



City of Stevenson Planning Department

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Stevenson, Washington 98648

TO: Gordon Monro, PE Tetra Tech
CC: Eric Hansen, Stevenson Public Works Director
FROM: Ben Shumaker
DATE: March 22nd, 2016
SUBJECT: Sewer Population Benchmarks/Projections

Introduction

This memo provides a range of population benchmark scenarios that can be used in the design of the Sewer Department’s collection system and the sizing of infrastructure at the Waste Water Treatment Plant. The scenarios are based on observed population trends, a range of future projections, and the objectives of the City’s land use and development plans.

Population Growth

Observed Population Growth

The information used in this memo is derived from the United State Census Bureau, the Washington Office of Financial Management, and calculations by the Stevenson Planning Department. The US Census Bureau data are based on the decennial census, or 10-year full population count, which collects data from all residents and reports the raw findings with limited room for error. The decennial nature of this effort leaves us with outdated or “stale” data in the 10 year interim between censuses. Seeking to overcome the limitations of the federally-provided Census information, the Washington State Office of Financial Management (OFM) collects annual population counts from officials in each city and county in the state. This annually reported information does not become stale, but does only provide an estimated headcount of the population and is subject to errors of estimation.

Projected Population Growth

Using the above information sources, the Planning Department developed population projections using the linear progression method. The Low, Mid-range, and High population levels for 2040 were based on the following three assumptions 1) that historic growth rates (0.87% for City & 1.14% for County) will be maintained into the future, 2) that annual growth rates will hold steady at 1%, and 3) that annual growth rates will increase to 2.5%. The following table shows the results of this projection method and compares it to the projections developed by OFM using the “Cohort-Component” method of projection for counties.

	2040-Low	2040-Mid-Range	2040-High
Stevenson	1,901	1,962	2,837
Skamania County	14,679	16,676	21,191
Skamania County (OFM)	11,505	13,082	15,509

Words of Caution

- Predicting the future is impossible.
- Since standard prediction methods were modeled on large places, they do not easily transfer to small jurisdictions like Stevenson.
- The projection is not intended to predict annual growth for each year within the 25-year period. Annual growth rates may vary widely in individual years.
- These projections are predictions of future population growth, not policy goals for how much growth is desired.
- Decisions made with this sewer plan and its implementation will influence future population growth rates.
- Innumerable external factors will also influence future population growth rates.

To overcome the inherent limitations of this information, the Planning Department recommends treating these projections as benchmarks of population growth on the way to full build-out. Doing so will require continual monitoring of population growth and sewer connection data as it becomes available. Informed decisions can then be made to ensure the City’s financial commitments for the sewer collection and treatment system are made in sustainable ways for the rate payers.

Housing Growth

The following information assists in forming population benchmarks for sewer planning purposes. The information here is also derived from the US Census Bureau, OFM, and the Planning Department. To simplify the discussion, only the Low and High population projections are used.

	Current Density	2020		2040		Full Build-Out
		Low	High	Low	High	
Population	1,530	1,598	1,731	1,901	2,837	4,772
Household Size	2.10	2.17	2.17	2.13	2.13	2.16
Housing Units	730	735	797	893	1,333	2,211
Density (per sq mi)	1,005.21	980.24	980.24	983.57	983.57	979.86
Land Base (sq mi)	1.52	1.52	1.77	1.93	2.88	4.87

Limitations

The above information contains no detailed information on commercial and industrial area growth and assumes that the current proportion of land uses will continue into the future. This assumption is not based on any underlying information. This information also contains no information on the population, housing, and density of existing sewered areas versus unsewered areas. Without that information, the resulting projections assumes densities will continue according to the current proportion of these areas. Specific information is not immediately available to the Planning Department, but its collection and analysis may be possible and would help bridge a gap between the City’s capital improvement and land use plans.

City Policies

In addition to regional population trends, the City Comprehensive and Capital Improvement plans and our land development ordinances will be factors in where, how, and how soon growth occurs in Stevenson. This memo addresses Comprehensive Plan objectives related to sewer provision.

