Metro

APPENDIX M

2018 Regional Transportation Plan

Regional analysis

December 6, 2018

oregonmetro.gov/rtp

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Metro is the federally mandated metropolitan planning organization designated by the governor to develop an overall transportation plan and to allocate federal funds for the region.

The Joint Policy Advisory Committee on Transportation (JPACT) is a 17-member committee that provides a forum for elected officials and representatives of agencies involved in transportation to evaluate transportation needs in the region and to make recommendations to the Metro Council. The established decision-making process assures a well-balanced regional transportation system and involves local elected officials directly in decisions that help the Metro Council develop regional transportation policies, including allocating transportation funds.

Regional Transportation Plan website: **oregonmetro.gov/rtp**

The preparation of this strategy was financed in part by the U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration. The opinions, findings and conclusions expressed in this strategy are not necessarily those of the U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration.

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PURPOSE

This appendix documents the key modeling assumptions and analysis tools and methods used for the 2018 Regional Transportation Plan (RTP).

RTP Investment Scenarios and Analysis Geographies

RTP Investment Scenarios

Metro evaluated the performance of the transportation system for six different investment scenarios. The base year of the analysis is 2015 and the future years are 2027 and 2040.

- **2015 Base Year** – This scenario uses 2015 population and employment numbers. All transportation projects completed by 2015 are included in the Base Year to represent an "existing conditions" transportation system against which the other scenarios are compared.
- **2027 No Build** – This scenario assumes only projects with committed funding are built by 2027. This scenario uses 2027 population and employment projections. The 2027 No Build assumed no new projects are built that do not currently have funds to complete construction as identified in the 2015-2018 Metropolitan Transportation Improvement Program (MTIP) and 2015-2018 Oregon State Transportation Improvement Program (STIP).
- **2027 Constrained** – This scenario reflects a network of projects expected to be completed by 2027. This scenario uses 2027 population and employment projections.
- **2040 No Build** – This scenario assumes only projects with committed funding are built by 2040. This scenario uses 2040 population and employment projections. The 2040 No Build assumed no new projects are built that do not currently have funds to complete construction as identified in the 2015-2018 Metropolitan Transportation Improvement Program (MTIP) and 2015-2018 Oregon Statewide Transportation Improvement Program (STIP).
- **2040 Constrained** – This scenario assumes that all projects and programs identified in the Constrained 2027 list are completed by 2027 and the remaining projects on the full Constrained list are completed by the year 2040. This scenario uses 2040 population and employment projections, and serves as the basis for meeting federal and state planning requirements, including consistency with the Statewide Planning Goal 12, the Oregon Transportation Planning Rule and the Oregon Transportation Plan and its components.
- **2040 Strategic** – This scenario assumes that all projects on the full Constrained list and all of the projects on the full Strategic list are completed by 2040 if new or expanded revenue sources are secured. This scenario uses 2040 population and employment projections. Funding has not been identified for projects on the Strategic list.

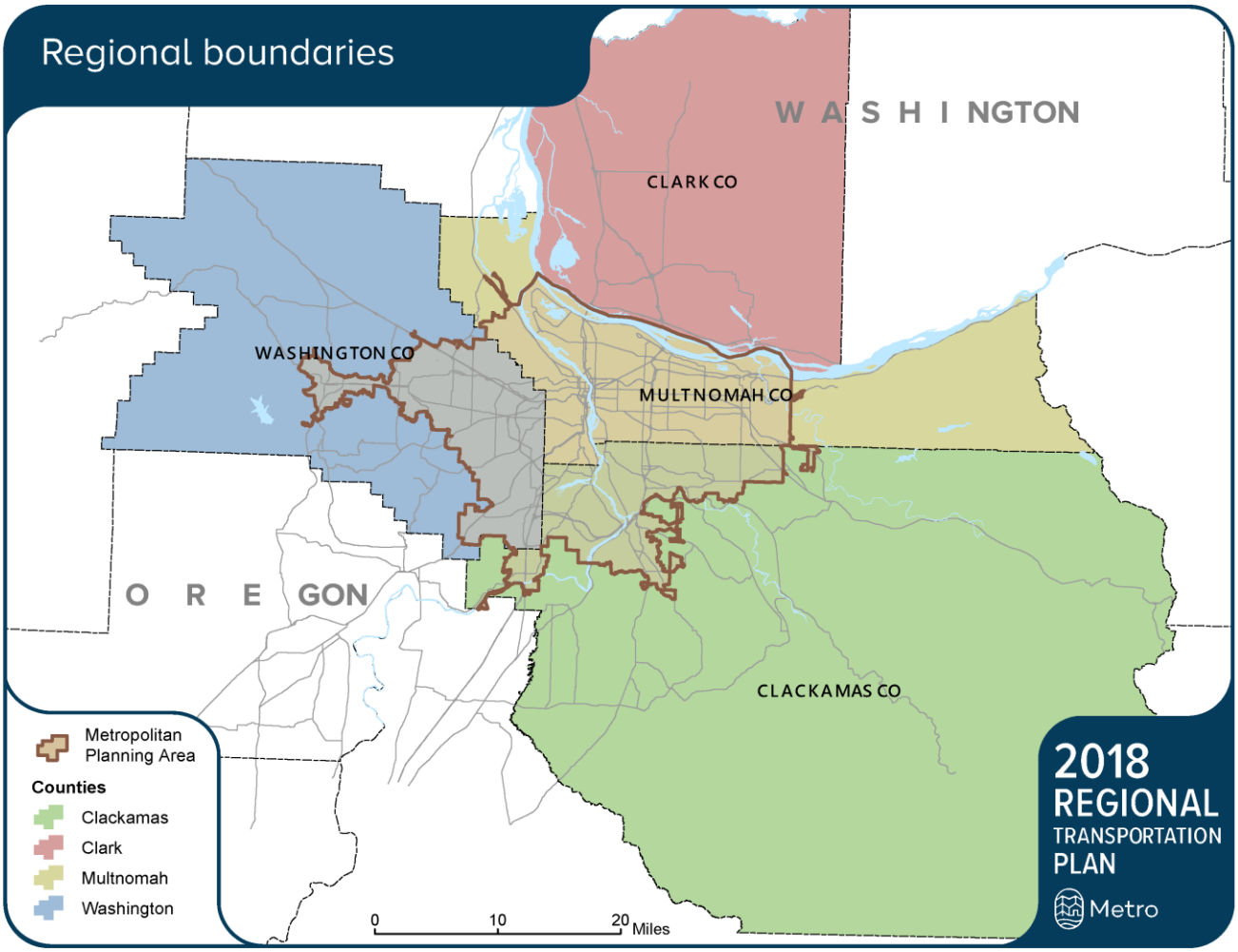
The 2027 Constrained and 2040 Constrained (also known as the Financially Constrained (FC) System) represents a network of projects based on revenue sources that can reasonably be expected to be available for transportation investments during the plan period and serves as the basis for complying with federal and state planning requirements. The 2027 No Build and 2040 No Build roadway and transit networks are exactly the same.

Chapter 5 of the RTP provides information on the transportation revenue forecast used to identify projects to include in the RTP investment scenarios. Findings from the performance evaluation are reported in **Chapter 7** of the RTP. Details about the Transportation Equity Evaluation are reported in **Appendix E**. Details about the environmental analysis are provided in **Appendix F**. Details about the greenhouse gas emissions analysis prepared to monitor implementation of the Climate Smart Strategy are provided in **Appendix J**.

RTP Analysis Geographies

Metro evaluated the performance of the transportation system for the: 4-county region and metropolitan planning area. Within the metropolitan planning area (MPA), some measures were also evaluated in equity focus areas, sub-regions, regional centers and mobility corridors.

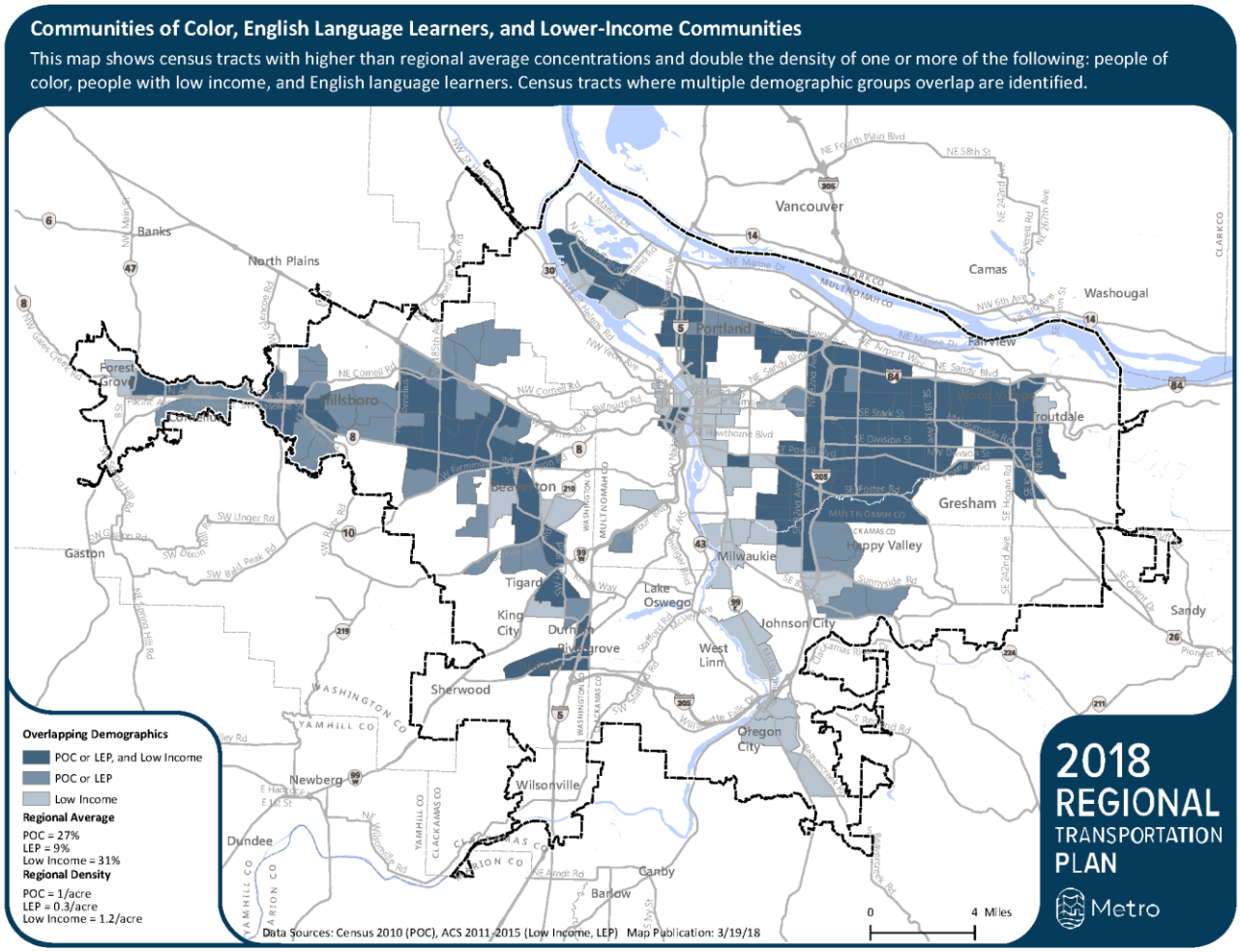
Figure 1. Regional analysis boundaries



4-County Region This area includes all of Clackamas, Multnomah, Washington and Clark Counties.

Metropolitan Planning Area (MPA) Boundary The primary geographic area for the RTP system evaluation, this is the geographic area determined by agreement between the Metropolitan Planning Organization (MPO) – Metro – and the Governor, in which the metropolitan transportation planning process is carried out by the MPO. Refer to **Chapter 1** of the RTP for more information about the MPA boundary and MPO responsibilities.

Figure 2. RTP Equity Focus Areas



RTP Equity Focus Areas Shown in **Figure 2**, these areas are census tracts with higher than regional average concentrations and double the density of one or more of the following populations: people of color, people with low income and people with limited English proficiency (LEP). Most of these areas also include higher than regional average concentrations of other historically marginalized communities, including young people, older adults and people living with disabilities. The threshold rates for each population are identified in **Table 1**.

Table 1. RTP Equity Focus Areas definitions and thresholds

Community	Definition	Geography threshold	Data source
People of color	Persons who identify as non-white.	The census tracts which are above the regional rate (26.5%) for people of color AND the census tract has twice (2x) the population density of the regional average (regional average is .48 person per acre).	2010 Decennial Census
People with low income	Households with incomes equal to or less than 200% of the Federal Poverty Level (2016); adjusted for household size.	The census tracts which are above the regional rate (31.1%) for households with low-income AND the census tract has twice (2x) the population density of the regional average (regional average is .58 person per acre).	American Community Survey, 2011-2015
People with limited English proficiency	Persons who identify as unable "to speak English very well."	The census tracts which are above the regional rate (8.5%) for people with limited English proficiency (all languages combined) AND the census tract has twice (2x) the population density of the regional average (regional average is .15 person per acre).	American Community Survey, 2011-2015 Oregon Education Department School Enrollment Data

Source: Metro, 2018 RTP transportation equity work group

More information about the transportation equity analysis conducted for the 2018 RTP can be found in Appendix E: Transportation Equity Evaluation.

ANALYSIS TOOLS USED

This section provides a summary of the analysis tools used to inform development and analysis of performance of the 2018 Regional Transportation Plan (RTP).

MetroScope

The 2040 Distribution Forecast of households and jobs was used as the RTP land use assumptions.[1] Adopted by the Metro Council in 2016 after extensive consultation with and review by local governments and Metro advisory committees, the land use assumptions are based on the LCDC-acknowledged 2040 Growth Concept and the seven-county 2040 Regional Forecast previously adopted by the Metro Council in 2015. [2]

Metro prepared the forecast using the regional econometric land use model – called MetroScope. MetroScope uses census data, zoning and land characteristics, economic factors, including job forecasts and information on accessibility from the regional travel demand model to help determine the relative attractiveness of areas within the region to estimate where households and employment might locate. The number of households and employees were projected and assigned to analysis zones in MetroScope.

Base year 2015 population and employment are based on census data for households and Bureau of Labors Statistics (BLS) data for employment. [3] Future year population and employment out to the year 2040 were assigned to each TAZ in the regional travel demand model using the MetroScope land use model mapback procedure.

Table 2 shows the 2015 base year estimates and future year projections of household, population and employment used in the analysis for the four-county region, including Clark County in southwest Washington.

[1] Metro Ordinance No. 16-1371 (For the Purpose of Adopting the Distribution of the Population and Employment Growth to Year 2040 to Local Governments in the Region Consistent with the Forecast Adopted by Ordinance No. 15-1361 in Fulfillment of Metro's Population Coordination Responsibility under ORS 195.036), adopted by the Metro Council on October 13, 2016.

[2] The Regional Forecast covers the 7-county MSA (Portland-Hillsboro-Vancouver, OR-WA, MSA). This includes the following counties: Clackamas, Columbia, Multnomah, Washington, Yamhill (in Oregon); and Clark and Skamania (in Washington state). The MetroScope model is later used to spatially disaggregate region-wide growth estimates to TAZ level estimates that are reflected in the Distribution Forecast used for the RTP.

[3] BLS data is partially suppressed to protect the identity, or identifiable information, of cooperating employers. However, totals of higher-level aggregations include partially suppressed data.

Table 2. Base year and future year household, population and employment (four county region)

	Households	Population	Employment
2015	850,898	2,190,615	1,072,925
2027	1,035,124	2,601,873	1,315,085
2040	1,187,018	2,962,646	1,530,551
Growth (2015 to 2040)	+336,120	+772,031	+457,626
Percentage growth from 2015 to 2040	40%	35%	43%

Source: Metro Research Center Regional Travel Demand Model

Table 3 shows the 2015 base year estimates and future year projections of household, population and employment used in the analysis for the metropolitan planning area boundary (MPA).

Table 3. Base year and future year household, population and employment (metropolitan planning area boundary)

	Households	Population	Employment
2015	636,467	1,605,672	895,094
2027	776,202	1,904,815	1,071,017
2040	896,451	2,178,848	1,240,653
Growth (2015 to 2040)	+259,984	+573,176	+345,560
Percentage growth from 2015 to 2040	41%	36%	39%

Source: Metro Research Center Regional Travel Demand Model

This distribution forecast estimated a modest expansion of the regional urban growth boundary over the planning period consistent with state law and the region's designation of urban and rural reserves. The forecast followed basic legal and policy direction that results in future urban growth boundary (UGB) expansions on designated urban reserves. The forecast also reflected:

- the Great Recession lasted longer and deeper than reflected in the 2012 forecast distribution.
- recovery from the Great Recession was slower and weaker than expected in the 2012 forecast distribution.
- the City of Damascus appeared likely to disincorporate in 2016, potentially making the western portion of the area more likely to develop as part of Happy Valley and the eastern portion unlikely to develop for decades.
- census data showed demographic shifts that have implications for slower regional growth than expected in the 2012 forecast.

Documentation of specific features and assumptions used to develop the land use forecast used in the RTP analysis is available on Metro's 2040 Distributed Forecast website at: https://www.oregonmetro.gov/2040-distributed-forecast. Documentation of the MetroScope model and is available on Metro's website at: https://www.oregonmetro.gov/forecasting-models-and-model-documentation.

Regional Travel Demand Model

The Metro regional travel demand model is used as a tool to analyze existing and future transportation system performance for the greater Portland region. It is specifically used to forecast future trips on the regional transportation system for all forms of travel – walking, biking, driving, transit, shared ride – and freight.

The regional travel demand model includes auto, transit, freight and bicycle networks that explicitly represent travel conditions based on specified packages of projects, fuel costs[4] as well as projected household and employment growth and policies related to land use, parking charges and transit fares to predict:

- Where and how much people travel
- How trips are made (by mode)
- How far people travel and how long it takes to get there

The model takes into consideration the trip-making choices made by residents in the region. This information is collected from periodic rigorous travel surveys. Metro's last survey – the 2011 Household Travel Behavior Study – tracked nearly 6,500 households to understand how factors such as age, income, children, car ownership and transportation infrastructure characteristics affect travel choices.

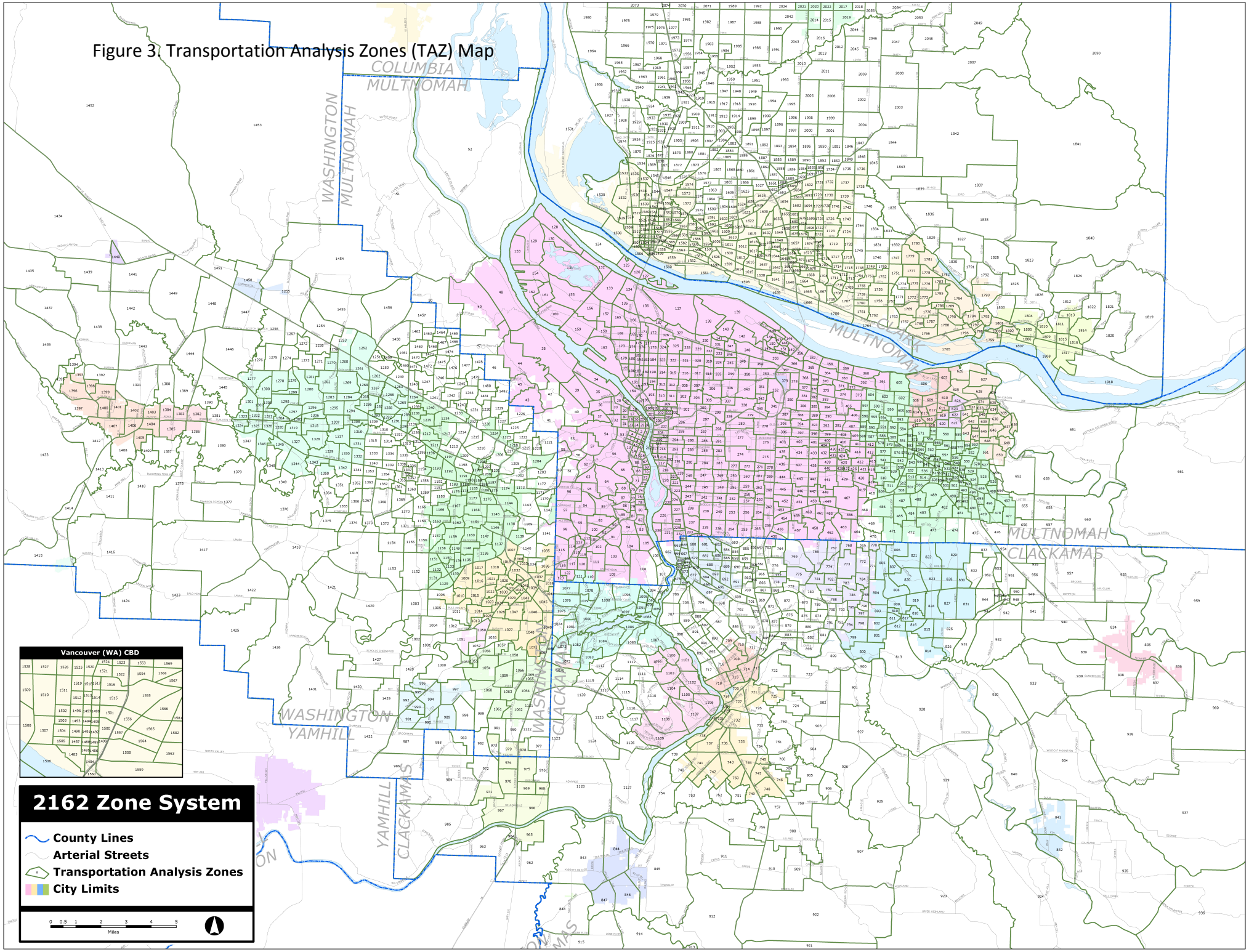
Within the model, the four-county region is divided into 2,162 discrete geographic areas called transportation analysis zones (TAZs), shown in **Figure 1**.[5] A variety of data is incorporated into the travel model for each TAZ, including:

- 2040 design type land use characteristics consistent with locally-adopted comprehensive plans (see **Attachment 1**)
- level of street connectivity are also assigned to each TAZ (see **Attachment 1**)
- parking and transit fare costs (see **Attachment 1**)
- planned roadway, transit and bike projects (see **RTP Appendices A, B and C and Attachment 2** for transit service enhancements)
- regionally-coordinated household and employment assumptions, both existing and forecasted future, in a manner that is consistent with locally-adopted comprehensive plans (see **Attachment 3**)

[4] Fuel costs within the model are considered as part of auto operating cost, which consists of gasoline, oil, tires and general maintenance costs on a per mile basis. This cost is $0.21 per mile in 2010 dollars, as derived from AAA reporting. For future year forecasts (i.e., 2027 and 2040), the model assumes that this auto operating cost per mile will rise with inflation.

[5] The TAZ is the geographic unit that serves as the building block of Metro's primary forecasting tools (the travel demand model and MetroScope). These small subdivisions improve the accuracy of the travel demand model as well as all other aspects of transportation planning. The TAZ-level data also assists land use planners in updating comprehensive plans and zoning, and conducting other types of land use analysis, including neighborhood level analysis.

Figure 3. Transportation Analysis Zones (TAZ) Map



Based on all of these factors, the travel demand model estimates the number of trips that will be made, the distribution patterns of the trips and travel activity levels throughout the region by time of day. All of the trips generated at the TAZ level are aggregated and analyzed at the TAZ level. Traffic volume projections from these simulations are then used to assess transportation system performance. Due to the macro-scopic nature of the regional model, the model does not analyze walking or local street traffic volumes at detailed analysis levels. The model does not currently account for autonomous vehicles or shared mobility options, such as ride-hailing services.

Model validation

The Federal Highway Administration, Federal Transit Administration and U.S. Environmental Protection Agency require that project analysis be carried out using methods and modeling tools that meet certain guidelines. Metro's travel demand model is regularly reviewed by the appropriate federal agencies and expert panels to ensure that they meet federal guidelines and meet or exceed the standard practices of other travel demand models used throughout the country. The base year transportation networks are validated using industry best practices that meet or exceed Federal guidelines for large, regional transportation models. Prior to any modeling for an RTP update, Metro's partner agencies undertake a jurisdictional review of the base year auto and truck networks and provide Metro staff with any corrections or suggested edits to facility speed, capacity and number of lanes.

Modeled results on regional networks are compared against observable data to ensure that assigned traffic flows on major facilities and between sub-regions closely match empirical data and that regional mode shares are consistent with regional travel survey sources.

Standard model validation metrics for an RTP level assessment include comparing assigned network volumes across corridor cutlines against collected vehicle counts, model-derived travel times and speeds along major facilities against third-party GPS data sources (e.g., Inrix, HERE, NPMRDS), and modeled regional mode shares against mode shares derived from household activity surveys and U.S. Census (LEHD) data.

The RTP 2015 Base Year network has been compared against all of the above mentioned data sources and has been determined by Metro staff to be reasonably validated for the purposes of regional and corridor-level analyses. As is true with any large regional network, there may be locations on some facilities – particularly those where travel patterns tend to be localized rather than regional – where the regional model does not accurately reflect local traffic characteristics. In these instances, Metro staff encourages the jurisdictions to work with Metro to identify possible solutions to improve the model results in these locations while still maintaining the model's overall regional-level validation.

Documentation of specific features and assumptions for various components of the regional travel model are available on the Metro's Transportation Modeling Services website: www.oregonmetro.gov/modeling-services.

Motor Vehicle Emissions Simulator (MOVES)

The Motor Vehicle Emissions Simulator (MOVES) model is a state-of-the-science emission modeling system that estimates emissions for on-road vehicle sources for criteria air pollutants, greenhouse gases, and air toxics. The emissions reported are for vehicle travel occurring within the federally-designated metropolitan planning area boundary (MPA) regardless of where trips begin or end.

The on-road vehicle emissions estimates published in association with the 2018 RTP update were produced within a software framework that combines the regional travel model with EPA's MOVES model, version MOVES2014a. The most recent version of the model is MOVES 2014b.[6] Metro's current implementation of MOVES was developed for air quality conformity purposes in accordance with all pertinent EPA guidance included in the document, "Using MOVES to Prepare Emission Inventories in State Implementation Plans and Transportation Conformity: Technical Guidance for MOVES2010, 2010a and 2010b" (April 2012).

See 2018 RTP Appendix J for more information regarding the regional on-road vehicle fleet and emissions characteristics assumed in the 2018 RTP on-road vehicle emissions analysis. In particular, the fleet mix and vehicle age distributions do not change over time, hybrid and/or electric vehicles are not currently accounted for and assumptions regarding average fuel economy are limited to standards and policies set forth in existing federal and state legislation.

Metro staff will monitor future changes to fleet and technology assumptions in collaboration with DLCD, DOE, DEQ and ODOT and continue to improve emissions analysis methods, data and tools through its air quality and climate change programs.

Geographic Information Systems (GIS)

Geographic Information Systems (GIS) uses spatial data to determine relationships between different data elements and map-based data, including Metro's Regional Land Information System (RLIS). An on-line RTP Resource Guide provided information to support project sponsors throughout the RTP update.

For the 2018 RTP evaluation, the transportation investments were mapped to assess the spatial relationships between the RTP investments and different datasets. In particular, transportation equity, safety, active transportation system completion and access to jobs, community places, transit and active transportation options were assessed using ArcGIS, made by ESRI. Documentation of the data and methodologies used are provided in this appendix.

For more information on Metro's RLIS data layers and tools, visit the RLIS Live website.

[6] A newer version of MOVES (MOVES2014b) has since been released, but it should be noted that the improvements incorporated into this update pertain almost exclusively to estimates of non-road emissions and are, therefore, not relevant to this analysis.

Integrated Transport and Health Impacts Model (ITHIM) and Health Analysis Methods

For the 2018 RTP, Metro partnered with Multnomah County Public Health and the Oregon Health Authority (OHA) to estimate the health effects of regional transportation investments using ITHIM. ITHIM uses information about travel behavior to estimate changes in chronic disease and premature deaths associated with lack of physical activity and from air pollution – two documented leading causes of death and chronic disease in the greater Portland region.[7] Three key pieces of information are needed to run ITHIM: average minutes of walking and cycling per person per week, and change in fine particle (PM2.5) pollution.

Metro modeled travel behavior for the 2015 Base Year and each of the investment strategies; walking and cycling minutes include trips accessing transit stops. Using the MOVES model, Metro estimated change in the mass of fine particulate matter (PM2.5) released by mobile sources for each scenario. MOVES outputs are in units of mass (e.g. grams per year), but ITHIM uses a concentration to estimate health benefits. Although there is not a standard practice for converting a mass estimate to a concentration, the analysis used a recent PM2.5 inventory provided by the Oregon Department of Environmental Quality (DEQ) for Multnomah County suggesting that on-road emissions account for approximately 11 percent of fine particulate pollution. Using 2015 monitor data from three air monitors in the region, an average baseline concentration was calculated. The final step was applying the percentage changes from MOVES to the portion of PM2.5 attributable to on-road sources in the region, resulting in estimates for each investment strategy. These estimates do not account for changes in particle pollution from other sources, such as residential wood combustion or industrial point sources.

2015 Base Year death and burden of disease estimates for each disease were compiled from Oregon Health Authority vital statistics. Number of deaths between 2011-2015 were downloaded from the Oregon Public Health Assessment Tool (OPHAT) and averaged for the five-year period. Disability Adjusted Life Years (DALY) are calculated by summing Years of Life Lost (YLL) and Years of Living with a Disability (YLD) for each disease. DALYs are a unit of disease burden that combine years of life lost with years of living with a disability. When summed across a population, changes in DALYs can be thought of as changes in the burden of disease within that population. YLL are calculated using the World Health Organization (WHO) DALY Template from number of deaths by age group, gender and life expectancy at the time of death. YLD are imputed for the metropolitan planning area from WHO Global Burden of Disease 2010 estimate for the U.S. For future years, population numbers changed but the age distribution was kept the same across all investment strategies. This enables more direct comparisons with 2027 Constrained investment strategy and isolates the effect of changes in travel behavior.

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[7] Metro and the OHA partnered to use ITHIM in a series of Health Impact Assessments (HIAs) completed during the Climate Smart Strategy planning process that concluded in 2014.

The analysis was conducted as a way to compare investment strategies, as opposed to a prediction of what will likely come to pass. The results reported in Chapter 7 of the RTP are not a comprehensive estimate of health effects. ITHIM omits several diseases and causal pathways that are related to transportation, but for which no model module has been created. Among the effects not modeled are diseases and deaths associated with traffic noise, non-particle air pollution, and traffic injuries. Both noise and air pollution are associated with cardiovascular disease and diabetes (Babisch, 2014; Dzhambov, 2015). The estimate of risks from air pollution are not adjusted for noise.

Although ITHIM includes a model for injuries, the input data necessary to use it was not available. This shortcoming is notable because of the high burden of death and disability from traffic crashes. Unintentional injuries were the fourth leading cause of death in the 3-county area from 2012-2016. Including traffic crashes could therefore substantially alter estimates of health impacts from the RTP. Finally, estimates are based on present disease rates, not projected rates based on estimated trends.

RTP Project Hub

An on-line project database (called the RTP Project Hub) was created to store information for projects adopted in the 2018 RTP as well as projects from previous plans. Project sponsors reviewed and submitted new or updated project information, including modeling assumptions for bike and roadway projects.

REGIONAL TRAVEL MODEL ASSUMPTIONS

The RTP project lists provided in **Appendices A, B and C**, are priority projects from local, regional or state planning efforts that provided opportunities for public input. Projects in the 2027 and 2040 Constrained RTP investment scenarios are eligible for federal or state transportation funding.

It is important to note that major projects that included preliminary engineering (PE) and right-of-way acquisition (ROW) were included as fully built in the travel demand model for the year of the construction for that project. The major projects are in various stages of project development and planning at this time. In some cases, locally preferred alternatives (LPAs) have yet been determined, therefore, the assumptions used only represent potential alignments or facility type determinations.

Table 4 identifies the major throughway projects in each future year RTP network.

Table 4. Summary of major planned throughway network investments

	2027 Constrained	2040 Constrained *(2027 Constrained, plus)*	2040 Strategic *(2040 Constrained, plus)*
Throughways	• I-5 Rose Quarter Improvement • OR 217 auxiliary lanes (NB and SB) • I-205 Stafford to OR 99E widening (SB) • I-205/Abernethy Bridge widening • OR 224 widening (third WB lane) • I-205 auxiliary lane (in Portland/Glen Jackson Bridge)	• I-5/Columbia River Crossing (with tolling as defined in adopted LPA) • Sunrise Project, Phase 2 • US 26 widening to Brookwood Road • I-5/Boone Bridge SB auxiliary lane • I-5 NB braided ramps from I-205 to Nyberg Road • OR 217 braided ramps • I-205 auxilliary lanes	• Sunrise Project, Phase 3 • I-5/OR 217 Interchange Phase 2 • OR 217 operational improvements and widening • OR 217 auxiliary lane from Denney to Scholls Ferry Road • I-5 auxiliary lanes

*Projects marked in red have NEPA work under way or completed. See Chapter 8 (Section 8.3) for a summary of completed and current major project development activities in the region.

For the I-5/Columbia River Crossing, the 2040 Constrained and Strategic networks assumed Alternative T9 from the Final Environmental Impact Statement (September 2011). This alternative has five lanes in each direction on the I-5 Bridge and includes four lanes from Hayden Island to Delta Park, and three lanes in each direction south of Delta Park to I-405/Central City loop. Paying for the construction of the five lane I-5 bridge requires assumptions regarding tolling. Therefore, tolling on the I-5 Bridge was assumed as part of both the 2040 Constrained and 2040 Strategic scenarios modeling.

Roadway Network Assumptions

The on-line RTP Resource Guide contains the roadway speed, number of travel lanes and capacity assumed for the 2015, 2027 No Build, 2027 Constrained, 2040 No Build, 2040 Constrained and 2040 Strategic roadway networks. The 2027 No Build and 2040 No Build roadway and transit networks are exactly the same.

2015 Roadway Network

The 2015 Roadway Network consists of throughways, arterials, and collectors from the year 2015. This roadway network is used as the base year for the RTP update. All projects in the region completed by spring 2015 were incorporated into the 2015 network.

2027 No Build Roadway Network

Roadway projects included in the 2027 No Build network includes the 2015 Network and projects identified by project sponsors that have been completed (or have received committed funding) as of 2015.

2027 Constrained Roadway Network

Roadway projects included in the 2027 Constrained network includes projects submitted by ODOT and local agencies as part of the 2018 RTP call for projects in the summer of 2017. Major throughway capital investments are summarized in **Table 4**.

2040 No Build Roadway Network

The 2040 No Build Network includes the 2015 Network, the 2027 No Build Network and other projects identified by project sponsors that have been completed (or have received committed funding) as of 2015. A complete list of completed roadway projects included in the 2040 No Build is provided in **Table 3**.

2040 Constrained Roadway Network

Roadway projects included in the 2040 Constrained network includes projects submitted by ODOT and local agencies as part of the 2018 RTP call for projects in the summer of 2017. Major throughway capital investments are summarized in **Table 4**.

2040 Strategic Roadway Network

Major roadway projects included in the 2040 Strategic network include all of the 2040 Constrained projects plus additional investments identified by project sponsors as part of the 2018 RTP call for projects in the summer of 2017. Major throughway capital investments are summarized in **Table 4**.

