

Salem’s Environmentally Significant Lands: Findings and Recommendations

by

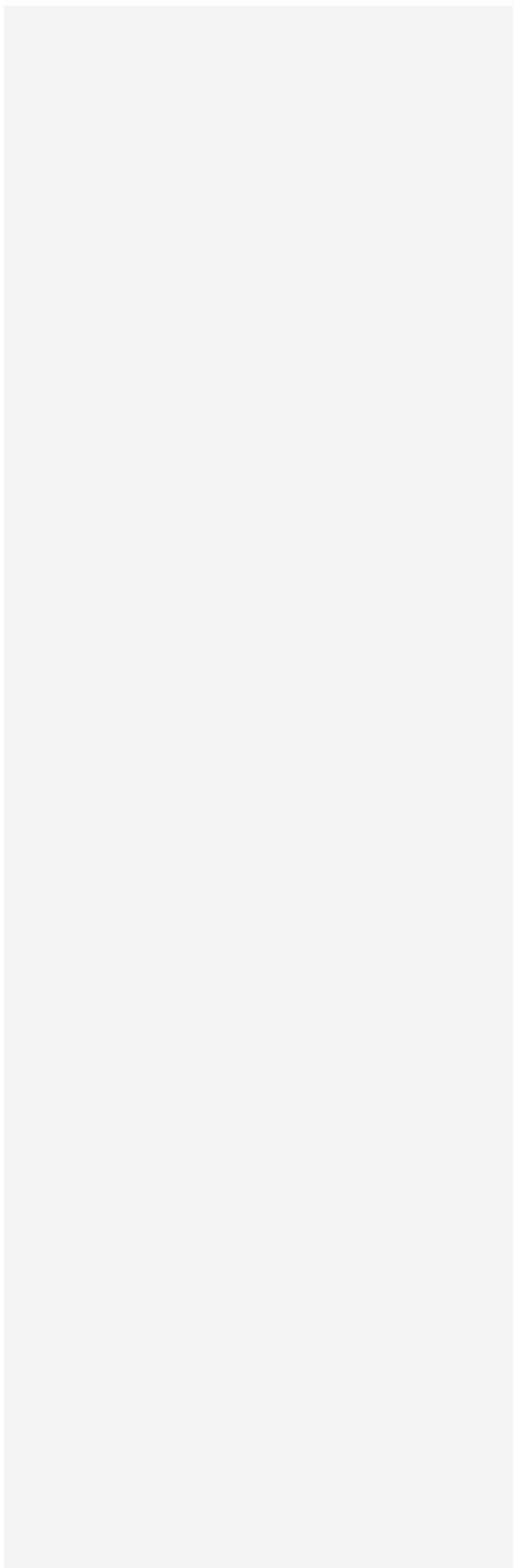
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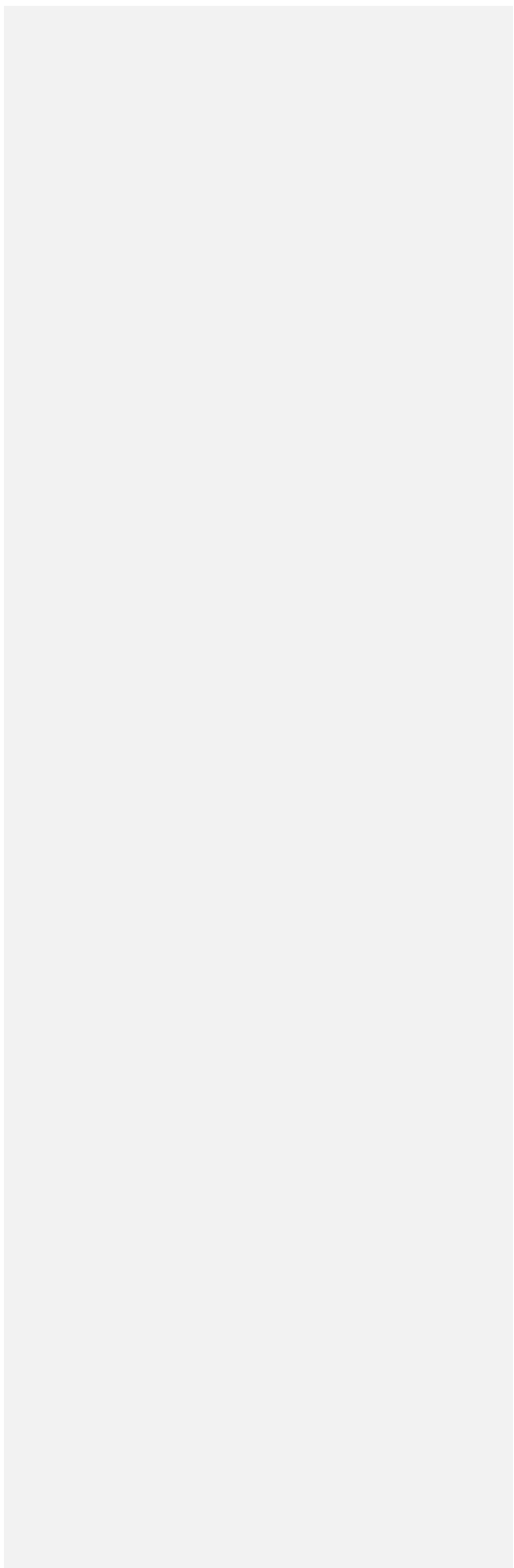
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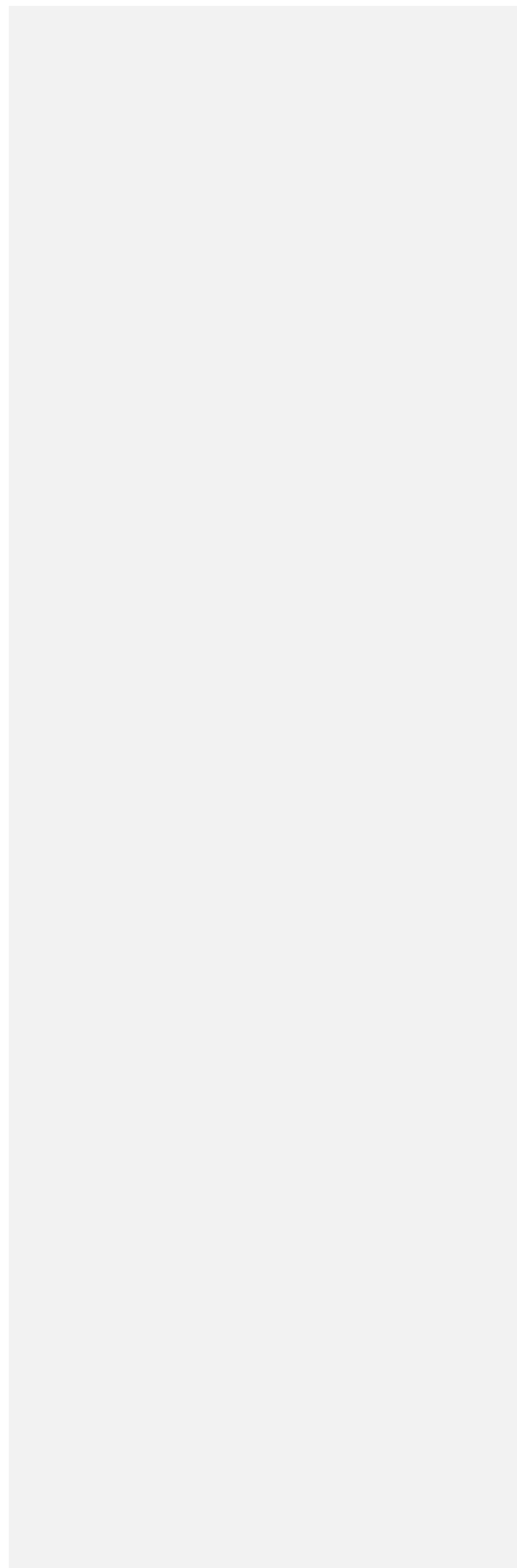
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01. INTRODUCTION

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02. FACTS AND FINDINGS

A. Ecosystem Services and Climate Change

1. Surface water (rivers, streams, lakes, ponds, and wetlands) and undeveloped land provide important ecosystem services that support human health, longevity, and resilience to stress and disaster through recreational, cultural, and educational opportunities. ~~Vegetated buffers around in~~ riparian areas and wetlands are critical for filtering pollutants, stabilizing soils, ~~mitigating infiltrating~~ stormwater, ~~and~~ providing groundwater recharge, fire risk reduction, air and water temperature moderation, and wildlife habitat.