Comprehensive Plan

Goal 2- Urban Development

- 2.2-6- Consider stream corridors for multiple use in conformance with other plans.
- 2.7-1- Consider designating areas not served by the public sewer and/or water systems as an “urban reserve” until such systems are made available.
- 2.8-Establish policies to review annexation proposals.
- 2.8-1 Prefer annexation of developed areas abutting the city.
- 2.9- Encourage the establishment of a subarea plan and land use regulations within the unincorporated Urban Area.
- 2.9-2- Discourage development within the unincorporated Urban Area until suitable land within the City has been developed.
- 2.9-3- Ensure the highest and best use of riverfront properties within the unincorporated Urban Area by protecting them from development and redevelopment until urban utilities and services can be provided.
- 2.10- Use the type, location, and phasing of public facilities as a factor to guide urban expansion.
- 2.10-1- Manage urbanization through the expansion of public infrastructure such as the sewer and water systems.

Goal 3- Housing

- 3.2- Encourage a range of residential land uses, housing sizes, types and price ranges and establish appropriate development criteria.
- 3.6- Review and carefully consider the immediate and long term effects of fees, charges, regulations, and standards on dwelling costs.

Goal 5- Business & Industry

- 5.1-2- Designate additional areas for various types of industrial activity as needs change and demand develops. The designations should ensure the viability of and compatibility with surrounding properties.
- 5.5- Facilitate and support provision of adequate utility, transportation, and communications infrastructure to meet the needs of Stevenson’s business community.
- 5.8- Preserve lands designated for industrial use for that use, protect them from incompatible uses, and ensure access to good infrastructure.
- 5.8-1- Consider the feasibility and benefits of establishing industrial areas along Ryan Allen Road near the garbage transfer station.

Goal 8- Utilities & Services

- 8.2- Develop a long-range financial plan.
- 8.3- Periodically review and revise the capital facilities plan.
- 8.4- Identify and correct health and safety hazards within the Stevenson Urban Area.
- 8.5- Establish maintenance programs to preserve the long-term viability of the City’s capital facilities.
- 8.6- Offset the cost of new development to existing city residents by establishing development charges.
- 8.8- Base the provision of future public facilities and utilities upon financial cost and adequacy of desired levels of service.
- 8.8-1- Consider providing public facilities and utilities in advance of need.
- 8.8-3- Continue to provide water and sewer services within the Urban Area.
- 8.9- Manage urbanization through the expansion of the sewer system.
- 8.9-1- Permit septic systems only when provision of sewer services is technically infeasible within the planning period.

- 8.9-2- Revise land development regulations to prohibit septic system installations in areas where provision of sewer service is feasible during the planning period.
- 8.10- Consider alternative waste disposal systems for difficult sites and to encourage conservation of water.
- 8.11- Coordinate the infrastructure improvement and maintenance projects of multiple utilities to reduce costs and disruptive impacts.

Scenarios

The attached 5 maps demonstrate the Planning Department's best guess at sewer trends necessary to serve several benchmarks in the City's urbanization. The maps begin with a full build-out scenario and work backward to consider different scenarios based on residential and trade-related (commercial/industrial) growth. These scenarios are not intended to be definitive and should be evaluated and reevaluated based on the evolving draft of the sewer plan.

Build-Out Benchmark

A 50-100 year benchmark, this scenario involves service to the entire Stevenson Urban Area. This scenario totals at least 4 pump stations and miles of sewer pipe.

Comprehensive Plan Future Land Use Benchmark

A 20-50 year benchmark, this scenario combines the efforts to the benchmarks that follow. The scenario assumes the First Falls View and Iman Cemetery areas will remain unsewered, as will other areas near Rock Creek, and the lower elevations of the eastern fringe. Miles of sewer pipe and at least two pump stations could be necessary to bring this scenario into reality.

New & Existing Residential

This benchmark could also occur in the 5-20 year time frame, and would add additional gravity collection systems to serve the Foster Creek Road/Ryan Allen Road areas, areas near upper maple way. A pump station is added for consideration if necessary to serve properties adjacent to the First Falls View and Iman Cemetery Loop roadways.

