

Technical Memorandum TM-01
CITY OF PATEROS
WASTEWATER GENERAL SEWER PLAN AND FACILITIES PLAN
Planning Areas and Population
April 13, 2022

1.1 Introduction and Background

This Technical Memorandum (TM) provides planning area and population projections. The projections are used to estimate wastewater flows and loadings for wastewater treatment facilities planning and capacity.

Varela met with City staff in February, 2022 to discuss City population projections and growth distribution within and beyond the City's Urban Growth Area. Planning information provided in this TM is based on City input and projections, 2020 US Census Bureau data, and Office of Financial Management (OFM) data.

The City indicated that planning estimates provided in the Wastewater Facility Plan (WFP) and this TM will be used to inform the updated Comprehensive Plan in the future.

1.2 Sewer Service Area

The City's incorporated limits and current sewer service area and collection and treatment system are shown on **Exhibit 1**. The existing sewer service area generally corresponds with the City's incorporated limits.

The City's 2018 urban growth area (UGA) and future sewer service area are shown on **Exhibit 1** and **Exhibit 2** and are based on discussions with City staff regarding where development is likely to occur within the planning period. The City anticipates expansion of the existing sewer service area within the 20-yr planning period.

1.3 Planning Data and Future Population

The Washington State Office of Financial Management, (OFM) provides the most current information and projections on growth for counties. Larger cities often have planning department which make these projections, while smaller systems may adopt their own projections based on one or more of the following: projections published by the OFM, historical population trends, known development plans, comprehensive plans, etc.

For the purposes of infrastructure planning, a population at the end of the 20-year planning period is projected. Available data sources for Pateros include the Washington State Office of Financial Management (OFM), historical population trends, known development plans and City staff input, and the City of Pateros' 2018 Draft Comprehensive Plan. There is no known state or federal agency which makes predictions for smaller cities such as Pateros. Therefore, based on the available data, the following sections develop population projections for Pateros.

1.3.1 Historical Population Trends

The historical population of Pateros is shown in **Table 1**.

Table 1 City of Pateros Historical Population

Year	Population	Annual Growth Rate	Source
1960	673		Census
1970 ⁽¹⁾	472	-3.49%	Census
1980	555	1.63%	Census
1990	570	0.27%	Census
2000	643	1.21%	Census
2010	667	0.37%	Census
2020 ⁽²⁾⁽³⁾	593	-1.17%	Census

1. Construction of Wells Dam begins (1963); City submerged and relocated

2. Carlton Complex fire

3. City staff indicate that City is adding population; not subtracting as shown in the table

The follow is excerpted from the City’s 2018 Draft Comprehensive Plan:

Before the construction of Wells Dam, Pateros enjoyed a high population in 1960 of 673 people. By 1970, the population had declined to 472 [and] population rose to 555 by 1980. Growth was slow during the 1980’s; in fact, it was under 1% for the entire decade. However, the 1990’s saw steady growth, averaging 1.2% per year, for a total of just over 11% for the whole decade. The 2000 Census put Pateros’ population at 643, and by the 2010, census at 667, just shy of the high in 1960 but showing growth had slowed to approximately 4% for the decade. The Washington State Office of Financial Management data estimated the April, 2013 population at 665, revealing a slight decline in population. However, the catastrophic fires of 2014 resulted in a loss of 140 residents by the April 1, 2015 OFM population estimate. 2016 and 2017 saw the population recovering with the addition of 55 people to the City’s population.

In general, Pateros’ population has fluctuated over the years but has stayed relatively constant.

1.3.2 Comprehensive Plan Projections

The City’s 2018 Draft Comprehensive Plan generally follows OFM projections but does not include any specific projections related to future growth.

The City is in the process of updating their Comprehensive Plan and has indicated that the planning assumptions prepared in this TM will be used to inform the new plan.

1.3.3 Population per Household

The City currently serves roughly 220 single-family sewer connections. Based on a 2020 population of 593 residents and 220 single family connections, it is estimated that Pateros’ population per single-family residence is approximately 2.7 capita/connection.

