

## MEMORANDUM

**DATE:** March 5, 2021

**TO:** Allison Williams, City Manager – City of Moses Lake  
Melissa Bethel, Community Development Director – City of Moses Lake  
Vivian Ramsey, Planning Manager – City of Moses Lake

**FROM:** Kevin Gifford, Senior Associate – BERK Consulting  
Lisa Grueter, Principal – BERK Consulting

**RE:** City of Moses Lake Land Capacity Analysis – Methodology and Findings

---

To support preparation of the City of Moses Lake’s Comprehensive Plan Update and Housing Needs Assessment, BERK Consulting has prepared a programmatic residential Land Capacity Analysis (LCA) to assess the City’s supply of land available for residential development and ability to meet its adopted population growth targets. This memorandum describes the analysis methodology, documents key assumptions, and presents BERK’s findings regarding available capacity and long-term planning implications.

## Data Collection

BERK collaborated with City of Moses Lake GIS staff to acquire and process data for the LCA Analysis, including the following:

- **Grant County Assessor Records**
  - Assessed property value (land and improvements); and
  - Current land use classification.
- **City of Moses Lake Land Use Data**
  - Property size (acreage);
  - City of Moses Lake zoning classification;
  - City/UGA location (incorporated vs. unincorporated).
- **City of Moses Lake Environmentally Critical Areas**
  - Wetlands and associated buffers;
  - Streams, waterbodies, and associated buffers;
  - Flood hazard areas (designated floodways);
  - Shoreline Master Program environment designation buffers; and
  - Landslide hazard areas and any associated buffers.

# Capacity Analysis Methodology

## LAND USE AND BUILDABLE LAND CLASSIFICATION

City of Moses Lake staff combined Grant County and City land use records for all parcels within the City and its associated UGA to establish a baseline property inventory. Based on the property records compiled by City of Moses Lake staff, BERK classified each property in the study area as either Vacant, Agriculture, Redevelopable, or Developed.

- **Vacant** land consists of properties assigned a land use classification code of “91 - Undeveloped” by the Grant County Assessor.
- **Agriculture** includes all properties assigned a land use classification code of “81 – Resource – Agriculture” or “83 – Resource – Agriculture Current Use” by the Grant County Assessor. Moses Lake and its associated UGA contain a substantial amount of land classified for agricultural use. Within city limits, nearly all of this land is classified as “83 – Resource – Agriculture Current Use,” indicating it is currently being taxed based its current use as agricultural land, rather than its highest and best use. The presence of large amounts of agricultural land within the UGA represents additional capacity for urban residential development.
- **Redevelopable** land represents properties that are currently under-utilized for development. This category includes properties that could be further subdivided to allow additional development, properties where the current use could be expanded without subdivision, and properties that could be converted for development that is more intensive than the current use.  
A common method to identify redevelopable properties is to examine assessed property values, specifically the ratio of assessed improvement value to overall property value. If the improvements on a property account for a relatively small proportion of the overall assessed value, this indicates a higher potential for redevelopment. For purposes of this LCA, properties whose assessed improvement value accounts for 50% or less of the total property value are classified as Redevelopable.
- Properties that do not meet any of the above criteria are classified as **Developed** and are assumed to have no additional development capacity.

## ESTIMATION OF NET BUILDABLE AREA

To accurately assess development capacity, it is necessary to determine the net buildable area on parcels in the study area. BERK applied a series of deductions to the gross acreage of parcels in the baseline inventory to estimate how much land is actually available for development, including exclusion of land constrained by environmentally critical areas, land that will be needed for roads or other public infrastructure, and land that is unlikely to be used for housing development due to market conditions. This LCA assumes the following infrastructure and market factor deductions.

### Deduction of Environmentally Critical Areas

As described in the Data Collection section of this memorandum, City of Moses Lake staff compiled spatial data on the location of environmentally critical areas where development would not be allowed

under local development regulations. Using GIS, City staff overlaid these locations on the baseline property inventory for the study area and calculated the portion of each parcel affected by critical areas. These critical areas were then deducted from the overall parcel area. This is a more precise way of determining capacity, whereas Grant County's 2018 comprehensive plan LCA used a flat percentage deduction for critical areas as part of the road and infrastructure allowance (20%).