Existing Residential

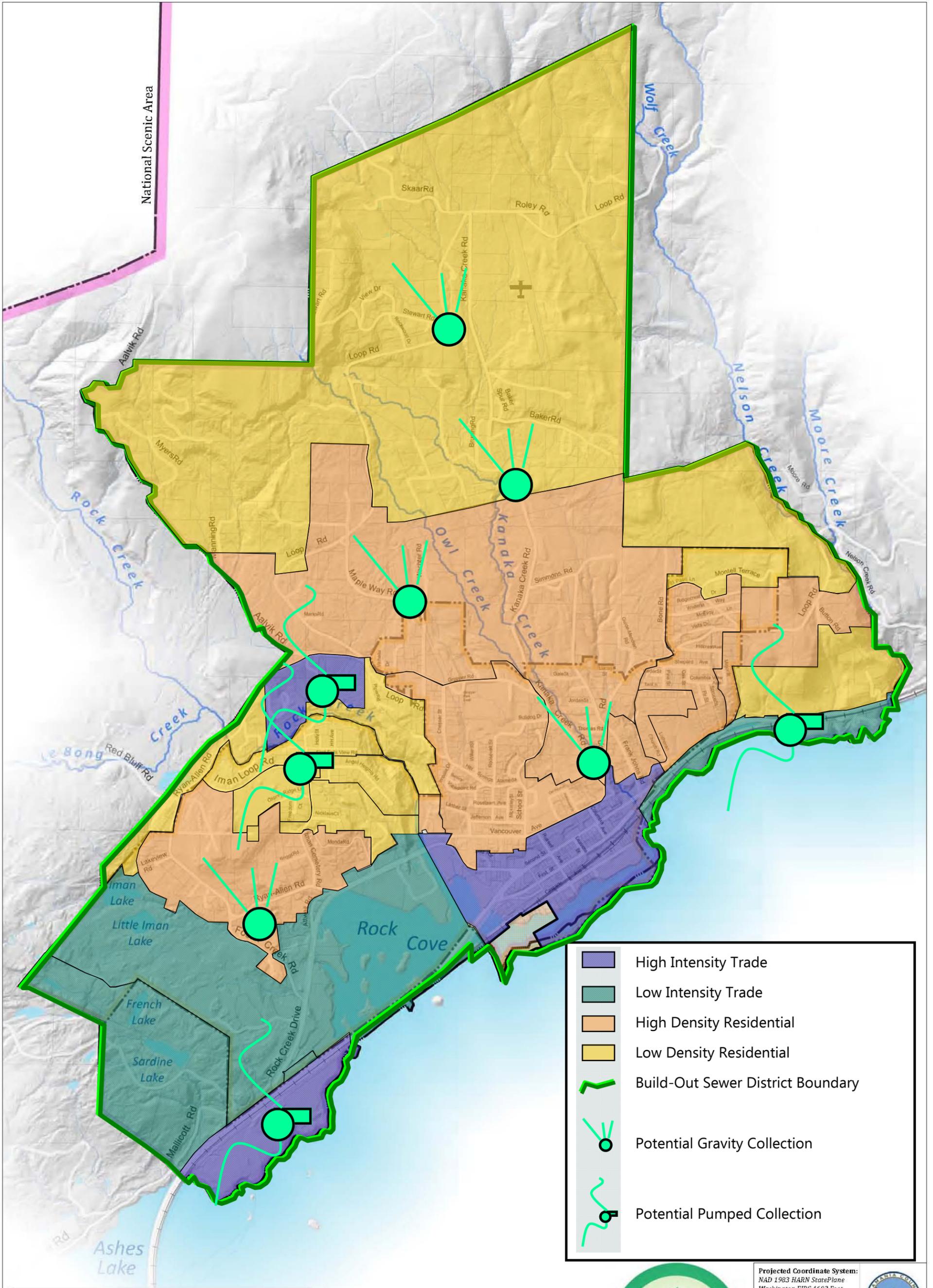
Another 5-20 year benchmark, this scenario focuses on closing the gaps where the sewer collection system does not serve existing residential development. Sewer mains to serve areas between School Street and Bone Road would need to be extended as would service up Maple Way. Assuming the capacity at the Rock Creek pump station is available, no pump stations would be associated with this scenario.

Trade-Based Growth

A 5-20 year benchmark, this scenario would focus all sewer collection improvements on areas where the Future Land Use Map has designated future commercial and industrial growth. Achieving this scenario could require a pump station near the western waterfront properties which could collect waste from the "DeGroot Trust" properties on Mallicott Road and support intensive redevelopment of the former industrial waterfront properties. Another pump station would likely be needed to support industrial development of the properties to the east of the County's garbage transfer station which lie lower than the adjacent roadway and are separated from the Wastewater Treatment Plant by the Piper Road Landslide. Pressure mains and standard collection pipe would also be needed.

