CHAPTER 3:

Forecasting Future Growth and Travel

Overview

This chapter discusses forecasts for growth in land use types and densities that are key factors for predicting future travel demand and transportation needs to meet the demand.

Forecast

To evaluate the Metro region's transportation system needs, including Gresham, Metro maintains a travel forecasting computer model called "Metroscope". The model is based on existing and planned land uses and population densities, and where those land uses will happen. Projected land use types, locations, and densities for Gresham, Pleasant Valley and Springwater are based on the city's Comprehensive Plan.

Projected Land Use Growth

The number of households and employment in Gresham, Pleasant Valley, and Springwater have been calculated and assigned to TAZs to determine the volume of auto trips that would be generated in year 2035 and how their travel would be distributed. Table 20 summarizes the forecasted households and employment information for 2010 and 2035 cumulative of all TAZs for Gresham, Pleasant Valley and Springwater.

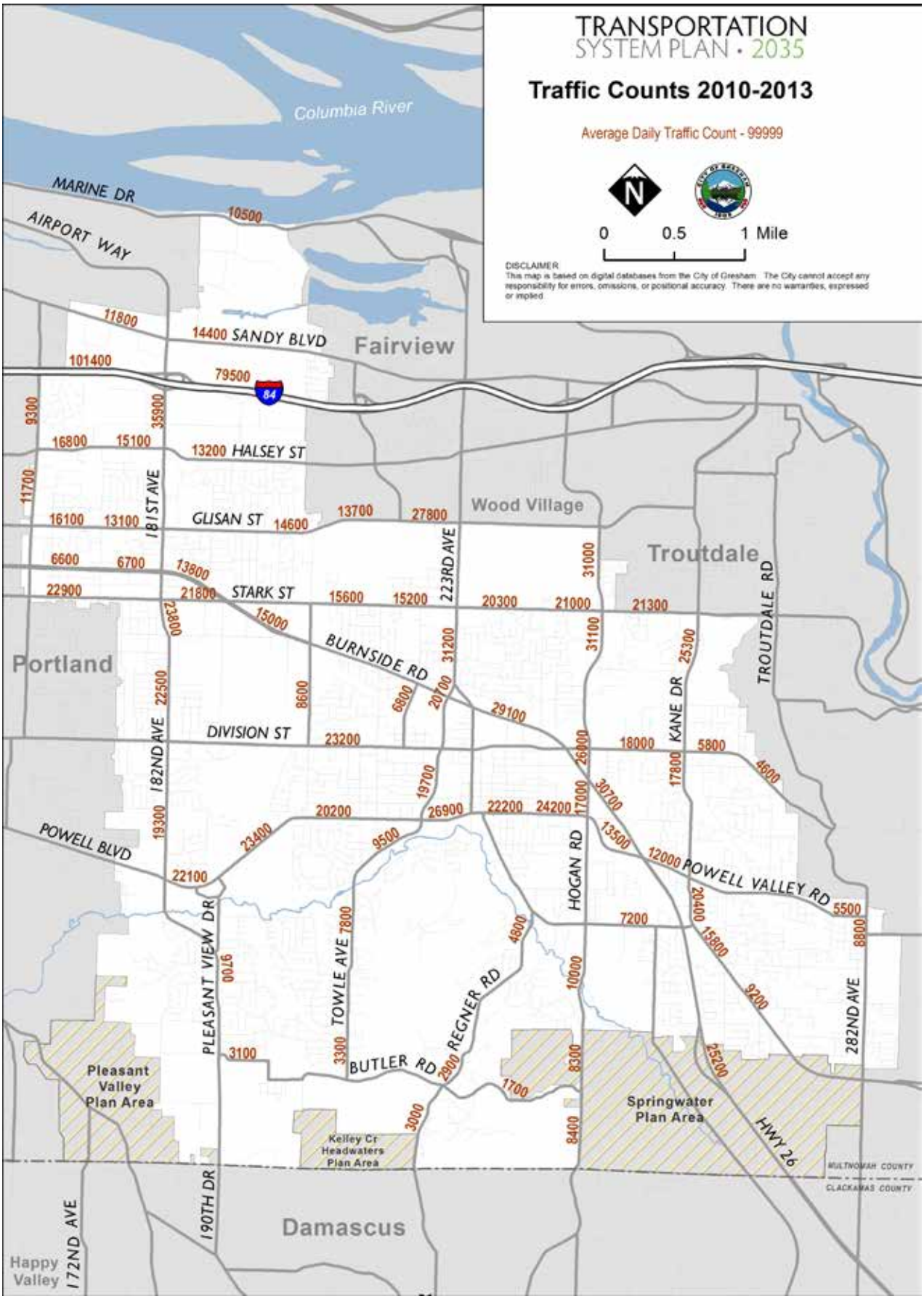
Cyclists and autos cross the MAX tracks on NW Eastman Parkway.