~~2.1.~~ Higher rates of biodiversity generally yield higher functioning ecosystem services.

~~3.2.~~ Salem residents can expect higher average air and water temperatures, more prolonged periods of drought, more frequent heat waves, increased winter flooding, increased invasive species pressure, and new diseases as a result of climate change. Maintaining and restoring natural systems helps buffer these impacts.

~~4.3.~~ Healthy ecosystems, an extensive tree canopy, and green infrastructure reduce the impact of climate change on urban communities including but not limited to mitigating heat and flooding, storing and filtering water, improving air quality, and providing access to nature.

B. Rivers

1. Rivers mean the Willamette River.

~~2. The Willamette River provides a wide range of ecosystem services to Salem residents, including but not limited to: stormwater conveyance, effluent conveyance, temperature regulation, groundwater recharge, fire risk mitigation, and recreational, cultural, and educational opportunities.~~

~~3.2.~~ The Willamette River has a five mile reach that runs through Salem with a volume that ranges considerably but has been 32,000 and 36,000 cubic feet per second (CFS) recently.

~~3.~~ The Willamette River is designated by the Oregon Department of Lands as essential salmonid habitat and supports Winter Steelhead and Spring Chinook salmon.

4. The City of Salem has a 75 foot buffer around the Willamette River with associated regulations.

C. Streams

1. Stream means a flowing body of water that typically follows a channel or bed. Streams may be perennial, seasonal, or intermittent. Streams include fish-bearing ditches.

~~2. Streams provide important ecosystem services, including stormwater management, groundwater recharge, climate moderation, fire risk mitigation, and recreational, cultural, and educational opportunities.~~

~~3-2~~. Salem has approximately 91 miles of open streams.

~~4-3~~. Streams running through Salem are significantly degraded. Salem's urban streams are characterized by: altered hydrology, increased water temperatures, simplified channel morphology, hardened banks, turbidity, and contamination. Streams entering the City of Salem may also already be degraded by upstream management.

~~5-4~~. Salem streams are a vital component of Salem's stormwater management system.

~~6-5~~. Although permitted, the City's stormwater system still creates significant challenges for natural streams. Thousands of outfall pipes discharge into local waterways. Even when stormwater is filtered, the unnaturally rapid, concentrated flows delivered through these pipes contribute to streambank instability, erosion, and sedimentation, degrading habitat quality and stream function.

D. Riparian Buffer

1. Riparian Buffer means a segment of land that runs alongside a body of surface water (rivers, streams, lakes, or ponds) or wetland and has specific dimensions established by ordinance or statute.

~~2.~~ Riparian buffers provide several important ecosystem services, including, pollution mitigation, wildlife habitat, temperature mitigation, climate regulation, biochemical processing, fire risk mitigation, and recreation and cultural services.

~~3-2~~. The city has approximately 1,350 acres of land that are within 50' feet of a stream bank (excluding piped stream segments).

~~4-3~~. The City has not established a riparian buffer for Salem streams.

~~5-4~~. The City's failure to establish riparian buffers for City streams is inconsistent with State Land Use Planning Goal 5, which calls for a minimum of 50 feet-foot riparian buffers on streams with flow rates lower than 1,000 cubic feet per second.

E. Wetlands

1. Wetland means an area that is inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

~~2.~~ Wetlands provide important ecosystem services, including, stormwater management, groundwater recharge, temperature moderation, wildlife habitat, fire risk mitigation, and recreational, cultural, and educational opportunities.

~~3-2~~. Several Salem **listed species** depend on wetlands at some point in their life cycle, including:

~~4-3~~. The City of Salem does not protect wetlands beyond the requirements set by the State of Oregon.

~~5.4.~~ The City of Salem has not adopted a local wetland inventory per Oregon Land Planning Goal 5.

~~6.5.~~ The City of Salem maintains ~~X~~ amount of constructed wetlands.

F. Floodplains

1. Floodplain means an area that has a one percent (1%) annual chance of flooding also known as Federal Emergency Management Agency (FEMA) Special Floodplain Hazard Areas.

~~2. Floodplains provide a range of ecosystem services, including stormwater conveyance and storage, habitat for native species, groundwater recharge, and water quality management.~~

~~3.2.~~ The City of Salem permits floodplain development pursuant to ~~Federal Emergency Management Agency (FEMA)~~ regulations.

~~4.3.~~ Floodplains are vital to the health of anadromous fish because they provide important habitat during the freshwater phase of the anadromous life cycle.

~~5.4.~~ Development in the floodplain increases the risk and severity of flooding, poses a threat to human health and safety, and ~~contributes-increases~~ pollutants and stormwater runoff to streams and rivers.

G. Open Spaces

1. Open spaces means land that is not developed for residential or economic uses (other than farmland), that contains minimal amounts of impervious surfaces, and that has few or no structures.

2. The City owns and manages 2,335 acres of parkland distributed across 90 parks. Ten parks are classified as natural areas and total 1,391 acres. Minto-Brown Island Park accounts for 1,216 acres (87%) of natural areas. GOLF COURSE AND CEMETARY ACRES

3. Open space is an Oregon Goal 5 resource, which Goal 5 defines as “parks, forests, wildlife preserves, nature reservations or sanctuaries, and public or private golf courses.”

H. Wildlife Habitat

1. Wildlife habitat means an area upon which native flora and fauna depend in order to meet their requirements for food, water, shelter, and reproduction.

2. The Oregon Department of Lands have designated the Willamette River, Mill Creek, and portions of Glenn Creek, Gibson Creek, Pringle Creek, and the Lower Pudding River as Essential Salmonid Habitat (ESH).

3. Salem has not designated any land as wildlife habitat.

I. Lakes

1. Lake means a large body of water surrounded by land. A lake is larger and/or deeper than a pond. A lake may be constructed.

~~2. Salem's lakes, while constructed, provide important ecosystem services, including, stormwater management, temperature moderation, groundwater recharge, biochemical cycling, and recreation.~~

~~3.2.~~ Salem has **X** lakes.

~~4.3.~~ Salem's lakes are a result of gravel mining.

~~5.4.~~ Lake Wirth is stocked with fish by the Oregon Department of Fish and Wildlife (ODFW).

~~6.5.~~ Salem's lakes provide habitat for migratory birds and a number of species listed as key conservation species ~~by the Oregon Department of Fish and Wildlife~~ ODFW.

J. Ponds

1. Pond means a small body of surface water that is less than 12 acres wide, less than 16 feet deep, and has less than 30 percent cover of emergent vegetation. Ponds have different geochemical profiles than lakes, streams, or wetlands and serve different ecological functions. The City of Salem has no mapped ponds.

K. Oregon White Oak Groves

~~1. Oregon white oak groves mean a contiguous stand-group of Oregon White Oak (Quercus garryana) trees requiring one half acre of canopy, of any shape that equals or exceeds one-quarter acre and that provides an Oregon white oak canopy coverage of at least fifty percent over that same space.~~

~~1.~~

L. Regulatory Environment

1. The City must comply with the provisions of the Clean Water Act through its National Pollutant Discharge Elimination System permit, regulating stormwater discharge into Salem's streams.
2. City programs or projects that receive federal funds must comply with the Endangered Species Act.
3. The Army Corp of Engineers (Corps) has jurisdiction over the waters of the United States, which includes the Willamette River and its tributaries.
4. The State of Oregon has co-jurisdiction over waters of Oregon.
5. The City has co-jurisdiction of rivers and streams within its boundaries and may promulgate regulations so long as they do not conflict with federal or state regulations.

