

2013 Land Use Baseline Validation Report: Maintenance Release 1 (MR1) Update

April 2014

Introduction

The purpose of model validation is to compare the performance of a model system or its components to data sources available relating to the observed state or actual conditions the model system is trying to represent. This document includes a discussion of the data sources that were used in the validation effort for the UrbanSim model system as employed by the Puget Sound Regional Council, and discusses the validation tests that were completed. As described elsewhere¹ Urbansim simulates the metropolitan land development process for each year of a simulation period. The PSRC implementation of the model system begins simulation in the year 2000 and ends in year 2040 (the forecast horizon). This affords a unique opportunity to conduct validation tests of a multi-year simulation model part way through the full simulation period. Of interest is the ability of the model system to predict the spatial pattern of the land development and location choice processes. The spatial unit of analysis is the Forecast Analysis Zones (FAZ).

The UrbanSim model includes methods for evaluating model uncertainty. These Bayesian methods make use of the model fit to actual conditions during the validation period (2000-2010) to estimate confidence intervals around the modeled expected values. Confidence intervals are a useful tool for interpreting modeled results and for making judgements about any post-modeling adjustments to the forecast expected values that may be considered.

The UrbanSim model simulates the dynamics of the urban land development process. As with any simulation model, examining data about model fit is only part of the validation process. It is also important to examine structural validity; and consider how well the model structure replicates processes in the real world. It is in this regard that the UrbanSim model is a dramatic step forward from past practice. The PSRC land use model is a parcel-based, market-driven model. The urban simulation process reflects the broad scope of interactions among households, firms, developers and governments within markets for real estate, labor, and goods and services. In any given simulation year, the PSRC land use model predicts how the individual actors (households, individuals, employers, developers, and governments) make decisions that culminate in the annual land development and location decisions.

- Developers use land to construct housing and nonresidential floor space that are required by households and businesses.
- Governments provide infrastructure and services and regulate; having an influence on market prices for the use of land and infrastructure.

¹<http://www.urbansim.org/downloads/manual/latest-stable-release/opus-userguide.pdf>

- Households make interdependent long-term choices, including when to move, neighborhoods to locate within, the type of housing to rent or purchase and the number of vehicles to own. Individuals within households choose from mobility and job search options.
- Employers choose site locations, size of employment, and types and quantities of real estate to rent or purchase.
- Developers choose to undertake real-estate development projects, and scale and locate those projects.
- Governments set policies and make investments that affect the choices of other agents, and also make development choices regarding public facilities.

The model system’s treatment of land markets, a central organizing focus, specifically represents local land use policies, includes hedonic analysis of real estate prices, and is consistent with the economic decisions of real estate developers. The model system uses standard discrete choice models to represent the choices made by households and firms. The choice models are estimated from local data and are sequenced to replicate the actual choice processes.

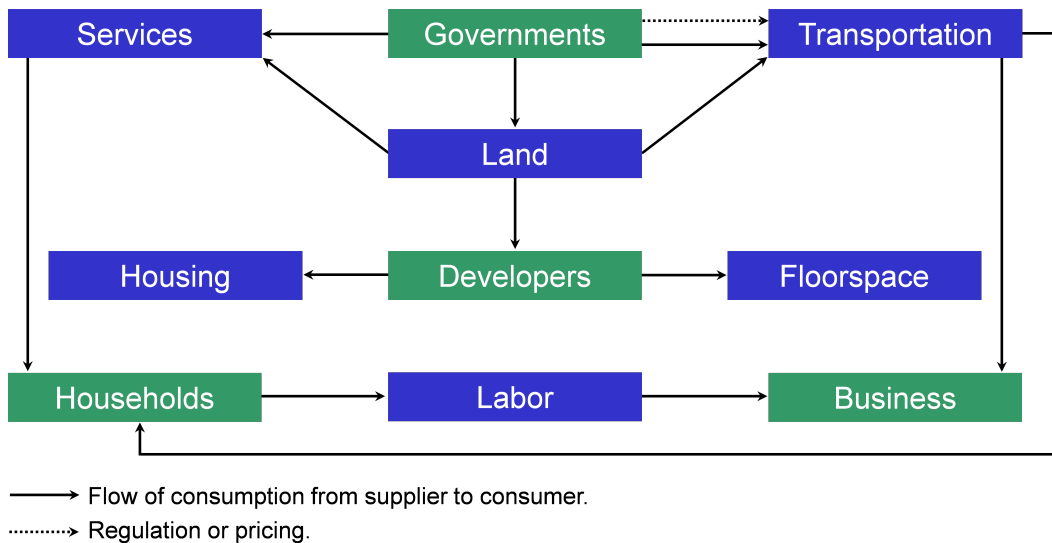


Figure 1: UrbanSim Simulation Dynamics

Performance of UrbanSim over the Validation Period

For the 2013 Land Use Baseline, the validation period has been defined as the years 2000 through 2010. The years 2000 through 2010 were by many measures a difficult period against which to validate a model system. This period included two recessions separated by a boom in housing prices and employment. By 2006, vacancy rates for the region were at historic lows and home prices were marching up at a remarkable rate. But within two years the impacts of the Great Recession were in full effect. These included the collapse of Washington Mutual, the first ever lay-offs at Microsoft and the loss of thousands of other

jobs around the region. Home prices fell sharply and the construction of new developments slowed dramatically.

Despite the difficulty of the validation period, assessment of the model system’s performance is necessary for estimation of uncertainty around the land use forecast through 2040. The following pages show charts that illustrate how the model system compared with the validation data between 2000 and 2010 at the FAZ geography. Household and job data (actual and modeled) is first presented in table 1 at the county geography. Figures 2 and 3 display changes in households and jobs at the FAZ Large Area Groups². Tables 2 and 3 display the same information in tabular form.

Table 1: Household and Jobs Totals and Change by County: Predicted and Actuals

Households		Actuals		Model Output	
County	2000	2010	00-10	2010	00-10
King	711,166	789,232	78,066	815,124	105,310
Kitsap	86,416	97,220	10,804	95,138	8,913
Pierce	260,550	299,918	39,368	289,118	29,184
Snohomish	224,852	268,325	43,473	255,313	30,481
Region	1,282,984	1,454,695	171,711	1,454,693	173,888

Jobs		Actuals		Model Output	
County	2000	2010	00-10	2010	00-10
King	1,259,664	1,180,957	-78,707	1,192,341	-50,320
Kitsap	82,947	89,435	6,488	86,831	4,859
Pierce	264,624	280,750	16,126	279,973	9,192
Snohomish	237,654	263,575	25,921	255,481	10,535
Region	1,844,889	1,814,717	-30,172	1,814,626	-25,734

Of particular importance to urban systems modeling and analysis at PSRC are the FAZ total households and jobs for any particular forecast year. This is especially true since these UrbanSim output variables are used as land use inputs to travel modeling and other spatial-oriented analysis. Figures 4 and 5 display the modeled and observed household and job totals by FAZ for the 2010 validation year.

In general, the model system produced reasonable results, especially when considering the peculiarity of the validation period. The largest model outliers are generally related to the unprecedented job losses in Downtown Seattle over the validation period and the growth related to Joint-Base Lewis McChord in Pierce County, two events that are not generally expected in any model system. Figures 6 and 7 display the modeled and observed household and job change by FAZ for the 2000-2010 validation period.

²Collections of FAZs into larger geographic units

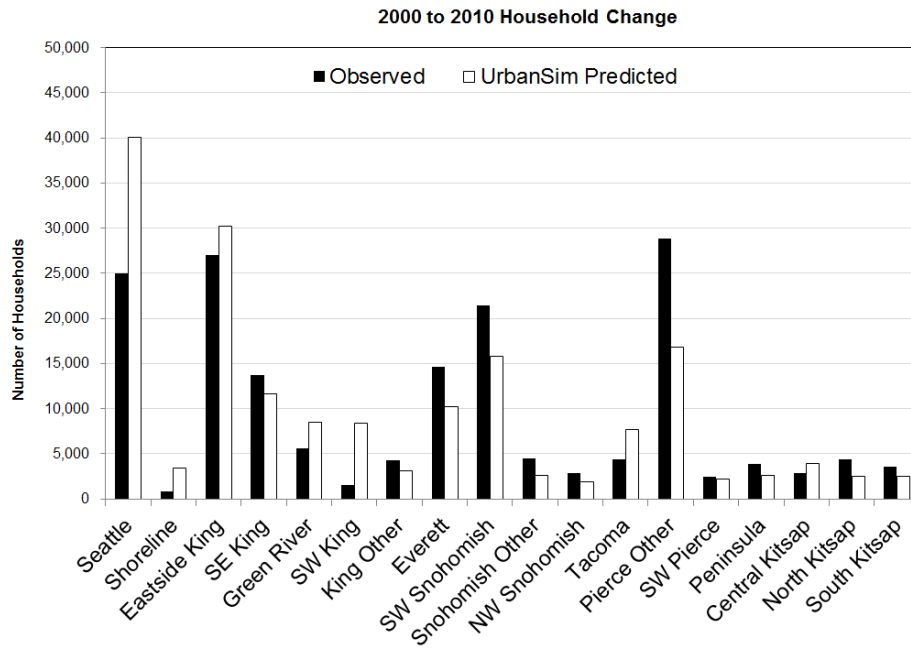


Figure 2: Household Change by FAZ Large Area: Predicted Relative to Actuals

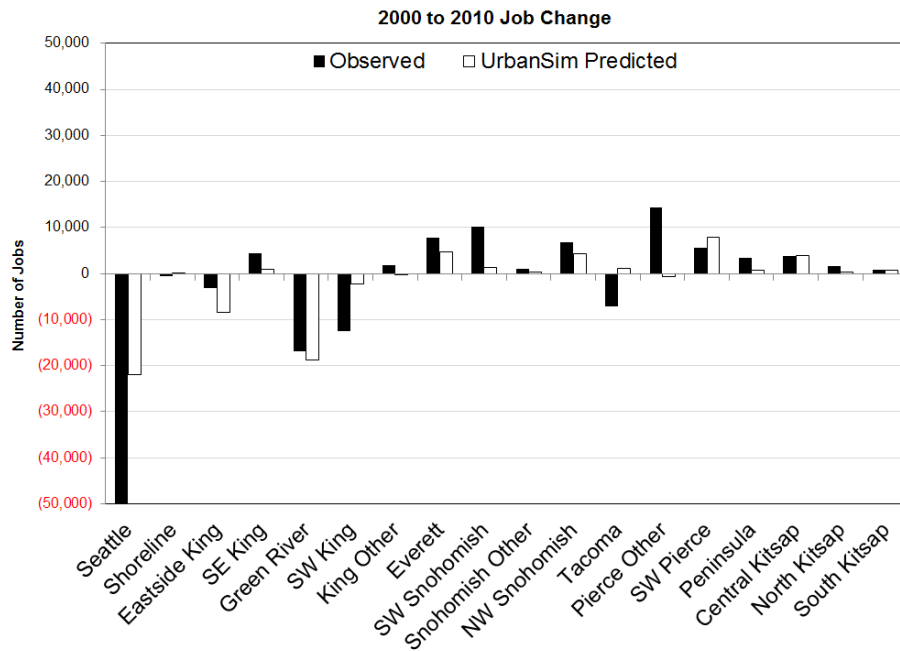


Figure 3: Job Change by FAZ Large Area: Predicted Relative to Actuals

Table 2: Household Totals and Change by FAZ Large Area: Predicted and Actuals

Households FAZ Large Area	2000	Actuals		Model Output	
		2010	00-10	2010	00-10
Seattle	258,589	283,575	24,986	297,962	40,017
Shoreline	26,079	26,936	857	29,488	3,444
Eastside King	169,918	196,948	27,030	199,817	30,186
SE King	74,325	88,028	13,703	85,895	11,607
Green River	68,874	74,497	5,623	77,135	8,512
SW King	97,392	98,949	1,557	105,702	8,423
King Other	15,989	20,299	4,310	19,087	3,119
Everett	81,811	96,457	14,646	92,019	10,220
SW Snohomish	106,305	127,778	21,473	122,101	15,752
Snohomish Other	23,079	27,601	4,522	25,714	2,642
NW Snohomish	13,657	16,489	2,832	15,519	1,870
Tacoma	78,641	82,972	4,331	86,189	7,619
Pierce Other	112,694	141,495	28,801	129,294	16,775
SW Pierce	48,665	51,078	2,413	50,490	2,174
Peninsula	20,550	24,373	3,823	23,143	2,615
Central Kitsap	43,530	46,421	2,891	47,295	3,913
North Kitsap	20,923	25,246	4,323	23,355	2,468
South Kitsap	21,963	25,553	3,590	24,488	2,532
Region	1,282,984	1,454,695	171,711	1,454,693	173,888

Table 3: Job Totals and Change by FAZ Large Area: Predicted and Actuals

Jobs FAZ Large Area	2000	Actuals		Model Output	
		2010	00-10	2010	00-10
Seattle	542,627	490,755	-51,872	515,444	-21,995
Shoreline	21,152	20,618	-534	20,472	198
Eastside King	330,982	327,866	-3,116	317,562	-8,338
SE King	38,531	42,965	4,434	37,595	945
Green River	206,536	189,625	-16,911	187,300	-18,835
SW King	107,436	94,956	-12,480	102,873	-2,228
King Other	12,400	14,172	1,772	11,085	-66
Everett	119,900	127,741	7,841	128,719	4,642
SW Snohomish	93,949	104,233	10,284	98,418	1,315
Snohomish Other	15,158	16,117	959	15,302	348
NW Snohomish	8,647	15,484	6,837	13,049	4,228
Tacoma	120,731	113,522	-7,209	125,494	1,118
Pierce Other	81,724	96,017	14,293	83,188	-560
SW Pierce	48,269	53,849	5,580	57,376	7,892
Peninsula	13,900	17,362	3,462	13,917	742
Central Kitsap	50,705	54,588	3,883	54,536	3,951
North Kitsap	18,383	20,068	1,685	18,399	245
South Kitsap	13,859	14,779	920	13,897	664
Region	1,844,889	1,814,717	-30,172	1,814,626	-25,734

