- It is clear that the forecasts produced in the Clackamas County Non-Retail Demand Analysis are more optimistic about manufacturing growth potential in Clackamas County—and by extension general industrial land demand, compared to the UGR forecasts.

RECONCILIATION WITH CLACKAMAS COUNTY LAND SUPPLY

The final analytical step in our analysis is to consider future growth in the context of the location, quality, and characteristics of Clackamas County's industrial land supply. This process moves beyond a consideration of simple gross acreage comparisons and provides insight into the extent to which Clackamas County's land inventory is suitable to accommodate expected growth.

SOURCE OF INFORMATION

While Clackamas County is working to maintain a comprehensive inventory of employment lands in its jurisdiction, at this time it was determined by the County to be premature to provide meaningful input to this analysis. Therefore, we relied on the buildable land inventory and characteristics report in the 2014 Metro UGR to derive land supply assessments. Due to sheer area the UGR covers in its analysis, it must rely on GIS based assumptions and metrics relating to value, slope, natural resources, development, etc. to derive its land supply assessments[22]. Our review of this analysis finds that this methodology generally results in a more liberal inventory of vacant and redevelopable land than studies done on a local basis that factor in local and more detailed knowledge of sites or areas.

For large-lot land supply, we rely on Metro's recent update of its Phase 1 regional large-lot industrial land inventory.

LAND SUPPLY ASSESSMENT

Total Acres

The 2014 Metro UGR estimates vacant and "potentially" redevelopable land by jurisdiction throughout the metro area for commercial and industrial uses. Additionally, the UGR estimates the commercial capacity that could be met by mixed-use areas through new or redeveloped properties. Taken together, Clackamas County's inventory of buildable land includes 1,234 vacant acres and 1,829 "potentially" redevelopable acres, totaling roughly 3,063 acres of buildable land. This includes roughly 1,405 acres of industrial land and 1,658 acres of commercially developable land.

Figure 33: Clackamas County BLI by Type, 2014

Type	Vacant	Redev.	Total
Industrial	667	738	1,405
Commercial on Commercial Land	*53*	*188*	*241*
Commercial on Mixed-Use Land	*514*	*903*	*1,417*
Total Commercial	567	1,091	1,658
TOTAL LAND	**1,234**	**1,829**	**3,063**

SOURCE: 2014 Metro UGR

[22] See Appendix 2 of the 2014 Metro UGR for an overview of their buildable land inventory methodology.

Location & Type

Appendix 3 of the Metro UGR details buildable land supply by location and type within Clackamas County jurisdictions.

Industrial Land:

- An estimated 38% of all vacant industrial land is located in the City of Damascus, with an additional 17% located in unincorporated areas. Happy Valley, Oregon City, and Wilsonville are the only other communities with a significant industrial land base.

- Roughly 47% of buildable industrial land in Clackamas County is classified as vacant, with the remaining 53% or 738 acres coming from "potentially" redevelopable parcels. Outside of Damascus and unincorporated areas, almost two-thirds of all industrial land supply is derived from redevelopment potential. All these jurisdictions combine for only 232 acres of vacant and 396 acres of "potentially" redevelopable Industrial Land.