### Deduction of Road and Infrastructure Allowance

After applying deductions for environmentally critical areas, the net buildable area for each parcel was further reduced for road and infrastructure needs. A 20% assumption was included in the Grant County Comprehensive Plan land capacity analysis (Comprehensive Plan Table 4-9) and was meant to include roads, infrastructure, and critical areas. Often, land capacity studies account for critical areas separately and use mapped sources. For purposes of this LCA, BERK assumed a 15% deduction for roads and infrastructure needs since critical areas were separately deducted.

### Deduction of Market Factor

After application of deductions for environmentally critical areas, roads, and infrastructure, the net buildable area for each parcel was further reduced to account for potential market-based impediments to development (e.g. property owner unlikely to change in planning period, difficulty in redevelopment). This is a common approach in land capacity analyses in Washington State; the Department of Commerce's *Urban Growth Area Guidebook (2012)* recommends using a lower market factor for vacant or undeveloped land than for redevelopable land. This analysis varied the deduction by LCA classification, as follows:

- Vacant or Agricultural land: 10%; and
- Redevelopable land: 25%.

## CALCULATION OF HOUSING CAPACITY

After application of appropriate deductions to determine net buildable area for each parcel, BERK calculated housing and population capacity through the following steps:

- Summarize buildable acreage by zone;
- Summarize existing dwellings on redevelopable properties by zone;
- Apply residential density assumptions for each zone to estimate gross housing capacity;
- Subtract existing dwellings to determine net housing capacity; and
- Apply average household size to estimate net population capacity.

### Development Density Assumptions

To calculate potential housing development capacity, it is necessary to set assumptions about future housing density (housing units per acre of land). BERK compiled density assumptions based on maximum density limits, as established in the City's land use code. Chapter 18.20 of the Moses Lake Municipal Code (MLMC) establishes development standards for residential zones in city limits (R-1, R-2, and R-3). Chapter 18.30 MLMC allows multifamily residential development in commercial zones (specifically C-2) when developed in conjunction with a commercial structure; for purposes of this analysis, residential

densities in commercial zones are assumed to be equivalent to the R-3 Multi-Family Residential zone. Zoning regulations in the unincorporated UGA are established in Title 23 of the Grant County Code. Residential density assumptions used in this LCA are documented in Exhibit 1, below.

**Exhibit 1. Residential Density Assumptions by Zone**

ZONE	MAXIMUM DENSITY (DU/AC)	PERCENT OF MAXIMUM DENSITY ASSUMED	ASSUMED DENSITY (DU/AC)
<b>City of Moses Lake Zoning</b>			
R-1 Single Family Residential	4.0	95%	3.8
R-2 Single/Two-Family Residential	8.0	75%	6.0
R-3 Multifamily Residential	15.0	75%	11.3
C-2 General Commercial	Same as R-3*	Same as R-3*	11.3
<b>Grant County Zoning</b>			
Urban Reserve/Rural Residential 1	0.2	100%	0.2
Urban Residential 2	4.0	95%	3.8
Urban Residential 3	8.0	75%	6.0
Urban Residential 4	16.0	75%	12.0

\* Maximum determined by height/setbacks. Since residential is not required, assumed 15 du/ac like R-3. Also assumed only 25% of vacant/redevelopable land would have residential uses.

Sources: City of Moses Lake, 2021; Grant County, 2021; BERK, 2021.

**Residential Capacity**

Exhibit 2 present net housing unit capacity on vacant, redevelopable, and agriculture properties in the City and unincorporated UGA, after applying the density assumptions in Exhibit 1 to net buildable acreage and subtracting existing units on redevelopable properties. Exhibit 2 also presents total net population capacity, which is calculated by applying the average household size for the City of Moses Lake to the estimated net housing unit capacity. According to the US Census 2015-2019 American Community Survey, the average household size in Moses Lake is 2.79 persons. To avoid fractional households or persons, calculations in Exhibit 2 round values down to the nearest whole number.

Exhibit 3 shows net housing and population capacity in each of the unincorporated UGA subareas, Exhibit 4 maps the subarea locations, and Exhibit 5 shows the locations of identified Vacant, Agriculture, and Redevelopable lands included in the analysis.