Transit Network Assumptions

In general, the RTP transit networks include an extensive mix of high capacity, regional and community service transit service. **Attachment 2** contains a list of all of the bus and MAX lines and their respective service headways for the 2015 Base Year and future year transit networks.

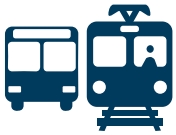
The 2015 Transit Base Network consists of current service and existing (2015) MAX lines and frequent service bus lines as well as existing service for other transit districts, including C-TRAN, (SMART), Canby Area Transit (CAT), Sandy Transit (SAM) and South Clackamas Transit District (SCTD).

The 2027 No Build and 2040 No Build transit networks are exactly the same and include:

- Current service similar to 2015 headways and TriMet bus routes and MAX lines.
- Existing service routes for SMART, C-TRAN, CAT, SAM and SCTD.

Table 5 identifies the planned high capacity transit projects in each future year RTP network.

Table 5. Summary of planned high capacity transit network investments

	2027 Constrained	2040 Constrained *(2027 Constrained, plus)*	2040 Strategic *(2040 Constrained, plus)*
High Capacity Transit 	• Southwest Corridor Project • Division Transit Project • MAX Red Line Improvements Project • Central City Transit Capacity Analysis (*combined with Steel Bridge Transit Bottleneck*)	• Portland to Vancouver HCT • Steel Bridge Transit Bottleneck *(combined with Central City Transit Capacity Analysis)*	• HCT extension to Oregon City via McLoughlin Blvd. • HCT on I-205 (Clackamas to Bridgeport) • WES all-day service • WES extension to Salem • Sunset Highway HCT (Sunset Transit Center to Hillsboro Fairplex) • HCT extension to Forest Grove

*Projects marked in red have NEPA work under way or completed. See Chapter 8 (Section 8.3) for a summary of completed and current major project development activities in the region.

Table 6 identifies the planned enhanced transit projects in each future year RTP network.

Table 6. Summary of planned enhanced transit network investments

	2027 Constrained	2040 Constrained *(2027 Constrained, plus)*	2040 Strategic *(2040 Constrained, plus)*
Enhanced Transit Corridors (ETC)	• Streetcar upgrades on Grand Avenue in Portland • Central City Portals (downtown Portland bridges) • 82nd Avenue ETC (NE Killingsworth Street to SE Clatsop Street) • Powell Boulevard ETC (SE Portland to I-205) • 122nd Avenue ETC (Lents to Parkrose transit center) • Martin Luther King Jr. Boulevard ETC (Portland Central City to N Vancouver Boulevard) • Sandy Boulevard ETC (Portland Central City to Parkrose TC) • 82nd Avenue ETC (Swan Island to Clackamas town center) • Hawthorne Boulevard/Foster Road ETC (downtown Portland to Lents town center) • Streetcar to Montgomery Park in NW Portland	• Inner North Portland ETC (Portland Central City to N Lombard Street) • Caesar Chavez ETC (Sandy to Powell) • Lombard Street ETC (St. Johns to MLK Jr. Blvd.) • SE Hawthorne/50th Avenue ETC (Willamette River to SE Powell) • Tualatin Valley Highway multimodal project (Maple Street to 160th) • Tualatin Valley Highway ETC from Beaverton to Forest Grove • Beaverton-Hillsdale Highway ETC from Portland to Washington Square • Cornell/Barnes ETC (Sunset transit center to Hillsboro TC) • 185th/Farmington Road ETC (PCC Rock Creek to Beaverton transit center) • E. Burnside/SE Stark Street ETC (Portland to Gresham) • Streetcar on NE Broadway to Hollywood town center	• SE Powell Boulevard ETC • Lombard/Caesar Chavez ETC (St. Johns to Milwaukie town center) • Belmont Street ETC (Portland to Gateway transit center) • Streetcar on Martin Luther King Jr. Boulevard in NE Portland • Streetcar in AmberGlen in Hillsboro • Streetcar to Johns Landing in SW Portland

*Projects marked in red have NEPA work under way or completed. See Chapter 8 (Section 8.3) for a summary of completed and current major project development activities in the region.

For the RTP modeling, bus speed and dwell were modified to reflect planned ETC improvements. Typically, buses run at 90 percent of auto speed and dwell for 2 minutes per mile in Portland between I-5 and I-205 and 1.5 minutes per mile in the rest of the region. For ETC corridors throughout the region, bus speed is modeled at 93 percent of auto speed and 1.2 minutes of dwell per mile.

Assumptions for Clark County and the City of Vancouver

The Constrained and Strategic road and transit networks were coordinated with the Southwest Washington Regional Transportation Council (RTC) and C-TRAN. Households and employment were projected for this analysis in coordination with the Southwest Washington RTC as part of development of the 2040 Distribution Forecast. 2040 land uses are based on the 2035 Clark County comprehensive plan (adopted in June 2016).

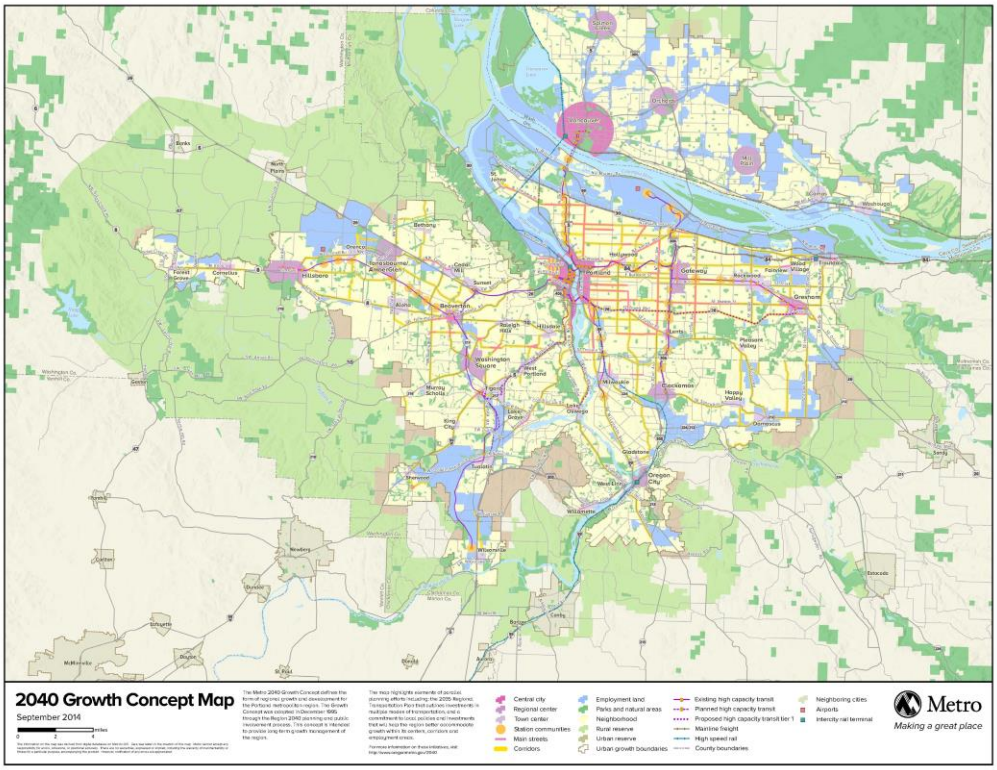
Regional Travel Model Traffic Analysis Zone (TAZ) Assumptions

This section identifies specific modeling assumptions by transportation analysis zone (TAZ) that are intended to mirror the expected improvements proposed in the RTP and their impact on mode choice.

Background on 2040 Modal Targets

The 2040 Growth Concept serves as the integrated land use and transportation plan for the Portland metropolitan region, pursuant to Section 660-12-0035(5)(c) of the Oregon Transportation Planning Rule (TPR). A basic construct of the 2040 Growth Concept is to reduce the region's reliance on the automobile by focusing growth in centers and along major travel corridors served by transit. This concept has been fundamental to the development of the RTP since 2000.

Figure 4. 2040 Growth Concept – an integrated land use and transportation vision



For the purpose of TPR compliance, the RTP includes 2040 modal targets as the primary "alternative" standard for evaluating the region's progress in reducing reliance on the automobile. Table 2.3 in Chapter 2 summarizes the modal targets, which represent an aggressive long-term goal for the Portland metropolitan region to increase non-single occupancy vehicle (non-SOV) travel in the region. The 2040 modal targets are also based on observed travel behavior collected as part of Metro's 1994-1995 survey of more than 7,500 households in the Portland metropolitan region. Metro completed another survey in 2011 (in collaboration with ODOT, TriMet and SW RTC) reaching nearly 6,500 households in the Portland-Vancouver metropolitan region. Planning is under way for the next travel behavior survey is anticipated in 2022.

Relationship of 2040 Modal Targets to RTP TAZ Assumptions

Due to the fact that level of street connectivity and transportation costs are key inputs to the regional travel demand model, each 2040 design type designation includes specific modeling assumptions for intersection density, parking cost and transit fares. The factors vary by 2040 design type, reflecting current land uses and policies adopted in the Regional Transportation Plan and Regional Transportation Functional Plan (Section 3.08.230).

The assumptions were not used for the purpose of allocating population and employment to individual traffic analysis zones (TAZ). Rather, they were developed to allow transportation variables to be adjusted to closely reflect the planned 2040 Growth Concept design types and regional land use and transportation policies at the TAZ level.[8] The net result is a model that better predicts how travel behavior will respond to different land use types and mixes, levels of street connectivity and transportation costs if planned RTP investments are made.

Since the 2000 RTP, These assumptions provide a basis for tracking progress toward the region's 2040 Non-SOV modal targets and serve as the primary standard for evaluating effectiveness of the RTP for purposes of demonstrating compliance with Transportation Planning Rule (OAR 660-12-0035(5)(c).

Application of TAZ assumptions

To simplify the modeling assumptions, the 2040 design types have been grouped according to shared land use and transportation characteristics. **Attachment 1** to this appendix summarizes the 2040 land use assumptions for specified transportation modeling factors. These groupings define each set of TAZs in the modeling process. TAZs were assigned to each grouping. **Attachment 3** to this appendix displays the household and employment assumptions and the 2040 design type assigned to each TAZ.

[8] It is important to note TAZ boundaries do not directly correspond to the 2040 Growth Concept design type boundaries or locally adopted comprehensive plans designations.

Intersection Density

The intersection density input, which impacts travel choices for all modes, particularly pedestrians, is a measure of street connectivity and represents the expected number of street intersections per mile for each 2040 grouping.

The 2010 intersection density was generated in GIS using the RLIS streets data layer to establish intersection density for the 2015 Base Year network. The 2040 assumptions for the constrained and strategic scenarios were derived by applying minimum density values based on the TAZ's 2040 design type. The 2027 No Build and 2040 No Build use 2010 intersection densities assumed in the 2015 Base Year network.

The intersection densities across the 2040 design types are tiered, reflecting differences in urbanization and development patterns across the region. Areas that currently have or are planned to have greater street connectivity and pedestrian improvements (e.g., the central city, regional and town centers and station communities) are assumed to have higher intersection densities. Work continues to enhance the regional model's capability of forecasting pedestrian travel.

Figure 5. Examples of Street Intersection Density (14 to 20 connections per mile)

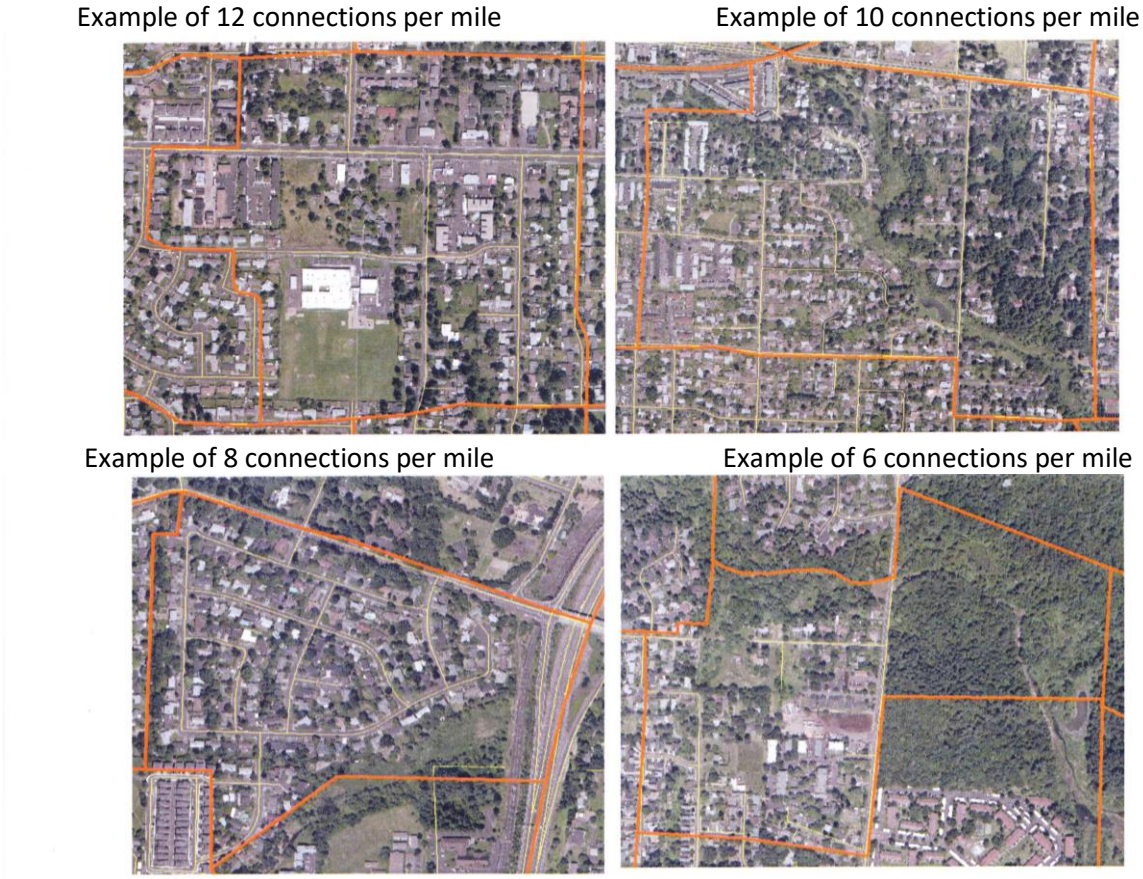
Example of 20 connections per mile

Example of 18 connections per mile

Example of 16 connections per mile

Example of 14 connections per mile

Figure 6. Examples of Street Intersection Density (6 to 12 connections per mile)



Parking Factors

The parking factors input is based on the most recent City of Portland's Comprehensive Plan and Central City Plan assumptions. The plans assume a minimum increase of 1.5 percent above the inflation annual growth rate. Parking factors for the regional centers, station communities and town centers are scaled from these costs. No parking factors are assumed for main streets, corridors, neighborhoods, employment areas, industrial areas, greenspaces and rural reserves. The parking costs are intended to represent both direct, out-of-pocket expense, time limited (managed) parking as well as the difficulty in finding a parking space and walking to your destination.

For 2015, data was gathered from the System Monitoring Report maintained by the Data Resource Center and from city websites to assist staff review and refinement of parking factors. **Table 7** lists the general areas with a parking factor assigned (in 2010 dollars) for 2015.

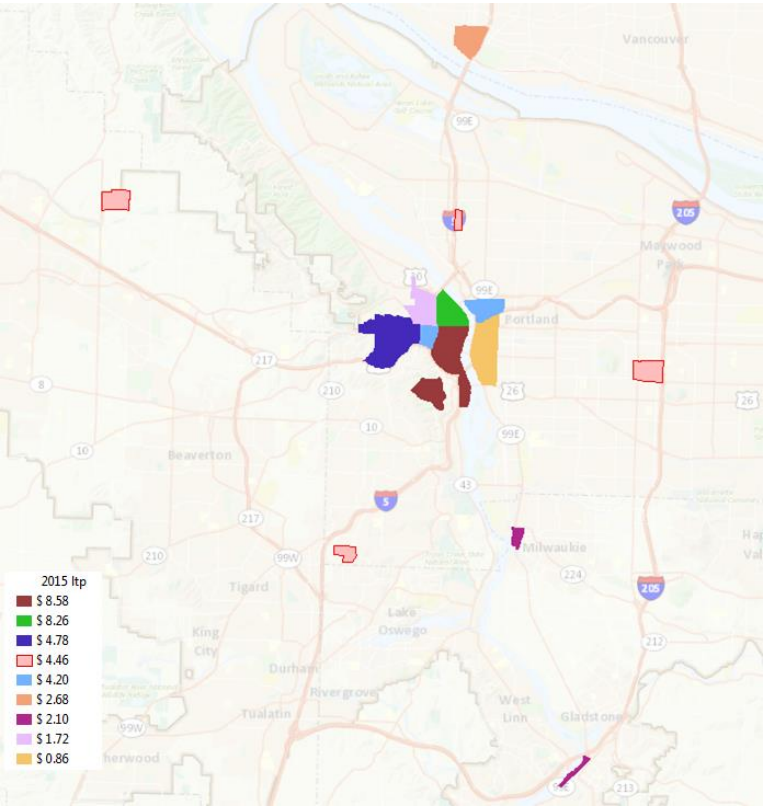
Table 7. 2015 Base Year Parking Factors (in 2010 dollars)

Location	Long-term parking factor	Description
CC-1 (S of Burnside) & OHSU	$8.58	Based on collected data
CC-2 (Lloyd District)	$4.20	Based on collected data
CC-3 (CEID)	$0.86	10% of CC-1
CC-4 (River District - N of Burnside)	$8.26	Based on collected data
CC-5 (South Waterfront)	$8.58	Based on collected data
Vancouver CBD	$2.68	Based on collected data
Goose Hollow	$4.20	Meters/limits-use Lloyd rate
NW Portland	$1.72	20% of CC-1
Oregon Zoo and Washington Park	$4.78	Based on collected data
Milwaukie and Oregon City	$2.10	Meters/permits use half Lloyd District rate
PCC campuses	$4.46	2016 cost in 2010 dollars

Source: Metro Research Center

Figure 7 shows the locations where a parking factor is assigned for 2015.

Figure 7. 2015 Long Term Parking Factors (in 2010 dollars)



Source: Metro Research Center

For the No Build parking factors, recent increases in meter rates and the expansion of meters and time limitations on parking were reflected in the City of Portland and downtown Vancouver. In 2016, the City of Portland adopted a new Comprehensive Plan with specific policies and strategies for managing parking. These were all incorporated and are summarized in **Table 8.** The 2027 parking factors were calculated by interpolation between 2015 and the corresponding 2040 scenario (2040 No Build or 2040 Constrained).

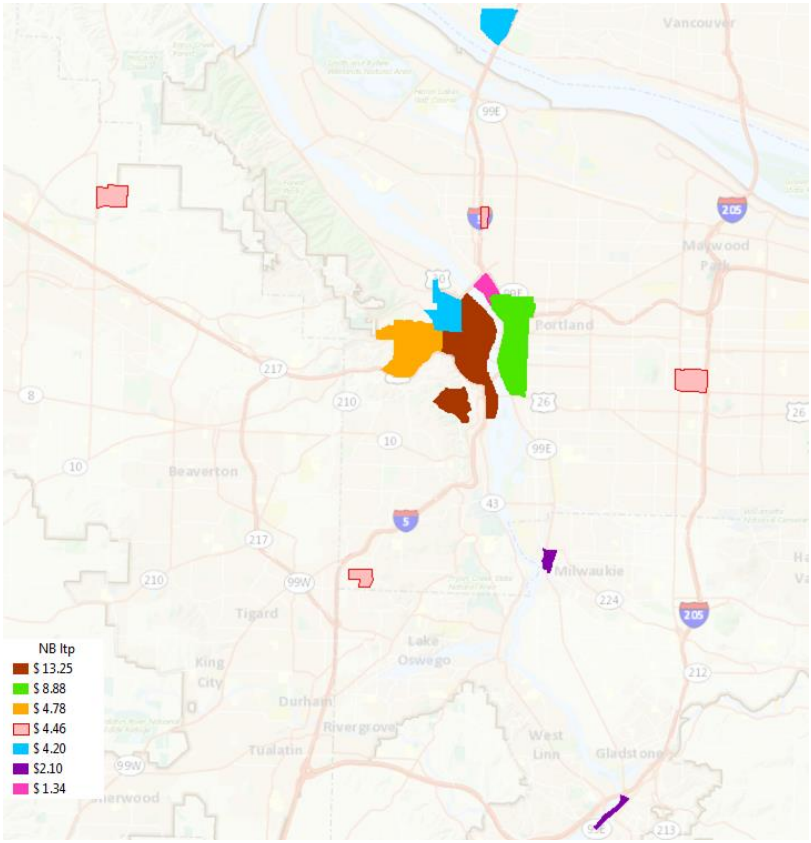
Table 8. 2040 No Build Parking Factors (in 2010 dollars)

Location	Long-term parking factor	Description
CC-1 (S of Burnside) & OHSU	$13.25	Based on 2016 City of Portland Comp Plan
CC-2 (Lloyd District)	$8.83	Based on 2016 City of Portland Comp Plan
CC-3 (CEID)	$8.83	Based on 2016 City of Portland Comp Plan
CC-4 (River District - N of Burnside)	$13.25	Based on 2016 City of Portland Comp Plan
CC-5 (South Waterfront)	$13.25	Based on 2016 City of Portland Comp Plan
Vancouver CBD	$4.20	Assumed 2015 Lloyd District rate
Goose Hollow	$13.25	Based on 2016 City of Portland Comp Plan
NW Portland	$4.20	Assumed 2015 Lloyd District rate
Oregon Zoo and Washington Park	$4.78	Grows with inflation
Milwaukie and Oregon City	$2.10	Grows with inflation
PCC campuses	$4.46	Grows with inflation
Lower Albina	$1.34	Based on 2016 City of Portland Comp Plan

Source: Metro Research Center

Figure 8 shows the locations where a parking factor is assigned for the 2040 No Build scenario.

Figure 8. 2040 No Build Long Term Parking Factors (in 2010 dollars)



Source: Metro Research Center

For the 2018 RTP, the 2040 Constrained and 2040 Strategic parking factors are the same and were updated based on the City of Portland's Central City Plan assumptions in the Central City area. The 2040 Design Type designations determined the parking factors for other zones across the region and are proportionally indexed as a percentage of the parking costs assumed in Portland CBD (CC-1) as has been done in prior RTP updates. Where design type adds costs to nearby zones to a regional or town center with present day factors, the highest values were used. For example, PCC designation takes precedence over the 2040 design type designation.

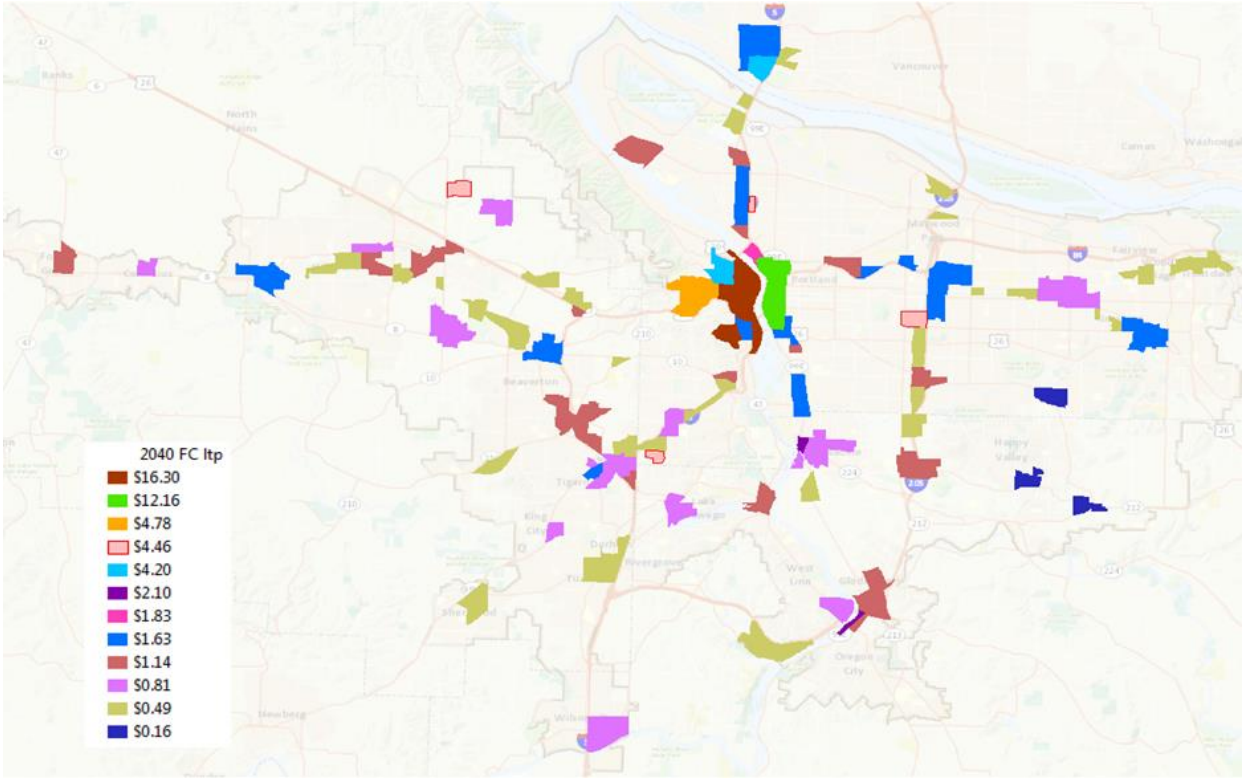
Table 9 lists the general areas with a parking factor assigned (in 2010 dollars) for both the 2040 Constrained and the 2040 Strategic scenarios. **Figure 9** shows the locations where a parking factor is assigned for both the 2040 Constrained and the 2040 Strategic scenario.

Table 9. 2040 Constrained and 2040 Strategic Parking Factors (in 2010 dollars)

Location	Long-term parking factor	Description
CC-1 (S of Burnside) & OHSU	$16.30	Based on 2016 City of Portland Comp Plan
CC-2 (Lloyd District)	$12.16	Based on 2016 City of Portland Comp Plan
CC-3 (CEID)	$12.16	Based on 2016 City of Portland Comp Plan
CC-4 (River District - N of Burnside)	$16.30	Based on 2016 City of Portland Comp Plan
CC-5 (South Waterfront)	$16.30	Based on 2016 City of Portland Comp Plan
NW Portland	$4.20	2015 Lloyd District Rate – grows w/inflation
Goose Hollow	$16.30	Based on 2016 City of Portland Comp Plan
Vancouver CBD	$4.20	2015 Lloyd District Rate – grows w/inflation
Oregon Zoo and Washington Park	$4.78	Grows with inflation
Milwaukie and Oregon City	$2.10	Grows with inflation
PCC campuses	$4.46	Grows with inflation
Lower Albina	$1.83	Based on 2016 City of Portland Comp Plan
Regional Center - Tier 1	$1.63	10% of Portland CBD (CC-1)
Regional Center - Tier 2	$1.14	7% of Portland CBD (CC-1)
Station Community - Tier 1	$1.63	10% of Portland CBD (CC-1)
Station Community - Tier 2	$1.14	7% of Portland CBD (CC-1)
Station Community - Tier 3	$0.49	3% of Portland CBD (CC-1)
Town Center - Tier 1	$1.14	7% of Portland CBD (CC-1)
Town Center - Tier 2	$0.81	5% of Portland CBD (CC-1)
Town Center - Tier 3	$0.49	3% of Portland CBD (CC-1)
Town Center - Tier 4	$0.16	1% of Portland CBD (CC-1)

Source: Metro Research Center

Figure 9. 2040 Constrained and 2040 Strategic Long Term Parking Factors (in 2010 dollars)



Source: Metro Research Center

Transit Pass Factor and Reduce Fare Program

Transit ridership is highly dependent on convenient, affordable, frequent service. Making transit more affordable helps increase transit use, which in turn helps reduce vehicle miles traveled per capita and related air pollution and greenhouse gas emissions. It is also a critical part of providing economic mobility, financial security and independence for many residents.

The RTP modeling assumes a substantial increase in transit service and improvements to enhance bicycle and pedestrian access to transit and to and to improve speed and reliability of transit service in enhanced transit corridors. In addition, the modeling assumes reduced fare programs for all trips destined to the central city, regional centers and other areas to reflect the presence of a transportation management association (TMA) and/or the implementation of a transportation demand management program through which employers reduce the cost of transit available to their employees. To reflect the reduced fare programs, the transit pass factor input is assumed as a proportion of the full transit fare that transit riders traveling to each 2040 design type will pay.

In addition to the transit pass factor applied to each 2040 design type, assumptions in the model were further adjusted to reflect implementation of reduced fare programs by TriMet and C-TRAN for people with low-income, older adults, youth and people living with a disability. For modeling purposes, transit fares were 50 percent less for households with an income below $25,000 per year.

DOCUMENTATION OF DATA AND METHODS USED IN RTP PERFORMANCE EVALUATION

This section provides describes the data and methodologies used in the performance evaluation conducted for the 2018 Regional Transportation Plan (RTP).

Figure 10. List of 2018 RTP System Evaluation Measures

Affordability – Metro does not currently have the ability to forecast affordability. Evaluation measure(s) and tools will be developed and tested in the next update of the RTP if available. This measure will be monitored using observed data.

Safety – Metro does not currently have the ability to forecast crashes. Evaluation measure(s) and tools will be developed and tested in the next update of the RTP if available. This measure will be monitored using observed data.

Reliability – Metro does not currently have the ability to forecast system and freight reliability. Evaluation measure(s) and tools will be developed and tested in the next update of the RTP if available. This measure will be monitored using observed data.

1. **Multimodal travel**
2. **Mode share**
3. **Access to travel options – system completeness**
4. **Access to jobs**
5. **Access to community places**
6. **Access to bicycle and pedestrian parkways**
7. **Access to transit**
8. **Access to industry and freight intermodal facilities**
9. **Multimodal travel times**
10. **Congestion**
11. **Transit efficiency and ridership**
12. **Carbon emissions**
13. **Clean air**
14. **Potential habitat impact**
15. **Potential historical and cultural resources and tribal lands impact**
16. **Public health**

Findings from the performance evaluation are reported in **Chapter 7** of the RTP. Details about the Transportation Equity Evaluation are reported in **Appendix E**. Details about the environmental analysis are provided in **Appendix F**. Details about the greenhouse gas emissions analysis prepared to monitor implementation of the Climate Smart Strategy are provided in

Appendix J. The data and methods will be reviewed and updated as needed in advance of the next RTP update in consultation and coordination with local, state and federal partners.

1. Multimodal travel

Purpose: To identify whether the package of future transportation investments will increase different forms of travel including auto, bicycle, pedestrian, freight and overall travel (person miles traveled).

Question(s) to Be Addressed:

The **Multimodal travel** performance measures look to assess the following questions for the region's transportation system:

1) How much travel is happening in the region and within each sub-region? (Portland, urban Washington County, urban Clackamas County, East Multnomah County)
2) By what modes are people traveling?

Methodology Description: Miles traveled is a direct output of the regional travel model. For each trip, the trip distance is calculated between the origin and destination. For per capita and per employee calculations these trip distances are divided by the regional population, or number of employees, respectively.

Output Units: Miles traveled (total, per capita, and per employee) by mode

Key Assumptions to Method:

Dataset Used:

Dataset	Type of Data
Miles traveled for each mode	Forecasted

Tools Used for Analysis: Metro Travel Demand Model

Other assumptions: For analysis by sub-regional geography, staff included all TAZs within the sub-region. Any TAZ crossing sub-regional boundaries has been assigned to the sub-region for which the majority of the area of the TAZ is located.

2. Mode Share

Purpose: To identify whether the package of future transportation investments will increase non-drive alone mode share at all geographic levels.

A) Walking, Bicycling, Transit and Shared Ride usage (total and share):
   - Region-wide (within the MPA boundary)
   - Sub-regions (Portland, urban Washington County, urban Clackamas County, East Multnomah County)

B) Non-Single Occupancy Vehicle travel (total and share) for trips to, from and within specified geography *(to meet Transportation Planning Rule requirements)*
   - Portland central city
   - Regional centers
   - Other 2040 design types

C) Walking, Bicycling and Transit usage (total and share):
   - Mobility corridors

Question(s) to Be Addressed:

The **Mode Share** performance measure look to assess the following questions for the region's transportation system:

1) What is the share of travel utilizing non-driving modes across the region and within various sub-geographies?

Methodology Description: Mode share is a direct output of the regional travel model. Modal accessibility functions were estimated as an input to the mode choice modes. For each trip purpose, they measure the utility of choosing one of seven discrete modes: Drive alone, Drive with passenger, Transit by walk access, Transit by park-and-ride access, Bike and Walk. Probabilities are applied to distributed trips to determine the number of trips by each mode. The data is categorized by 'trips to, from within.'

Output Units: % share of travel by a given mode.

Key Assumptions to Method:

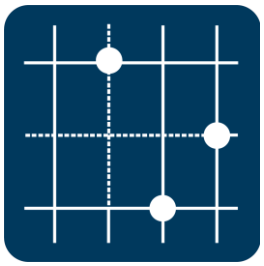
Dataset Used:

Dataset	Type of Data
Share of travel by mode	Forecasted

Tools Used for Analysis: Metro Travel Demand Model

Other assumptions: For analysis by sub-regional geography, staff included all TAZs within the sub-region. Any TAZ crossing sub-regional boundaries has been assigned to the sub-region for which the majority of the area of the TAZ is located.

3. Access to Travel Options – System Completeness



Purpose: Evaluate completeness of the planned region pedestrian, bicycle, and trail networks and access to transit within the metropolitan planning area, and in equity focus areas.[9]

Question(s) to Be Addressed:

The **Access to Travel Options – System Completeness** performance measure will assess the following questions for the region's transportation system within the metropolitan planning area, in equity focus areas and in non-equity focus areas:

1) Regional networks completeness: How many miles and what percentage of the planned regional pedestrian, bicycle and trail networks are completed? How many miles are left to complete?
2) Arterial roadways: How many miles and what percentage of existing arterials have sidewalks and bikeways?
3) 2040 Centers and station communities: How many miles and what percentage of all streets in centers and station communities have sidewalks and bikeways?
4) Access to transit: What percentage of bikeways and sidewalks are completed, on all streets, within a 1/2-mile from existing and planned light rail stops, 1/3 mile from existing and planned streetcar stops, and 1/4- mile from existing and planned bus stops?

Methodology:

1) Regional network completeness: Use a geospatial analysis to determine how much of the planned regional pedestrian, bike and trail networks are completed in the 2018 RTP. Determine results for the following three geographies at the TAZ level: within the MPA and in equity focus areas. Determine results for the base year (2015) and each of the 2018 RTP future year investment packages.
    a) Calculate the **miles** of existing sidewalks, bikeways and trails on the RTP regional bicycle and pedestrian networks for the base year (2015).
    b) Calculate **miles** of sidewalks, bikeways and trails in proposed projects for the future year investment packages that help complete the networks.
    c) Calculate the **percent** completeness for sidewalks, bikeways and trails, both in the base year (2015) and future year investment packages.
2) Arterial roadways: Use a geospatial analysis to determine completeness of sidewalks and bikeways on existing arterial roadways in the 2018 RTP. This follows the same methodology of (1) regional network completeness, subset to only streets with the RTP motor vehicle functional classification of arterial.
3) 2040 Centers and station communities: Use a geospatial analysis to determine completeness of sidewalks and bikeways within 2040 analysis centers and station communities in the 2018 RTP.

