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Woodinville 10 Traffic Impact Analysis

Prepared For: Southend Holdings, LLC
Jurisdiction: City of Woodinville

July 2015



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1. DEVELOPMENT IDENTIFICATION

Gibson Traffic Consultants, Inc. (GTC) has been retained by Insight Engineering Company to provide a traffic impact analysis for the proposed Woodinville 10 development. Matthew Palmer, responsible for this report and traffic analysis, is a licensed professional engineer (Civil) in the State of Washington and member of the Washington State section of ITE.

The Woodinville 10 development is located on the south side of NE 205th Street and abuts 132nd Avenue NE on the west side of the site. The development is proposing a total of 10 single-family residential units. There is 1 existing single-family detached residential units on the site that will be removed from the site and credited to the development; therefore this report has been completed for 9 new single-family residential units. The proposed residential development is expected to be fully constructed and occupied by the end of 2016. Therefore, 2016 was utilized as the developments horizon year for future analysis.

Four of the homes will have direct access to 132nd Avenue NE, three homes will have direct access to NE 205th Street and the remaining three homes will have access to a private access tract. There is approximately 165 feet of centerline spacing from the private access tract to the closest public intersection at 134th Avenue NE. A site vicinity map has been included in Figure 1.

2. METHODOLOGY

Trip generation calculations for the Woodinville 10 development are based on data contained in the Institute of Transportation Engineers' (ITE) *Trip Generation, 9th Edition (2012)*. This information has been used for the proposed and existing uses. The distribution of trips generated by the site is based on approved distributions for adjacent developments.

According to guidelines for previous traffic studies in the City of Woodinville, this traffic study contains the following elements: trip generation, trip distribution, access analysis and mitigation determination for the proposed residential development. No level of service analysis was completed as no intersections are impacted with 10 or more PM peak-hour trips.

3. TRIP GENERATION

The trip generation calculations for the Woodinville 10 are based on the average trip generation rates for ITE Land Use Code 210, single-family detached housing. The trip generation of the Woodinville 10 development is summarized in Table 1.

Table 1: Trip Generation Summary

Use	Units	Average Daily Trips	AM Peak-Hour Trips			PM Peak-Hour Trips		
			Inbound	Outbound	Total	Inbound	Outbound	Total
Single-Family Residential	10	95.20	1.88	5.62	7.50	6.30	3.70	10.00
Single-Family Residential	-1	-9.52	-0.19	-0.56	-0.75	-0.63	-0.37	-1.00
TOTAL		85.68	1.69	5.06	6.75	5.67	3.33	9.00

The 9 new units of the Woodinville 10 development are anticipated to generate 85.68 new average daily trips with 6.75 new AM peak-hour trips and 9.00 new PM peak-hour trips. The trip generation calculations are included in the attachments.

4. TRIP DISTRIBUTION

The development trip distribution has been determined from the previously approved Georgian Heights development, which is located just east of this development. It is estimated that 65% of the development's traffic will travel to and from the south along 136th Avenue NE, 8% will travel to and from the north along 58th Avenue NE, 20% will travel to and from the south along 130th Avenue NE and the remaining 7% will travel to and from the north along 51st Avenue SE. A detailed trip distribution showing the PM peak-hour trips is included in Figure 2.