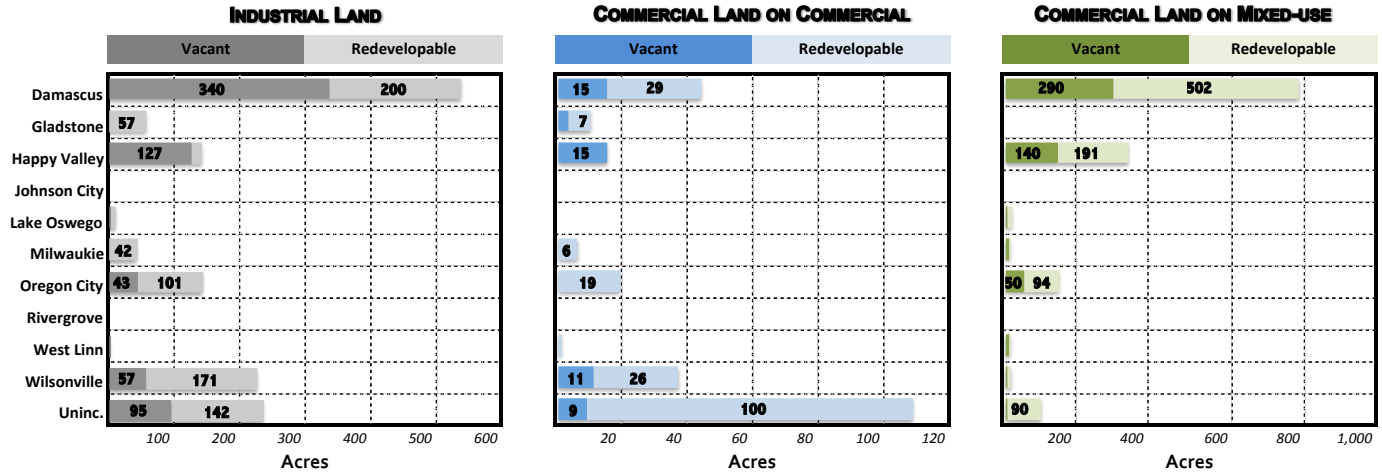
Commercial Land:

- The UGR considers both commercial land capacity from vacant and redevelopable commercial land as well as mixed-use land's ability to meet commercial demand. This is an important distinction as 85% of Clackamas County's buildable commercial land is represented by mixed-use parcels.

- The report identifies a total of 53 vacant commercial acres (3.2% of supply) in all of Clackamas County, all other land is either redevelopable commercial land or mixed-use.

- Over half of all buildable commercial land in the inventory is located in the City of Damascus, with an additional 12.3% located in misc. unincorporated areas. Happy Valley, Oregon City, and to a certain extent Wilsonville have measurable commercial capacity.

Figure 34: Clackamas County BLI by Location and Type, 2014[23]



[23] Metro. 2014 Urban Growth Report, Appendix 3, Page 7, converted to graphic by Johnson Economics

Physical Characteristics

In addition to the analysis above, Appendix 9 of the Metro UGR consolidates land supply into the nine subareas used to for demand calculations. In this section, the Metro analysis provides some detail on the general land characteristics within each subarea. Here, we summarize some of these findings as it relates to the Clackamas County Subareas[24].

Total Acres by Subarea:

Figure 35 summarizes buildable commercial and industrial land by subarea from Appendix 9 of the Metro UGR. Because we consider large-lot separately in this analysis, these figures exclude large-lot estimates.

Figure 35: Buildable Employment Land Inside the Metro UGB by Clackamas County Subarea (2014)

Subarea	Industrial	Commercial
Inner Clackamas	107.0	32.9
Inner I-5	10.6	17.1
Outer Clackamas	973.1	1323.2
Outer I-5*	589.5	72.0
SUBTOTAL	**1680.2**	**1445.2**

* Not entire share in Clackamas County

Visibility:

Visibility is certainly more important to commercial development than industrial, however some industrial uses such as business parks and campus industrial tend to desire visibility and arterial frontage as well. Most of the buildable land in the Inner Clackamas, Inner I-5, and Outer I-5/205 subareas has reasonable visibility. In Outer Clackamas, half the commercial land and 62% of the industrial land has limited to poor visibility. In Outer I-5/205, 60% of the industrial land is also limited.

Figure 36: Visibility Characteristics of Clackamas County Land Inventory, 2014

		Distance to Major Arterial			
Subarea	Type	< 1/4 mile	1/4 to 1/2 mile	1/2 to 3/4 mile	3/4 + mile
Inner Clackamas	*Commercial*	32	0	1	0
	Industrial	83	0	1	22
Inner I-5	*Commercial*	16	0	0	1
	Industrial	11	0	0	0
Outer Clackamas	*Commercial*	422	226	202	473
	Industrial	357	9	261	346
Outer I-5/205	*Commercial*	63	0	0	9
	Industrial	197	35	69	288
TOTAL	*Commercial*	**533**	**226**	**203**	**483**
	Industrial	**649**	**45**	**331**	**656**