Prepared by,

Ben Shumaker
Planning Director



	High Intensity Trade
	Low Intensity Trade
	High Density Residential
	Low Density Residential
	Build-Out Sewer District Boundary
	Potential Gravity Collection
	Potential Pumped Collection

Build-Out

This map is intended for planning purposes only. The stream locations and designations shown on this map are approximations based on the best available information at the time of mapping. The location and designation should be confirmed prior to undertaking land use actions in or near these areas.



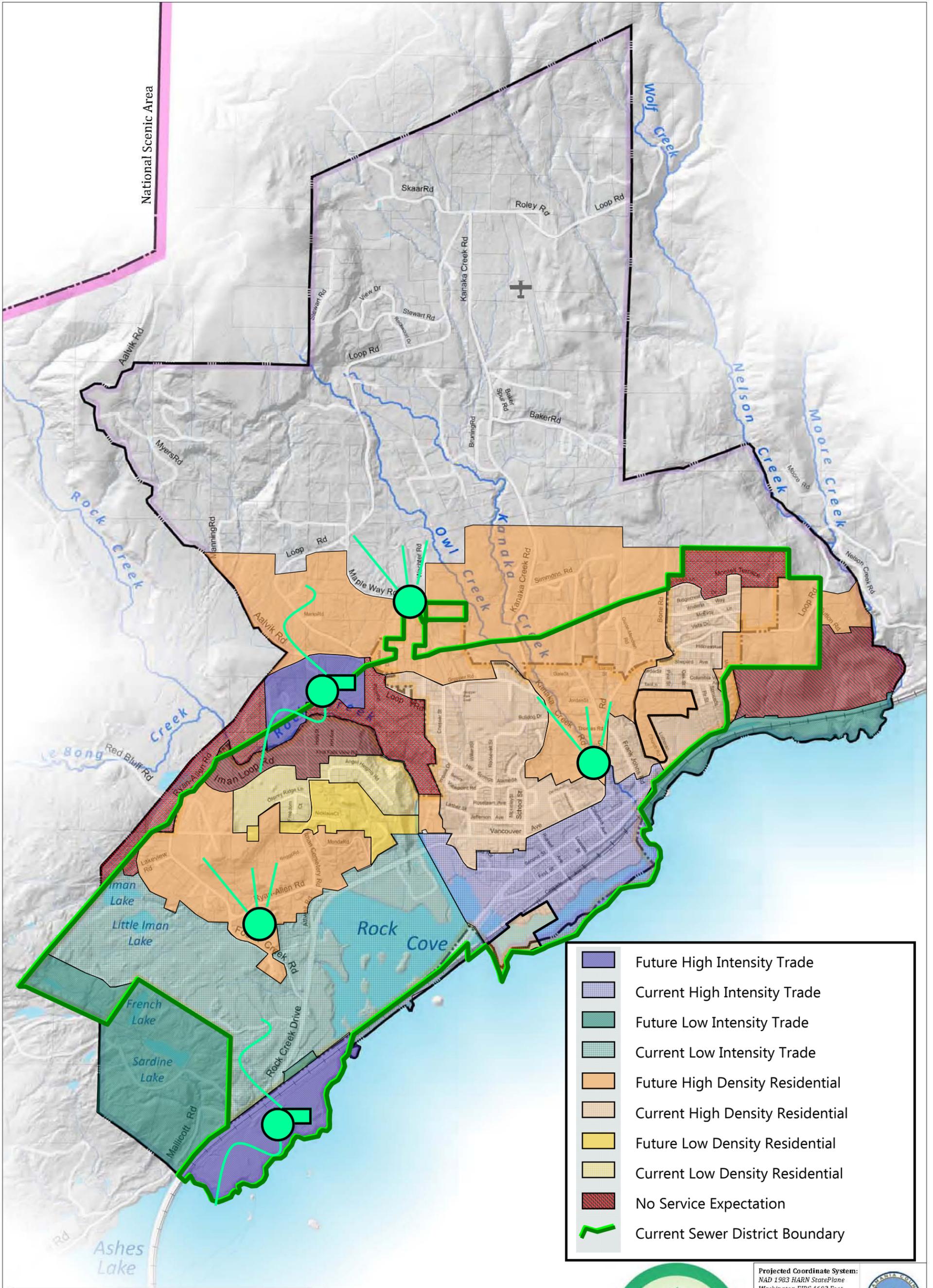
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1 inch = 1,500 feet