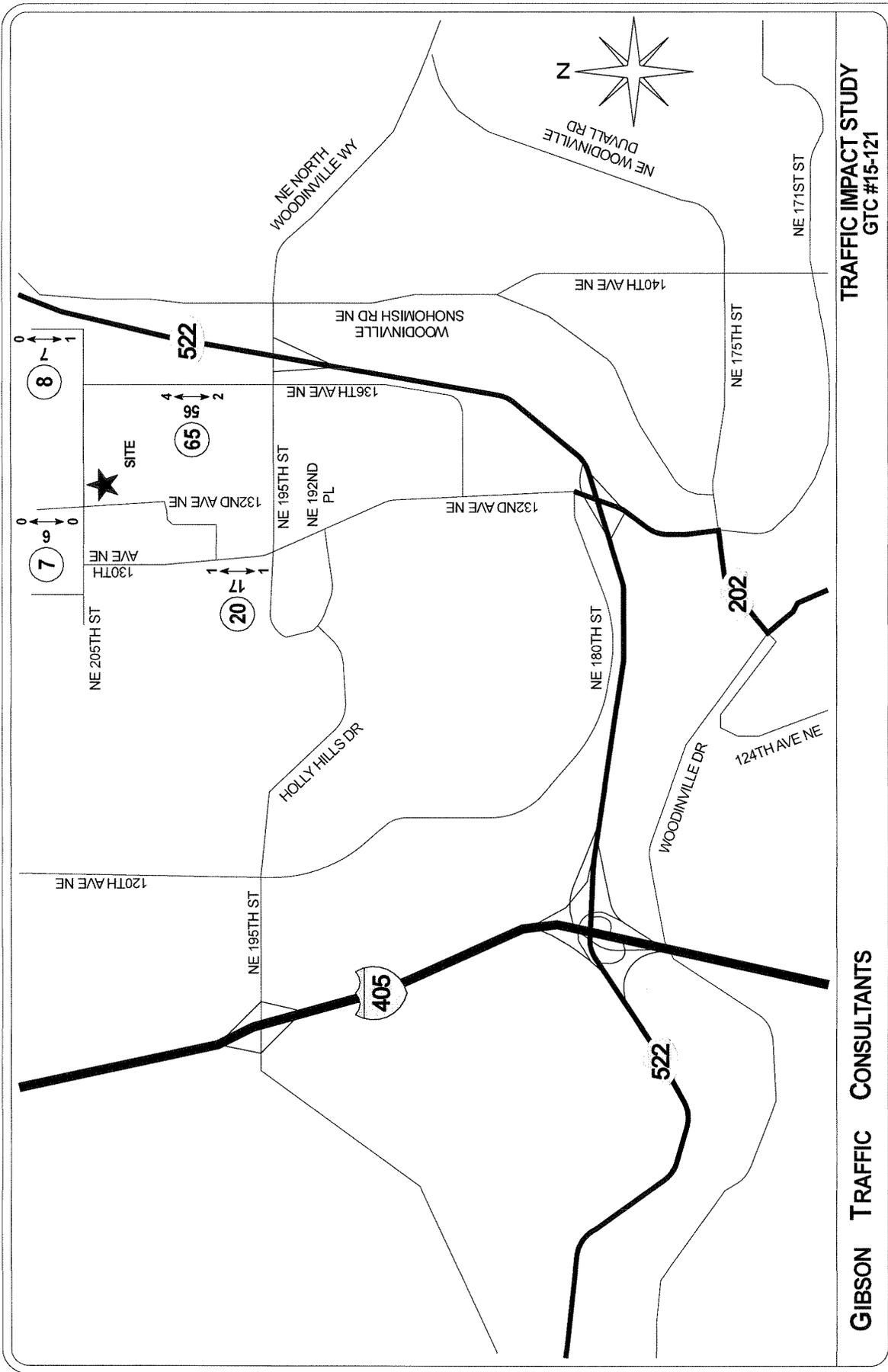


FIGURE 2
DEVELOPMENT TRIP
DISTRIBUTION

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LEGEND
NEW SITE TRAFFIC
AWDT (DAILY/PEAK HOUR)
PM ← PEAK
TRIP DISTRIBUTION %
(25)

WOODVILLE 10
(9 NEW SFD)

CITY OF WOODVILLE

5. ACCESS ANALYSIS

The sight distance analysis at the proposed site access intersection was performed according to Figure 316 in the City of Woodinville “*Transportation Infrastructure Standards and Specifications.*” The posted speed limit along NE 205th Street is 35 mph and therefore there must be 325 feet of available intersection sight distance. The City standards require the sight distance to be measured from 20 feet behind the edge of pavement/face of curb. With the proposed frontage improvements there will be more than 350 feet of available sight distance. There is adequate sight distance at the proposed site accesses along NE 205th Street.

The posted speed limit along 132nd Avenue NE is 25 mph and therefore there must be 200 feet of available intersection sight distance. With the proposed frontage improvements there will be more than 250 feet of available sight distance. There is adequate sight distance at the proposed site accesses along 132nd Avenue NE.

