

# Proposed Data Structure

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This appendix presents the proposed coding and data structure for the database systems needed to implement the work program. It includes the regional land use matrix, land use classification codes, and data structures for GIS data elements. It also includes sample calculations for the land needs and capacity analysis that are included in this report for illustrative purposes only.

The following tables are included in this appendix:

- Table E-1. Regional land use matrix – shows the detailed relationship between local zoning and regional classifications.
- Table E-2. Portland Metro generalized plan designation and zoning classifications – shows Metro's regional land classification categories.
- Table E-3. Snohomish County land use classification system – shows the recommended land use codes.
- Table E-4. Proposed GIS data layers – existing or new GIS data layers that are necessary to complete the buildable lands inventory.
- Table E-5. Proposed tax lot file structure – the data elements required to implement the methods described in chapter 5.
- Table E-6. Overview of land need simulator – a summary of the steps to calculate land need and capacity.
- Table E-7. Population and employment forecasts – the base data for the land need calculations.
- Table E-8. Land need assumptions – the base assumptions for the land need calculations.
- Table E-9. Results – the summary results for the land need calculations.
- Table E-10. Summary of residential land need – detailed results for residential lands.
- Table E-11. Summary of employment land need – detailed results for employment land need.
- Table E-12. Other land need – sample calculations for other land need.
- Table E-13. Employment and mixed use capacity – sample calculations for estimating capacity of land designated for employment and mixed land uses.

- Table E-14. Residential capacity – sample calculations for estimating capacity for land designated for residential uses.
- Table E-15. Sample land supply calculations – shows calculations for buildable land inventory data.

**Table E-1. Snohomish County regional land classification matrix (SAMPLE)**

CITY	Plan Des	Related Zoning Districts	Abbrv Title	Min Lot Size/ Density	Max Lot Size/Density <sup>1</sup>	Target Density	Common Countywide Plan Designation Category
Snohomish County	Urban Low Density Residential 4-6 DU/Acre	Residential 7,200 SF	R-7,200	7,200 SF - 4 DU/Acre*	~ 6 DU/Acre		Urban Low Density Residential
		Planned Residential Dev. 7,200 SF	PRD-7,200	4,500 SF - 4 DU/Acre*	~ 10 DU/Acre		
		Residential 8,400 SF	R-8,400	8,400 SF - 4 DU/Acre*	~ 5 DU/Acre		
		Planned Residential Dev. 8,400 SF	PRD-8,400	4,500 SF - 4 DU/Acre*	~ 10 DU/Acre		
		Residential 9,600 SF	R-9,600	9,600 SF - 4 DU/Acre*	~ 4.5 DU/Acre		
		Planned Residential Dev. 9,600 SF	PRD-9,600	4,500 SF - 4 DU/Acre*	~ 10 DU/Acre		
		Waterfront Beach	WFB	7,200 SF - 4 DU/Acre*	~ 6 DU/Acre		
	Urban Medium Density Residential 6-12 DU/Acre	Low Density Multiple Residential	LDMR	7,200 SF - 4 DU/Acre*	~ 11 DU/Acre (based on 4,000 SF/DU)		Urban Medium Density Residential
		Planned Residential Dev. LDMR	PRD-LDMR	None - 4 DU/Acre*	~ 13 DU/Acre		
		Townhouse	T	SF/MH 7,200, Townhomes should avg. to 2,000 SF	9 DU/Acre		
		Residential 7,200 SF	R-7,200	7,200 SF - 4 DU/Acre*	~ 6 DU/Acre		
		Planned Residential Dev. 7,200 SF	PRD-7,200	4,500 SF - 4 DU/Acre*	~ 10 DU/Acre		
	Urban High Density Residential 12-24 DU/Acre	Waterfront Beach	WFB	7,200 SF - 4 DU/Acre*	~ 6 DU/Acre		Urban High Density Residential
		Multiple Residential	MR	7,200 SF - 4 DU/Acre*	~ 22 DU/Acre (based on 2,000 SF/DU)		
		Planned Residential Dev. Multi Fam	PRD-MR	None - 4 DU/Acre*	~ 26 DU/Acre		

<sup>1</sup> Densities are generally expressed in net acres for single-family zones and gross acres for multiple family zones.

CITY	Plan Des	Related Zoning Districts	Abbrv Title	Min Lot Size/ Density	Max Lot Size/Density <sup>1</sup>	Target Density	Common Countywide Plan Designation Category	
		Low Density Multiple Residential	LDMR	7,200 SF - 4 DU/Acre*	~ 11 DU/Acre (based on 4,000 SF/DU)			
		Planned Residential Dev. LDMR	PRD-LDMR	None - 4 DU/Acre*	~ 13 DU/Acre			
	Urban Commercial	Neighborhood Business	NB	None	25', 35% (Res=MR)		Urban Commercial	
		Planned Community Business	PCB	5 Acres	40', None (Res=MR)			
		Community Business	CB	None	35', 50% (Res=MR)			
		General Commercial	GC	None	45', 50% (Res=MR)			
		Freeway Service	FS	None	35', None (Res=MR)			
		Business Park	BP	4 Acres	50', 35% (Res=MR)			
	Urban Industrial	Business Park	BP	4 Acres	50', 35% (Res=MR)		Urban Industrial	
		Light Industrial	LI	None	50', None			
		Heavy Industrial	HI	None	65', None			
		Industrial Park	IP	None	65', 50%			
		*Minimum density of 4 DU/Acre is required in all UGAs except Darrington, Gold Bar and Index						
<b>Everett</b>	1.1	Suburban Residential	R-S	9,000 sf. - 3 DU/acre	5 DU/acre		Urban Low Density Residential	
	1.2	Single Family Detached	R-1	6,000 sf. - 5 DU/acre	10 DU/acre		Urban Medium Density Residential	
	1.2	Single Family-Medium Density	R-2	4,500 sf. - 5 DU/acre	10 DU/acre			
	1.3	same	R-2	4,500 sf. - 5 DU/acre	10 DU/acre		Urban Medium Density Residential	
	1.3	Single Family Attached	R-1A	4,500 sf. - 5 DU/acre	10 DU/acre			
	1.4	Single Family Attached-Med Density	R-2A	4,500 sf. - 12 DU/acre	15 DU/acre		Urban High Density Residential	

CITY	Plan Des	Related Zoning Districts	Abbrv Title	Min Lot Size/ Density	Max Lot Size/Density <sup>1</sup>	Target Density	Common Countywide Plan Designation Category
		1.5 Multi Family-Low Density	R-3L	5,000 sf. - 15 DU/acre	20 DU/acre		Urban High Density Residential
		1.6 Multi Family-Medium Density	R-3	5,000 sf. - 20 DU/acre	29 DU/acre		Urban High Density Residential
		1.7 Multi Family-High Density	R-4	5,000 sf. - 30 DU/acre	50 DU/acre		Urban High Density Residential
		1.8 Core Residential	R-5	5,000 sf.	50+ DU/acre		Urban High Density Residential
		3.1 Central Business District	B-3	5,000 sf.	no max		Mixed-use
		3.1 General Commercial	C-1	5,000 sf.	no max		Mixed-use
		3.1 Comm. Shopping	B-2	5,000 sf.	58 DU/acre		Mixed-use
		6.1 Agricultural	A-1	5 acres			
<b>Edmonds</b>	Single Family – Small Lot	Single Family	RS-6		1 unit / 6,000 sq.ft.	5-to-8 units/acre	Urban Medium Density Residential
	Single Family – Small Lot	Single Family	RS-8		1 unit / 8,000 sq.ft.		
	Single Family – Large Lot	Single Family	RS-12		1 unit / 12,000 sq.ft.	Less than 5/acre	Urban Low Density Residential
	Single Family – Large Lot	Single Family	RS-20		1 unit / 20,000 sq.ft.		
	Multi Family – High Density	Multi Family	RM-1.5		1 unit / 1,500 sq.ft. (lot)		Urban High Density Residential
	Multi Family – High Density		RM-2.4		1 unit / 2,400 sq.ft.		
	Multi Family – Medium Density	Multi Family	RM-2.4		1 unit / 2,400 sq.ft.		Urban High Density Residential
	Multi Family – Medium Density	Multi Family	RM-3		1 unit / 3,000 sq.ft.		
	Mixed Use	Community Business (or mix of zones)	BC		N/A – Limited by bulk & parking		Mixed Use
	Commercial Hi-Rise	General Commercial	CG, CG2		Unlimited		Urban Commercial
	Commercial	General Commercial	CG/CG2		35/45 foot height limit		Urban Commercial
	Commercial	Commercial	CW		30 foot height limit		