All figures in acres, rounded to the nearest acre

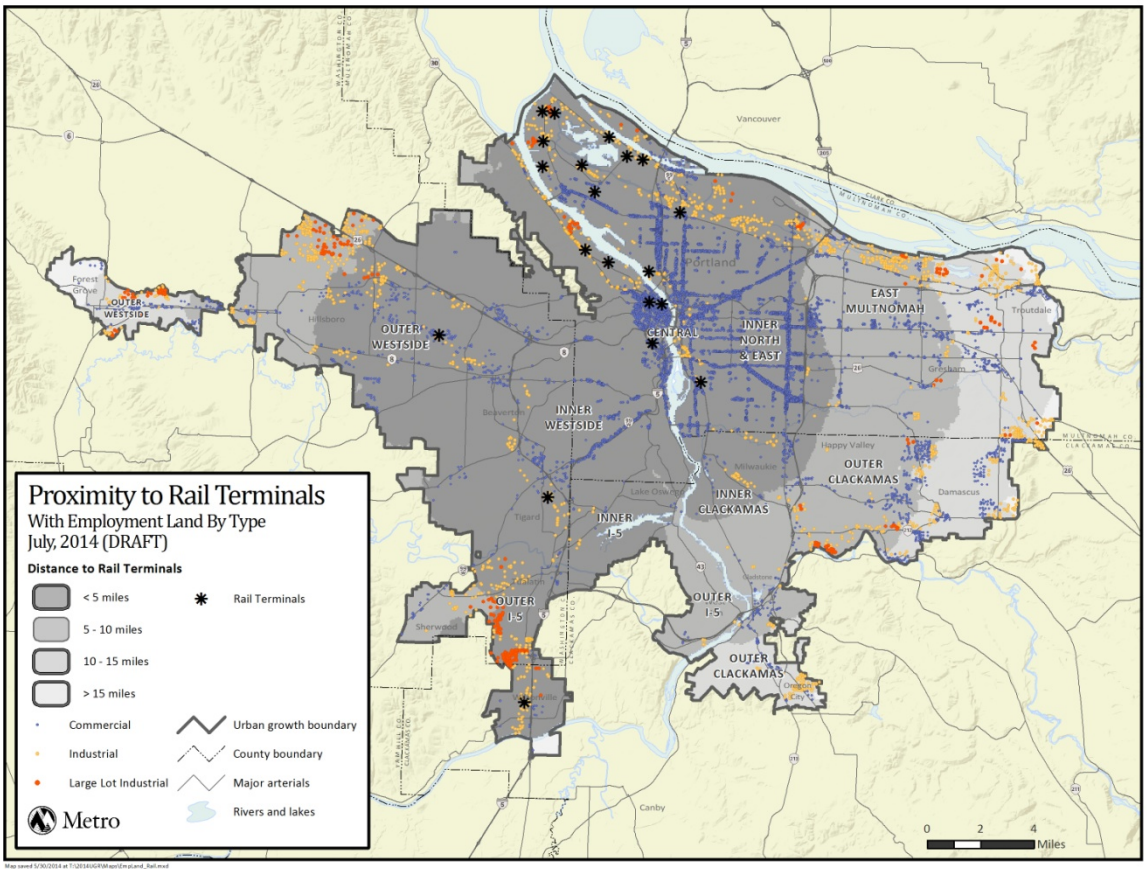
SOURCE: 2014 Metro UGR, Appendix 9, Table 3

[24] Gross acreages from Appendix 3 and Appendix 9 to not directly match, likely due to draft revisions or geographical changes or errors.

Rail Connectivity:

Most of Clackamas County's land inventory is considerably removed from major rail terminals.

Figure 37: Rail Connectivity of Clackamas County Land Inventory, 2014



SOURCE: 2014 Metro UGR, Appendix 9, Map 9

Transit Access for Labor Force:

Most of Clackamas County's buildable employment land is currently underserved by public transit. This condition will limit overall competitiveness over the planning period, particularly in the development of mixed-use land.

