

Future Mobility Conditions Summary

Westside Mobility Strategy

December 7, 2015

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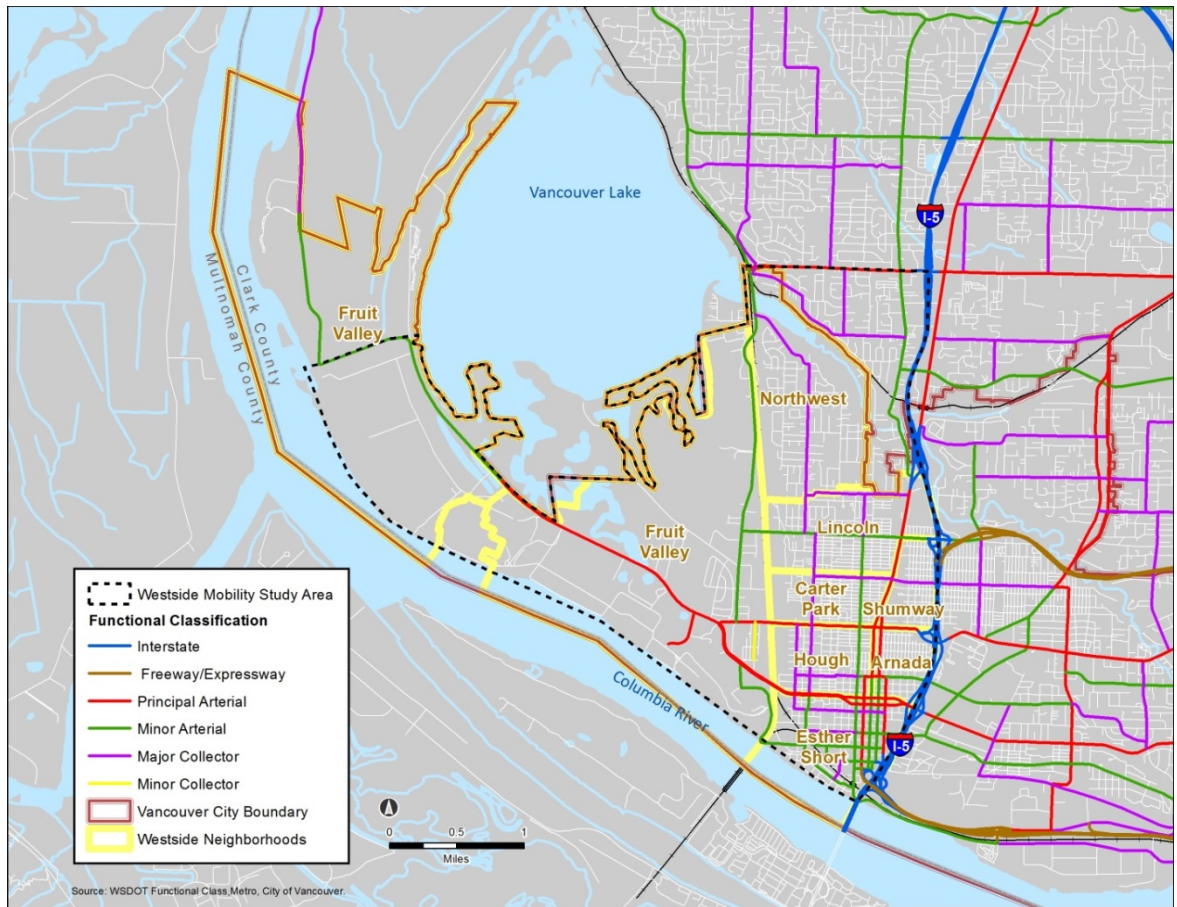
1 Introduction

The City of Vancouver's west side neighborhoods serve a mix of residential, industrial and commercial land uses, each of which are expected to grow in the next 20 years. The mix of trip types generated by these land uses presents conflicting interests for the existing transportation network. Industrial and freight vehicle trips through residential neighborhoods coupled with short local trips and north-south diversion traffic from I-5 congestion have been identified as major mobility issues. Despite these challenges, the historic grid pattern of interconnected streets provides opportunities to promote a safe and efficient multi-modal transportation network as the area continues to grow. The Westside Mobility Strategy project is aimed at developing strategies that will:

- Preserve livability of residential neighborhoods.
- Contribute to the revitalization and livability of the Downtown core.
- Address conflict areas within the transportation network.
- Manage increases in traffic as the Port of Vancouver (Port), industrial, residential and commercial areas continue to develop.
- Improve safety for pedestrians and bicyclists, especially in the Downtown and along north-south routes.
- Manage freight traffic on roadways abutting residential areas.