CITY	Plan Des	Related Zoning Districts	Abbrv Title	Min Lot Size/ Density	Max Lot Size/Density <sup>1</sup>	Target Density	Common Countywide Plan Designation Category
		Waterfront					
	Commercial	Planned Business	BP		FAR 3.0		
	Commercial	Neighborhood Business	BN		FAR 3.0		
	Hospital-Medical	Medical Use	MU		35 foot height limit, unless covered by Master Plan in Comp. Plan		Urban Commercial
<b>Lynnwood</b>	SF-1 Large Lot Single-Family	RS-12 Single-Family	RS-12	12,500 sq. ft.	NA	3-4 DU/acre	Urban Low Density Residential
	SF-1 Large Lot Single-Family	RS-9 Single-Family	RS-9	9,600 sq. ft.	NA	4 DU/acre	
	SF-1 Large Lot Single-Family	RS-8 Single-Family	RS-8	8,400 sq. ft.	NA	5 DU/acre	
	SF-2 Small Lot Single-Family	RS-7 Single-Family	RS-7	7,200 sq. ft.	NA	6 DU/acre	Urban Low Density Residential
	MF-1 Low Density Multiple-Family	Low Density Multiple-Family	RML	3,600 sq. ft.	NA	12 DU/acre	Urban Medium Density Residential
	MF-2 Medium Density Multiple-Family	Medium Density Multiple-Family	RMM	2,400 sq. ft.	NA	18 DU/acre	Urban High Density Residential
	*MF-3 High Density Multiple-Family	High Density Multiple	RMH	1,200 sq. ft.	NA	36 DU/acre	Urban High Density Residential
	*MF-3 High Density Multiple-Family	High Rise Multiple	RMHR	1,000 sq. ft.	NA	43 DU/acre	
	LC Local Commercial	Community Business	BC				Urban Commercial
	LC Local Commercial	Neighborhood Business	BN				
	RC Regional Commercial	General Commercial	CG				Urban Commercial
	RC Regional Commercial	Planned Regional Commercial	PRC				
	RC Regional Commercial	Planned Commercial Development	PCD				
	RC Regional Commercial	Restricted Business	B-4				

CITY	Plan Des	Related Zoning Districts	Abbrv Title	Min Lot Size/Density	Max Lot Size/Density <sup>1</sup>	Target Density	Common Countywide Plan Designation Category
	RC Regional Commercial	Limited Business	B-2				
	OC Office Commercial	(No specific zone)					Urban Commercial
	BT Business Technical	Business/Tech Park	BTP				Urban Industrial
	LI Light Industrial	Light Industrial	LI				Urban Industrial
	PF Public Facilities	Public Use	P-1				
	PF Public Facilities	Highway Services	C-2				
	RO Reservation/Open Space	(No specific zone)					
	MU Mixed Use	Mixed Use	MU		24 DU/acre max.		Mixed Use
	* Currently being developed to add to Plan this year. RMH + RMHR zones already exist.						
<b>Mountlake Terrace</b>	Single Family Residential		SFR				Urban Low Density Residential
		Single Household Residential	RS 7200	7,200 sq. ft.		5/acre	
		Single Household Residential	RS 8400	8,400 sq. ft.		6/acre	
	Low Density Multi-Family*		RML				Urban Medium Density Residential
		Low Density Multi Household	RML	5,400 sq. ft.		8/acre	
	Medium Density Multi-Family*		RMM				Urban High Density Residential
		Med Density Multi Household	RMM	2,700 sq. ft. with no lot smaller than 5,400 sq. ft.		16/acre	
	Mobile Home Park		MHP				Urban Medium Density Residential
		Mobile Home Park	MHP	2,400 sq. ft. with no MHP smaller than 5 acres		9/acre	
	Special Development District		SDD				
		Special Development District	SDD	.25 acres		12/acre	

CITY	Plan Des	Related Zoning Districts	Abbrv Title	Min Lot Size/ Density	Max Lot Size/Density <sup>1</sup>	Target Density	Common Countywide Plan Designation Category
	Park and Open Space		POS				
	Community Business	Recreation & Park	REC BC	N/A	N/A	N/A	Mixed Use
		Community Business	BC	No minimum lot size requirement. M.F. permitted only in conjunction w/ comm.			
		Community Business Downtown	BC/D	Density is driven by bulk requirements & ability to meet parking req.			
	General Commercial		CG				Urban Commercial
		General Commercial	CG	N/A	N/A	N/A	
	Light Industrial/Office Park		LI/OP				Urban Industrial
		Light Industrial/Office Park	LI/OP	N/A	N/A	N/A	
	Public Facilities & Services		PFS				
		Public Facilities/Services	PFS	N/A	N/A	N/A	
*Single household residential development is permitted in RM districts with min. land area of 4,800 sq. ft./lot w/ a density of 9/acre.							
<b>Marysville</b>	Single Family Med. Density	R-4.5	R-4.5	5,000 sq. ft., 4.5 DU/net acre	N/A	4-5 DU/net acre	Urban Low Density Residential
	Single Family High Density	R-6.5	R-6.5	5,000 sq. ft., 6.5 DU/net acre	N/A	5-7 DU/net acre	Urban Low Density Residential
	Single Family High Density Small Lot	R-8	R-8	8,000 sq. ft., 8 DU/net acre	N/A	8 DU/net acre	Urban Medium Density Residential
	Multi-Family Low Density	R-12	R-12	12 DU/net acre	N/A	6-12 DU/net acre	Urban Medium Density Residential
	Multi-Family Medium Density	R-18	R-18	18 DU/net acre	N/A	12-18 DU/net acre	Urban High Density Residential
	Multi-Family High Density	R-28	R-28	28 DU/net acre	N/A	18-28 DU/net acre	Urban High Density Residential
	Community Commercial*	Community Business	CB	12 DU/net acre	N/A	None	Urban Commercial



CITY	Plan Des	Related Zoning Districts	Abbrv Title	Min Lot Size/ Density	Max Lot Size/Density <sup>1</sup>	Target Density	Common Countywide Plan Designation Category
	General Commercial*	General Commercial	GC	12 DU/net acre	N/A	None	Urban Commercial
	Downtown Commercial*	Downtown Commercial	DC	12 DU/net acre	N/A	None	Urban Commercial
	Mixed Use	Mixed Use	MU	28 DU/net acre	N/A	None	Mixed Use
	*All units must be above street-level commercial.						
<b>Mukilteo</b>	SFR High Density	RD 7.2		7,200 sq. ft.			Urban Low Density Residential
		RD 7.5		7,500 sq. ft.			
		Waterfront Beach	WFB	7,200 sq. ft.			
	SFR Medium Density			8,400 sq. ft.			Urban Low Density Residential
				9,600 sq. ft.			
				9,600 sq. ft.			
	SFR Low Density			12,500 sq. ft.			Urban Low Density Residential
				12,500 sq. ft.			
	MFR-High Density	Multi-family Residential	MR	20,000 sq. ft. 2,000?			Urban High Density Residential
	MFR-Low Density	Multi-family Residential	MRD	3,350 sq. ft.			Urban High Density Residential
	Mixed Use	Planned Community Bus. South	PCB(S)	none			Urban Commercial
		MFR high density	MR	2,000 sq. ft./DU			
		Business Park	BP	none			
	Commercial	Downtown Business	DB	none			Urban Commercial
		Community Business	CB	none			
		Community Business South	CB (S)	none			
		Planned Community Business	PCB	1 acre			
		Planned	PCB(S)	none			