1.3.4 *Washington State OFM Projections*

The Office of Financial Management makes three population projects for each county, a low, medium, and high series. OFM does not make projections for towns and cities. For Okanogan County, OFM projected average growth rates for 2022 to 2042 are as follows:

High Series:	0.95% per year
Intermediate Series:	0.26% per year
Low Series:	-0.05% per year

Applying the Okanogan County OFM projected growth rates result in the following projected 2042 populations for Pateros:

High Series:	730 residents (+137 residents)
Intermediate Series:	628 residents (+35 residents)
Low Series:	587 residents (-6 residents)

Growth projections consistent with the OFM projections for Okanogan County are shown on **Figure 1** in Section 1.3.5.1.

The City has reviewed the OFM projections, and given the anticipated growth identified in the following sections, believes growth in Pateros will outpace the OFM projections given the anticipated growth identified in the following sections.

1.3.5 *Growth Areas Identified by City*

The City has identified various areas where anticipated growth will likely occur. These areas are based on City knowledge and direction.

This section documents the anticipated growth areas, provides estimated additional equivalent residences for each area, and provides population estimates for the 20-year planning period for each growth area.

Following are the growth areas identified. These areas are also shown on **Exhibit 2**.

- **Area 1** is the area generally along and north of Pedersen Rd east of town within the UGA. Current land use includes single-family residential, light industrial, and orchards. Several parcels that are currently being used as orchards within the Incorporated Limits are zoned R2. Other parcels are located outside the Incorporated Limits and are generally being used as single-family residential. The City has an easement along Pedersen Rd that could be utilized to provide sewer service to properties outside the Incorporated Limits. The City also maintains a sleeve under SR 97 at Industrial Way for future water service to the Pedersen Rd area. The City has been approached by the orchard owner to provide sewer and water service to a planned multi-family seasonal worker building.

At build-out, growth in Area 1 is projected to include the following:

- 173 ERUs (made up of residential); estimated population of 466 persons
- **Area 2** is the area generally along Ives St and Bill Shaw Rd west of town outside the Incorporated Limits and within the UGA. Current land use includes single-family residential and vacant land. The City reports this area could be subdivided and connected to the City sewer

system via an extension along Riverside Dr/Bill Shaw Rd. Additional sewer flows resulting from serving Area 2 would flow to the Warren Ave Lift Station.

At build-out, growth in Area 2 is projected to include the following:

- 459 ERUs (made up of residential); estimated population of 1,237 persons
- **Area 3** is the area generally along Methow Valley Highway south of town along the south side of the Methow River. Current land use includes single-family residential and orchards. This area is outside the City's current UGA. City staff have indicated that is growing interest in this area which, if annexed into the City, could include up to 70 new single-family residential homes and a restaurant or brewery. This area could be served by forcemain over the Methow River. Service feasibility to Area 3 is evaluated in later chapters.

At build-out, growth in Area 3 is projected to include the following:

- 96 ERUs (made up of residential and commercial); estimated population of 188 persons
- Possible brewery
- **Area 4** includes City owned property within the Incorporated Limits along Starr Rd south of Town currently zoned MU. The City could also provide services to the private mobile home park that is within the vicinity of the City property. The City has been approached by various industries requesting undeveloped land, sewer and water service. The City could provide sewer service to Area 4 by forcemain north along Starr Rd and SR 97 over the Methow River. Service feasibility to Area 4 is evaluated in later chapters.

At build-out, growth in Area 4 is projected to include the following:

- Possible industry
- **Infill** is expected throughout City limits due to development of unused/vacant properties and changes in zoning to allow for higher densities.

At build-out, infill development within the current incorporated limits is projected to include the following:

- 119 ERUs (made up of residential and commercial); estimated population of 303 persons
- Possible brewery
- Possible industry

1.3.6 *Estimate of Future Population based on Growth Areas*

Based on growth areas identified by the City, the following table provides: 1) estimated buildout ERUs for each growth area; 2) and assumed percentage of growth the City believes will occur within the 20-year planning period; and 3) resulting population projection.