The purpose of this memorandum is to evaluate future (2035) demand and capacity for travel in the Westside Mobility Strategy project study area (see Figure 1) using the Southwest Washington Regional Transportation Council's (RTC's) small-area household and employment forecasts travel demand model. This memorandum also provides supplemental information to the RTC forecasts with additional data regarding economic growth for the purpose of better identifying strategies that will be outlined in later phases of the City of Vancouver's Westside Mobility Strategy project (WMS).

Figure 1. Study Area



2 Travel Demand Model: A Brief Explanation

This analysis incorporates forecasted travel behavior developed by RTC's travel demand model to generate, distribute, and assign vehicle trips throughout the Vancouver metro area.¹ The projections from the travel demand model help SW Washington cities and counties manage their transportation network of local and regional streets and roadways. It also helps to understand modal behavior and modal priorities through the region.

The RTC travel demand model² utilizes existing and projected population and employment estimates from local comprehensive plans developed by local jurisdictions. It also uses travel behavior surveys to understand regional travel choices. RTC's most recent survey conducted in 2009 collected approximately 1,650 household surveys to understand age, income, children, car ownership, and transportation infrastructure that affect Clark County residential travel behavior. The travel demand model assumes all projects in the *Regional Transportation Plan for Clark County* (RTP) are implemented, including the improvements that were part of the Columbia River Crossing (CRC) project.³

This information is configured and allocated across the region through geographic units called Traffic Analysis Zones (TAZ's), which divide the SW Washington region into over 1,000 discrete geographic areas for analysis purposes. The WMS study area in comparison to Clark County as a whole is a very small portion of the entirety of the model (see Figure 2). The Federal Highway Administration (FHWA) defines a TAZ as:

“the basic geographic unit for inventorying demographic data and land use within a study area. While the total number of TAZs dictates the size of trip matrices, the size and shape of TAZs can influence model results. Most notably, highway and transit trip loadings and the percent of intra-zonal trips are directly impacted by study area zonal detail and the size of the zones. Consequently, defining an appropriate zonal geography has long been a challenge to the travel demand model community.”

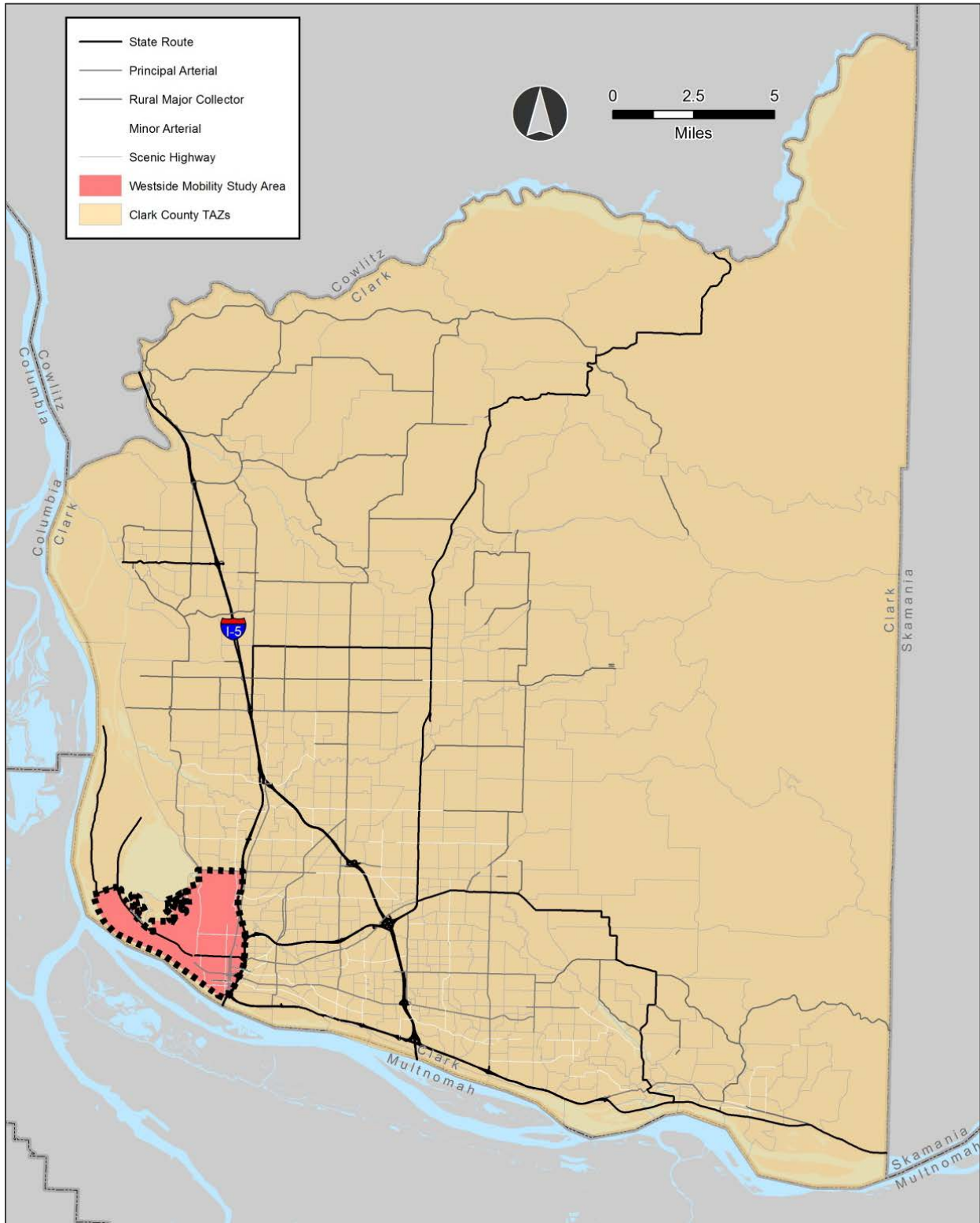
The model results are validated against actual traffic counts and transit ridership activity to calibrate the model's performance. The final projection outputs generated by the travel demand model assist in evaluating regional transportation policy, plans, and projects.