CITY	Plan Des	Related Zoning Districts	Abbrv Title	Min Lot Size/ Density	Max Lot Size/Density <sup>1</sup>	Target Density	Common Countywide Plan Designation Category
		Community Bus. South					
		Public-Semi Public	PSP	1 acre			
		Waterfront Mixed Use	WMU	none			
	Industrial	Business Park	BP	none			Urban Industrial
		Planned Industrial	PI	none			
		Industrial Park	IP	none			
		Light Industrial	LI	none			
		Heavy Industrial	HI	none			
	Open Space	Open Space	OS	none			
<b>Bothell (part in Snoh. Co.)</b>	R1	R1 (detached units)		1 DU/acre (43,560 s.f.)	none	none	Urban Low Density Residential
	R 2-5	R2 (detached units)		2 DU/acre (20,000 s.f.)	none	none	Urban Low Density Residential
		R3 (detached units)		3 DU/acre (12,500 s.f.)	none	none	
		R4 (detached units)		4 DU/acre (9,600 s.f.)	none	none	
		R5 (detached units)		5 DU/acre (8,400 s.f.)	none	none	
	R 6-10	R6 (detached units)		6 DU/acre (7,200 s.f.)	none	none	Urban Medium Density Residential
		R8d (detached units)		8 DU/acre (5,400 s.f.)	none	none	
		R8a (attached units ok)		8 DU/acre (5,400 s.f.)	none	none	
	R 11-15	R11 (detached units)		11 DU/acre (4,000 s.f.)	none	none	Urban High Density Residential
		R15 (detached units)		15 DU/acre (2,800 s.f.)	none	none	
	OP	Office Professional	OP		none	none	Urban Commercial
	NB	Neighborhood Business	NB		none	none	Urban Commercial
	CB	Commercial Business	CB		none	none	Urban Commercial

CITY	Plan Des	Related Zoning Districts	Abbrv Title	Min Lot Size/ Density	Max Lot Size/Density <sup>1</sup>	Target Density	Common Countywide Plan Designation Category
	GC	General Commercial	GC		none	none	Urban Commercial
	LI	Light Industrial	LI		none	none	Urban Industrial
	SSHO	Specialized Senior Housing Overlay	SSHO	No theoretical limit, but dimensional standards apply.	none	none	
	MHP	Mobile Home Park	MHP	Typically R11 or R15 (reflects existing development)	none	none	Urban Medium Density Residential
	*Attached pages describe each plan designation in detail.						
<b>Mill Creek</b>	Residential-Low Density	Low Density Residential	LDR	8,400 sq. ft.	N/A	up to 4 du/gross acre	Urban Low Density Residential
		PRD 7200	PRD 7200	5,000 sq. ft.	N/A	up to 4 du/gross acre	
	Residential-Medium Density	Medium Density Residential	MDR	N/A	N/A	5-12 du/gross acre	Urban Medium Density Residential
		PRD 7200	PRD 7200	5,000 sq. ft.	N/A	up to 12 du/gross acre	
	Residential-High Density	High Density Residential	HDR	N/A	N/A	16-24 du/gross acre	Urban High Density Residential
	Mixed Use/High Density Residential	Mixed Use/High Density Residential	MU/HDR	N/A	N/A	7-24 du/gross acre [up to 30 du/gross acre with incentives]	Mixed Use
	Community Business	Community Business	CB	7,200 sq. ft.	N/A	16 du/acre max	Urban Commercial
	Neighborhood Business	Neighborhood Business	NB	N/A	N/A	30 du/acre max	Urban Commercial
	Office Park	Office Park	OP	N/A	N/A	N/A	Urban Commercial
	Town Center	Planned Community Business	PCB	N/A	N/A	24 du/acre max	Urban Commercial
Business Park	Business Park	BP	N/A	N/A	(permits retirement housing permitted through CUP-no	Urban Commercial	

CITY	Plan Des	Related Zoning Districts	Abbrv Title	Min Lot Size/Density	Max Lot Size/Density <sup>1</sup>	Target Density	Common Countywide Plan Designation Category
	Public-Quasi Public	None				max density) This category used primarily to show where facilities are located. Not where future facilities are going to be located.	
<b>Monroe</b>							
<b>Snohomish</b>							
<b>Arlington</b>	Medium Density Residential	Residential Moderate Density	MDR	7,200 sf	4-6 du/acre	6 du/acre	Urban Low Density Residential
	Medium-High Density Residential	Residential-Low/Moderate Density	MHDR	7,200 sf	4-6 du/acre	6 du/acre	Urban Low Density Residential
	High Density Residential	Residential High Density	HDR	4,585 sf	12-24 du/acre	24 du/acre	Urban High Density Residential
	Old Town	Old Town	OT	4,356 sf	6-12 du/acre	8 du/acre	Urban Medium Density Residential
	Neighborhood Commercial	Neighborhood Commercial	NC	6,000 sf			Urban Commercial
	General Commercial	General Commercial	GC	10,000 sf – 2 ac			Urban Commercial
	Central Business District	Central Business District	CBD	5,000 sf – 0.5 ac			Urban Commercial
	Highway Commercial	Highway Commercial	HC	10,000 sf – 2 ac			Urban Commercial
	Airport Industrial	Airport Industrial	AI	10,000 sf – 2 ac			Urban Industrial
	Industrial	Industrial	I	10,000 sf – 50 ac			Urban Industrial
	Business Park	Business Park	BP	None			Urban Commercial
	Airport Restricted	(none)	AR	N/A			
	Existing Parks/Open Space	(none)	(none)	N/A			
	Existing Public Use Land	(none)	(none)	N/A			
<b>Brier</b>	Single Family Residential		RS	12,500 sq. ft.	NA	NA	Urban Low Density Residential
	Single Family Residential		RS	20,000 sq. ft.	NA	NA	
	Commercial	Neighborhood Business	BN		Max Bldg = 4,000 sq. ft.	NA	Urban Commercial

CITY	Plan Des	Related Zoning Districts	Abbrv Title	Min Lot Size/ Density	Max Lot Size/Density <sup>1</sup>	Target Density	Common Countywide Plan Designation Category
	Public Use		P		NA	NA	
	Cemetery Use		UC		NA	NA	
	Permanent Open Space		OS		NA	NA	
<b>Lake Stevens</b>	Low Density Residential		LDR		NA	> 4 DU/acre	Urban Low Density Residential
		Estate Residential	ER	12,500	NA	> 4 DU/acre	
		Neighborhood Commercial	NC	3,000	NA	> 4 DU/acre	
		Commercial Recreation	CR	0	NA	> 4 DU/acre	
	Medium Density Residential	Public/Semi Public	P/SP	0	NA	> 4 DU/acre	
			MDR	NA	NA	4-12 DU/acre	Urban Medium Density Res.
		Suburban Residential	SR	9,600	NA	4-12 DU/acre	
		Waterfront Residential	WR	9,600	NA	4-12 DU/acre	
		Urban Residential	UR	7,500	NA	4-12 DU/acre	
		High Urban Residential	HUR	3,600	NA	4-12 DU/acre	
		Neighborhood Commercial	NC	3	NA	NA	
		Commercial Recreation	CR	0	NA	NA	
	High Density Residential	Public/Semi Public	P/SP	0	NA	NA	
			HDR	NA	NA	> 12 DU/acre	Urban High Density Residential
		Multi-Family Residential	MFR	3,000	No max density	> 12 DU/acre	
		Neighborhood Commercial	NC	3,000	NA	NA	
		Commercial Recreation	CR	0	NA	NA	
	Waterfront Residential	Public/Semi Public	P/SP	0	NA	NA	
			WR	NA	NA	> 4 DU/acre	Urban Low Density Residential

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		Waterfront Residential	WR	9,600	NA	> 4 DU/acre	
		Commercial Recreation	CR	0		NA	
	Downtown/Local	Public/Semi Public Commercial	P/SP D/LC	0		NA	Urban Commercial
		Local Business	LB	3,000		NA	
		Central Business Commercial	CBD CR	3,000	No max density	NA	
		Commercial Recreation	CR	0		NA	
	Sub-Regional	Public/Semi Public Commercial	P/SP SRC	0		NA	Urban Commercial
		Sub-Regional Commercial	SRC	0		NA	
		Commercial Recreation	CR	0		NA	
	Mixed Use	Public/Semi Public	P/SP MU	0		NA	Urban Commercial
		Mixed Use	MU	3,000	No max density	NA	
		Commercial Recreation	CR	0		NA	
	Planned Business	Public/Semi Public District	P/SP PBD	0		NA	Urban Commercial
		Planned Business District	PBD	0	No max density	NA	
		Commercial Recreation	LR	0		NA	
	Light Industrial	Public/Semi Public	P/SP LI	0		NA	Urban Industrial
		Commercial Recreation	CR	0		NA	
		Light Industrial	LI	0		NA	
	General Industrial	Public/Semi Public	P/SP GI	0		NA	Urban Industrial
		General Industrial	GI	0	NA	NA	
		Light Industrial	LI	0	NA	NA	

