



## Chapter 3: Growth Forecasts and Model Assumptions

### A. Introduction

A new transportation demand model was created in 2008 as part of the analysis that is the foundation of this plan. The City's transportation demand model was created using EMME/2 software which is the same software used by the Puget Sound Regional Council. The Puget Sound Regional Council has growth scenarios for future transportation demand at a regional level; however, this data does not provide the detail needed for planning Woodinville's local transportation network and so a new model was recently built at a local level for this plan.

Smaller transportation analysis zones (TAZ) were designed in order to divide Woodinville into smaller zones, which allow for a more detailed picture of where congestion will occur in the future on local streets. Staff worked with the consultant to develop this new set of transportation analysis zones (TAZ). Once the new TAZ structure was developed, a comprehensive land use survey was completed. This land use survey and recent traffic counts provided the consultant the information necessary to calibrate the model. Future land use scenarios were developed for low, medium, and high growth scenarios, in addition a couple other growth scenarios related specifically to downtown design issues. The low, medium, and high growth scenarios and the assumptions used to

develop these growth scenarios are discussed in this chapter, with all of the supporting data to generate these modeling scenarios in the Appendix S.

### B. Growth Scenarios: Low, Medium and High

#### Assumptions

Future land use projections were developed so that a low, medium and high growth scenarios could be considered and they were developed so that the growth projections would bracket the wide spectrum of possible growth scenarios in the future from very low to very high. The land use assumptions were different based on the zoning and any other planning efforts for different areas of town. For the downtown, land use projections included mixed-use height and use assumptions based on the Downtown Master Plan. For mixed use in these areas the assumption was a maximum height of 57 feet for mixed use with structured parking in the central business district; and 60 feet for mixed use with structured parking in the general business district. There are 437 remaining residential lots for infill; it was assumed that all of these lots were in-filled. Other land uses followed WMC 21.12.040 standards for commercial, industrial and retail properties.



Environmentally sensitive areas were subtracted from the total buildable land available. This included wetlands, native growth protection areas (NGPE), landslide areas and reduced stream buffers were assumed for future development.

For property assumptions about public dedication necessary for future development, it was assumed that 15% of the property would be dedicated to right-of-way, storm water dedications, and other public infrastructure.

For large planning forecast efforts, a market factor is frequently developed by land use planners by using computer models to simulate the growth of an area and then from those estimations coming up with the amount of land that will be developed in the future. Woodinville is such a small area that staff was able review each parcel individually for its potential growth and so no market factor was developed. Map 3B-1 shows a graphical description of which TAZ staff speculated would redevelop and the bar chart showing the low medium and high scenarios of redevelopment developed by staff. For areas outside the downtown and industrial areas, residential infill at the existing zoning was assumed.

The low, medium, and high scenarios were distinguished by the percentages of properties in each transportation analysis zone that it was speculated would redevelop into new uses. In the low scenario, 50% of the property was speculated to redevelop. In the medium scenario, 75% of the property was speculated to redevelop. The high scenario assumed that 100% of the property would redevelop. These growth scenarios were very similar to the Puget Sound Regional Council land use projections. The low growth scenario had 26% fewer total dwelling units and 19% fewer full time employees (FTE) than Puget Sound Regional Council growth projections. The medium growth scenario had 13% more total dwelling units and 62% more full time employees (FTE) than Puget Sound Regional Council growth projections. The high growth scenario had 75% more total dwelling units and 182% more full time employees (FTE) than Puget Sound Regional Council growth projections. These growth scenarios are useful because they provide a good bracket around all the possible growth scenarios that may occur in the future.