Commented [1]: This is more complicated than it sounds if you consider canopy overlap with Douglas fir and other species.

Commented [MS2R1]: Agreed. The definition needs some work.

6. The State of Oregon has primary jurisdiction over wetlands. The State requires a permit and associated mitigation to develop within a wetland. ~~Cities may regulate wetlands so long as municipal regulations do not conflict with state regulations.~~
7. The City is subject to the Migratory Bird Treaty Act (MBTA), which prohibits the take (killing, capture, or harassment) of migratory birds, their active nests, and eggs. The MBTA applies broadly across City projects involving vegetation management, tree removal, construction, utility maintenance, airport operations, and other disturbance-related work.
8. The City is subject to the Bald and Gold Eagle Protection Act (BGEPA), which prohibits disturbance, take, or destruction of eagles, their nests, and their eggs without a permit from the U.S. Fish and Wildlife Service. Because Salem supports multiple active bald eagle nesting territories, the City must ensure that its operations, facilities, and public events avoid disturbing nesting eagles and comply with ~~federal eagle management guidelines~~ BGEPA.

M. City Policies & Practices

1. The City's natural resource policies and programs have historically been driven by the desire to comply with state and federal regulatory requirements.
2. The City operates a comprehensive flood monitoring and drainage system maintenance program, which includes routine inspection of streams, culverts, drainage channels, and known problem sites to identify obstructions and flood hazards before they escalate.
3. The City has an effective program to manage drinking water and monitor storm water quality.
4. The City requires a permit to remove native vegetation in riparian areas, to remove an Oregon white oak with a diameter at breast height (DBH) of 20 inches or more, and any other species of tree with a DBH of 30 inches or more.

~~5.~~ The City has a robust Urban Forestry Program including :

~~6.~~ ~~The City has~~ an aggressive program to manage Emerald Ash Borer (EAB)

~~7-5.~~ The City actively monitors bald eagle nests on and near City-owned properties and manages its operations to avoid disturbance.

~~8-6.~~ In 2023, the City adopted an Integrated Pest Management (IPM) Policy (APP 3.23) to provide clear requirements and guidance for pesticide use

~~9-7.~~ The City owns and manages 2,335 acres of parkland distributed across 90 parks.

~~10-8.~~ Ten parks are classified as natural areas and total 1,391 acres. Minto-Brown Island Park accounts for 1,216 acres (87%) of natural area.

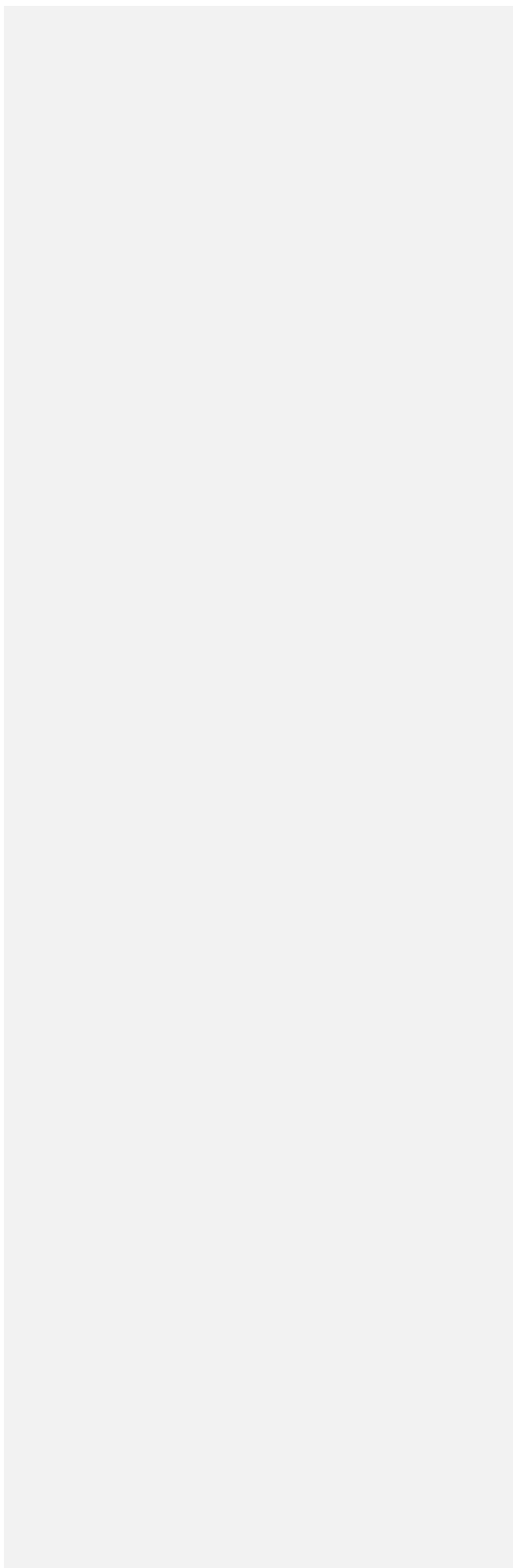
Commented [3]: on City property?

03. RECOMMENDATIONS

1. Align Salem natural resource policies with Oregon Land Use Goal 5 and the Oregon Conservation Strategy.
2. Update the Natural Resources section of Salem's Comprehensive Plan to better
3. Enact an environmentally significant lands ordinance.
4. Manage environmentally significant lands for ecosystem services and ~~natural-wildlife~~ habitat.
5. Conserve environmentally significant lands through easements, deed restrictions, and other legal mechanisms.
6. Develop rehabilitation and management plans for each class of environmentally significant lands.
7. Make better use of GIS capabilities to track and report on natural resource management. Consider producing public-facing maps where appropriate.
8. Improve cross-departmental planning and coordination among staff that set policy and manage natural resources.