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		Commercial Recreation	CR		0 NA	NA	
	Public/Semi Public	Public/Semi Public	P/SP		0 NA	NA	
			P/SP	NA	NA	NA	
		Commercial Recreation	CR		0 NA	NA	
	Suburban Agriculture	Public/Semi Public	P/SP		0 NA	NA	
			SA	NA	NA	1 DU/5 acres	
		Public/Semi Public Suburban Agriculture	P/SP SA	5 acres	0 NA NA	NA NA	
<b>Stanwood</b>	Max 3.5 DU/acre		SR-12.4	12,400 sq. ft.	3.5 DU/acre		Urban Low Density Residential
	Max 4 DU/acre		SR-9.6	9,600 sq. ft.	4 DU/acre		Urban Low Density Residential
	Max 6 DU/acre		SR-7.0	7,000 sq. ft.	6 DU/acre		Urban Low Density Residential
	Max 10 DU/acre		SR-5.0	5,000 sq. ft.	10 DU/acre		Urban Medium Density Residential
	Neighborhood Business	Neighborhood Business	NB	6,000 sq. ft.			Urban Commercial
	Mainstreet Business I	Mainstreet Business I	MB I	2,500 sq. ft.			Urban Commercial
	Mainstreet Business II	Mainstreet Business II	MB II	2,500 sq. ft.			Urban Commercial
	General Commercial	General Commercial	GC	10,000 sq. ft.			Urban Commercial
	Light Industrial	Light Industrial	LI	8,000 sq. ft.			Urban Industrial
	General Industrial	General Industrial	GI	10,000 sq. ft.			Urban Industrial
	Public Facility						
	Max 20 DU/acre	Multi-Family Residential	MR	4,500 sq. ft. /1 acre MR	20 DU/acre		Urban High Density Residential
<b>Sultan</b>	Residential Low Density	Low/Moderate Density	LMD	10,890 sq. ft.	7 units/acre		Urban Low Density Residential
	Residential Medium Density	Moderate Density	MD	7,200 sq. ft.	10 units/acre		Urban Medium Density Residential

CITY	Plan Des	Related Zoning Districts	Abbrv Title	Min Lot Size/ Density	Max Lot Size/Density <sup>1</sup>	Target Density	Common Countywide Plan Designation Category
	Residential High Density	High Density	HD	2,178 sq. ft. / DU	20 units/acre		Urban High Density Residential
	Commercial	Highway Oriented Development + Urban Center	HOD+UC	10,000 sq. ft.	24 units/acre		Urban Commercial
	Office/Industrial	Economic Development	ED	10,000 sq. ft.	N/A		Urban Commercial/Urban Industrial
		Highway Oriented Development + Urban Center	HOD+UC				
	Institutional Parks	N/A N/A					
<b>Granite Falls</b>							
<b>Gold Bar</b>							
<b>Darrington</b>	Single Family Residential		R-SF	10,000 sq. ft.	NA	4 DU/acre	Urban Low Density Residential
	Multiple Family Residential		R-MD	7,200 sq. ft.	NA	10 DU/acre	Urban Medium Density Residential
	Commercial		CD	none	none		Urban Commercial
	Light Industrial		LI/M	none	none		Urban Industrial
<b>Woodway</b>	Conservation Forested Residential Park	Conservation Residential	C R-87	N/A 2 acres	N/A N/A	N/A N/A	Urban Low Density Residential
	Conservation Forested Residential Park	Residential	R-43	1 acre	N/A	N/A	
	Suburban Residential	Residential	R-14.5	1/3 acre	N/A	N/A	Urban Low Density Residential
	Urban Residential	Residential	UR	1/4 acre	N/A	N/A	Urban Low Density Residential
<b>Index</b>	Did not respond						



**Table E-2. Portland Metro regional plan designation and zoning categories**

Description	Plan Class	Zone Class
Central Commercial	CC	CC
General Commercial	CG	CG
Neighborhood Commercial	CN	CN
Office Commercial	CO	CO
Agriculture or Forestry - lot sizes of 30 acres or more	FF	FF
Industrial Area	IA	IA
Heavy Industrial	IH	IH
Light Industrial	IL	IL
Mixed Use Industrial	IMU	IMU
Multi Family - 2 to 25 units per acre	MFR1	MFR1
Multi Family - 25 to 50 units per acre	MFR2	MFR2
Multi Family - 50 to 100 units per acre	MFR3	MFR3
Multi Family - over 100 units per acre	MFR4	MFR4
Mixed Use - town centers, main streets, corridors	MUC1	MUC1
Mixed Use - light rail stations, regional centers	MUC2	MUC2
Mixed Use - central city	MUC3	MUC3
Public Facilities	PF	PF
Parks & Open Space	POS	POS
Rural or Future Urban - lots sizes of one acre or more	RRFU	RRFU
Single Family - lot sizes of 20000 sq. ft. and greater	SFR1	SFR1
Single Family - lot sizes of 12000 to 20000 sq. ft.	SFR2	SFR2
Single Family - lot sizes of 8500 to 12000 sq. ft.	SFR3	SFR3
Single Family - lot sizes of 6500 to 8500 sq. ft.	SFR4	SFR4
Single Family - lot sizes of 5500 to 6500 sq. ft.	SFR5	SFR5
Single Family - lot sizes of 4000 to 5500 sq. ft.	SFR6	SFR6
Single Family - lot sizes of 0 to 4000 sq. ft.	SFR7	SFR7

Source: Metro, 2000

**Table E-3. Snohomish county existing land use inventory categories (SAMPLE)**

**Residential**

**(SF) 1-2 Family**

Single Family Residence  
Mobile Home  
Duplex  
Manufactured Home

**(MF) Multi-Family**

Apartment  
Townhouse  
Multiple  
Condominium

**(MHP) Mobile Home Park**

Mobile Home Park

**(GP) Group Quarters**

Rooming house  
Membership lodging  
Dormitory  
Retirement home  
Orphanage  
Religious residences  
Other group quarters

**(GE) Government/Education**

Fire Station  
Government Building  
School  
Government services  
Education Services  
Cultural activities  
Other cultural activities and nature exhibitions

**(QPI) Quasi-Public/Institutional**

Church  
Cemetery  
Religious activities  
Welfare and charitable services  
Other miscellaneous services  
Sports assembly  
Public assembly, miscellaneous purposes

**Commercial**

**(EC) Extensive Commercial**

Warehouse Mini  
Lumber and Other Building Materials  
Motor Vehicles-Retail

Farm and Garden Supplies-Retail  
Fuel and Ice-Retail  
Equipment Rental and Leasing Services  
Automobile and truck Rental Services  
Contract Service (general contractors, roofing and sheetmetal services, electrical services)  
Wrecking Yards  
Towing Co.

