1392     0     0 2101    66     0    0    44     0    0     0
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0 1392     0     0 2101    66     0    0    44     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.98 0.98  0.98  0.98 0.98  0.98  0.98 0.98  0.98  0.98 0.98  0.98
PHF Volume:     0 1420     0     0 2144    67     0    0    45     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0 1420     0     0 2144    67     0    0    45     0    0     0
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   6.9 xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx  1074  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   219  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   218  xxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Stopped Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx  25.7 xxxxx xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     *    *     D     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx             25.7           xxxxxx
ApproachLOS:        *                *                D                *
```

13.19 - BROWNSTONE DEV - SHERWOOD
BACKGROUND TRAFFIC
2016 PM PEAK HOUR TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Hwy 99/SW Meinecke Rd

Cycle (sec):	50	Critical Vol./Cap. (X):	0.743
Loss Time (sec):	12 (Y+R = 0 sec)	Average Crit Del (sec/veh):	18.3
Optimal Cycle:	52	Level Of Service:	B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Protected				Permitted				Permitted			
Rights:	Ignore				Include				Ignore				Include			
Min. Green:	4	10	0		4	10	0		0	6	0		0	6	0	
Lanes:	1 0	2 0	1		1 0	2 0	1		1 0	1 0	1		1 0	1 0	1	
Volume Module: >> Count Date: 27 Aug 2013 << PM Peak																
Base Vol:	21	1128	42		263	1765	61		74	59	15		38	55	158	
Growth Adj:	1.03	1.03	1.03		1.03	1.03	1.03		1.03	1.03	1.03		1.03	1.03	1.03	
Initial Bse:	22	1162	43		271	1818	63		76	61	15		39	57	163	
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	22	1162	43		271	1818	63		76	61	15		39	57	163	
User Adj:	1.00	1.00	0.00		1.00	1.00	0.50		1.00	1.00	0.00		1.00	1.00	0.50	
PHF Adj:	0.98	0.98	0.00		0.98	0.98	0.98		0.98	0.98	0.00		0.98	0.98	0.98	
PHF Volume:	22	1186	0		276	1855	32		78	62	0		40	58	83	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	22	1186	0		276	1855	32		78	62	0		40	58	83	
PCE Adj:	1.00	1.00	0.00		1.00	1.00	1.00		1.00	1.00	0.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	0.00		1.00	1.00	1.00		1.00	1.00	0.00		1.00	1.00	1.00	
Final Vol.:	22	1186	0		276	1855	32		78	62	0		40	58	83	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.93	0.93	1.00		0.94	0.94	0.84		0.71	0.98	1.00		0.70	0.97	0.82	
Lanes:	1.00	2.00	1.00		1.00	2.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Final Sat.:	1769	3538	1900		1787	3574	1599		1340	1862	1900		1325	1845	1565	
Capacity Analysis Module:																
Vol/Sat:	0.01	0.34	0.00		0.15	0.52	0.02		0.06	0.03	0.00		0.03	0.03	0.05	
Crit Moves:	****					****				****						
Green/Cycle:	0.08	0.44	0.00		0.20	0.56	0.56		0.12	0.12	0.00		0.12	0.12	0.12	
Volume/Cap:	0.16	0.77	0.00		0.77	0.93	0.04		0.48	0.28	0.00		0.25	0.26	0.44	
Delay/Veh:	21.9	14.2	0.0		28.2	18.1	5.0		22.8	20.7	0.0		20.8	20.6	22.1	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	21.9	14.2	0.0		28.2	18.1	5.0		22.8	20.7	0.0		20.8	20.6	22.1	
BackOfQueue:	0	17	0		6	32	0		2	1	0		1	1	2	

13.19 - BROWNSTONE DEV - SHERWOOD
BACKGROUND TRAFFIC
2016 AM PEAK HOUR TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #16 SW Handley St/SW Copper Terrace

Cycle (sec): 100 Critical Vol./Cap. (X): 0.336
Loss Time (sec): 0 (Y+R = 0 sec) Average Delay (sec/veh): 8.9
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	1	0	0	0	0
Volume Module: >> Count Date: 5 Sep 2013 << AM Peak																
Base Vol:	0	0	0		50	0	18		63	32	0		0	31	129	