Figure 38: Transit Access of Clackamas County Land Inventory, 2014

		Transit Access Index				
Subarea	**Type**	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor/No Access**
Inner Clackamas	*Commercial*	0	22	7	3	0
	Industrial	0	1	0	106	0
Inner I-5	*Commercial*	0	3	1	13	0
	Industrial	0	0	0	11	0
Outer Clackamas	*Commercial*	0	71	10	1,243	0
	Industrial	0	8	0	965	0
Outer I-5/205	*Commercial*	0	16	4	52	0
	Industrial	0	76	7	507	0
TOTAL	*Commercial*	**0**	**112**	**22**	**1,311**	**0**
	Industrial	**0**	**84**	**7**	**1,589**	**0**

All figures in acres, rounded to the nearest acre

SOURCE: 2014 Metro UGR, Appendix 9, Table 10

Slope Constraints:

Slope constraints are particularly pronounced in Clackamas County, specifically for industrial land. On net, 79% (1,137 acres) of commercial land is at least partially constrained by slope, with 69% (999 acres) constrained or heavily constrained. Similarly, 86% (1,439 acres) of industrial land is at least partially constrained with 79% (1,324 acres) classified as constrained or heavily constrained.

Figure 39: Slope Constraints of Clackamas County Land Inventory, 2014

		Slope Constraints (% of site area with greater than 7% slope)			
		Unconstrained	Partially Constrained	Constrained	Heavily Constrained
Subarea	Type	< 10%	10% to 50%	50% to 90%	> 90%
Inner Clackamas	*Commercial*	1	3	9	19
	Industrial	1	1	90	14
Inner I-5	*Commercial*	8	0	6	3
	Industrial	0	1	5	5
Outer Clackamas	*Commercial*	290	130	526	377
	Industrial	159	112	363	340
Outer I-5/205	*Commercial*	8	12	20	32
	Industrial	81	2	291	215
TOTAL	*Commercial*	**308**	**145**	**561**	**432**
	Industrial	**241**	**116**	**749**	**575**

All figures in acres, rounded to the nearest acre

SOURCE: 2014 Metro UGR, Appendix 9, Table 12

Utility Infrastructure:

The Metro UGR did not conduct a detailed evaluation of utility infrastructure availability and capacity in proximity to potential buildable lands. However, necessary infrastructure investments have been identified in other studies[25] as a considerable constraint precluding site suitability of employment lands in the region.

Prevailing Land Values:

Prevailing land values are a principal determinant of the market's ability to redevelop underutilized properties. Higher land values in relation to site readiness improvements and investments lead to higher rates of developability and redevelopability.

Average Clackamas County land values range from $2.62 to $10.57 per-square-foot for commercial land and $1.97 to $4.66 per-square-foot for industrial land.

Figure 40: Average Prevailing Land Values, Clackamas County Land Inventory, 2014

Subarea	Type	Avg. Land Value/Sq. Ft.
Inner Clackamas	*Commercial*	$7.04
	Industrial	$3.26
Inner I-5	*Commercial*	$6.90
	Industrial	$4.66
Outer Clackamas	*Commercial*	$2.62
	Industrial	$1.97
Outer I-5/205	*Commercial*	$10.57
	Industrial	$3.68
TOTAL	*Commercial*	**N/A**
	Industrial	**N/A**

SOURCE: 2014 Metro UGR, Appendix 9, Table 17

[25] Metro's 2012 Regional Industrial Site Readiness Project & Clackamas County's Strategically Significant Employment Land Readiness Analysis.

Large-Lot Inventory

Metro's Phase 1 large-lot inventory[26] for 2014 identified 54 sites that are 25 acres or larger in the region that could potentially accommodate a large industrial user. This analysis classifies sites by their ability or "readiness" to meet potential market demand. Tier 1 sites are ready for development within 180 days and have very few regulatory, land use, market, or physical constraints. Tier 2 sites are marginally more constrained (ready in 7-30 months) and Tier 3 sites are more heavily constrained (typically taking more than 30 months for site development) and are not typically competitive development sites in the current market. Tier 3 sites typically have severe unfunded public infrastructure needs and/or severe on-site physical, environmental, or natural resource constraints.