Projected Coordinate System:
NAD 1983 HARN StatePlane
Washington FIPS 4602 Feet
Projection Name:
Lambert Conformal Conic
Planar Units: US Survey Feet
Data Sources: Skamania Co,
Col. River Gorge Commission
LIDAR: DNR Flight 2005-2006
Map Created: December 2011



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Comp Plan Future Land Use

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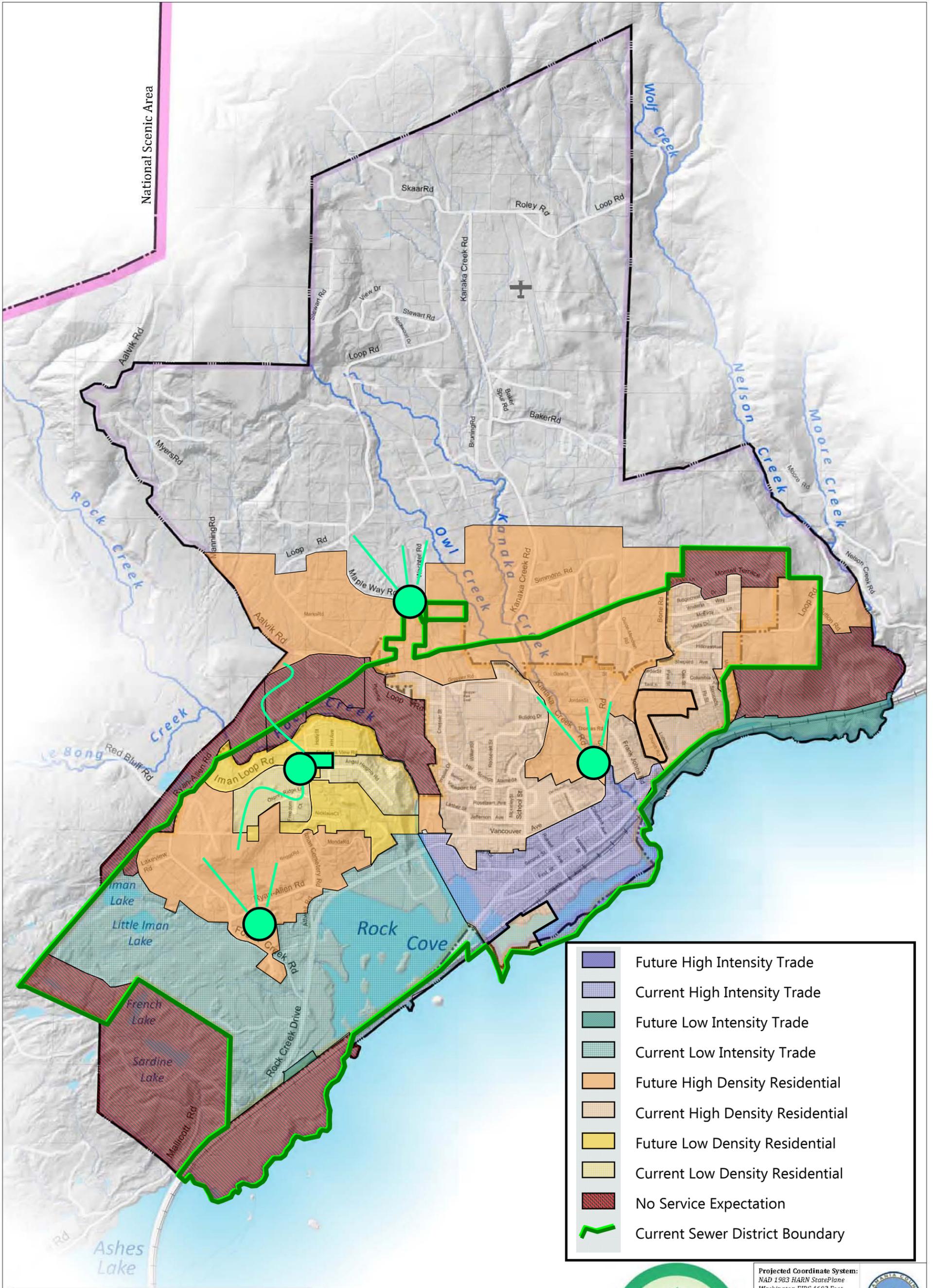
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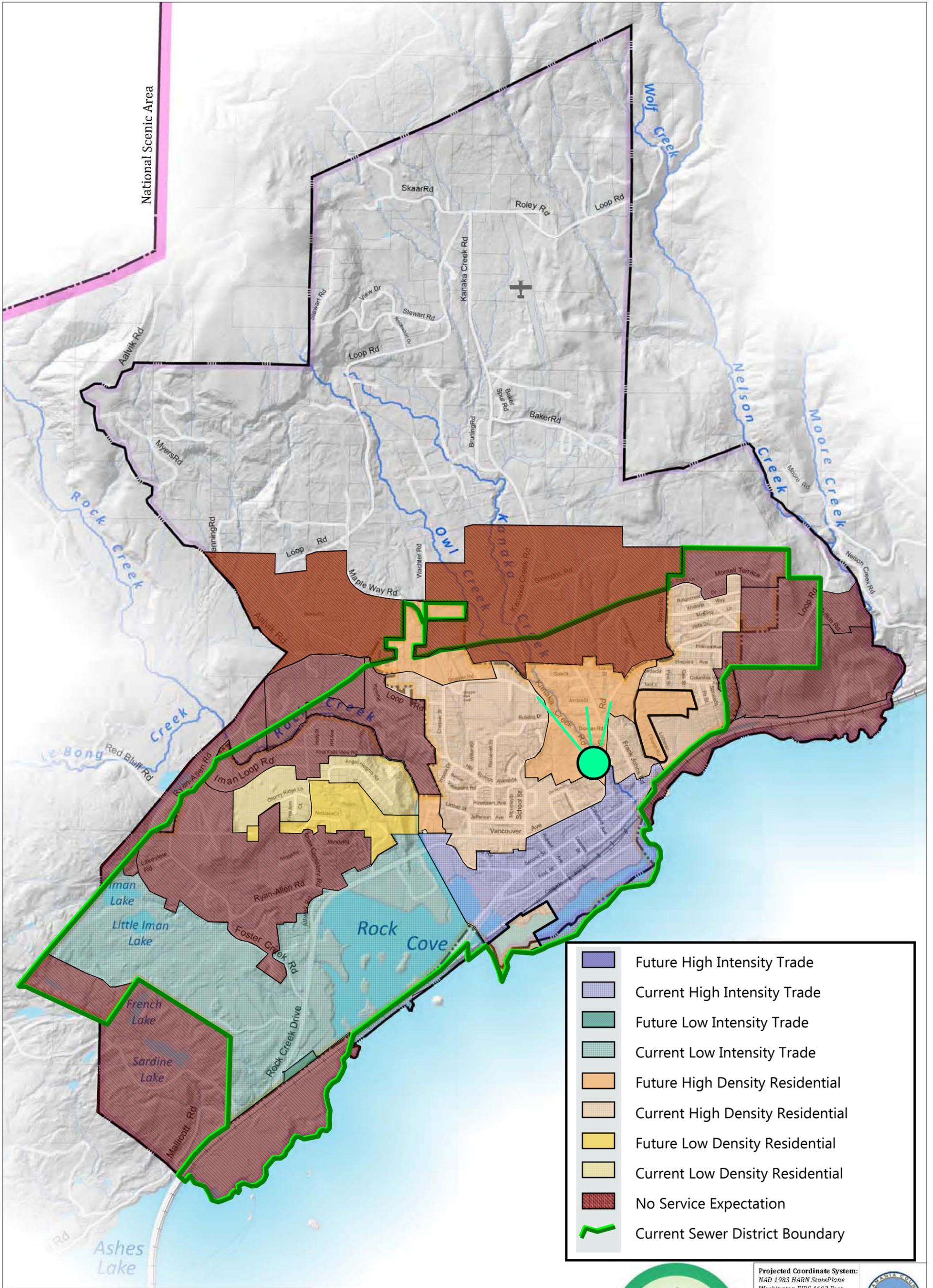
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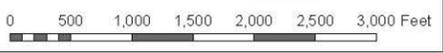