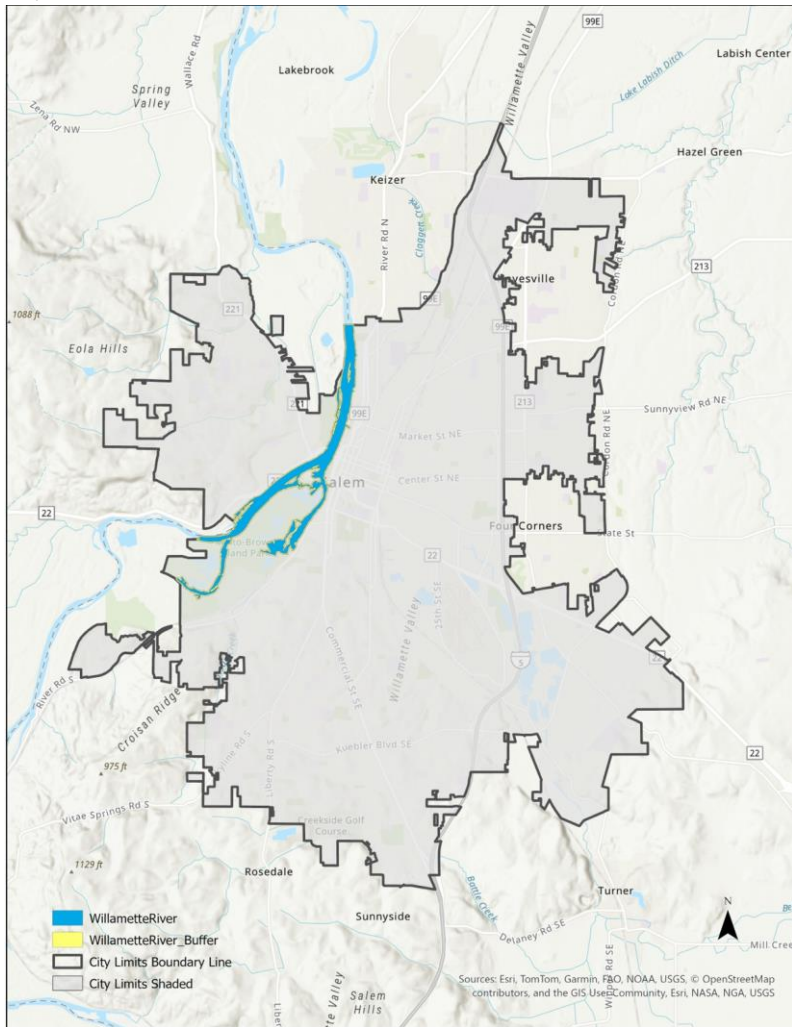
04. CONCLUSION

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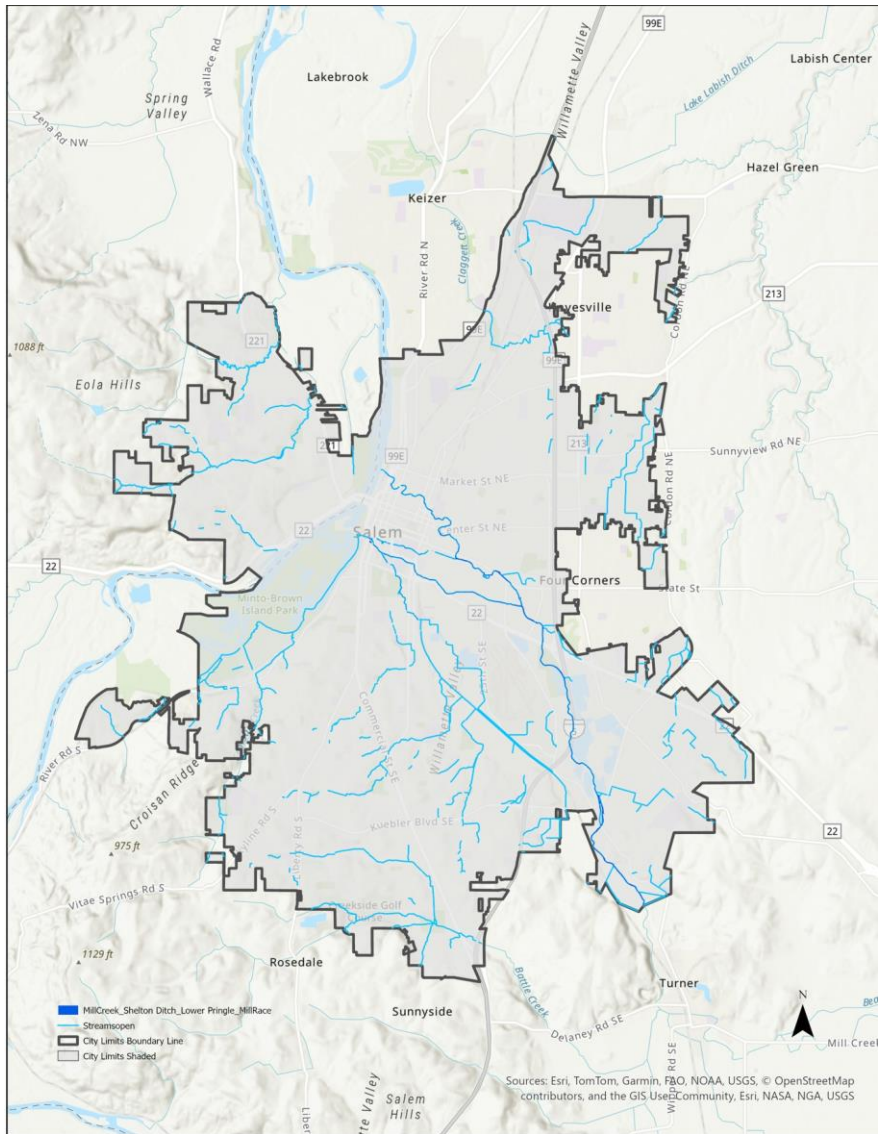
05. MAPS

Map 01. The Willamette River



GIS Analysis by Jennifer Mongolo and Michael Slater.

Map 02. Salem's Urban Streams

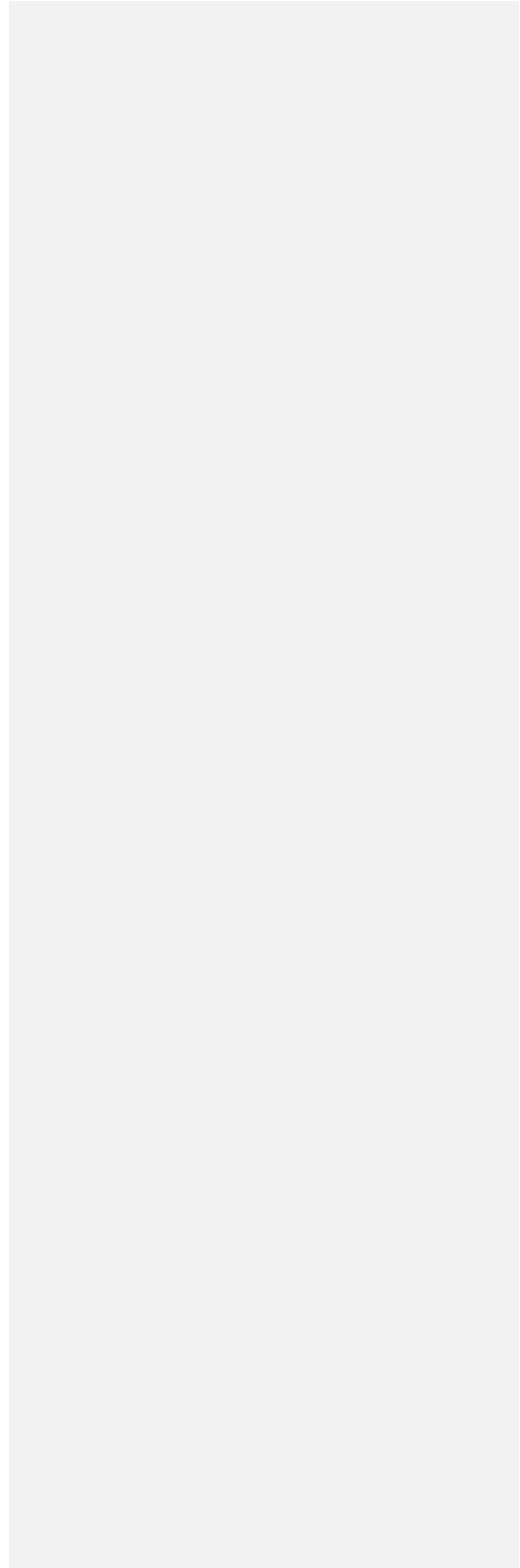


GIS Analysis by Jennifer Mongolo and Michael Slater.