Growth Adj:	1.03	1.03	1.03		1.03	1.03	1.03		1.03	1.03	1.03		1.03	1.03	1.03	
Initial Bse:	0	0	0		52	0	19		65	33	0		0	32	133	
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		52	0	19		65	33	0		0	32	133	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.55	0.55	0.55		0.55	0.55	0.55		0.55	0.55	0.55		0.55	0.55	0.55	
PHF Volume:	0	0	0		94	0	34		118	60	0		0	58	242	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		94	0	34		118	60	0		0	58	242	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Final Vol.:	0	0	0		94	0	34		118	60	0		0	58	242	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.00	0.00	0.00		0.74	0.00	0.26		0.66	0.34	0.00		0.00	0.19	0.81	
Final Sat.:	0	0	0		510	0	184		501	254	0		0	173	720	
Capacity Analysis Module:																
Vol/Sat:	xxxx	xxxx	xxxx		0.18	xxxx	0.18		0.24	0.24	xxxx		xxxx	0.34	0.34	
Crit Moves:							****			****					****	
Delay/Veh:	0.0	0.0	0.0		8.8	0.0	8.8		9.0	9.0	0.0		0.0	8.8	8.8	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		8.8	0.0	8.8		9.0	9.0	0.0		0.0	8.8	8.8	
LOS by Move:	*	*	*		A	*	A		A	A	*		*	A	A	
ApproachDel:	xxxxxx				8.8				9.0				8.8			
Delay Adj:	xxxxx				1.00				1.00				1.00			
ApprAdjDel:	xxxxxx				8.8				9.0				8.8			
LOS by Appr:	*				A				A				A			

13.19 - BROWNSTONE DEV - SHERWOOD
BACKGROUND TRAFFIC
2016 AM PEAK HOUR TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SW Handley St/SW Elwert Rd

Average Delay (sec/veh): 13.0 Worst Case Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0 0	0	1	0	0	1 0	0	0	0 0	0	0	0	0 0	1!	0	0
Volume Module: >> Count Date: 5 Sep 2013 << AM Peak																
Base Vol:	0	292	63		37	234	0		0	0	0		16	0	46	
Growth Adj:	1.03	1.03	1.03		1.03	1.03	1.03		1.03	1.03	1.03		1.03	1.03	1.03	
Initial Bse:	0	301	65		38	241	0		0	0	0		16	0	47	
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	301	65		38	241	0		0	0	0		16	0	47	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81	
PHF Volume:	0	371	80		47	298	0		0	0	0		20	0	58	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Final Vol.:	0	371	80		47	298	0		0	0	0		20	0	58	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		6.4	xxxx	6.2	
FollowUpTim:	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx		3.5	xxxx	3.3	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		451	xxxx	xxxxx		xxxx	xxxx	xxxxx		803	xxxx	411	
Potent Cap.:	xxxx	xxxx	xxxxx		1120	xxxx	xxxxx		xxxx	xxxx	xxxxx		355	xxxx	645	
Move Cap.:	xxxx	xxxx	xxxxx		1120	xxxx	xxxxx		xxxx	xxxx	xxxxx		344	xxxx	645	
Level Of Service Module:																
Stopped Del:	xxxxx	xxxx	xxxxx		8.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		A	*	*		*	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	526	xxxxx	
Shrd StpDel:	xxxxx	xxxx	xxxxx		8.4	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	13.0	xxxxx	
Shared LOS:	*	*	*		A	*	*		*	*	*		*	B	*	
ApproachDel:	xxxxxx				xxxxxx				xxxxxx					13.0		
ApproachLOS:	*				*				*					B		

```
-------------------------------------------------------------------------------
                        13.19 - BROWNSTONE DEV - SHERWOOD
                                   TOTAL TRAFFIC
                      2016 PM PEAK HOUR TRAFFIC CONDITIONS
-------------------------------------------------------------------------------
                       Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #13 Hwy 99/Cedar Brook Way
*******************************************************************************
Average Delay (sec/veh):     26.0           Worst Case Level Of Service:       D
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  2  0  0    0  0  2  0  1    0  0  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 27 Aug 2013 << PM Peak
Base Vol:       0 1351     0     0 2040    64     0    0    43     0    0     0