**Table 3B-1 Summary Table of Puget Sound Regional Council (PSRC)  
Comparison to Woodinville Growth Scenarios**

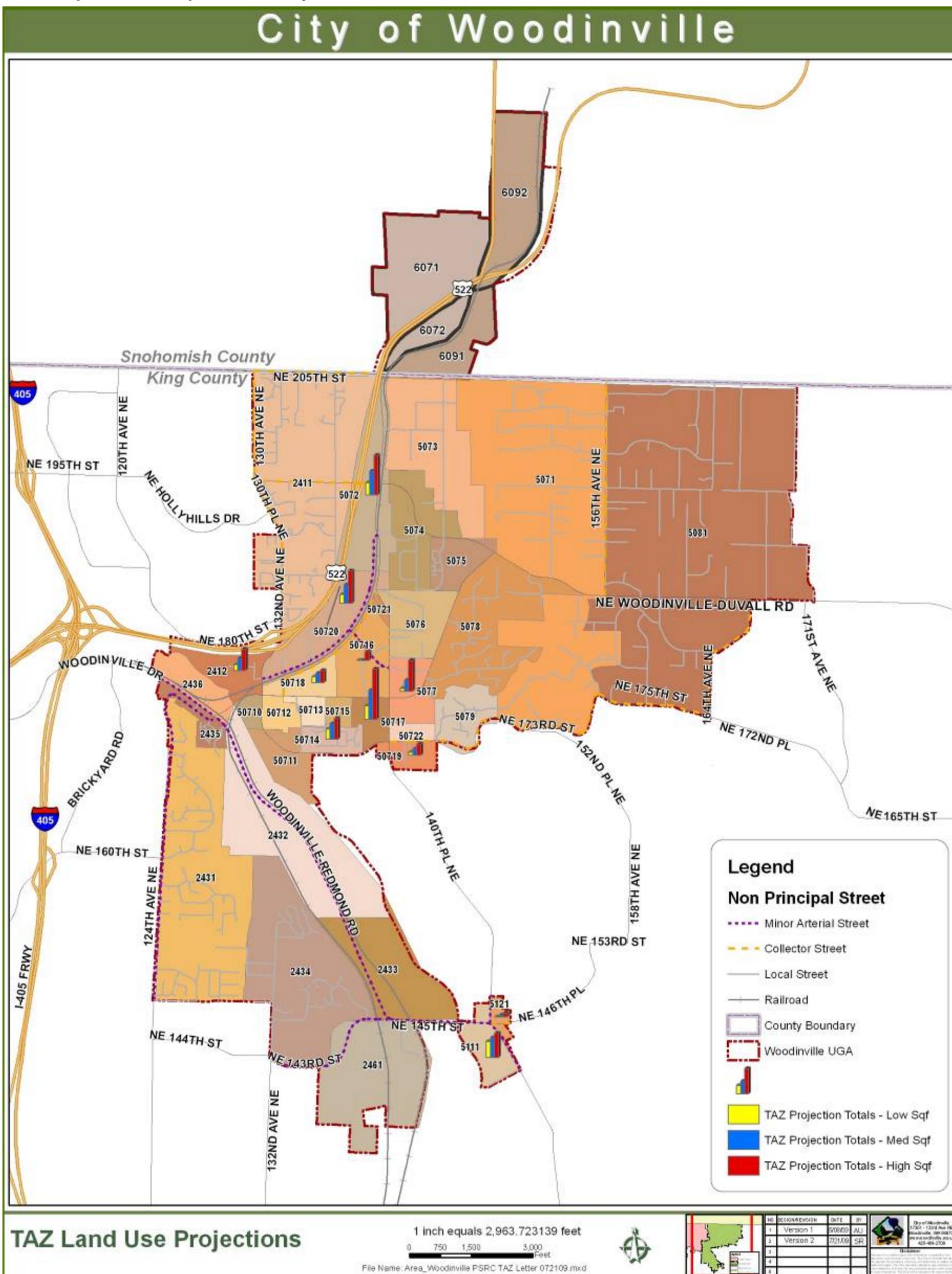
	<b>New Construction (1,000 Sq Ft)</b>	<b>Residential Units</b>	<b>Employment</b>
PRSC		1,887	5,120
Low	2,501	1,393	4,160
Medium	4,753	2,136	8,292
High	8,218	3,307	14,415