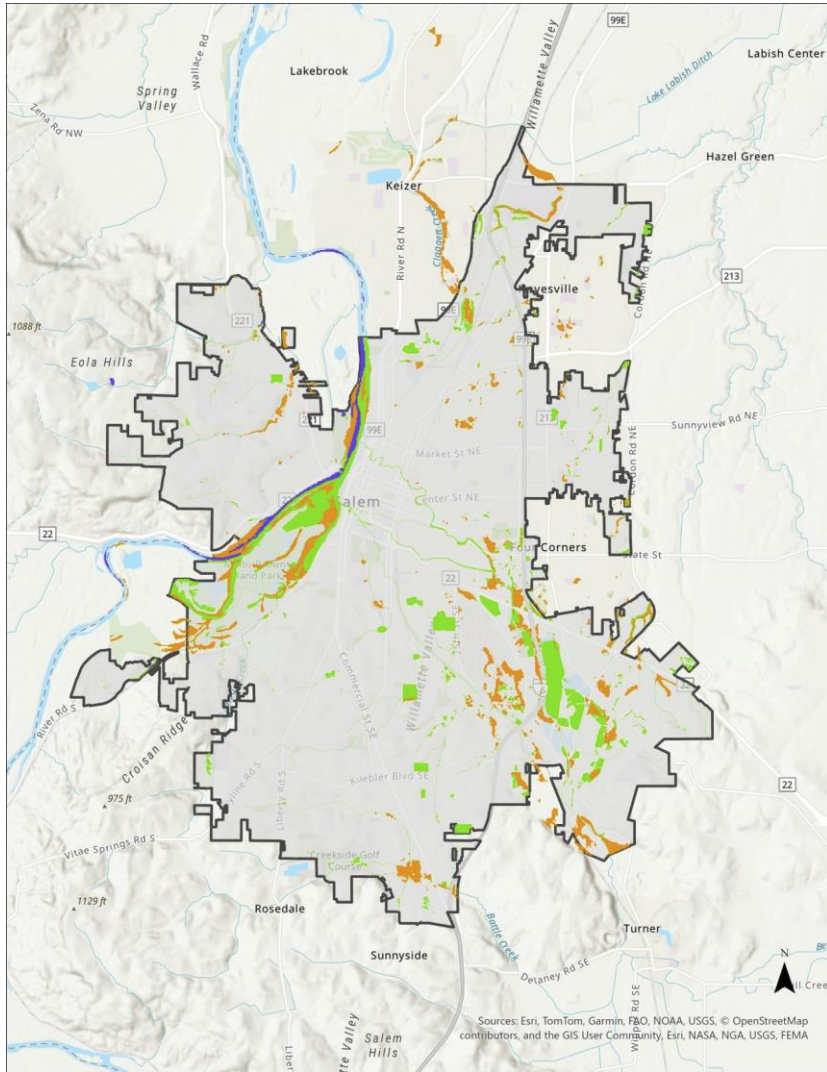
Map 03. Riparian Buffers (50')

05. Maps

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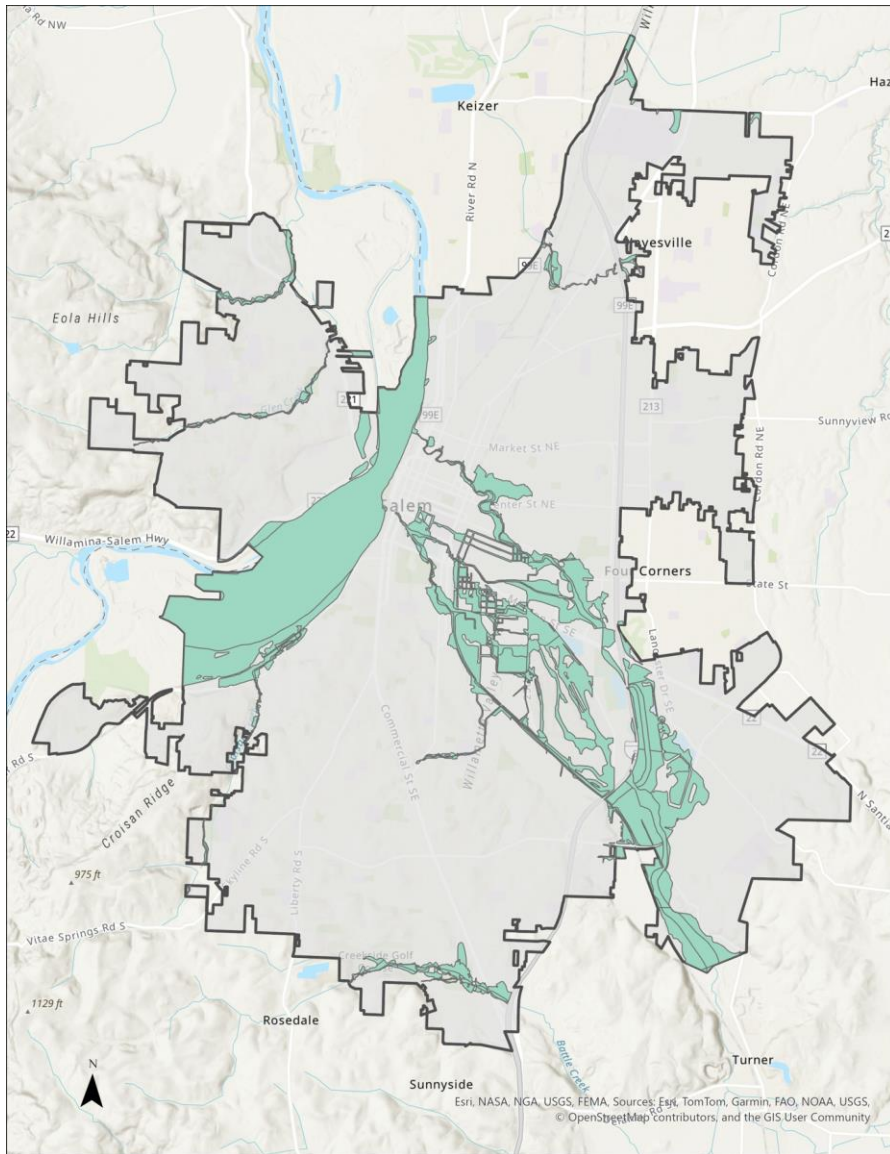


Map 04. Wetlands



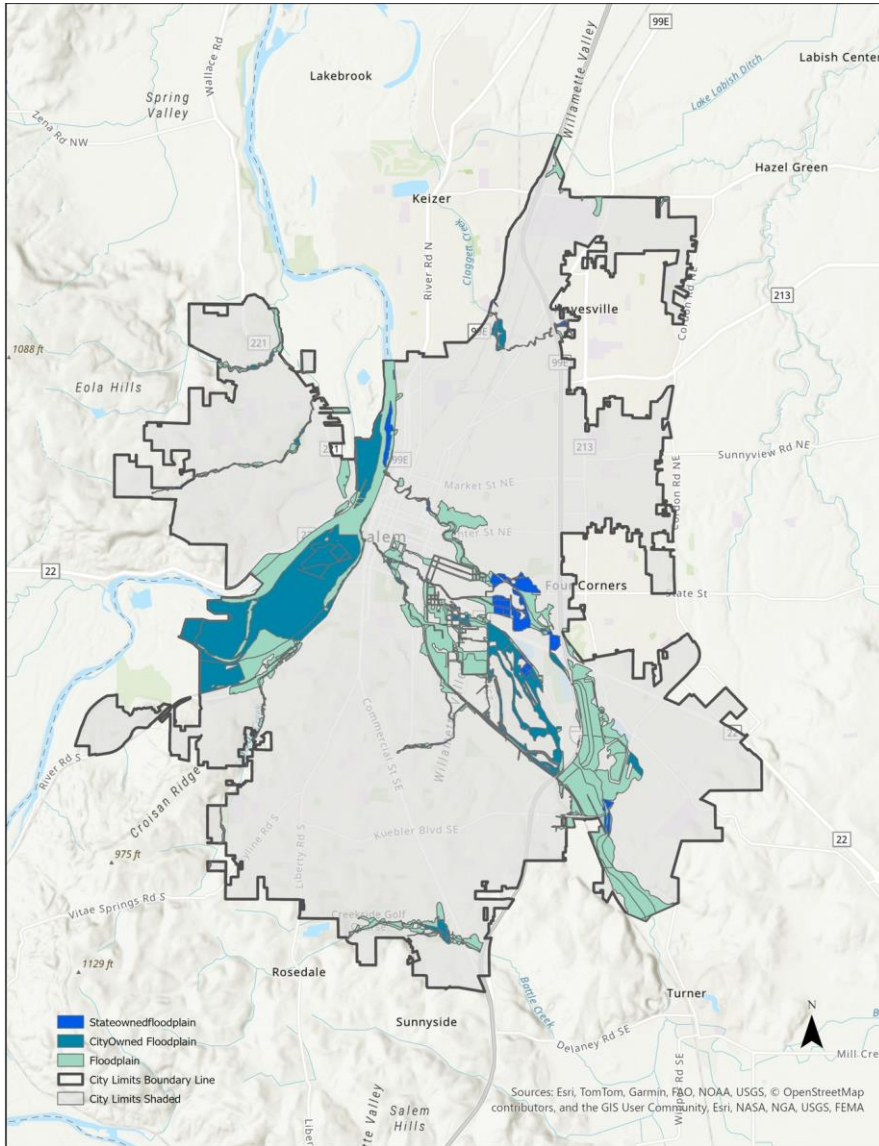
GIS Analysis by Jennifer Mongolo and Michael Slater.