Growth Adj:  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03  1.03 1.03  1.03
Initial Bse:    0 1392     0     0 2101    66     0    0    44     0    0     0
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
SITE TRIPS:     0    9     0     0    8    10     0    0     1     0    0     0
Initial Fut:    0 1401     0     0 2109    76     0    0    45     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.98 0.98  0.98  0.98 0.98  0.98  0.98 0.98  0.98  0.98 0.98  0.98
PHF Volume:     0 1429     0     0 2152    77     0    0    46     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0 1429     0     0 2152    77     0    0    46     0    0     0
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   6.9 xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx  1078  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   217  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   217  xxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
Stopped Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx  26.0 xxxxx xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     *    *     D     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Shrd StpDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx             26.0           xxxxxx
ApproachLOS:        *                *                D                *
```

13.19 - BROWNSTONE DEV - SHERWOOD
TOTAL TRAFFIC
2016 PM PEAK HOUR TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Hwy 99/SW Meinecke Rd

Cycle (sec):	50	Critical Vol./Cap. (X):	0.748
Loss Time (sec):	12 (Y+R = 0 sec)	Average Crit Del (sec/veh):	18.3
Optimal Cycle:	53	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Ignore			Include			Ignore			Include		
Min. Green:	4	10	0	4	10	0	0	6	0	0	6	0
Lanes:	1 0 2 0 1			1 0 2 0 1			1 0 1 0 1			1 0 1 0 1		
Volume Module: >> Count Date: 27 Aug 2013 << PM Peak												
Base Vol:	21	1128	42	263	1765	61	74	59	15	38	55	158
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	22	1162	43	271	1818	63	76	61	15	39	57	163
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
SITE TRIPS:	4	0	0	0	1	8	9	2	2	0	4	0
Initial Fut:	26	1162	43	271	1819	71	85	63	17	39	61	163
User Adj:	1.00	1.00	0.00	1.00	1.00	0.50	1.00	1.00	0.00	1.00	1.00	0.50
PHF Adj:	0.98	0.98	0.00	0.98	0.98	0.98	0.98	0.98	0.00	0.98	0.98	0.98
PHF Volume:	26	1186	0	276	1856	36	87	64	0	40	62	83
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	1186	0	276	1856	36	87	64	0	40	62	83
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Final Vol.:	26	1186	0	276	1856	36	87	64	0	40	62	83
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.93	1.00	0.94	0.94	0.84	0.70	0.98	1.00	0.70	0.97	0.82
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1769	3538	1900	1787	3574	1599	1334	1862	1900	1321	1845	1565
Capacity Analysis Module:												
Vol/Sat:	0.01	0.34	0.00	0.15	0.52	0.02	0.07	0.03	0.00	0.03	0.03	0.05
Crit Moves:	****				****			****				
Green/Cycle:	0.08	0.44	0.00	0.20	0.56	0.56	0.12	0.12	0.00	0.12	0.12	0.12
Volume/Cap:	0.18	0.77	0.00	0.77	0.93	0.04	0.54	0.29	0.00	0.25	0.28	0.44
Delay/Veh:	22.1	14.2	0.0	28.2	18.2	5.0	24.5	20.8	0.0	20.8	20.7	22.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	22.1	14.2	0.0	28.2	18.2	5.0	24.5	20.8	0.0	20.8	20.7	22.1
BackOfQueue:	1	17	0	6	32	0	2	1	0	1	1	2

13.19 - BROWNSTONE DEV - SHERWOOD
TOTAL TRAFFIC
2016 PM PEAK HOUR TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 SW Meinecke/E Site Access

Average Delay (sec/veh): 9.3 Worst Case Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 0 0 1			0 0 1 0 0			0 0 1 0 0		
Volume Module: PM Peak												
Base Vol:	0	0	0	0	0	0	0	167	0	0	148	0
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	0	0	0	0	0	0	0	172	0	0	152	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