Table 2 20-year Population Estimate for Growth Areas

Growth Area	Type of Development	Acreage	ERU Assumptions	Estimated Additional ERUs at Build-Out	20-yr Planning Period		
					Percent of Build-Out ⁽¹⁾	Estimated Additional ERUs	Estimated Population Growth ⁽²⁾
1	Residential - R2	23.0	1 ERU per dwelling unit = 7.5 ERU / ac ⁽⁴⁾	173	25%	43	116
2	Residential - R2	61.2	1 ERU per dwelling unit = 7.5 ERU / ac ⁽⁴⁾	459	15%	69	186
3	Residential - R1	23.3	1 ERU per dwelling unit = 3.0 ERU / ac ⁽³⁾	70	25%	17	47
	Commercial	4.3	6.0 ERU / ac	26	25%	6	17
	Brewery	1.0	(6)	(6)		(6)	
4	Industrial	15.2	(6)	(6)		(6)	
City Infill	Residential - R2	1.8	1 ERU per dwelling unit = 7.5 ERU / ac ⁽⁴⁾	13	50%	7	18
	Residential - R3	11.0	1 ERU per dwelling unit = 9.0 ERU / ac ⁽⁵⁾	99	15%	15	40
	Commercial	0.5	6.0 ERU / ac	3	100%	3	7
	Brewery	0.9	(6)	(6)		(6)	
	Industrial	4.2	(6)	(6)		(6)	
	Public Utility	7.0	0.5 ERU / ac	4	100%	4	9
Total		153.2	Total	846	19%	164	441
2042 Population Estimated using Growth Areas							1,034 ⁽⁷⁾
OFM Population Growth Projection for 20-yr Planning Period ⁽⁸⁾							137
2042 Population Estimated using OFM Projections							730 ⁽⁷⁾

1. Percentages shown are example only. City to review and provide selected percentages.

2. Based on 2.7 residents per dwelling unit

3. Average residential density of between 1 and 5 dwelling units per acre per City of Pateros Municipal Code Chapter 17.12.020 for single-family residential (R-1)

4. Average residential density of between 1 and 15 dwelling units per acre per City of Pateros Municipal Code Chapter 17.12.040 for mixed-family residential (R-2)

5. Average residential density of between 1 and 18 dwelling units per acre per City of Pateros Municipal Code Chapter 17.12.050 for multifamily residential (R-3)

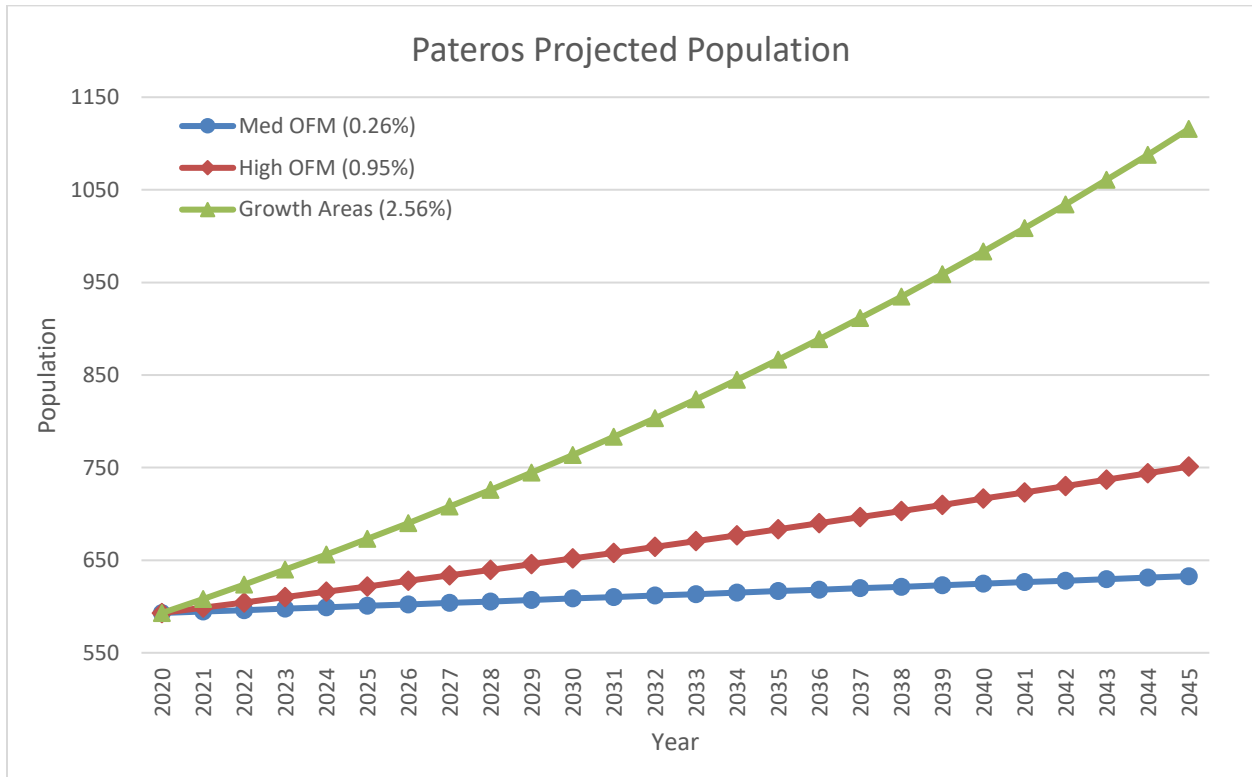
6. ERU estimate not provided. ERU estimates/considerations discussed elsewhere in the Wastewater Facility Plan