INTENTIONALLY BLANK



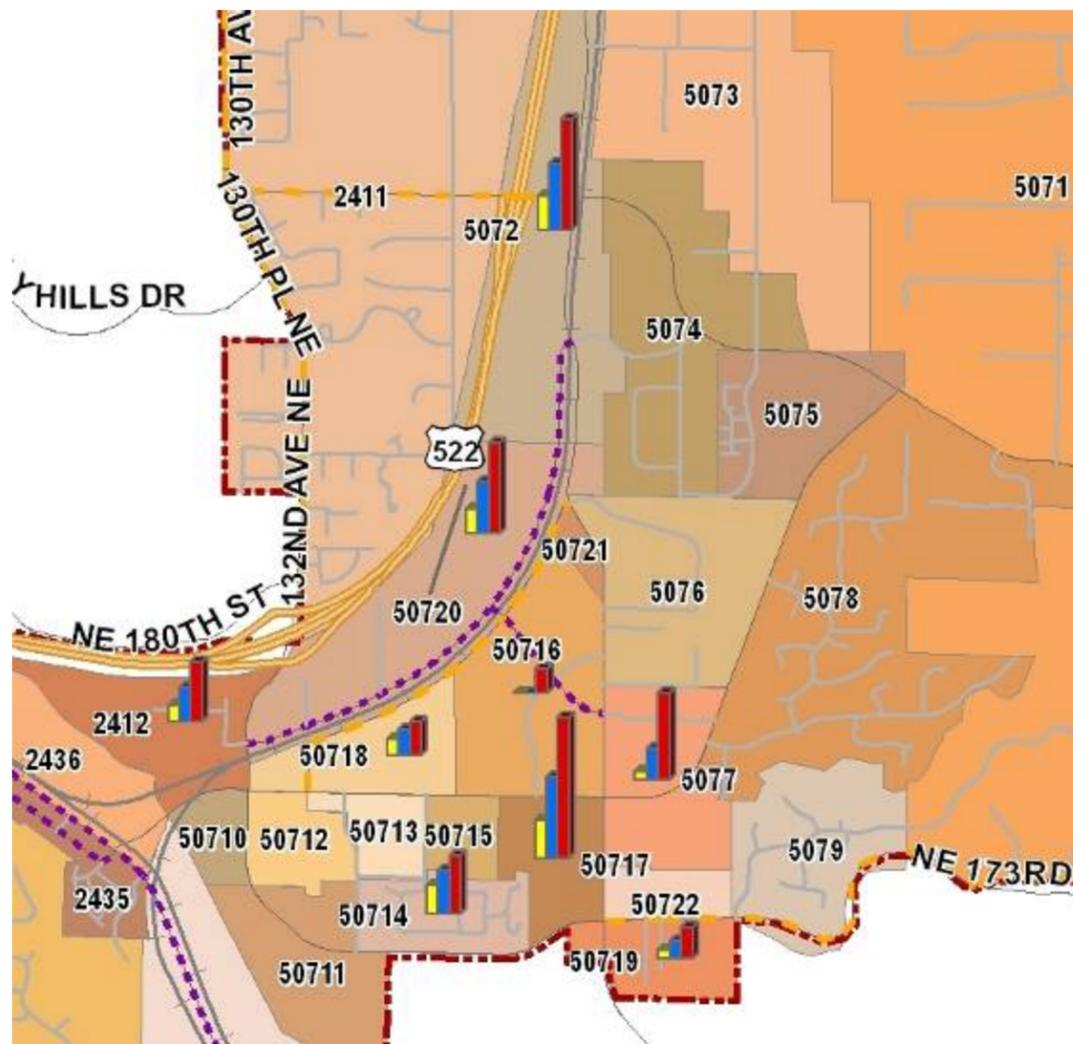
Map 3B-1: Transportation Analysis Zones and Growth Scenarios





INTENTIONALLY BLANK

Map 3B-1: Transportation Analysis Zones (TAZ) and Growth Scenarios: Zoom into TAZ with Land Use Projections



**Legend**

**Non Principal Street**

- Minor Arterial Street
- - - Collector Street
- Local Street
- Railroad
- County Boundary
- Woodinville UGA
- TAZ Projection Totals - Low Sqf
- TAZ Projection Totals - Med Sqf
- TAZ Projection Totals - High Sqf



INTENTIONALLY BLANK



As these tables and the land use map illustrate, a majority of growth was projected to occur downtown and along the Little Bear Creek corridor. These growth estimates are coarse estimates; however, they are useful for understanding the multiple possible growth scenarios for the downtown in the future.