Map 05. Floodplain



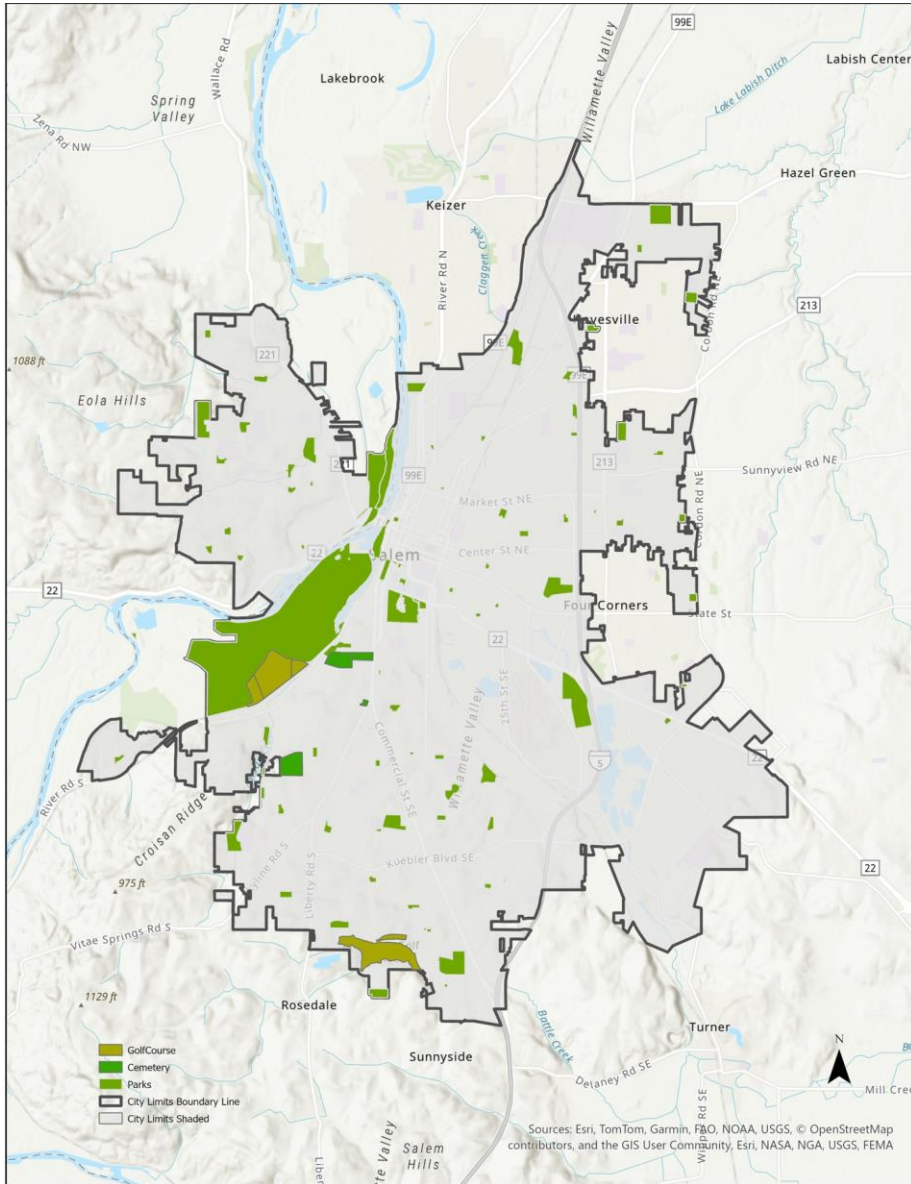
GIS Analysis by Jennifer Mongolo and Michael Slater.

Map 06. City and State Floodplain Ownership



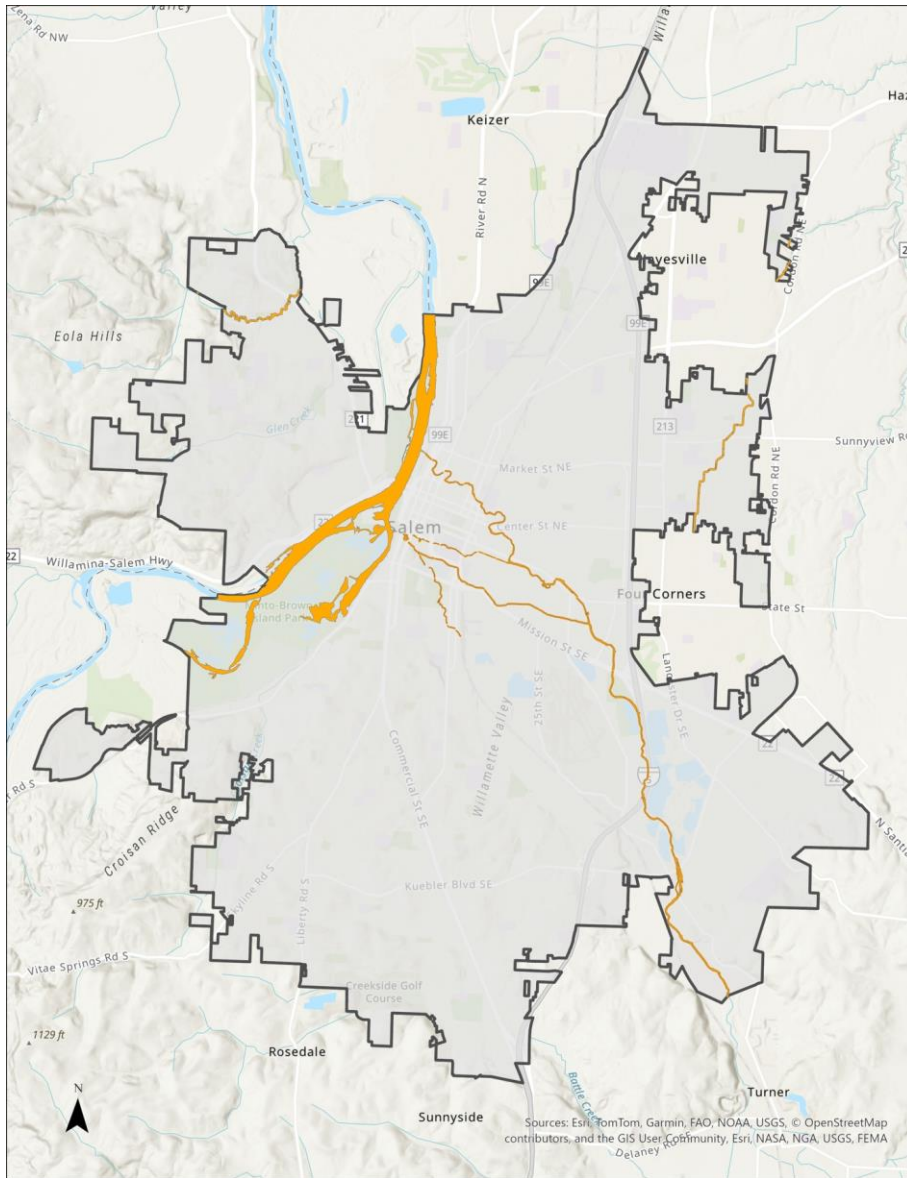
GIS Analysis by Jennifer Mongolo and Michael Slater.