7. 593 residents per 2020 Census

8. Based on Okanogan County OFM projections for high series (0.95% annual growth rate)





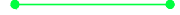
The following figure shows: 1) Pateros’ population growth using OFM projections (med/high) and, 2) City anticipated growth estimates per **Table 2**.

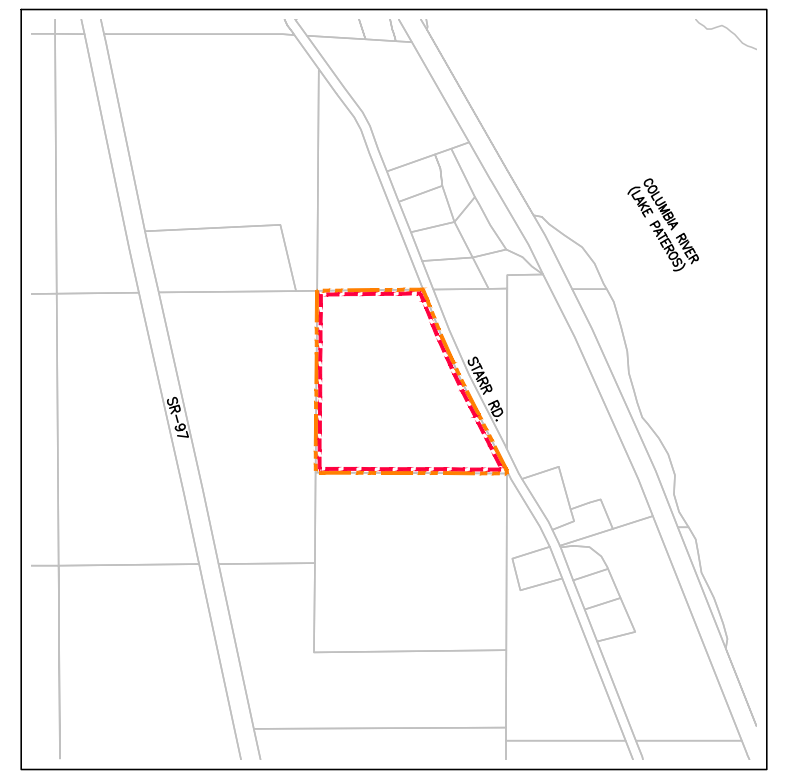
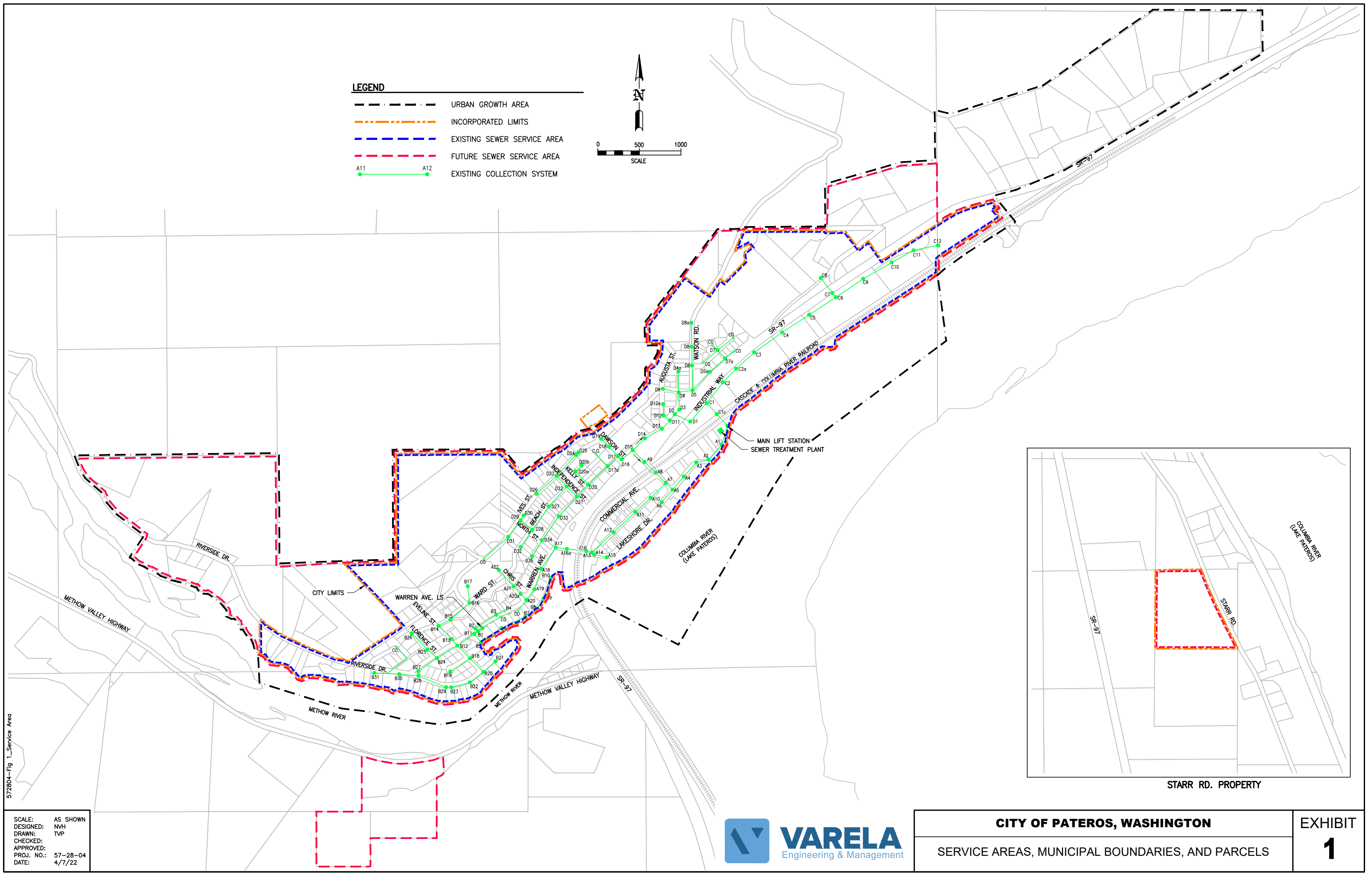
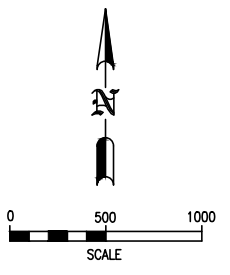
Figure 1 Pateros Projected Population