**Exhibit 2. Residential Housing and Population Capacity**

ZONE	NET HOUSING UNIT CAPACITY			TOTAL NET HOUSING CAPACITY	TOTAL NET POPULATION CAPACITY
	VACANT	AGRICULTURE	REDEVELOPABLE		
<b>City of Moses Lake</b>					
R-1 Single Family Residential	-	259	678	937	2,613
R-2 Single/Two-Family Residential	72	44	921	1,037	2,891
R-3 Multifamily Residential	205	197	1,406	1,808	5,042
C-2 General Commercial	-	10	147	157	437
<b>Total City</b>	<b>277</b>	<b>510</b>	<b>3,152</b>	<b>3,939</b>	<b>10,983</b>
<b>Unincorporated UGA</b>					
Urban Reserve/Rural Residential 1	2	146	1	149	414
Urban Residential 2	1,442	5,585	1,428	8,455	23,589
Urban Residential 3	337	24	526	887	2,473
Urban Residential 4	518	87	430	1,035	2,895
<b>Total UGA</b>	<b>2,299</b>	<b>5,842</b>	<b>2,384</b>	<b>10,525</b>	<b>29,369</b>

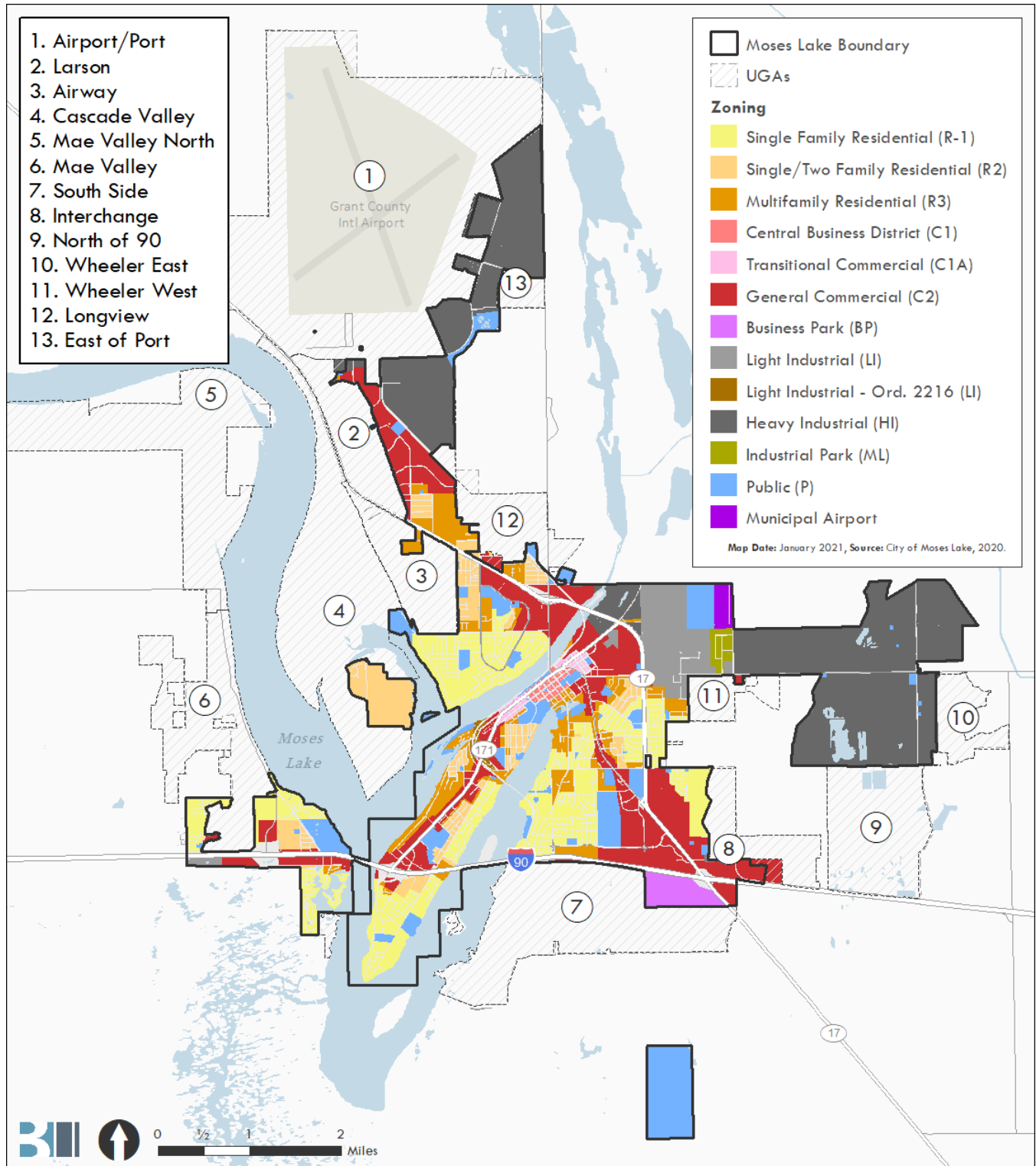
Source: US Census Bureau, 2019; BERK, 2021.