07. Open Space



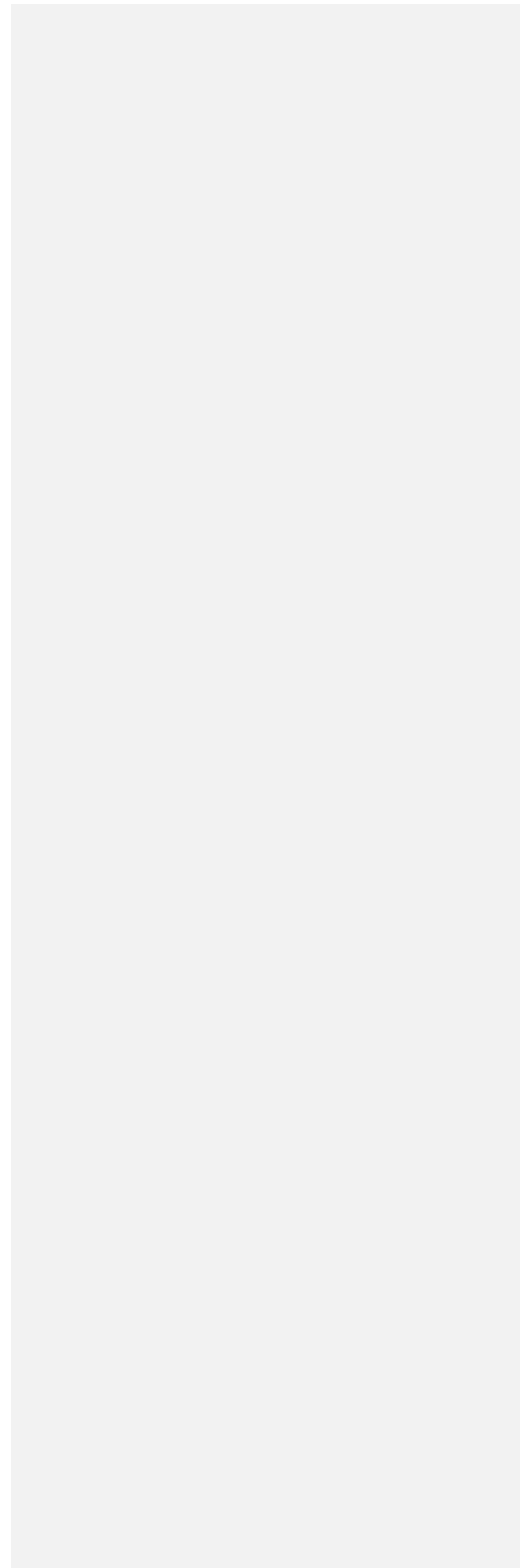
GIS Analysis by Jennifer Mongolo and Michael Slater.