1.3.7 Selected Design Population

The City has elected to use a 20-yr projected population of 1,034 residents (2.56% annual growth rate) which is consistent with the City’s anticipated growth estimates provided in **Table 2**.

- LEGEND**
-  URBAN GROWTH AREA
 -  INCORPORATED LIMITS
 -  EXISTING SEWER SERVICE AREA
 -  FUTURE SEWER SERVICE AREA
 -  EXISTING COLLECTION SYSTEM



572804-Fig 1_Service Area






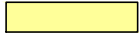



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 APPROVED:
 PROJ. NO.: 57-28-04
 DATE: 4/7/22

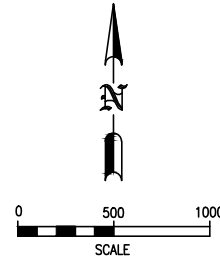


CITY OF PATEROS, WASHINGTON
 SERVICE AREAS, MUNICIPAL BOUNDARIES, AND PARCELS

EXHIBIT 1

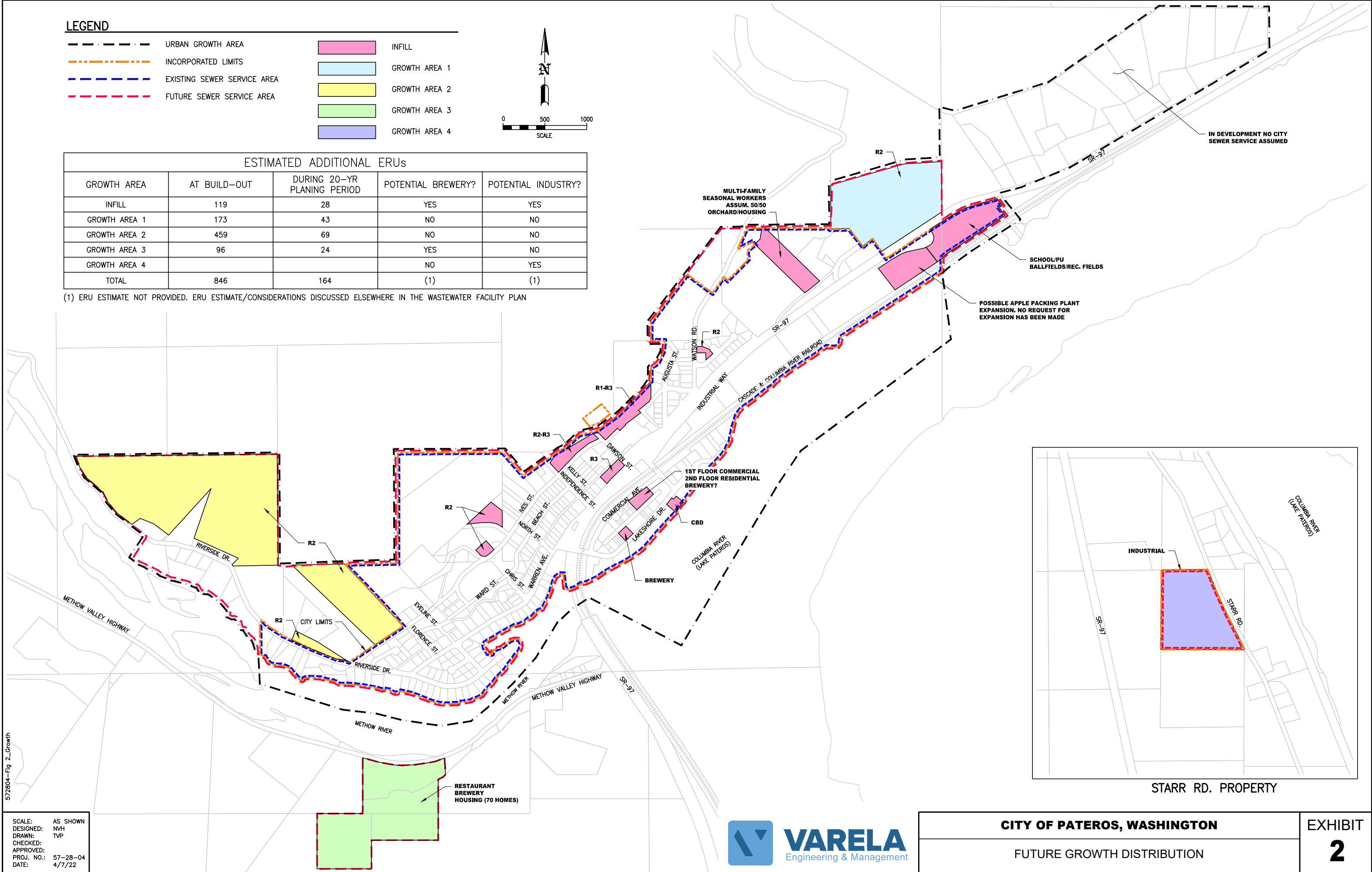
LEGEND

	URBAN GROWTH AREA		INFILL
	INCORPORATED LIMITS		GROWTH AREA 1
	EXISTING SEWER SERVICE AREA		GROWTH AREA 2
	FUTURE SEWER SERVICE AREA		GROWTH AREA 3
			GROWTH AREA 4



GROWTH AREA	AT BUILD-OUT	DURING 20-YR PLANING PERIOD	POTENTIAL BREWERY?	POTENTIAL INDUSTRY?
INFILL	119	28	YES	YES
GROWTH AREA 1	173	43	NO	NO
GROWTH AREA 2	459	69	NO	NO
GROWTH AREA 3	96	24	YES	NO
GROWTH AREA 4			NO	YES
TOTAL	846	164	(1)	(1)

(1) ERU ESTIMATE NOT PROVIDED. ERU ESTIMATE/CONSIDERATIONS DISCUSSED ELSEWHERE IN THE WASTEWATER FACILITY PLAN



572804-Fig 2_Growth

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 APPROVED:
 PROJ. NO.: 57-28-04
 DATE: 4/7/22