SITE TRIPS:	0	0	0	0	0	3	0	0	0	0	0	10
Initial Fut:	0	0	0	0	0	3	0	172	0	0	152	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	0	0	0	0	4	0	215	0	0	191	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	0	0	4	0	215	0	0	191	13
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	197	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	850	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	850	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	9.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	A	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			9.3			xxxxxx			xxxxxx		
ApproachLOS:	*			A			*			*		

13.19 - BROWNSTONE DEV - SHERWOOD
TOTAL TRAFFIC
2016 AM PEAK HOUR TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #16 SW Handley St/SW Copper Terrace

Cycle (sec): 100 Critical Vol./Cap. (X): 0.340
Loss Time (sec): 0 (Y+R = 0 sec) Average Delay (sec/veh): 8.9
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module: >> Count Date: 5 Sep 2013 << AM Peak												
Base Vol:	0	0	0	50	0	18	63	32	0	0	31	129
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	0	0	0	52	0	19	65	33	0	0	32	133
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
SITE TRIPS:	0	0	0	1	0	0	0	1	0	0	1	1
Initial Fut:	0	0	0	53	0	19	65	34	0	0	33	134
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
PHF Volume:	0	0	0	95	0	34	118	62	0	0	60	243
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	95	0	34	118	62	0	0	60	243
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	0	0	95	0	34	118	62	0	0	60	243
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.74	0.00	0.26	0.66	0.34	0.00	0.00	0.20	0.80
Final Sat.:	0	0	0	511	0	180	495	259	0	0	176	715
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.19	xxxx	0.19	0.24	0.24	xxxx	xxxx	0.34	0.34
Crit Moves:				****				****				****
Delay/Veh:	0.0	0.0	0.0	8.9	0.0	8.9	9.0	9.0	0.0	0.0	8.9	8.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	8.9	0.0	8.9	9.0	9.0	0.0	0.0	8.9	8.9
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:	xxxxxx			8.9			9.0			8.9		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			8.9			9.0			8.9		
LOS by Appr:	*			A			A			A		

13.19 - BROWNSTONE DEV - SHERWOOD
TOTAL TRAFFIC
2016 AM PEAK HOUR TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SW Handley St/SW Elwert Rd

Average Delay (sec/veh): 13.2 Worst Case Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0 0	0	1	0	0 1	0	0	0	0 0	0	0	0	0 0	1!	0	0
Volume Module: >> Count Date: 5 Sep 2013 << AM Peak																
Base Vol:	0	292	63		37	234	0		0	0	0		16	0	46	
Growth Adj:	1.03	1.03	1.03		1.03	1.03	1.03		1.03	1.03	1.03		1.03	1.03	1.03	
Initial Bse:	0	301	65		38	241	0		0	0	0		16	0	47	
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
SITE TRIPS:	0	0	1		0	0	0		0	0	0		1	0	0	
Initial Fut:	0	301	66		38	241	0		0	0	0		17	0	47	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81	
PHF Volume:	0	371	81		47	298	0		0	0	0		22	0	58	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Final Vol.:	0	371	81		47	298	0		0	0	0		22	0	58	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		6.4	xxxx	6.2	
FollowUpTim:	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx		3.5	xxxx	3.3	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		453	xxxx	xxxxx		xxxx	xxxx	xxxxx		804	xxxx	412	
Potent Cap.:	xxxx	xxxx	xxxxx		1119	xxxx	xxxxx		xxxx	xxxx	xxxxx		355	xxxx	644	
Move Cap.:	xxxx	xxxx	xxxxx		1119	xxxx	xxxxx		xxxx	xxxx	xxxxx		343	xxxx	644	
Level Of Service Module:																
Stopped Del:	xxxxx	xxxx	xxxxx		8.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		A	*	*		*	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	521	xxxxx	
Shrd StpDel:	xxxxx	xxxx	xxxxx		8.4	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	13.2	xxxxx	
Shared LOS:	*	*	*		A	*	*		*	*	*		*	B	*	