[9] Census tracts with higher than regional average concentrations and double the density of one or more of the following: people of color, people with limited English proficiency, and/or people with lower income. Most of these areas also include higher than regional average concentrations of other historically marginalized communities, including young people, older adults and people living with disabilities.

[10] This follows the same methodology of (1) Regional network completeness, subset to 2040 analysis centers and station communities.

4) Access to transit: Use a geospatial analysis to determine how much of the planned regional pedestrian, bike and trail networks are completed within a walking distance to transit in the 2018 RTP. This follows the same methodology of (1) Regional system completeness, subset to the area within 1/2-mile from light rail stops, 1/3-mile from streetcar stops, and 1/4-mile from bus stops for existing and planned stops.

Output Units: Miles and percentage (%) of bikeways, sidewalks, and trails, region-wide within MPA and in equity focus areas.

Key Assumptions to Method:

Dataset Used:

Dataset	Type of Data
Line features in GIS for projects proposed for the 2018 RTP - sidewalk, bikeways and trail and new street projects	GIS project data provided by jurisdictions and agencies
Line features in GIS for existing (constructed) sidewalks (as of 2012), bikeways (as of 2016), trails (as of 2017)	RLIS GIS data
Line features in GIS for the planned regional bicycle and pedestrian networks	Regional Transportation Plan GIS data
Line features in GIS for arterial roadways compiled from State of Oregon (Nov. 2016) and RLIS (May 2017)	GIS data (State of Oregon and RLIS) and regional travel model data

Tools Used for Analysis: ArcGIS

Geospatial Analysis Steps:

Part 1: Network gap analysis- performed with following 2 scripts - methodology outlined below:
M:\plan\drc\projects\RTP_2016\Measures_2017\Measure06\rtpgoal6scripting_Al_v2.py
M:\plan\drc\projects\RTP_2016\Measures_2017\Measure06\rtpgoal6scripting_Al_v2_part2.py

1. Select the study area- TAZs that intersect Tracts that intersect the MPA boundary
    - Copy to new location- this will be the final data to store by -TAZ stats and make breakdowns by HMC/POC
2. For each network (streets, on-street bike, off-street bike, trail, sidewalk), do the following:
    - Clip the network to the study area
    - Calculate network mileage and join stats by TAZ to the study area feature class
    - Buffer clipped network by 40 feet (40 works well as selection distance, 50 is too much and grabs neighboring features, less than 40 isn't enough to allow for imprecise alignment)
    - Intersect the existing features with the network buffer to get what exists on-network. Buffer these existing features.
    - For each of (Interim 2027, Constrained 2040, Strategic 2040), do the following:
        - Intersect relevant projects with the network buffer

[10] Analysis centers and station communities have specific geographic boundaries. Many 2040 maps show centers and station communities as concepts (bubbles) and do not show specific, adopted boundaries.

        - Erase existing features, this leaves only gap-filling projects
        - Buffer these gap-filling projects and append to the existing buffer
    - Intersect the network line with the existing/project buffer and calculate mileage- summarize by TAZ, this gives existing and gap-filled miles by project phase by TAZ to join to the study area feature class.
3. Analyze street density:
    - Use custom toolbox for this analysis: J:\mowbraya\CustomTools\Toolboxes\IntersectionCount\Line_junctions.tbx
    - For street and bike network, do the following:
        - Count intersections in overall network
        - Count intersections on existing features
        - Count intersections at each buildout stage
    - Summarize junctions by TAZ and join to study area feature class
4. Summarize study area feature class- giving network, existing, 2027, constrained and strategic miles and junctions for the region, and by POC/HMC
5. Calculate project miles outside of network:
    - For each network (simplified to road, ped, bike), do the following:
        - Erase network buffer from project feature class,
        - Calculate remaining miles- this is the off-network project miles
6. Calculate miles of projects on existing facilities:
    - For each network, do the following:
        - Intersect projects with existing on-network features
        - Calculate mileage

<u>Part 2:</u> Arterials gap analysis for sidewalks and on-street bike
M:\plan\drc\projects\RTP_2016\Measures_2017\Measure06\rtpgoal6scripting_Al_arterials.py

1. Follow steps 1 and 2 from Part 1, using arterial streets as the network for both cases
2. Summarize as described in Part 1 step 4

<u>Part 3:</u> Centers gap analysis for streets, on-street bike and sidewalks
M:\plan\drc\projects\RTP_2016\Measures_2017\Measure06\rtpgoal6scripting_Al_centers.py

1. Follow steps 1 and 2 from Part 1, using RLIS streets as the network and flattened 2040 centers/station communities layer as the study area
2. Summarize as described in Part 1 step 4

<u>Part 4:</u> Transit gap analysis for road, sidewalk, trail, off-street and on-street bike networks
M:\plan\drc\projects\RTP_2016\Measures_2017\Measure06\rtpgoal6scripting_Al_transit_stops.py

1. Follow steps 1 and 2 from Part 1, using the appropriate network, with the buffered 2040 complete transit stops as the study area
2. Summarize as described in Part 1 step 4

4. Access to Jobs

Purpose: To evaluate the number and percent change of jobs (classified by wage groups – low, middle, and high) accessible by driving, transit, bicycling, and walking region-wide, in equity focus areas (people of color, English language learners and lower income) and in non-equity focus areas within the specified commute times for each mode.

Question(s) to Be Addressed:

The **Access to jobs** evaluation measure assesses the following for the region's transportation system, region-wide, in equity focus areas:

1) Number and percentage of jobs (by wage profile: low, middle, high, and all jobs) reached in a given time window by different travel modes (auto, transit, bike, walk), region-wide, for equity focus areas and non-equity focus areas.
2) The change in the number and percentage of jobs reached with the 2027 and 2040 constrained investment strategies, compared to the 2027 and 2040 no build, by wage profile and mode for the region, in equity focus areas, and in non-equity focus areas.
3) Comparison of differences in the number and percentage of low and middle-wage jobs reached in a given time window and by different travel modes for the region, for equity focus areas and non-equity focus areas.

The evaluation measure is calculated by using forecasted data from MetroScope to identify and geographically distribute jobs throughout the region, including categorized low-wage and middle-wage jobs (defined in assumptions). The analysis determines the weighted average number of jobs, with emphasis on low and middle-wage jobs, reached using the existing transportation system by travel mode (automobile, transit, bicycle, and walking) in a given travel time window for the entire region, equity focus areas, and non-equity focus areas to determine base year conditions. The next step is to conduct the same assessment under no-build conditions to determine the weighted average number of jobs as a result of employment growth. Then, using the 2027 and 2040 constrained investment strategies, determine the weighted average accessibility to forecasted jobs, including more focused look at low and middle-wage jobs, by mode for the entire region and in equity focus areas. Lastly, the measure will look at the change in the accessibility to jobs between the no-build and the 2027 and 2040 constrained investments, but with a particularly emphasis on the change in access to low and middle-wage jobs in equity focus areas and non-equity focus areas.

Output Units: Weighted average of jobs and change in jobs, by wage profile, accessed by mode (Auto; Transit; Bike; Walk)

Dataset Used: Geospatial project information for proposed transportation projects provided by project sponsors; forecasted employment/jobs

Tools Used for Analysis: Metro Travel Demand Model and Metro MetroScope Model

Key Assumptions to Method:

- **Definition of Low-Wage Jobs:** Jobs which pay an annual salary between $0 - $39,999.
- **Definitions of Middle-Wage Jobs:** Jobs which pay an annual salary between $40,000 –$65,000.

Methods for Defining and Identifying All Jobs: The projections (total jobs) and geographic distribution of employment is based on underlying U.S. Bureau of Labor Statistics data and assumptions regarding

growth for the employment industries in MetroScope. (See MetroScope documentation regarding employment forecast.)

Methods for Defining and Identifying Low and Middle-Wage Jobs: The annual salary band was based on the average household size of three (3) and a combination of different income, program eligibility, and self-sufficiency definitions (HUD median income, University of Washington self-sufficiency index, federal poverty level, and uniform relocation assistance and real property acquisition act) The definition of low and middle-wage jobs is not taking into consideration employer benefits provided as part of the identification of wages.

Distribution of Low and Middle-Wage Jobs Assumptions: The distribution of low and middle-wage jobs is based on underlying U.S. Bureau of Labor Statistics data and assumptions regarding growth for the employment industries in MetroScope. (See MetroScope documentation regarding employment industry forecast assumptions.) The low and middle-wage band will not change according to inflation. Low and middle-wage jobs were determined by the wage profile of each MetroScope industry, looking at the percentage of jobs, which paid within the annual salary range. This range was applied to the employment forecast for the future year to determine the distribution.

Travel Time Windows by Mode:

- Automobile – 30 minutes*
- Transit – 45 minutes*
- Bicycle – 30 minutes
- Walk – 20 minutes

*Includes access and egress times. In order to avoid cliff-effects of having strict travel time thresholds, results are the averages of travel times +/- 5 minutes of the above travel time windows by mode listed above.

Travel Time Assumptions: Travel time windows by mode were developed with information from the Oregon Household Activity Survey (OHAS) and research from around the country on travel time by different modes for different types of trips. Additionally, internal Metro staff consultation was conducted and work groups were provided the opportunity to give input. Auto travel times were provided for the peak and off-peak period. The peak and off-peak period are the same timeframes (e.g 4-6pm) as the transit service networks.

Transit Service Networks Used:

- Peak – Represented as transit service running from 4pm – 6pm
- Off-Peak – Represented as transit service running from 12pm – 1pm

Transferring Equity Data from Tract to Transportation Analysis Zone

Three equity variables[11] that constitute the identification of tracts as having a significant percentage of historically marginalized communities were converted to transportation analysis zones based on a simple majority-area rule, such that transportation analysis zones were flagged if greater than 50% of their area overlapped with tracts that exceeded HMC thresholds.

Each equity variable was evaluated independently, in order to enable the evaluation of combinations of equity variables across transportation analysis zones. The two combinations of interest were the overlap of People of Color with limited English proficiency and the overlap of all three variables (including low income).

[11] People of Color, limited English proficiency, and low income

5. Access to Community Places

Purpose: Measure access by bicycling, walking, transit, and driving region-wide, in equity focus areas (people of color, English language learners and lower income), and in non-equity focus areas within specified travel times defined for each mode.

Question(s) to Be Addressed:

The **Access to community places** evaluation measure looks to assess the following for the region's transportation system, region-wide, in equity focus areas, and in non-equity focus areas:

1) Number and percentage of existing community places (i.e. places which provide services or items) reached on the existing transportation system by travel mode (e.g. driving, transit, biking, and walking) in a given travel time, region-wide, in equity focus areas, and in non-equity focus areas.
2) The change in the number and percentage of existing community places reached across travel modes with the 2027 and 2040 constrained investment strategies, compared to the 2027 and 2040 no build, region-wide, in equity focus areas, and in non-equity focus areas.
3) Compare the differences between the number and percentage of community places accessible in equity focus areas to the entire region by travel mode with the 2027 and 2040 constrained investment strategies.

The Access to Community Places performance measure is calculated by using existing data from the U.S. Bureau of Labor Statistics to identify the existing community places that provide key services and/or daily needs (defined in assumptions) for people in the region. The analysis determines the weighted average of community places reached using existing transportation system by different travel mode (automobile, transit, bicycle, and walking) in a given travel time window for the entire region, equity focus areas, and non-equity focus areas to determine base year conditions. The same assessment is conducted for no-build conditions to determine the weighted average number of community places accessible without investment. Then, using the 2027 and 2040 constrained investment strategies, determine the weighted average accessibility to determine the investments impact on accessibility to community places by mode for the entire region, equity focus areas, and non-equity focus areas. Lastly, the measure looks at the change in the accessibility to these existing community places between the no-build and future year with added transportation investments, with an emphasis in looking at the change in equity focus areas relative to non-equity focus areas and the region. The report out for this measure shows the number and percent change in access to community places by mode for each package.

Output Units: Number and percent change of community places accessed by mode (# - Auto; # - Transit; # - Bike; # - Walk)

Key Assumptions to Method:

Dataset Used: Geospatial project information for proposed transportation projects from project sponsors; U.S. Bureau of Labor Statistics – Quarterly Census of Employment and Wages (2013) and North American Industry Classification System (NAICS) codes

Tools Used for Analysis: Metro Travel Demand Model and ArcGIS

Definitions of Places: Selection of places in the North American Industry Classification System (NAICS) codes. Codes include those used as part of TriMet's Transit Equity Index with select additions based on consultation with 2018 RTP work groups, TPAC, and Metro Planning and Development Department and Diversity, Equity, and Inclusion staff. The table below provides the full list of NAICS codes.

NAICS Codes for Community Places

Category	NAICS Code	Geography
Civic	491110	Postal Service
	519120	Libraries and Archives
	611110	Elementary and Secondary Schools
	611210	Junior/Community Colleges
	611310	Colleges, Universities, and Professional Schools
	624110	Child and Youth Services
	624120	Services for the Elderly and Persons with Disabilities
	624190	Other Individual and Family Services
	624210	Community Food Services
	624229	Other Community Housing Services
	624230	Emergency and Other Relief Services
	624310	Vocational Rehabilitation Services
	624410	Child Day Care Services
	624221	Temporary Shelters
	813110	Religious Organizations
Essential Retail	444130	Hardware Stores
	446110	Pharmacies and Drug Stores
	452111	Department Stores
	452990	All Other General Merchandise Stores
	812111	Barber Shops
	812112	Beauty Salons
	812310	Coin-Op Laundry
	812320	Dry Cleaning and Laundry Service
Financial/Retail	522110	Commercial Banking
	522120	Savings Institutions
	522130	Credit Unions
Food	445110	Supermarkets and Other Grocery (except convenience) Stores
Medical	621111	Offices of Physicians (except Mental Health Specialists)
	621112	Office of Physicians, Mental Health Specialists
	621210	Offices of Dentists
	621310	Offices of Chiropractors
	621320	Offices of Optometrists
	621330	Offices of Mental Health Practitioners (except Physicians)
	621340 621391	Offices of Physical, Occupational, and Speech Therapists and Audiologists

Category	NAICS Code	Geography
	621399	Offices of Podiatrists
	621410	Offices of All Other Miscellaneous Health Practitioners
	621420	Family Planning Centers
	621491	Outpatient Mental Health and Substance Abuse Centers
	621492	HMO Medical Centers
	621498	Kidney Dialysis Centers
	621512	All Other Outpatient Care Centers
	622110	Diagnostic Imaging Centers
	622210	General Medical and Surgical Hospitals
	622310	Psychiatric and Substance Abuse Hospitals
		Specialty (except Psychiatric and Substance Abuse) Hospitals

Source: U.S. Census Bureau, North American Industry Classification System

Travel Time Windows by Mode:

- Automobile – 20 minutes*
- Transit – 30 minutes*
- Bicycle – 20 minutes
- Walk – 20 minutes

  *Includes access and egress times. In order to avoid cliff-effects of having strict travel time thresholds, results are the averages of travel times +/- 5 minutes of the above travel time windows by mode listed above.

Transferring Equity Data from Tract to Transportation Analysis Zone

Three equity variables[12] that constitute the identification of tracts as having a significant percentage of historically marginalized communities were converted to transportation analysis zones based on a simple majority-area rule, such that transportation analysis zones were flagged if greater than 50% of their area overlapped with tracts that exceeded HMC thresholds.

Each equity variable was evaluated independently, in order to enable the evaluation of combinations of equity variables across transportation analysis zones. The two combinations of interest were the overlap of People of Color with limited English proficiency and the overlap of all three variables (including low income).

[12] People of Color, limited English proficiency, and low income

6. Access to Bicycle and Pedestrian Parkways

Purpose: To identify whether the package of future transportation investments will increase the number and percent of households within 1/4-mile of a bicycle or pedestrian parkway, as identified in the regional pedestrian and bicycle networks.

Question(s) to Be Addressed:

The **Access to Bicycle and Pedestrian Parkways** performance measure looks to assess the following questions for the region's transportation system:

1) How easily can people in the region get to high quality and comfortable biking and walking routes that provide mobility for non-motorized travel?

Methodology Description: Evaluates household access to regional bicycle and pedestrian parkways by number and percent of homes. The regional bicycle and pedestrian parkway designations are overlaid on the existing and future transportation networks. These facilities will be used to calculate the number and percent of households within 1/4-mile of them.

Output Units: Number and percent of households

Key Assumptions to Method:

Dataset Used:

Dataset	Type of Data
Geospatial line features project information for proposed transportation projects in the 2018 RTP	GIS
Line features in a GIS for the planned regional bicycle and pedestrian networks	Regional Transportation Plan GIS data
MetroScope household data at the Census block level	Forecasted

Tools Used for Analysis: ArcGIS

Definitions:

Regional Bicycle Parkway: A bicycle route designed to serve as a bicycle highway providing for direct and efficient travel for large volumes of cyclists with minimal delays in different urban environments and to destinations outside the region. These bikeways connect 2040 activity centers, downtowns, institutions and green spaces within the urban area. The specific design of a bike parkway will vary depending on the land use context within which it passes through. These bikeways could be designed as an off-street trail along a stream or rail corridor, a cycle track along a main street or town center, or a bicycle boulevard through a residential neighborhood.

Regional Pedestrian Parkway: The highest functional class for pedestrian route sin the Regional Transportation Plan. They are high quality and high priority routes for pedestrian activity. Pedestrian parkways are major urban streets that provide frequent and almost frequent transit service (existing and planned) or regional trails. Adequate width and separation between pedestrians and bicyclists should be provided on shared use path parkways.

Other assumptions: Staff is assuming equal area distribution assumption of households within a census block.

7. Access to Transit

Purpose: To identify whether the package of future transportation investments will increase the number and percent of all households, low-income households, households within equity focus areas and jobs with access to transit by service type.

Questions to Be Addressed:

The **Access to Transit** performance measure looks to assess the following questions for the region's transportation system:

4) What is the number and share of households, low-income households and jobs within at least 1/4-mile of all-day frequent service transit (15-minutes or better service)?

More specifically from a transportation equity perspective, the **Access to Transit** performance measures looks to further assess the additional question:

1) How many of the households, low-income households and jobs within at least 1/4-mile of all-day frequent service transit are within equity focus areas? [13]
2) Are there differences in access to high-capacity transit or frequent service transit for low-income households and all households in the region? Are there differences access to high-capacity transit or frequent service transit in equity focus areas compared to rest of the region?
3) Are there significant differences between low-income households and totals households in the region once transportation investments are added? Are there significant (or lack of differences) between equity focus areas and the rest of the region in share of access to high-capacity or frequent service transit once transportation investments are added? To what extent do these investments mitigate any pre-existing differences?

Methodology Description:

The **Access to Transit** performance measure is calculated by using geospatial analysis to assess the number and percentage of all households, low-income households and jobs in the metropolitan planning area boundary (MPA) that are within a 1/4-mile of a frequent bus service stop, 1/3-mile of a streetcar stop, and/or 1/2-mile of a high capacity transit station. The geospatial analysis also assess how many of those households and jobs are located within equity focus areas. These analyses are conducted for a base year (2015) as well as five additional investment scenarios to allow for comparison (2027 No Build, 2027 Constrained, 2040 No Build, 2040 Constrained, 2040 Strategic).

For each of the specific output measures, the following information is gathered:

1) Households – Number and share of households within 1/4-mile of frequent bus, 1/3-mile from streetcar and 1/2-mile of high capacity transit, within the MPA and in equity focus areas.
2) Low-Income Households – Number and share of low-income households within 1/4-mile of frequent bus, 1/3-mile from streetcar and 1/2-mile of high capacity transit, within the MPA and in equity focus areas. Due to a lack of individual household data, the percent of low-income households were assigned evenly to all households at the census tract level.

[13] Census tracts with higher than regional average concentrations and double the density of one or more of the following: people of color, people with limited English proficiency, and/or people with lower income. Most of these areas also include higher than regional average concentrations of other historically marginalized communities, including young people, older adults and people living with disabilities.

3) Jobs – Number and share of jobs within 1/4-mile of frequent bus, 1/3-mile from streetcar and 1/2-mile of high capacity transit, within the MPA and in equity focus areas.

Output Units:

1) Number and share of households with access (1/4-mile of frequent bus, 1/3-mile from streetcar and 1/2-mile of high capacity transit) to 15-minute or better service during rush hour and off-peak hours.
2) Number and share of low-income households with access (1/4-mile of frequent bus, 1/3-mile from streetcar and 1/2-mile of high capacity transit) to 15-minute or better service during rush hour and off-peak hours.
3) Number and share of jobs with access (1/4-mile of frequent bus, 1/3-mile from streetcar and 1/2-mile of high capacity transit) to 15-minute or better service during rush hour and off-peak hours.
4) Number and share of low-income households located within equity focus areas with access (1/4-mile of frequent bus, 1/3-mile from streetcar and 1/2-mile of high capacity transit_ to 15-minute or better service during rush hour and off-peak hours.
5) Number and share of all households, low-income households and jobs within a 1/4-mile all day frequent service.

Key Assumptions to Method:

Dataset Used	Type of Data
MetroScope household and jobs data prepared by Metro	Forecasted
Geospatial transit service information for existing and proposed transit capital projects and service enhancements provided by TriMet and SMART	GIS
Geospatial equity focus areas data	2010 U.S. Census data

Tools Used for Analysis: ArcGIS, Metro travel forecast model

Definitions:

High Capacity Transit – Defining characteristics of High Capacity Transit (HCT) include the ability to bypass traffic and avoid delay by operating in exclusive or semi-exclusive right of way; faster overall travel speeds due to wide station spacing; frequent service; transit priority street and signal treatments; and premium station and passenger amenities. Transit modes include light rail transit; bus rapid transit or enhanced bus service; streetcar or commuter rail trains[14].

Frequent Transit Service – Frequent transit service is defined a transit service operating at headways of less than or equal to 15 minutes all day.

Other Assumptions:

- Staff is assuming equal spatial distribution of households with each census tract. Additionally, since we do not have access to individual household income data, we are required to assume that low-income households are evenly distributed within each census tract.
- GIS analysis will utilize a specified 'buffer' distance as opposed to a network analysis from each transit stop included in this performance measure.

[14] By definition, all HCT services operate in exclusive or semi-exclusive right-of-way by definition. One exception includes Commuter Rail service which is permitted to be non-exclusive service alongside freight.

8. Freight access to industrial land and intermodal facilities

Purpose: To identify whether the package of future transportation investments will change the accessibility to designated industrial land and freight intermodal facilities. This measure was developed and tested, but not fully implemented or evaluated as part of the 2018 RTP update. The intent is to measure the number of trucks that are coming from or going to freight intermodal facilities or industrial land within each of the Regional Mobility Corridors, and determine the hours of truck delay they are experiencing on the regional freight network. This will be measured by determining the number of forecasted truck trips that are coming from or going to areas of industrial land and freight intermodal facilities; and evaluating any improvements in congested locations or freight bottlenecks that these truck trips encounter.

See Chapter 10 of the Regional Freight Strategy for more information on the methodology used to test this measure. This measure will be more fully developed for the next RTP update (due in 2023).

Methodology Description: This analysis uses truck volumes from the regional travel demand model at various times of the day. The hours during the day for calculating truck volumes from the model include 7:00 – 9:00 AM (AM peak), 1:00 – 3:00 PM (off-peak) and 4:00 – 6:00 PM (PM peak). The congested locations or freight bottlenecks are determined by evaluating regional freight network facilities with the highest levels of truck hours of delay. General truck trip routing is determined by the regional travel demand model (select zone). The two areas chosen to test were the Tualatin and Sherwood Industrial Area on Tualatin-Sherwood Road (in mobility corridor 11); and the Marine Terminals 5 and 6 and the rail yards off Marine Drive (in mobility corridor 17).

Freight – Access to industrial land and intermodal facilities system evaluation performance measure is calculated by:

1. Determine the locations of industrial land and freight intermodal facilities (based on groups of TAZs), and determine the number of truck trips from the travel demand model for each of the time periods (AM peak, off-peak and PM peak).
2. Determine the locations for major truck delay from maps of the freight truck delay and the magnitude of that truck delay (see measure: Congestion – Freight truck delay and Cost of delay on the freight network).
3. Evaluate the general truck trip routes used (using select zone results) for each of the industrial land and freight intermodal facilities locations truck trips.
4. Evaluate all of the industrial land and freight intermodal facilities locations region-wide for improvements to accessibility (more access points and reductions in truck delay at major truck delay locations), by comparing the 2015 base year, the 2040 financially constrained, and 2040 strategic. Also evaluate each of the industrial land and freight intermodal facilities locations separately to help determine which facilities, with high levels of truck delay, are impacting truck access and could provide better accessibility with an improvement project.

Output Units: Number of truck trips and truck vehicle hours of delay.

Key Assumptions to Method:

Dataset Used:

Dataset	Type of Data
Truck volumes	Forecasted
Truck vehicle hours of delay at major truck delay locations	Forecasted

Tools Used for Analysis: Metro Travel Demand Model

9. Multimodal Travel Times

Purpose: To identify whether the package of future transportation investments will change the travel times between key origin-destinations for the 1-hour mid-day and 2-hour PM peak periods.

Question(s) to be addressed: The **Multimodal travel times** performance measure looks to assess the following questions for the region's transportation system:

1) How long does it take to travel between key origins and destinations across the region by auto, bicycle, transit and freight truck?

Methodology Description: Evaluates the time spent traveling between key regional origin-destination pairs by auto, bicycle, transit and freight truck.

Output Units: Minutes of travel time.

Key Assumptions to Method: Auto, bicycle, and transit travel times are for the one hour mid-day and one hour PM peak travel times and are based on a zone-to-zone analysis. Truck travel times are not zone-to-zone based. Freight truck travel times add a mid-day hour for trucks (2-3 PM), use the regional freight network and start and/or end at a major freight destination (e.g., rail yard, intermodal facility, industrial site).

Dataset Used:

Dataset	Type of Data
Travel times by mode for identified origins and destinations	Forecasted

Tools Used for Analysis: Metro Travel Demand Model

Other assumptions: Includes "in vehicle" travel times, not the amount of time to get to and from the automobile, bicycle or transit vehicle. When a tour-based model is available in the future, this measure will include the full travel time for each mode.

10a. Congestion – Interim Regional Mobility Policy

Purpose: To identify whether the package of future transportation investments will change congestion levels as measured by the number and percent of network miles and locations within the metropolitan planning area (MPA) that exceed the interim regional mobility policy for congestion in the one hour mid-day (1-2 PM) and two-hour PM peak (4-6 PM) periods. Maps displaying locations of throughway and arterial network facilities that exceed the congestion threshold are provided in Appendix I.

Question(s)s to be addressed:

The **congestion** performance measure looks to assess the following questions for the region's transportation system:

A) How much congestion is occurring for vehicles in the region?

B) What locations in the region fail to meet the interim regional mobility policy adopted in the RTP and Policy 1.F (Highway Mobility) of the Oregon Highway Plan? The policy defines different thresholds for different facilities and 2040 design type locations within the region.

Methodology Description: Congestion is measured by using the ratio of volume to capacity. This analysis uses vehicle volumes from the regional travel demand model for specified times of the day, including 1-2 PM (mid-day one-hour) and 4:00 – 6:00 PM (PM two-hour peak period). The analysis is conducted for a base year (2015) as well as five additional investment scenarios to allow for comparison (2027 No Build, 2027 Constrained, 2040 No Build, 2040 Constrained, 2040 Strategic). The congested mileage calculation is based on the length of the modeled network link associated with the point of congestion. It does not include the length of the queuing that may occur as a result of the congested link. The tables and maps in Chapter 7 and Appendix I display locations where the level of congestion being experienced exceeds that location's interim regional mobility policy target threshold.

Output Units: Arterial and Throughway Network miles (number and percent of network miles) not meeting interim regional mobility policy for these time periods:

- 12-1 PM
- 4-6 PM
  - 4-6 PM (both hours)
  - 4-5 PM (one hour only)
  - 5-6 PM (one hour only)

Key Assumptions to Method:

Dataset Used:

Dataset	Type of Data
Vehicle volumes and roadway capacity from Travel Demand Model	Forecasted

Tools Used for Analysis: Metro Travel Demand Model

Interim regional mobility policy from Chapter 2 of the 2018 RTP

Deficiency thresholds for peak hour operating conditions expressed as volume to capacity ratio targets as adopted in the RTP and Oregon Highway Plan.

Locations	Target	Target	
	Mid-day One-Hour Peak [A, B]	PM 2-Hour Peak [A, B]	
		1st hour	2nd hour
Central City Regional Centers Town Centers Main Streets Station Communities	.99	1.1	.99
Corridors Industrial Areas Intermodal Facilities Employment Areas Neighborhoods	.90	.99	.99
I-84 *(from I-5 to I-205)*	.99	1.1	.99
I-5 North *(from Marquam Bridge to Interstate Bridge)*	.99	1.1	.99
OR 99E *(from Lincoln Street to OR 224 interchange)*	.99	1.1	.99
US 26 *(from I-405 to Sylvan interchange)*	.99	1.1	.99
I-405 [C] *(from I-5 South to I-5 North)*	.99	1.1	.99
Other principal arterial routes [D] I-205 [C] I-84 (east of I-205) I-5 (Marquam Bridge to Wilsonville) [C] OR 217 US 26 (west of Sylvan) US 30 OR 8 (Murray Boulevard to Brookwood Avenue) [C, D] OR 47 OR 99W OR 212 [E] OR 224 OR 213 [F]	.90	.99	.99

Table Notes:

A. Unless the Oregon Transportation Commission has adopted an alternative mobility target for the impacted state-owned facility within the urban growth boundary, the mobility targets in this table (and Table 7 of the Oregon Highway Plan) are considered standards for state-owned facilities for purposes of determining compliance with OAR 660-012-0060.

B. The volume-to-capacity ratios in this table (and Table 7 of the Oregon Highway Plan) are for the highest two consecutive hours of weekday traffic volumes. The 2nd hour is defined as the single 60-minute period, either before or after the peak 60-minute period, whichever is highest. See Oregon Highway Plan Action 1.F.1 for additional technical details for state-owned facilities. The mid-day peak hour is the highest 60-minute period between the hours of 9 a.m. and 3 p.m.

C. A corridor refinement plan, which will likely include a tailored mobility policy, is required by the Regional Transportation Plan for this corridor.

D. Two facilities are not designated as principal arterial throughway routes in the RTP, including OR 8 between Murray Boulevard and Brookwood Avenue and portions of 99W, and are proposed to be removed from Table 7 of the Oregon Highway Plan in the next scheduled update.

E. OR 212 is designated as a throughway route in the RTP and is proposed to be amended into Table 7 of the Oregon Highway Plan in the next scheduled update.

F. In October 2018, the OTC approved an alternative mobility target that applies to the intersection of OR 213 and Beavercreek Road such that during the first, second and third hours, a maximum v/c ratio of 1.00 shall be maintained. Calculation of the maximum v/c ratio will be based on an average annual weekday peak hour.

10b. Congestion – Freight truck delay and cost of delay on freight network

Purpose: To identify whether the package of future transportation investments will change the overall truck delay on the region-wide system and the regional freight network.

Methodology Description: This analysis uses truck vehicle hours of delay (VHD) from the regional travel demand model (see Definitions). The selected hours during the day for calculated truck delay from the model was 7:00 AM to 7:00 PM. After looking at the results of these hours, the reported hours for the RTP was determined for morning peak hours (7-9 AM), mid-day hours (1-3 PM) and evening peak hours (4-6 PM).

Values of time are taken from ODOT report The Value of Travel-Time: Estimates of Hourly Value of Time for Vehicles in Oregon in 2015. The cost of delay takes into account both auto and truck delay that occurs on the regional freight network. Auto value of time is calculated at $23.68 per hour. The value of time for trucks include both time of the driver as well as operating expenses. The travel forecast model distinguishes medium and heavy trucks. Medium trucks are identified as two-axle, six-tire, single-unit vehicles (Class 5). The value of time for medium trucks is calculated at $28.20 per hour. Heavy trucks are vehicles with 3 or more axle single unit or trailers (Class 6 and above). The value of time for heavy trucks is calculated at $30.72 per hour. The travel forecast model allocates 35 percent of trucks to medium category and 65 percent to heavy category. The per hour value of time dollar amounts for trucks are the same for both 2015 and 2040.

Congestion – Truck Vehicle Hours of Delay (VHD) system evaluation performance measure is calculated by:

5. Determining the number of hours of truck delay during each of the selected hours (both peak period and off-peak hours) on the regional freight network.
6. Comparing the regional freight network hours of truck delay for each of the selected hours between the 2015 base year, 2027 No Build, 2027 Constrained, 2040 No Build, 2040 Constrained and 2040 Strategic.
7. Determining the hourly value of freight truck travel to use for the cost of truck delay on the regional freight network.
8. Comparing the regional freight network cost of truck delay for each hour between the 2015 base year, 2027 No Build, 2027 Constrained, 2040 No Build, 2040 Constrained and 2040 Strategic.

Key Assumptions to Method: The measure uses the Metro travel demand model to calculate truck vehicle hours of delay for all roadway facilities in the MPA and for just the roadways on the Regional Freight Network map in the MPA. The cost of delay was determined by multiplying the hours of truck delay on the regional freight network by the hourly value of time for truck trips.

Dataset Used:

Dataset	Type of Data
Value of time for truck trips	Sourced data
Truck Vehicle hours of delay on Regional Freight Network	Forecasted

Tools Used for Analysis: Metro Travel Demand Model

Definitions: Truck vehicle hours of delay is the total truck travel time on each of the roadway segments in the travel demand model that exceed the threshold for congestion.

11. Transit efficiency and ridership

Purpose: To identify whether the package of future transportation investments will increase average weekday transit boarding rides per revenue hour, total revenue hours and total transit boardings by the following transit modes:

a) Commuter Rail
b) Light Rail
c) Streetcar
d) Bus Service
    a. Enhanced Transit
    b. Frequent Service Bus
    c. Standard Bus Service

Question(s) to be addressed:

The **Transit Efficiency** performance measures look to assess the following questions for the region's transportation system:

1) How do transportation investments impact the overall efficiency of the regional transportation system in by increasing total boardings, revenue hours and overall transit ridership by transit mode?

Methodology Description: The **Transit Efficiency** performance measure is assessed using the Metro Travel Model for a base year (2015) as well as five additional investment scenarios to allow for comparison (2027 No Build, 2027 Constrained, 2040 No Build, 2040 Constrained, 2040 Strategic). Regional transit agencies' assumptions) for all transit service providers – TriMet, SMART, C-TRAN and Portland Streetcar, Inc., including line frequency for bus and transit, are coded into the travel model and analyzed to produce the following outputs:

a) Number of boardings per revenue hour by transit mode
b) Revenue hours by transit mode
c) Total boardings by transit mode

Key Assumptions to Method:

Dataset Used:

Dataset	Type of Data
Transit provider service frequency data and networks by mode	Forecasted

Tools Used for Analysis: Metro Travel Demand Model

Definitions:

Enhanced Transit – Enhanced transit corridors are transit and/or transit supportive investments to increase capacity and reliability in a low cost/context sensitive manner. Enhanced transit is a higher level of transit service beyond our frequent service but not as extensive as light rail or larger bus rapid transit.

Frequent Service Bus – Frequent Service Bus is defined a transit service operating at headways of less than or equal to 15 minutes all day.