CITY OF PATEROS, WASHINGTON

FUTURE GROWTH DISTRIBUTION

EXHIBIT

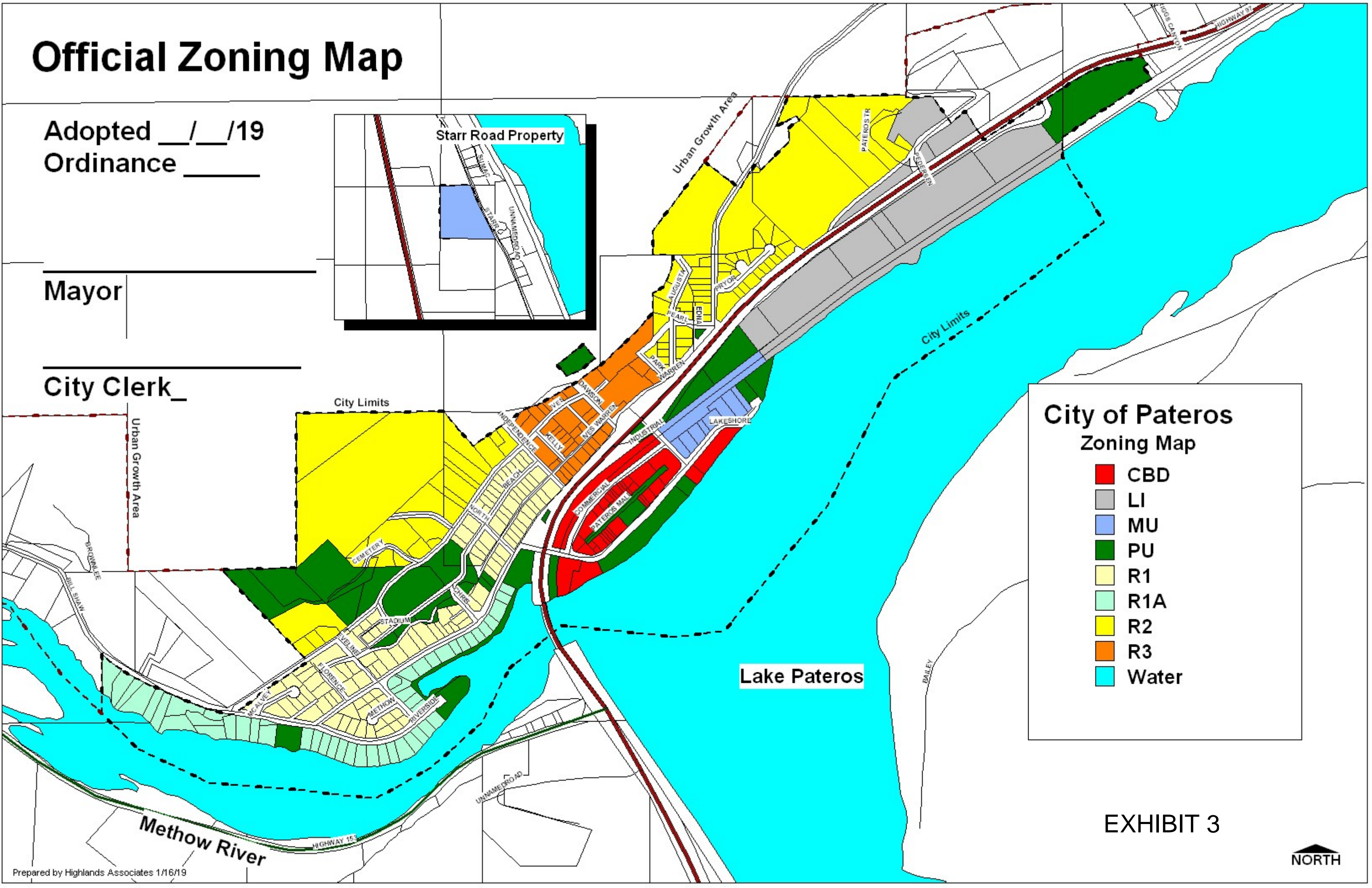
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Official Zoning Map

Adopted __/__/19
Ordinance _____

Mayor _____

City Clerk _____



**City of Pateros
Zoning Map**

- CBD
- LI
- MU
- PU
- R1
- R1A
- R2
- R3
- Water

EXHIBIT 3