**Exhibit 3. Unincorporated Residential Capacity by UGA Subarea**

UGA SUBAREA	NET HOUSING CAPACITY	NET POPULATION CAPACITY	PERCENTAGE OF TOTAL POPULATION CAPACITY
1. Airport/Port	258	720	2.5%
2. Larson	95	265	0.9%
3. Airway	859	2,397	8.2%
4. Cascade Valley	2,376	6,630	22.6%
5. Mae Valley North	3,372	9,408	32.1%
6. Mae Valley	1,675	4,674	15.9%
7. South Side	557	1,554	5.3%
8. Interchange	454	1,266	4.3%
9. North of 90	0	0	0.0%
10. Wheeler East	0	0	0.0%
11. Wheeler West	348	971	3.3%
12. Longview	526	1,467	5.0%
13. East of Port	0	0	0.0%
<b>GRAND TOTAL</b>	<b>10,520*</b>	<b>29,352*</b>	<b>100.0%</b>

\*Area sub-totals differ slightly from UGA-wide capacity numbers presented in Exhibit 2 due to rounding calculations.  
 Source: US Census Bureau, 2019; BERK, 2021.

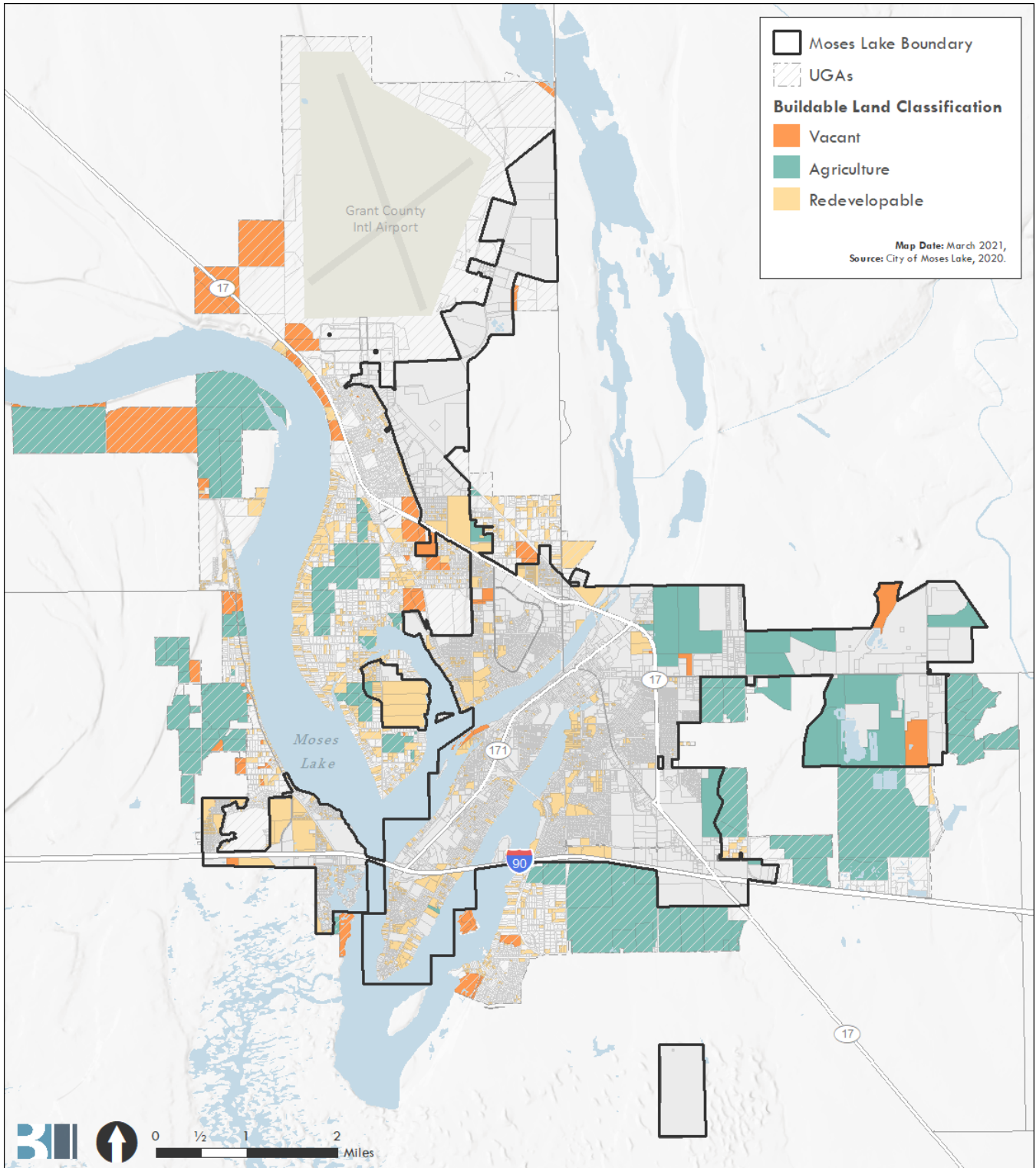
**Exhibit 4. Unincorporated UGA Subareas**