Table 20: Gresham, Pleasant Valley and Springwater Land Use Assumptions

Land Use	2010	2035	Percent Change from 2010 to 2035
Households	39,710	53,896	36%
Employment Total	32,791	61,480	87%
Employment Retail	7,353	12,879	75%
Employment Service	8,912	21,104	137%
Employment Other	16,526	27,497	66%

The study area is projected to experience an 87% increase in employment by 2035. The Pleasant Valley and Springwater Plan Areas will add a significant amount of employment opportunities within this TSP's 20-year horizon.

Map 20: 2035 Motor Vehicle Volumes



Motor Vehicle Travel Volumes

Based upon the household and employment projections, 2035 motor vehicle volumes are projected and shown in Map 20.

Trip Distribution

The distribution of internal, external and through trips is evaluated in Table 21.

Internal trips are trips that start and end within the study area;

External trips are trips that either start in the study area and end outside the study area, or start outside the study area and end within the study area; and

Through trips are trips that pass through the study area without having an origin or a destination in the study area.

The trip distribution percentages are expected to remain fairly consistent between 2010 and 2035 (Table 21).

Top: The TSP addresses future motor vehicle travel volumes and transportation needs.

Bottom: Traffic on E. Powell Boulevard.

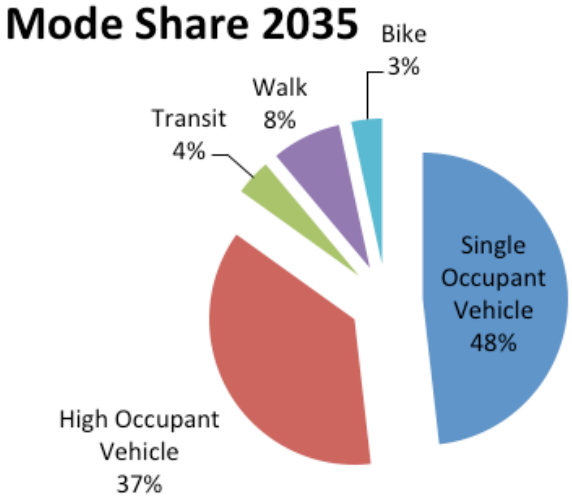
Table 21: Trip Distribution

Trip Type	2010	2035	Growth	2010 Share	2035 Share	Change
Internal (within Gresham)	8,312	12,735	4,424	22%	22%	0%
External (from/to Gresham)	22,609	33,954	11,345	59%	57%	-2%
Through* (via Gresham)	7,271	12,420	5,149	19%	21%	2%

** Excludes through trips on I-84*

Mode Share

Mode share indicates how many trips in 2035 will be made by high and single occupant vehicles, pedestrians, bicyclists and transit riders. The greatest number of trips will be made by single occupant vehicles and high occupant vehicles. Pedestrians, bicyclists and transit riders will make up 15% of trips.



Graphic 7: Mode Share 2035

Traffic in the intersection of E. Powell Boulevard and NE Hogan Road.

Future Intersection Traffic Operations

Gresham evaluates future intersection traffic operation with 20 year traffic volume forecasts developed by Metro as described above. The intersection traffic operation is represented as a volume to capacity (V/C) ratio, which is a measure of the amount of traffic on a given intersection in relation to the amount of traffic the intersection was designed to handle. It represents the level of traffic congestion experienced at the intersection as described in Table 22 below.