### **C. 2030 Model Results**

The model was run with the low, medium and high scenarios for 2030 in order to bracket the possible growth scenarios and resulting traffic congestion that may occur in the future. The model scenarios were run during peak PM traffic which represents the highest volume of traffic during the day, which traditionally is sometime between 4 PM to 6 PM. According to the Institute of Transportation Engineers, the definition of peak PM period traffic is whatever hour during the evening commute that experiences the highest traffic volume.

The results of the model for the low, medium and high scenarios were given first with no improvements. This gave a baseline level of congestion and illustrated how many intersections would need improvements under all of the different scenarios. Map 3C-1 below shows all the intersections that would fail without any improvements in the future.

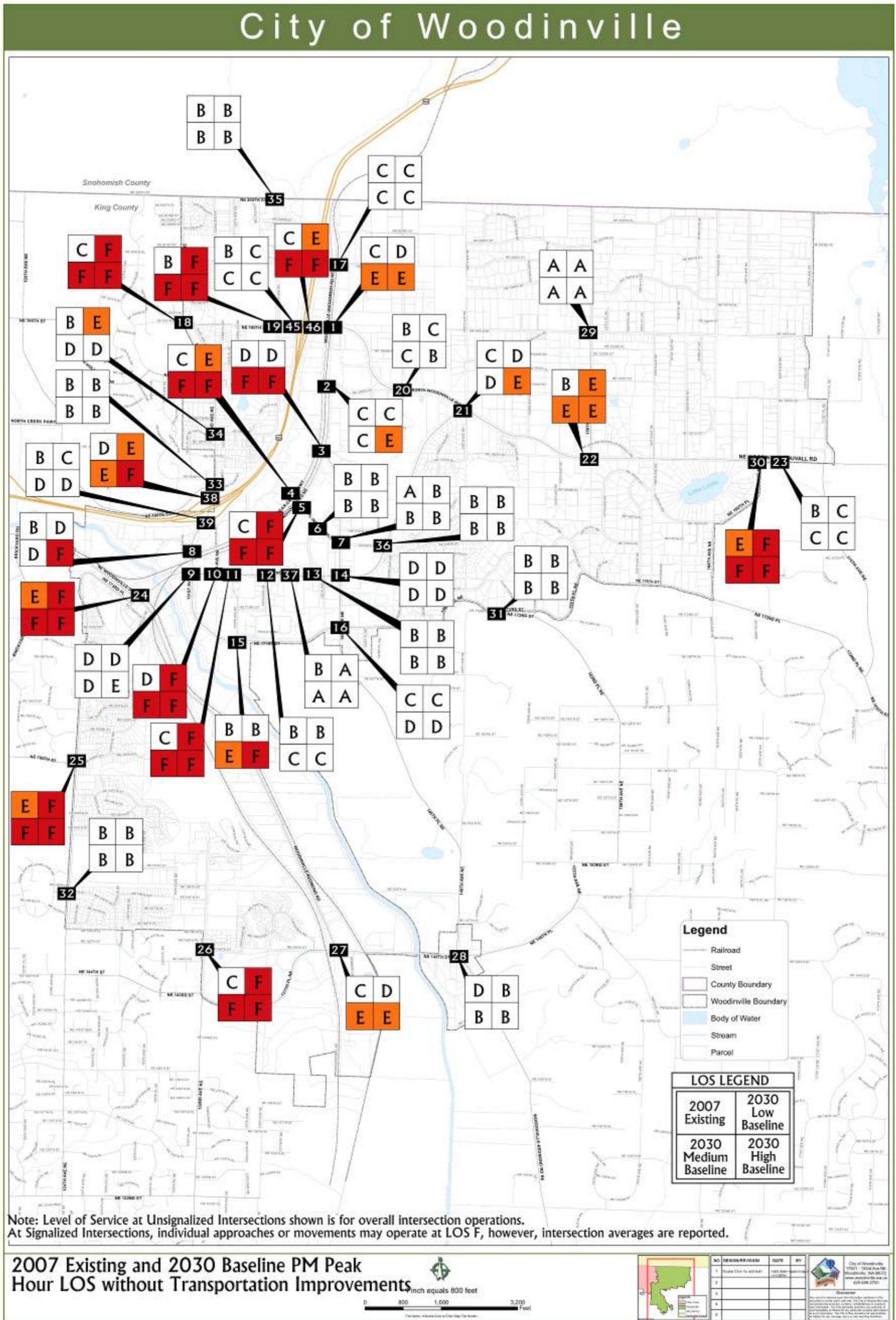
Different projects were developed to address the future congestion for each of the intersections that was failing under all of the different growth scenarios. Additional model scenarios were completed specifically to answer questions about grid roads and downtown planning, and these are discussed in more detail in Chapter Four.