Sources: City of Moses Lake, 2020; ESRI, 2020; BERK, 2021.



**Exhibit 5. Buildable Lands**



Sources: City of Moses Lake, 2020; ESRI, 2020; BERK, 2021.

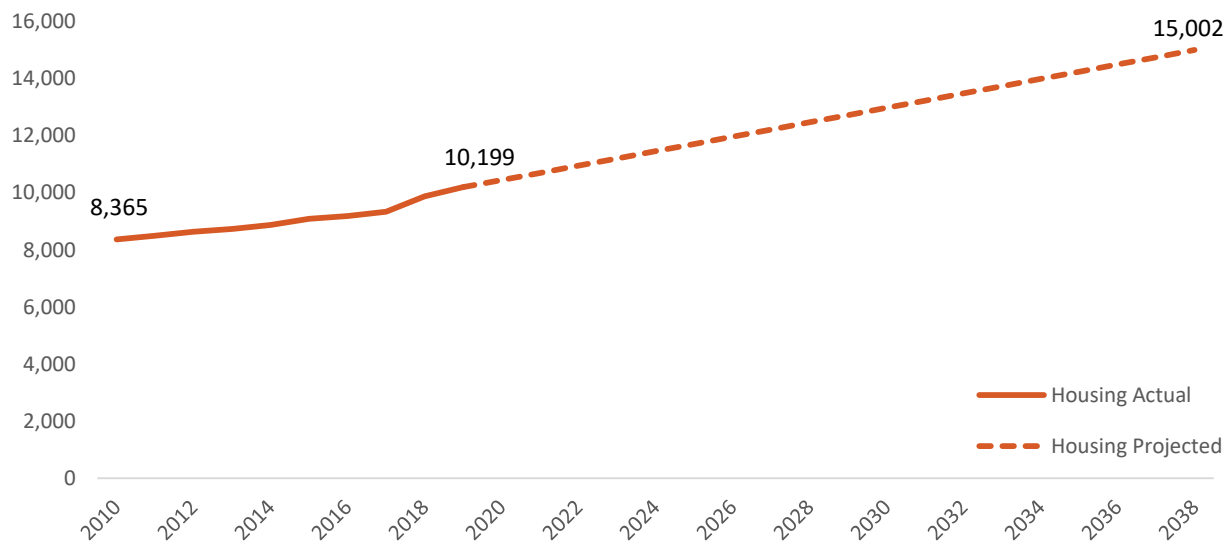


# Housing Needs

As shown in Exhibit 2, Moses Lake has capacity to accommodate approximately 10,275 new residents within city limits and capacity for an additional 24,140 residents in the unincorporated UGA. The City’s adopted population growth target for the 2018-2038 planning period is 7,917 new residents. According to the Washington Office of Financial Management (OFM), Moses Lake experienced growth of approximately 960 residents between 2018 and 2020, leaving a remaining growth target of 6,957 residents. BERK’s analysis shows the City has sufficient capacity to accommodate the adopted growth target within existing City boundaries. Under GMA, the growth target is considered a floor, not a ceiling, regarding available land capacity.