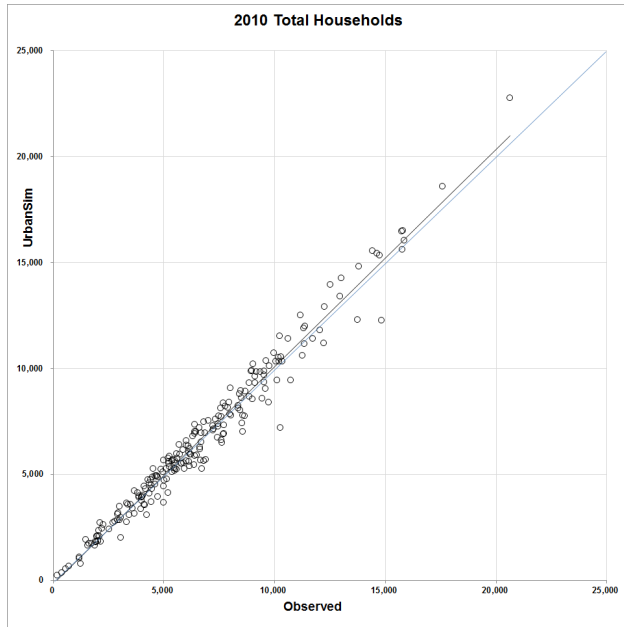


Figure 4: Households by FAZ: Predicted Relative to Actuals
(coefficient of correlation = .98)

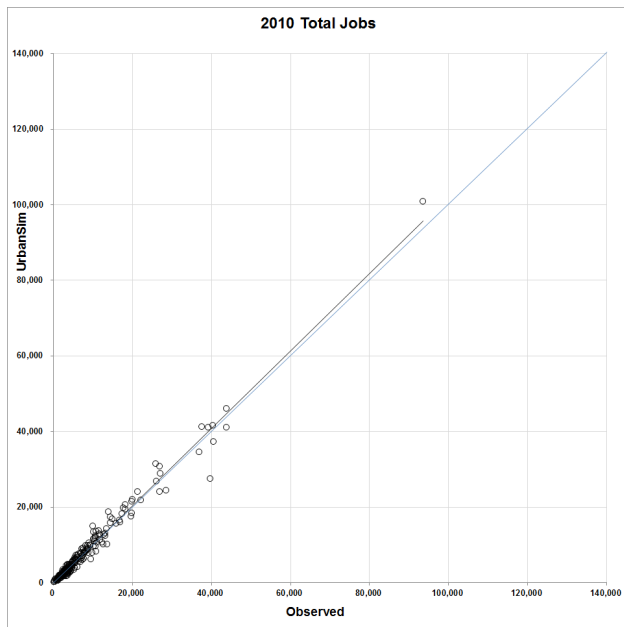


Figure 5: Jobs by FAZ: Predicted Relative to Actuals
(coefficient of correlation = .99)



Figure 6: Household Change by FAZ: Predicted Relative to Actuals (coefficient of correlation = .73)

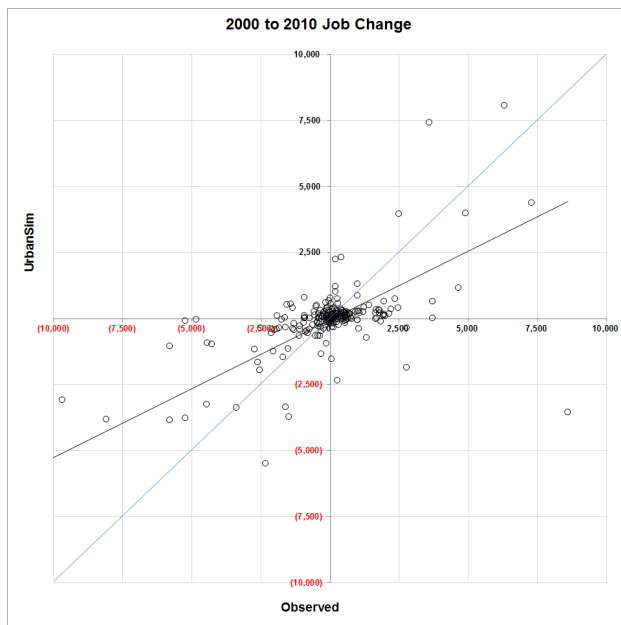


Figure 7: Job Change by FAZ: Predicted Relative to Actuals (coefficient of correlation = .73)

Uncertainty of UrbanSim Results

Our knowledge of future events is clearly uncertain, and as such so are forecasts about the future. Forecasting models also include bias which influences our certainty about model predictions. As a result forecast products are best interpreted through some explicit treatment of forecasting uncertainty. In an effort to explicitly treat this uncertainty, the 2013 Land Use Baseline results include both expected values and confidence intervals around those expected values for key model outputs of households and employment for each Forecast Analysis Zone. These uncertainty measures are in turn directly connected to the model performance over the specific validation period. The confidence intervals are defined by the performance of the model compared to a set of observations over a specific time horizon and geography.

The intervals around the expected values were derived using a novel approach developed in the UrbanSim development environment³ ⁴. The approach, referred to as Bayesian Melding, provides a statistically grounded methodology to assess uncertainty in stochastic simulations. The method combines available observed data with simulation results, both obtained from the same time period, at a specific geographic scale. It yields an estimated variance and bias, averaged over all geographical units. These measures of uncertainty are propagated forward up to the forecast horizon and converted into confidence intervals⁵.

Bayesian confidence intervals indicate how reliable the predictions in question are for both the validation period and for the forecast horizon of 2040. Confidence intervals are plotted against actuals for both households and jobs for each FAZ for the validation period in figures 8 and 9 below.⁶ In our results, we have reported 80 percent confidence intervals which can be understood as having 80 percent probability that the true value will fall inside the interval.⁷ In other words, there is one chance in ten that the actual value will be below the lower bound and one chance in ten that the value will be above the upper bound of the interval. In the plots for the validation period the intervals serve as a reasonableness check on the validity of the model predictions. As expected, the 80 percent confidence intervals contain the observed value in 82 percent (households) and 83 percent (jobs) of all the FAZs, which demonstrates reasonable performance of the model system.

Intervals constructed around the forecast horizon (2040) expected values serve another purpose. The 2013 Land Use Baseline is intended to provide a reasonable and common basis for planning analysis regarding the future distribution of urban activities across space. No model system will adequately capture idiosyncratic aspects of the land use planning and

³Ševčíková H., Raftery A.E., Waddell P.: Assessing uncertainty in urban simulations using Bayesian melding. *Transportation Research Part B*, Vol. 41(6), 652-669, 2007.

⁴Ševčíková H., Raftery A.E., Waddell P.: Uncertain benefits: Application of Bayesian melding to the Alaskan Way Viaduct in Seattle. *Transportation Research Part A*, Vol. 45(6), 540-553, 2011.

⁵Using observed data from two additional time periods, 2006 and 2008, we estimate how variance is propagating into the future. In 2010, the variance of square root of households on the FAZ level is 14.1 and of jobs 50.4. Then starting in 2011, an estimated propagation of 0.4 for households and 2.2 for jobs is added to the variance from the previous year. In a refined run where we reset the number of households and jobs to the 2010 actual values, we do not start to propagate the uncertainty until 2021. On the FAZ Large Area level the estimated variance is 56.8 for households and 104.2 for jobs. The propagation factor is estimated at 2 for households and 10.4 for jobs.

⁶As in [3] and [4], the assessment was done using a square root transformation, which when transformed back to the original scale has the effect of increasing uncertainty with increasing number of households or jobs in zones.

⁷We have ignored the estimated bias and centered the uncertainty on the raw UrbanSim results. This has the effect that the centers of the intervals sum up to the regional control totals. Thus, our predictions are conditional on the regional economic forecast.

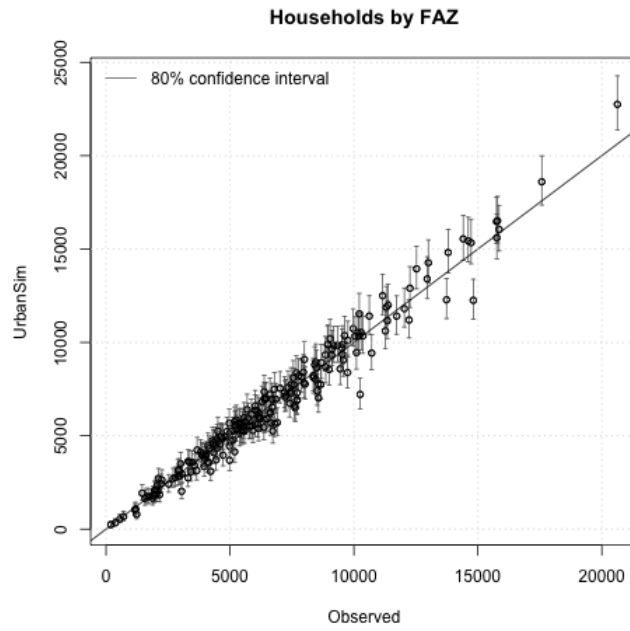


Figure 8: Households: Intervals Around Predictions Relative to Actuals

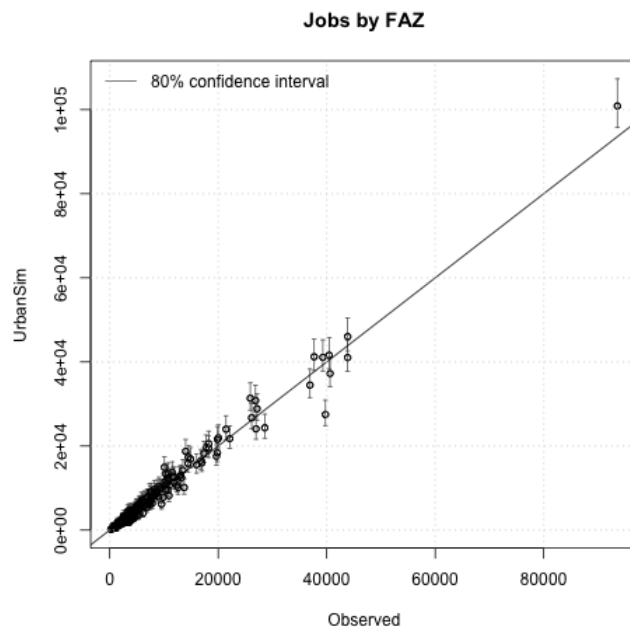


Figure 9: Jobs: Intervals Around Predictions Relative to Actuals

development process. Local planners will have important knowledge about local opportunities and constraints that should be taken into consideration when producing a final forecast product. The confidence intervals around the expected values produced by the model system provide information about forecasting uncertainty. To the extent that adjustments to the modeling results that are a consequence of planner judgement fall within the confidence intervals, these adjustments can be considered to be entirely consistent with the logic and limitations of the model system. In the event that adjustments fall outside of the confidence bounds, these adjustments can be evaluated with the knowledge that the adjustment deviates from the internal logic of the model system. In this sense, the confidence intervals provide some guidance on how to interpret any post modeling adjustments to the forecast products. The 2013 Land Use Baseline products will include households and jobs tables for each FAZ and FAZ Large Area with year 2000 values, modeled expected 2040 values, as well as the lower and upper bounds of the 2040 forecast confidence interval.

Confidence Intervals: Land Use Baseline MR1 Release

The following tables and charts display the Year 2000 estimated and Year 2040 forecast results for households and jobs, for each of the 219 Forecast Analysis Zones (FAZs), the 18 FAZ Large Area aggregations, and 95 jurisdictions in the region. The 80 percent confidence intervals are shown as shaded ranges, while the estimated year 2000 and forecast year 2040 results are the plotted points.

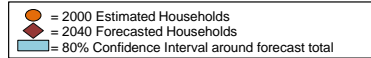
Note that the 2040 results include most of the adjustments applied to the UrbanSim model outputs prior to release. In some instances, this places the final forecast result slightly outside the confidence interval range. The only adjustment not included is the additional enlisted personnel added to zones with military bases.

Maps of the FAZs and the FAZ Large Areas can be found on the PSRC website at <http://www.psrc.org/data/gis/map-catalog>. They are also contained in an appendix in the Land Use Baseline report at <http://www.psrc.org/assets/9874/ForecastsProdBaseline.pdf>.

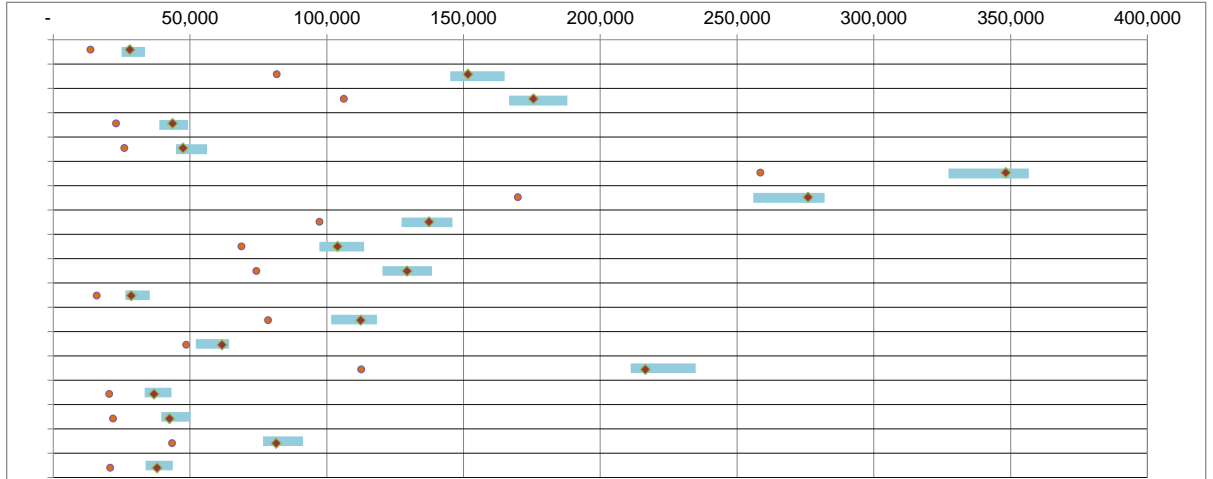
For more information about the confidence intervals, please contact Hana Sevcikova at hsevcikova@psrc.org, or Mark Simonson at msimonson@psrc.org.