12. Carbon emissions

Purpose: To identify how the package of future transportation investments will affect the greenhouse gas emissions per capita from transportation sources and determine whether the region is making progress towards its state-mandated targets for light-duty vehicles.

Questions to Be Addressed:

The **Climate Change** performance measure looks to assess the following questions for the region's transportation system:

1) How many tons of greenhouse gas emissions does the 2018 RTP investment strategy produce? Do the tons of greenhouse gas emissions change, relative to a baseline and no-build scenario, with the 2018 RTP investment strategy? What are the differences?
2) What is the per capita greenhouse gas emissions with the 2018 RTP investment strategy? Are the per capita of greenhouse gas emissions increasing, decreasing, or holding steady with the investments strategy? What is the per capita greenhouse gas emissions change in proportion to population growth?
3) How does the proposed set of transportation investments get the region towards its regional greenhouse gas target?

Methodology Description:

The **Climate Change** performance measure is calculated using Metro's established mobile source emissions estimation methodology, which combines vehicle activity data from the regional transportation model with emission rates from EPA's MOVES model. Multi-modal network alternatives are developed within the regional transportation model based on existing networks and proposed projects and policies, and the model estimates average weekday regional travel activity for each alternative. The proposed projects represent the 2018 RTP investment strategies (e.g. first 10-years of investments represented for years 2018-2027, 2018-2027 constrained, and strategic) For the purposes of this performance measure, the key output from the regional transportation model is daily vehicle miles traveled (VMT) occurring within the federally-designated metropolitan planning area (MPA) boundary regardless of where trips begin or end. These VMT are broken out by road type, average speed, and vehicle type.

The emission rates used in the 2018 RTP analysis were produced by MOVES2014a. A newer version of MOVES (MOVES2014b) has since been released, but the improvements incorporated into that update pertain almost exclusively to estimates of non-road emissions and are therefore not relevant to the calculation of this performance measure. MOVES is configured in accordance with EPA conformity guidance, which requires detailed inputs characterizing local fleet composition, fuels, vehicle ages, and inspection/maintenance programs. In addition, Oregon's adoption of the California low-emission vehicle (LEV) standards and zero-emission vehicle (ZEV) program is accounted for in Metro's MOVES implementation.

In combining the VMT from the regional transportation model with the emission rates from MOVES, the analysis determines the amount of daily combined passenger and freight vehicle GHG emissions in each of the six RTP investment strategies.

The analysis determines the tons of transportation-related greenhouse gas emissions for the entire region for base year conditions (2015), no build conditions (2027 and 2040), and future year conditions (2027 and 2040). The no build conditions includes only those transportation investments that are fully

funded as of October 2018 to determine the future year tons of GHG emissions produced for the entire region. The future year conditions includes the proposed package of transportation investments in the long-range regional transportation plan as the input to determine the future year tons of GHG emissions produced for the entire region.

In addition to an estimate of total daily greenhouse gas (GHG) emissions, the Climate Change performance measure includes estimated annual per capita GHG emissions as well. In the absence of a known factor that accounts for travel differences between weekdays and weekends, the conversion of average weekday to annual emissions uses a factor of 365. Annual per capita emissions estimates are included in an effort to be consistent with the units and calculations used in setting targets associated with the Climate Smart Strategy. For these purposes, the absolute and relative change from 2015 base year annual per capita GHG emissions is reported for each of the future year investment strategies.

Key Assumptions to Method:

2018 RTP Appendix J documents key technical assumptions used and monitors implementation of the Climate Smart Strategy. Setting the region's state-mandated targets and subsequent development of the Climate Smart Strategy relied on a different emissions estimation toolkit than the one described here. Appendix J provides a side-by-side comparison of the key technical assumptions used.

Since the primary tool used during target-setting and development of the Climate Smart Strategy accounts for emission from light-duty vehicles only, a separate set of GHG emissions estimates associated with passenger vehicles only is included. These estimates reflect the removal of freight vehicle VMT from the regional transportation model output via post-processing as well as a separate set of MOVES emission rates for passenger vehicles only. While the light-duty vehicle emissions behind the state-mandated targets include local service and delivery vehicles, this type of vehicle activity is not currently accounted for in Metro's travel demand model and this is an acknowledged source of inconsistency.

Dataset Used:

Dataset	Type of Data
Greenhouse gas emissions	Forecasted

Tools Used for Analysis: Metro Travel Demand Model and EPA-Approved Emissions Model – MOVES2014a[15]

Output Units: Metric tons per capita greenhouse gas emissions and percent (%) reduction from 2015 levels.

[15]At the time the 2018 RTP system evaluation began, MOVES2014a was the more recent version of the EPA approved emissions model released. Since then, MOVES2014b has been released, but the majority of updates to MOVES2014b was in the off-road emissions. Therefore the results from the MOVES2014a emissions analysis should suffice as on-road is primarily reported for the 2018 RTP system evaluation.

13. Clean air

Purpose: To identify how the 2018 RTP investment strategy will affect air pollutants emitted from motor vehicles. Emphasis is placed on the following air pollutants: ozone (as represented by its precursors), fine particulates, coarse particulates, and transportation generated air toxics (defined in definitions).

Questions to Be Addressed:

The **Clean Air** performance measure looks to assess the following questions for the region's transportation system:

1. How many tons or pounds of air pollutant emissions does proposed set of transportation investments produce? Do the tons or pounds of air pollutant emissions change, relative to a baseline and no build scenario, with the proposed set of transportation investments?
2. Are the tons of air pollutant emissions increasing, decreasing, or holding steady with the proposed set of transportation investments? If the tons of air pollutant emissions is increasing or decreasing, is the change in proportion to population growth?

Methodology Description: The **Clean Air** performance measure is calculated using Metro's established mobile source emissions estimation methodology, which combines vehicle activity data from the regional transportation model with emission rates from EPA's MOVES model. Multi-modal network alternatives are developed within the regional transportation model based on existing networks and proposed projects and policies, and the model estimates average weekday regional travel activity for each alternative. The proposed projects represent the 2018 RTP investment strategies (e.g. first 10-years of investments represented for years 2018-2027, 2018-2027 constrained, and strategic) For the purposes of this performance measure, the key output from the regional transportation model is daily vehicle miles traveled (VMT) occurring within the federally-designated metropolitan planning area (MPA) boundary regardless of where trips begin or end. These VMT are broken out by road type, average speed, and vehicle type.

The emission rates used in the 2018 RTP update were produced by MOVES2014a. A newer version of MOVES (MOVES2014b) has since been released, but the improvements incorporated into that update pertain almost exclusively to estimates of non-road emissions and are therefore not relevant to the calculation of this performance measure. MOVES is configured in accordance with EPA conformity guidance, which requires detailed inputs characterizing local fleet composition, fuels, vehicle ages, and inspection/maintenance programs. In addition, Oregon's adoption of the California low-emission vehicle (LEV) standards and zero-emission vehicle (ZEV) program is accounted for in Metro's MOVES implementation.

In combining the VMT from the regional transportation model with the emission rates from MOVES, the analysis determines the amount of daily combined passenger and freight vehicle emissions for each air pollutant of interest in each RTP investment strategy.

The analysis estimates the tons of transportation emissions per identified air pollutant for the entire region for base year conditions (2015), no build conditions (2027 and 2040), and future year conditions (2027 and 2040). The no build conditions includes only those transportation investments that are fully funded as of October 2018 to determine the future year tons of pollutant emissions produced for the entire region. The future year conditions includes the proposed package of transportation investments in the long-range regional transportation plan as the input to determine the future year tons of air pollutant emissions produced for the entire region.

Output Units: Tons of emissions by air pollutant listed below.

List of Air Pollutants Reported

Criteria Pollutants
NOx – Nitrogen Oxide
VOC – Volatile Organic Compounds
PM2.5 – Fine Particulates
PM10 – Coarse Particulates
Air Toxics (See Definitions)
Acrolein
Arsenic
Benzene
1,3-Butadiene
Chromium 6
Diesel Particulate Matter plus Diesel Exhaust Organic Gases (Diesel PM)
Formaldehyde
Naphthalene
Polycyclic Organic Matter

Key Assumptions to Method:

Dataset Used:

Dataset	Type of Data
Emissions per air pollutant	Forecasted

Tools Used for Analysis: Metro Travel Demand Model and EPA-Approved Emissions Model – MOVES2014a[16]

Definitions

Transportation Generated Air Toxics: Of the 188 air toxics identified and regulated through the Environmental Protection Agency (EPA), seven have been identified with significant contributions from mobile sources (i.e. transportation sources) that pose national and regional-scale public health risk. Additionally, consultation with Oregon Department of Environmental Quality (DEQ) staff identified two more air toxics of particular interest to the region because they have been closely associated with transportation facilities in the Portland Air Toxics Study (PATS).[17 and 18]

[16] At the time the 2018 RTP system evaluation began, MOVES2014a was the more recent version of the EPA approved emissions model released. Since then, MOVES2014b has been released, but the majority of updates to MOVES2014b was in the off-road emissions. Therefore the results from the MOVES2014a emissions analysis should suffice as on-road is primarily reported for the 2018 RTP system evaluation.

[17] EPA research work can be found at: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/100109guidmem.cfm

[18] More information about Portland air toxics pollutants can be found at https://www.oregon.gov/deq/aq/air-toxics/

14. Potential habitat impact

Purpose: To identify and flag those 2018 RTP investments that are in proximity to the region's identified high value habitat areas and note additional environmental consideration and potential mitigation may be needed as the project goes through more detailed planning, project development and implementation.

Questions to Be Addressed:

The **Habitat impact** performance measure assesses the following questions for the region's transportation system:

1) What percentage of the region's 2018 RTP transportation projects are in proximity to and may have a potential conflict with the region's resource areas and may need further assessment of environmental considerations as the project goes through more detailed planning, project development and implementation?

Methodology Description:

In accordance with federal regulations 23 CFR 450.320, the **Potential habitat impact** analysis included consultation with resource agencies and identification of vegetation, aquatic and terrestrial wildlife species and habitat, wetlands, floodplains and other biological resources that intersect with and may be affected by projects in the Regional Transportation Plan. For the analysis all projects in the constrained and strategic 2018 Regional Transportation Plan project lists that were identified as either a point or line in the Geographic Information System were given a 100' buffer. These projects were then intersected with the various environmental data to determine which projects intersected the various environmental areas, such as high value habitat. The number and percent of projects intersecting each area of environmental concern were calculated. The number by type of project ("RTP investment category") intersecting with environmental areas of concern was also calculated. The investment categories are: Roads and Bridges, Throughways, Transit Capital, Freight, Bike and Pedestrian (Active Transportation), Transportation System Management.

The Regional Transportation Plan project lists in Appendix A, B and C identify the projects that intersect with the resource areas included in the potential habitat impact analysis (see list below). It is important to note a project's inclusion on this list does not guarantee the project will impact a given environmental resource; rather, the agency responsible for the project should be aware of its potential impacts and work to mitigate any potential issues during the project development and implementation phases. Conversely, just because a project is not identified on the list does not mean that there are not potential environmental impacts. The analysis results in a high level "flagging" of projects.

See **2018 RTP Appendix F** **(Environmental Assessment and Potential Mitigation Strategies)** for more information on the consultation process, the methods and data used to conduct the system-level environmental analysis and potential strategies to avoid, minimize and mitigate project impacts on habitat resources.

Output Units: Number and percentage (%) of transportation projects intersecting identified resource habitats by type of project.

Key Assumptions to Method:

Dataset Used:

Dataset	Type of Data
Geospatial project information for proposed transportation projects	GIS data from project sponsors
Regional Conservation Strategy high value habitat areas inventory (top 25 percent scoring habitat areas) (2013) *Several GIS datasets were used to create this inventory: 5-meter resolution land cover map developed for this process by the Institute for Natural Resources; combined national and local wetland inventories (including those identified in the National Wetland Inventory); U.S. Geological Survey stream and hydrography data; SSURGO soil data collected by the National Cooperative Soil Survey developed by the U.S. Department of Agriculture; LiDAR data and land cover data; 100-year floodplains identified by the Federal Emergency Management Agency (FEMA); and regional data on forest lands, streams, rivers, bodies of water, soil types including hydric soils, existing vegetation, wetlands, habitat patch size and shape, distance from streams and wetlands, and the influence of roads, an estimate of how difficult it is for organisms to move across the landscape, and infiltration potential.*	GIS data
Metro Title 13 inventory of regionally significant riparian & upland wildlife habitat, habitats of concern, and impact areas (2005)	GIS data
Oregon Department of Fish and Wildlife Conservation Opportunity Areas (2016)	GIS data
Oregon Department of Fish and Wildlife fish passage barriers and fish bearing streams	GIS data
NWI Wetlands and Waterways (2017)	GIS data
FEMA flood hazard areas and floodplains (multiple years) *Several GIS data sets were used in this analysis; the data is available on Metro's RLIS website: National Flood Hazard Layer (FEMA, 2016); February 1996 Flood Areas (Metro; 2009); 100-year Flood Plains (FEMA, 2005); Title 3 Land (Metro, 1998).*	GIS data

Tools Used for Analysis: ArcGIS

Definition of Regional Conservation Strategy high value habitat areas:
Regional Conservation Strategy high value habitat areas are those areas with the top 25% modeled score of high value habitat or riparian quality. Habitat quality took into account factors such as habitat interior, influence of roads, total patch area, relative patch area, habitat friction, wetlands, and hydric soils. The riparian areas took into account criteria of floodplains, distance from streams, and distance from wetlands. The analysis and modeled scoring was conducted for the entire Portland-Vancouver region and conducted through a collaborative effort with partners across the region and topic area experts through the development in the Resource Conservation Strategy process. More detail about the high value habitats can be found at www.regionalconservationstrategy.org.

15. Potential impact to historic and cultural resources and tribal lands

Purpose: To identify and flag those 2018 RTP investments that are in proximity to designated historic and cultural resources and tribal lands and note additional consideration and potential mitigation may be needed as the project goes through more detailed planning, project development and implementation.

Questions to Be Addressed:

The **Potential impacts to historic and cultural resources and tribal lands** performance measure looks to assess the following questions for the region's transportation system:

1) What percentage of the region's 2018 RTP investment strategy are in proximity to and have may have a potential conflict with the region's historic and cultural resources and tribal lands, and may need further assessment as the project goes through more detailed planning, project development and implementation?

Methodology Description:

In accordance with federal regulations 23 CFR 450.320, the **historic and cultural resources and tribal lands analysis** included consultation with tribes and resource agencies and identification of projects in the Regional Transportation Plan in proximity to historic and cultural resources and tribal lands. Metro reviewed tribal lands data available from the Bureau of Indian Affairs to identify potential federally recognized tribal lands in the planning area. No federally recognized tribal lands were identified within or adjacent to the metropolitan planning area. In addition, Metro reviewed data from the National Register of Historic Places. More than 650 historic places and structures have been listed in the National Register in the planning area.

For the analysis all projects in the constrained and strategic 2018 Regional Transportation Plan project lists that were identified as either a point or line in the Geographic Information System were given a 100' buffer. These projects were then intersected with the historic places data to determine which projects intersected the historic and cultural resources. The number and percent of projects intersecting the resources were calculated. The number by type of project ("RTP investment category") intersecting the resources was also calculated. The investment categories are: Roads and Bridges, Throughways, Transit Capital, Freight, Bike and Pedestrian (Active Transportation), Transportation System Management.

The Regional Transportation Plan project lists in Appendix A, B and C identify the projects that intersect with the resources included in analysis. It is important to note a project's inclusion on this list does not guarantee the project will impact a given resource; rather, the agency responsible for the project should be aware of its potential impacts and work to mitigate any potential issues during the project development and implementation phases. Conversely, just because a project is not identified on the list does not mean that there are not potential impacts. The analysis results in a high level "flagging" of projects.

See **2018 RTP Appendix F** **(Environmental Assessment and Potential Mitigation Strategies)** for more information on the consultation process, the methods and data used to conduct the system-level analysis and potential strategies to avoid, minimize and mitigate project impacts on historic and cultural resources.

Output Units: Number and percentage (%) of transportation projects intersecting identified historic and cultural resources by type of project.

Key Assumptions to Method:

Dataset Used:

Dataset	Type of Data
Geospatial project information for proposed transportation projects	GIS data from project sponsors
Historic properties data from the National Register of Historic Places	GIS data
Tribal lands data from the Bureau of Indian Affairs	GIS data

Tools Used for Analysis: ArcGIS

16. Public health

Purpose: To estimate the public health impacts of RTP investments, including healthcare costs saved and population level changes in chronic disease and premature deaths resulting from changes in physical activity and air pollution.

Questions to Be Addressed:

The **Public health** performance measure looks to assess the following questions for the region's transportation system:

1) How many lives can be saved annually from increased physical activity and reduced air pollution?
2) How many additional years of healthy living can be expected increased physical activity and reduced air pollution?
3) What are the annual healthcare cost savings from increased physical activity and reduced air pollution?

Methodology Description:

Metro, Multnomah County Public Health and the Oregon Health Authority used the Integrated Transport and Health Impacts Model (ITHIM) and other tools to estimate changes in death and chronic disease resulting from a change in travel behavior attributed to the investments proposed in the 2018 RTP. Three key pieces of information are needed to run ITHIM: average minutes of walking and cycling per person per week, and change in fine particle (PM 2.5) pollution.

Metro modeled travel behavior for the Base Year and each of the investment strategies using the regional travel demand model; walking and cycling minutes include trips accessing transit stops. Using the MOVES model, Metro estimated change in the mass of fine particulate matter (PM 2.5) released by mobile sources for each scenario. MOVES outputs are in units of mass (e.g. grams per year), but ITHIM uses a concentration to estimate health benefits. Although there is not a standard practice for converting a mass estimate to a concentration, the analysis used a recent PM 2.5 inventory provided by the Oregon Department of Environmental Quality for Multnomah County suggesting that on-road emissions account for approximately 11 percent of fine particulate pollution. Using 2015 monitor data from three air monitors in the region, an average baseline concentration was calculated. The final step was applying the percentage changes from MOVES to the portion of PM 2.5 attributable to on-road sources in the region, resulting in estimates for each investment strategy. These estimates do not account for changes in particle pollution from other sources, such as residential wood combustion or industrial point sources.

2015 Base Year death and burden of disease estimates for each disease were compiled from Oregon Health Authority vital statistics. Number of deaths between 2011-2015 were downloaded from the Oregon Public Health Assessment Tool (OPHAT) and averaged for the five-year period. Disability Adjusted Life Years (DALY) are calculated by summing Years of Life Lost (YLL) and Years of Living with a Disability (YLD) for each disease. DALYs are a unit of disease burden that combine years of life lost with years of living with a disability. When summed across a population, changes in DALYs can be thought of as changes in the burden of disease within that population. YLL are calculated using the World Health Organization (WHO) DALY Template from number of deaths by age group, gender and life expectancy at the time of death. YLD are imputed for the Metropolitan Planning Area from WHO Global Burden of Disease 2010 estimate for the US.

For future years, population numbers changed but the age distribution was kept the same across all investment strategies. This enables more direct comparisons with 2027 Constrained investment strategy and isolates the effect of changes in travel behavior.

As in most scenario modeling exercises, these results should be interpreted primarily as a way to compare investment strategies, as opposed to a prediction of what will likely come to pass. The results reported in Chapter 7 of the RTP are not a comprehensive estimate of health effects. ITHIM omits several diseases and causal pathways that are related to transportation, but for which no model module has been created. Among the effects not modeled are diseases and deaths associated with traffic noise, non-particle air pollution, and traffic injuries. Both noise and air pollution are associated with cardiovascular disease and diabetes (Babisch, 2014; Dzhambov, 2015). The estimate of risks from air pollution are not adjusted for noise. Although ITHIM includes a model for injuries, the input data necessary to use it was not available. This shortcoming is notable because of the high burden of death and disability from traffic crashes. Unintentional injuries were the fourth leading cause of death in the 3-county area from 2012-2016. Including traffic crashes could therefore substantially alter estimates of health impacts from the RTP. Finally, estimates are based on present disease rates, not projected rates based on estimated trends.

Output Units: Annual lives saved, estimated Disability-Adjusted Life Years (DALY) saved and annual healthcare costs saved from increased physical activity and reduced air pollution. The disability-adjusted life year (DALY) is a measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death. One DALY can be thought of as one lost year of "healthy" life.

Key Assumptions to Method:

Dataset Used:

Dataset	Type of Data
Oregon Health Authority vital statistics	Vital records data
World Health Organization Global Burden of Disease estimate for the US (2010)	Global health estimates and mortality data
Average minutes of walking and cycling per person per week	Forecasted with regional travel model
Oregon Department of Environmental Quality PM 2.5 inventory for Multnomah County	Air quality monitor sensor data
PM 2.5 emissions	Forecasted with MOVES

Tools Used for Analysis: Integrated Transport and Health Impacts Model (ITHIM), Oregon Public Health Assessment Tool (OPHAT), MOVES model, regional travel model and Center for Disease Control Chronic Disease Cost Calculator.

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Attachment 1. Transportation Analysis Zone Assumptions and Non-SOV Modal Performance

2040 Design Type grouping	Characteristics of grouping	Intersection Density *(connections per mile)*			Parking Factors *(indexed to Portland CBD in 2010 dollars)*			Transit Pass Factor *(% of full fare)*			Non-SOV Modal Performance *(combined share of non-SOV trips to, from and within 2040 grouping*		
		2015	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**2040 Constrained**	**2040 Strategic**
Central City 1 Downtown Business District	Highest planned employment and housing density in the region, with highest level of access by all modes. HCT exists and current land uses reflect planned mix and densities.	20	20	20	8.58	16.30	16.30	adj. actual	60%	60%	74%	83%	84%
Central City 2 Lloyd District	Highest planned employment and housing density in the region, with highest level of access by all modes. HCT exists and current land uses reflect planned mix and densities.	20	20	20	4.20	12.16	12.16	adj. actual	60%	60%	60%	77%	77%
Central City 3 Central Eastside Industrial District	Planned high employment and housing density, with highest level of access by all modes. HCT exists and current land uses do not reflect planned mix and densities.	20	20	20	.86	12.16	12.16	adj. actual	65%	65%	54%	73%	73%

2015 = 2015 Base Year
FC = 2040 Constrained (financially constrained)
S = 2040 Strategic

Attachment 1. Transportation Analysis Zone Assumptions and Non-SOV Modal Performance

2040 Design Type grouping	Characteristics of grouping	Intersection Density *(connections per mile)*			Parking Factors *(indexed to CBD in 2010 dollars)*			Transit Pass Factor *(% of full fare)*			Non-SOV Modal Performance *(combined share of non-SOV trips to, from and within 2040 grouping)*		
		2015	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**2040 Constrained**	**2040 Strategic**
Central City 4 River District	Planned high employment and housing density, with highest level of access by all modes. HCT exists and current land uses approach planned mix and densities.	20	20	20	8.26	16.30	6.30	adj. actual	60%	60%	72%	80%	80%
Central City 5 South Waterfront District	Planned high employment and housing density, with highest level of access by all modes. HCT exists and current land uses do not reflect planned mix and densities.	18	18	18	8.58	16.30	16.30	adj. actual	60%	60%	57%	72%	73%
Regional Centers - Tier 1 Gresham Gateway Beaverton Hillsboro Vancouver, Wa. CBD[1]	Planned high employment and housing density, with highest level of access by all modes. HCT exists and current land uses approach planned mix and densities.	>16	>16	>16	0.00	1.63	1.63	adj. actual	80%	80%	54%	57%	57%

[1] Vancouver CBD transit pass factor assumed to be 100%.

2015 = 2015 Base Year

FC = 2040 Constrained (financially constrained)

S = 2040 Strategic

Attachment 1. Transportation Analysis Zone Assumptions and Non-SOV Modal Performance

2040 Design Type grouping	Characteristics of grouping	Intersection Density *(connections per mile)*			Parking Factors *(indexed to CBD in 2010 dollars)*			Transit Pass Factor *(% of full fare)*			Non-SOV Modal Performance *(combined share of non-SOV trips to, from and within 2040 grouping)*		
		2015	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**2040 Constrained**	**2040 Strategic**
Regional Centers - Tier 2 Washington Square Clackamas Oregon City[1] AmberGlen	Planned high employment and housing density, with highest level of access by all modes; planned HCT. Current land uses do not reflect planned mix and densities.	>14	>14	>14	0.00	1.14	1.14	adj. actual	85%	85%	50%	54%	55%
Station Communities[2] Tier 1	High housing density mixed with commercial services; highest level of access for transit, bike and walk; existing LRT.	>16	>14	>14	0.00	1.63	1.63	adj. actual	80%	80%	54%	59%	60%
Station Communities Tier 2	Planned high housing density mixed with commercial services, with high level of transit, bike and walk; planned HCT. Current land uses do not reflect planned mix and densities.	>12	>12	>12	0.00	1.14	1.14	adj. actual	80%	80%	42%	49%	50%

[1] Oregon City parking factor assumed to be $2.10 for 2015 base year and 2040 Constrained and Strategic systems.

[2] Station community tiers are assigned to station communities based on the TOD typology clusters defined in Metro's Transit Oriented Development Strategic Plan (2016).

2015 = 2015 Base Year
FC = 2040 Constrained (financially constrained)
S = 2040 Strategic

Attachment 1. Transportation Analysis Zone Assumptions and Non-SOV Modal Performance

2040 Design Type grouping	Characteristics of grouping	Intersection Density *(connections per mile)*			Parking Factors *(indexed to CBD in 2010 dollars)*			Transit Pass Factor *(% of full fare)*			Non-SOV Modal Performance *(combined share of non-SOV trips to, from and within 2040 grouping)*		
		2015	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**2040 Constrained**	**2040 Strategic**
Station Communities Tier 3	Planned high housing density mixed with commercial services, with high level of transit, bike and walk; planned HCT. Current land uses do not reflect planned mix and densities.	>12	>10	>10	0.00	0.49	0.49	adj. actual	80%	80%	51%	53%	53%
Town Centers - Tier 1 St. Johns Hillsdale Hollywood Gladstone Forest Grove Lents Lake Oswego	Moderate housing and employment density planned, with high level of access by all modes. Currently has good mix of uses, well connected street system and good transit.	>14	>14	>14	0.00	1.14	1.14	adj. actual	85%	85%	53%	57%	58%
Town Centers - Tier 2 Aloha Bethany Cornelius King City Lake Grove Milwaukie Orenco Rockwood Tigard West Linn West Portland Wilsonville	Moderate housing and employment density planned, with high level of access by all modes. Currently has some mix of uses, moderately connected street system and some transit. Topography or physical barriers may limit bike and pedestrian travel.	>12	>12	>12	0.00	.82	0.82	adj. actual	100%	100%	50%	53%	53%

2015 = 2015 Base Year
FC = 2040 Constrained (financially constrained)
S = 2040 Strategic

Attachment 1. Transportation Analysis Zone Assumptions and Non-SOV Modal Performance

2040 Design Type grouping	Characteristics of grouping	Intersection Density *(connections per mile)*			Parking Factors *(indexed to CBD in 2010 dollars)*			Transit Pass Factor *(% of full fare)*			Non-SOV Modal Performance *(combined share of non-SOV trips to, from and within 2040 grouping)*		
		2015	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**2040 Constrained**	**2040 Strategic**
Town Centers - Tier 3 Cedar Mill Fairview/Wood Village Farmington Murrayhill Raleigh Hills Sherwood Sunset Troutdale Tualatin West Linn (historic)	Moderate housing and employment density planned, with high level of access by all modes. Currently has modest mix of uses, poorly connected street system and poor transit. Existing topography or physical barriers may limit bike and pedestrian travel.	>10	>10	>10	0.00	0.49	0.49	adj. actual	100%	100%	49%	51%	51%
Town Centers - Tier 4 Damascus Happy Valley Pleasant Valley	Moderate housing and employment density planned, with high level of access by all modes. Currently undeveloped or developing urban uses, with skeletal street system and poor transit. Existing topography or physical barriers may limit bike and pedestrian travel.	>8	>8	>8	0.00	0.16	0.16	adj. actual	100%	100%	52%	51%	52%

2015 = 2015 Base Year
FC = 2040 Constrained (financially constrained)
S = 2040 Strategic

Attachment 1. Transportation Analysis Zone Assumptions and Non-SOV Modal Performance

2040 Design Type grouping	Characteristics of grouping	Intersection Density *(connections per mile)*			Parking Factors *(indexed to CBD in 2010 dollars)*			Transit Pass Factor *(% of full fare)*			Non-SOV Modal Performance *(combined share of non-SOV trips to, from and within 2040 grouping)*		
		2015	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**2040 Constrained**	**2040 Strategic**
Mainstreets and Corridors Full Region	Moderate housing and employment density planned, with high level of access by all modes. Currently has modest mix of uses, moderate connectivity and some transit.	>10	10	>10	None			adj. actual	100%	100%	52%	54%	55%
Industrial Areas Full region	Low density employment planned, with high level of access by rail and truck freight, and moderate access by other modes. Currently has somewhat connected street system and some transit.	>10	>8	>8	None			adj. actual	100%	100%	42%	43%	44%
Employment Areas Full Region	Low density employment planned, with moderate level of access by all modes. Currently has poorly connected street system and limited transit.	>8	>8	>8	None			adj. actual	100%	100%	45%	47%	48%

2015 = 2015 Base Year
FC = 2040 Constrained (financially constrained)
S = 2040 Strategic

Attachment 1. Transportation Analysis Zone Assumptions and Non-SOV Modal Performance

2040 Design Type grouping	Characteristics of grouping	Intersection Density *(connections per mile)*			Parking Factors *(indexed to CBD in 2010 dollars)*			Transit Pass Factor *(% of full fare)*			Non-SOV Modal Performance *(combined share of non-SOV trips to, from and within 2040 grouping)*		
		2015	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**2040 Constrained**	**2040 Strategic**
Neighborhoods Full Region	Low density housing planned, with moderate level of access by all modes. Currently has moderate connectivity and some transit.	>10	>8	>8	None	None	None	adj. actual	100%	100%	51%	52%	52%
Urban Reserves	Low density housing planned, with moderate level of access by all modes. Currently has skeletal street system and no transit.	>6	>6	>6	None	None	None	adj. actual	100%	100%	47%	48%	48%
Rural Reserves	Urban uses are not planned in the foreseeable future. Currently has skeletal, rural street system and no transit.	No minimums			None	None	None	adj. actual	100%	100%	49%	50%	50%
Greenspaces	Recreational uses are planned, with moderate level of access by all modes	No minimums			None	None	None	adj. actual	100%	100%	53%	52%	52%

2015 = 2015 Base Year
FC = 2040 Constrained (financially constrained)
S = 2040 Strategic

Attachment 1. Transportation Analysis Zone Assumptions and Non-SOV Modal Performance

2040 Design Type grouping	Characteristics of grouping	Intersection Density *(connections per mile)*			Parking Factors *(indexed to CBD in 2010 dollars)*			Transit Pass Factor *(% of full fare)*			Non-SOV Modal Performance *(combined share of non-SOV trips to, from and within 2040 grouping)*		
		2015	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**FC**	**S**	**2015**	**2040 Constrained**	**2040 Strategic**
Special Area 1 Portland International Airport[2]		*	*	*	*	*	*	*	*	*	41%	44%	45%
Special Area 2 Oregon Health Sciences University		*	*	*	8.58	16.3	16.3	adj. actual	60%	60%	56%	74%	74%
Special Area 3 Oregon Zoo		*	*	*	4.78	4.78	4.78	adj. actual	80%	80%	57%	58%	58%
Special Area 4 NW 23rd		*	*	*	1.72	4.2	4.2	adj. actual	100%	100%	60%	66%	67%
Special Area 5 Lower Albina		*	>14	>14	0.00	1.83	1.83	adj. actual	80%	80%	45%	53%	54%
Special Area 6 Goose Hollow		*	>20	>20	4.2	16.3	16.3	adj. actual	60%	60%	69%	82%	82%
Special Area 7 SMART (Wilsonville)		*	*	*	*	*	*	*	*	*	*	*	*

* Use parent zone values.

[2] A separate airport model is used in the analysis.