INTENTIONALLY BLANK



Map 3C-1: 2030 Model Results Without Any Improvements





INTENTIONALLY BLANK



Without any improvements, many intersections in the City will fail by 2030 in all growth scenarios. This illustrates how important it is that the City continue with its investment in transportation connection and capacity improvements that provide a network able to meet the needs of growth in population and jobs within the City, especially in the downtown core.

<b>Failing Intersections in Growth Scenarios with No Improvements</b>		
<b>Low 2030</b>	<b>Medium 2030</b>	<b>High 2030</b>
9 failing intersections	12 failing intersections	14 failing intersections

The table below gives a better idea of the problem intersections today and in each baseline scenario. Chapter Four describes the project lists that were developed to find multiple solutions to each of these failing intersections and describes what projects are necessary for the low, medium and high 2030 growth scenarios.

**Table 3C-1 Intersections at LOS F or E in Existing or Baseline Projections**

<b>Intersection Number</b>	<b>Intersection</b>	<b>2007 Existing</b>	<b>2030 Low Baseline</b>	<b>2030 Medium Baseline</b>	<b>2030 High Baseline</b>
1	195 <sup>th</sup> /Wood-Sno	C	D	E	E
2	190 <sup>th</sup> /WoodSno	C	C	C	E
3	140 <sup>th</sup> /Wood-Sno	D	D	F	F
4	Little Bear Creek/Mill Place	C	E	F	F
5	Wood-Sno/Mill Place	C	F	F	F
8.	131 <sup>st</sup> /SR 202	B	D	D	F
9	131 <sup>st</sup> / NE 175 <sup>th</sup>	D	D	D	E
10	NE 175 <sup>th</sup> /132 <sup>nd</sup>	D	F	F	F
11	NE 175 <sup>th</sup> /133 <sup>rd</sup>	C	F	F	F
15	171 <sup>st</sup> /133 <sup>rd</sup>	B	B	E	F
18	134 <sup>th</sup> /195 <sup>th</sup>	C	F	F	F
19	195 <sup>th</sup> /136 <sup>th</sup>	B	F	F	F
21	Wood Way/ Wood-Duvall	C	D	D	E
22	Wood-Duvall/156 <sup>th</sup>	B	E	E	E
24	NE 173 <sup>rd</sup> /SR 202	E	F	F	F
25	NE 124 <sup>th</sup> /NE 160 <sup>th</sup>	E	F	F	F
26	132 <sup>nd</sup> Ave NE/NE 145 <sup>th</sup> PI	C	F	F	F
27	Wood/Red/SR 202	C	D	E	E
30	167 <sup>th</sup> /Wood-Duvall	E	F	F	F
34	132 <sup>nd</sup> /186 <sup>th</sup>	B	E	D	D
38	132 <sup>nd</sup> /522 Interchange	D	E	E	F
46	522/195 <sup>th</sup>	C	E	F	F