**Year 2040 Forecasts and Confidence Interval
Total Households by Large Area**

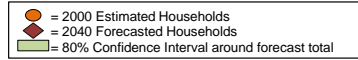
ID	Description	Forecast Results		80% Confidence Interval	
		Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
1	NW Snohomish	13,657	28,037	24,949	33,548
2	Everett	81,811	151,680	145,170	165,014
3	SW Snohomish	106,305	175,639	166,683	187,901
4	Snohomish Other	23,079	43,676	38,740	49,299
5	Shoreline	26,079	47,536	44,910	56,229
6	Seattle	258,589	348,313	327,239	356,714
7	Eastside King	169,918	275,995	255,888	282,026
8	SW King	97,392	137,405	127,379	146,008
9	Green River	68,874	103,997	97,256	113,613
10	SE King	74,325	129,393	120,300	138,421
11	King Other	15,989	28,598	26,407	35,235
12	Tacoma	78,641	112,466	101,591	118,295
13	SW Pierce	48,665	61,743	52,139	64,286
14	Pierce Other	112,694	216,549	211,070	234,868
15	Peninsula	20,550	36,899	33,422	43,275
16	South Kitsap	21,963	42,547	39,466	50,117
17	Central Kitsap	43,530	81,539	76,722	91,321
18	North Kitsap	20,923	37,979	33,758	43,656



Plot of 2040 Forecasts over Confidence Interval

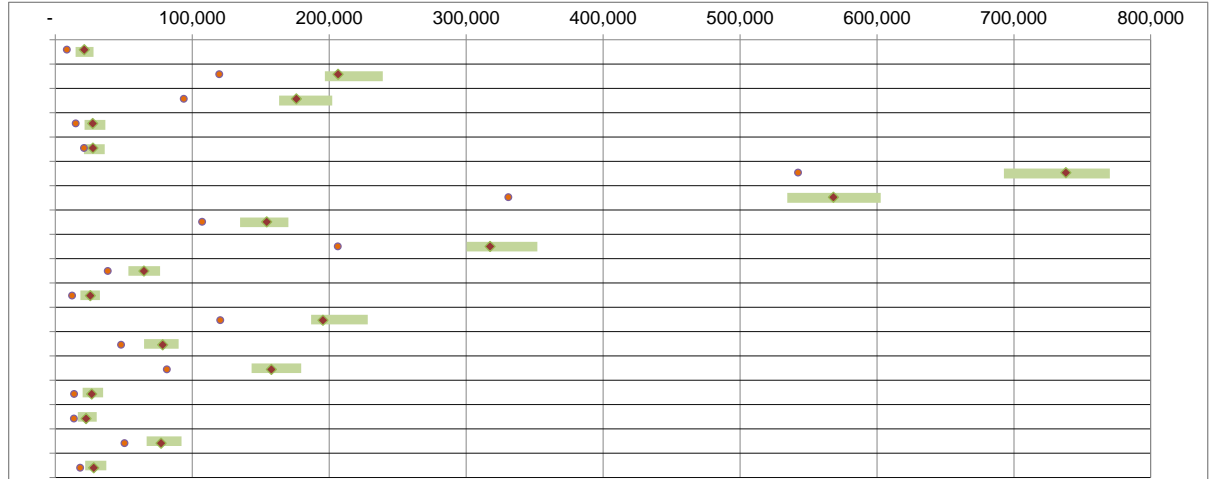


**Year 2040 Forecasts and Confidence Interval
Total Jobs by Large Area**

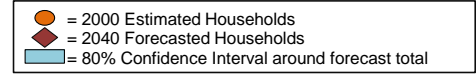


ID	Description	Forecast Results		80% Confidence Interval	
		Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
1	NW Snohomish	8,647	21,243	14,874	27,971
2	Everett	119,900	206,680	196,865	239,101
3	SW Snohomish	93,949	176,197	163,492	202,164
4	Snohomish Other	15,158	27,544	21,340	36,621
5	Shoreline	21,152	27,583	20,898	36,042
6	Seattle	542,627	738,107	692,715	770,146
7	Eastside King	330,982	568,338	534,526	602,793
8	SW King	107,436	154,511	135,037	170,370
9	Green River	206,536	317,578	300,320	352,004
10	SE King	38,531	64,910	53,500	76,499
11	King Other	12,400	25,654	18,323	32,634
12	Tacoma	120,731	195,614	186,966	228,178
13	SW Pierce	48,269	78,589	64,964	90,099
14	Pierce Other	81,724	157,928	143,314	179,651
15	Peninsula	13,900	26,706	20,084	34,970
16	South Kitsap	13,859	22,686	16,504	30,190
17	Central Kitsap	50,705	77,366	66,806	92,266
18	North Kitsap	18,383	28,233	21,904	37,359

Plot of 2040 Forecasts over Confidence Interval



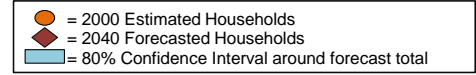
Year 2040 Forecasts and Confidence Interval Total Households by FAZ



FAZ Description	Forecast Results		80% Confidence Interval	
	Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
110 Tillicum / American Lakes Gardens	1,954	2,461	1,932	3,123
120 Steilacoom / Ketron	4,413	5,373	4,594	6,354
135 Lakes	5,830	7,161	6,256	8,286
136 Fort Steilacoom	4,808	5,188	4,433	6,164
205 Monte Vista / Flett	4,625	5,238	4,464	6,201
206 Lakewood / Ponders Corner	5,171	6,186	5,342	7,229
315 Parkland	5,215	6,437	5,562	7,484
325 Midland	7,140	10,570	9,472	11,937
405 Spanaway / Lake Park	5,978	11,491	10,335	12,904
505 Frederickson / Berkeley	9,106	23,957	23,952	27,789
506 Thun Field	4,862	13,293	12,582	15,402
605 Clover Creek	6,757	11,058	9,973	12,499
606 South Hill	4,880	12,712	11,549	14,256
705 Orting / Prairie Ridge	4,930	12,953	10,852	13,481
706 Buckley / S. Prairie / Wilkeson / Carbonado	4,096	6,577	5,703	7,648
805 Bonney Lake	5,504	9,725	9,218	11,652
806 Lake Tapps / Dieringer	5,380	16,112	14,802	17,848
900 Sumner	3,560	5,193	4,431	6,162
1000 Lidford	3,791	4,534	3,812	5,428
1115 Summit	3,428	7,026	6,128	8,139
1116 Puyallup Cbd	5,668	8,696	7,687	9,922
1120 Wildwood / Shaw Road	10,168	17,255	15,861	19,009
1130 North Puyallup	2,024	3,383	2,716	4,103
1200 Milton / Edgewood	5,540	7,947	6,985	9,122
1310 Fern Hill	9,036	10,840	9,750	12,249
1320 Lincoln	6,642	7,355	6,427	8,483
1330 Mckinley / Portland	6,854	8,893	7,881	10,143
1410 Orchard / Manitou	5,146	7,320	6,719	8,818
1420 Tacoma Mall / South Tacoma	4,740	8,500	8,920	11,316
1505 Fircrest	6,886	8,740	7,743	9,986
1506 University Park / Menlo Park	8,491	10,293	9,202	11,634
1605 West End	7,438	8,251	7,088	9,239
1606 Ruston / Point Defiance	5,191	5,914	5,091	6,937
1710 Central	8,195	12,104	11,418	14,110
1720 North Tacoma	10,780	13,460	12,265	15,050
1810 Tacoma Cbd / Union Station	1,718	7,126	3,262	4,768
1820 Tacoma Cbd / Stadium	3,737	6,902	3,936	5,576
1900 Port Of Tacoma	169	526	295	848
2000 Fife	2,709	7,027	5,426	7,327



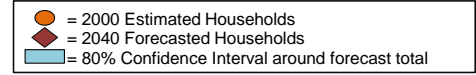
Year 2040 Forecasts and Confidence Interval Total Households by FAZ



FAZ Description	Forecast Results		80% Confidence Interval	
	Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
2100 Northeast Tacoma	6,286	8,248	7,313	9,497
2215 Fox Island / Tacoma Airport	5,882	8,249	7,292	9,472
2216 Purdy / Rosedale / Arletta	5,554	8,798	7,794	10,043
2225 Gig Harbor	4,533	9,592	8,560	10,910
2910 East Pierce County	811	2,066	1,588	2,682
2925 Roy	4,642	9,182	9,057	11,471
2926 Graham	7,522	11,045	10,036	12,570
2927 Eatonville / Ashford / Elbe	1,692	5,337	5,581	7,507
2935 Fort Lewis / Mcchord	5,527	6,767	2,836	4,250
2936 Dupont	960	4,336	2,530	3,873
2940 Key Peninsula / Islands	4,581	10,260	9,813	12,320
3010 Twin Lakes	14,821	19,197	17,751	21,073
3020 Central Federal Way	9,050	13,238	12,523	15,336
3030 Lakeland	10,020	20,278	18,810	22,225
3045 Redondo / Woodmont	9,928	12,743	11,564	14,273
3046 Des Moines	9,120	13,862	9,935	12,456
3110 Algona / Pacific	2,465	3,734	3,072	4,537
3120 Auburn South	9,009	12,776	12,083	14,849
3130 Auburn North	6,727	8,489	7,539	9,754
3200 Enumclaw Plateau	6,978	9,889	9,011	11,419
3310 Black Diamond / Lake Sawyer	4,670	12,923	11,861	14,603
3320 Covington / Timberlane	8,066	13,804	11,044	13,695
3330 Maple Valley / Hobart	4,208	5,861	5,620	7,552
3413 Lake Youngs	2,355	4,395	3,884	5,514
3414 Kentridge	8,008	11,283	10,151	12,699
3415 Panther Lake	7,296	13,348	12,143	14,915
3416 Fairwood	7,721	11,017	9,889	12,404
3425 Lake Heights	4,978	9,293	8,450	10,786
3426 Southwest Soos Creek	4,693	9,355	8,314	10,633
3427 Lake Meridian	5,837	11,625	8,915	11,311
3505 Kent Cbd / Kent East Hill	13,801	20,285	18,866	22,287
3600 Kent Industrial	6,901	12,159	9,986	12,513
3705 Sea-Tac	11,746	15,918	14,611	17,639
3706 Normandy Park	6,083	7,621	6,676	8,769
3815 Burien / Seahurst	7,741	8,798	7,604	9,827
3816 White Center / Shorewood	8,240	11,708	10,568	13,164
3825 Boulevard Park	6,450	9,462	8,418	10,750
3900 South Tukwila	2,405	3,639	2,990	4,437
3905 North Tukwila / Riverton	3,070	5,079	4,314	6,024



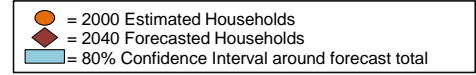
Year 2040 Forecasts and Confidence Interval Total Households by FAZ



FAZ Description	Forecast Results		80% Confidence Interval	
	Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
4005 Skyway / Bryn Mawr	4,613	7,728	6,788	8,897
4110 Renton Industrial	6,969	11,615	10,887	13,520
4120 Renton Highlands	7,322	9,812	8,757	11,132
4130 Renton Airport / Cbd	5,592	8,681	7,687	9,922
4210 East Renton	6,197	11,735	10,613	13,214
4225 Cougar Mountain	4,214	8,171	7,219	9,389
4226 Newport Hills	5,686	8,160	7,185	9,350
4230 Renton Plateau	3,318	4,865	4,263	5,963
4300 Issaquah	4,439	5,873	5,093	6,939
4400 Mercer Island	8,437	9,838	8,569	10,921
4505 South Bellevue	5,264	5,677	5,323	7,206
4506 Eastgate / Vasa Park	6,363	8,430	7,452	9,654
4605 Klahanie / Pine Lake	7,371	11,843	10,666	13,274
4606 Sahalee	6,754	11,331	10,183	12,733
4607 Beaver Lake	3,070	12,945	12,077	14,843
4706 North Bear Creek	3,554	5,556	4,869	6,677
4810 West Bellevue	4,192	5,538	4,667	6,439
4820 Northwest Bellevue	2,880	3,357	2,731	4,120
4900 Bellevue Cbd	1,278	14,680	10,722	13,336
5010 Central Bellevue	8,022	8,592	8,435	10,769
5020 East Bellevue / Lake Hills	10,185	10,399	11,038	13,687
5100 Point Cities	3,122	3,538	2,895	4,321
5205 North Bellevue	5,482	12,072	6,041	8,039
5305 Kirkland / Houghton	10,278	14,409	12,371	15,168
5306 Kirkland / Totem Lake	9,526	12,928	10,821	13,446
5415 Redmond / Overlake	4,842	9,805	6,863	8,983
5425 Redmond Cbd	14,274	22,575	18,594	21,991
5426 Redmond / Union Hill	4,817	9,783	8,872	11,262
5515 Juanita / Finn Hill	8,349	12,089	10,921	13,558
5525 Norway Hill / North Kingsgate	4,630	7,507	6,578	8,656
5535 Kenmore / Inglewood	8,599	17,153	16,538	19,749
5545 Kingsgate / Hollywood Hill	3,757	7,064	6,165	8,182
5546 Woodinville	5,418	8,548	7,608	9,833
5600 Bothell	5,115	8,134	7,159	9,320
5715 Fauntleroy / Arbor Heights	7,484	8,471	7,278	9,457
5716 Delridge / Highland Park	9,009	11,980	10,822	13,447
5720 Alki / Admiral	16,655	19,965	18,036	21,383
5815 Lower Duwamish / Boeing Field	1,881	2,409	1,893	3,074
5825 Industrial District	1,312	2,533	1,997	3,206