2015 = 2015 Base Year

FC = 2040 Constrained (financially constrained)

S = 2040 Strategic

Attachment 2. 2018 RTP Transit Service Frequency Assumptions

12/6/2018

	2015		2027 No Build		2027 Constrained		2040 No Build		2040 Constrained		2040 Strategic	
Line	**Peak**	**Off-peak**	**Peak**	**Off-peak**	**Peak**	**Off-peak**	**Peak**	**Off-peak**	**Peak**	**Off-peak**	**Peak**	**Off-peak**
MAX Blue Line	7	15	7	15	7	15	7	15	7	15	7	15
MAX Red Line	15	15	15	15	12	15	15	15	12	15	12	15
MAX Yellow Line	15	15	15	15	12	15	15	15	12	15	7	15
MAX Green Line	15	15	15	15	15	15	15	15	15	15	15	15
MAX Orange Line	15	15	15	15	12	15	15	15	12	15	7	15
MAX SW Corridor	n/a		n/a		15	15	n/a		15	15	15	15
Streetcar A/B Loop	15	15	15	15	12	12	15	15	12	12	12	12
Streetcar N/S Line	12	12	12	12	12	12	12	12	12	12	12	12
Streetcar MLK to Riverplace	n/a		n/a		n/a		n/a		n/a		15	15
Streetcar Mont. Park to Hollywood	n/a		n/a		15	15	n/a		15	15	15	15
Streetcar AmberGlen	n/a		n/a		n/a		n/a		n/a		12	12
WES Commuter Rail	30	0	30	0	30	0	30	0	30	0	15	15
OHSU Tram	5	5	5	5	5	5	5	5	5	5	5	5
1-Vermont	30	0	30	0	30	30	30		15	30	15	20
4-Division BRT	n/a		n/a		7.5	12	n/a		7.5	10	7.5	7.5
4-Division/Fessenden	12	15	12	15	10	12	12	15	10	10	7.5	10
5-Alberta/Prescott	n/a		30	30	n/a		30	30	n/a		n/a	
6-Martin Luther King Jr Blvd	12	15	12	15	10	12	12	15	10	10	7.5	10
7-I205 BRT	n/a		n/a		n/a		n/a		n/a		7.5	15
8-Jackson Park/NE 15th	12	15	15	15	10	12	15	15	10	10	7.5	10
9-Powell Blvd	10	15	10	15	10	12	10	15	10	10	7.5	10
10-Harold St	20	30	20	30	20	30	20	30	20	30	20	30
11-Rivergate/Marine Dr	60	0	60	0	30	30	60	0	20	30	15	20
12-Barbur/Sandy Blvd	15	15	15	15	10	12	15	15	10	10	7.5	10
14-Hawthorne	7	15	7	15	7	12	7	15	7	10	7	10
15-Belmont/NW 23rd	25	30	15	15	12	12	15	15	10	10	7.5	10
16-Front Ave/St Helens Rd	45	45	45	45	20	30	45	45	15	30	15	15
17-Holgate/Broadway	15	20	15	20	10	20	15	20	10	15	10	12
18-Hillside	60	0	60	0	60	0	60	0	40	0	30	0
19-Woodstock/Glisan	10	20	10	20	10	20	10	20	10	15	10	12
20-Burnside/Stark	15	40	15	15	12	15	15	15	10	10	7.5	10
21-Sandy Blvd/223rd	30	30	15	30	15	20	15	30	12	20	12	15
22-Parkrose	35	35	35	35	35	35	35	35	20	30	15	20
23-San Rafael	80	80	80	80	80	80	80	80	80	80	n/a	
24-Fremont	30	40	20	30	20	30	20	30	20	20	15	20
25-Glisan/Rockwood	70	70	20	30	70	70	20	30	30	30	15	20
26-Cully/Prescott	n/a		n/a		20	20	n/a		15	20	15	15
27-Webster	n/a		30	30	30	30	30	30	30	30	20	30
28-Jennings/Carver	n/a		n/a		30	30	n/a		30	30	n/a	
29-Lake/Webster Rd	90	90	90	90	30	30	90	90	20	20	20	20
30-Estacada	30	60	30	60	30	60	30	60	60	60	30	60
31-CTC/Milwaukie	n/a		n/a		n/a		n/a		n/a		15	15
32-Oatfield	30	70	30	60	30	30	30	60	20	30	15	30

Attachment 2. 2018 RTP Transit Service Frequency Assumptions

12/6/2018

	2015		2027 No Build		2027 Constrained		2040 No Build		2040 Constrained		2040 Strategic	
Line	Peak	Off-peak	Peak	Off-peak	Peak	Off-peak	Peak	Off-peak	Peak	Off-peak	Peak	Off-peak
33-McLoughlin/King Rd	15	15	15	15	10	12	15	15	7.5	10	7.5	10
34-Linwood/River Rd	40	40	40	40	30	40	40	40	30	30	20	30
35-Macadam/Greeley	20	40	20	40	12	15	20	40	10	15	10	12
36-South Shore	60	90	60	90	30	30	60	90	30	30	15	30
37-Lake Grove	90	90	30	30	30	30	30	30	30	30	30	30
38-Boones Ferry Rd	30	0	30	0	30	0	30	0	30	60	30	30
39-Lewis & Clark	40	40	40	40	40	40	40	40	30	30	20	30
40-Main/Jenkins	n/a		n/a		15	30	n/a		15	20	15	30
41-Brookwood/Century	n/a		15	30	15	30	15	30	15	20	15	30
43-Taylors Ferry Rd	60	60	60	60	30	30	60	60	15	30	15	20
44-Capitol Hwy/Mocks Crest	30	60	30	30	12	15	30	30	10	12	10	10
45-Garden Home	25	70	25	70	30	30	25	70	20	30	20	20
46-North Hillsboro	60	60	60	60	30	30	60	60	20	30	20	20
47-Baseline/Evergreen	30	40	15	30	15	30	15	30	10	15	10	12
48-Cornell	30	30	15	30	12	15	15	30	10	12	10	10
49-Baseline/Jenkins	n/a		15	30	n/a		15	30	15	30	15	20
50-Cedar Mill	30	0	30	0	30	0	30	0	30	0	30	0
51-Vista	30	0	30	0	30	0	30	0	30	0	20	0
52-Farmington/185th	15	20	15	15	12	15	15	15	10	15	10	10
53-Arctic/Allen	30	0	30	0	30	30	30	0	20	30	20	20
54-Beaverton-Hillsdale Hwy	30	30	15	15	10	12	15	15	10	12	7.5	10
55-Hamilton	60	0	60	0	60	0	60	0	60	0	40	0
56-Scholls Ferry Rd	20	30	20	30	20	20	20	30	20	20	15	15
57-TV Hwy/Forest Grove	15	15	15	15	10	12	15	15	10	10	7.5	10
58-Canyon Rd	20	30	20	30	20	20	20	30	20	30	20	30
59-Walker/Park Way	60	0	60	0	60	0	60	0	30	30	30	20
61-Marquam Hill/Beaverton	20	0	20	0	20	0	20	0	20	0	20	0
62-Murray Blvd	30	30	15	30	15	20	15	30	15	20	15	15
63-Washington Park/Arlington Hts	60	60	60	60	60	60	60	60	30	30	20	20
64-Marquam Hill/Tigard	30	0	30	0	n/a		30	0	n/a		n/a	
65-Marquam Hill/Barbur Blvd	30	0	30	30	n/a		30	30	n/a		n/a	
66-Marquam Hill/Hollywood	30	0	30	0	30	0	30	0	30	0	30	0
67-Bethany/158th	20	40	20	40	15	30	20	40	15	30	15	20
68-Marquam Hill/Collins Circle	15	0	15	0	15	0	15	0	15	0	10	15
70-12th/Ne 33rd Ave	30	30	30	30	30	30	30	30	15	15	15	20
71-60th Ave	15	20	18	20	15	20	18	20	15	20	15	15
72-Killingsworth/82nd	7	12	7	12	10	12	7	12	10	10	7.5	10
73-122nd Ave	n/a		15	15	10	12	15	15	10	10	7.5	10
74-162nd Ave	n/a		30	30	15	20	30	30	15	15	12	15
75-Cesar Chavez/Lombard	12	15	12	15	10	12	12	15	10	10	7.5	10
76-Beaverton/Tualatin	30	30	15	15	12	15	15	15	10	12	10	10
77-Broadway/Halsey	15	30	15	20	12	15	15	20	10	15	10	12
78-Beaverton/Lake Oswego	30	30	30	30	20	20	30	30	15	20	15	15

Attachment 2. 2018 RTP Transit Service Frequency Assumptions

12/6/2018

	2015		2027 No Build		2027 Constrained		2040 No Build		2040 Constrained		2040 Strategic	
Line	**Peak**	**Off-peak**	**Peak**	**Off-peak**	**Peak**	**Off-peak**	**Peak**	**Off-peak**	**Peak**	**Off-peak**	**Peak**	**Off-peak**
79-Clackamas/Oregon City	30	40	15	30	15	20	15	30	15	15	12	15
80-Kane/Troutdale Rd	60	60	60	60	30	30	60	60	30	30	30	30
81-Kane/257th	60	60	60	60	30	30	60	60	20	30	20	20
82-223rd Ave	n/a		60	60	n/a		n/a		30	30	20	20
84-Powell Valley/Orient Dr	45	0	45	0	30	0	45	0	30	0	30	0
85-Swan Island	30	45	30	45	20	30	30	45	15	20	15	15
86-148th Ave	n/a		30	30	15	20	30	30	15	15	12	15
87-Airport Way/181st	30	60	15	15	15	15	15	15	12	15	10	10
88-Hart/198th	30	30	15	30	15	20	15	30	15	15	12	15
89-223rd Ave	n/a		30	30	40	40	30	30	30	30	20	30
91-US 26/Sunset Express	n/a		n/a		n/a		n/a		n/a		15	0
92-South Beaverton Express	30		30	0	30	0	30	0	20	0	15	0
93-Tigard/Sherwood	n/a		n/a		10	20	n/a		10	20	10	20
94-Pacific Hwy/Sherwood	8	45	8	60	n/a		8	60	n/a		n/a	
94-Balsalt Creek	n/a		n/a		n/a		n/a		n/a		30	40
96-Tualatin/I-5	20	0	20	0	30	60	20	0	30	40	30	30
97-Tualatin-Sherwood Rd	n/a		30	0	30	0	30	0	20	30	20	20
99-Macadam/McLoughlin	15	0	15	30	15	30	15	30	15	20	15	20
152-Milwaukie	45	90	30	30	30	30	30	30	30	60	15	20
153-Salamo-Stafford	n/a		n/a		n/a		n/a		30	0	30	0
154-Willamette/Clackamas heights	60	60	60	60	60	60	60	60	60	60	60	60
155-Sunnyside	30	30	30	30	30	30	30	30	15	20	15	15
156-Mather Rd	60	90	60	90	60	90	60	90	30	30	30	30
2X-Barbur	30	60	30	60	30	60	30	60	30	60	30	60
3-Charbonneau Canby	60	120	60	120	60	120	60	120	60	120	60	120
4-Wilsonville Road	30	60	30	60	30	60	30	60	30	60	30	60
5-95th Avenue	30	0	30	0	30	0	30	0	30	0	30	0
6-Canyon Creek	30	0	30	0	30	0	30	0	30	0	30	0
7-Villebois	60	0	60	0	60	0	60	0	60	0	60	0
2-Lincoln	60	60	60	60	60	60	60	60	45	45	45	45
3-Kauffman/Columbia	45	45	45	45	45	45	45	45	45	45	45	45
4-Fourth Plain/Delta Park/BRT	15	15	10	15	10	15	10	15	10	10	10	10
7-Battle Ground	45	45	45	45	45	45	45	45	45	45	45	45
9-Felida	60	60	60	60	60	60	60	60	30	30	30	30
19-Salmon Creek	30	30	30	30	30	30	30	30	30	30	30	30
25-St. Johns	35	35	35	35	35	35	35	35	30	30	30	30
30-Burton	30	30	30	30	30	30	30	30	30	30	30	30
32-Hazel Dell & Evergreen/Andresen	30	30	30	30	30	30	30	30	45	45	45	45
35-Tech Center	n/a		n/a		n/a		n/a		60	60	60	60
37-Mill Plain/Fisher's	20	20	20	20	20	20	20	20	10	10	10	10
38-Mill Plain/192nd	30	30	20	20	20	20	20	20	15	15	15	15
39-VA/Rose Village	60	60	60	60	60	60	60	60	60	60	60	60
41-SR 14	30	0	30	0	30	0	30	0	30		120	0

Attachment 2. 2018 RTP Transit Service Frequency Assumptions

12/6/2018

	2015		2027 No Build		2027 Constrained		2040 No Build		2040 Constrained		2040 Strategic	
Line	**Peak**	**Off-peak**	**Peak**	**Off-peak**	**Peak**	**Off-peak**	**Peak**	**Off-peak**	**Peak**	**Off-peak**	**Peak**	**Off-peak**
44-Fourth Plain	35	0	35	0	35	0	35	0	n/a		n/a	
47-Battle Ground/Yacolt	120	0	120	0	120	0	120	0	120	0	120	0
48-Van Mall/164th	n/a		n/a		n/a		n/a		30	30	30	30
60-Delta Park Regional	n/a		15	15	15	15	15	15	n/a		n/a	
65-Parkrose Regional	15	30	15	30	15	30	15	30	20	20	20	20
71-Highway 99 BRT	20	20	20	20	20	20	20	20	10	10	10	10
72-Orchards	60	60	60	60	60	60	60	60	60	60	60	60
78-78th Street	60	60	60	60	60	60	60	60	60	60	60	60
80-Van Mall/Fisher's	30	30	30	30	30	30	30	30	60	60	60	60
85-192nd East	n/a		n/a		n/a		n/a		60	60	60	60
92-Camas/Washougal	30	30	30	30	30	30	30	30	60	60	60	60
105-I-5 Express	15	45	15	45	15	45	15	45	30	30	30	30
118-18th Street	n/a		n/a		n/a		n/a		30	0	30	0
134-Salmon Creek Express	10	0	10	0	10	0	10	0	10	0	10	0
157-Lloyd District Express	30	0	30	0	30	0	30	0	30	0	30	0
164-Fisher's Landing Express	10	0	10	0	10	0	10	0	10	0	10	0
177-Evergreen Express	45	0	45	0	45	0	45	0	n/a		n/a	
190-Marquam Hill Express	20	0	20	0	20	0	20	0	20	0	20	0
199-99th Street Express	15	0	15	0	15	0	15	0	15	0	15	0
301-Ridgefield Shuttle	n/a		n/a		n/a		n/a		90	0	90	0
302-La Center Shuttle	n/a		n/a		n/a		n/a		90	0	90	0
CAT- Oregon City	30	60	30	60	30	60	30	60	30	60	30	60
SAM-Sandy to Estacada	120	120	120	120	120	120	120	120	120	120	120	120
SAM-Sandy to Gresham	30	30	30	30	30	30	30	30	30	30	30	30
SAM-Sandy to Rhododendron	120	0	120	0	120	0	120	0	120	0	120	0
SCTD- Molalla to Clack. Com. College	30	60	30	60	30	60	30	60	30	60	30	60
SCTD-Molalla to Canby	60	60	60	60	60	60	60	60	60	60	60	60

Green highlight = TriMet Service
Orange highlight = SMART Service
Blue highlight = C-TRAN service
Purple highlight = Canby Area Transit, Sandy Transit and South Clackams Transit District

Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1	10,749	11,433	12,343	0	0	0	Central City 1 (CBD)
2	12,395	13,025	13,941	446	621	715	Central City 1 (CBD)
3	3,189	3,479	3,952	7	364	571	Central City 1 (CBD)
4	6,550	7,023	7,737	598	686	729	Central City 1 (CBD)
5	5,553	6,003	6,626	983	1,112	1,180	Central City 1 (CBD)
6	4,033	4,321	4,665	0	3	5	Central City 1 (CBD)
7	1,690	1,804	2,005	1,091	1,420	1,716	Central City 1 (CBD)
8	10,979	11,440	12,179	41	57	66	Central City 1 (CBD)
9	1,507	1,637	1,804	0	72	113	Central City 1 (CBD)
10	605	708	851	2,200	2,280	2,352	Central City 1 (CBD)
11	5,953	6,518	7,179	365	385	408	Central City 1 (CBD)
12	3,073	3,219	3,417	178	179	178	Central City 1 (CBD)
13	*	*	4,863	827	821	843	Central City 1 (CBD)
14	2,964	3,243	3,653	1,094	1,432	1,736	Central City 1 (CBD)
15	3,815	4,192	4,681	442	592	689	Central City 1 (CBD)
16	687	892	1,157	453	699	858	Central City 1 (CBD)
17	2,402	2,668	3,066	2,887	3,360	3,786	Central City 4 (River)
18	1,062	1,662	2,511	883	1,502	2,060	Central City 4 (River)
19	1,888	1,974	2,180	493	571	616	Central City 4 (River)
20	1,884	2,328	2,990	654	976	1,266	Central City 4 (River)
21	172	488	950	693	1,160	1,581	Central City 4 (River)
22	11	240	565	259	679	1,058	Central City 4 (River)
23	4,483	4,642	5,020	469	552	599	Central City 4 (River)
24	3,057	3,270	3,592	697	828	905	Central City 4 (River)
25	2,117	2,454	2,908	1,179	1,378	1,557	Central City 4 (River)
26	2,510	2,728	3,014	118	166	194	Central City 4 (River)
27	87	234	380	404	828	1,211	Central City 4 (River)
28	2,208	2,279	2,404	19	68	101	Industrial Area
29	1,968	2,771	3,693	492	871	1,212	NW 23rd
30	2,459	3,013	3,664	642	879	1,004	NW 23rd
31	812	944	1,123	1,238	1,371	1,438	NW 23rd
32	5,991	6,395	7,063	3,576	3,811	4,023	NW 23rd
33	3,980	4,703	5,737	1,011	1,603	2,136	NW 23rd
34	2,593	2,601	2,670	0	0	0	Industrial Area
35	5,032	4,997	4,971	0	0	0	Industrial Area
36	4,901	5,554	6,233	1,969	2,468	2,917	Main St / Corr
37	77	73	70	526	543	549	Neighborhoods
38	1,546	2,111	2,986	43	48	50	Industrial Area
39	527	560	609	79	85	104	Parks
40	49	45	42	31	35	37	Neighborhoods
41	60	109	150	242	483	701	Neighborhoods
42	19	31	42	94	128	151	Rural Reserve
43	124	146	168	1,266	1,297	1,316	Neighborhoods
44	39	17	0	114	251	323	Neighborhoods
45	80	127	155	924	1,187	1,425	Neighborhoods
46	17	26	29	90	346	576	Rural Reserve
47	17	18	20	66	70	72	Rural Reserve
48	412	551	724	289	404	508	Neighborhoods
49	57	85	115	306	410	469	Neighborhoods
50	*	*	85	112	120	124	Rural Reserve
51	251	293	337	855	966	1,021	Rural Reserve
52	432	480	516	356	370	382	Rural Reserve
53	4,308	4,894	5,718	2,353	3,020	3,622	Goose Hollow
54	1,386	1,532	1,707	2,409	2,824	3,198	Neighborhoods
55	1,298	1,492	1,665	436	792	1,113	Neighborhoods

*Data suppressed for confidentiality

Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
56	527	649	755	2,264	2,412	2,545	Neighborhoods
57	762	756	752	27	32	37	Zoo
58	10	12	8	113	140	161	Neighborhoods
59	584	667	750	120	273	410	Neighborhoods
60	30	61	82	180	255	314	Neighborhoods
61	28	36	41	500	541	569	Neighborhoods
62	35	36	38	306	350	382	Neighborhoods
63	121	124	131	464	482	493	Neighborhoods
64	233	239	249	1,113	1,170	1,208	Neighborhoods
65	17,556	19,065	20,177	722	1,172	1,577	OHSU
66	2,711	2,868	2,983	377	699	990	Station Com - Tier 1
67	0	3,701	6,430	0	436	829	Central City 5 (SoWa)
68	389	425	452	540	644	716	Station Com - Tier 1
69	190	376	610	106	903	1,622	Central City 5 (SoWa)
70	1,034	1,085	1,140	886	1,238	1,556	Central City 5 (SoWa)
71	569	718	846	622	758	861	Main St / Corr
72	255	420	593	1,202	1,708	2,165	Central City 5 (SoWa)
73	1,413	1,692	1,918	12	535	1,007	Central City 5 (SoWa)
74	1,263	1,479	1,652	515	959	1,360	Main St / Corr
75	13	14	6	332	430	500	Main St / Corr
76	848	1,002	1,151	295	540	761	Main St / Corr
77	0	0	0	16	34	45	Main St / Corr
78	663	791	917	274	512	676	Main St / Corr
79	9	10	6	41	44	49	Main St / Corr
80	1,678	1,956	2,205	392	665	912	Main St / Corr
81	47	49	52	214	227	241	Main St / Corr
82	116	117	110	277	291	303	Main St / Corr
83	42	44	46	0	0	0	Main St / Corr
84	220	246	266	587	655	716	Main St / Corr
85	497	580	664	481	791	1,071	Station Com - Tier 3
86	400	534	659	233	386	523	Town Center - Tier 1
87	522	490	467	485	638	775	Main St / Corr
88	10	10	10	47	53	64	Neighborhoods
89	835	995	1,132	1,799	2,795	3,692	Main St / Corr
90	338	458	556	214	550	853	Station Com - Tier 3
91	169	167	174	709	745	777	Neighborhoods
92	904	1,079	1,232	412	908	1,356	Station Com - Tier 3
93	1,082	1,279	1,438	1,168	1,679	2,140	Main St / Corr
94	483	629	738	954	1,045	1,128	Neighborhoods
95	117	123	128	664	698	741	Main St / Corr
96	1,043	900	795	1,650	2,401	3,078	Main St / Corr
97	56	42	32	858	893	912	Neighborhoods
98	379	322	280	974	1,032	1,053	Main St / Corr
99	235	339	419	775	1,092	1,377	Main St / Corr
100	111	102	96	877	1,109	1,319	Main St / Corr
101	1,095	1,289	1,416	124	283	426	Station Com - Tier 3
102	61	69	73	772	819	847	Neighborhoods
103	58	52	47	473	520	538	Neighborhoods
104	69	76	82	724	778	813	Main St / Corr
105	0	0	0	0	0	0	Main St / Corr
106	27	24	22	137	145	151	Main St / Corr
107	93	97	102	195	216	230	Main St / Corr
108	*	*	2,488	354	420	462	Neighborhoods
109	582	326	138	991	1,125	1,172	Main St / Corr
110	34	37	39	486	501	512	Neighborhoods

*Data suppressed for confidentiality

Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
111	158	178	192	604	674	701	Neighborhoods
112	389	502	594	400	706	981	Town Center - Tier 2
113	59	53	49	155	187	200	Town Center - Tier 2
114	24	35	40	381	402	407	Neighborhoods
115	128	100	80	919	991	1,034	Neighborhoods
116	121	169	206	169	311	439	Station Com - Tier 3
117	191	287	360	421	698	947	Station Com - Tier 3
118	793	970	1,109	299	723	1,106	Town Center - Tier 2
119	98	143	159	387	432	467	Town Center - Tier 2
120	14	21	26	483	545	590	Neighborhoods
121	226	206	192	565	691	795	Neighborhoods
122	*	*	2,113	13	18	21	Station Com - Tier 3
123	43	45	46	219	226	230	Neighborhoods
124	0	230	400	0	0	0	Industrial Area
125	797	882	999	502	803	1,075	Industrial Area
126	1,061	1,261	1,430	179	200	236	Station Com - Tier 3
127	782	907	999	760	1,835	2,804	Neighborhoods
128	255	289	313	0	0	0	Industrial Area
129	1,906	2,653	3,205	0	0	0	Industrial Area
130	2,320	2,538	2,780	0	0	0	Industrial Area
131	*	*	23	0	0	0	Parks
132	645	756	849	0	0	0	Industrial Area
133	463	502	533	0	0	0	Industrial Area
134	118	124	134	0	0	0	Station Com - Tier 3
135	49	52	65	0	0	0	Industrial Area
136	1,712	2,581	3,477	393	650	882	Industrial Area
137	3,433	4,652	5,551	989	1,228	1,399	Industrial Area
138	882	2,001	2,826	0	0	0	Industrial Area
139	7,503	7,707	8,203	0	2	4	PDX Airport
140	1,061	1,075	1,107	0	0	0	Industrial Area
141	417	506	587	36	31	35	Industrial Area
142	485	710	1,007	0	0	0	Industrial Area
143	1,031	1,164	1,320	0	0	0	Employment Area
144	687	1,026	1,421	0	0	0	Employment Area
145	873	914	945	0	0	0	Industrial Area
146	0	22	64	0	0	0	Industrial Area
147	1,119	815	590	0	0	0	Station Com - Tier 3
148	885	898	926	0	0	0	Station Com - Tier 3
149	625	655	709	0	0	0	Station Com - Tier 3
150	0	254	540	0	0	0	Industrial Area
151	0	410	904	0	0	0	Station Com - Tier 3
152	0	21	60	0	0	0	Employment Area
153	908	924	953	0	0	0	Industrial Area
154	951	1,023	1,098	0	0	0	Industrial Area
155	1,114	1,226	1,309	2,618	2,986	3,318	Industrial Area
156	370	474	557	2,036	2,131	2,212	Industrial Area
157	357	388	400	879	986	1,066	Industrial Area
158	155	208	255	946	1,025	1,090	Main St / Corr
159	1,761	3,560	4,887	2,250	2,603	2,921	Main St / Corr
160	2,631	2,643	2,651	2,916	4,201	5,360	Town Center - Tier 1
161	130	142	150	1,287	1,427	1,540	Neighborhoods
162	919	1,084	1,218	74	74	74	Industrial Area
163	13,076	11,879	10,997	36	96	148	Industrial Area
164	*	*	223	0	0	0	Industrial Area
165	576	670	781	960	994	1,013	Industrial Area

*Data suppressed for confidentiality

Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
166	840	1,013	1,174	484	993	1,451	Station Com - Tier 2
167	967	1,131	1,325	16	16	16	Industrial Area
168	541	700	829	1,357	1,598	1,816	Main St / Corr
169	212	335	431	380	534	672	Station Com - Tier 1
170	672	772	858	186	335	469	Station Com - Tier 1
171	139	199	252	588	662	729	Main St / Corr
172	704	884	1,034	667	782	886	Industrial Area
173	163	179	191	968	1,044	1,112	Neighborhoods
174	100	162	213	530	833	1,107	Station Com - Tier 1
175	355	461	552	182	446	684	Station Com - Tier 1
176	22	25	28	313	337	372	Main St / Corr
177	76	44	21	312	339	364	Neighborhoods
178	89	91	92	630	678	727	Neighborhoods
179	218	313	393	741	853	954	Neighborhoods
180	227	298	359	407	558	694	Station Com - Tier 1
181	125	339	532	437	700	938	Station Com - Tier 1
182	111	144	174	390	524	645	Main St / Corr
183	1,029	981	946	303	337	365	Main St / Corr
184	586	711	815	833	1,086	1,314	Main St / Corr
185	10	12	8	274	290	306	Neighborhoods
186	115	191	262	379	499	607	Station Com - Tier 1
187	274	742	1,074	432	626	801	Station Com - Tier 1
188	277	329	378	294	370	432	Main St / Corr
189	227	232	236	469	517	561	Main St / Corr
190	241	289	331	1,092	1,331	1,546	Main St / Corr
191	1,522	1,683	1,861	292	433	549	Station Com - Tier 2
192	370	430	489	225	328	416	Main St / Corr
193	372	390	404	447	537	633	Industrial Area
194	600	737	842	560	741	904	Neighborhoods
195	6,146	6,951	7,848	876	1,567	2,190	Main St / Corr
196	1,668	1,824	2,031	67	77	89	Lower Albina
197	796	818	838	0	0	0	Lower Albina
198	2,141	2,287	2,448	211	305	392	Central City 2 (Lloyd)
199	589	699	831	14	136	247	Central City 2 (Lloyd)
200	1,212	1,295	1,400	152	175	196	Central City 2 (Lloyd)
201	1,118	1,408	1,754	0	728	1,385	Central City 2 (Lloyd)
202	6,559	7,348	8,067	770	1,755	2,643	Central City 2 (Lloyd)
203	2,679	2,840	3,031	0	0	0	Central City 2 (Lloyd)
204	1,715	2,012	2,271	619	792	948	Central City 2 (Lloyd)
205	2,141	2,315	2,585	0	210	399	Central City 2 (Lloyd)
206	2,090	2,270	2,572	0	236	449	Central City 2 (Lloyd)
207	3,240	3,604	3,982	394	908	1,371	Central City 3 (CEID)
208	2,431	2,657	2,883	109	156	208	Central City 3 (CEID)
209	1,603	1,742	1,882	123	169	198	Central City 3 (CEID)
210	1,395	1,624	1,840	180	381	506	Central City 3 (CEID)
211	1,080	1,342	1,590	174	239	280	Central City 3 (CEID)
212	783	951	1,142	0	0	0	Central City 3 (CEID)
213	2,233	2,295	2,371	21	21	21	Central City 3 (CEID)
214	3,200	3,396	3,622	89	147	183	Central City 3 (CEID)
215	684	997	1,290	0	0	0	Central City 3 (CEID)
216	1,609	1,869	2,134	143	180	202	Central City 3 (CEID)
217	1,282	1,509	1,774	0	28	45	Central City 3 (CEID)
218	854	1,096	1,341	607	846	991	Station Com - Tier 1
219	2,097	2,419	2,730	214	257	284	Industrial Area
220	681	946	1,194	771	992	1,191	Main St / Corr

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
221	*	*	483	77	79	80	Station Com - Tier 1
222	*	*	909	93	94	94	Station Com - Tier 2
223	669	852	984	187	266	338	Industrial Area
224	224	281	323	622	906	1,162	Main St / Corr
225	210	262	298	85	126	163	Main St / Corr
226	866	840	820	629	732	823	Main St / Corr
227	318	381	427	706	754	797	Station Com - Tier 1
228	61	87	98	422	447	468	Station Com - Tier 1
229	38	52	62	374	441	501	Station Com - Tier 1
230	414	585	711	645	879	1,090	Main St / Corr
231	1,088	1,079	1,072	1,461	1,755	2,020	Main St / Corr
232	314	407	475	640	892	1,120	Station Com - Tier 1
233	243	217	198	78	86	90	Neighborhoods
234	48	39	32	53	59	65	Neighborhoods
235	122	121	121	800	842	879	Neighborhoods
236	579	602	644	843	939	1,003	Main St / Corr
237	171	149	133	631	635	638	Neighborhoods
238	*	*	1,184	374	384	390	Neighborhoods
239	588	677	742	920	1,022	1,113	Main St / Corr
240	476	587	669	1,034	1,186	1,323	Main St / Corr
241	108	117	123	522	541	553	Main St / Corr
242	43	37	33	660	688	711	Main St / Corr
243	622	706	723	230	413	551	Industrial Area
244	970	1,015	1,048	1,516	1,572	1,618	Main St / Corr
245	281	344	403	1,665	1,853	2,023	Main St / Corr
246	768	939	1,111	810	1,216	1,582	Main St / Corr
247	1,699	1,974	2,246	1,530	2,481	3,338	Main St / Corr
248	145	203	253	973	1,072	1,162	Main St / Corr
249	838	1,133	1,397	781	1,200	1,577	Main St / Corr
250	205	257	306	769	929	1,074	Main St / Corr
251	418	554	684	862	1,119	1,350	Main St / Corr
252	68	65	62	643	708	734	Neighborhoods
253	175	201	221	965	1,254	1,391	Main St / Corr
254	63	83	98	980	1,056	1,077	Neighborhoods
255	165	216	253	1,049	1,226	1,385	Neighborhoods
256	121	178	203	1,535	1,801	2,041	Main St / Corr
257	259	456	610	611	805	980	Main St / Corr
258	260	461	618	676	1,127	1,534	Main St / Corr
259	113	117	110	749	908	1,051	Neighborhoods
260	241	235	231	850	1,045	1,221	Main St / Corr
261	601	730	825	781	1,175	1,531	Main St / Corr
262	1,251	1,412	1,531	396	940	1,430	Main St / Corr
263	761	1,057	1,305	415	923	1,380	Main St / Corr
264	201	462	642	868	1,295	1,679	Main St / Corr
265	495	680	813	792	1,040	1,263	Employment Area
266	441	472	494	719	866	993	Station Com - Tier 3
267	290	522	709	740	1,212	1,637	Town Center - Tier 1
268	95	153	217	340	532	705	Station Com - Tier 3
269	468	638	789	451	786	1,088	Station Com - Tier 3
270	39	78	112	281	484	667	Station Com - Tier 3
271	519	685	801	397	701	975	Main St / Corr
272	242	248	252	736	887	972	Main St / Corr
273	46	43	41	565	664	735	Main St / Corr
274	835	873	901	1,531	1,640	1,738	Main St / Corr
275	594	776	881	1,048	1,640	2,174	Main St / Corr

*Data suppressed for confidentiality

Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
276	921	1,154	1,326	1,370	1,939	2,451	Main St / Corr
277	1,216	1,273	1,315	3,053	3,363	3,643	Main St / Corr
278	900	2,078	2,947	1,908	2,319	2,689	Main St / Corr
279	715	812	884	892	1,349	1,761	Main St / Corr
280	803	954	1,102	1,896	2,420	2,893	Main St / Corr
281	591	716	838	681	756	821	Main St / Corr
282	584	664	747	905	1,056	1,193	Main St / Corr
283	718	827	930	1,337	1,654	1,939	Main St / Corr
284	878	1,041	1,197	1,610	1,765	1,904	Main St / Corr
285	1,862	2,069	2,286	1,272	1,353	1,418	Main St / Corr
286	662	819	941	1,340	1,448	1,534	Main St / Corr
287	35	38	43	651	656	669	Main St / Corr
288	1,017	975	944	1,512	1,565	1,608	Main St / Corr
289	519	608	693	1,185	1,337	1,442	Main St / Corr
290	761	883	991	1,364	1,457	1,530	Main St / Corr
291	1,005	1,037	1,060	1,086	1,209	1,287	Main St / Corr
292	390	372	359	298	386	443	Station Com - Tier 1
293	735	855	976	1,720	1,843	1,928	Main St / Corr
294	1,265	1,427	1,589	1,755	1,846	1,928	Main St / Corr
295	2,625	2,944	3,308	2,535	2,818	3,073	Main St / Corr
296	5,193	6,110	7,084	1,896	3,435	4,822	Main St / Corr
297	702	771	856	1,414	1,634	1,832	Main St / Corr
298	4,693	4,981	5,258	1,138	1,357	1,554	Main St / Corr
299	8,697	7,975	7,443	1,542	2,103	2,608	Town Center - Tier 1
300	1,349	1,431	1,568	474	715	933	Town Center - Tier 1
301	1,874	1,786	1,722	2,180	2,528	2,842	Main St / Corr
302	942	1,117	1,317	895	1,237	1,546	Main St / Corr
303	140	151	162	750	753	766	Neighborhoods
304	359	335	317	779	803	824	Neighborhoods
305	621	744	866	847	950	1,042	Main St / Corr
306	696	713	726	1,487	1,560	1,626	Main St / Corr
307	95	81	71	672	674	688	Main St / Corr
308	330	340	347	740	768	793	Main St / Corr
309	1,597	1,770	1,980	1,343	1,518	1,675	Main St / Corr
310	1,491	1,552	1,597	914	1,249	1,551	Main St / Corr
311	211	219	225	611	619	635	Neighborhoods
312	463	443	429	697	725	756	Main St / Corr
313	644	796	939	800	1,069	1,311	Main St / Corr
314	989	1,119	1,226	945	1,176	1,384	Main St / Corr
315	617	585	562	909	959	994	Main St / Corr
316	271	251	237	951	1,007	1,033	Main St / Corr
317	187	225	258	907	927	938	Neighborhoods
318	367	436	494	583	661	739	Main St / Corr
319	221	304	380	503	661	804	Main St / Corr
320	941	1,053	1,180	842	993	1,130	Main St / Corr
321	354	337	325	877	973	1,029	Main St / Corr
322	480	555	630	1,137	1,302	1,451	Main St / Corr
323	833	1,068	1,255	644	1,180	1,664	Main St / Corr
324	442	534	608	686	1,012	1,305	Main St / Corr
325	180	202	204	1,196	1,329	1,435	Neighborhoods
326	864	1,036	1,174	466	654	824	Industrial Area
327	2,325	2,435	2,515	9	9	9	Industrial Area
328	615	1,671	2,450	638	711	770	Neighborhoods
329	118	117	116	573	591	611	Neighborhoods
330	512	601	712	44	40	52	Industrial Area

*Data suppressed for confidentiality

Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
331	714	804	912	11	10	11	Industrial Area
332	7	8	8	191	202	234	Neighborhoods
333	18	31	55	265	295	326	Neighborhoods
334	22	36	46	663	742	813	Main St / Corr
335	47	50	44	604	677	724	Main St / Corr
336	414	486	567	1,196	1,386	1,557	Main St / Corr
337	332	323	317	626	849	1,050	Main St / Corr
338	158	192	217	1,255	1,339	1,420	Main St / Corr
339	1,354	1,445	1,536	377	435	493	Station Com - Tier 1
340	809	913	1,000	524	663	788	Station Com - Tier 1
341	153	196	237	640	671	677	Main St / Corr
342	208	431	624	157	203	245	Employment Area
343	593	730	848	1,776	2,129	2,448	Main St / Corr
344	450	559	654	677	1,014	1,317	Main St / Corr
345	57	76	85	527	622	708	Main St / Corr
346	123	151	173	186	231	275	Industrial Area
347	998	1,008	1,058	8	7	8	Industrial Area
348	1,662	1,920	2,271	62	56	72	Employment Area
349	236	577	873	856	1,023	1,174	Employment Area
350	158	181	182	837	852	859	Main St / Corr
351	566	713	831	1,041	1,240	1,419	Main St / Corr
352	*	*	196	269	295	301	Neighborhoods
353	651	873	1,049	911	953	990	Main St / Corr
354	667	991	1,282	350	394	427	Industrial Area
355	1,326	1,327	1,327	0	0	0	Industrial Area
356	904	1,195	1,410	1	1	1	Employment Area
357	3,685	3,878	4,020	1	1	1	Industrial Area
358	2,015	2,177	2,362	19	16	19	Industrial Area
359	1,226	1,510	1,798	0	0	0	Industrial Area
360	776	1,289	1,667	0	0	0	Industrial Area
361	1,103	1,510	1,854	59	60	61	Industrial Area
362	1,033	1,210	1,394	1	1	1	Industrial Area
363	617	726	832	0	0	0	Industrial Area
364	1,815	1,883	2,005	11	10	11	Industrial Area
365	2,274	2,272	2,271	0	0	0	Industrial Area
366	1,003	1,269	1,610	54	47	53	Industrial Area
367	1,152	1,271	1,393	314	390	459	Station Com - Tier 3
368	410	463	507	311	428	534	Main St / Corr
369	382	604	805	430	753	1,044	Main St / Corr
370	62	67	72	607	612	662	Main St / Corr
371	42	41	40	482	597	701	Main St / Corr
372	75	109	142	520	529	540	Main St / Corr
373	29	38	46	531	575	589	Neighborhoods
374	45	50	53	576	669	752	Neighborhoods
375	147	128	114	534	535	538	Neighborhoods
376	41	88	112	116	177	232	Main St / Corr
377	3	4	2	294	295	296	Main St / Corr
378	*	*	225	709	750	775	Main St / Corr
379	190	212	234	832	867	890	Main St / Corr
380	43	52	60	818	877	931	Neighborhoods
381	23	28	23	406	417	426	Main St / Corr
382	4	18	4	151	152	153	Main St / Corr
383	*	*	366	319	357	381	Neighborhoods
384	91	73	60	395	416	428	Neighborhoods
385	435	509	590	124	252	368	Main St / Corr