6. TRAFFIC MITIGATION FEES

6.1 Development-Specific Off-Site Mitigation

The development will not impact any off-site intersections with a significant number of trips during either the AM or PM peak-hours. The development should therefore not have to construct or contribute additional improvements other than required site frontage improvements and its traffic mitigation fee.

6.2 City Mitigation Fee

The development is to pay the calculated fee in Ordinance No. 527 which updated Chapter 3.39, Transportation Impact Fees, of the Woodinville Municipal Code. The fees increase annually and have an effective date as shown below:

- 1/1/2015 \$355/ADT
- 1/1/2016 \$395/ADT
- 1/1/2017 \$440/ADT

The development is proposed to consist of 10 single-family detached residential units. There is 1 existing single-family detached residential units on the site that will be removed from the site and its trips are creditable to the developments mitigation fee at time of removal. Each single-family detached residential unit generates 9.52 ADT which will require mitigation fees to be paid at the time of pulling the building permit. The mitigation fees will be determined at the time the building permit is pulled and will correspond with the effective dates shown above for the fee per ADT.

7. CONCLUSIONS

The Woodinville 10 development is proposed to consist of 10 single-family residential units that will replace the existing single-family unit. The 9 new units will generate 85.68 average daily trips with 6.75 AM peak-hour trips and 9.00 PM peak-hour trips. The development is not anticipated to significantly impact any City of Woodinville intersections with 10 or more PM peak-hour trips.

At the time of this report; the total traffic mitigation fees for the development will be \$30,416.40, which is equivalent to \$3,041.64 per unit for each of the 10 units in the development.

Trip Generation Calculations

Woodinville 10
GTC #15-121

**Trip Generation for: Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 4 and 6 PM
(a.k.a.): Weekday PM Peak Hour**

LAND USES		VARIABLE	ITE LU code	NET EXTERNAL TRIPS BY TYPE																	
				Gross Trips					IN BOTH DIRECTIONS					DIRECTIONAL ASSIGNMENTS							
				Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	% of Trips In+Out (Total)	Internal Crossover	TOTAL In+Out (Total)	% of Ext. Trips	In+Out (Total)	NEW In+Out (Total)	PASS-BY In	PASS-BY Out	DIVERTED LINK In	DIVERTED LINK Out	NEW In	NEW Out	
Single-Family (new)	10 units	1.00	63%	37%	10.00	0%	0%	0.00	0%	0%	0.00	0%	0%	0.00	0.00	0.00	0.00	0.00	0.00	6.30	3.70
Single-Family (removed)	-1 units	1.00	63%	37%	-1.00	0%	0%	0.00	0%	0%	0.00	0%	0%	0.00	0.00	0.00	0.00	0.00	0.00	-0.63	-0.37
Totals					9.00			0.00			9.00			0.00	0.00	0.00	0.00	0.00	0.00	5.67	3.33

Woodinville 10
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AM Peak-Hour

%	New ADT	New AM Peak Hour Trips		
		In	Out	Total
100%	86	2	5	6.75
1%	0.86	0.02	0.05	0.07
2%	1.71	0.03	0.10	0.14
3%	2.57	0.05	0.15	0.20
4%	3.43	0.07	0.20	0.27
5%	4.28	0.08	0.25	0.34
6%	5.14	0.10	0.30	0.41
7%	6.00	0.12	0.35	0.47
8%	6.85	0.14	0.40	0.54
9%	7.71	0.15	0.46	0.61
10%	8.57	0.17	0.51	0.68
11%	9.42	0.19	0.56	0.74
12%	10.28	0.20	0.61	0.81
13%	11.14	0.22	0.66	0.88
14%	12.00	0.24	0.71	0.95
15%	12.85	0.25	0.76	1.01
16%	13.71	0.27	0.81	1.08
17%	14.57	0.29	0.86	1.15
18%	15.42	0.30	0.91	1.22
19%	16.28	0.32	0.96	1.28
20%	17.14	0.34	1.01	1.35
21%	17.99	0.35	1.06	1.42
22%	18.85	0.37	1.11	1.49
23%	19.71	0.39	1.16	1.55
24%	20.56	0.41	1.21	1.62
25%	21.42	0.42	1.27	1.69
26%	22.28	0.44	1.32	1.76
27%	23.13	0.46	1.37	1.82
28%	23.99	0.47	1.42	1.89
29%	24.85	0.49	1.47	1.96
30%	25.70	0.51	1.52	2.03
31%	26.56	0.52	1.57	2.09
32%	27.42	0.54	1.62	2.16
33%	28.27	0.56	1.67	2.23
34%	29.13	0.57	1.72	2.30
35%	29.99	0.59	1.77	2.36
36%	30.84	0.61	1.82	2.43
37%	31.70	0.63	1.87	2.50
38%	32.56	0.64	1.92	2.57
39%	33.42	0.66	1.97	2.63
40%	34.27	0.68	2.02	2.70
41%	35.13	0.69	2.07	2.77
42%	35.99	0.71	2.13	2.84
43%	36.84	0.73	2.18	2.90
44%	37.70	0.74	2.23	2.97
45%	38.56	0.76	2.28	3.04
46%	39.41	0.78	2.33	3.11
47%	40.27	0.79	2.38	3.17
48%	41.13	0.81	2.43	3.24
49%	41.98	0.83	2.48	3.31
50%	42.84	0.85	2.53	3.38