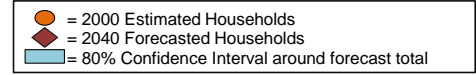
Year 2040 Forecasts and Confidence Interval Total Households by FAZ



FAZ Description	Forecast Results		80% Confidence Interval	
	Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
5826 Upper Duwamish / Harbor Island	1,930	3,170	2,577	3,931
5915 Rainier Beach	6,754	8,485	7,507	9,717
5916 South Beacon Hill / Columbia	11,687	15,768	14,456	17,468
5925 North Beacon Hill / Mount Baker	9,004	11,666	10,522	13,113
6010 Seattle Cbd	4,581	10,842	9,744	12,243
6020 Denny Regrade	6,850	16,241	14,915	17,972
6113 First Hill / Broadway	19,156	28,487	26,818	30,869
6114 East Capitol Hill / Central Area	13,888	18,411	16,739	19,969
6115 North Capitol Hill / Madison Park	10,277	12,557	10,908	13,543
6123 Lake Union / Seattle Center	6,533	17,526	12,930	15,787
6124 Queen Anne	13,574	15,653	14,159	17,141
6125 Interbay	4,789	5,744	4,643	6,411
6126 Magnolia	5,067	6,000	5,162	7,019
6213 Wallingford / Fremont	8,734	10,567	9,086	11,504
6214 University Of Washington	217	237	93	465
6215 Ravenna / University District	11,002	13,567	11,516	14,220
6216 Windermere / Laurelhurst	6,158	6,912	6,016	8,010
6223 Lake City	11,469	14,307	12,831	15,677
6224 Green Lake	9,159	11,167	9,218	11,652
6225 Northgate	8,813	12,759	10,479	13,064
6226 Wedgwood / View Ridge	12,691	15,094	13,582	16,506
6316 Ballard	14,242	17,372	15,440	18,548
6325 Greenwood / Crown Hill	15,146	17,294	15,598	18,721
6326 Broadview / Haller Lake	10,527	13,129	11,878	14,622
6410 Richmond Highlands	13,733	25,570	25,003	28,920
6420 North City	12,346	21,966	21,395	25,028
6505 Fall City / Preston	1,940	6,106	4,763	6,553
6506 North Bend / Snoqualmie	4,017	5,747	5,203	7,067
6605 Duvall	3,296	6,175	5,132	6,984
6606 Carnation	1,732	2,629	2,778	4,179
6900 Cumberland / Southeast King County	2,656	4,113	3,981	5,629
6910 East King County	2,348	3,828	3,758	5,363
6930 Vashon Island	4,193	4,580	3,852	5,476
7015 Woodway / Esperance	6,656	8,609	7,612	9,837
7025 Edmonds South	8,619	10,932	9,815	12,322
7026 Edmonds North	3,759	4,474	3,750	5,355
7100 Mountlake Terrace	7,696	14,298	15,311	18,407
7205 Lynnwood West	5,037	6,531	5,662	7,600
7206 Lynnwood East	6,936	8,819	7,814	10,066



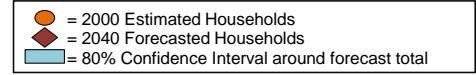
Year 2040 Forecasts and Confidence Interval Total Households by FAZ



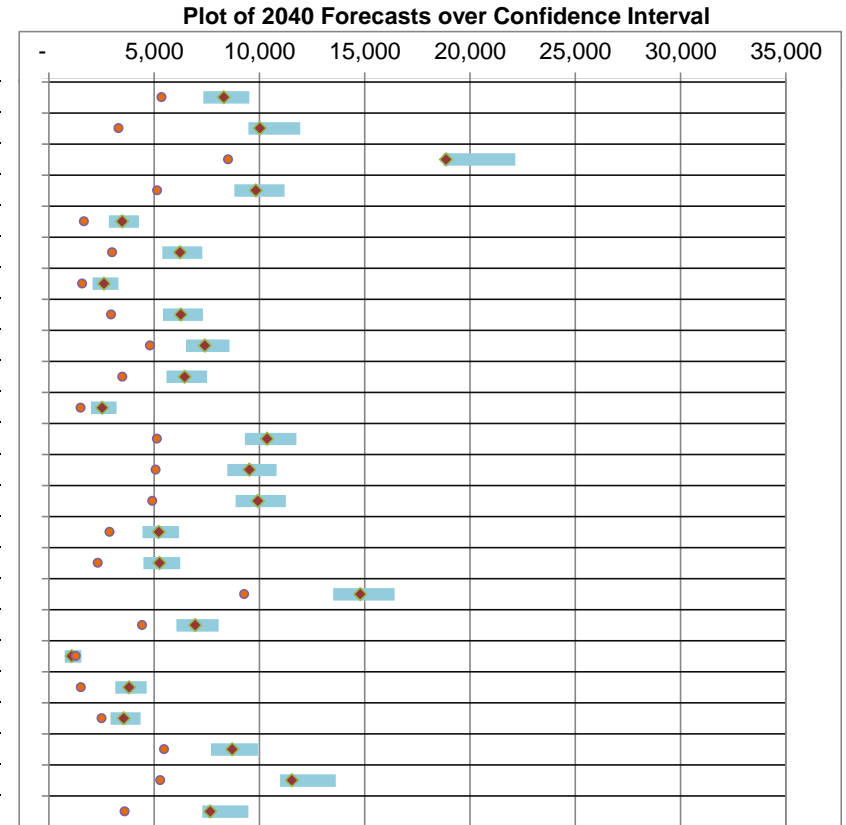
FAZ Description	Forecast Results		80% Confidence Interval	
	Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
7315 Brier	5,489	8,447	7,474	9,680
7316 Hilltop	6,246	9,145	8,115	10,408
7320 North Creek	7,945	14,809	12,821	15,666
7335 Mill Creek / Silver Lake	11,376	18,521	16,230	19,413
7340 Eastmont	6,715	12,489	10,962	13,603
7415 Canyon Park	2,481	6,287	4,804	6,601
7425 Clearview / Silver Firs / Snohomish Cascade	5,876	12,416	11,229	13,901
7435 Maltby / High Bridge	2,516	3,528	2,895	4,321
7436 Cathcart	1,915	2,342	1,826	2,988
7515 Alderwood Mall	1,300	2,601	2,057	3,281
7525 Lake Serene / Norma Beach	5,103	8,660	7,677	9,910
7526 Harbour Pointe	5,075	7,116	5,734	7,683
7535 Swamp Creek	5,565	15,615	14,700	17,736
7537 Paine Field	7,058	14,074	12,810	15,654
7605 South Snohomish Valley	633	799	508	1,189
7606 North Snohomish Valley	536	2,213	1,711	2,841
7700 Snohomish	3,283	3,748	3,097	4,568
7805 Machias / Cavalero Corner	5,087	10,302	9,214	11,647
7806 Fobes Hill	1,477	4,425	3,709	5,305
7905 Lake Stevens / Frontier Village	5,372	12,651	11,921	14,669
8000 Mukilteo / Southwest Everett	4,097	6,673	5,796	7,755
8115 Everett Mall	10,192	17,008	16,209	19,390
8125 Forest Park / Beverly Park	6,189	9,029	8,027	10,308
8126 Pinehurst / Lowell	4,485	7,565	6,659	8,750
8210 Everett Cbd	3,441	6,515	5,722	7,670
8220 North Everett	7,611	12,640	11,513	14,216
8310 Marysville	10,296	17,208	15,899	19,051
8320 North Marysville / Smokey Point	3,620	5,932	5,112	6,960
8405 Getchell Hill	3,396	8,941	7,926	10,194
8406 Sisco Heights	501	1,316	936	1,808
8500 Arlington	4,537	10,641	9,760	12,261
8600 Monroe Area	4,918	8,792	7,783	10,031
8905 Meadow Lake / Woods Creek	2,687	4,383	3,692	5,285
8906 Three Lakes	2,617	3,833	3,172	4,659
8910 Skykomish Valley	4,709	9,697	8,173	10,474
8925 Granite Falls	3,832	8,745	7,744	9,987
8926 Oso / Darrington	4,316	8,226	7,269	9,446
8927 Bryant	1,704	2,862	2,298	3,584
8935 Stanwood	3,284	6,850	5,960	7,945



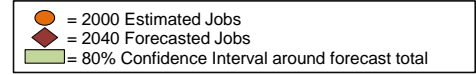
Year 2040 Forecasts and Confidence Interval Total Households by FAZ



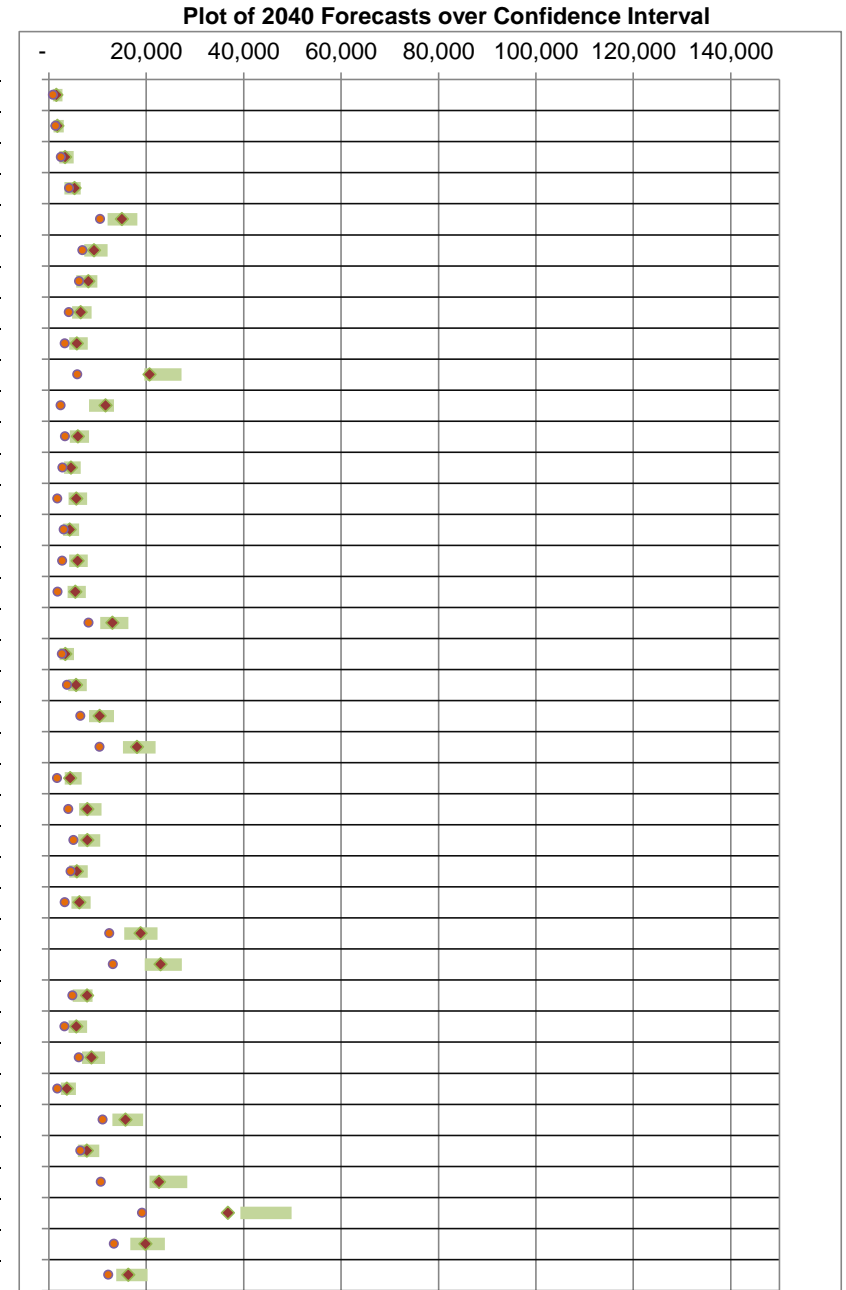
FAZ Description	Forecast Results		80% Confidence Interval	
	Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
8936 Lakewood / Warm Beach	5,355	8,303	7,333	9,519
8937 Tulalip	3,314	10,022	9,476	11,942
9002 Port Orchard	8,517	18,860	18,731	22,140
9004 Gorst / Burley / Glenwood	5,148	9,831	8,808	11,190
9005 Gold Mountain / Holly	1,668	3,484	2,853	4,270
9006 Seabeck / Olympic View	3,004	6,230	5,388	7,282
9009 Keyport / Brownsville	1,589	2,616	2,078	3,308
9011 Poulsbo	2,963	6,260	5,412	7,310
9015 Southworth / Manchester	4,803	7,408	6,508	8,576
9016 Ollala	3,495	6,448	5,584	7,510
9017 Erlands Point / Chico	1,512	2,531	2,003	3,213
9018 Silverdale	5,134	10,360	9,312	11,757
9019 Port Gamble / Suquamish	5,071	9,525	8,474	10,814
9020 Kingston	4,910	9,928	8,865	11,255
9900 Sheridan	2,889	5,219	4,440	6,173
9901 Kitsap Lake	2,329	5,258	4,490	6,231
9902 West Bremerton / Cbd	9,276	14,791	13,501	16,416
9904 Manette / View Ridge	4,431	6,947	6,053	8,053
9908 Bangor	1,282	1,091	745	1,539
9909 Clear Creek	1,525	3,807	3,154	4,637
9913 Winslow	2,508	3,559	2,918	4,350
9914 Bainbridge Island	5,471	8,707	7,693	9,928
9915 Tracyton	5,294	11,541	10,974	13,617
9916 Illahee	3,597	7,664	7,292	9,473



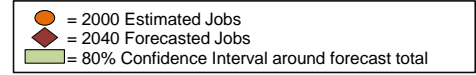
Year 2040 Forecasts and Confidence Interval Total Jobs by FAZ