¹ RTC uses EMME software for traffic assignment purposes and uses DTA Lite (Dynamic Traffic Assignment) for more detailed transportation system performance evaluation.

² Source: <http://www.rtc.wa.gov/data/model/demand/>

³ This includes major interchange improvements on the east edge of the study area along the I-5 corridor.

Figure 2. Clark County TAZ Model Area Compared to WMS Study Area



3 Future Volume and Capacity Forecasting

In addition to TAZ information, infrastructure like signals and number of lanes are inputs to the model to determine available capacities of the roadway. In some locations, the capacity is altered based on knowledge of the system – such as the Fruit Valley Bridge, which has lower capacity due to physical constraints. The trips assigned by the model take the “quickest” route possible.

The 2035 future travel demand model volumes (Appendix A) as forecasted, were compared to the 2010 existing travel demand model. The following roadways in the study area were identified to have the greatest growth:

- Mill Plain Boulevard
- Fourth Plain Boulevard
- Fruit Valley Road
- 78th Street

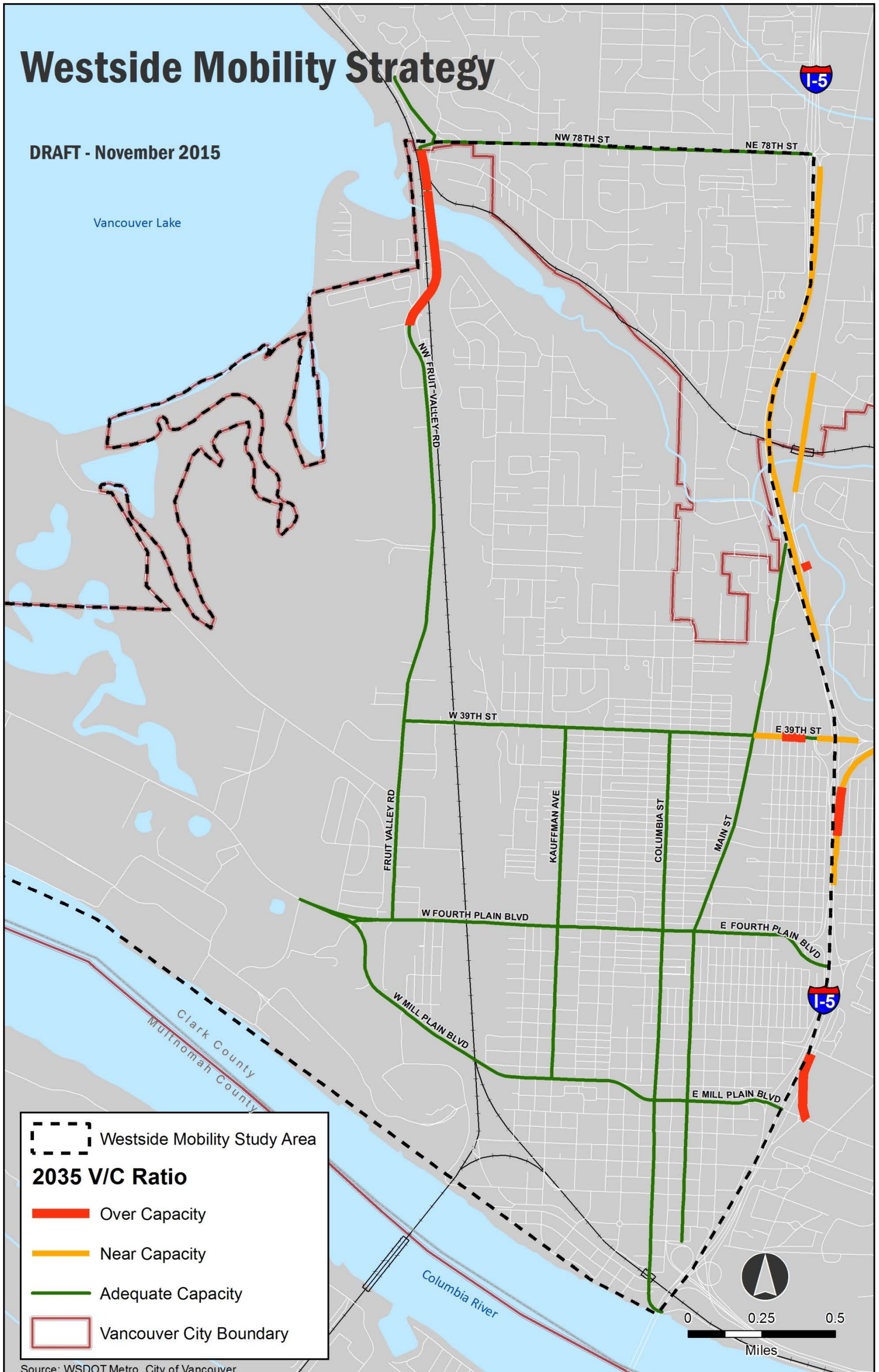
These roadways show the greatest growth in the PM peak hour⁴ traveling away from the industrial Port of Vancouver area. Other areas that illustrate significant growth and may impact freight and commuter trips are the Vancouver downtown, the Waterfront Development area, and I-5, in both directions.