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
386	273	305	333	474	476	478	Main St / Corr
387	1,758	1,923	2,044	357	686	982	Regional Center - Tier 1
388	1,089	1,198	1,305	970	1,023	1,065	Regional Center - Tier 1
389	379	399	419	278	278	278	Main St / Corr
390	125	118	113	300	316	332	Main St / Corr
391	*	*	70	206	295	376	Neighborhoods
392	105	86	72	246	288	322	Neighborhoods
393	403	453	504	316	325	330	Main St / Corr
394	560	654	731	704	792	871	Regional Center - Tier 1
395	597	812	1,003	595	942	1,255	Regional Center - Tier 1
396	1,867	2,388	2,836	1,320	1,869	2,364	Regional Center - Tier 1
397	244	292	344	917	994	1,087	Main St / Corr
398	254	272	293	211	230	250	Station Com - Tier 3
399	9	36	62	459	544	624	Main St / Corr
400	237	257	278	690	727	766	Main St / Corr
401	757	872	984	466	579	681	Main St / Corr
402	1,029	1,188	1,336	746	841	935	Main St / Corr
403	3,375	3,439	3,486	271	438	588	Regional Center - Tier 1
404	*	*	302	97	102	107	Neighborhoods
405	159	178	187	1,392	1,405	1,414	Neighborhoods
406	58	89	90	599	637	675	Main St / Corr
407	156	199	235	682	762	862	Neighborhoods
408	76	241	405	644	898	1,127	Station Com - Tier 3
409	106	136	164	933	992	1,055	Station Com - Tier 3
410	305	357	405	619	676	732	Main St / Corr
411	118	128	138	528	538	546	Main St / Corr
412	*	*	69	325	332	336	Main St / Corr
413	64	67	72	334	335	336	Neighborhoods
414	181	202	203	740	749	752	Neighborhoods
415	68	96	99	334	356	366	Main St / Corr
416	108	168	212	381	395	403	Main St / Corr
417	*	*	140	221	239	251	Main St / Corr
418	217	381	539	398	493	560	Main St / Corr
419	100	101	102	410	497	575	Main St / Corr
420	89	109	127	773	803	832	Main St / Corr
421	190	213	232	201	211	218	Main St / Corr
422	220	351	465	621	727	810	Main St / Corr
423	4	5	7	234	243	249	Neighborhoods
424	7	10	12	275	281	285	Neighborhoods
425	227	231	240	438	449	459	Main St / Corr
426	124	131	140	452	462	474	Main St / Corr
427	28	34	23	72	95	132	Main St / Corr
428	386	407	430	91	107	132	Main St / Corr
429	70	75	69	937	1,049	1,150	Main St / Corr
430	23	27	27	206	211	213	Neighborhoods
431	28	31	28	157	159	160	Neighborhoods
432	*	*	353	275	296	318	Neighborhoods
433	143	156	171	597	665	738	Main St / Corr
434	684	762	784	921	978	1,015	Neighborhoods
435	2,478	2,770	2,985	225	241	256	Regional Center - Tier 1
436	854	863	870	655	733	793	Main St / Corr
437	853	938	1,025	1,150	1,315	1,463	Main St / Corr
438	733	830	930	776	824	867	Main St / Corr
439	158	183	191	639	803	951	Main St / Corr
440	189	210	233	759	850	932	Main St / Corr

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
441	169	184	205	1,545	1,691	1,822	Main St / Corr
442	526	536	544	719	840	950	Main St / Corr
443	383	426	470	1,220	1,309	1,390	Main St / Corr
444	1,213	1,199	1,189	145	250	291	Main St / Corr
445	189	219	241	916	1,005	1,074	Main St / Corr
446	245	285	309	842	903	966	Main St / Corr
447	158	176	183	439	473	504	Main St / Corr
448	98	103	110	391	428	469	Neighborhoods
449	70	75	57	485	665	827	Neighborhoods
450	26	37	44	341	358	388	Main St / Corr
451	282	307	325	498	600	727	Neighborhoods
452	108	118	124	642	664	678	Neighborhoods
453	260	339	383	503	513	520	Town Center - Tier 1
454	223	221	219	12	13	14	Industrial Area
455	319	246	193	589	619	637	Neighborhoods
456	10	12	9	154	184	202	Neighborhoods
457	35	38	34	540	586	613	Neighborhoods
458	29	31	16	213	281	321	Neighborhoods
459	448	362	298	136	147	156	Main St / Corr
460	255	342	420	546	619	707	Main St / Corr
461	278	282	285	557	681	792	Main St / Corr
462	41	48	53	426	540	606	Neighborhoods
463	14	15	13	315	400	450	Neighborhoods
464	40	44	35	277	347	388	Neighborhoods
465	37	39	42	358	457	535	Main St / Corr
466	*	*	22	50	62	69	Main St / Corr
467	0	0	0	3	13	20	Parks
468	32	30	29	161	194	214	Neighborhoods
469	4	633	976	82	93	114	Town Center - Tier 4
470	*	*	342	31	139	237	Main St / Corr
471	14	501	762	87	613	1,087	Neighborhoods
472	91	105	121	176	405	561	Neighborhoods
473	170	213	237	468	510	548	Neighborhoods
474	12	166	256	27	384	706	Industrial Area
475	32	552	858	78	205	319	Industrial Area
476	34	330	535	115	134	152	Industrial Area
477	11	15	17	498	770	1,016	Neighborhoods
478	82	114	138	462	552	626	Neighborhoods
479	132	164	182	466	520	566	Neighborhoods
480	68	103	119	886	950	999	Neighborhoods
481	38	52	60	82	93	101	Industrial Area
482	59	74	82	516	542	566	Neighborhoods
483	9	13	15	144	176	204	Neighborhoods
484	26	37	44	483	492	499	Neighborhoods
485	46	76	96	631	647	660	Neighborhoods
486	59	85	103	640	731	796	Neighborhoods
487	18	22	24	892	910	928	Neighborhoods
488	13	21	26	385	401	414	Neighborhoods
489	46	60	69	316	332	346	Neighborhoods
490	47	66	81	484	527	534	Neighborhoods
491	248	335	371	233	233	233	Industrial Area
492	*	*	124	0	105	200	Neighborhoods
493	280	317	342	449	465	478	Main St / Corr
494	116	146	168	500	505	510	Neighborhoods
495	77	171	224	701	717	730	Neighborhoods

*Data suppressed for confidentiality

Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
496	48	74	92	598	606	613	Neighborhoods
497	246	353	425	475	694	891	Neighborhoods
498	61	75	87	262	305	337	Neighborhoods
499	121	135	151	353	385	405	Neighborhoods
500	635	723	795	0	2	3	Main St / Corr
501	351	486	581	0	1	2	Main St / Corr
502	168	191	215	332	336	339	Neighborhoods
503	18	26	31	280	290	297	Neighborhoods
504	416	524	584	16	42	66	Regional Center - Tier 1
505	418	522	604	46	91	130	Regional Center - Tier 1
506	78	98	111	776	794	799	Main St / Corr
507	82	101	118	411	413	416	Main St / Corr
508	0	72	117	0	0	0	Employment Area
509	703	893	1,053	966	1,012	1,052	Main St / Corr
510	353	396	435	513	528	538	Main St / Corr
511	27	31	34	349	384	414	Main St / Corr
512	*	*	503	912	940	962	Main St / Corr
513	3	44	69	130	175	210	Main St / Corr
514	19	22	24	240	266	284	Main St / Corr
515	592	716	799	5	98	182	Regional Center - Tier 1
516	319	388	433	193	215	235	Regional Center - Tier 1
517	189	258	307	46	117	181	Regional Center - Tier 1
518	200	246	277	17	49	77	Regional Center - Tier 1
519	148	175	196	60	78	94	Regional Center - Tier 1
520	275	428	512	99	122	144	Regional Center - Tier 1
521	102	171	203	232	289	341	Regional Center - Tier 1
522	160	337	432	113	140	165	Regional Center - Tier 1
523	515	571	616	0	0	0	Main St / Corr
524	*	*	267	474	488	501	Neighborhoods
525	156	267	343	700	713	722	Neighborhoods
526	12	16	18	138	250	327	Neighborhoods
527	35	48	57	279	290	297	Neighborhoods
528	172	233	280	706	715	730	Main St / Corr
529	70	93	107	426	434	438	Main St / Corr
530	285	326	360	162	162	162	Main St / Corr
531	806	901	976	1	4	6	Regional Center - Tier 1
532	535	732	872	280	354	422	Regional Center - Tier 1
533	233	262	290	74	89	102	Regional Center - Tier 1
534	36	54	65	155	162	169	Regional Center - Tier 1
535	373	449	512	0	12	23	Regional Center - Tier 1
536	78	99	111	457	546	619	Main St / Corr
537	62	82	98	317	338	355	Main St / Corr
538	203	412	594	66	70	74	Employment Area
539	*	*	84	136	150	162	Main St / Corr
540	527	606	683	390	401	409	Main St / Corr
541	234	278	315	475	488	492	Main St / Corr
542	104	142	161	1	1	1	Employment Area
543	20	150	276	431	436	439	Main St / Corr
544	14	106	156	699	741	779	Station Com - Tier 3
545	443	534	602	56	167	269	Regional Center - Tier 1
546	850	905	1,003	12	34	55	Regional Center - Tier 1
547	530	687	781	13	15	17	Regional Center - Tier 1
548	418	480	534	114	114	114	Regional Center - Tier 1
549	*	*	38	422	422	423	Neighborhoods
550	54	71	83	240	243	248	Neighborhoods

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
551	*	*	1,900	1	1	1	Industrial Area
552	91	104	115	742	744	747	Main St / Corr
553	603	717	808	181	192	201	Main St / Corr
554	1,066	1,356	1,590	146	150	154	Main St / Corr
555	579	697	791	507	514	521	Main St / Corr
556	123	160	183	290	298	302	Neighborhoods
557	63	71	81	595	605	610	Neighborhoods
558	39	102	139	230	235	239	Main St / Corr
559	0	172	290	0	0	0	Employment Area
560	*	*	1,204	0	0	0	Employment Area
561	21	116	188	324	335	344	Main St / Corr
562	281	445	577	786	803	811	Main St / Corr
563	253	329	388	0	67	128	Regional Center - Tier 1
564	336	494	593	311	404	488	Regional Center - Tier 1
565	*	*	55	152	161	169	Main St / Corr
566	9	13	17	237	239	240	Main St / Corr
567	27	49	66	226	254	277	Main St / Corr
568	250	468	613	73	86	102	Main St / Corr
569	130	197	241	236	258	266	Main St / Corr
570	290	410	478	2	6	6	Industrial Area
571	*	*	356	0	0	0	Employment Area
572	*	*	3	201	202	203	Main St / Corr
573	*	*	47	124	126	128	Main St / Corr
574	361	440	492	4	10	16	Industrial Area
575	129	142	153	1	5	9	Station Com - Tier 3
576	*	*	317	73	100	126	Industrial Area
577	86	97	109	266	275	279	Main St / Corr
578	262	290	312	393	398	402	Town Center - Tier 2
579	302	364	412	375	386	397	Town Center - Tier 2
580	17	64	103	566	598	629	Town Center - Tier 2
581	514	753	947	505	600	685	Town Center - Tier 2
582	249	349	433	217	234	250	Main St / Corr
583	3	6	7	227	240	252	Main St / Corr
584	82	98	113	365	398	421	Neighborhoods
585	132	177	215	491	508	528	Town Center - Tier 2
586	222	289	345	464	489	516	Town Center - Tier 2
587	107	216	310	767	813	848	Town Center - Tier 2
588	117	144	167	534	543	550	Town Center - Tier 2
589	320	368	408	267	277	294	Town Center - Tier 2
590	124	158	187	405	414	425	Town Center - Tier 2
591	518	620	707	628	675	722	Town Center - Tier 2
592	60	66	73	343	367	395	Town Center - Tier 2
593	72	76	80	411	436	470	Main St / Corr
594	379	418	453	417	442	476	Main St / Corr
595	770	820	892	607	612	629	Main St / Corr
596	145	233	310	408	448	499	Main St / Corr
597	51	56	61	453	457	462	Neighborhoods
598	1,672	1,829	1,984	0	4	25	Industrial Area
599	1,064	1,074	1,080	0	0	0	Industrial Area
600	689	831	966	26	27	28	Industrial Area
601	457	480	499	267	297	314	Employment Area
602	2,566	2,685	2,797	0	0	0	Industrial Area
603	2,996	3,644	4,168	9	8	15	Industrial Area
604	622	745	863	0	0	0	Industrial Area
605	989	1,256	1,531	128	128	128	Industrial Area

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
606	61	130	176	697	708	717	Neighborhoods
607	*	*	744	0	1	1	Employment Area
608	172	502	693	801	797	831	Employment Area
609	44	177	289	472	524	571	Main St / Corr
610	1,111	1,783	2,278	4	4	4	Industrial Area
611	9	12	15	178	195	190	Main St / Corr
612	165	185	200	316	332	339	Main St / Corr
613	17	19	21	158	178	196	Main St / Corr
614	34	61	62	96	121	143	Main St / Corr
615	*	*	107	158	167	171	Main St / Corr
616	239	465	657	396	497	588	Town Center - Tier 3
617	*	*	609	268	269	270	Neighborhoods
618	78	73	70	111	127	111	Industrial Area
619	128	221	284	611	610	631	Town Center - Tier 3
620	748	1,170	1,515	8	40	69	Town Center - Tier 3
621	122	169	206	503	566	622	Neighborhoods
622	79	133	179	277	277	284	Main St / Corr
623	407	817	1,035	51	51	51	Industrial Area
624	845	984	1,100	80	79	94	Industrial Area
625	1,555	1,977	2,367	0	0	0	Industrial Area
626	*	*	190	0	0	0	Industrial Area
627	*	*	1,385	0	0	0	Industrial Area
628	39	197	297	0	0	0	Industrial Area
629	69	107	145	1	1	1	Industrial Area
630	370	530	661	0	7	17	Town Center - Tier 3
631	503	715	886	0	30	57	Employment Area
632	0	257	462	1	81	135	Town Center - Tier 3
633	136	290	422	250	308	355	Town Center - Tier 3
634	334	522	682	164	171	179	Town Center - Tier 3
635	0	49	89	69	102	142	Town Center - Tier 3
636	*	*	60	45	82	126	Neighborhoods
637	15	25	35	320	323	324	Neighborhoods
638	67	78	87	514	523	525	Neighborhoods
639	44	64	79	205	219	224	Main St / Corr
640	36	52	64	519	519	519	Town Center - Tier 3
641	*	*	520	0	0	0	Town Center - Tier 3
642	425	551	649	561	588	600	Main St / Corr
643	*	*	123	385	443	460	Neighborhoods
644	*	*	240	48	48	48	Main St / Corr
645	39	81	110	652	665	671	Main St / Corr
646	35	65	85	451	451	451	Neighborhoods
647	7	11	17	324	324	324	Main St / Corr
648	155	309	394	366	389	399	Neighborhoods
649	31	44	54	373	466	495	Neighborhoods
650	134	160	183	650	730	803	Neighborhoods
651	476	540	611	821	825	852	Undesignated
652	198	210	216	91	93	94	Rural Reserve
653	0	0	0	10	15	18	Undesignated
654	*	*	8	22	22	23	Rural Reserve
655	*	*	453	103	300	478	Urban Reserve
656	200	516	749	154	429	676	Urban Reserve
657	57	74	87	251	253	255	Rural Reserve
658	32	48	56	91	93	94	Rural Reserve
659	73	79	84	122	135	148	Rural Reserve
660	335	377	392	177	184	191	Rural Reserve

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
661	241	378	555	597	608	637	Undesignated
662	175	198	219	474	583	614	Main St / Corr
663	831	898	968	0	0	0	Main St / Corr
664	269	413	519	4	30	54	Station Com - Tier 1
665	194	395	544	0	0	25	Neighborhoods
666	340	343	390	0	0	0	Main St / Corr
667	496	726	896	0	0	0	Employment Area
668	392	456	592	165	231	290	Town Center - Tier 2
669	7	8	10	162	182	188	Town Center - Tier 2
670	202	238	302	0	39	75	Town Center - Tier 2
671	214	240	266	184	209	195	Town Center - Tier 2
672	312	427	512	0	39	75	Town Center - Tier 2
673	329	365	429	232	302	302	Town Center - Tier 2
674	75	75	100	59	89	84	Town Center - Tier 2
675	*	*	481	127	141	145	Town Center - Tier 2
676	41	56	71	337	356	347	Main St / Corr
677	48	50	51	625	670	650	Town Center - Tier 2
678	719	922	1,118	19	20	39	Town Center - Tier 2
679	710	916	1,113	549	631	699	Town Center - Tier 2
680	45	69	93	670	712	694	Main St / Corr
681	130	142	156	743	788	799	Neighborhoods
682	129	140	146	316	323	325	Main St / Corr
683	2,156	2,277	2,366	428	471	484	Main St / Corr
684	45	45	48	268	283	287	Main St / Corr
685	129	135	142	192	208	212	Main St / Corr
686	82	88	95	219	256	243	Neighborhoods
687	63	68	73	518	572	552	Neighborhoods
688	296	354	396	801	849	831	Town Center - Tier 2
689	129	145	159	380	391	400	Main St / Corr
690	115	144	152	292	364	387	Main St / Corr
691	40	49	57	502	742	819	Main St / Corr
692	175	200	200	505	521	535	Main St / Corr
693	14	20	25	368	384	398	Neighborhoods
694	2,781	3,012	3,182	0	0	0	Employment Area
695	2,838	3,008	3,133	42	49	42	Main St / Corr
696	94	109	121	198	208	210	Main St / Corr
697	*	*	407	567	652	673	Neighborhoods
698	84	119	147	408	455	467	Neighborhoods
699	1,622	1,808	1,959	69	74	80	Employment Area
700	158	185	210	264	323	376	Employment Area
701	1,028	1,501	1,918	0	0	0	Employment Area
702	1,116	1,254	1,379	912	982	1,016	Main St / Corr
703	278	353	435	1,444	1,481	1,493	Neighborhoods
704	107	129	144	841	940	966	Neighborhoods
705	557	857	1,137	1,070	1,097	1,135	Station Com - Tier 3
706	247	273	302	1,340	1,521	1,685	Neighborhoods
707	291	387	476	1,052	1,131	1,153	Neighborhoods
708	202	221	243	1,236	1,337	1,428	Neighborhoods
709	39	42	46	410	468	488	Neighborhoods
710	127	137	149	391	430	441	Main St / Corr
711	178	190	206	851	868	874	Main St / Corr
712	62	228	399	269	269	271	Employment Area
713	168	256	351	53	54	58	Neighborhoods
714	888	1,250	1,560	474	492	497	Employment Area
715	527	600	663	903	928	936	Town Center - Tier 1

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
716	423	487	546	630	683	707	Main St / Corr
717	350	463	571	540	591	609	Main St / Corr
718	612	760	897	1,152	1,174	1,224	Main St / Corr
719	482	727	903	0	128	244	Regional Center - Tier 2
720	*	*	141	5	102	190	Regional Center - Tier 2
721	547	821	1,021	618	749	834	Neighborhoods
722	58	65	69	169	221	244	Undesignated
723	70	79	88	256	272	279	Undesignated
724	13	16	18	220	235	244	Rural Reserve
725	114	129	143	308	714	941	Neighborhoods
726	52	65	76	209	493	699	Neighborhoods
727	427	962	1,336	22	26	30	Regional Center - Tier 2
728	105	124	138	3	3	30	Regional Center - Tier 2
729	167	226	272	32	41	47	Regional Center - Tier 2
730	669	793	893	0	85	161	Regional Center - Tier 2
731	358	440	507	187	191	194	Regional Center - Tier 2
732	1,905	2,587	3,217	1,288	1,360	1,382	Neighborhoods
733	108	122	136	89	174	250	Neighborhoods
734	0	7	11	50	53	55	Urban Reserve
735	646	861	1,035	897	966	997	Neighborhoods
736	517	693	846	807	853	876	Main St / Corr
737	215	286	341	1,331	1,385	1,403	Neighborhoods
738	258	312	348	510	579	606	Main St / Corr
739	24	32	35	39	58	67	Rural Reserve
740	126	215	280	615	1,159	1,446	Neighborhoods
741	128	161	188	1,321	1,369	1,394	Neighborhoods
742	173	205	229	1,220	1,690	1,936	Neighborhoods
743	4,076	4,436	4,823	810	829	855	Employment Area
744	1,696	2,264	2,673	189	217	243	Employment Area
745	*	*	117	245	407	527	Neighborhoods
746	35	2,893	5,000	32	179	316	Industrial Area
747	1,236	1,401	1,588	302	299	306	Employment Area
748	336	648	932	980	1,054	1,112	Employment Area
749	284	340	387	801	956	1,058	Neighborhoods
750	298	390	467	742	804	835	Neighborhoods
751	0	4	15	12	15	47	Rural Reserve
752	6	13	31	43	49	76	Rural Reserve
753	38	73	60	31	73	70	Rural Reserve
754	33	39	43	188	444	675	Rural Reserve
755	20	20	22	89	93	104	Rural Reserve
756	46	54	63	298	296	303	Undesignated
757	145	219	200	253	492	707	Undesignated
758	74	101	85	327	355	461	Rural Reserve
759	17	19	70	62	65	123	Rural Reserve
760	8	15	20	141	236	321	Urban Reserve
761	30	42	50	537	752	945	Urban Reserve
762	32	36	39	134	155	171	Rural Reserve
763	248	299	357	278	346	387	Station Com - Tier 3
764	74	79	100	927	941	940	Neighborhoods
765	123	216	280	583	708	820	Neighborhoods
766	223	296	350	593	674	707	Neighborhoods
767	56	58	60	309	336	360	Neighborhoods
768	35	38	40	170	215	240	Neighborhoods
769	*	*	20	24	180	320	Main St / Corr
770	29	154	250	17	131	240	Main St / Corr

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
771	51	185	287	43	473	859	Industrial Area
772	*	*	350	139	502	830	Employment Area
773	*	*	10	19	309	570	Neighborhoods
774	185	220	240	462	492	520	Neighborhoods
775	107	114	120	630	637	650	Neighborhoods
776	132	137	140	541	651	720	Neighborhoods
777	*	*	40	195	240	280	Neighborhoods
778	1,676	2,381	2,900	244	554	834	Regional Center - Tier 2
779	242	362	450	806	945	1,070	Main St / Corr
780	109	248	350	646	696	710	Main St / Corr
781	74	93	110	276	323	330	Neighborhoods
782	34	40	45	179	222	260	Neighborhoods
783	53	80	80	177	266	295	Neighborhoods
784	*	*	250	34	332	600	Employment Area
785	*	*	450	12	190	350	Employment Area
786	534	1,039	1,300	490	706	900	Town Center - Tier 4
787	16	24	30	229	261	290	Neighborhoods
788	84	323	500	518	398	290	Main St / Corr
789	165	174	186	480	585	620	Main St / Corr
790	239	307	400	416	501	530	Main St / Corr
791	33	62	120	80	270	330	Industrial Area
792	79	81	110	374	488	522	Neighborhoods
793	200	239	300	595	715	751	Main St / Corr
794	*	*	379	6	21	31	Industrial Area
795	55	460	878	286	468	565	Main St / Corr
796	10	35	55	91	94	107	Main St / Corr
797	*	*	84	12	70	155	Industrial Area
798	*	*	465	12	103	216	Industrial Area
799	139	230	316	1,094	1,455	1,780	Neighborhoods
800	56	156	271	168	743	1,262	Main St / Corr
801	19	33	67	145	224	295	Industrial Area
802	32	204	392	92	110	179	Industrial Area
803	*	*	91	134	332	511	Main St / Corr
804	32	189	326	109	598	1,039	Employment Area
805	39	171	308	46	357	637	Industrial Area
806	*	*	2	64	60	118	Industrial Area
807	10	15	20	28	198	352	Industrial Area
808	7	30	94	80	480	841	Main St / Corr
809	25	42	120	133	279	411	Employment Area
810	84	103	199	23	28	93	Town Center - Tier 4
811	29	43	154	52	51	62	Town Center - Tier 4
812	13	20	130	49	90	127	Employment Area
813	35	52	155	107	116	185	Rural Reserve
814	54	68	82	110	110	142	Urban Reserve
815	28	34	40	175	172	219	Neighborhoods
816	12	19	62	86	183	270	Employment Area
817	363	773	1,501	10	9	29	Town Center - Tier 4
818	*	*	78	115	115	121	Employment Area
819	*	*	10	46	285	501	Neighborhoods
820	27	38	52	153	574	953	Neighborhoods
821	10	12	15	50	186	308	Neighborhoods
822	3	7	10	40	159	266	Main St / Corr
823	17	28	133	86	267	430	Main St / Corr
824	10	29	92	175	181	210	Main St / Corr
825	38	66	112	155	172	184	Urban Reserve

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
826	25	26	27	47	47	47	Urban Reserve
827	53	81	130	90	116	139	Employment Area
828	*	*	221	64	74	83	Industrial Area
829	42	72	111	159	185	210	Industrial Area
830	28	29	33	47	51	56	Industrial Area
831	47	65	85	198	214	232	Employment Area
832	20	31	41	150	151	154	Urban Reserve
833	*	*	13	44	50	58	Industrial Area
834	906	1,978	2,769	715	1,080	1,409	Neighboring City
835	944	1,331	1,617	405	484	555	Neighboring City
836	187	235	270	239	349	448	Neighboring City
837	314	419	569	1,531	1,858	2,153	Neighboring City
838	760	1,039	1,244	1,612	2,053	2,451	Neighboring City
839	686	821	1,042	139	223	299	Neighboring City
840	392	402	411	337	393	444	Undesignated
841	68	685	1,140	600	704	798	Neighboring City
842	1,131	1,226	1,320	864	905	941	Neighboring City
843	1,527	1,960	2,280	1,174	1,469	1,734	Rural Reserve
844	813	1,283	1,630	1,862	2,383	2,853	Neighboring City
845	1,657	1,941	2,150	708	1,107	1,466	Rural Reserve
846	1,157	1,395	1,570	1,726	2,113	2,462	Neighboring City
847	1,227	1,499	1,700	1,234	1,642	2,009	Neighboring City
848	530	566	630	138	149	154	Rural Reserve
849	223	217	272	237	273	305	Neighboring City
850	1,013	1,251	1,426	1,939	2,143	2,327	Neighboring City
851	812	1,051	1,227	753	859	955	Neighboring City
852	655	789	888	644	729	806	Neighboring City
853	480	606	699	283	362	433	Neighboring City
854	7	7	7	219	237	243	Main St / Corr
855	486	541	617	495	514	523	Industrial Area
856	838	1,119	1,382	189	194	222	Main St / Corr
857	1,205	1,767	2,248	198	330	450	Station Com - Tier 3
858	103	127	153	348	356	359	Main St / Corr
859	15	18	21	606	616	619	Neighborhoods
860	641	870	1,084	370	374	381	Main St / Corr
861	391	511	605	228	237	245	Main St / Corr
862	89	97	105	300	311	316	Neighborhoods
863	209	202	210	476	506	518	Neighborhoods
864	381	435	488	40	41	41	Regional Center - Tier 2
865	1,004	1,221	1,420	1,968	2,504	2,987	Regional Center - Tier 2
866	3,100	4,168	5,116	0	18	34	Regional Center - Tier 2
867	1,788	2,417	2,880	0	157	299	Regional Center - Tier 2
868	4,571	5,300	5,838	0	0	0	Regional Center - Tier 2
869	2,136	2,215	2,328	0	2	3	Employment Area
870	402	545	653	317	319	336	Neighborhoods
871	1,496	1,689	1,949	85	128	154	Employment Area
872	315	289	270	1,158	1,306	1,440	Neighborhoods
873	564	612	730	564	689	802	Main St / Corr
874	68	77	90	325	339	352	Neighborhoods
875	61	63	66	490	512	518	Neighborhoods
876	7	8	9	135	201	260	Industrial Area
877	1,117	1,203	1,323	83	84	110	Industrial Area
878	1,780	2,148	2,420	128	126	150	Employment Area
879	1,507	1,688	1,821	253	253	253	Industrial Area
880	916	958	1,019	437	446	450	Industrial Area

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
881	400	496	618	405	403	420	Industrial Area
882	1,889	1,957	2,100	0	0	0	Industrial Area
883	1,443	1,511	1,600	1	1	0	Industrial Area
884	665	701	736	0	0	0	Industrial Area
885	857	1,197	1,547	267	267	267	Neighborhoods
886	38	42	46	405	426	436	Main St / Corr
887	155	171	190	1,101	1,190	1,224	Neighborhoods
888	54	61	69	350	365	369	Neighborhoods
889	856	993	1,124	504	544	555	Main St / Corr
890	118	136	148	783	833	847	Neighborhoods
891	1,091	1,387	1,669	804	840	855	Main St / Corr
892	67	73	81	240	266	277	Neighborhoods
893	*	*	144	473	526	546	Neighborhoods
894	1,185	1,472	1,714	601	604	605	Main St / Corr
895	403	527	640	414	429	444	Main St / Corr
896	169	213	243	520	568	582	Neighborhoods
897	2,021	2,551	2,942	4	4	4	Industrial Area
898	1,280	1,505	1,671	6	9	18	Industrial Area
899	165	163	162	169	189	197	Rural Reserve
900	*	*	0	16	22	25	Rural Reserve
901	45	60	73	190	198	203	Undesignated
902	39	45	51	170	187	197	Undesignated
903	47	52	55	133	150	161	Rural Reserve
904	23	45	61	174	188	198	Rural Reserve
905	*	*	17	49	49	50	Rural Reserve
906	26	30	36	116	135	150	Rural Reserve
907	93	109	126	308	337	369	Undesignated
908	203	228	257	520	570	630	Undesignated
909	41	45	50	105	112	131	Undesignated
910	37	38	40	62	68	83	Rural Reserve
911	127	150	175	368	381	422	Rural Reserve
912	232	271	326	336	334	343	Undesignated
913	390	383	396	202	203	206	Undesignated
914	350	357	382	367	371	378	Undesignated
915	238	233	244	427	429	433	Undesignated
916	416	437	463	271	274	280	Undesignated
917	703	701	736	782	787	796	Undesignated
918	134	140	159	683	705	704	Undesignated
919	40	44	48	262	271	271	Undesignated
920	489	541	609	1,792	1,785	1,799	Undesignated
921	214	249	284	853	848	874	Undesignated
922	98	117	138	542	539	549	Undesignated
923	81	91	104	656	656	670	Undesignated
924	190	200	219	830	833	864	Undesignated
925	153	160	170	319	339	351	Undesignated
926	69	79	92	388	414	431	Rural Reserve
927	142	169	195	282	296	305	Undesignated
928	131	140	153	393	412	425	Rural Reserve
929	55	59	67	397	430	449	Undesignated
930	165	176	188	219	230	257	Rural Reserve
931	*	*	1	48	57	67	Rural Reserve
932	35	60	89	134	141	150	Rural Reserve
933	116	122	131	448	452	463	Undesignated
934	48	53	61	622	634	666	Undesignated
935	123	121	131	711	725	738	Undesignated

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
936	12	12	13	140	147	153	Undesignated
937	67	73	79	372	377	381	Undesignated
938	238	241	245	474	485	512	Undesignated
939	122	125	130	211	228	237	Undesignated
940	608	642	703	405	438	458	Rural Reserve
941	30	30	32	50	53	57	Rural Reserve
942	147	191	268	209	209	213	Urban Reserve
943	50	66	97	10	14	18	Rural Reserve
944	23	27	33	71	72	73	Urban Reserve
945	*	*	0	49	49	49	Urban Reserve
946	*	*	176	16	16	16	Urban Reserve
947	170	222	296	14	14	14	Urban Reserve
948	61	78	97	69	68	69	Urban Reserve
949	72	111	175	24	27	30	Rural Reserve
950	143	185	260	35	35	35	Urban Reserve
951	290	353	437	146	145	146	Urban Reserve
952	9	11	15	98	98	100	Urban Reserve
953	*	*	6	43	43	43	Urban Reserve
954	23	30	37	97	103	111	Rural Reserve
955	34	55	77	54	57	61	Rural Reserve
956	39	52	65	107	119	132	Rural Reserve
957	482	508	553	399	428	445	Rural Reserve
958	224	230	245	536	565	582	Undesignated
959	148	156	163	221	216	228	Undesignated
960	221	225	234	1,330	1,357	1,378	Undesignated
961	1,781	1,879	2,009	2,249	2,296	2,338	Undesignated
962	239	234	231	120	131	141	Rural Reserve
963	61	50	45	106	110	112	Rural Reserve
964	18	19	21	32	35	37	Rural Reserve
965	384	430	464	1,634	1,667	1,669	Neighborhoods
966	3,003	3,526	3,911	1,982	2,077	2,141	Town Center - Tier 2
967	2,393	3,071	3,694	1,734	1,946	2,137	Employment Area
968	52	59	67	762	775	770	Neighborhoods
969	36	616	1,043	918	1,035	1,140	Main St / Corr
970	2,095	2,367	2,670	56	58	60	Industrial Area
971	140	208	249	1,313	1,964	2,550	Neighborhoods
972	45	84	112	66	353	612	Rural Reserve
973	1,043	1,108	1,358	13	20	25	Industrial Area
974	1,880	2,053	2,234	0	0	0	Industrial Area
975	4,038	4,571	4,964	509	509	510	Employment Area
976	17	88	141	22	472	878	Neighborhoods
977	*	*	475	25	262	475	Urban Reserve
978	2,726	2,874	2,983	335	373	407	Employment Area
979	2,284	2,943	3,429	16	17	16	Industrial Area
980	*	*	1,447	45	21	0	Industrial Area
981	167	904	1,447	107	390	646	Industrial Area
982	*	*	175	16	22	30	Industrial Area
983	39	41	49	72	82	93	Rural Reserve
984	107	118	132	307	345	376	Undesignated
985	71	92	163	231	410	571	Rural Reserve
986	95	95	99	164	177	193	Rural Reserve
987	101	176	231	138	674	1,158	Urban Reserve
988	24	27	32	88	187	277	Undesignated
989	61	67	73	1,160	1,199	1,241	Neighborhoods
990	244	322	402	1,209	1,226	1,254	Neighborhoods