Population growth in Moses Lake has averaged 2.4% annually since 2015. If this trend continues, the City’s population would exceed the adopted target during the planning period, growing to approximately 35,626 residents by 2038. To keep pace with that level of population growth and maintain the existing ratio of housing to population, housing production would need to average 253 units per year, a net increase of 4,803 units.

**Exhibit 6. Housing Units Needed by 2038**



Sources: *Moses Lake Comprehensive Plan, 2015*; BERK, 2020.

This level of growth would exceed the land capacity available within incorporated city limits under proposed assumptions (as shown in Exhibit 2), though sufficient additional capacity is available in the unincorporated UGA. If densities were more efficient than assumed (e.g. 95% of maximum density instead of 75% for some of the categories) the higher housing need estimate could be met. Also, through the Comprehensive Plan Update, the City could consider the best mix of land uses and may increase its development capacity such as through mixed use zoning.

# Industrial Land Supply

In 2019, AHBL, Inc. prepared an analysis of industrial land supply in support of a UGA boundary amendment request by the Port of Moses Lake. This land capacity analysis identified vacant, partially-used, and under-utilized properties in both the incorporated city and unincorporated UGA whose future land use is anticipated to be industrial in nature. Out of a total of 10,483 acres of industrially-designated land, the report identified approximately 1,792 acres of vacant land, 100 acres of partially-utilized land, and 795 acres of land in interim agricultural use (2,687 acres in total), after removing environmentally critical areas and deducting allowances for roads, public facilities, and market factor.

The report estimates that this amount of available industrial land is equivalent to roughly half the amount of utilized industrial land. While detailed estimates of employment capacity of these available properties or projections of future industrial employment demand were not included in the AHBL analysis, the report concludes that rapid residential growth is likely to drive increased demand for local employment, including jobs in the warehousing, distribution, and manufacturing sectors; as of 2016, manufacturing accounted for 12.5% of total employment in Grant County and 16.9% of payroll dollars.

As also described in the AHBL report, the Grant County International Airport encompasses a large portion of the industrially-designated land outside city limits. This places a constraint on industrial development opportunities not related to aviation. As future development consumes available industrial land within city limits, development pressures in the UGA are likely to increase.

## Findings and Recommendations

### *Residential Capacity*

As shown in Exhibit 2, Moses Lake has capacity to accommodate approximately 10,275 new residents within city limits and capacity for an additional 24,140 residents in the unincorporated UGA. This is more than sufficient to accommodate the city's remaining growth target of 6,957 residents within existing City boundaries. Most of this capacity exists in areas zoned for multifamily residential development, but some capacity is still available in lower-density areas zoned for single-family and low-density attached development. Available population capacity in UGA is much larger than the County growth target.

Based on recent growth trends, residential population in Moses Lake is anticipated to increase beyond the City's adopted growth targets during the planning period, reaching 35,626 by 2038 (net growth of 10,819 residents). This projected residential growth slightly exceeds the available capacity within city limits, but the unincorporated UGA also contains substantial developable lands that could potentially be tapped in the future to meet housing needs.

One or more options include:

- If in-city densities were more efficient than assumed (e.g., 95% of maximum density instead of 75% for some of the categories) the higher housing need estimate could be met (see Exhibit 7). This is possible if code changes are incorporated per the City's 1923 grant to address code changes related to the City's Commerce grant including duplex, triplex, or courtyard apartment allowances in residential districts where there is available infrastructure.

- Also, through the Comprehensive Plan Update, the City could consider the best mix of land uses and may increase its development capacity, such as through mixed use zoning.
- The City could consider requesting that the County amend the UGA boundaries to be more serviceable without affecting the ability to meet the assigned growth targets.
- The City could also request a growth target shift from the UGA to the City limits, if desired.

**Exhibit 7. Incorporated Residential and Population Capacity – Increased Density Assumptions**

ZONE	NET HOUSING UNIT CAPACITY			TOTAL NET HOUSING CAPACITY	TOTAL NET POPULATION CAPACITY
	VACANT	AGRICULTURE	REDEVELOPABLE		
<b>City of Moses Lake</b>					
R-1 Single Family Residential	-	259	678	937	2,613
R-2 Single/Two-Family Residential	91	56	1,237	1,384	3,860
R-3 Multifamily Residential	259	250	1,878	2,387	6,658
C-2 General Commercial	-	12	194	206	574
<b>Total City</b>	<b>350</b>	<b>577</b>	<b>3,987</b>	<b>4,914</b>	<b>13,705</b>

Source: BERK, 2021.