%	New ADT	New AM Peak Hour Trips		
		In	Out	Total
100%	86	2	5	7
51%	43.70	0.86	2.58	3.44
52%	44.55	0.88	2.63	3.51
53%	45.41	0.90	2.68	3.58
54%	46.27	0.91	2.73	3.65
55%	47.12	0.93	2.78	3.71
56%	47.98	0.95	2.83	3.78
57%	48.84	0.96	2.88	3.85
58%	49.69	0.98	2.93	3.92
59%	50.55	1.00	2.99	3.98
60%	51.41	1.01	3.04	4.05
61%	52.26	1.03	3.09	4.12
62%	53.12	1.05	3.14	4.19
63%	53.98	1.06	3.19	4.25
64%	54.84	1.08	3.24	4.32
65%	55.69	1.10	3.29	4.39
66%	56.55	1.12	3.34	4.46
67%	57.41	1.13	3.39	4.52
68%	58.26	1.15	3.44	4.59
69%	59.12	1.17	3.49	4.66
70%	59.98	1.18	3.54	4.73
71%	60.83	1.20	3.59	4.79
72%	61.69	1.22	3.64	4.86
73%	62.55	1.23	3.69	4.93
74%	63.40	1.25	3.74	5.00
75%	64.26	1.27	3.80	5.06
76%	65.12	1.28	3.85	5.13
77%	65.97	1.30	3.90	5.20
78%	66.83	1.32	3.95	5.27
79%	67.69	1.34	4.00	5.33
80%	68.54	1.35	4.05	5.40
81%	69.40	1.37	4.10	5.47
82%	70.26	1.39	4.15	5.54
83%	71.11	1.40	4.20	5.60
84%	71.97	1.42	4.25	5.67
85%	72.83	1.44	4.30	5.74
86%	73.68	1.45	4.35	5.81
87%	74.54	1.47	4.40	5.87
88%	75.40	1.49	4.45	5.94
89%	76.26	1.50	4.50	6.01
90%	77.11	1.52	4.55	6.08
91%	77.97	1.54	4.60	6.14
92%	78.83	1.55	4.66	6.21
93%	79.68	1.57	4.71	6.28
94%	80.54	1.59	4.76	6.35
95%	81.40	1.61	4.81	6.41
96%	82.25	1.62	4.86	6.48
97%	83.11	1.64	4.91	6.55
98%	83.97	1.66	4.96	6.62
99%	84.82	1.67	5.01	6.68
100%	85.68	1.69	5.06	6.75