Although the model predicts traffic volume growth, only a few roadways or sections of roadways are projected to operate above capacity in 2035. Figure 3 outlines the locations where the travel demand model projected roadways operate above or near capacity in 2035. All other roadways not highlighted are anticipated to operate below capacity. 39th Street east of Main Street, the 39th Street and Mill Plain Boulevard I-5 interchange ramps and Fruit Valley Road between NW 61st Street and NW 78th Street heading northbound are anticipated to operate above capacity during the PM peak hour. The capacity constraint on Fruit Valley Road is most likely due to commuter and truck traffic. Even with the significant growth in the downtown core and Waterfront Development area, there are no projected capacity issues for the Mill Plain and Fourth Plain corridors.

All locations projected to have 2035 capacity issues have also been identified in the Existing Mobility Conditions Summary as high collision rate locations, most notably the I-5 interchange ramps at 78th Street, 39th Street, Fourth Plain Boulevard, and Mill Plain Boulevard. As such, there is consistency between existing and future conditions at these critical locations requiring the most focus. The Fruit Valley Road Bridge (over the BNSF RR tracks), while not a high collision rate location, is part of the critical issue of north-south connections for freight.

⁴ RTC is currently working on developing AM peak hour volume projects and will be reviewed once they are available.

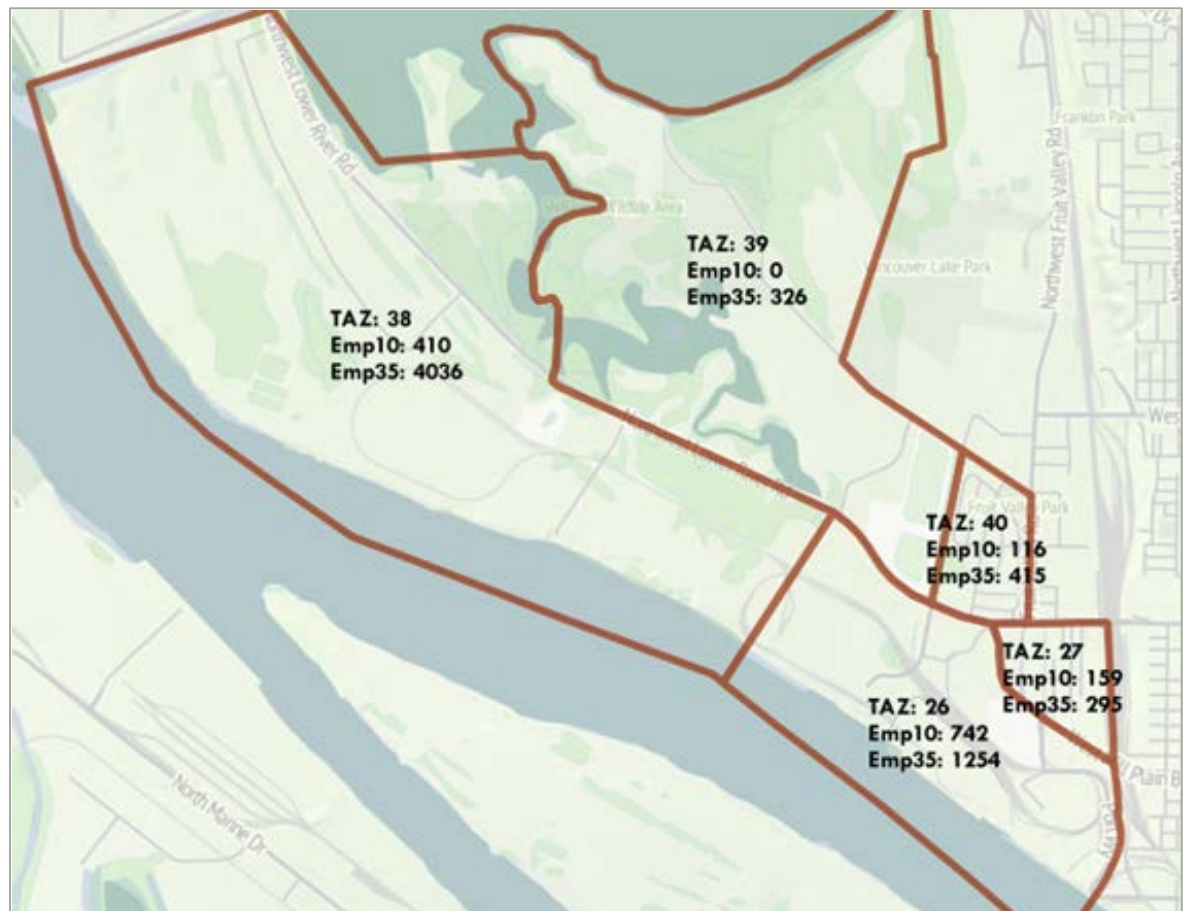
Figure 3. Vancouver's Westside Future PM Capacity Projections