**(RC) Retail Commercial**

Market  
Mini-lube Garage  
Service Stations  
Convenience Store  
Fast Food Restaurant  
Motel  
Restaurants  
Discount Stores  
Banks  
Non-Res Condominium  
Hotel/Motel  
Heating and Plumbing Equipment-retail  
Paint Glass and Wallpaper-retail  
Electrical Supplies-retail  
Hardware and Farm Equipment  
Retail-General Merchandise (department stores, mail order houses)  
Retail-Food (grocery stores, meat markets, bakeries)  
Tires, batteries, and accessories-retail  
Gasoline Service Stations  
Other retail trade  
Retail-apparel (clothing, shoes)  
Retail-furniture (furniture, china, draperies)  
Retail-eating (restaurants, drinking places)  
Drug and propriety-retail  
Liquor-retail  
Antiques and Second Hand Merchandise  
Book and Stationery  
Sporting Goods and Bicycles-Retail  
Jewelry-Retail  
Other Retail Trade  
Finance Service (banks, title, brokerages)  
Personal Services (barbers, laundry, funeral homes), except cemeteries  
Advertising Services  
Consumer and Mercantile Credit Reporting Services; Adjust and Collect Services  
Duplication-Mailing and Stenographic Services  
Dwelling and Other Building Services

News Syndicate Services  
Employment Services  
Detective and Protective Services  
Photofinishing Services  
Trading Stamp Services  
Motion Picture distribution and Services  
Other business Services  
Repair Services

**(OC) Office Commercial**

Medical Office  
Veterinary Hospital  
Research development, and Testing Services  
Business and Management consulting Services  
Professional Services (physician services, dental services, legal services, planning services)

**Industrial**

**(WH) Warehouse**

Warehouse Distributing  
Warehousing and Storage Services  
Wholesale Trade (autos-wholesale, groceries-wholesale)

**(MFG) Manufacturing**

Food Products Manufacturing  
Textiles  
Apparel  
Wood Products Manufacture  
Furniture  
Paper  
Printing  
Chemicals  
Petroleum  
Rubber  
Stone/Clay  
Metal  
Prefab Metal  
Instrument Manufacture  
Other

**(UTC) Utility/Transportation/Communication**

Railroad transportation  
Motor vehicle transportation  
Aircraft transportation  
Marine transportation  
Auto parking  
Communication transportation  
Utilities transportation

Other transportation

**(ROW) ROW**

Highway ROW

**(RP) Resource Processing and Production**

Agricultural farms  
Agricultural processing  
Animal services  
Other agricultural services  
Fishing  
Mining  
Other resources  
Greenhouse

**(REC) Private Parks/Recreation Facilities**

Theater  
Bowling Alley  
Nature exhibitions  
Entertainment assembly  
Other public assembly  
Amusement park  
Recreation activities  
Resort/camp activities  
Other cultural activities

**Parks**

Parks

**Water**

Water

**Undeveloped Land**

**Table E-4. Proposed GIS data coverages (SAMPLE)**

---

Assessor Tax Lot (base) coverage  
National Wetlands Inventory  
Local Wetlands Inventory (where available)  
Soil Classification  
Groundwater Recharge Areas  
Wildlife Conservation Areas  
FEMA FIRM coverage  
Contours (use DEM to calculate % slope)  
Areas Prone to Landslide  
Plan Designation/Zoning (could be tax lot attribute)

---

## Table E-5. Proposed tax lot file structure (SAMPLE)

Note: fields in italics are new data elements, fields in bold are derived fields, underlined fields are new fields that need to be populated with data merged from other databases

---

Tax account number  
*Land classification (developed, vacant, redevelopable, etc)*  
Land use code  
*Generalized land use classification*  
Building/structure uses (including detail on multiple uses per parcel when applicable)  
Assessment (land)  
Assessment (structure)  
**Ratio (Assessment [structure]/Assessment[land])**  
Parcel size (acres)  
**Parcel size class (<1, 1-5, 5-9, 10-19, 20-29, 50+)**  
Owner name  
Business/tenant name  
Site address (number, street, city, zip code)  
Township  
Range  
Section  
Quarter section  
Levy code  
Deed type  
Tax exempt status  
Plat/development name  
Street access  
Sewer  
Water source  
*Serviceability classification (1, serviced; 2, planned service; 3, not serviced)*  
View quality  
Waterfront type  
Tidelands  
Topography  
Number of bedrooms  
Building grade

Building condition  
Square footage (building)  
**Floor Area Ratio (Square footage [building]/Parcel size [sq ft])**  
Square footage (first floor)  
Square footage (for each use in a mixed use)  
Number of stories  
Number of residential units  
Number of non-residential units  
Sales price  
Sales date  
Year built  
Zoning  
*Regional land designation*  
Special zones (flood hazard, FAA)  
National wetlands inventory  
Local wetlands inventories (where they exist)  
Soils (from County soil survey)  
*Wetlands acres (may be derived based on ratio of hydric soils to wetlands)*  
*Actual or derived acres flag*  
Area (sq ft or acres) in groundwater recharge areas  
Wellhead on site flag  
Present or future aquifer recharge area  
Type of conservation area (fish/wildlife, other?)  
Area (sq ft or acres) in conservation areas  
**Area in conservation buffer (derived from area in conservation and buffer assumption)**  
FEMA FIRM District(s)  
Area (sq ft or acres) in floodway  
Area (sq ft or acres) in floodplain  
Area in slopes over 25%  
Area with unstable soils or landslide potential

---



**Table E-6. Overview of Snohomish Land Need and Built Space Simulator**

The simulator consists of five worksheets in addition to this one:

1. Forecast: contains the population and employment forecasts for the city and potential annexation areas.
2. Assmptn: contains highlighted cells for all of the variables that can be changed in the simulation.
3. Results: contains the output of the simulation.
4. Res Land: contains the calculations and detailed results for the residential lands component of the simulator.
5. Emp Land: contains the calculations and detailed results for the employment land and built space needs component of the simulator.
6. Other Land: contains the calculations and results for the other land needs component of the simulator.
7. Capacity: calculates capacity for non-residential and mixed-use zones.

For standard runs of this simulator, ONLY THE ASSUMPTIONS NEED TO BE CHANGED (Tab: Assmptn). Everything else is automatic. Changes to other Worksheets may cause the model to operate incorrectly.

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**(SAMPLE)**

**Table E-7. Summary of revised population and employment forecasts for city limit, Potential Annexation Area (PAA), and combined city limits and PAA, 2000-2020**

Year	Population			Employment		
	City limits	PAA	City limits + PAA	City limits	PAA	City limits + PAA
2000	81,150	28,247	109,397	29,055	2,291	31,346
2010	93,431	29,924	123,355	33,867	2,466	36,333
2020	101,150	31,579	132,729	37,232	2,839	40,071
Change 2000-2020	20,000	3,332	23,332	8,177	548	8,725
Percent Change 2000-2020	25%	12%	21%	28%	24%	28%
AAGR 2000-2020	1.11%	0.56%	0.97%	1.25%	1.08%	1.24%

**(SAMPLE)**

**Table E-8. Assumptions for Forecasts for Sample UGA**

This worksheet contains inputs for all of the variables that can be changed for the Federal Way forecast. The cells highlighted in gray are the key assumptions that can be changed in the simulator.

**Population and employment (aggregate forecast)**

**City Limits**

	2000	2020	Change 2000-2020
Population	81,150	101,150	20,000
Covered Employment	29,055	37,232	8,177
Percent of employment not covered:			0%
Total emp	29,055	37,232	8,177

Population forecast from jurisdiction; employment forecast--includes only covered employment

Estimate of percent of total employment not covered

Total employment = covered emp/(1-percent not covered)

**Potential Annexation Areas**

	2000	2020	Change 2000-2020
Population	28,247	31,579	3,332
Covered Employment	2,291	2,839	548
Percent of employment not covered:			0%
Total emp	2,291	2,839	548

Employment distribution from PSRC forecast;

Employee per acre ratios are consistent with those used in the 2020 forecast; square feet of floor area per employee from Kent Study

**Employment by sector (details)**

Sector	% of total emp that requires no non-res built space		Percent of emp on existing developed land	Adjust for vacancy rate	Emp/Acre	Sq. ft. floor area/emp		Implied FAR
	Percent of new emp (2020)	/land				land	area/emp	
Retail	15%	1%	5%	7%	25.0	700	0.40	
FIRES	70%	2%	10%	7%	35.0	350	0.28	
Manufacturing	3%	1%	10%	5%	12.0	650	0.18	
WTCU	5%	1%	10%	5%	15.0	600	0.21	
Education	5%	0%	15%	0%	10.0	400	0.09	
Government	2%	0%	15%	0%	35.0	400	0.32	
Total	100%	5%						

**Residential assumptions (details)**

Variable	Assumption	Persons in group quarters assumption; requires analysis; average HH size from PSRC forecast; New DU, see calc at right	New DU needed for decreased HH size	Value
New persons in group quarters (2000-2020)	200		Housing units in 2000	31,729
Average household size	2.35		Average HH size 2000	2.50
Vacancy rate	5%		Average HH size 2020	2.50
New DU for decreased HH size of 2000 pop	0		New DU needed for decreased HH size	0

The calculations above estimate the number of new DU needed to accommodate existing population because overall household sizes are decreasing.