Woodinville 10
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PM Peak-Hour

%	New ADT	New PM Peak Hour Trips		
		In	Out	Total
100%	86	6	3	9.00
1%	0.86	0.06	0.03	0.09
2%	1.71	0.11	0.07	0.18
3%	2.57	0.17	0.10	0.27
4%	3.43	0.23	0.13	0.36
5%	4.28	0.28	0.17	0.45
6%	5.14	0.34	0.20	0.54
7%	6.00	0.40	0.23	0.63
8%	6.85	0.45	0.27	0.72
9%	7.71	0.51	0.30	0.81
10%	8.57	0.57	0.33	0.90
11%	9.42	0.62	0.37	0.99
12%	10.28	0.68	0.40	1.08
13%	11.14	0.74	0.43	1.17
14%	12.00	0.79	0.47	1.26
15%	12.85	0.85	0.50	1.35
16%	13.71	0.91	0.53	1.44
17%	14.57	0.96	0.57	1.53
18%	15.42	1.02	0.60	1.62
19%	16.28	1.08	0.63	1.71
20%	17.14	1.13	0.67	1.80
21%	17.99	1.19	0.70	1.89
22%	18.85	1.25	0.73	1.98
23%	19.71	1.30	0.77	2.07
24%	20.56	1.36	0.80	2.16
25%	21.42	1.42	0.83	2.25
26%	22.28	1.47	0.87	2.34
27%	23.13	1.53	0.90	2.43
28%	23.99	1.59	0.93	2.52
29%	24.85	1.64	0.97	2.61
30%	25.70	1.70	1.00	2.70
31%	26.56	1.76	1.03	2.79
32%	27.42	1.81	1.07	2.88
33%	28.27	1.87	1.10	2.97
34%	29.13	1.93	1.13	3.06
35%	29.99	1.98	1.17	3.15
36%	30.84	2.04	1.20	3.24
37%	31.70	2.10	1.23	3.33
38%	32.56	2.15	1.27	3.42
39%	33.42	2.21	1.30	3.51
40%	34.27	2.27	1.33	3.60
41%	35.13	2.32	1.37	3.69
42%	35.99	2.38	1.40	3.78
43%	36.84	2.44	1.43	3.87
44%	37.70	2.49	1.47	3.96
45%	38.56	2.55	1.50	4.05
46%	39.41	2.61	1.53	4.14
47%	40.27	2.66	1.57	4.23
48%	41.13	2.72	1.60	4.32
49%	41.98	2.78	1.63	4.41
50%	42.84	2.84	1.67	4.50
51%	43.70	2.89	1.70	4.59
52%	44.55	2.95	1.73	4.68
53%	45.41	3.01	1.76	4.77
54%	46.27	3.06	1.80	4.86
55%	47.12	3.12	1.83	4.95
56%	47.98	3.18	1.86	5.04
57%	48.84	3.23	1.90	5.13
58%	49.69	3.29	1.93	5.22
59%	50.55	3.35	1.96	5.31
60%	51.41	3.40	2.00	5.40
61%	52.26	3.46	2.03	5.49
62%	53.12	3.52	2.06	5.58
63%	53.98	3.57	2.10	5.67
64%	54.84	3.63	2.13	5.76
65%	55.69	3.69	2.16	5.85
66%	56.55	3.74	2.20	5.94
67%	57.41	3.80	2.23	6.03
68%	58.26	3.86	2.26	6.12
69%	59.12	3.91	2.30	6.21
70%	59.98	3.97	2.33	6.30
71%	60.83	4.03	2.36	6.39
72%	61.69	4.08	2.40	6.48
73%	62.55	4.14	2.43	6.57
74%	63.40	4.20	2.46	6.66
75%	64.26	4.25	2.50	6.75
76%	65.12	4.31	2.53	6.84
77%	65.97	4.37	2.56	6.93
78%	66.83	4.42	2.60	7.02
79%	67.69	4.48	2.63	7.11
80%	68.54	4.54	2.66	7.20
81%	69.40	4.59	2.70	7.29
82%	70.26	4.65	2.73	7.38
83%	71.11	4.71	2.76	7.47
84%	71.97	4.76	2.80	7.56
85%	72.83	4.82	2.83	7.65
86%	73.68	4.88	2.86	7.74
87%	74.54	4.93	2.90	7.83
88%	75.40	4.99	2.93	7.92
89%	76.26	5.05	2.96	8.01
90%	77.11	5.10	3.00	8.10
91%	77.97	5.16	3.03	8.19
92%	78.83	5.22	3.06	8.28
93%	79.68	5.27	3.10	8.37
94%	80.54	5.33	3.13	8.46
95%	81.40	5.39	3.16	8.55
96%	82.25	5.44	3.20	8.64
97%	83.11	5.50	3.23	8.73
98%	83.97	5.56	3.26	8.82
99%	84.82	5.61	3.30	8.91
100%	85.68	5.67	3.33	9.00

Site Plan