4 Land Use Forecast Evaluations

To gain a better understanding of the anticipated future land uses specific to the study area, recent household and employment forecasts specific to the project study area (see Figure 4) were evaluated. These supplementary forecasts were based on recent and local market trends, current real estate projects, real estate and industry forecasting tools, such as Costar, and diagnostic data from recent shifts in the regional economy or markets. More details on these forecasts are provided in Appendix B.

Figure 4. Key Traffic Analysis Zone (TAZ) Projections



4.1 Employment Growth

Employment forecasts used by RTC indicate that the greatest number of jobs will be created in Downtown, the Waterfront Development area, the Port of Vancouver and west side industrial areas. TAZs with the greatest amount of expected jobs growth by 2035 are located in the industrial and Waterfront Development area (see Figure 4). Table 1 shows annual growth rates for the five subject TAZs.

Table 1. RTC 2010 and Future 2035 Employment Projections

TAZ	2010 Jobs	2035 Jobs	Annual Growth Rate (%)
38	410	4,036	9.6
39	10	326	15.0
40	116	415	5.2
27	159	295	2.5
26	742	1,256	2.1
RTC Total	1,437	6,328	6.1%

Table 2 provides a summary of jobs in the Port of Vancouver employment area for 2010 and 2035 projections. The Port of Vancouver's projections are based on a linear regression of employment in 2000, 2005, and 2010. The Port of Vancouver anticipates higher growth than calculated using this linear regression methodology. As such, the projected employment growth is expected to align just below RTC's 2035 employment forecasted value of more than 6,000 jobs.

Table 2. Port of Vancouver 2010 and Future 2035 Employment Projects

Employment Area	2010 Jobs	2035 Jobs	Annual Growth Rate (%)
Port of Vancouver	2,337	4,821	4.3

Table 3 summarizes alternative economic and employment data sources for historical annual growth rates in the WMS study area. Each of these data sources provides a different lens on potential growth and helps set a range of potential job or household growth that can be used to test sensitivity to potential market shifts. RTC growth rates projected for the five identified westside TAZs are higher than the set of comparison growth rates shown in Table 3. While known Waterfront Development area projects are likely to boost employment beyond historical trends, this anticipated growth would likely affect the identified southeast TAZs (e.g., within the Waterfront Development Area properties owned by Columbia Waterfront LLC and the Port of Vancouver).

Table 3. Supplementary Data Sources for Comparative Historical Annual Growth

Measure	Data Source	Geography	Time Period	Annual Average Pct. Growth (%)
Job growth (all industries)	U.S. Bureau of Economic Analysis, State of Washington	Clark County	2000 to 2014	1.5
Job growth (all industries)	U.S. Bureau of Economic Analysis, State of Washington	Clark County	2011 to 2014	2.7
Job growth (all industries)	U.S. Census (Longitudinal Employer-Household Dynamics)	Port of Vancouver area (polygon to match TAZs)	2002 to 2011	1.6
Industrial inventory growth	Costar	Vancouver westside/central business district	1995 to 2005	0.9
Projected job growth (all industries)	Washington Employment Security Department	Southwest Washington (Clark, Cowlitz, Skamania, Wahkiakum Counties)	2013 to 2023	2.0
Projected industrial job growth (manufacturing, transportation-warehousing, wholesale trade)	Washington Employment Security Department	Southwest Washington (Clark, Cowlitz, Skamania, Wahkiakum Counties)	2014 to 2023	1.3