ApproachDel:	xxxxxx				xxxxxx				xxxxxx					13.2		
ApproachLOS:	*				*				*					B		

13.19 - BROWNSTONE DEV - SHERWOOD
TOTAL TRAFFIC 2035 (ZONE CHANGE HORIZON)
AM PEAK HOUR TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #16 SW Handley St/SW Copper Terrace

Cycle (sec): 100 Critical Vol./Cap. (X): 0.421
Loss Time (sec): 0 (Y+R = 0 sec) Average Delay (sec/veh): 9.7
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 0	0	0	0	0 0	1!	0	0	0 1	0	0	0	0 0	0	1 0
Volume Module: >> Count Date: 5 Sep 2013 << AM Peak																
Base Vol:	0	0	0	50	0	18	63	32	0	0	31	129				
Growth Adj:	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22				
Initial Bse:	0	0	0	61	0	22	77	39	0	0	38	157				
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
SITE TRIPS:	0	0	0	3	0	0	0	3	0	0	2	2				
Initial Fut:	0	0	0	64	0	22	77	42	0	0	40	159				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55				
PHF Volume:	0	0	0	116	0	40	140	76	0	0	72	290				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
Reduced Vol:	0	0	0	116	0	40	140	76	0	0	72	290				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Final Vol.:	0	0	0	116	0	40	140	76	0	0	72	290				
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Lanes:	0.00	0.00	0.00	0.74	0.00	0.26	0.65	0.35	0.00	0.00	0.20	0.80				
Final Sat.:	0	0	0	491	0	168	470	257	0	0	172	688				
Capacity Analysis Module:																
Vol/Sat:	xxxx	xxxx	xxxx	0.24	xxxx	0.24	0.30	0.30	xxxx	xxxx	0.42	0.42				
Crit Moves:				****				****				****				
Delay/Veh:	0.0	0.0	0.0	9.5	0.0	9.5	9.7	9.7	0.0	0.0	9.9	9.9				
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
AdjDel/Veh:	0.0	0.0	0.0	9.5	0.0	9.5	9.7	9.7	0.0	0.0	9.9	9.9				
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A				
ApproachDel:	xxxxxx			9.5			9.7				9.9					
Delay Adj:	xxxxx			1.00			1.00				1.00					
ApprAdjDel:	xxxxxx			9.5			9.7				9.9					
LOS by Appr:	*			A			A				A					

13.19 - BROWNSTONE DEV - SHERWOOD
TOTAL TRAFFIC 2035 (ZONE CHANGE HORIZON)
AM PEAK HOUR TRAFFIC CONDITIONS

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SW Handley St/SW Elwert Rd

Average Delay (sec/veh): 15.2 Worst Case Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Lanes:	0 0 0	1	0		0 1 0	0	0		0 0 0	0	0		0 0 1!	0	0	
Volume Module: >> Count Date: 5 Sep 2013 << AM Peak																
Base Vol:	0	292	63		37	234	0		0	0	0		16	0	46	
Growth Adj:	1.22	1.22	1.22		1.22	1.22	1.22		1.22	1.22	1.22		1.22	1.22	1.22	
Initial Bse:	0	356	77		45	285	0		0	0	0		20	0	56	
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
SITE TRIPS:	0	0	3		0	0	0		0	0	0		2	0	0	
Initial Fut:	0	356	80		45	285	0		0	0	0		22	0	56	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81		0.81	0.81	0.81	
PHF Volume:	0	440	99		56	352	0		0	0	0		27	0	69	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Final Vol.:	0	440	99		56	352	0		0	0	0		27	0	69	
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx		xxxxx	xxxx	xxxxx		6.4	xxxx	6.2	
FollowUpTim:	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx		xxxxx	xxxx	xxxxx		3.5	xxxx	3.3	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	xxxxx		538	xxxx	xxxxx		xxxx	xxxx	xxxxx		953	xxxx	489	
Potent Cap.:	xxxx	xxxx	xxxxx		1040	xxxx	xxxxx		xxxx	xxxx	xxxxx		290	xxxx	583	
Move Cap.:	xxxx	xxxx	xxxxx		1040	xxxx	xxxxx		xxxx	xxxx	xxxxx		278	xxxx	583	
Level Of Service Module:																
Stopped Del:	xxxxx	xxxx	xxxxx		8.5	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*		A	*	*		*	*	*		*	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	447	xxxxx	
Shrd StpDel:	xxxxx	xxxx	xxxxx		8.7	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	15.2	xxxxx	
Shared LOS:	*	*	*		A	*	*		*	*	*		*	C	*	
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				15.2			
ApproachLOS:	*				*				*				C			