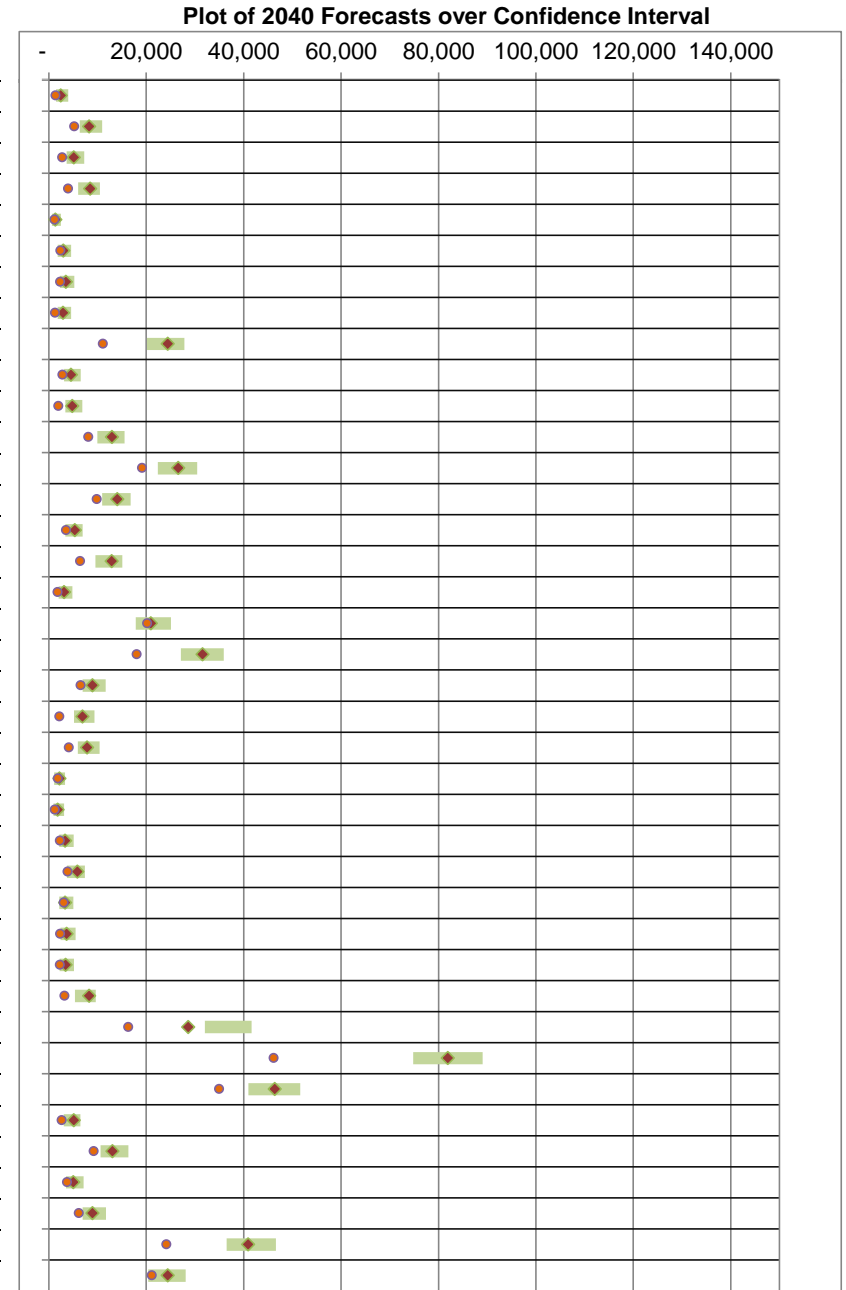
FAZ Description	Forecast Results		80% Confidence Interval	
	Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
110 Tillicum / American Lakes Gardens	854	1,563	789	2,808
120 Steilacoom / Ketron	1,406	1,745	917	3,045
135 Lakes	2,479	3,324	2,137	5,059
136 Fort Steilacoom	4,166	5,281	3,152	6,567
205 Monte Vista / Flett	10,538	15,023	12,064	18,153
206 Lakewood / Ponders Corner	6,916	9,273	7,227	12,079
315 Parkland	6,211	8,128	5,587	9,929
325 Midland	4,138	6,536	4,741	8,789
405 Spanaway / Lake Park	3,263	5,746	4,142	7,967
505 Frederickson / Berkeley	5,851	20,687	19,608	27,201
506 Thun Field	2,446	11,637	8,214	13,347
605 Clover Creek	3,325	5,968	4,319	8,211
606 South Hill	2,815	4,532	3,131	6,537
705 Orting / Prairie Ridge	1,737	5,635	4,053	7,844
706 Buckley / S. Prairie / Wilkeson / Carbonado	3,066	4,275	2,894	6,193
805 Bonney Lake	2,753	5,878	4,168	8,002
806 Lake Tapps / Dieringer	1,791	5,447	3,848	7,557
900 Sumner	8,142	13,034	10,572	16,312
1000 Lidford	2,690	3,386	2,190	5,141
1115 Summit	3,751	5,569	4,000	7,769
1116 Puyallup Cbd	6,495	10,425	8,249	13,391
1120 Wildwood / Shaw Road	10,416	18,080	15,183	21,938
1130 North Puyallup	1,681	4,395	3,272	6,741
1200 Milton / Edgewood	3,993	7,921	6,228	10,777
1310 Fern Hill	5,060	7,908	6,025	10,510
1320 Lincoln	4,495	5,746	4,153	7,981
1330 Mckinley / Portland	3,289	6,264	4,603	8,601
1410 Orchard / Manitou	12,440	18,815	15,480	22,295
1420 Tacoma Mall / South Tacoma	13,141	22,940	19,666	27,269
1505 Fircrest	4,841	7,851	4,882	8,982
1506 University Park / Menlo Park	3,200	5,627	4,042	7,827
1605 West End	6,168	8,765	6,779	11,499
1606 Ruston / Point Defiance	1,763	3,701	2,449	5,533
1710 Central	11,080	15,735	13,051	19,359
1720 North Tacoma	6,477	7,784	5,913	10,361
1810 Tacoma Cbd / Union Station	10,683	22,622	20,658	28,435
1820 Tacoma Cbd / Stadium	19,164	36,737	39,320	49,814
1900 Port Of Tacoma	13,379	19,817	16,749	23,813
2000 Fife	12,206	16,332	13,812	20,284



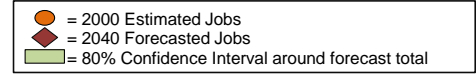
Year 2040 Forecasts and Confidence Interval Total Jobs by FAZ



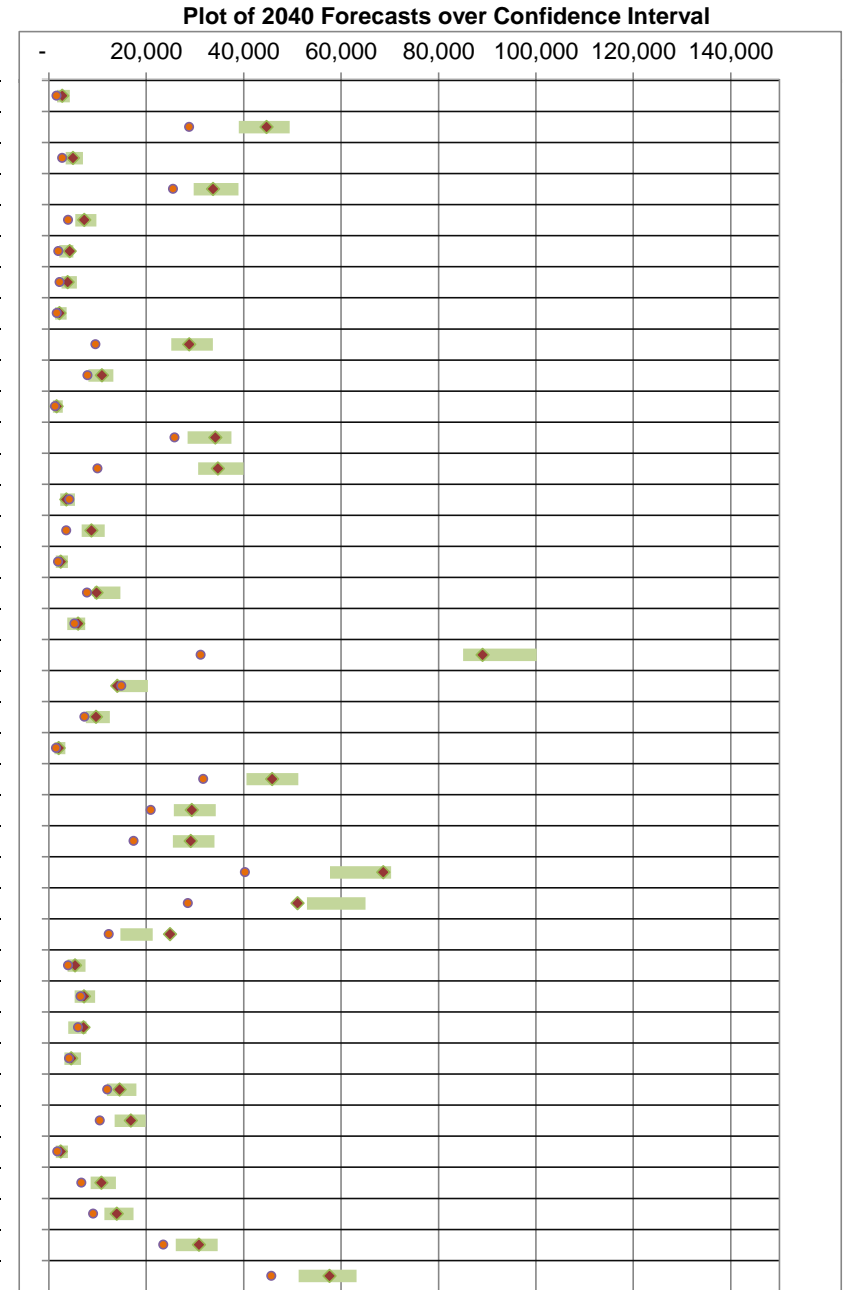
FAZ Description	Forecast Results		80% Confidence Interval	
	Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
2100 Northeast Tacoma	1,386	2,448	1,444	3,956
2215 Fox Island / Tacoma Airport	5,223	8,267	6,334	10,916
2216 Purdy / Rosedale / Arletta	2,764	5,121	3,616	7,230
2225 Gig Harbor	3,955	8,493	6,006	10,484
2910 East Pierce County	1,166	1,324	626	2,491
2925 Roy	2,384	2,946	1,824	4,570
2926 Graham	2,327	3,466	2,247	5,226
2927 Eatonville / Ashford / Elbe	1,283	2,913	1,805	4,540
2935 Fort Lewis / Mcchord	11,086	24,391	20,159	27,849
2936 Dupont	2,783	4,511	3,112	6,510
2940 Key Peninsula / Islands	1,958	4,825	3,370	6,880
3010 Twin Lakes	8,126	12,940	9,927	15,508
3020 Central Federal Way	19,171	26,538	22,368	30,434
3030 Lakeland	9,838	14,047	10,963	16,797
3045 Redondo / Woodmont	3,555	5,314	3,397	6,919
3046 Des Moines	6,447	12,920	9,566	15,055
3110 Algona / Pacific	1,796	3,117	1,991	4,832
3120 Auburn South	20,217	20,940	17,804	25,068
3130 Auburn North	18,057	31,554	27,094	35,910
3200 Enumclaw Plateau	6,523	8,928	6,909	11,668
3310 Black Diamond / Lake Sawyer	2,190	6,908	5,147	9,340
3320 Covington / Timberlane	4,091	7,862	5,963	10,428
3330 Maple Valley / Hobart	1,870	2,162	1,080	3,337
3413 Lake Youngs	1,225	1,796	957	3,117
3414 Kentridge	2,285	3,336	2,146	5,073
3415 Panther Lake	3,874	5,839	3,723	7,381
3416 Fairwood	3,049	3,303	2,113	5,022
3425 Lake Heights	2,316	3,665	2,417	5,485
3426 Southwest Soos Creek	2,271	3,415	2,214	5,176
3427 Lake Meridian	3,230	8,256	5,366	9,633
3505 Kent Cbd / Kent East Hill	16,326	28,627	32,059	41,594
3600 Kent Industrial	46,185	81,933	74,809	89,048
3705 Sea-Tac	34,954	46,385	40,944	51,639
3706 Normandy Park	2,639	5,106	3,075	6,456
3815 Burien / Seahurst	9,191	13,069	10,609	16,357
3816 White Center / Shorewood	3,756	5,002	3,520	7,093
3825 Boulevard Park	6,188	8,951	6,938	11,705
3900 South Tukwila	24,133	40,897	36,493	46,626
3905 North Tukwila / Riverton	21,147	24,417	20,374	28,101