Figure 41: Clackamas County Large-Lot Supply Conditions

		Gross	Constrained	Net Dev			Annex.	Infrastructure Score			Transportation Score			
Site	Tier	Acres	Acres	Acres	% Dev.	Brownfield	Required	Water	Sewer	Storm	System	Access	Freight	Notes
Clackamas Development Site	Tier 1	61.9	21.9	40.0	65%	Yes	No	B	B	B	B	B	C	Can mitigate brownfield within 2 months (completed phase 2 assessment); Site certified by Business Oregon for 40 acres
Elligsen Site	Tier 1	33.4	3.2	30.2	90%	No	No	A	A	A	A	B	B	Price constrained: currently not at industrial price; site is currently zoned RA-H with industrial comp plan designation and requires rezone (120 days with City Council approval); BPA poles on site; Existing trees can not be removed (~3ac); Future trail to be located on site and $5.5M Beckmann Creek habitat improvements required with development; No further wetland investigation warranted - per DSL
Rock Creek Site	Tier 2	40.8	4.0	36.8	90%	No	No	C	A	B	B	C	C	2 parcels currently for sale; remaining parcels are willing to transact to aggregate a larger site; 2 property owners and 5 parcels
NW Sand & Gravel Site	Tier 3	26.2	1.1	25.1	96%	No	Yes	B	A	B	B	B	C	Previously used as quarry; requires significant earthwork/fill (30+ months) due to steep excavated slopes; development requires 50ft buffer from Clackamas River. Wetland determination was completed by DSL (WD#:2014-0239_Revised) which indicated gravel pits were constructed for surface mining purposes and would be exempt per OAR 141- 085 -0515 (7) and can be filled. Wetlands associated with the Clackamas River remain subject to the state Removal-Fill Law

SOURCE: Mackenzie and Metro

According to the inventory, Clackamas County currently has 4 sites totaling 162 gross acres within the Metro UGB suitable for large-lot development. Two of these sites are Tier 1 sites that are fairly ready for development and suitable for identified industry types. Clackamas also has a Tier 2 and a Tier 3 site that have considerable challenges to development and/or redevelopment.

EMPLOYMENT LAND SUITABILITY ANALYSIS

Reconciling demand and site need characteristics with the inventory of available land for development yields some concerning analysis relating to Clackamas County's ability to meet economic development objectives.

Location

The most obvious concern for Clackamas County is the disparity between where growth is projected to occur and where available supply is located. Even omitting supply conditions and considering gross supply and demand estimates directly reported in the UGR, this condition is clear.

[26] Metro. Regional Industrial Site Readiness: A 2014 Update, Mackenzie (Sep. 2014)

Figure 42: Reconciliation of UGR Land Supply and Demand By Location (2015-2035)

	BUILDABLE LAND SUPPLY[1]		PROJECTED DEMAND[2]		RECONCILIATION	
Subarea	Industrial	Commercial	Industrial	Commercial	Industrial	Commercial
Inner Clackamas	107.0	32.9	319.0	287.0	-212.0	-254.1
Inner I-5	10.6	17.1	172.0	310.0	-161.4	-292.9
Outer Clackamas	973.1	1,323.2	10.0	7.0	963.1	1,316.2
Outer I-5/205[3]	589.5	72.0	599.0	486.0	-9.5	-414.0
TOTAL	**1,680.2**	**1,445.2**	**1,100.0**	**1,090.0**	**580.2**	**355.2**

[1] Metro UGR (2014), Appendix 9

[2] Metro UGR (2014), Appendix 6

[3] Not entire share in Clackamas County

Simply put, 73% of total available land supply is located in the Outer Clackamas subarea, an area where less than 1% of demand is expected. While on net the County's totals appear sufficient, the Metro UGR identifies three subareas combining for a deficiency of 383 industrial acres and 961 commercial acres.