Table 22: Volume to Capacity Ratio

V/C Ratio	Congestion Level
V/C <= 0.8	No/Low congestion
V/C >0.8 and <=0.90	Moderate congestion
V/C > 0.90 and <= 1.0	High congestion
V/C > 1.0	Severe congestion

Regional policy states that intersection traffic operating standards should be a V/C ratio of 0.99 in Metro Regional and Town Centers and a V/C ratio of 0.90 outside of Centers. Gresham monitors existing and future intersection operation to ensure these standards are met.

SDCs are a one-time charge collected by the City when a development permit is issued. The City uses the revenue to construct or improve intersection and roadway projects on the SDC list.

Table 23 shows two levels of intersection evaluation and forecast; an unimproved and an improved V/C ratio 2033 scenario. Column "2033 Unimproved V/C" shows the V/C ratio for each intersection with the assumption that the only improvements made are minor modifications and/or updated signal timing. The intersections on this list that fail to meet the regional standards are added to the City's **System Development Charges (SDC)** list and further evaluated to determine improvements necessary to bring them to standard. The improvements were fine-tuned through simulations using SimTraffic modeling software to ensure acceptable operation. Column "2033 Improved V/C" shows the V/C ratio with the identified improvements, bringing each intersection into compliance with standards.

Table 23: Future Intersection Operations

Intersection	Signalized	2013 V/C	2033 Unimproved V/C	2033 Improved V/C	SDC Project Intersection
E Burnside St & 162nd Ave	Y	0.57	0.90	0.90	N
E Burnside St & 172nd Ave	Y	0.42	0.92	0.90	N
E Burnside St & 181st Ave	Y	0.72	0.90	0.90	Y
E Burnside St & SE 185th Ave	Y	0.27	0.39	0.39	N
E Burnside St & SE 188th Ave	Y	0.36	0.59	0.59	N
E Burnside St & SE Stark St	Y	0.49	0.69	0.69	Y
E Burnside St & SE 197th Ave	Y	0.33	0.49	0.49	N
E Burnside St & SE 202nd Ave	Y	0.61	0.91	0.84	Y
NW Burnside Rd & NW Wallula Ave	Y	0.46	0.77	0.77	N
NW Burnside Rd & NW Civic Dr	Y	0.76	0.85	0.85	N
NW Burnside Rd & NW Eastman Pkwy	Y	0.78	0.92	0.91	Y
Burnside Rd & N Main Ave	Y	0.66	0.88	0.88	Y
NE Burnside Rd & NE Kelly Ave	Y	0.51	0.63	0.61	Y
NE Burnside Rd & NE Cleveland Ave	Y	0.64	0.98	0.86	Y
NE Burnside Rd & NE Division St	Y	0.75	0.84	0.84	Y
NE Burnside Rd & NE Hogan Dr	Y	0.87	1.15	0.84	Y
SE Burnside Rd & SE 1st St	Y	0.55	0.69	0.69	N
SE Burnside Rd & SE 3rd St	Y	0.52	0.67	0.66	N
SE Burnside Rd & E Powell Blvd	Y	0.71	0.94	0.82	Y
Mt Hood Hwy & SE Palmquist St	Y	0.95	1.14	0.97	Y
NE Halsey St & NE 162nd Ave	Y	0.53	0.74	0.74	N
NE Halsey St & NE 169th Ave	N	0.29	0.44	0.44	N
NE Halsey St & NE 172nd Ave	N	0.49	0.35	0.35	N
NE Halsey St & NE 181st Ave	Y	0.88	1.06	0.91	Y
NE Halsey St & NE 192nd Ave	Y	0.51	0.68	0.68	N
NE Halsey St & NE 201st Ave	Y	0.56	0.74	0.91	Y
NE Glisan St & NE 162nd Ave	Y	0.64	1.03	0.92	Y
NE Glisan St & NE 172nd Ave	Y	0.38	0.69	0.69	N
NE Glisan St & NE 181st Ave	Y	0.86	1.01	0.89	Y
NE Glisan St & NE 188th Ave	N	0.57	1.30	0.76	N
NE Glisan St & NE 192nd Ave	N	0.29	0.58	0.58	N
NE Glisan St & NE 194th Ave	N	0.28	0.56	0.56	N
NE Glisan St & NE 202nd Ave	Y	0.69	1.08	0.89	Y
NE Glisan St & NE Hogan Dr	Y	0.86	1.08	0.88	N
SE Stark St & NE 162nd Ave	Y	0.71	1.01	0.91	Y
SE Stark St & SE 172nd Ave	Y	0.56	1.56	0.63	Y
SE Stark St & SE 174th Ave	Y	0.54	0.76	0.69	Y
SE Stark St & SE 181st Ave	Y	0.74	0.99	0.90	Y
SE Stark St & SE 185th Ave	Y	0.45	0.54	0.49	N
SE Stark St & SE 187th Ave	Y	0.30	0.55	0.50	N
SE Stark St & SE 192nd Ave	N	0.24	0.51	0.51	N