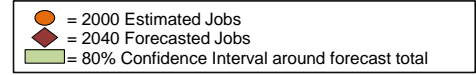
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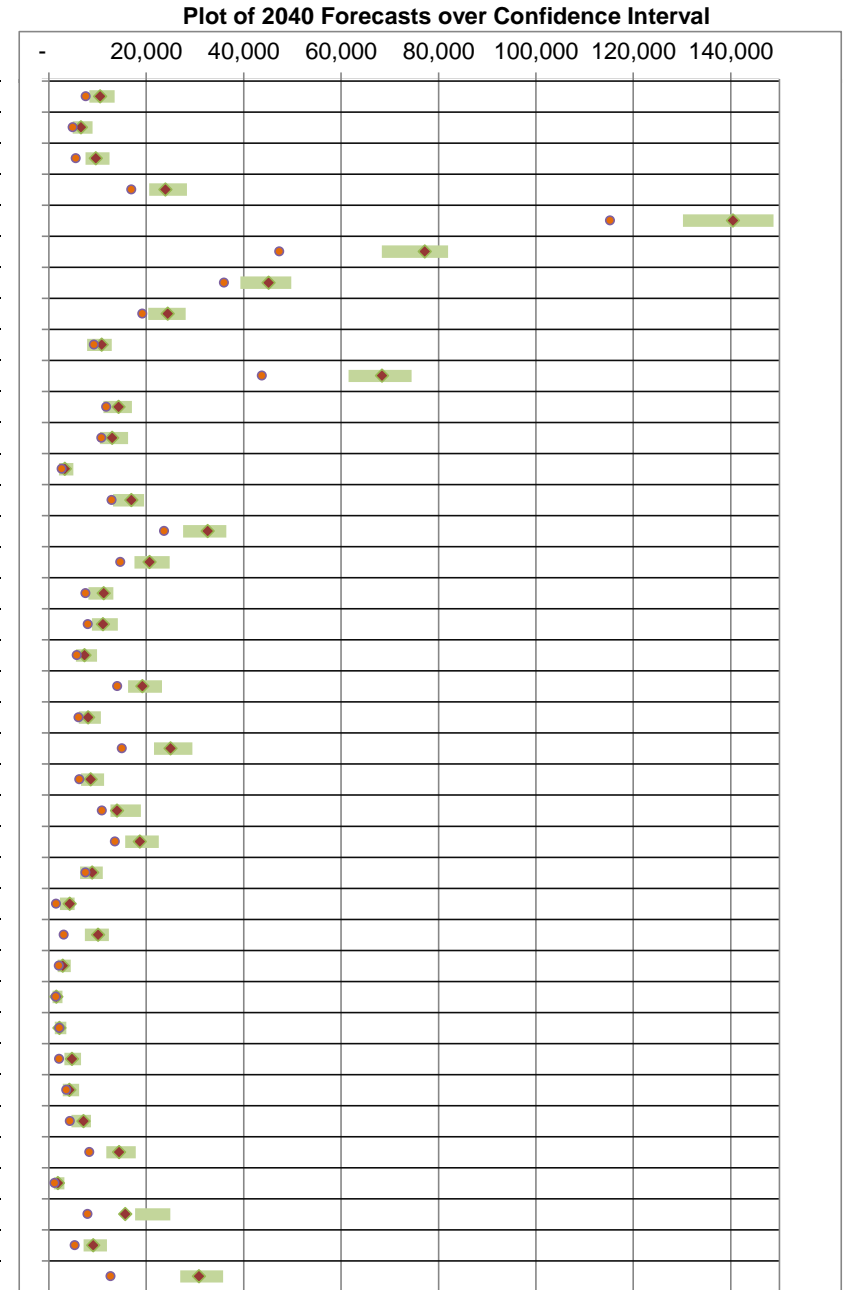
FAZ Description	Forecast Results		80% Confidence Interval	
	Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
4005 Skyway / Bryn Mawr	1,575	2,728	1,662	4,311
4110 Renton Industrial	28,839	44,703	39,007	49,462
4120 Renton Highlands	2,744	4,943	3,470	7,023
4130 Renton Airport / Cbd	25,517	33,719	29,738	38,944
4210 East Renton	3,935	7,248	5,434	9,724
4225 Cougar Mountain	1,936	4,289	2,130	5,048
4226 Newport Hills	2,215	3,873	2,586	5,738
4230 Renton Plateau	1,672	2,192	1,255	3,638
4300 Issaquah	9,589	28,826	25,158	33,676
4400 Mercer Island	7,976	10,902	8,142	13,255
4505 South Bellevue	1,267	1,592	806	2,839
4506 Eastgate / Vasa Park	25,820	34,174	28,450	37,469
4605 Klahanie / Pine Lake	10,009	34,690	30,647	39,983
4606 Sahalee	4,245	3,575	2,342	5,372
4607 Beaver Lake	3,615	8,721	6,740	11,447
4706 North Bear Creek	1,900	2,412	1,424	3,923
4810 West Bellevue	7,847	9,772	9,283	14,701
4820 Northwest Bellevue	5,264	5,991	3,776	7,455
4900 Bellevue Cbd	31,171	89,080	85,039	100,179
5010 Central Bellevue	14,913	14,064	13,833	20,309
5020 East Bellevue / Lake Hills	7,313	9,664	7,564	12,515
5100 Point Cities	1,514	2,011	1,116	3,399
5205 North Bellevue	31,711	45,832	40,585	51,236
5305 Kirkland / Houghton	20,945	29,367	25,649	34,244
5306 Kirkland / Totem Lake	17,427	29,161	25,459	34,024
5415 Redmond / Overlake	40,276	68,692	57,718	70,301
5425 Redmond Cbd	28,563	51,064	52,963	65,042
5426 Redmond / Union Hill	12,330	24,858	14,663	21,312
5515 Juanita / Finn Hill	3,960	5,375	3,844	7,551
5525 Norway Hill / North Kingsgate	6,538	7,244	5,262	9,494
5535 Kenmore / Inglewood	6,025	7,137	3,942	7,688
5545 Kingsgate / Hollywood Hill	4,143	4,614	3,196	6,631
5546 Woodinville	11,983	14,512	11,918	17,973
5600 Bothell	10,487	16,846	13,477	19,877
5715 Fauntleroy / Arbor Heights	1,734	2,427	1,433	3,938
5716 Delridge / Highland Park	6,713	10,775	8,544	13,767
5720 Alki / Admiral	9,117	13,964	11,422	17,363
5815 Lower Duwamish / Boeing Field	23,536	30,823	26,023	34,675
5825 Industrial District	45,684	57,625	51,258	63,151



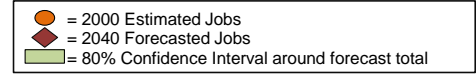
Year 2040 Forecasts and Confidence Interval Total Jobs by FAZ



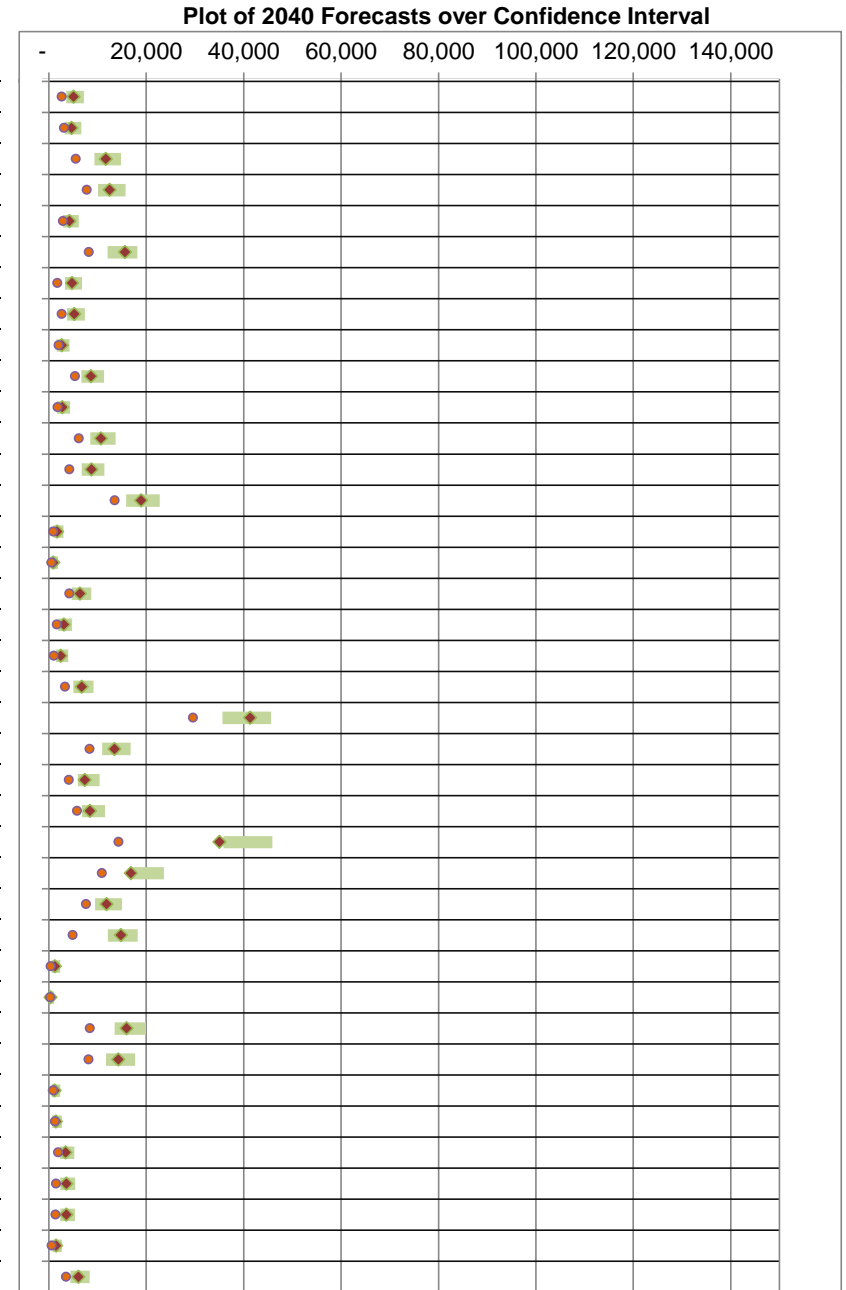
FAZ Description	Forecast Results		80% Confidence Interval	
	Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
5826 Upper Duwamish / Harbor Island	7,612	10,510	8,335	13,500
5915 Rainier Beach	4,922	6,606	4,893	8,996
5916 South Beacon Hill / Columbia	5,513	9,613	7,524	12,463
5925 North Beacon Hill / Mount Baker	16,968	23,932	20,576	28,339
6010 Seattle Cbd	115,264	140,482	130,183	148,769
6020 Denny Regrade	47,344	77,186	68,352	81,990
6113 First Hill / Broadway	35,962	45,101	39,303	49,795
6114 East Capitol Hill / Central Area	19,213	24,392	20,369	28,096
6115 North Capitol Hill / Madison Park	9,243	10,856	7,867	12,904
6123 Lake Union / Seattle Center	43,732	68,408	61,508	74,477
6124 Queen Anne	11,788	14,314	11,191	17,079
6125 Interbay	10,789	13,001	10,506	16,230
6126 Magnolia	2,638	3,274	2,094	4,993
6213 Wallingford / Fremont	12,897	16,951	13,186	19,524
6214 University Of Washington	23,682	32,585	27,573	36,461
6215 Ravenna / University District	14,696	20,674	17,573	24,794
6216 Windermere / Laurelhurst	7,519	11,290	8,125	13,233
6223 Lake City	7,986	11,105	8,859	14,165
6224 Green Lake	5,732	7,346	5,534	9,858
6225 Northgate	14,050	19,187	16,236	23,200
6226 Wedgwood / View Ridge	6,112	8,085	6,166	10,696
6316 Ballard	15,017	24,964	21,566	29,498
6325 Greenwood / Crown Hill	6,249	8,610	6,628	11,302
6326 Broadview / Haller Lake	10,915	14,021	12,640	18,857
6410 Richmond Highlands	13,594	18,689	15,694	22,552
6420 North City	7,558	8,894	6,434	11,048
6505 Fall City / Preston	1,491	4,250	2,272	5,266
6506 North Bend / Snoqualmie	3,065	10,112	7,386	12,285
6605 Duvall	2,076	2,866	1,780	4,501
6606 Carnation	1,454	1,532	765	2,761
6900 Cumberland / Southeast King County	2,174	2,164	1,229	3,594
6910 East King County	2,140	4,730	3,161	6,581
6930 Vashon Island	3,571	4,239	2,887	6,183
7015 Woodway / Esperance	4,303	7,135	4,642	8,655
7025 Edmonds South	8,310	14,398	11,783	17,808
7026 Edmonds North	1,194	1,850	996	3,187
7100 Mountlake Terrace	7,950	15,657	17,690	24,933
7205 Lynnwood West	5,300	9,132	7,109	11,927
7206 Lynnwood East	12,707	30,840	26,997	35,799



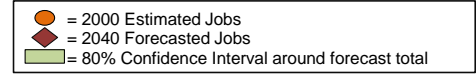
Year 2040 Forecasts and Confidence Interval Total Jobs by FAZ