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
991	300	381	446	1,363	1,372	1,386	Neighborhoods
992	207	363	511	780	911	1,030	Neighborhoods
993	147	248	336	410	428	457	Neighborhoods
994	1,990	2,563	3,103	1,036	1,129	1,213	Town Center - Tier 3
995	106	189	249	330	411	484	Main St / Corr
996	420	536	679	489	495	537	Main St / Corr
997	2,024	2,236	2,631	7	4	51	Industrial Area
998	71	134	776	13	13	14	Industrial Area
999	127	174	367	2	2	4	Industrial Area
1000	254	289	314	19	22	25	Rural Reserve
1001	*	*	6	17	17	17	Urban Reserve
1002	63	69	75	10	10	10	Rural Reserve
1003	55	62	150	41	700	1,293	Neighborhoods
1004	24	86	50	34	941	1,293	Urban Reserve
1005	76	83	95	777	910	1,030	Neighborhoods
1006	94	100	107	1,102	1,177	1,253	Neighborhoods
1007	6,214	7,386	8,474	75	256	419	Regional Center - Tier 2
1008	3,620	4,282	4,889	61	114	178	Regional Center - Tier 2
1009	317	381	449	1,826	2,071	2,292	Neighborhoods
1010	47	51	55	341	364	385	Neighborhoods
1011	113	120	130	814	1,011	1,188	Neighborhoods
1012	63	78	95	872	980	1,067	Neighborhoods
1013	*	*	140	284	365	429	Neighborhoods
1014	146	157	173	593	743	878	Neighborhoods
1015	55	61	69	721	784	841	Neighborhoods
1016	93	103	116	561	567	574	Neighborhoods
1017	558	640	743	726	726	736	Main St / Corr
1018	102	109	120	1,042	1,073	1,107	Neighborhoods
1019	1,939	2,727	3,502	0	290	661	Employment Area
1020	290	307	332	188	203	223	Neighborhoods
1021	22	25	28	279	286	295	Neighborhoods
1022	26	28	32	329	348	388	Neighborhoods
1023	54	55	58	285	286	303	Neighborhoods
1024	505	597	696	394	394	404	Main St / Corr
1025	*	*	552	366	411	451	Main St / Corr
1026	432	474	531	884	916	960	Town Center - Tier 2
1027	572	640	730	2,575	2,633	2,685	Neighborhoods
1028	310	348	395	929	975	1,022	Main St / Corr
1029	489	559	647	530	575	614	Main St / Corr
1030	245	287	334	247	248	265	Main St / Corr
1031	355	364	391	170	178	187	Main St / Corr
1032	676	991	1,321	952	1,198	1,346	Neighborhoods
1033	73	84	92	273	582	860	Regional Center - Tier 2
1034	99	165	203	465	545	569	Main St / Corr
1035	46	52	57	673	743	759	Neighborhoods
1036	1,445	2,089	2,712	600	761	907	Station Com - Tier 3
1037	1,010	1,635	2,095	81	125	175	Town Center - Tier 2
1038	3,238	4,641	5,974	113	948	1,700	Town Center - Tier 2
1039	3,252	3,555	3,890	95	95	95	Town Center - Tier 2
1040	139	219	283	285	329	362	Neighborhoods
1041	674	1,012	1,335	241	590	904	Station Com - Tier 1
1042	505	785	1,038	264	725	1,141	Station Com - Tier 1
1043	522	618	735	117	241	341	Town Center - Tier 2
1044	4,174	4,158	4,147	0	139	264	Station Com - Tier 2
1045	4,109	4,731	5,189	230	380	515	Employment Area

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1046	590	688	829	1,154	1,212	1,277	Neighborhoods
1047	237	266	301	613	662	709	Neighborhoods
1048	1,219	1,367	1,569	965	1,059	1,143	Neighborhoods
1049	7,555	8,177	9,069	0	0	0	Employment Area
1050	552	673	804	874	888	915	Main St / Corr
1051	163	180	343	1,262	1,930	2,533	Neighborhoods
1052	*	*	128	712	754	792	Neighborhoods
1053	222	375	499	227	227	227	Industrial Area
1054	4,189	5,299	6,118	2	2	2	Industrial Area
1055	358	401	459	103	210	272	Industrial Area
1056	216	423	580	988	1,021	1,044	Main St / Corr
1057	38	41	44	293	308	324	Neighborhoods
1058	1,027	1,078	1,164	446	448	451	Industrial Area
1059	5,026	6,469	7,533	0	0	0	Industrial Area
1060	1,854	2,907	3,684	9	22	38	Industrial Area
1061	193	203	216	846	879	908	Neighborhoods
1062	433	518	630	1,156	1,178	1,232	Neighborhoods
1063	78	86	96	785	771	819	Neighborhoods
1064	168	182	198	1,148	1,167	1,197	Neighborhoods
1065	4,399	5,068	5,561	566	568	573	Town Center - Tier 3
1066	1,783	1,946	2,162	1,190	1,211	1,216	Town Center - Tier 3
1067	2,870	3,289	3,695	570	570	570	Station Com - Tier 3
1068	1,853	2,028	2,213	134	141	149	Employment Area
1069	1,557	2,126	2,565	1,201	1,236	1,260	Employment Area
1070	1,845	2,040	2,067	1,088	1,160	1,241	Neighborhoods
1071	1,023	1,131	1,266	341	360	377	Neighborhoods
1072	78	100	110	677	708	734	Neighborhoods
1073	1,887	1,969	2,144	503	524	537	Employment Area
1074	199	267	354	609	650	687	Neighborhoods
1075	4,989	5,309	5,761	460	469	475	Employment Area
1076	3,008	3,221	3,479	975	1,015	1,035	Main St / Corr
1077	331	341	352	1,299	1,325	1,354	Neighborhoods
1078	218	224	237	1,404	1,404	1,404	Neighborhoods
1079	153	160	170	508	520	530	Main St / Corr
1080	2,921	3,774	4,838	1,097	1,225	1,302	Town Center - Tier 2
1081	643	770	930	310	367	405	Main St / Corr
1082	178	199	222	979	1,004	1,025	Neighborhoods
1083	80	82	85	584	658	725	Neighborhoods
1084	467	503	543	1,562	1,616	1,664	Neighborhoods
1085	120	220	294	366	535	688	Urban Reserve
1086	151	158	170	630	658	684	Neighborhoods
1087	1,047	1,121	1,175	945	1,058	1,159	Main St / Corr
1088	596	621	656	508	520	528	Town Center - Tier 1
1089	403	504	636	505	722	858	Town Center - Tier 1
1090	1,426	1,603	1,827	220	313	350	Town Center - Tier 1
1091	327	338	360	351	354	356	Main St / Corr
1092	98	102	107	257	266	266	Town Center - Tier 1
1093	*	*	0	65	68	70	Main St / Corr
1094	30	31	33	84	89	92	Main St / Corr
1095	122	123	125	249	254	258	Main St / Corr
1096	114	123	133	617	663	695	Main St / Corr
1097	278	293	313	412	422	429	Neighborhoods
1098	737	837	939	1,002	1,082	1,138	Main St / Corr
1099	45	50	71	439	476	509	Neighborhoods
1100	292	318	355	466	545	616	Main St / Corr

*Data suppressed for confidentiality

Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1101	164	185	208	696	749	797	Neighborhoods
1102	72	85	98	762	779	797	Main St / Corr
1103	323	348	379	948	991	1,029	Neighborhoods
1104	126	133	140	653	687	717	Neighborhoods
1105	63	71	79	409	412	416	Neighborhoods
1106	1,209	1,284	1,380	589	617	650	Town Center - Tier 2
1107	226	306	374	1,425	1,582	1,724	Neighborhoods
1108	1,239	1,478	1,654	2,443	2,619	2,778	Neighborhoods
1109	1,002	1,273	1,468	1,355	1,434	1,505	Town Center - Tier 3
1110	140	224	286	134	193	246	Urban Reserve
1111	7	40	64	68	115	157	Urban Reserve
1112	14	84	135	33	146	247	Urban Reserve
1113	35	37	39	106	104	113	Urban Reserve
1114	5	5	6	75	75	75	Urban Reserve
1115	*	*	0	51	52	54	Urban Reserve
1116	12	15	17	60	61	63	Urban Reserve
1117	57	65	73	123	124	125	Urban Reserve
1118	114	127	143	19	19	19	Urban Reserve
1119	384	426	494	62	62	62	Urban Reserve
1120	52	51	50	210	211	211	Urban Reserve
1121	39	46	56	106	108	112	Urban Reserve
1122	73	205	303	48	158	258	Urban Reserve
1123	38	45	57	197	222	251	Undesignated
1124	136	174	252	131	163	201	Rural Reserve
1125	43	46	49	107	123	142	Undesignated
1126	11	13	14	66	78	93	Undesignated
1127	168	174	178	256	282	311	Rural Reserve
1128	92	306	464	164	596	985	Rural Reserve
1129	660	729	768	1,765	1,816	1,868	Town Center - Tier 3
1130	48	79	101	1,144	1,203	1,257	Town Center - Tier 3
1131	74	84	105	352	480	595	Neighborhoods
1132	75	94	138	610	625	654	Neighborhoods
1133	1,116	1,145	1,313	441	440	441	Main St / Corr
1134	40	42	43	804	829	839	Main St / Corr
1135	207	254	268	764	783	791	Main St / Corr
1136	577	596	624	1,542	1,553	1,564	Main St / Corr
1137	5,740	6,334	6,939	0	0	0	Regional Center - Tier 2
1138	826	925	1,011	1,044	1,227	1,315	Main St / Corr
1139	572	595	622	476	498	503	Regional Center - Tier 2
1140	645	937	1,222	1,275	1,588	1,802	Main St / Corr
1141	540	599	665	1,453	1,650	1,712	Main St / Corr
1142	619	648	722	1,275	1,429	1,518	Main St / Corr
1143	418	538	671	922	1,001	1,038	Main St / Corr
1144	3,118	4,307	5,183	36	132	227	Industrial Area
1145	1,027	1,074	1,125	968	1,018	1,059	Industrial Area
1146	1,216	1,418	1,624	455	459	461	Regional Center - Tier 2
1147	216	222	232	1,144	1,180	1,227	Neighborhoods
1148	186	195	210	674	703	715	Neighborhoods
1149	100	100	109	462	464	465	Main St / Corr
1150	35	36	41	435	489	538	Neighborhoods
1151	64	72	90	235	244	260	Neighborhoods
1152	45	250	401	172	2,141	3,916	Urban Reserve
1153	14	100	163	15	769	1,449	Urban Reserve
1154	51	56	71	208	704	1,151	Neighborhoods
1155	34	96	142	333	563	770	Neighborhoods

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1156	39	44	59	664	818	956	Neighborhoods
1157	88	97	122	729	748	790	Neighborhoods
1158	51	57	71	915	959	988	Neighborhoods
1159	105	111	141	1,064	1,072	1,076	Main St / Corr
1160	53	56	59	662	685	693	Neighborhoods
1161	274	285	305	922	941	951	Main St / Corr
1162	*	*	102	717	721	722	Main St / Corr
1163	236	238	269	606	602	611	Neighborhoods
1164	109	119	144	912	924	948	Neighborhoods
1165	157	171	212	912	947	984	Neighborhoods
1166	120	128	149	573	591	611	Neighborhoods
1167	732	782	874	1,542	1,578	1,623	Main St / Corr
1168	280	320	368	1,400	1,537	1,649	Main St / Corr
1169	124	133	146	940	1,032	1,064	Main St / Corr
1170	320	355	394	704	715	724	Main St / Corr
1171	1,047	1,299	1,578	468	561	649	Town Center - Tier 3
1172	789	1,001	1,207	765	870	965	Main St / Corr
1173	1,335	1,479	1,634	585	630	652	Main St / Corr
1174	2,692	2,899	3,158	315	377	418	Main St / Corr
1175	1,333	1,501	1,684	0	0	0	Regional Center - Tier 1
1176	316	365	426	967	1,071	1,164	Main St / Corr
1177	154	164	177	1,066	1,118	1,170	Main St / Corr
1178	13	15	16	478	514	572	Main St / Corr
1179	147	152	166	955	1,090	1,212	Main St / Corr
1180	42	48	61	790	865	941	Main St / Corr
1181	11	42	68	659	708	741	Main St / Corr
1182	46	52	56	755	772	785	Main St / Corr
1183	727	754	795	278	278	278	Main St / Corr
1184	221	456	714	175	175	175	Main St / Corr
1185	503	525	559	254	278	318	Regional Center - Tier 1
1186	901	1,383	1,880	354	382	412	Regional Center - Tier 1
1187	2,040	2,182	2,352	0	11	25	Regional Center - Tier 1
1188	465	547	648	27	44	64	Regional Center - Tier 1
1189	974	1,293	1,587	68	102	140	Regional Center - Tier 1
1190	243	406	569	31	32	78	Main St / Corr
1191	3,648	3,874	4,129	445	437	467	Station Com - Tier 3
1192	4,418	5,040	5,717	789	774	829	Employment Area
1193	280	554	790	249	249	250	Main St / Corr
1194	197	304	386	894	1,021	1,103	Town Center - Tier 2
1195	110	113	119	714	730	745	Neighborhoods
1196	2,209	2,312	2,516	121	121	121	Station Com - Tier 3
1197	754	2,047	3,000	0	0	0	Station Com - Tier 3
1198	2,389	2,404	2,531	0	0	0	Station Com - Tier 3
1199	2,222	2,384	2,568	246	276	309	Main St / Corr
1200	308	593	909	765	929	1,108	Station Com - Tier 1
1201	81	115	153	523	527	531	Main St / Corr
1202	1,328	1,439	1,565	905	982	1,013	Main St / Corr
1203	378	422	470	1,032	1,130	1,218	Main St / Corr
1204	363	398	433	917	973	1,011	Main St / Corr
1205	323	382	441	804	913	971	Main St / Corr
1206	272	319	371	635	762	877	Main St / Corr
1207	54	57	61	192	193	193	Main St / Corr
1208	977	1,595	2,191	56	75	95	Main St / Corr
1209	115	128	143	947	982	1,062	Main St / Corr
1210	9,317	9,624	9,958	0	0	0	Main St / Corr

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1211	619	841	1,039	482	599	725	Station Com - Tier 3
1212	243	264	289	1,603	1,668	1,689	Neighborhoods
1213	2,302	2,918	3,480	813	883	911	Main St / Corr
1214	163	196	233	976	1,075	1,108	Main St / Corr
1215	148	168	194	846	986	1,077	Main St / Corr
1216	303	327	361	1,470	1,496	1,507	Main St / Corr
1217	1,189	1,576	1,933	196	590	945	Station Com - Tier 2
1218	957	1,329	1,697	1	369	700	Town Center - Tier 3
1219	6,006	6,766	7,327	95	161	219	Main St / Corr
1220	355	378	398	752	821	884	Main St / Corr
1221	543	615	655	1,282	1,639	1,961	Main St / Corr
1222	102	208	312	506	575	631	Neighborhoods
1223	448	565	680	899	1,036	1,160	Town Center - Tier 3
1224	480	756	1,030	25	156	275	Main St / Corr
1225	72	90	109	672	721	757	Neighborhoods
1226	349	367	388	790	990	1,171	Neighborhoods
1227	31	32	34	250	319	382	Neighborhoods
1228	422	757	1,004	1,975	2,093	2,200	Town Center - Tier 3
1229	64	69	77	448	582	703	Neighborhoods
1230	222	264	304	432	514	588	Neighborhoods
1231	1,173	1,322	1,431	645	852	998	Main St / Corr
1232	372	539	662	149	394	553	Town Center - Tier 3
1233	2,187	2,579	2,868	401	530	646	Main St / Corr
1234	3,068	3,302	3,616	485	498	527	Employment Area
1235	141	147	154	330	345	352	Main St / Corr
1236	3	4	4	604	605	605	Neighborhoods
1237	33	35	38	645	670	677	Main St / Corr
1238	25	27	29	484	498	502	Main St / Corr
1239	7	8	8	594	594	594	Main St / Corr
1240	3,417	3,887	4,418	565	565	565	Main St / Corr
1241	86	97	111	1,296	1,361	1,420	Main St / Corr
1242	134	149	164	649	652	658	Neighborhoods
1243	229	264	300	511	591	651	Main St / Corr
1244	31	34	38	268	296	321	Neighborhoods
1245	98	131	173	348	424	486	Neighborhoods
1246	50	53	58	919	932	943	Main St / Corr
1247	105	113	121	1,127	1,177	1,197	Neighborhoods
1248	334	371	417	482	488	495	Main St / Corr
1249	74	82	90	905	935	956	Main St / Corr
1250	66	80	97	544	548	549	Neighborhoods
1251	87	92	98	321	348	369	Neighborhoods
1252	2,038	3,777	5,059	1	1	1	Industrial Area
1253	341	1,712	2,723	87	86	97	Industrial Area
1254	32	41	48	10	11	13	Undesignated
1255	198	311	493	38	44	42	Rural Reserve
1256	*	*	25	17	22	26	Urban Reserve
1257	*	*	82	9	12	27	Urban Reserve
1258	0	630	4,967	7	7	7	Urban Reserve
1259	0	0	0	19	125	221	Urban Reserve
1260	794	1,927	2,763	0	0	2	Industrial Area
1261	3,037	2,765	2,565	0	0	0	Industrial Area
1262	1,020	1,125	1,250	0	0	0	Employment Area
1263	1,895	2,305	2,741	0	0	0	Employment Area
1264	1,779	1,897	1,984	96	96	96	Regional Center - Tier 2
1265	1,408	1,579	1,768	1,237	1,364	1,478	Regional Center - Tier 2

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1266	2,853	3,181	3,567	2,917	3,193	3,441	Employment Area
1267	2,430	2,767	3,098	0	0	0	Employment Area
1268	1,071	2,043	2,760	0	0	0	Industrial Area
1269	*	*	11,500	0	0	0	Industrial Area
1270	*	*	3,627	0	0	0	Industrial Area
1271	*	*	2,961	14	14	9	Industrial Area
1272	14	179	300	40	40	40	Urban Reserve
1273	*	*	1,257	63	64	44	Industrial Area
1274	21	1,366	2,358	6	6	6	Urban Reserve
1275	*	*	38	5	5	5	Urban Reserve
1276	24	33	41	29	29	30	Urban Reserve
1277	340	374	412	1,112	1,200	1,268	Neighborhoods
1278	92	114	133	1,534	1,543	1,584	Neighborhoods
1279	*	*	6,260	0	0	0	Industrial Area
1280	1,351	1,810	2,162	2	2	0	Industrial Area
1281	*	*	743	0	0	0	Industrial Area
1282	3,846	5,448	6,630	443	416	392	Industrial Area
1283	675	999	1,280	388	366	347	Main St / Corr
1284	474	724	929	1,400	1,310	1,228	Town Center - Tier 2
1285	1,074	1,383	1,625	0	6	0	Town Center - Tier 2
1286	1,173	1,479	1,783	360	391	443	Employment Area
1287	11	72	141	726	801	869	Employment Area
1288	2,220	2,783	3,451	24	1,996	3,774	Regional Center - Tier 2
1289	2,614	2,963	3,336	331	739	1,107	Main St / Corr
1290	369	435	515	760	897	1,021	Station Com - Tier 3
1291	*	*	1,673	0	0	0	Neighborhoods
1292	0	0	418	0	880	1,673	Regional Center - Tier 2
1293	35	42	49	1,164	1,236	1,300	Station Com - Tier 3
1294	719	990	1,190	1,601	2,074	2,500	Station Com - Tier 2
1295	4,601	5,366	6,006	277	280	287	Station Com - Tier 3
1296	39	1,370	2,493	0	0	0	Industrial Area
1297	678	787	871	648	677	698	Main St / Corr
1298	627	756	853	1,528	1,513	1,500	Main St / Corr
1299	294	335	375	400	399	409	Neighborhoods
1300	100	138	173	882	955	1,009	Neighborhoods
1301	91	105	120	881	982	1,045	Neighborhoods
1302	4	10	15	271	390	497	Neighborhoods
1303	64	74	83	216	254	283	Neighborhoods
1304	101	200	320	479	716	930	Regional Center - Tier 1
1305	20	22	48	194	214	230	Main St / Corr
1306	52	58	63	482	532	564	Station Com - Tier 3
1307	214	224	231	919	942	962	Main St / Corr
1308	75	84	92	615	684	748	Main St / Corr
1309	28	37	43	516	586	649	Station Com - Tier 3
1310	94	166	219	1,003	981	962	Main St / Corr
1311	29	34	35	377	370	364	Main St / Corr
1312	128	337	508	718	723	745	Main St / Corr
1313	151	183	206	443	445	446	Main St / Corr
1314	52	64	72	892	935	971	Neighborhoods
1315	88	97	88	905	949	988	Main St / Corr
1316	267	298	330	1,055	1,134	1,189	Main St / Corr
1317	96	104	115	737	789	826	Main St / Corr
1318	86	97	108	1,260	1,303	1,335	Main St / Corr
1319	180	207	231	664	762	850	Main St / Corr
1320	1,047	1,578	1,970	963	1,167	1,350	Regional Center - Tier 1

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1321	658	981	1,255	422	646	848	Regional Center - Tier 1
1322	2,584	3,595	4,340	526	645	753	Regional Center - Tier 1
1323	131	167	204	137	169	200	Main St / Corr
1324	1,157	1,463	1,769	0	0	0	Main St / Corr
1325	2,109	2,728	3,185	247	384	507	Industrial Area
1326	2,447	3,450	4,190	475	715	931	Regional Center - Tier 1
1327	1,765	2,013	2,241	1,333	1,309	1,287	Main St / Corr
1328	94	101	111	676	783	853	Neighborhoods
1329	271	343	413	1,158	1,260	1,330	Main St / Corr
1330	730	803	856	822	842	856	Main St / Corr
1331	76	81	90	459	479	493	Neighborhoods
1332	532	740	949	653	692	738	Main St / Corr
1333	69	77	85	885	902	914	Neighborhoods
1334	49	67	80	723	734	742	Neighborhoods
1335	49	67	82	754	995	1,213	Town Center - Tier 2
1336	136	179	212	432	568	671	Town Center - Tier 2
1337	374	564	716	178	182	187	Town Center - Tier 2
1338	175	209	237	560	560	599	Town Center - Tier 2
1339	402	497	573	415	462	493	Main St / Corr
1340	548	668	769	327	415	476	Main St / Corr
1341	0	0	500	0	961	1,828	Urban Reserve
1342	960	1,074	1,158	186	463	712	Industrial Area
1343	394	480	607	281	408	522	Main St / Corr
1344	671	735	804	1,302	1,392	1,474	Neighborhoods
1345	499	493	511	945	1,039	1,123	Neighborhoods
1346	210	218	230	260	297	334	Neighborhoods
1347	250	451	599	9	11	24	Industrial Area
1348	0	0	0	0	0	0	Rural Reserve
1349	*	*	12	21	26	30	Undesignated
1350	100	134	213	559	791	1,000	Neighborhoods
1351	*	*	246	8	352	663	Urban Reserve
1352	0	0	50	11	388	728	Urban Reserve
1353	0	0	300	0	861	1,637	Urban Reserve
1354	2,438	2,379	2,463	371	414	448	Employment Area
1355	278	335	384	317	347	370	Main St / Corr
1356	138	174	205	204	239	277	Town Center - Tier 2
1357	140	159	178	269	333	393	Town Center - Tier 2
1358	198	229	253	431	542	621	Main St / Corr
1359	166	193	226	699	822	917	Main St / Corr
1360	376	454	513	726	806	861	Main St / Corr
1361	218	233	250	222	237	248	Neighborhoods
1362	130	158	178	647	672	692	Neighborhoods
1363	*	*	120	13	478	898	Urban Reserve
1364	*	*	140	55	426	760	Urban Reserve
1365	0	0	104	18	335	621	Urban Reserve
1366	*	*	300	11	718	1,355	Urban Reserve
1367	109	119	120	48	522	950	Neighborhoods
1368	140	171	196	2,116	2,228	2,304	Neighborhoods
1369	281	337	383	1,053	1,213	1,314	Neighborhoods
1370	120	154	179	1,095	1,258	1,404	Neighborhoods
1371	108	114	132	718	807	881	Neighborhoods
1372	102	118	144	914	1,162	1,386	Neighborhoods
1373	44	47	30	13	210	388	Neighborhoods
1374	3	11	19	51	57	63	Rural Reserve
1375	13	14	17	25	28	57	Rural Reserve

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1376	183	200	228	106	108	111	Rural Reserve
1377	*	*	14	114	114	115	Rural Reserve
1378	221	221	232	74	75	75	Rural Reserve
1379	*	*	5	14	14	14	Rural Reserve
1380	*	*	6	72	83	88	Rural Reserve
1381	96	157	234	170	223	270	Rural Reserve
1382	817	1,215	1,660	690	722	750	Main St / Corr
1383	548	682	841	498	577	648	Town Center - Tier 2
1384	707	938	1,243	357	378	397	Industrial Area
1385	481	527	613	1,332	1,406	1,473	Neighborhoods
1386	90	106	125	534	1,270	1,934	Urban Reserve
1387	*	*	2	18	28	33	Undesignated
1388	*	*	7	14	14	14	Rural Reserve
1389	19	20	21	42	55	61	Urban Reserve
1390	*	*	2	20	28	31	Rural Reserve
1391	*	*	60	60	67	72	Rural Reserve
1392	21	66	100	14	528	992	Urban Reserve
1393	*	*	14	18	319	591	Neighborhoods
1394	0	0	40	10	222	414	Urban Reserve
1395	*	*	3	13	155	283	Urban Reserve
1396	127	166	225	620	601	583	Neighborhoods
1397	183	223	258	646	834	1,003	Rural Reserve
1398	44	41	48	532	499	469	Neighborhoods
1399	190	225	256	725	955	1,162	Neighborhoods
1400	227	293	382	1,055	1,196	1,324	Neighborhoods
1401	1,522	1,497	1,546	959	1,505	1,998	Town Center - Tier 1
1402	664	855	1,050	988	1,154	1,304	Industrial Area
1403	710	870	991	523	592	675	Industrial Area
1404	423	595	786	494	634	761	Employment Area
1405	*	*	1,207	0	2	4	Employment Area
1406	582	807	1,045	853	983	1,101	Main St / Corr
1407	859	1,063	1,356	1,012	1,672	2,267	Neighborhoods
1408	159	478	714	2	7	14	Rural Reserve
1409	*	*	1	4	4	4	Undesignated
1410	58	57	58	88	92	96	Rural Reserve
1411	38	39	40	57	59	62	Rural Reserve
1412	44	9	7	108	114	119	Rural Reserve
1413	*	*	3	56	60	65	Rural Reserve
1414	20	23	27	40	40	40	Rural Reserve
1415	179	240	369	236	255	267	Neighboring City
1416	153	153	155	190	200	209	Rural Reserve
1417	107	110	116	411	420	427	Rural Reserve
1418	237	245	267	147	160	173	Rural Reserve
1419	123	124	129	87	120	157	Rural Reserve
1420	71	72	76	95	112	132	Rural Reserve
1421	149	172	207	103	118	135	Rural Reserve
1422	180	179	185	142	145	148	Rural Reserve
1423	26	26	27	186	192	197	Rural Reserve
1424	66	67	70	164	173	180	Rural Reserve
1425	29	30	32	173	191	213	Rural Reserve
1426	108	116	128	393	476	551	Rural Reserve
1427	213	220	235	178	207	247	Rural Reserve
1428	*	*	139	22	660	1,236	Rural Reserve
1429	19	80	269	88	1,205	2,212	Urban Reserve
1430	65	68	75	78	105	141	Rural Reserve

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1431	86	92	100	269	348	420	Rural Reserve
1432	155	516	171	183	804	1,363	Rural Reserve
1433	894	913	963	884	878	894	Undesignated
1434	307	363	437	842	980	1,091	Undesignated
1435	31	32	39	124	133	138	Rural Reserve
1436	37	37	40	127	155	174	Rural Reserve
1437	14	12	13	36	41	45	Rural Reserve
1438	78	78	75	65	79	88	Rural Reserve
1439	24	19	18	26	36	42	Rural Reserve
1440	557	649	755	517	680	807	Neighboring City
1441	*	*	74	81	90	100	Rural Reserve
1442	386	355	360	62	71	79	Rural Reserve
1443	76	83	96	83	81	86	Rural Reserve
1444	48	52	60	29	32	35	Rural Reserve
1445	*	*	3	38	51	60	Rural Reserve
1446	*	*	50	49	55	62	Rural Reserve
1447	104	122	143	39	68	85	Rural Reserve
1448	*	*	16	19	24	29	Rural Reserve
1449	35	46	62	76	80	87	Rural Reserve
1450	718	1,281	1,842	742	814	875	Neighboring City
1451	*	*	2	13	14	16	Undesignated
1452	203	235	276	838	835	857	Undesignated
1453	210	243	283	600	643	682	Undesignated
1454	115	134	160	332	354	374	Rural Reserve
1455	31	33	35	85	91	97	Rural Reserve
1456	196	181	170	180	184	187	Rural Reserve
1457	*	*	22	42	49	59	Rural Reserve
1458	*	*	10	20	36	50	Rural Reserve
1459	24	26	29	657	666	672	Neighborhoods
1460	14	15	16	244	245	246	Main St / Corr
1461	*	*	121	5	220	414	Urban Reserve
1462	0	0	63	3	156	293	Urban Reserve
1463	0	0	0	9	599	1,131	Neighborhoods
1464	0	0	0	7	167	311	Main St / Corr
1465	0	0	0	3	463	877	Main St / Corr
1466	8	12	11	11	537	1,011	Main St / Corr
1467	9	47	75	112	1,001	1,803	Main St / Corr
1468	*	*	75	337	533	709	Neighborhoods
1469	*	*	832	4	15	28	Neighborhoods
1470	241	261	288	867	906	963	Main St / Corr
1471	24	34	44	286	280	286	Main St / Corr
1472	98	105	112	1,049	1,091	1,129	Neighborhoods
1473	11	12	13	272	347	414	Main St / Corr
1474	21	22	23	869	877	883	Main St / Corr
1475	260	307	342	1,114	1,249	1,370	Town Center - Tier 2
1476	778	830	917	1,217	1,259	1,290	Town Center - Tier 2
1477	177	199	216	538	643	737	Neighborhoods
1478	93	95	99	468	612	741	Neighborhoods
1479	210	229	256	799	956	1,098	Neighborhoods
1480	72	77	83	482	567	638	Neighborhoods
1481	70	77	86	495	524	549	Neighborhoods
1482	102	133	168	733	980	1,202	Neighborhoods
1483	734	1,297	1,672	172	491	703	Vancouver CBD
1484	159	164	168	199	199	199	Vancouver CBD
1485	173	180	184	243	243	243	Vancouver CBD

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1486	248	314	358	38	65	83	Vancouver CBD
1487	133	150	162	181	287	357	Vancouver CBD
1488	360	819	1,125	0	0	0	Vancouver CBD
1489	450	477	495	0	0	0	Vancouver CBD
1490	511	515	517	14	15	15	Vancouver CBD
1491	717	900	1,022	0	73	122	Vancouver CBD
1492	841	892	926	24	68	98	Vancouver CBD
1493	634	658	674	161	234	283	Vancouver CBD
1494	256	375	455	0	80	134	Vancouver CBD
1495	516	791	974	0	80	134	Vancouver CBD
1496	58	60	61	93	97	99	Vancouver CBD
1497	193	196	198	4	23	35	Vancouver CBD
1498	260	485	635	0	20	33	Vancouver CBD
1499	100	273	389	27	473	770	Vancouver CBD
1500	430	730	930	150	217	262	Vancouver CBD
1501	192	214	228	45	238	367	Vancouver CBD
1502	3	4	4	117	120	122	Vancouver CBD
1503	1,315	1,335	1,348	0	0	0	Vancouver CBD
1504	718	736	748	12	12	12	Vancouver CBD
1505	478	844	1,088	0	142	236	Vancouver CBD
1506	242	1,105	1,681	0	797	1,329	Vancouver Rest
1507	308	343	367	125	487	729	Vancouver CBD
1508	746	1,051	1,254	0	0	0	Vancouver Rest
1509	265	283	295	84	86	88	Vancouver Rest
1510	232	234	235	260	263	265	Vancouver CBD
1511	25	72	104	249	251	253	Vancouver CBD
1512	58	63	66	63	65	66	Vancouver CBD
1513	113	115	117	25	44	56	Vancouver CBD
1514	188	188	188	14	35	49	Vancouver CBD
1515	139	142	144	171	185	195	Vancouver CBD
1516	84	85	86	111	118	122	Vancouver CBD
1517	158	178	192	40	72	93	Vancouver CBD
1518	256	257	257	272	272	272	Vancouver CBD
1519	0	1	2	107	108	109	Vancouver CBD
1520	183	194	201	198	203	206	Vancouver CBD
1521	43	119	170	128	136	141	Vancouver CBD
1522	0	1	1	98	98	98	Vancouver CBD
1523	0	4	7	132	132	132	Vancouver CBD
1524	86	106	120	29	29	29	Vancouver CBD
1525	55	55	55	193	193	193	Vancouver CBD
1526	2	5	7	248	248	248	Vancouver CBD
1527	177	369	497	437	440	442	Vancouver CBD
1528	528	530	532	334	342	348	Vancouver Rest
1529	132	302	415	292	302	309	Vancouver Rest
1530	72	224	326	0	1	2	Vancouver Rest
1531	800	2,657	3,895	47	72	88	Vancouver Rest
1532	1,114	1,545	1,833	54	83	102	Vancouver Rest
1533	209	409	543	136	164	183	Vancouver Rest
1534	37	39	41	358	389	409	Vancouver Rest
1535	7	11	13	280	287	292	Vancouver Rest
1536	41	43	45	397	409	417	Vancouver Rest
1537	2	2	2	77	88	95	Vancouver Rest
1538	69	79	85	263	272	278	Vancouver Rest
1539	74	84	90	355	355	355	Vancouver Rest
1540	25	26	26	273	273	273	Vancouver CBD