Type	Valid Range	Percent of DU	Density (DU/Net Res Acre)	Net-to-gross factor	Density (DU/Gross Res Acre)
Single-family by lot size					
<5000	8.7	5%	10.0	18%	8.2
5000-9999	4.4-8.7	32%	6.0	16%	5.0
10000-19999	2.2-4.4	9%	3.5	14%	3.0
20,000+	<2.2	2%	1.7	10%	1.5
Total/Average Single Family		48%	5.0		4.3
Multiple family					
Duplex		3%	9.0	18%	7.4
Row House		2%	13.5	14%	11.6
Garden Apt		37%	19.6	10%	17.6
Mid-rise		10%	26.0	5%	24.7
Total/Average Multiple Family		52%	17.2		15.7
<b>TOTAL/AVERAGE ALL TYPES</b>		<b>100%</b>	<b>8.4</b>		<b>7.3</b>

The housing type mix assumes a 55/45 split between single-family and multiple family dwellings.

The allocation of single-family units by lot size is based on analysis of the distribution of lot sizes in other cities, and then adjusted for jurisdiction.

The allocation of multiple family units is based on Census data and then adjusted to reflect a probable distribution of units in jurisdiction.

**Redevelopment**

[Densities are net after replacement of DU or emp displaced]	
Residential (DU/Gross residential acre)	12.0
Commercial (Emp/Gross commercial acre)	11.0
Percent of new DU on redeveloped land	10%
Percent of employment on redeveloped land	0%

Simulation assumes that all residential redevelopment will result in garden apartment densities (18 DU/gross acre); population accommodated will be 2/3 that amount, assuming that on average, 6 DU per acre are demolished as part of redevelopment. Commercial redevelopment will increase accommodate new employment at 1/2 the new commercial development assumption (22 emp/gross acre).

**(SAMPLE)**

**Table E-9. Projected land use and built space needs, 2000-2020**

<b>Forecasts</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>
Population	81,150	86,150	91,150	96,150	101,150
Employment					
Total Employment	29,055	31,099	33,144	35,188	37,232
Emp Requiring Built Space	0	2,044	4,089	6,133	8,177

**Results**

<b>Type</b>	<b>City Limits</b>	<b>PAA</b>	<b>Total (city limits + PAA)</b>	<b>Percent of all land need 2000-2020</b>
<b>Residential (DU)</b>				
Single-family by lot size				
<5000	399	67	466	5%
5000-9999	2,554	430	2,984	29%
10000-19999	718	121	839	8%
20,000+	160	27	187	2%
Total Single Family	3,831	645	4,476	43%
Multiple family				
Duplex	239	40	280	3%
Row House	160	27	187	2%
Garden Apt	3,840	646	4,487	43%
Mid-Rise	798	134	933	9%
Total Multiple Family	<u>5,038</u>	<u>848</u>	<u>5,885</u>	<u>57%</u>
<b>Total Residential</b>	<b>8,869</b>	<b>1,492</b>	<b>10,361</b>	<b>100%</b>
<b>Employment (Acres)</b>				
Retail	na	na	47	17%
FIRES	na	na	154	57%
Manufacturing	na	na	15	5%
WTCU	na	na	18	7%
Education	na	na	34	13%
Government	na	na	<u>4</u>	<u>2%</u>
<b>Total Employment</b>	na	na	<b>272</b>	<b>100%</b>

**Built Space Need**

<b>Type</b>	<b>City Limit</b>	<b>PAA</b>	<b>Total</b>
Retail	761,279	51,019	812,298
FIRES	1,754,089	117,554	1,871,643
Manufacturing	110,022	7,373	117,395
WTCU	154,545	10,357	164,903
Education	136,229	9,130	145,359
Government	61,164	4,099	65,263
<b>Total Built Space</b>	<b>2,779,935</b>	<b>186,304</b>	<b>2,966,238</b>

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(SAMPLE)

**Table E-10. Sample Residential Land Worksheet**

This worksheet estimates residential land needs. Residential land needs are a function of population, persons in group quarters, vacancy rates, household sizes, housing mix, and housing density.

**Base data**

Population	Persons	Change from 2000
City limit		
2000 Population	81,150	-
2010 (extrapolated)	91,150	10,000
2020	101,150	20,000
TAZ study area		
2000 Population	28,247	-
2010 (extrapolated)	29,913	1,666
2020	31,579	3,332

**General Assumptions**

New persons in group quarters	200
Average household size	2.35
Vacancy rate	5.0%
New units on redeveloped land	10.0%
New DU needed for decreased HH size	0

Housing Need, New DU, 2000-2020	City Limit	PAA	Total
Change in persons	20,000	3,332	23,332
-Change in persons in group quarters	200	-	200
=Persons in households	19,800	3,332	23,132
+Persons per occupied DU	2.35	2.35	2.35
=Occupied dwelling units	8,426	1,418	9,843
/ (1-vacancy rate)	95%	95%	95%
=DU needed for new pop	8,869	1,492	10,361
+DU needed for decreased HH size	-	-	-
<b>=TOTAL NEW DU needed</b>	<b>8,869</b>	<b>1,492</b>	<b>10,361</b>
New DU on redeveloped land	887	149	1,036
New DU on vacant land	7,982	1,343	9,325
Density of redeveloped DU (DU/Gross ac)	12.0	12.0	12.0

Density Assumptions for development on vacant land (does not include redevelopment)	Percent of new housing	DU/Net Acre	Net to Gross factor	DU/Gross Acre
<b>Single-family by lot size</b>				
<5000	5%	10.0	18%	8.2
5000-9999	32%	6.0	16%	5.0
10000-19999	9%	3.5	14%	3.0
20,000+	2%	1.7	10%	1.5
Total/Average Single Family	48%	5.0	15%	4.3
<b>Multiple family</b>				
Duplex	3%	9.0	18%	7.4
Row House	2%	13.5	14%	11.6
Garden Apt	37%	19.6	10%	17.6
Mid-rise	10%	26.0	5%	24.7
Total/Average Multiple Family	52%	17.2	8%	15.7
<b>TOTAL/AVERAGE ALL TYPES</b>	<b>100%</b>	<b>8.4</b>	<b>13%</b>	<b>7.3</b>

**Housing and Land Need, New DU and Acres by Type**

Housing type	City Limit			Potential Annexation Areas			Combined			Net lan Ga cor on DU exi red
	New DU needed	Land Need (Net Acres)	Land Need (Gross Acres)	New DU needed	Land Need (Net Acres)	Land Need (Gross Acres)	New DU needed	Land Need (Net Acres)	Land Need (Gross Acres)	
<b>Single-family by lot size</b>										
<5000	399	40	49	67	7	8	466	47	57	5%
5000-9999	2,554	426	507	430	72	85	2,984	497	592	29%
10000-19999	718	205	239	121	35	40	839	240	279	8%
20,000+	160	94	104	27	16	18	187	110	122	2%
Total/Average Single Family	3,831	765	898	645	129	151	4,476	893	1,050	43%
<b>Multiple family</b>										
Duplex	239	27	32	40	4	5	280	31	38	3%
Row House	160	12	14	27	2	2	187	14	16	2%
Garden Apt	3,840	225	241	646	97	105	4,487	322	346	43%
Mid-rise	798	31	32	134	5	5	933	36	38	9%
Total/Average Multiple Family	5,038	294	320	848	109	118	5,885	403	438	57%
<b>TOTAL/AVERAGE ALL TYPES</b>	<b>8,869</b>	<b>1,059</b>	<b>1,218</b>	<b>1,492</b>	<b>238</b>	<b>269</b>	<b>10,361</b>	<b>1,296</b>	<b>1,487</b>	<b>100%</b>

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**(SAMPLE)**

**Table E-11. Sample Employment Land Need Worksheet**

This worksheet estimates land and built space needed for employment. Land need is a function of employment, the distribution of employment by sector, and the density of employment (expressed on employees per acre). Floor area is a function of the same variables, but requires assumptions about square feet of built space required for employees. Some employment does not require additional built space because it has not permanent location or is associated with a residence.