Intersection	Signalized	2013 V/C	2033 Unimproved V/C	2033 Improved V/C	SDC Project Intersection
SE Stark St & SE 194th Ave	N	0.24	0.41	0.41	N
SE Stark St & SE 202nd Ave	Y	0.69	0.96	0.89	Y
SE Stark St & SE 212th Ave	N	0.43	0.53	0.53	N
SE Stark St & SE 217th Ave	N	0.36	0.49	0.49	N
SE Stark St & SE 223rd Ave	Y	0.88	1.17	0.99	Y
SE Stark St & NE Cleveland Ave	Y	0.66	0.87	0.87	N
SE Stark St & NE Hogan Dr	Y	0.87	1.04	0.90	Y
SE Stark St & NE Kane Dr	Y	0.83	0.99	0.88	Y
SE Division St & SE 182nd Ave	Y	0.85	0.97	0.89	Y
SE Division St & SE 190th Ave	Y	0.52	0.78	0.78	N
NW Division St & NW Birdsdale Ave	Y	0.71	0.98	0.91	Y
NW Division St & NW Wallula Ave	Y	0.41	0.77	0.77	N
NW Division St & NW Civic Dr	Y	0.51	0.69	0.69	N
NW Division St & NW Eastman Pkwy	Y	0.81	0.92	0.92	N
Division St & N Main Ave	Y	0.54	0.84	0.84	N
NE Division St & NE Kelly Ave	Y	0.53	0.80	0.79	N
NE Division St & NE Cleveland Ave	Y	0.70	0.85	0.85	N
NE Division St & NE Hogan Dr	Y	0.72	0.84	0.84	N
NE Division St & NE Kane Dr	Y	0.81	0.84	0.84	N
SE Division Dr & NE Williams Ave	N	0.15	0.31	0.31	N
W Powell Blvd & SE 182nd Ave	Y	0.68	0.94	0.90	Y
W Powell Blvd & East Powell Loop	Y	0.59	0.73	0.73	N
W Powell Blvd & NW Birdsdale Ave	Y	0.65	0.80	0.80	N
W Powell Blvd & Towle Ave	Y	0.59	0.77	0.77	N
W Powell Blvd & Eastman Pkwy	Y	0.72	0.97	0.95	Y
W Powell Blvd & SE Walters Dr	Y	0.38	0.52	0.52	N
Powell Blvd & Main Ave	Y	0.61	0.84	0.84	N
E Powell Blvd & Hood Ave	Y	0.57	0.91	0.91	N
E Powell Blvd & Cleveland Ave	Y	0.51	0.87	0.87	N
E Powell Blvd & SE Hogan Rd	Y	0.83	1.17	0.95	Y
E Powell Blvd SE Rene Ave	Y	0.44	0.60	0.60	N
SE Powell Valley Rd & SE Kane Dr	Y	0.59	0.64	0.64	N
SE Powell Valley Rd & SE Barnes Rd	N	0.56	0.95	0.49	Y
SE Powell Valley Rd & SE 282nd Ave	N	0.56	1.25	0.85	Y
NE Sandy Blvd & NE 185th Ave	N	0.65	3.89	0.78	Y
NE Sandy Blvd & NE 181st Ave	Y	0.73	1.01	0.82	Y
NE 181st Ave @ US Bancorp Dwy	Y	0.54	0.74	0.73	N
NE 181st Ave & I 84 West	Y	0.53	0.82	0.82	N
NE 181st Ave & I 84 East	Y	0.60	0.70	0.69	N
NE 181st Ave & San Rafael St	Y	0.86	0.86	0.82	Y
SE 182nd Ave & SE Yamhill St	Y	0.55	0.66	0.66	N
SE 190th Ave & SE Yamhill St	Y	0.27	0.68	0.68	N