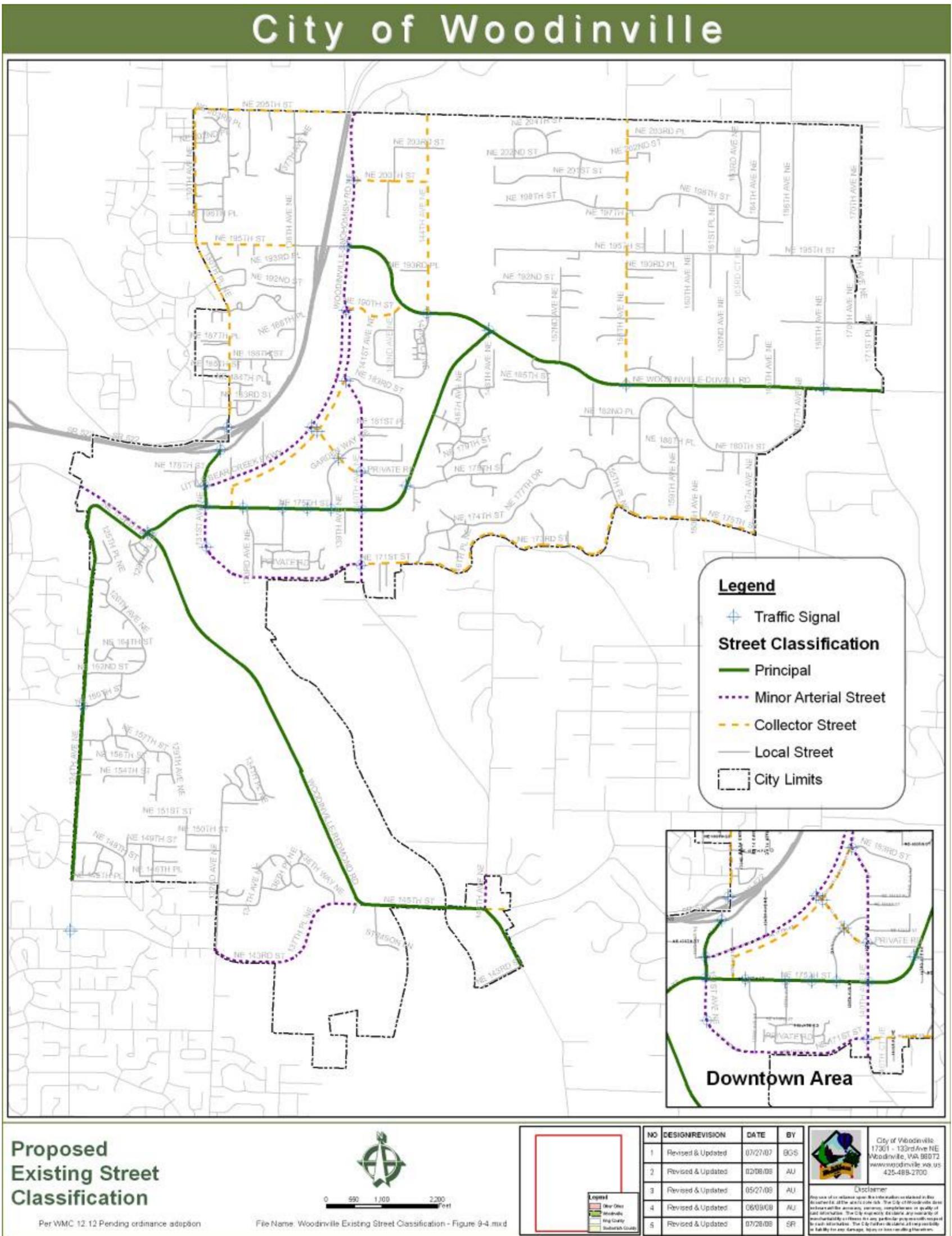


## **D. Street Classifications**

Federal and State guidelines require that streets be classified based on function. Local jurisdictions can use the designations to guide the type of improvements and the desired function of streets. Staffs recommended updated street classification map is shown in Map 3D-1 (page 75) Proposed Street Classification Map 2009. After this plan is adopted, an ordinance will be put forward to the Woodinville City Council; and if they adopt the map, it will become the officially adopted street functional classifications for the City.



Map 3D-1: Proposed Street Classification Map 2009





INTENTIONALLY BLANK



The amount of roadway within each classification for the City on the proposed Street Classification Map

**Table 3D-1 Number of miles for Road Classifications**

<b>Road Classification</b>	<b>Miles</b>	<b>Percentage</b>
Principal Arterial	8.24	16.3%
Minor arterial	4.68	9.3%
Collector	7.19	14.3%
Local Roads – Public	30.3	60.1%
<b>TOTAL</b>	<b>50.41</b>	<b>100%</b>

(The total for these road classifications includes SR 202 within the City)



INTENTIONALLY BLANK