**General Assumptions**

Percent of total employment that requires little or no built space 5%  
 Percent of comm/ind emp on redeveloped land 0%

**Base Employment Data**

Year	Covered		Change
	Emp	Total Emp	
City limits			
2000	29,055	29,055	
2020	37,232	37,232	8,177
PAA			
2000	2,291	2,291	
2020	2,839	2,839	548

**Assumptions by sector, City Limits**

Distribution of Emp

Sector	2000	2000-2020	New Emp 2000-2020	% of total emp that requires no non-res built space		Percent of emp on existing developed land	Emp allocated to developed land	Emp requiring new land	Adjust for vacancy rate
				/land	/land				
Retail	30%	15%	1,227	1%	1,145	5%	57	1,088	7%
FIRES	38%	70%	5,732	2%	5,569	10%	557	5,012	7%
Manufacturing	12%	3%	270	1%	188	10%	19	169	5%
WTCU	5%	5%	368	1%	286	10%	29	258	5%
Education	10%	5%	401	0%	401	15%	60	341	0%
Government	5%	2%	180	0%	180	15%	27	153	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>8,177</b>	<b>5%</b>	<b>7,768</b>		<b>749</b>	<b>7,020</b>	

Distribution of Employment	Retail	FIRES	Manufact.	WTCU	Education	Gov.	Total
<b>By Jobs</b>							
2000	8,642	10,911	3,620	1,541	2,917	1,425	29,055
2010	9,185	13,417	3,704	1,670	3,087	1,501	32,565
2020	9,729	15,922	3,789	1,799	3,258	1,578	36,075
<b>Change (2000-2020)</b>	<b>1,088</b>	<b>5,012</b>	<b>169</b>	<b>258</b>	<b>341</b>	<b>153</b>	<b>7,020</b>

Employees per Gross Acre (EPA) 25.0 35.0 12.0 15.0 10.0 35.0 1.3  
 Floor Area per employee (sq ft) 700 350 650 600 400 400

Emp on Redeveloped Land (1997-2050) 0 0 0 0 0 0 0

**Results**

Sector	New land needed for emp		floor area needed for e		Total
	City limits	Study area	City limits	AZ study Ar	
Retail	47	27%	761,279	51,019	812,298
FIRES	154	63%	1,754,089	117,554	1,871,643
Manufacturing	15	4%	110,022	7,373	117,395
WTCU	18	6%	154,545	10,357	164,903
Education	34	5%	136,229	9,130	145,359
Government	4	2%	61,164	4,099	65,263
<b>Total</b>	<b>272</b>	<b>100%</b>	<b>2,779,935</b>	<b>186,304</b>	<b>2,966,238</b>

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**(SAMPLE)**

**Table E-12. Sample Other Land Need Worksheet**

This worksheet calculates other land needs. Other land needs includes parks/open space, schools, churches and fraternal organizations golf courses, and other public facilities (substations, utility easements, etc.). All other land needs are a function of population and are expressed as acres needed per 1000 persons.

Year	Population	Change from 2000
2000	81,150	
2010 (extrapolated)	89,829	8,679
2020	101,150	20,000
Total City Acres	12,000	

		Other Land Needs (Acres/1000 people)										
		Parks/ open space	Schools	Muni- cipal Offices	Rights-of- way	Police/ Fire facilities	Storm- water drainage /detention	Water storage	Waste- water treatment and pump stations	Landfills or transfer stations	Fraternal Organizat ions	Golf Courses
Existing Conditions	Acres	700	400	35	2000	50	150	12	15	10	40	150
	% of all City acres	6%	3%	0%	17%	0%	1%	0%	0%	0%	0%	1%
	Acres/1000 people	8.6	4.9	0.4	24.6	0.6	1.8	0.1	0.2	0.1	0.5	1.8
LOS	Acres/1000 people	14.0	8.0	2.0	20.0	3.0	2.0	0.5	0.5	0.5	1.5	2.5
Estimated Need	Total Acres	280.0	160.0	40.0	400.0	60.0	40.0	10.0	10.0	10.0	30.0	50.0
	Acres in large parcels											

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**(SAMPLE)**

**Table E-13. Employment and mixed-use zone capacity**  
Based on Modified Federal Way Capacity Analysis Methodology

**I. VACANT**

ZONING	+ LOT NET SQ. FT.	* R.O.W. FACTOR	* PUBLIC PURPOSE FACTOR	* MARKET FACTOR (10%)	* FLOOR AREA RATIO	= TOTAL BUILDABLE SQ FT
BC	4,464,276	0.95	0.98	0.90	0.35	1,309,216
BN	1,166,926	0.95	0.98	0.90	0.35	342,219
BP	5,759,269	0.95	0.98	0.90	0.35	1,688,992
CC	355,045	0.85	1.00	0.90	0.60	162,966
CF	325,575	0.85	1.00	0.90	0.50	124,532
CP-1	4,081,827	0.95	0.98	0.10	0.35	133,006
OP	3,472,513	0.95	0.98	0.90	0.35	1,018,366
OP-1	3,588,298	0.95	0.98	0.90	0.35	1,052,322
OP-2	0	0.95	0.98	0.90	0.35	0
OP-3	241,977	0.95	0.98	0.90	0.35	70,963
OP-4	216,413	0.95	0.98	0.90	0.35	63,466
PO	499,622	0.95	0.98	0.90	0.35	146,522
<b>TOTAL:</b>	<b>24,171,741</b>					<b>6,112,571</b>

**II. REDEVELOPABLE**

ZONING	+ LOT NET SQ. FT.	* R.O.W. FACTOR	* PUBLIC PURPOSE FACTOR	* MARKET FACTOR (17%)	* FLOOR AREA RATIO	= SUB-TOTAL OF EXISTING BUILDABLE SQ. FEET	- BUILDING SQ FT	= NET BUILDABLE SQ FT
BC	4,337,392	0.95	0.98	0.83	0.35	1,173,072	302,317	870,755
BN	509,196	0.95	0.98	0.83	0.35	137,715	21,355	116,360
BP	1,984,407	0.95	0.98	0.83	0.35	536,694	65,066	471,628
CC	1,111,749	0.85	1.00	0.83	0.60	470,603	198,517	272,086
CF	577,795	0.85	1.00	0.83	0.50	203,817	88,226	115,591
CP-1	2,637,725	0.95	0.98	0.10	0.35	85,950	16,114	69,836
OP	578,845	0.95	0.98	0.83	0.35	156,552	14,760	141,792
OP-1	0	0.95	0.98	0.83	0.35	0	0	0
OP-2	0	0.95	0.98	0.83	0.35	0	0	0
OP-3	0	0.95	0.98	0.83	0.35	0	0	0
OP-4	0	0.95	0.98	0.83	0.35	0	0	0
PO	51,819	0.95	0.98	0.83	0.35	14,015	3,476	10,539
<b>TOTAL:</b>	<b>11,788,927</b>					<b>2,778,417</b>	<b>709,831</b>	<b>2,068,586</b>

**III. SUMMARY** *(Break-down between residential uses and non-residential uses for mixed-use zones)*

ZONING	+ BUILDING TOTAL SQ. FT.	* % OF RESIDENTIAL	= BUILDING RESIDENTIAL SQ. FT.	/ SIZE OF UNITS SQ. FT.	= # OF M.F. DWELLING UNITS	= FINAL BUILDABLE SQ. FT.
BC	2,179,970	0.33	719,390	1,000	719	1,460,580
BN	458,578	0.00	0		0	458,578
BP	2,160,620	0.00	0		0	2,160,620
CC	435,052	0.50	217,526	700	311	217,526
CF	240,124	0.50	120,062	700	172	120,062
CP-1	202,843	0.00	0		0	202,843
OP	1,160,158	0.10	116,016	500	232	1,044,142
OP-1	1,052,322	0.00	0		0	1,052,322
OP-2	0	0.00	0		0	0
OP-3	70,963	0.00	0		0	70,963
OP-4	63,466	0.00	0		0	63,466
PO	157,060	0.00	0		0	157,060
<b>TOTAL:</b>	<b>8,181,157</b>				<b>1,434</b>	<b>7,008,163</b>

<b>CAPACITY STUDY SUMMARY</b>	
<b>POSSIBLE NEW HOUSING UNITS:</b>	
RESIDENTIAL ZONES:	4,839 UNITS
NON-RESIDENTIAL ZONE	1,434 UNITS
<b>TOTAL:</b>	<b>6,273 UNITS</b>
<b>POSSIBLE NEW COMM./INDUST. SF:</b>	
<b>TOTAL:</b>	<b>7,008,163 SQ. FT.</b>
<b>POSSIBLE NEW EMPLOYEES:</b>	
<b>TOTAL:</b>	<b>17,746</b>