Characteristics

- An alarming share of buildable land in Clackamas County is expected to come from "potentially" redevelopable parcels, particularly in outlying areas. According to the UGR, redevelopment parcels in Damascus meet nearly 25% of total buildable inventory, with an additional 11% met by redevelopment parcels in unincorporated areas.

- A similar concern exists in the share of commercial capacity to be met by mixed-use. According to Appendix 3 of the UGR, 48% (792 acres) of all commercial capacity in Clackamas County is met by mixed-use development in the City of Damascus.

- Slope constraints are an especially limiting condition in the competiveness of Clackamas County's reported land supply. Conservatively, over 770 acres of industrial land (46% of buildable supply) has uncompetitive slope constraints. Commercial uses have a higher slope threshold, however, at least 760 commercial acres (52% of supply) has a slope of 7% or greater.

- Redevelopment land inventory is very optimistic in Clackamas County subareas where prevailing land values are relatively low. In the context of the physical constraints identified in this and other analyses, prevailing land values are not likely to overcome the cost of necessary land improvements. For example, average industrial land values of under $2.00psf in Outer Clackamas are not likely to entice considerable redevelopment activity.

Large Lot Inventory

Clackamas County currently has only four sites totaling 132 net-developable acres in its large-lot inventory. Two of these sites are relatively competitive, totaling around 70 acres. Clackamas' remaining two sites are highly constrained and would require millions in investment to be true development sites. In a regional context that could see 20+ sites demanded over a 20-year period, Clackamas County is left at a severe competitive disadvantage in the recruitment and retention of large industrial users—the result of which would be pushing development to tertiary markets or an all out loss of economic opportunities.

CLACKAMAS NON-RETAIL LAND DEMAND RECONCILIATION

Our analysis reconciled estimated demand with supply assumptions to determine a residual surplus or deficit of commercial and industrial land. Here, we acknowledge the constrained nature of Clackamas County's land supply by parsing out a share of gross land supply that should be considered "suitable" for development.

Over the planning period, a number of factors will contribute to actual land supply suitable for development differing broadly gross land supply. The most significant factors include slope, location, and emphasis on redevelopable supply. An estimated 58% of buildable industrial land and 91% of commercial land is located in the Outer Clackamas Submarket. As exhibited in the previous analysis, this subarea has the most severe slope constraints, limited infrastructure in place, and fair to poor transit access. This area also has the lowest prevailing land values in the County. This inventory is grossly uncompetitive in a regional marketplace. Other factors such as wetland constraints will also reduce the suitability of gross land supply considerably.

The undertaking of a detailed buildable land analysis is beyond the scope of this project. However, to exhibit a range of potential land suitability scenarios, we reconciled demand with supply at a sensitivity range of buildable land suitability scenarios at the 60% and 40% level. We consider this reasonable given that the majority of documented land supply is either constrained or heavily constrained by slope alone. We conduct this analysis for three demand scenarios:

UGR Baseline—The baseline demand scenario for Clackamas County from the Metro UGR
This scenario resulted in a net deficit of industrial land across both suitability assumptions, ranging from 448 acres at 60% suitability to 756 acres at 40% suitability. Commercial deficit was only identified in the 60% suitability assumptions.

Non-Retail Demand Low—The average of forecast Scenarios I and II in this report
This scenario resulted in the lowest demand output. However, it results in a deficit of industrial land ranging from 329 acres to 636 acres. A commercial deficit of 156 acres in only realized at the 40% suitability level.

Non-Retail Demand High—The average of forecast Scenarios III and IV in this report
This scenario resulted in the highest demand output. It results in a severe deficit of industrial land ranging from 627 to 934 acres. A commercial deficit of 246 acres in only realized at the 40% suitability level.

It is also important to recognize that commercial demand in our study is conservative as it includes employment uses only. Additional commercial demand, likely in mixed-use formats, will be generated by increased pressure for retail services. This demand will more closely follow the residential path of growth over the planning period.