4.2 Household Growth

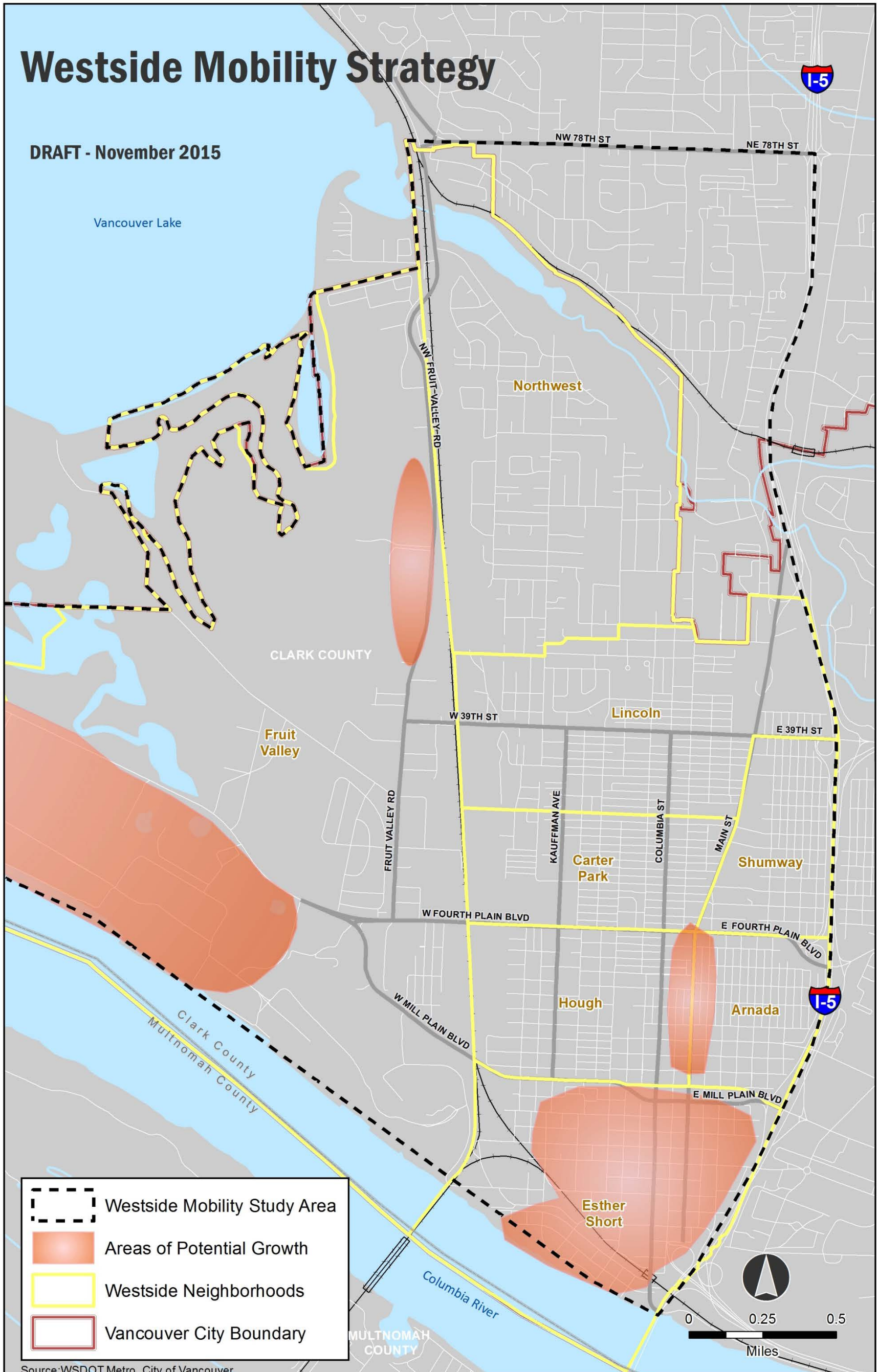
Given the attractiveness of Vancouver’s westside neighborhoods, higher growth than projected in the RTC model could occur but is most likely to occur in more than just the Waterfront Development area. Vancouver’s westside is largely built out, and densities in many neighborhoods are not expected to change; however, there are a few locations with vacant or underutilized land with the potential for redevelopment (see Figure 5). The three primary areas of change are the Downtown, the Waterfront Development area, and the Port of Vancouver and Industrial Areas. Uptown Village and Main Street Corridor, which extends north from Downtown, has potential for infill development but it is limited compared to Downtown and the Waterfront Development areas.

Most other areas, particularly the residential neighborhoods that constitute the majority of the westside, are considered “areas of stability.” While these residential neighborhoods may see residential remodeling, new construction, and other changes over time, their basic form, scale, density, and character are expected to change far less than the other areas.