(SAMPLE)



**Table E-13. Employment and mixed use capacity (Continued)**

**IV. EMPLOYMENT SUMMARY**

*(Summary of how many employees can be accommodated per zone)*

	+	+	/	+	/	+	/	=
	FINAL		EMPLOYEES	EMPLOYEES		EMPLOYEE		TOTAL
ZONING	BUILDING	RETAIL SF	(500 SF)	OFFICE SF	(250 SF)	MANUFACT. SF	(800 SF)	NUMBER
	SQ. FT.							EMPLOYEES
BC	1,460,580	1,460,580	2,921					2,921
BN	458,578	458,578	917					917
BP	2,160,620					2,160,620	2,701	2,701
CC*	217,526	163,144	326	54,381	218			544
CF*	120,062	90,046	180	30,015	120			300
CP-1	202,843			202,843	811			811
OP	1,044,142			1,044,142	4,177			4,177
OP-1	1,052,322			1,052,322	4,209			4,209
OP-2	0			0	0			0
OP-3	70,963			70,963	284			284
OP-4	63,466			63,466	254			254
PO	157,060			157,060	628			628
<b>TOTAL:</b>	<b>7,008,163</b>	<b>2,172,349</b>	<b>4,345</b>	<b>2,675,194</b>	<b>10,701</b>	<b>2,160,620</b>	<b>2,701</b>	<b>17,746</b>

\* Break-down between Retail and Office Uses: 75% Retail, 25% Office

**(SAMPLE)**

**Table E-14. Residential zone capacity**  
Based on Modified Federal Way Capacity Analysis Methodology

**I. VACANT** (Parcels with an improvement value of \$0)

ZONING	MINIMUM LOT SIZE	BUILDABLE SQ. FEET	LOTS	R.O.W. FACTOR	PUBLIC PURPOSE FACTOR	MARKET FACTOR (10%)	TOTAL OF BUILDABLE LOTS
RM1800	1800	350,622	195	0.90	1.00	0.90	158
RM2400	2400	465,926	194	0.90	1.00	0.90	157
RM3600	3600	1,618,001	449	0.90	1.00	0.90	364
RS15.0	15000	5,647,806	377	0.85	0.90	0.90	259
RS35.0	35000	1,590,141	45	0.85	0.90	0.90	31
RS5.0	5000	981,782	196	0.85	0.90	0.90	135
RS7.2	7200	9,381,989	1,303	0.85	0.90	0.90	897
RS9.6	9600	6,971,064	726	0.85	0.90	0.90	500
SE	217800	706,178	3	0.85	0.90	0.90	2
<b>TOTAL:</b>			<b>3,489</b>				<b>2,504</b>

**REDEVELOPABLE** (Single Family: Parcel can be divided 2.5 times +, Multi-Family: Current use is single family or duplex)

ZONING	MINIMUM LOT SIZE	BUILDABLE SQ. FEET	LOTS	R.O.W. FACTOR	PUBLIC PURPOSE FACTOR	MARKET FACTOR (17%)	SUB-TOTAL OF BUILDABLE LOTS	SUB-TOTAL OF EXISTING UNITS	TOTAL OF BUILDABLE LOTS
RM1800	1800	316,216	176	0.90	1.00	0.83	131	42	89
RM2400	2400	217,168	90	0.90	1.00	0.83	68	12	56
RM3600	3600	2,260,764	628	0.90	1.00	0.83	469	380	89
RS15.0	15000	11,783,235	786	0.85	0.90	0.83	499	144	355
RS35.0	35000	2,696,218	77	0.85	0.90	0.83	49	22	27
RS5.0	5000	445,367	89	0.85	0.90	0.83	57	5	52
RS7.2	7200	12,045,524	1,673	0.85	0.90	0.83	1,062	309	753
RS9.6	9600	4,780,667	498	0.85	0.90	0.83	316	124	192
SE	217800	1,474,908	7	0.85	0.90	0.83	4	3	1
<b>TOTAL:</b>			<b>4,024</b>				<b>2,655</b>	<b>1041</b>	<b>1,614</b>

**II. PARCELS NOT SUBDIVIDABLE - NOT SUBJECT TO MOST DISCOUNTS - VACANT**

(Un-subdividable Parcels)

ZONING	# OF LOTS	R.O.W. FACTOR	PUBLIC PURPOSE FACTOR	MARKET FACTOR (10%)	TOTAL OF BUILDABLE LOTS
RM1800	0	N/A	N/A	0.90	0
RM2400	0	N/A	N/A	0.90	0
RM3600	0	N/A	N/A	0.90	0
RS15.0	233	N/A	N/A	0.90	210
RS35.0	24	N/A	N/A	0.90	22
RS5.0	0	N/A	N/A	0.90	0
RS7.2	161	N/A	N/A	0.90	145
RS9.6	179	N/A	N/A	0.90	161
SE	0	N/A	N/A	0.90	0
<b>TOTAL:</b>	<b>597</b>				<b>537</b>

**III. VACANT, NOT SUBJECT TO DISCOUNTS\***

(Recently Subdivided or subject to a development agreement)

ZONING	# OF LOTS	R.O.W. FACTOR	PUBLIC PURPOSE FACTOR	MARKET FACTOR (10%)	TOTAL OF BUILDABLE LOTS
RM1800	0	N/A	N/A	N/A	0
RM2400	0	N/A	N/A	N/A	0
RM3600	82	N/A	N/A	N/A	82
RS15.0	1	N/A	N/A	N/A	1
RS35.0	0	N/A	N/A	N/A	0
RS5.0	1	N/A	N/A	N/A	1
RS7.2	83	N/A	N/A	N/A	83
RS9.6	17	N/A	N/A	N/A	17
SE	0	N/A	N/A	N/A	0

RESIDENTIAL SUMMARY	
ZONING	# OF LOTS
RM1800	247
RM2400	213
RM3600	535
RS15.0	825
RS35.0	80
RS5.0	188
RS7.2	1,878
RS9.6	870
SE	4
<b>NON-RES ZONES</b>	<b>7,329</b>

(SAMPLE)

**Table E-15. Sample Land Supply Analysis**

Total net buildable acreage from this sheet should be compared with row 49 of the 'Res Land' Sheet and row 54 of the 'Emp Land' sheet to compare overall supply of residential and employment land with demand. Cities may wish to perform additional analysis that relates land demand to plan designation or zoning districts.

Tax Lot#	Minus		Equals		Minus		Equals		Plus		Equals
	Total Acreage	Developed acreage	Gross vacant acreage	Constrained acres	Gross buildable vacant acres	Acres for public facilities	Acres unservicable during the planning period	Net buildable vacant acres	Redevelopable acres	Total net buildable acres	
Single-Family (Low Density Residential)											
1202	10.0	0.0	10.0	1.1	8.9	2.2	0.0	6.7	-		6.7
1400	5.0	1.0	4.0	0.0	4.0	1.0	0.0	3.0	-		3.0
1506	8.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0		4.0	4.0
Subtotals	9.7	4.0	13.7								
Multi-Family Residential (High Density Residential)											
2000	20.0	0.0	20.0	2.0	18.0	4.5	1.0	12.5	-		12.5
4500	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0		3.0	3.0
Subtotals								<b>12.5</b>		<b>3.0</b>	<b>15.5</b>
<b>Net Buildable Acres</b>								<b>22.2</b>		<b>7.0</b>	<b>29.2</b>
Minus Market Factor Deduction			10%					2.2		0.7	2.9
<b>Total Net Buildable Acres</b>								<b>20.0</b>		<b>6.3</b>	<b>26.3</b>

**Evaluation of Constraints:**

Evaluation of constraints requires an overlay analysis using GIS. The following data layers should be intersected to develop one combined constraint coverage to make the constraint deductions:

- Wetlands
- Critical aquifer recharge areas
- Fish and wildlife conservation areas
- Frequently flooded areas
- Geologically hazardous areas

**Evaluation of Acres for public facilities:**

This includes standard public facilities such as roads, parks and open space, civic structures, and schools. It should also include utility easements, areas planned for major roads, water and sewer facilities, electrical substations, and other public facilities.

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**(SAMPLE)**