Figure 43: Reconciliation of Demand Scenarios with Suitability Constrained Land Assumptions (2015-2035)

Scenario	Land Type	Estimated Demand	Buildable Land Supply *Suitability Share[5]:* 60%	40%	Surplus/Deficit Range Low	High
URG BASELINE	Commercial	847	995	663	148	-184
	Industrial [3]	1,370	922	615	-448	-756
	Total	**2,217**	**1,917**	**1,278**	**-300**	**-939**
NON-RETAIL DEMAND LOW [1]	Commercial [4]	819	995	663	176	-156
	Industrial	1,251	922	615	-329	-636
	Total	**2,070**	**1,917**	**1,278**	**-153**	**-792**
NON-RETAIL DEMAND HIGH [2]	Commercial [4]	909	995	663	86	-246
	Industrial	1,549	922	615	-627	-934
	Total	**2,458**	**1,917**	**1,278**	**-541**	**-1,180**

[1] Calculated as the Average of Scenarios I and II in Figure 26

[2] Calculated as the average of Scenarios III and IV in Figure 28

[3] Includes Large-lot

[4] Demand is for employment uses only. Additional need for retail uses would have to be accomodated.

[5] The assumed share of Clackamas County land supply that is competitive and suitable for economic use.

All figures are rounded to the nearest acre

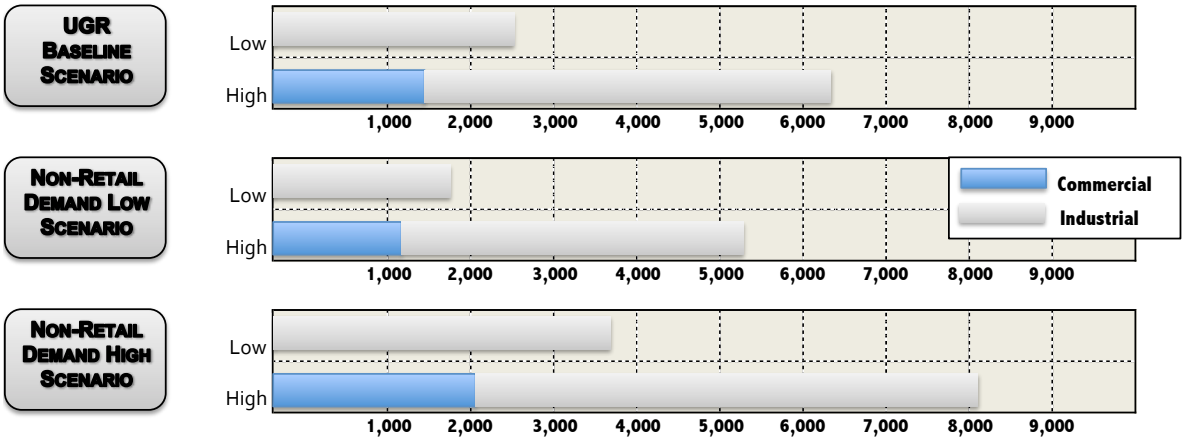
In this analysis we address the economic opportunities facing Clackamas County over the next 20-years. Clackamas County has an aggressive economic development strategy designed to build upon its robust manufacturing, commercial, and service base that has added nearly 23,000 jobs to the regional economy since 2001[27].

However, Clackamas County's growth prospects are increasingly restrained by a land supply that suffers from constraints crossing physical, infrastructure, and regulatory levels. The inability of the region to address future land needs could result in measurable economic costs to the county in the future.

At existing development density assumptions outlined elsewhere in this analysis, the cost to the economy in terms of jobs could be quite severe. Under the most pessimistic scenario, over 8,000 would not be realized due to insufficient land supply.

[27] Oregon Employment Department, Private Sector Covered Employment, QCEW Dataset 2Q01 to 2Q14.

Figure 44: Potential Economic Costs of Deficient Land Supply to the Clackamas County Economy[28]



These findings should encourage policy makers to move beyond looking at gross land estimates that do not reflect a land inventory's ability to meet true economic needs. As a region is should be a paramount objective to strategically provide land that can be used for a productive use as well as to develop policies to improve existing employment lands so that they could be more marketable.

[28] Considers the Metro UGB portion of the Clackamas County economy. We acknowledge that a share of growth would likely substitute to other tertiary areas within Clackamas County.