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1541	494	498	501	174	174	174	Vancouver CBD
1542	14	112	178	246	352	422	Vancouver Rest
1543	6	8	10	218	228	235	Vancouver Rest
1544	133	138	142	475	526	560	Vancouver Rest
1545	81	90	96	433	449	459	Vancouver Rest
1546	669	713	743	633	648	658	Vancouver Rest
1547	1,367	1,369	1,371	46	48	50	Vancouver Rest
1548	202	242	269	129	149	163	Vancouver Rest
1549	434	436	438	27	55	74	Vancouver CBD
1550	18	23	26	213	213	213	Vancouver CBD
1551	9	10	11	132	148	158	Vancouver Rest
1552	13	28	38	279	279	279	Vancouver Rest
1553	23	25	27	188	188	188	Vancouver Rest
1554	17	20	22	119	119	119	Vancouver Rest
1555	1,415	1,417	1,419	0	0	0	Station Com - Tier 3
1556	108	114	118	0	0	0	Station Com - Tier 3
1557	395	395	395	0	0	0	Vancouver Rest
1558	506	745	905	0	77	128	Vancouver Rest
1559	1,207	1,211	1,213	8	8	8	Vancouver Rest
1560	1,255	1,260	1,264	362	362	362	Vancouver Rest
1561	1,700	2,104	2,374	136	771	1,194	Vancouver Rest
1562	967	1,136	1,248	0	1	1	Vancouver Rest
1563	479	480	480	719	719	719	Vancouver Rest
1564	318	325	329	0	26	43	Vancouver Rest
1565	187	194	198	0	0	0	Station Com - Tier 3
1566	1,208	1,213	1,216	0	0	0	Vancouver Rest
1567	392	396	399	700	704	707	Vancouver Rest
1568	78	78	78	161	161	161	Vancouver Rest
1569	88	89	89	298	298	298	Vancouver Rest
1570	20	22	23	369	370	370	Vancouver Rest
1571	70	72	74	200	200	200	Vancouver Rest
1572	139	168	188	404	435	456	Vancouver Rest
1573	131	177	208	399	469	516	Vancouver Rest
1574	237	239	240	193	203	209	Vancouver Rest
1575	62	84	99	279	322	350	Vancouver Rest
1576	1,015	1,093	1,145	47	49	50	Vancouver Rest
1577	348	377	397	386	436	470	Vancouver Rest
1578	177	182	185	569	600	621	Vancouver Rest
1579	60	66	70	331	368	393	Vancouver Rest
1580	66	104	130	473	477	479	Vancouver Rest
1581	208	223	233	469	469	469	Vancouver Rest
1582	210	217	221	453	453	453	Vancouver Rest
1583	162	164	166	292	292	292	Vancouver Rest
1584	170	180	187	217	217	217	Vancouver Rest
1585	23	32	38	287	288	288	Vancouver Rest
1586	90	108	120	736	744	750	Vancouver Rest
1587	359	373	382	689	691	692	Vancouver Rest
1588	39	94	131	382	387	391	Vancouver Rest
1589	55	74	87	259	324	368	Vancouver Rest
1590	9	9	9	288	332	362	Vancouver Rest
1591	353	466	541	549	638	697	Vancouver Rest
1592	642	853	993	371	393	408	Vancouver Rest
1593	27	29	30	263	322	361	Vancouver Rest
1594	32	34	35	381	410	430	Vancouver Rest
1595	16	16	16	117	117	117	Vancouver Rest

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1596	14	16	18	220	229	235	Vancouver Rest
1597	25	30	34	459	473	483	Vancouver Rest
1598	145	159	169	326	349	365	Vancouver Rest
1599	58	59	59	278	279	280	Vancouver Rest
1600	731	869	961	144	306	414	Vancouver Rest
1601	170	173	175	296	297	298	Vancouver Rest
1602	295	405	479	382	382	382	Vancouver Rest
1603	243	298	335	906	914	919	Vancouver Rest
1604	11	11	11	341	387	417	Vancouver Rest
1605	65	71	75	679	803	886	Vancouver Rest
1606	354	377	393	550	601	635	Vancouver Rest
1607	597	601	603	391	395	398	Vancouver Rest
1608	596	945	1,178	0	128	214	Vancouver Rest
1609	1,230	1,231	1,232	0	38	64	Vancouver Rest
1610	175	178	180	2	2	2	Vancouver Rest
1611	25	29	31	232	232	232	Vancouver Rest
1612	19	22	24	191	193	195	Vancouver Rest
1613	169	171	173	419	419	419	Vancouver Rest
1614	25	32	36	185	190	194	Vancouver Rest
1615	53	55	56	226	233	238	Vancouver Rest
1616	29	29	29	349	350	350	Vancouver Rest
1617	1,228	1,359	1,447	306	336	356	Vancouver Rest
1618	22	27	31	359	359	359	Vancouver Rest
1619	85	117	139	949	949	949	Vancouver Rest
1620	946	1,073	1,157	4	4	4	Vancouver Rest
1621	539	633	695	4	5	6	Vancouver Rest
1622	254	270	280	664	669	672	Vancouver Rest
1623	1,451	1,654	1,790	15	15	15	Vancouver Rest
1624	1,450	1,480	1,500	1,045	1,045	1,045	Vancouver Rest
1625	612	622	629	1,229	1,229	1,229	Vancouver Rest
1626	1,585	1,590	1,594	172	172	172	Vancouver Rest
1627	57	115	153	640	640	640	Vancouver Rest
1628	2,551	2,551	2,551	687	687	687	Vancouver Rest
1629	91	92	93	366	366	366	Vancouver Rest
1630	148	171	187	472	472	472	Vancouver Rest
1631	45	47	49	237	246	252	Vancouver Rest
1632	10	12	13	210	215	219	Vancouver Rest
1633	27	32	35	315	315	315	Vancouver Rest
1634	17	18	19	260	268	273	Vancouver Rest
1635	1	5	8	184	197	205	Vancouver Rest
1636	3,958	4,516	4,888	0	0	0	Vancouver Rest
1637	299	352	387	698	699	699	Vancouver Rest
1638	11	20	26	310	310	310	Vancouver Rest
1639	51	51	51	308	397	456	Vancouver Rest
1640	41	43	44	1,262	1,262	1,262	Vancouver Rest
1641	20	22	23	405	413	418	Vancouver Rest
1642	91	122	143	371	371	371	Vancouver Rest
1643	173	216	245	412	412	412	Vancouver Rest
1644	123	125	126	426	450	466	Vancouver Rest
1645	573	601	619	22	22	22	Vancouver Rest
1646	80	99	111	130	207	258	Vancouver Rest
1647	11	13	14	366	382	392	Vancouver Rest
1648	44	48	50	179	181	183	Vancouver Rest
1649	36	38	40	335	339	342	Vancouver Rest
1650	14	19	22	456	456	456	Vancouver Rest

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1651	7	7	7	207	228	242	Vancouver Rest
1652	46	55	61	1	1	1	Vancouver Rest
1653	825	836	844	5	5	5	Vancouver Rest
1654	771	926	1,030	394	394	394	Vancouver Rest
1655	534	535	535	689	700	707	Vancouver Rest
1656	35	46	54	117	140	156	Vancouver Rest
1657	175	177	179	139	204	248	Vancouver Rest
1658	130	131	131	411	444	466	Vancouver Rest
1659	12	12	12	62	66	68	Vancouver Rest
1660	668	670	672	4	4	4	Vancouver Rest
1661	287	295	301	0	0	0	Vancouver Rest
1662	398	398	398	19	19	19	Vancouver Rest
1663	967	967	967	61	61	61	Vancouver Rest
1664	60	60	60	478	478	478	Vancouver Rest
1665	113	135	150	327	332	336	Vancouver Rest
1666	7	10	12	57	109	144	Vancouver Rest
1667	167	169	171	1,083	1,084	1,084	Vancouver Rest
1668	237	239	240	488	492	495	Vancouver Rest
1669	250	300	334	386	408	423	Vancouver Rest
1670	831	832	833	306	306	306	Vancouver Rest
1671	979	979	979	134	145	152	Vancouver Rest
1672	1,101	1,105	1,108	331	331	331	Vancouver Rest
1673	76	76	76	273	276	278	Vancouver Rest
1674	17	20	22	290	303	311	Vancouver Rest
1675	37	37	37	341	382	410	Vancouver Rest
1676	20	21	22	402	409	413	Vancouver Rest
1677	297	440	536	186	385	518	Vancouver Rest
1678	84	130	160	39	170	257	Vancouver Rest
1679	151	168	180	222	223	224	Vancouver Rest
1680	52	54	55	270	270	270	Vancouver Rest
1681	484	634	734	0	43	72	Vancouver Rest
1682	918	923	927	480	486	490	Vancouver Rest
1683	62	126	169	360	362	363	Vancouver Rest
1684	382	399	411	622	622	622	Vancouver Rest
1685	351	353	354	0	0	0	Vancouver Rest
1686	148	200	235	10	11	12	Vancouver Rest
1687	128	148	162	142	146	149	Vancouver Rest
1688	39	40	40	195	211	222	Vancouver Rest
1689	404	405	406	29	30	31	Vancouver Rest
1690	526	549	564	300	321	335	Vancouver Rest
1691	46	309	484	187	216	235	Vancouver Rest
1692	703	777	826	57	74	85	Vancouver Rest
1693	8	9	9	252	283	304	Vancouver Rest
1694	55	56	57	504	504	504	Vancouver Rest
1695	34	35	36	394	394	394	Vancouver Rest
1696	7	9	11	472	546	595	Vancouver Rest
1697	0	2	3	103	103	103	Vancouver Rest
1698	746	746	746	0	0	0	Vancouver Rest
1699	249	296	328	0	0	0	Vancouver Rest
1700	101	103	104	0	20	33	Vancouver Rest
1701	613	613	613	0	0	0	Vancouver Rest
1702	375	863	1,189	0	115	192	Vancouver Rest
1703	495	497	498	0	0	0	Vancouver Rest
1704	324	336	344	628	635	640	Vancouver Rest
1705	26	26	26	319	320	320	Vancouver Rest

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1706	36	38	39	453	469	480	Vancouver Rest
1707	581	582	582	1,310	1,310	1,310	Vancouver Rest
1708	12	13	14	256	256	256	Vancouver Rest
1709	217	236	248	307	307	307	Vancouver Rest
1710	62	65	67	323	323	323	Vancouver Rest
1711	506	508	509	728	728	728	Vancouver Rest
1712	216	218	220	502	503	504	Vancouver Rest
1713	746	748	750	444	444	444	Vancouver Rest
1714	186	186	186	193	218	234	Vancouver Rest
1715	560	562	563	408	413	416	Vancouver Rest
1716	447	544	608	193	201	207	Vancouver Rest
1717	105	106	106	709	709	709	Vancouver Rest
1718	282	284	286	551	562	570	Vancouver Rest
1719	170	171	171	778	807	827	Vancouver Rest
1720	25	28	30	343	350	355	Vancouver Rest
1721	1	26	43	209	215	219	Vancouver Rest
1722	451	570	650	213	221	227	Vancouver Rest
1723	656	658	660	308	317	323	Vancouver Rest
1724	214	215	215	490	500	507	Vancouver Rest
1725	33	34	34	263	267	270	Vancouver Rest
1726	65	69	71	608	622	631	Vancouver Rest
1727	20	20	20	408	420	428	Vancouver Rest
1728	15	16	16	284	285	285	Vancouver Rest
1729	10	13	15	224	292	337	Vancouver Rest
1730	22	50	68	302	309	314	Vancouver Rest
1731	238	267	286	242	253	261	Vancouver Rest
1732	103	1,013	1,619	180	194	203	Vancouver Rest
1733	91	91	91	43	50	55	Vancouver Rest
1734	216	281	324	282	308	325	Vancouver Rest
1735	229	371	465	593	657	699	Vancouver Rest
1736	248	357	429	240	241	242	Vancouver Rest
1737	319	900	1,287	12	12	12	Vancouver Rest
1738	35	181	278	164	475	682	Vancouver Rest
1739	66	271	407	319	320	321	Vancouver Rest
1740	35	37	38	383	390	395	Vancouver Rest
1741	50	88	113	280	284	286	Vancouver Rest
1742	24	25	25	503	507	510	Vancouver Rest
1743	40	41	41	599	622	638	Vancouver Rest
1744	193	196	198	972	1,025	1,061	Vancouver Rest
1745	157	284	369	808	808	808	Vancouver Rest
1746	152	1,285	2,041	209	622	898	Vancouver Rest
1747	318	322	324	30	50	64	Vancouver Rest
1748	192	388	518	570	656	713	Vancouver Rest
1749	529	531	532	126	164	190	Vancouver Rest
1750	651	673	687	0	0	0	Vancouver Rest
1751	333	333	333	412	454	482	Vancouver Rest
1752	1,083	1,085	1,087	226	257	277	Vancouver Rest
1753	1,278	1,284	1,288	135	352	497	Vancouver Rest
1754	1,413	1,414	1,414	0	0	0	Vancouver Rest
1755	348	364	375	351	351	351	Vancouver Rest
1756	50	51	52	1,071	1,073	1,075	Vancouver Rest
1757	98	99	100	371	376	380	Vancouver Rest
1758	593	1,319	1,803	0	1	1	Vancouver Rest
1759	1,143	1,145	1,146	844	844	844	Vancouver Rest
1760	47	49	50	538	538	538	Vancouver Rest

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1761	15	17	19	542	549	553	Vancouver Rest
1762	605	967	1,208	720	773	808	Vancouver Rest
1763	210	379	492	269	308	334	Vancouver Rest
1764	139	171	192	77	658	1,046	Vancouver Rest
1765	48	94	125	146	193	225	Vancouver Rest
1766	3	10	14	167	258	318	Vancouver Rest
1767	88	101	110	265	299	322	Vancouver Rest
1768	15	15	15	280	282	284	Vancouver Rest
1769	664	1,136	1,450	1	63	105	Vancouver Rest
1770	13	18	21	419	419	419	Vancouver Rest
1771	321	1,445	2,195	10	84	133	Vancouver Rest
1772	385	848	1,156	28	54	71	Vancouver Rest
1773	95	261	371	349	350	350	Vancouver Rest
1774	14	445	732	28	39	47	Vancouver Rest
1775	256	256	256	0	1	1	Vancouver Rest
1776	166	197	218	151	229	281	Vancouver Rest
1777	991	1,220	1,372	0	0	0	Vancouver Rest
1778	384	384	384	44	49	52	Vancouver Rest
1779	309	1,414	2,151	6	24	36	Vancouver Rest
1780	296	298	300	28	155	239	Vancouver Rest
1781	85	335	502	158	211	246	Vancouver Rest
1782	37	37	37	137	147	154	Vancouver Rest
1783	23	23	23	249	274	290	Vancouver Rest
1784	21	23	25	764	913	1,013	Vancouver Rest
1785	40	40	40	478	507	527	Vancouver Rest
1786	76	90	99	105	106	106	Vancouver Rest
1787	14	17	19	247	278	299	Vancouver Rest
1788	68	70	71	452	633	754	Vancouver Rest
1789	91	91	91	408	409	409	Vancouver Rest
1790	7	7	7	126	215	274	Vancouver Rest
1791	25	336	544	60	160	226	Vancouver Rest
1792	327	356	375	119	312	440	Vancouver Rest
1793	22	49	67	309	571	745	Vancouver Rest
1794	297	488	616	560	603	631	Vancouver Rest
1795	41	51	57	198	209	217	Vancouver Rest
1796	729	1,073	1,303	111	129	141	Vancouver Rest
1797	938	938	938	117	127	134	Vancouver Rest
1798	141	179	205	156	162	166	Vancouver Rest
1799	54	98	127	281	291	298	Vancouver Rest
1800	194	234	260	0	2	3	Vancouver Rest
1801	43	92	125	197	252	289	Vancouver Rest
1802	243	280	305	192	220	238	Vancouver Rest
1803	93	448	684	567	748	868	Vancouver Rest
1804	35	44	50	398	740	968	Vancouver Rest
1805	141	158	169	660	698	724	Vancouver Rest
1806	91	133	161	319	333	342	Vancouver Rest
1807	278	496	641	91	102	109	Vancouver Rest
1808	805	1,080	1,263	166	230	273	Vancouver Rest
1809	245	310	354	478	515	539	Vancouver Rest
1810	4	5	5	307	387	440	Vancouver Rest
1811	246	293	325	279	448	561	Vancouver Rest
1812	41	319	504	197	360	469	Vancouver Rest
1813	21	23	25	467	546	599	Vancouver Rest
1814	14	19	23	811	977	1,087	Vancouver Rest
1815	275	300	317	189	206	217	Vancouver Rest

*Data suppressed for confidentiality

Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1816	18	19	20	189	202	211	Vancouver Rest
1817	550	792	953	613	643	663	Vancouver Rest
1818	13	60	91	6	11	15	Vancouver Rest
1819	22	26	29	287	340	375	Vancouver Rest
1820	88	99	106	107	126	138	Vancouver Rest
1821	6	7	7	53	72	85	Vancouver Rest
1822	1	689	1,147	26	33	38	Vancouver Rest
1823	7	10	12	237	276	302	Vancouver Rest
1824	11	29	41	233	272	298	Vancouver Rest
1825	3	6	8	24	67	96	Vancouver Rest
1826	19	300	487	108	256	354	Vancouver Rest
1827	19	24	28	179	210	231	Vancouver Rest
1828	41	47	51	257	276	288	Vancouver Rest
1829	2	11	17	79	134	171	Vancouver Rest
1830	74	2,107	3,462	26	364	590	Vancouver Rest
1831	60	521	829	2	331	550	Vancouver Rest
1832	19	57	83	105	143	168	Vancouver Rest
1833	32	34	35	197	333	424	Vancouver Rest
1834	313	316	318	812	855	883	Vancouver Rest
1835	230	322	383	29	79	112	Vancouver Rest
1836	27	117	177	62	784	1,265	Vancouver Rest
1837	30	31	31	359	396	421	Vancouver Rest
1838	43	53	60	340	390	423	Vancouver Rest
1839	110	112	114	271	298	316	Vancouver Rest
1840	45	50	53	543	695	797	Vancouver Rest
1841	74	93	106	420	491	538	Vancouver Rest
1842	115	120	123	604	662	700	Vancouver Rest
1843	24	25	25	134	244	318	Vancouver Rest
1844	9	10	11	147	222	272	Vancouver Rest
1845	3	4	5	63	291	443	Vancouver Rest
1846	131	138	142	780	858	910	Vancouver Rest
1847	5	19	28	113	244	332	Vancouver Rest
1848	50	128	180	211	347	437	Vancouver Rest
1849	20	22	24	243	262	275	Vancouver Rest
1850	182	182	182	922	1,007	1,063	Vancouver Rest
1851	16	86	132	523	624	691	Vancouver Rest
1852	265	265	265	318	331	339	Vancouver Rest
1853	13	15	17	348	359	366	Vancouver Rest
1854	332	499	610	131	142	150	Vancouver Rest
1855	11	12	12	181	194	202	Vancouver Rest
1856	9	10	10	151	168	179	Vancouver Rest
1857	86	96	102	468	497	517	Vancouver Rest
1858	57	63	67	387	422	446	Vancouver Rest
1859	698	863	973	322	356	379	Vancouver Rest
1860	93	93	93	232	258	275	Vancouver Rest
1861	122	122	122	557	628	675	Vancouver Rest
1862	29	30	31	308	325	336	Vancouver Rest
1863	15	27	35	444	477	499	Vancouver Rest
1864	105	109	111	419	448	467	Vancouver Rest
1865	347	349	350	211	265	301	Vancouver Rest
1866	107	107	107	356	376	390	Vancouver Rest
1867	497	658	765	582	630	662	Vancouver Rest
1868	75	75	75	458	531	579	Vancouver Rest
1869	349	350	350	446	457	465	Vancouver Rest
1870	547	548	548	79	89	95	Vancouver Rest

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1871	767	805	831	112	117	121	Vancouver Rest
1872	388	395	400	497	534	559	Vancouver Rest
1873	307	549	710	171	236	280	Vancouver Rest
1874	168	181	189	466	491	508	Vancouver Rest
1875	162	164	166	418	425	430	Vancouver Rest
1876	56	57	57	298	330	352	Vancouver Rest
1877	500	504	506	12	13	14	Vancouver Rest
1878	279	370	431	404	507	576	Vancouver Rest
1879	1,225	1,272	1,303	148	160	168	Vancouver Rest
1880	67	110	138	340	347	351	Vancouver Rest
1881	216	289	337	311	347	371	Vancouver Rest
1882	112	120	126	108	146	172	Vancouver Rest
1883	609	977	1,223	15	15	15	Vancouver Rest
1884	535	789	959	4	5	5	Vancouver Rest
1885	91	108	119	6	16	23	Vancouver Rest
1886	413	525	600	1	57	95	Vancouver Rest
1887	100	100	100	267	290	306	Vancouver Rest
1888	34	50	61	255	285	305	Vancouver Rest
1889	224	409	533	92	102	109	Vancouver Rest
1890	111	114	116	337	348	355	Vancouver Rest
1891	146	304	410	302	343	371	Vancouver Rest
1892	134	218	274	547	599	633	Vancouver Rest
1893	325	400	450	430	456	474	Vancouver Rest
1894	124	179	216	558	587	606	Vancouver Rest
1895	1,784	2,217	2,505	417	611	740	Vancouver Rest
1896	24	28	30	300	476	593	Vancouver Rest
1897	15	19	22	287	339	373	Vancouver Rest
1898	100	150	184	165	188	204	Vancouver Rest
1899	98	994	1,591	22	23	24	Vancouver Rest
1900	1	76	126	33	136	205	Vancouver Rest
1901	85	206	286	326	357	378	Vancouver Rest
1902	0	2	4	230	259	279	Vancouver Rest
1903	11	11	11	240	259	272	Vancouver Rest
1904	471	526	562	258	295	320	Vancouver Rest
1905	323	390	435	1,009	1,064	1,101	Vancouver Rest
1906	44	44	44	651	707	744	Vancouver Rest
1907	67	68	68	461	499	524	Vancouver Rest
1908	29	29	29	396	435	461	Vancouver Rest
1909	366	556	683	655	774	853	Vancouver Rest
1910	13	14	14	309	409	476	Vancouver Rest
1911	204	206	208	526	557	577	Vancouver Rest
1912	18	30	38	245	288	317	Vancouver Rest
1913	14	15	15	251	335	391	Vancouver Rest
1914	171	172	173	106	184	236	Vancouver Rest
1915	87	90	92	340	414	463	Vancouver Rest
1916	17	286	465	7	10	12	Vancouver Rest
1917	2	6	8	69	212	307	Vancouver Rest
1918	51	110	149	67	201	291	Vancouver Rest
1919	3	6	8	132	183	217	Vancouver Rest
1920	324	485	593	121	132	139	Vancouver Rest
1921	316	441	525	118	177	217	Vancouver Rest
1922	139	287	385	187	199	207	Vancouver Rest
1923	184	264	317	43	45	46	Vancouver Rest
1924	36	36	36	603	610	615	Vancouver Rest
1925	197	198	198	570	644	694	Vancouver Rest

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1926	698	738	765	564	628	671	Vancouver Rest
1927	52	69	80	574	767	896	Vancouver Rest
1928	68	69	70	893	950	988	Vancouver Rest
1929	256	259	261	835	934	1,000	Vancouver Rest
1930	90	90	90	633	664	684	Vancouver Rest
1931	16	16	16	224	234	240	Vancouver Rest
1932	497	525	544	309	478	590	Vancouver Rest
1933	53	60	64	523	563	589	Vancouver Rest
1934	26	26	26	265	343	395	Vancouver Rest
1935	85	88	90	172	192	206	Vancouver Rest
1936	138	160	174	820	1,299	1,619	Vancouver Rest
1937	22	25	27	265	333	378	Vancouver Rest
1938	239	246	250	518	601	657	Vancouver Rest
1939	308	316	322	791	810	823	Vancouver Rest
1940	214	216	218	1,055	1,131	1,181	Vancouver Rest
1941	485	487	488	306	306	306	Vancouver Rest
1942	232	238	242	4	5	5	Vancouver Rest
1943	632	707	757	1	1	1	Vancouver Rest
1944	1,942	2,070	2,155	37	41	43	Vancouver Rest
1945	600	614	624	112	147	170	Vancouver Rest
1946	144	161	172	292	425	513	Vancouver Rest
1947	42	59	70	10	191	311	Vancouver Rest
1948	11	13	15	76	225	325	Vancouver Rest
1949	3	14	22	53	62	68	Vancouver Rest
1950	5	7	9	80	108	127	Vancouver Rest
1951	0	5	8	53	62	68	Vancouver Rest
1952	17	25	30	72	85	94	Vancouver Rest
1953	14	15	16	52	69	80	Vancouver Rest
1954	37	43	47	431	495	538	Vancouver Rest
1955	31	113	168	16	38	53	Vancouver Rest
1956	12	15	17	271	303	324	Vancouver Rest
1957	267	271	273	706	753	784	Vancouver Rest
1958	157	162	166	541	606	650	Vancouver Rest
1959	596	608	616	272	291	304	Vancouver Rest
1960	618	688	734	79	87	92	Vancouver Rest
1961	262	269	273	430	444	453	Vancouver Rest
1962	23	43	56	146	169	184	Vancouver Rest
1963	864	878	887	439	470	490	Vancouver Rest
1964	3	4	5	154	195	222	Vancouver Rest
1965	9	10	11	66	74	79	Vancouver Rest
1966	19	35	45	77	155	207	Vancouver Rest
1967	47	47	47	72	159	217	Vancouver Rest
1968	188	468	654	57	289	444	Vancouver Rest
1969	35	59	75	366	438	486	Vancouver Rest
1970	40	78	103	10	96	154	Vancouver Rest
1971	218	439	586	11	28	40	Vancouver Rest
1972	20	43	58	297	334	359	Vancouver Rest
1973	133	396	571	3	41	66	Vancouver Rest
1974	14	16	17	285	387	455	Vancouver Rest
1975	20	49	68	38	137	203	Vancouver Rest
1976	101	457	695	36	50	59	Vancouver Rest
1977	60	590	943	13	69	107	Vancouver Rest
1978	25	26	26	128	161	183	Vancouver Rest
1979	13	171	277	97	143	174	Vancouver Rest
1980	40	42	44	181	224	252	Vancouver Rest

Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
1981	71	578	916	159	481	696	Vancouver Rest
1982	9	97	155	119	570	870	Vancouver Rest
1983	16	59	88	61	320	492	Vancouver Rest
1984	30	404	653	10	11	11	Vancouver Rest
1985	120	130	137	91	101	107	Vancouver Rest
1986	18	19	19	82	100	112	Vancouver Rest
1987	18	19	19	38	56	68	Vancouver Rest
1988	11	14	16	120	132	140	Vancouver Rest
1989	68	164	228	83	99	110	Vancouver Rest
1990	11	24	33	112	135	151	Vancouver Rest
1991	3	13	20	101	111	117	Vancouver Rest
1992	230	333	402	106	138	159	Vancouver Rest
1993	302	396	459	81	106	123	Vancouver Rest
1994	10	12	14	71	79	85	Vancouver Rest
1995	31	456	739	97	104	108	Vancouver Rest
1996	277	305	323	289	382	444	Vancouver Rest
1997	47	55	60	479	554	604	Vancouver Rest
1998	117	202	258	210	417	555	Vancouver Rest
1999	11	101	161	42	269	420	Vancouver Rest
2000	158	333	450	314	500	624	Vancouver Rest
2001	184	642	947	251	471	618	Vancouver Rest
2002	14	19	23	43	68	85	Vancouver Rest
2003	22	24	25	286	312	329	Vancouver Rest
2004	20	20	20	243	380	471	Vancouver Rest
2005	46	219	335	45	72	90	Vancouver Rest
2006	5	7	9	60	87	105	Vancouver Rest
2007	47	49	50	295	325	345	Vancouver Rest
2008	125	262	354	261	299	325	Vancouver Rest
2009	159	178	190	116	136	150	Vancouver Rest
2010	123	227	296	79	99	113	Vancouver Rest
2011	226	364	456	210	244	267	Vancouver Rest
2012	26	26	26	67	125	163	Vancouver Rest
2013	5	9	12	98	115	126	Vancouver Rest
2014	20	688	1,133	39	231	359	Vancouver Rest
2015	5	253	419	42	323	510	Vancouver Rest
2016	24	97	145	88	271	393	Vancouver Rest
2017	758	1,361	1,763	300	560	734	Vancouver Rest
2018	0	13	21	29	163	252	Vancouver Rest
2019	278	339	380	83	309	460	Vancouver Rest
2020	393	536	632	363	399	423	Vancouver Rest
2021	29	471	765	13	92	144	Vancouver Rest
2022	354	568	710	436	486	520	Vancouver Rest
2023	244	1,139	1,736	252	461	601	Vancouver Rest
2024	17	21	23	219	509	702	Vancouver Rest
2025	139	597	903	290	304	314	Vancouver Rest
2026	509	623	699	324	348	364	Vancouver Rest
2027	385	432	463	404	441	466	Vancouver Rest
2028	49	497	795	8	174	284	Vancouver Rest
2029	283	333	367	433	453	466	Vancouver Rest
2030	534	655	736	255	294	320	Vancouver Rest
2031	943	944	944	2	2	2	Vancouver Rest
2032	213	223	229	502	644	738	Vancouver Rest
2033	7	8	8	45	172	256	Vancouver Rest
2034	22	31	37	185	306	387	Vancouver Rest
2035	59	63	65	475	494	506	Vancouver Rest

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
2036	516	586	633	315	334	347	Vancouver Rest
2037	1	281	468	38	244	381	Vancouver Rest
2038	143	544	812	282	309	327	Vancouver Rest
2039	0	8	14	99	506	778	Vancouver Rest
2040	12	16	19	252	382	469	Vancouver Rest
2041	49	51	52	425	478	514	Vancouver Rest
2042	65	630	1,006	189	521	742	Vancouver Rest
2043	66	284	429	288	397	469	Vancouver Rest
2044	9	11	13	96	168	216	Vancouver Rest
2045	6	6	6	59	78	91	Vancouver Rest
2046	138	141	143	75	99	115	Vancouver Rest
2047	158	165	169	203	226	242	Vancouver Rest
2048	14	22	27	169	192	207	Vancouver Rest
2049	67	98	119	379	425	456	Vancouver Rest
2050	124	129	132	143	184	211	Vancouver Rest
2051	60	64	67	574	633	673	Vancouver Rest
2052	25	26	26	301	316	326	Vancouver Rest
2053	17	19	21	227	261	283	Vancouver Rest
2054	63	73	80	483	564	618	Vancouver Rest
2055	178	180	181	82	90	95	Vancouver Rest
2056	1	4	6	71	79	84	Vancouver Rest
2057	6	8	10	94	136	164	Vancouver Rest
2058	37	40	42	123	151	170	Vancouver Rest
2059	24	32	37	140	150	157	Vancouver Rest
2060	26	418	680	233	318	375	Vancouver Rest
2061	7	7	7	151	182	202	Vancouver Rest
2062	14	16	18	188	228	254	Vancouver Rest
2063	21	22	23	136	158	173	Vancouver Rest
2064	45	49	51	245	293	325	Vancouver Rest
2065	19	20	21	185	202	213	Vancouver Rest
2066	23	85	126	80	134	170	Vancouver Rest
2067	49	237	363	28	309	496	Vancouver Rest
2068	68	184	261	113	144	165	Vancouver Rest
2069	141	362	509	99	158	197	Vancouver Rest
2070	67	416	649	138	257	337	Vancouver Rest
2071	18	31	40	94	107	116	Vancouver Rest
2072	0	0	0	17	21	24	Vancouver Rest
2073	95	95	95	115	132	143	Vancouver Rest
2074	12	644	1,066	20	24	26	Vancouver Rest
2075	48	56	62	141	211	258	Vancouver Rest
2076	19	21	23	66	306	466	Vancouver Rest
2077	60	65	69	55	68	77	Vancouver Rest
2078	55	93	119	18	38	52	Vancouver Rest
2079	16	17	17	18	20	21	Vancouver Rest
2080	10	11	11	24	35	43	Vancouver Rest
2081	17	153	244	51	611	984	Vancouver Rest
2082	21	22	23	220	564	793	Vancouver Rest
2083	174	326	427	166	519	754	Vancouver Rest
2084	0	1	2	35	489	791	Vancouver Rest
2085	707	1,295	1,687	3	4	4	Vancouver Rest
2086	148	685	1,043	12	239	390	Vancouver Rest
2087	3	8	12	15	448	737	Vancouver Rest
2088	116	169	205	146	202	240	Vancouver Rest
2089	105	124	137	181	225	255	Vancouver Rest
2090	16	34	46	151	197	227	Vancouver Rest

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Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
2091	43	141	207	133	146	155	Vancouver Rest
2092	13	18	22	98	145	177	Vancouver Rest
2093	8	11	13	266	349	405	Vancouver Rest
2094	4	5	5	49	98	130	Vancouver Rest
2095	2	4	6	16	233	378	Vancouver Rest
2096	4	11	16	320	702	957	Vancouver Rest
2097	10	184	300	167	323	427	Vancouver Rest
2098	38	1,183	1,947	8	15	19	Vancouver Rest
2099	2	516	859	15	124	196	Vancouver Rest
2100	71	1,432	2,340	12	13	13	Vancouver Rest
2101	271	741	1,054	3	5	6	Vancouver Rest
2102	0	1,168	1,946	13	14	14	Vancouver Rest
2103	244	409	519	1	1	1	Vancouver Rest
2104	11	22	30	43	86	114	Vancouver Rest
2105	33	340	545	43	51	57	Vancouver Rest
2106	68	705	1,129	64	357	553	Vancouver Rest
2107	15	227	368	94	119	135	Vancouver Rest
2108	0	0	0	10	13	15	Vancouver Rest
2109	27	509	830	103	116	124	Vancouver Rest
2110	37	38	39	158	181	197	Vancouver Rest
2111	16	491	808	36	44	49	Vancouver Rest
2112	561	710	810	125	177	212	Vancouver Rest
2113	143	201	239	116	135	147	Vancouver Rest
2114	75	84	90	539	589	622	Vancouver Rest
2115	10	12	14	164	301	392	Vancouver Rest
2116	59	66	71	15	130	206	Vancouver Rest
2117	0	14	24	91	154	196	Vancouver Rest
2118	63	157	219	214	598	854	Vancouver Rest
2119	20	24	27	64	76	84	Vancouver Rest
2120	40	47	51	83	91	97	Vancouver Rest
2121	16	19	21	96	103	108	Vancouver Rest
2122	11	12	12	93	104	111	Vancouver Rest
2123	21	23	25	88	102	112	Vancouver Rest
2124	51	54	56	124	138	147	Vancouver Rest
2125	22	25	27	91	111	124	Vancouver Rest
2126	2	3	4	57	68	76	Vancouver Rest
2127	129	133	135	530	594	637	Vancouver Rest
2128	33	36	38	398	461	503	Vancouver Rest
2129	16	17	18	321	398	449	Vancouver Rest
2130	27	29	31	232	286	322	Vancouver Rest
2131	14	18	21	208	382	498	Vancouver Rest
2132	110	110	110	394	622	774	Vancouver Rest
2133	147	159	167	602	697	761	Vancouver Rest
2134	24	26	27	245	304	344	Vancouver Rest
2135	64	77	86	281	332	366	Vancouver Rest
2136	75	101	118	215	259	288	Vancouver Rest
2137	85	125	152	161	197	221	Vancouver Rest
2138	102	103	104	355	440	497	Vancouver Rest
2139	102	115	124	150	174	190	Vancouver Rest
2140	24	25	26	217	251	273	Vancouver Rest
2141	176	319	414	433	523	583	Vancouver Rest
2142	81	191	265	104	140	164	Vancouver Rest
2143	329	435	505	339	455	532	Vancouver Rest
2144	45	46	46	246	309	351	Vancouver Rest
2145	48	48	48	185	247	288	Vancouver Rest

*Data suppressed for confidentiality

Attachment 3. TAZ-Level Households, Employment and 2040 Design Type Assumptions

TAZ	2015 Employment*	2027 Employment*	2040 Employment	2015 Households	2027 Households	2040 Households	2040 Design Type
2146	21	22	22	60	91	111	Vancouver Rest
2147	5	6	7	202	270	315	Vancouver Rest
2148	0	0	0	0	0	0	External
2149	0	0	0	0	0	0	External
2150	0	0	0	0	0	0	External
2151	0	0	0	0	0	0	External
2152	0	0	0	0	0	0	External
2153	0	0	0	0	0	0	External
2154	0	0	0	0	0	0	External
2155	0	0	0	0	0	0	External
2156	0	0	0	0	0	0	External
2157	0	0	0	0	0	0	External
2158	0	0	0	0	0	0	External
2159	0	0	0	0	0	0	External
2160	0	0	0	0	0	0	External
2161	0	0	0	0	0	0	External
2162	0	0	0	0	0	0	External

*Data suppressed for confidentiality

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