*Demand for Industrial Development*

As described in the previous discussion of industrial land supply, Moses Lake is likely to experience ongoing demand for employment, particularly industrial jobs. Most land zoned for industrial uses is concentrated in the southeastern portion of the City/UGA (subareas 9 and 10) and in the northern UGA near Grant County International Airport (subareas 1 and 13). The City has received a private amendment request from Central Terminals, LLC. to amend the UGA boundary to add approximately 160 acres of land adjacent to the west side of the airport in subarea 1 and remove approximately 165 acres from the UGA in subarea 9. The UGA addition would be for the purpose of expanding industrial development near the airport; the land to be removed in subarea 9 is zoned for industrial use by Grant County but is currently in agricultural production.

To preserve industrial employment capacity, the City could work with the applicant and Grant County to approve the UGA expansion in subarea 1 while also keeping the proposed removal area in subarea 9 within the UGA. As described in the following section on UGA sizing, the City should avoid any net increase in UGA acreage, so reductions to the UGA in other areas would be recommended. Additionally, the City could request that Grant County rezone portions of the UGA that are adjacent to industrial areas to create additional industrial capacity:

- UGA subarea 11 is currently zoned for residential use but is located adjacent to incorporated areas designated for industrial development.

- The current shape of the southeastern UGA boundary creates an isolated “pocket” of rural land between UGA subareas 8, 9, and 11. This pocket is almost surrounded by unincorporated UGA lands and the city limits, as shown on Exhibit 4. To create additional employment capacity, the City could request an expansion of the UGA in this location to regularize the boundary and rezone these lands for industrial or commercial uses.

### *Urban Growth Area Sizing*

As described in the Residential Capacity section above and shown in Exhibit 2, the combined population capacity of the City and the unincorporated UGA is more than sufficient to meet adopted growth targets and projected 2038 growth levels. As such, the City should consider working with Grant County to amend the UGA to create more regular, logical boundaries and remove areas with limited development capacity or other impediments to future development. For example:

- Interviews with stakeholders have indicated that several UGA subareas possess limited or no short-term development potential, specifically subareas 5, 7, 9, and 10. As shown in Exhibit 3, subareas 9 and 10 also have no residential development capacity, so removal of these areas would have no effect on the City’s ability to accommodate future population growth. Residential capacity in subarea 7 is also limited, but subarea 5 contains nearly a third of the UGA’s residential capacity, so additional analysis should be completed before making UGA reductions in this area.
- As described in the discussion of Demand for Industrial Development, the current shape of the southeastern UGA boundary creates an isolated “pocket” of rural land between UGA subareas 8, 9, and 11. Amendment of the UGA boundary to include this area would create a more logical boundary and could increase development opportunities. Current Grant County zoning in this location is low-density residential, but rezoning to Urban Residential or Industrial could create either additional residential or employment capacity.
- The City should identify portions of the unincorporated UGA where it will be difficult to extend urban services within the planning period and consider such areas for removal from the UGA.

Private applications to amend UGA boundaries as part of the comprehensive plan update process should be screened and evaluated for potential effects on residential capacity and commercial/industrial development opportunities. Guidelines for review should include:

- Applications to expand the UGA should not result in a net increase in UGA acreage. If the City considers expansion in one location, it should pursue an equivalent or greater reduction in area elsewhere.
- UGA amendment applications that would increase development opportunities for industrial lands should be prioritized over additional housing in the UGA.
- Logical boundaries for service delivery (e.g. water and sewer) should also be considered as a priority.
- Areas with existing urban densities that can be served with adequate infrastructure should be prioritized over areas that do not have urban or partially developed patterns and that lack the ability to be served during the planning period. (See RCW 36.70A.110(3))
- Applications considered as part of the comprehensive plan update process should be those whose

land use and/or environmental impacts can be adequately analyzed and mitigated at a programmatic level (e.g., Determination of Non-Significance) and would not require a dedicated SEPA process.

- Proposed changes to land use should be generally compatible with surrounding land uses and have adequate public infrastructure to serve the proposed use.