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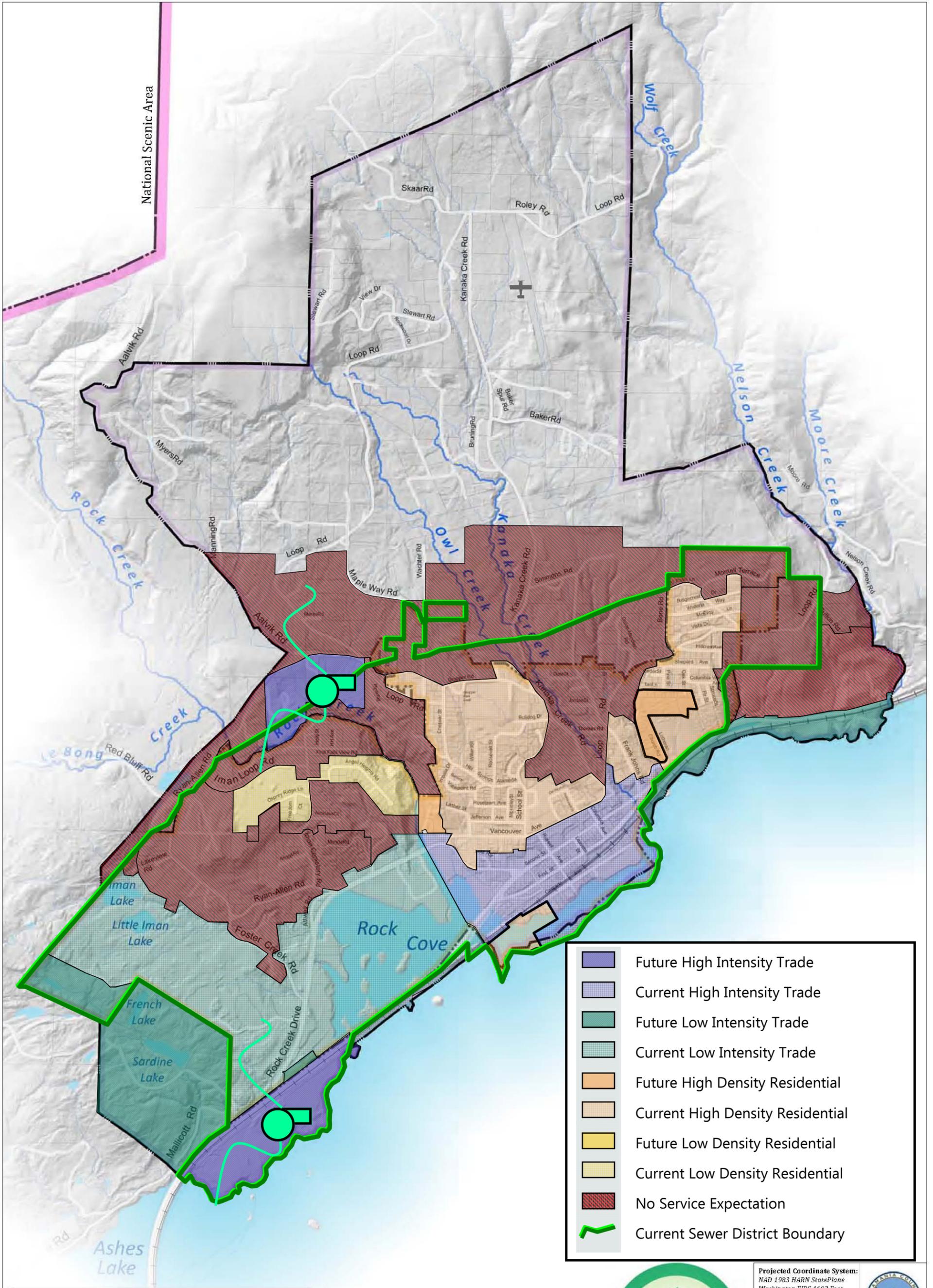
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Trade-Based Growth

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