4.3 Summary

While there are some variances anticipated between household and employment growth, the forecasts are relatively close in terms of projected travel demand on study area corridors.

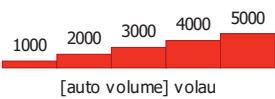
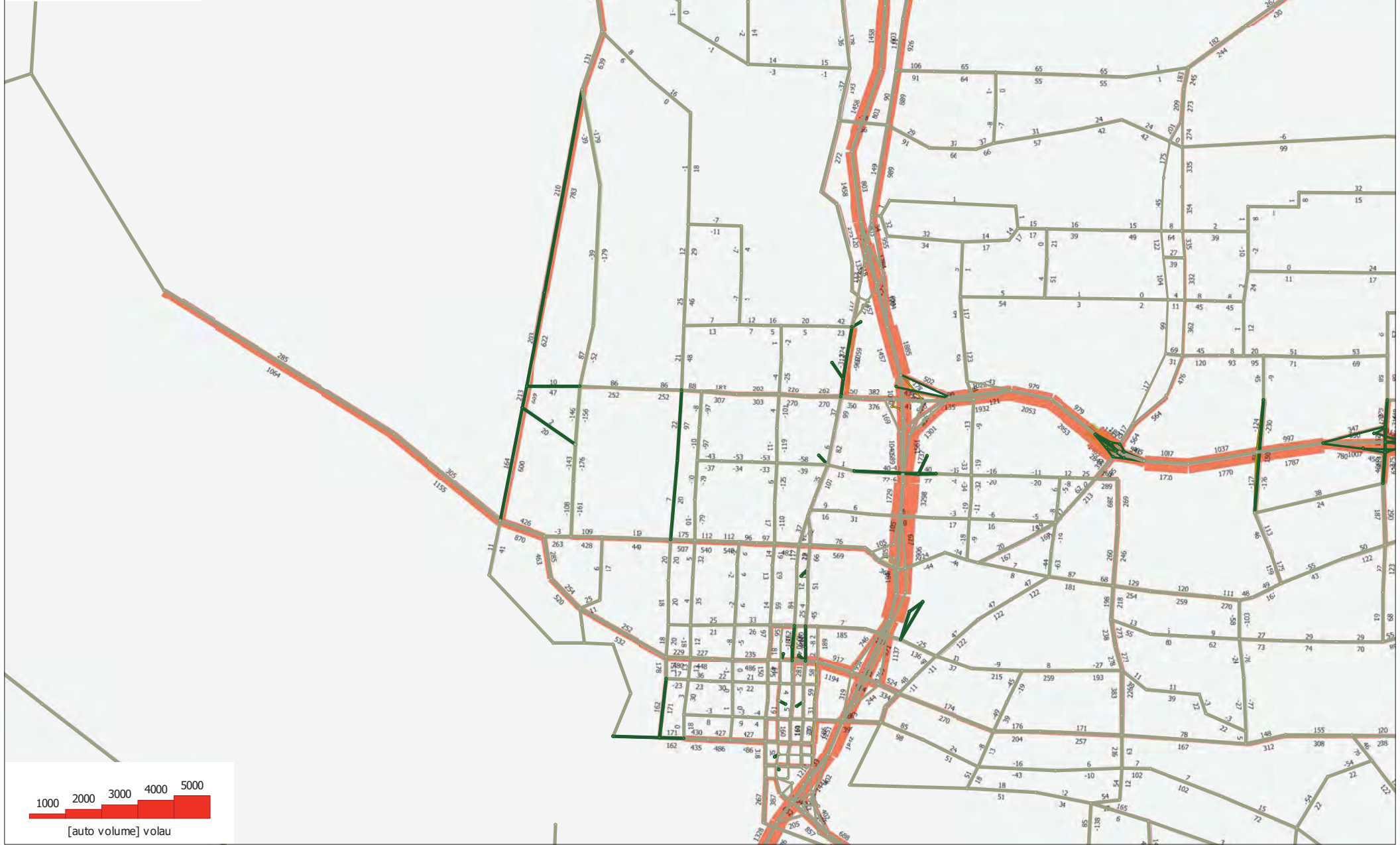
Figure 5. Potential Areas of Growth in the WMS Study Area