Intersection	Signalized	2013 V/C	2033 Unimproved V/C	2033 Improved V/C	SDC Project Intersection
SE 182nd Ave & SE Tibbetts St	Y	0.46	0.65	0.65	N
SW Highland Dr & SW 11th St	Y	0.40	0.72	0.71	N
SW Highland Dr & SW Pleasant View Dr	N	0.93	1.06	0.73	Y
SW Pleasant View Dr & SW Willow Pkwy	N	0.42	0.86	0.43	Y
SE 190th Ave & SE Giese Rd/SE Butler Rd	N	0.42	3.27	0.83	Y
SE 190th Ave & SE Richey Rd	N	0.42	1.26	0.59	Y
NE Sandy Blvd & NE 201st Ave	Y	0.46	0.66	0.66	N
SE 223rd Ave & SE Salmon St	N	0.40	0.59	0.59	N
NW Eastman Pkwy & NW 3rd St	Y	0.36	0.45	0.45	N
SW Eastman Pkwy & SW Towle Ave	N	0.36	0.51	0.51	N
SW Towle Rd & SW Birdsdale Dr	N	0.38	2.85	0.94	Y
SW Towle Rd & SW Binford Lake Pkwy	N	0.27	0.79	0.79	N
SW Towle Rd & SW Willow Pkwy	N	0.13	0.19	0.19	N
SW Butler Rd & SW Towle Rd	Y	0.28	4.33	0.84	Y
SW Butler Rd & SE Regner Rd	Y	0.33	> 5.00	0.71	Y
SE Regner Rd & SE Cleveland Ave	N	0.11	0.23	0.23	Y
SE Regner Rd & SE Roberts Dr	N	0.11	0.91	0.91	Y
NE Hogan Dr & NE 23rd St	Y	0.62	0.84	0.84	N
SE Hogan Rd & SE 5th St	Y	0.53	1.18	0.65	Y
SE Hogan Rd & SE Palmquist Rd	Y	0.43	0.87	0.69	Y
SE Hogan Rd & SE Cleveland Dr	N	0.31	0.75	0.47	Y
SE Hogan Rd & SE Butler Rd	Y	0.28	> 5.00	0.77	Y
SE Palmquist Rd & SE Fleming Ave	N	0.10	0.12	0.09	Y
SE Palmquist Rd & SE Palmblad Rd	N	0.46	1.60	0.58	Y
NE Kane Dr & NE 29th St	Y	0.59	0.60	0.60	N
NE Kane Dr & NE 23rd St	Y	0.69	0.69	0.69	N
NE Kane Dr & NE 17th St	Y	0.61	0.64	0.64	N
SE Kane Dr & SE 1st St	Y	0.49	0.60	0.60	N
SE Kane Dr & SE 11th St	Y	0.41	0.51	0.51	N
SE Kane Dr & SE Palmquist Rd	Y	0.65	0.68	0.68	Y
SE Orient Dr & SE Barnes Rd	Y	0.51	0.76	0.76	N
SE Orient Dr & SE Chase Rd	N	0.28	0.44	0.44	N
SE Orient Dr & SE Welch Rd	N	0.10	0.31	0.31	N
SE 282nd Ave & SE Lusted Rd	N	0.24	1.46	0.76	Y
SE 282nd Ave & SE Salquist Rd	N	0.29	0.50	0.50	Y
SE 282nd Ave & SE Chase Rd	N	0.28	0.49	0.49	N
SE 282nd Ave & SE Welch Rd	N	0.28	0.49	0.49	Y