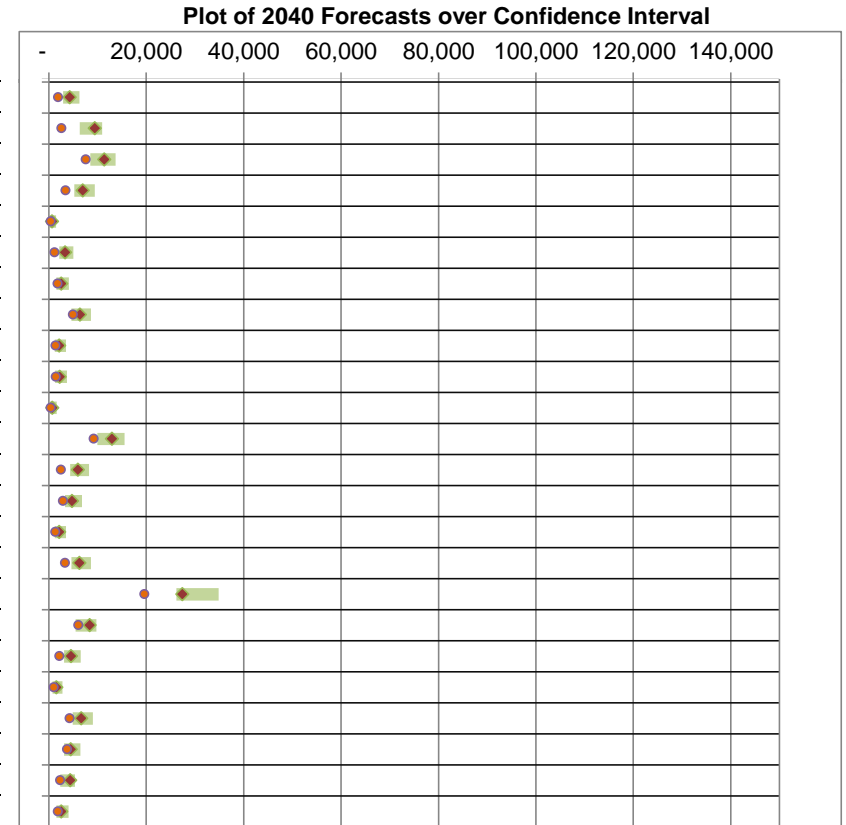
FAZ Description	Forecast Results		80% Confidence Interval	
	Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
7315 Brier	2,619	5,055	3,566	7,160
7316 Hilltop	3,131	4,651	3,223	6,670
7320 North Creek	5,546	11,665	9,353	14,788
7335 Mill Creek / Silver Lake	7,772	12,500	10,097	15,720
7340 Eastmont	2,888	4,213	2,864	6,148
7415 Canyon Park	8,218	15,615	12,049	18,134
7425 Clearview / Silver Firs / Snohomish Cascade	1,764	4,746	3,307	6,790
7435 Maltby / High Bridge	2,668	5,233	3,725	7,384
7436 Cathcart	1,994	2,666	1,619	4,243
7515 Alderwood Mall	5,393	8,644	6,655	11,336
7525 Lake Serene / Norma Beach	1,820	2,774	1,701	4,374
7526 Harbour Pointe	6,172	10,706	8,481	13,687
7535 Swamp Creek	4,200	8,717	6,718	11,419
7537 Paine Field	13,535	18,915	15,877	22,770
7605 South Snohomish Valley	889	1,720	903	3,018
7606 North Snohomish Valley	550	891	339	1,877
7700 Snohomish	4,210	6,373	4,680	8,706
7805 Machias / Cavalero Corner	1,664	3,073	1,933	4,742
7806 Fobes Hill	1,013	2,454	1,450	3,965
7905 Lake Stevens / Frontier Village	3,332	6,755	5,008	9,151
8000 Mukilteo / Southwest Everett	29,633	41,328	35,614	45,631
8115 Everett Mall	8,366	13,452	10,939	16,767
8125 Forest Park / Beverly Park	4,111	7,367	5,959	10,422
8126 Pinehurst / Lowell	5,808	8,403	6,797	11,522
8210 Everett Cbd	14,299	35,025	35,853	45,901
8220 North Everett	10,883	16,858	16,586	23,619
8310 Marysville	7,645	11,828	9,507	14,981
8320 North Marysville / Smokey Point	4,884	14,761	12,152	18,261
8405 Getchell Hill	368	1,229	554	2,345
8406 Sisco Heights	267	324	43	989
8500 Arlington	8,443	15,924	13,513	19,921
8600 Monroe Area	8,190	14,270	11,693	17,698
8905 Meadow Lake / Woods Creek	897	1,193	532	2,301
8906 Three Lakes	1,264	1,444	705	2,647
8910 Skykomish Valley	1,934	3,455	2,243	5,222
8925 Granite Falls	1,485	3,593	2,355	5,392
8926 Oso / Darrington	1,388	3,589	2,344	5,375
8927 Bryant	607	1,471	721	2,678
8935 Stanwood	3,552	6,063	4,432	8,367



Year 2040 Forecasts and Confidence Interval Total Jobs by FAZ

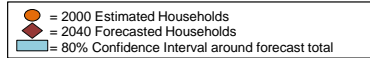


FAZ Description	Forecast Results		80% Confidence Interval	
	Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
8936 Lakewood / Warm Beach	1,906	4,275	2,926	6,240
8937 Tulalip	2,582	9,434	6,348	10,935
9002 Port Orchard	7,599	11,347	8,480	13,686
9004 Gorst / Burley / Glenwood	3,417	6,975	5,189	9,395
9005 Gold Mountain / Holly	409	638	189	1,492
9006 Seabeck / Olympic View	1,184	3,310	2,121	5,033
9009 Keyport / Brownsville	1,786	2,541	1,517	4,077
9011 Poulsbo	4,966	6,362	4,652	8,668
9015 Southworth / Manchester	1,403	2,118	1,194	3,535
9016 Ollala	1,440	2,246	1,286	3,692
9017 ERLANDS POINT / CHICO	381	720	234	1,615
9018 Silverdale	9,202	12,932	9,935	15,519
9019 Port Gamble / Suquamish	2,511	5,960	4,335	8,234
9020 Kingston	2,922	4,755	3,305	6,787
9900 Sheridan	1,335	2,119	1,195	3,537
9901 Kitsap Lake	3,343	6,285	4,607	8,606
9902 West Bremerton / Cbd	19,613	27,409	26,205	34,885
9904 Manette / View Ridge	6,063	8,390	5,477	9,782
9908 Bangor	2,153	4,547	3,140	6,551
9909 Clear Creek	1,030	1,544	772	2,775
9913 Winslow	4,256	6,652	4,919	9,032
9914 Bainbridge Island	3,728	4,504	3,086	6,473
9915 Tracyton	2,342	4,393	2,330	5,354
9916 Illahee	1,864	2,538	1,513	4,070

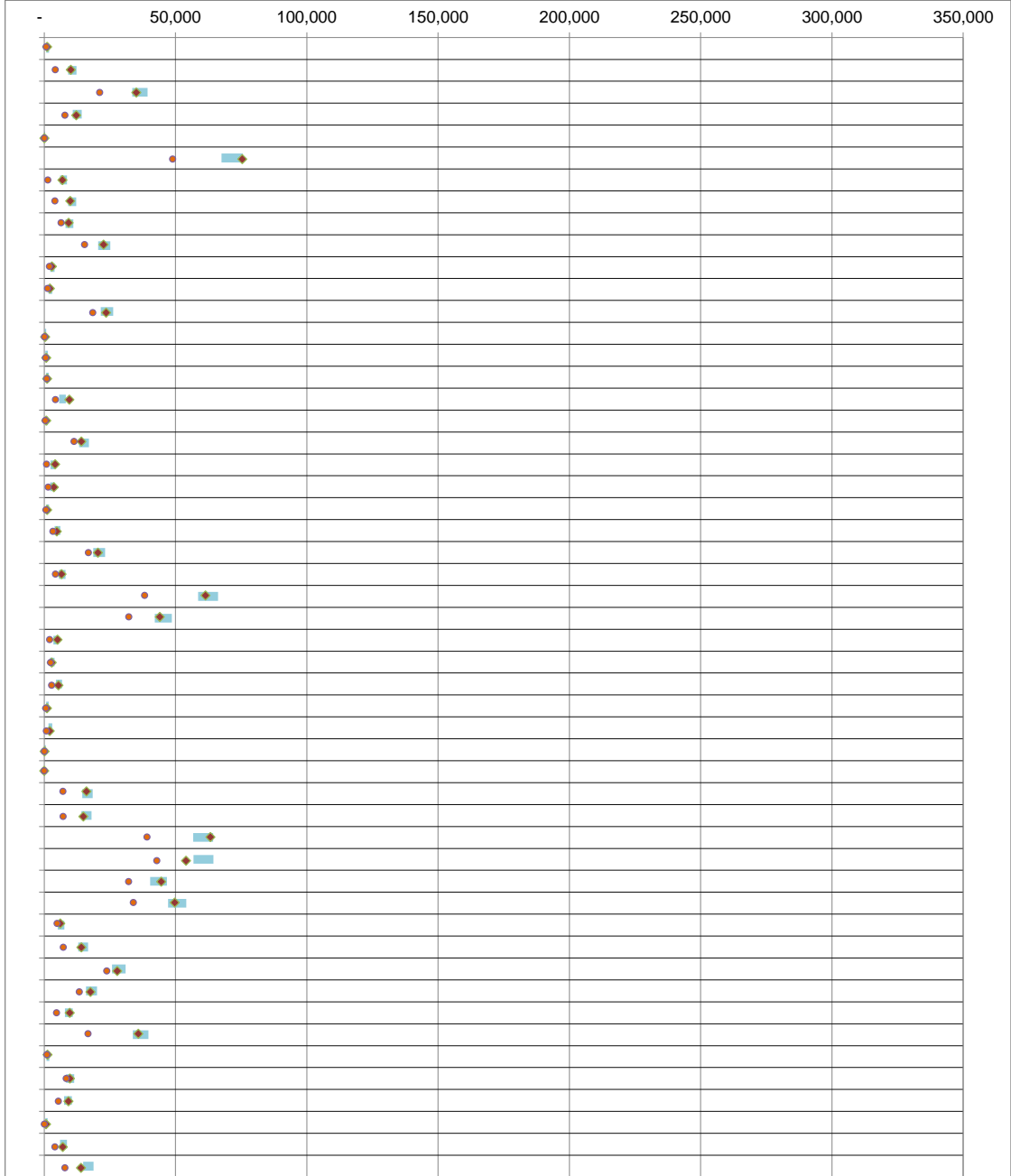


Year 2040 Forecasts and Confidence Interval Total Households by Jurisdiction

ID	Name (and County if split)	Forecast Results		80% Confidence Interval	
		Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
1	Algona	845	1,184	770	1,860
2	Arlington	4,319	10,177	9,094	12,262
3	Auburn - King	21,218	35,148	33,533	39,400
4	Bainbridge Island	7,979	12,266	10,869	14,310
5	Beaux Arts	121	115	16	374
6	Bellevue	49,000	75,447	67,495	75,720
7	Black Diamond	1,471	6,991	6,088	8,724
8	Bonney Lake	4,159	9,988	9,088	12,255
9	Bothell - King	6,517	9,331	8,140	11,150
10	Bremerton	15,442	22,680	20,565	25,211
11	Brier	2,095	2,951	2,277	3,981
12	Buckley	1,396	2,188	1,589	3,050
13	Burien	18,538	23,660	21,575	26,328
14	Carbonado	200	387	168	804
15	Carnation	634	799	468	1,370
16	Clyde Hill	1,046	1,178	717	1,777
17	Covington	4,330	9,654	5,726	8,289
18	Darrington	499	814	480	1,390
19	Des Moines	11,399	14,176	13,282	17,062
20	Dupont	936	4,260	2,362	4,092
21	Duvall	1,609	3,749	2,281	3,986
22	Eatonville	753	1,165	768	1,856
23	Edgewood	3,415	4,857	4,001	6,182
24	Edmonds	16,883	20,515	18,732	23,177
25	Enumclaw	4,383	6,619	5,620	8,161
26	Everett	38,328	61,482	58,593	66,272
27	Federal Way	32,272	44,098	42,071	48,614
28	Fife	2,174	5,120	3,459	5,503
29	Fircrest	2,516	2,916	2,247	3,941
30	Gig Harbor	2,935	5,453	4,478	6,772
31	Gold Bar	721	1,135	729	1,796
32	Granite Falls	905	2,166	1,591	3,054
33	Hunts Point	165	234	86	606
34	Index	74	92	8	332
35	Issaquah	7,204	16,176	14,515	18,455
36	Kenmore	7,301	14,964	14,154	18,048
37	Kent	39,219	63,357	56,789	64,353
38	King Rural	42,955	54,090	56,856	64,423
39	Kirkland	32,239	44,614	40,312	46,722
40	Kitsap Rural	34,047	49,758	47,213	54,130
41	Lake Forest Park	5,020	6,140	5,197	7,649
42	Lake Stevens	7,327	14,211	12,944	16,679
43	Lakewood	23,895	27,877	25,864	31,045
44	Lynnwood	13,431	17,647	15,998	20,124
45	Maple Valley	4,814	9,777	7,947	10,925
46	Marysville	16,762	35,871	33,772	39,659
47	Medina	1,111	1,303	841	1,969
48	Mercer Island	8,436	9,838	8,394	11,447
49	Mill Creek	5,449	9,270	7,600	10,517
50	Milton - King	105	762	445	1,330
51	Monroe	4,171	7,119	6,021	8,643
52	Mountlake Terrace	7,985	14,058	14,844	18,827