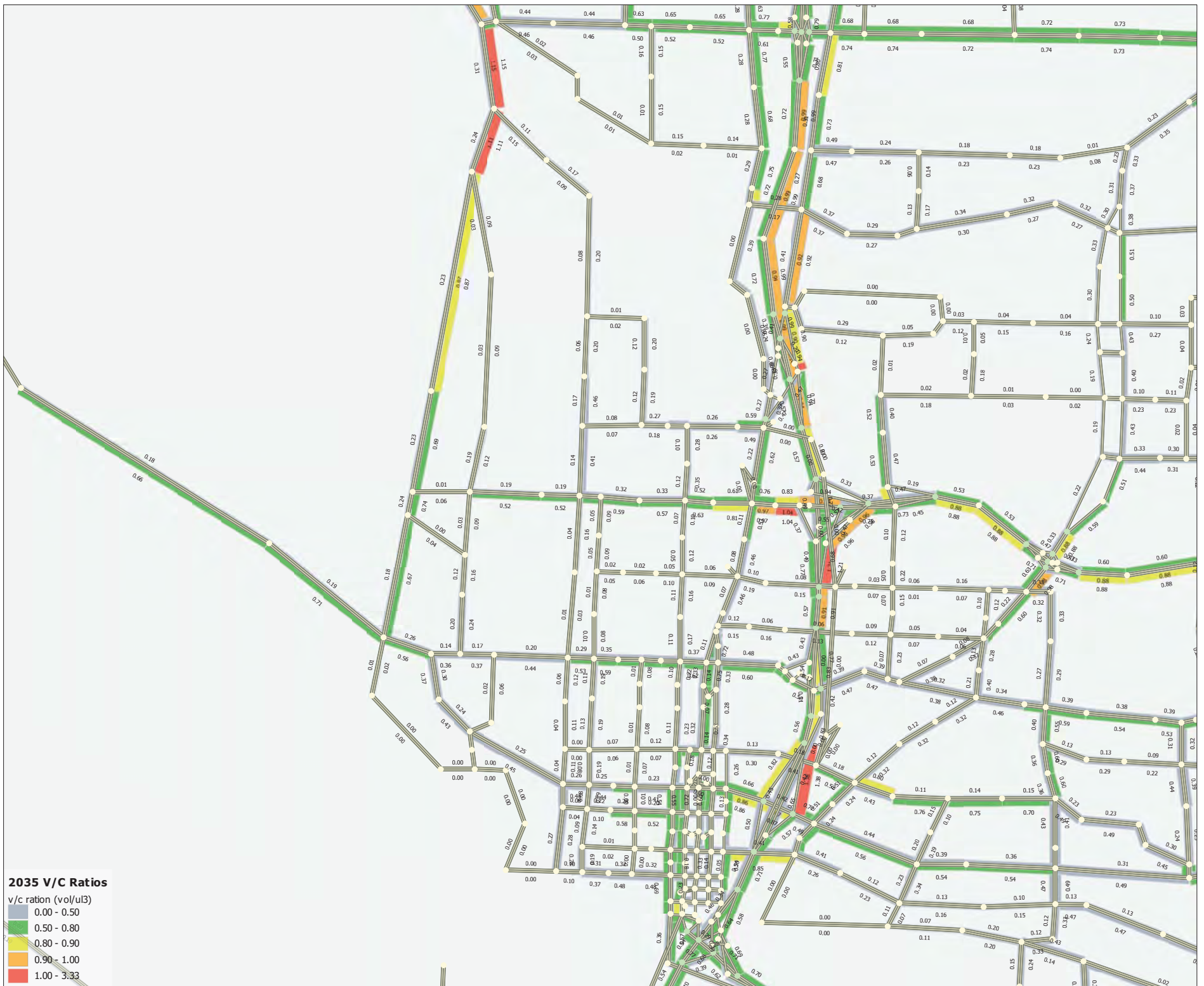


Appendix A

Travel Demand Data

- Links in both scenario
- Links in scenario 5000 only
- Links in scenario 3500 only





Appendix B

TAZ Forecasts: RTC and Alternative WMS Forecasts

Table 3. Household Growth Projection Comparisons

Households	Downtown Vancouver	West Vancouver 16th to 39th	West Vancouver 39th to 78th	Vancouver City
2000	737	3,406	3,536	56,964
2010	1,228	3,693	3,615	65,691
2014 estimate	1,286	3,764	3,745	67,675
2019 (ESRI projection)	1,372	3,922	3,957	71,219
2014–2019 annual rate	1.30%	0.83%	1.11%	1.03%

In creating long-range forecasts, RTC adheres to a “control total” of expected county-wide household growth while logically allocating that growth across hundreds of county TAZs. Key inputs typically include historical growth patterns, supplies of developable land, known planned projects, and local policy inputs. Whatever the methodology, RTC has projected significant growth in a handful of waterfront TAZs but also widespread (although small-scale) household losses across most of Vancouver. These household losses appear unrelated to historical trends and are inconsistent with ESRI and state demographer projections.

If additional refinement is desired, possible next steps are more complex than for employment and involve more TAZs. As an interim solution for the study area, LCG suggests adopting a “floor” rate of household growth that no TAZ would be allowed to drop below. A rate of 0.8 percent annually would represent a conservative floor, equal to ESRI’s projected rate for the westside between 16th and 39th Streets (the lowest growth rate projected for any of the westside residential areas). The alternative household projections shown in Appendix A reflect this “floor” rate.