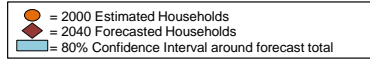


Plot of 2040 Forecasts over Confidence Interval

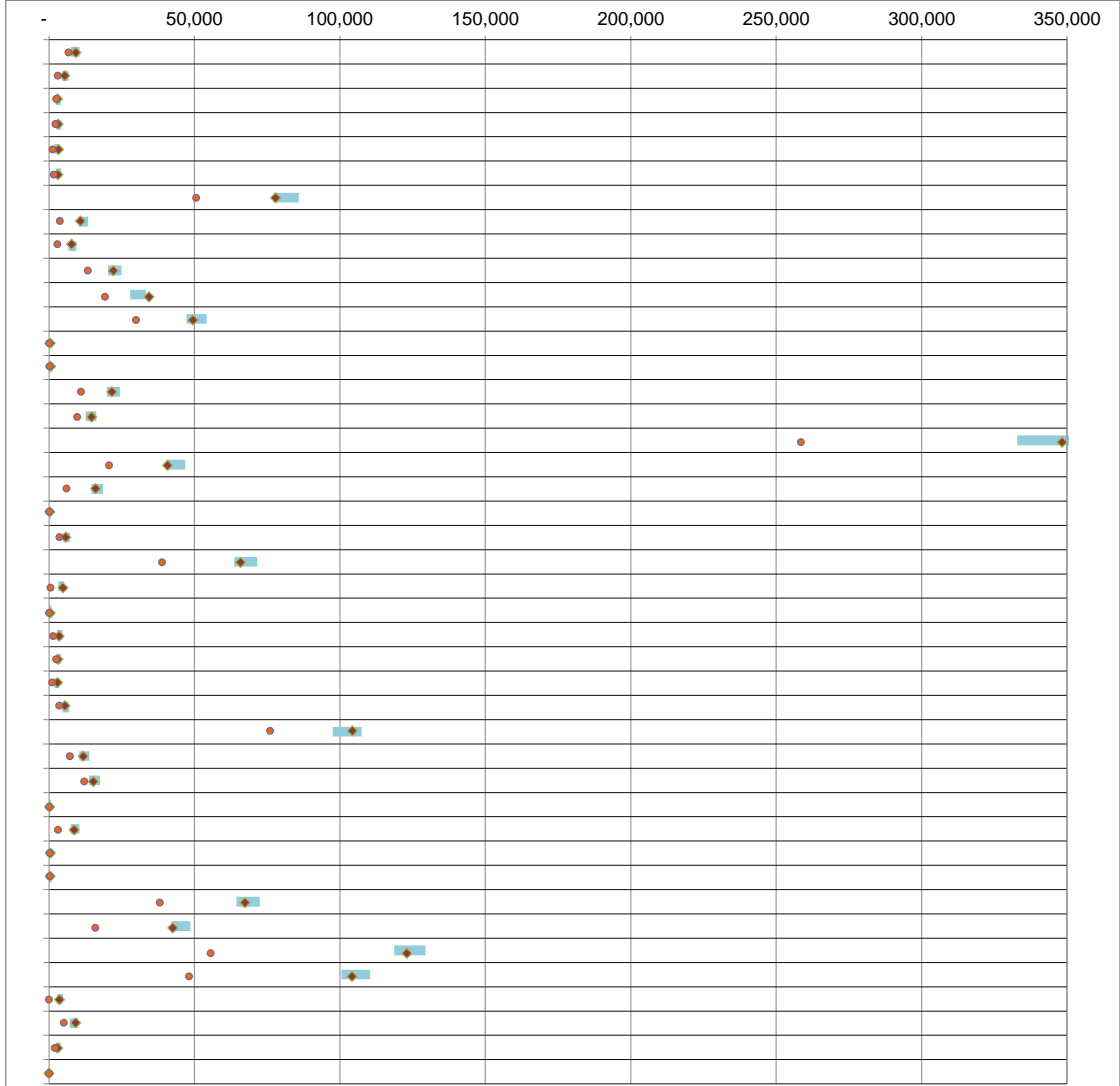


**Year 2040 Forecasts and Confidence Interval
Total Households by Jurisdiction**

ID	Name (and County if split)	Forecast Results		80% Confidence Interval	
		Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
53	Mukilteo	6,760	9,262	7,593	10,509
54	Newcastle	3,089	5,460	4,534	6,840
55	Normandy Park	2,620	3,006	2,317	4,033
56	North Bend	2,270	3,180	2,514	4,292
57	Orting	1,314	3,327	1,914	3,496
58	Pacific - King	1,755	3,095	2,400	4,143
59	Pierce Rural	50,683	77,940	77,104	85,878
60	Port Orchard	3,837	10,874	10,190	13,530
61	Poulsbo	2,987	7,812	6,680	9,430
62	Puyallup	13,413	22,196	20,325	24,945
63	Redmond	19,357	34,453	27,976	33,355
64	Renton	29,984	49,562	47,297	54,221
65	Roy	160	457	213	899
66	Ruston	305	593	312	1,092
67	Sammamish	11,063	21,671	19,863	24,433
68	Seatac	9,782	14,708	12,619	16,310
69	Seattle	258,552	348,326	332,911	350,888
70	Shoreline	20,714	40,802	40,429	46,848
71	Silverdale area of Kitsap Uninc UGA	6,130	16,077	14,649	18,607
72	Skykomish	104	336	135	728
73	Snohomish City	3,694	5,844	4,893	7,279
74	Snohomish Rural	38,948	65,907	63,653	71,646
75	Snoqualmie	626	4,841	3,190	5,163
76	South Prairie	111	460	213	899
77	Stanwood	1,521	3,500	2,766	4,619
78	Steilacoom	2,578	3,101	2,413	4,159
79	Sultan	1,208	2,997	1,880	3,450
80	Sumner	3,594	5,535	4,615	6,940
81	Tacoma	76,116	104,387	97,605	107,447
82	Tukwila	7,266	11,866	10,449	13,828
83	University Place	12,214	15,339	13,794	17,642
84	Wilkeson	105	289	108	663
85	Woodinville	3,187	8,699	7,523	10,426
86	Woodway	336	518	258	988
87	Yarrow Point	387	420	209	890
88	King Unincorporated UGA	38,208	67,459	64,452	72,495
89	Kitsap Unincorporated UGA	15,994	42,599	42,123	48,669
90	Pierce Unincorporated UGA	55,627	123,061	118,668	129,497
91	Snohomish Unincorporated UGA	48,269	104,229	100,502	110,486
92	Auburn - Pierce	51	3,652	2,892	4,782
93	Bothell - Snohomish	5,167	9,218	7,187	10,030
94	Milton - Pierce	2,092	3,070	2,367	4,099
95	Pacific - Pierce	58	36	-	214

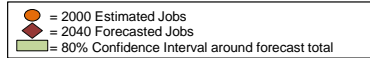


Plot of 2040 Forecasts over Confidence Interval

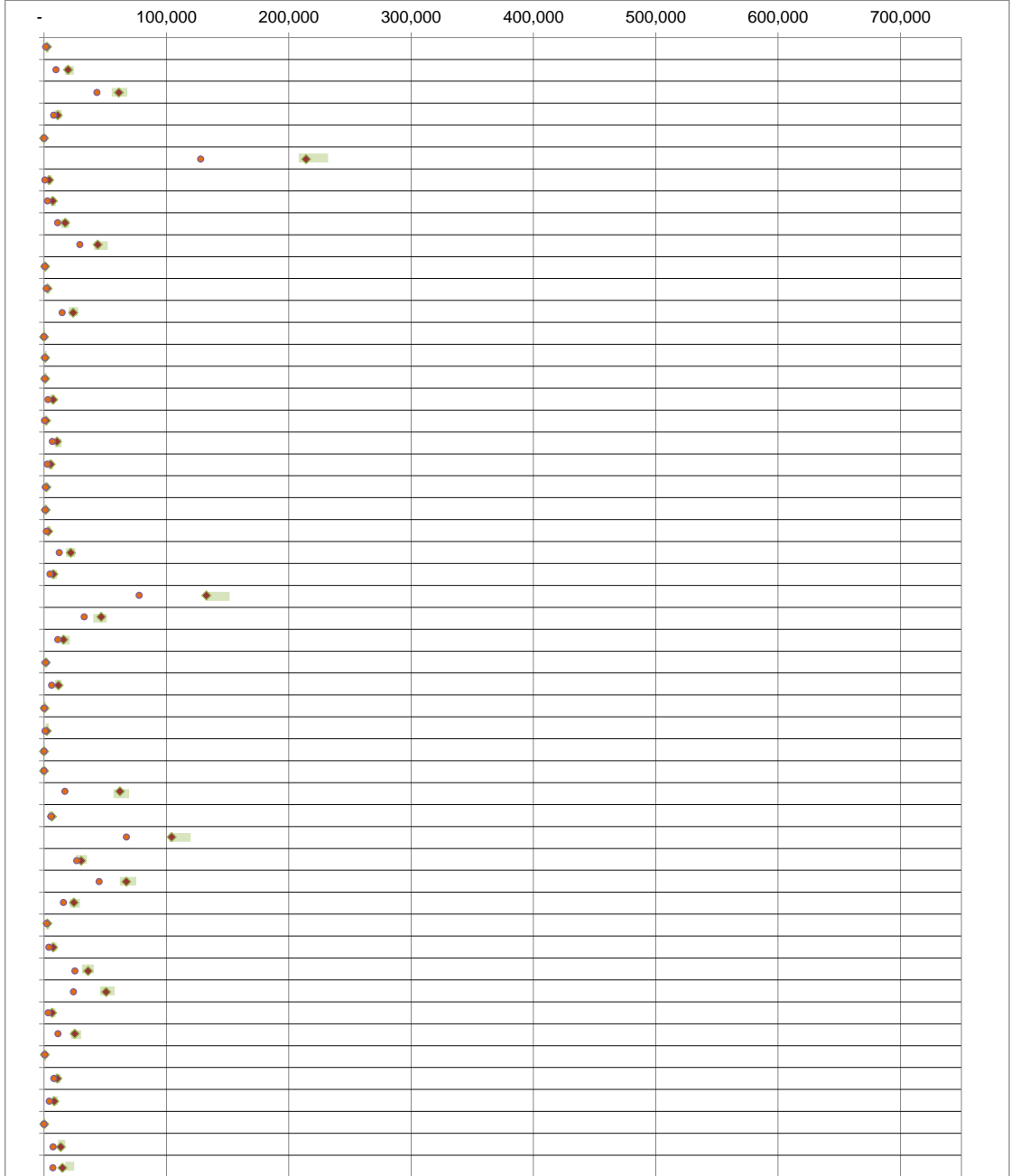


**Year 2040 Forecasts and Confidence Interval
Total Jobs by Jurisdiction**

ID	Name (and County if split)	Forecast Results		80% Confidence Interval	
		Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
1	Algona	1,613	2,377	1,355	3,910
2	Arlington	9,885	19,726	17,042	24,417
3	Auburn - King	43,280	61,195	55,199	67,943
4	Bainbridge Island	7,882	11,156	8,894	14,406
5	Beaux Arts	44	28	-	385
6	Bellevue	128,149	214,216	208,085	232,206
7	Black Diamond	753	4,253	2,908	6,342
8	Bonney Lake	2,878	7,123	5,207	9,579
9	Bothell - King	11,270	17,325	13,748	20,440
10	Bremerton	29,401	43,966	40,890	51,950
11	Brier	576	926	366	2,010
12	Buckley	1,914	2,920	1,817	4,670
13	Burien	14,895	23,917	20,004	27,939
14	Carbonado	34	70	-	516
15	Carnation	758	985	402	2,095
16	Clyde Hill	715	913	357	1,990
17	Covington	3,332	7,541	4,765	8,976
18	Darrington	534	1,729	915	3,131
19	Des Moines	6,823	10,585	8,648	14,092
20	Dupont	2,737	5,374	3,694	7,481
21	Duvall	1,241	2,056	1,167	3,584
22	Eatonville	888	1,329	633	2,587
23	Edgewood	1,921	3,454	2,263	5,370
24	Edmonds	12,506	21,987	18,037	25,605
25	Enumclaw	5,014	7,706	5,852	10,447
26	Everett	77,791	132,765	132,277	151,643
27	Federal Way	32,915	46,735	40,215	51,189
28	Fife	11,381	15,975	14,229	21,025
29	Fircrest	1,449	1,525	741	2,803
30	Gig Harbor	6,353	11,828	9,006	14,548
31	Gold Bar	223	536	140	1,411
32	Granite Falls	902	2,263	1,319	3,847
33	Hunts Point	70	81	-	545
34	Index	60	100	-	595
35	Issaquah	17,117	62,133	56,616	69,514
36	Kenmore	5,746	6,467	3,492	7,193
37	Kent	67,458	104,309	102,612	119,747
38	King Rural	26,864	30,336	26,088	35,055
39	Kirkland	45,065	67,357	61,828	75,276
40	Kitsap Rural	16,005	24,469	21,095	29,225
41	Lake Forest Park	2,249	2,687	1,636	4,377
42	Lake Stevens	4,041	7,442	5,624	10,142
43	Lakewood	25,389	35,993	31,029	40,749
44	Lynnwood	24,156	50,737	45,899	57,578
45	Maple Valley	3,410	6,627	4,933	9,206
46	Marysville	11,464	25,266	21,892	30,162
47	Medina	621	715	238	1,692
48	Mercer Island	8,150	10,902	8,170	13,479
49	Mill Creek	4,377	8,419	6,494	11,300
50	Milton - King	35	194	7	801
51	Monroe	7,431	13,753	11,260	17,378
52	Mountlake Terrace	7,410	15,119	17,233	24,645

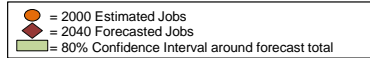


Plot of 2040 Forecasts over Confidence Interval



Year 2040 Forecasts and Confidence Interval Total Jobs by Jurisdiction

ID	Name (and County if split)	Forecast Results		80% Confidence Interval	
		Actual 2000	Forecast 2040	Year 2040 Lower Bound	Year 2040 Upper Bound
53	Mukilteo	8,071	13,929	11,354	17,495
54	Newcastle	1,504	3,460	1,609	4,333
55	Normandy Park	964	1,079	459	2,221
56	North Bend	2,597	9,646	7,574	12,711
57	Orting	769	1,586	814	2,942
58	Pacific - King	912	1,652	865	3,038
59	Pierce Rural	20,751	30,940	27,066	36,188
60	Port Orchard	6,447	9,140	7,061	12,044
61	Poulsbo	5,847	7,876	5,987	10,628
62	Puyallup	19,485	30,361	26,609	35,659
63	Redmond	77,694	138,404	125,228	144,088
64	Renton	62,843	87,211	80,269	95,501
65	Roy	219	467	100	1,274
66	Ruston	193	274	27	954
67	Sammamish	7,730	9,383	7,359	12,432
68	Seatac	32,999	42,193	37,136	47,708
69	Seattle	543,327	738,576	707,867	751,797
70	Shoreline	18,565	24,746	20,882	28,975
71	Silverdale area of Kitsap Uninc UGA	9,598	15,650	12,414	18,805
72	Skykomish	109	165	2	739
73	Snohomish City	4,683	8,243	6,325	11,076
74	Snohomish Rural	16,530	27,836	23,186	31,678
75	Snoqualmie	1,508	4,875	2,490	5,718
76	South Prairie	89	115	-	628
77	Stanwood	2,682	4,668	3,270	6,872
78	Steilacoom	908	1,280	593	2,508
79	Sultan	940	1,737	926	3,151
80	Sumner	6,462	10,898	8,679	14,132
81	Tacoma	109,364	179,708	179,168	201,598
82	Tukwila	49,773	97,969	89,363	105,398
83	University Place	6,511	11,797	8,405	13,781
84	Wilkeson	86	214	11	839
85	Woodinville	14,120	18,196	15,276	22,294
86	Woodway	136	129	-	665
87	Yarrow Point	131	144	-	696
88	King Unincorporated UGA	17,302	27,358	23,567	32,123
89	Kitsap Unincorporated UGA	7,767	16,027	11,997	18,291
90	Pierce Unincorporated UGA	41,007	99,111	91,373	107,579
91	Snohomish Unincorporated UGA	31,680	55,120	50,112	62,285
92	Auburn - Pierce	168	808	293	1,833
93	Bothell - Snohomish	11,576	19,220	15,381	22,420
94	Milton - Pierce	2,156	3,381	2,144	5,187
95	Pacific - Pierce	1,512	2,305	1,351	3,903



Plot of 2040 Forecasts over Confidence Interval