Map 08. Wildlife Habitat

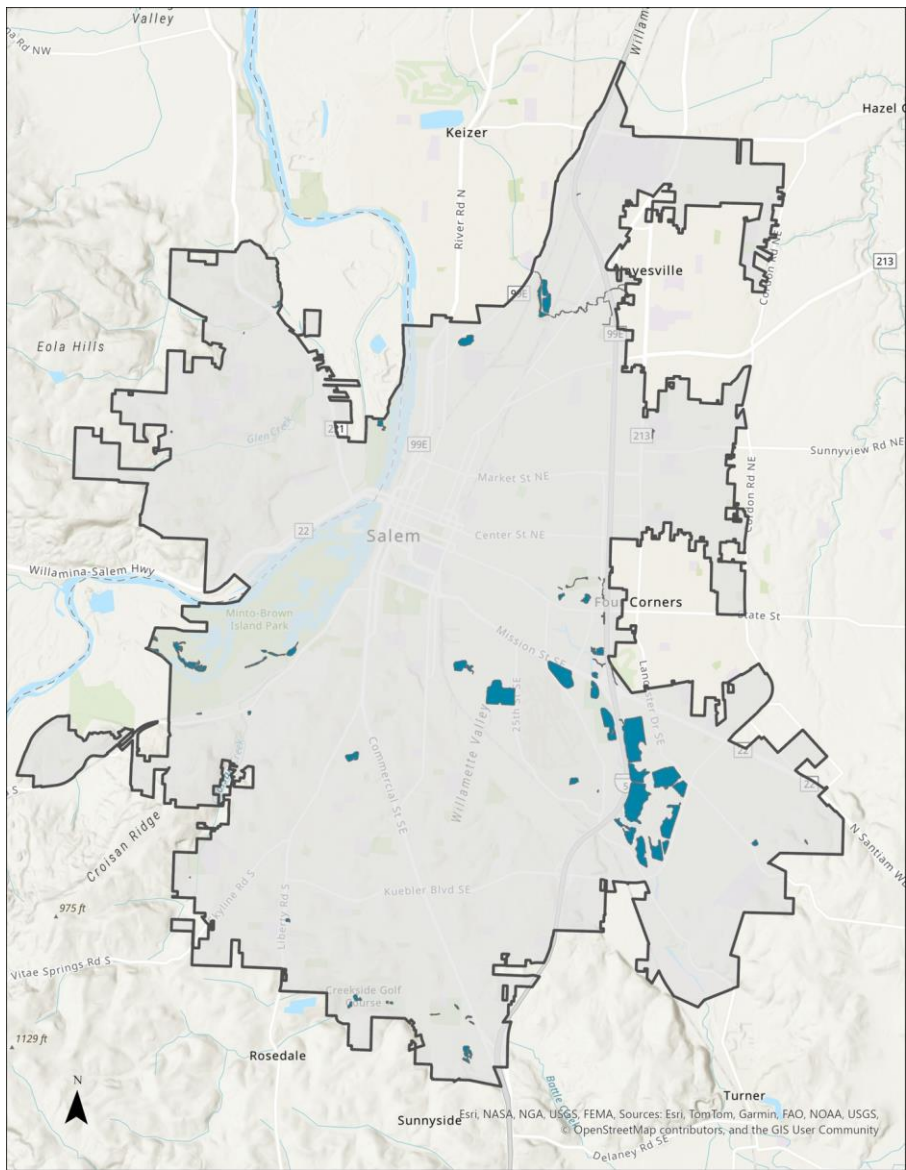


GIS Analysis by Jennifer Mongolo and Michael Slater.
Map 09. Oak Woodlands

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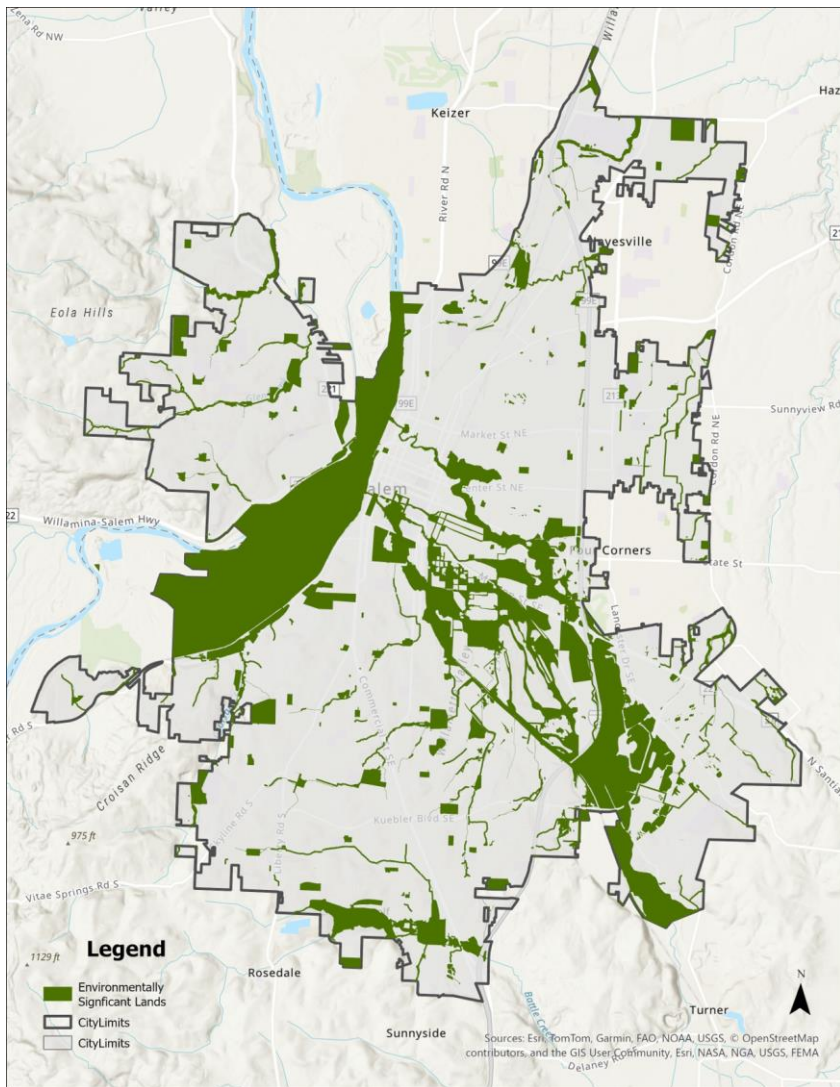


Map 10. Lakes and Ponds



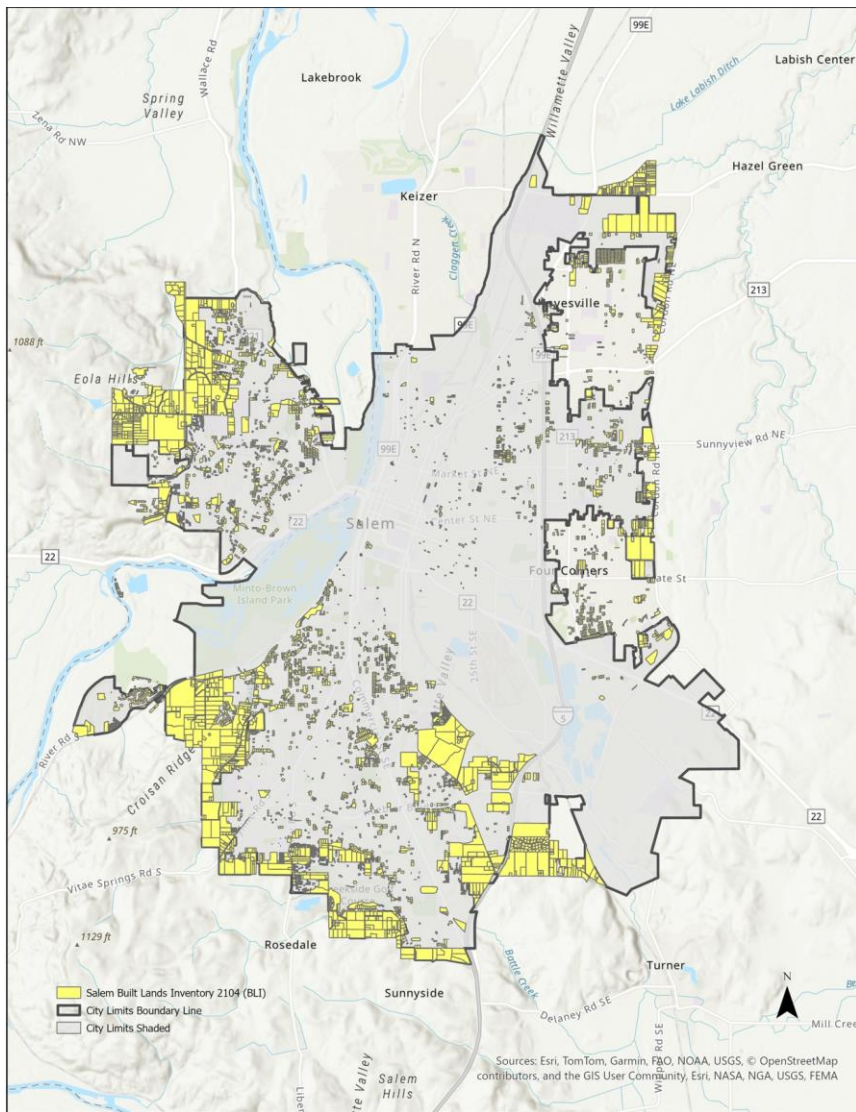
GIS Analysis by Jennifer Mongolo and Michael Slater.

Map 11: Environmentally Significant Lands



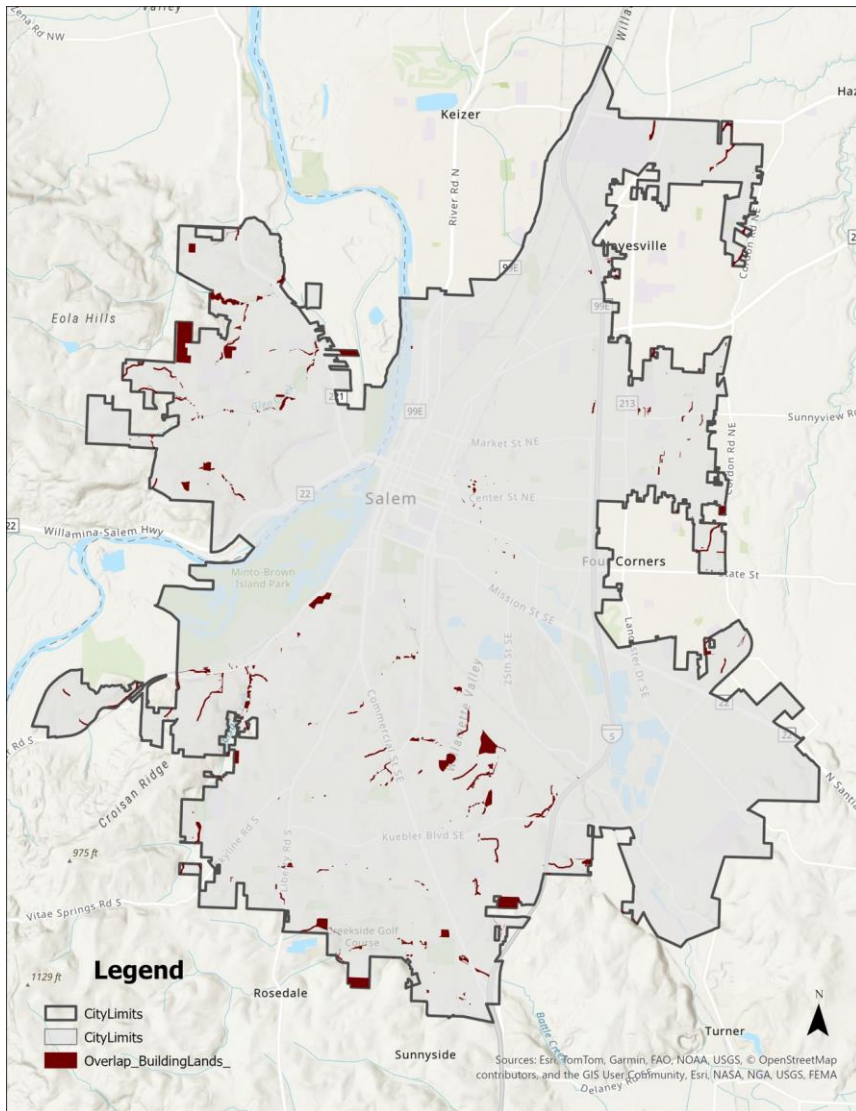
GIS Analysis by Jennifer Mongolo and Michael Slater.

Map 12. Buildable Lands Inventory



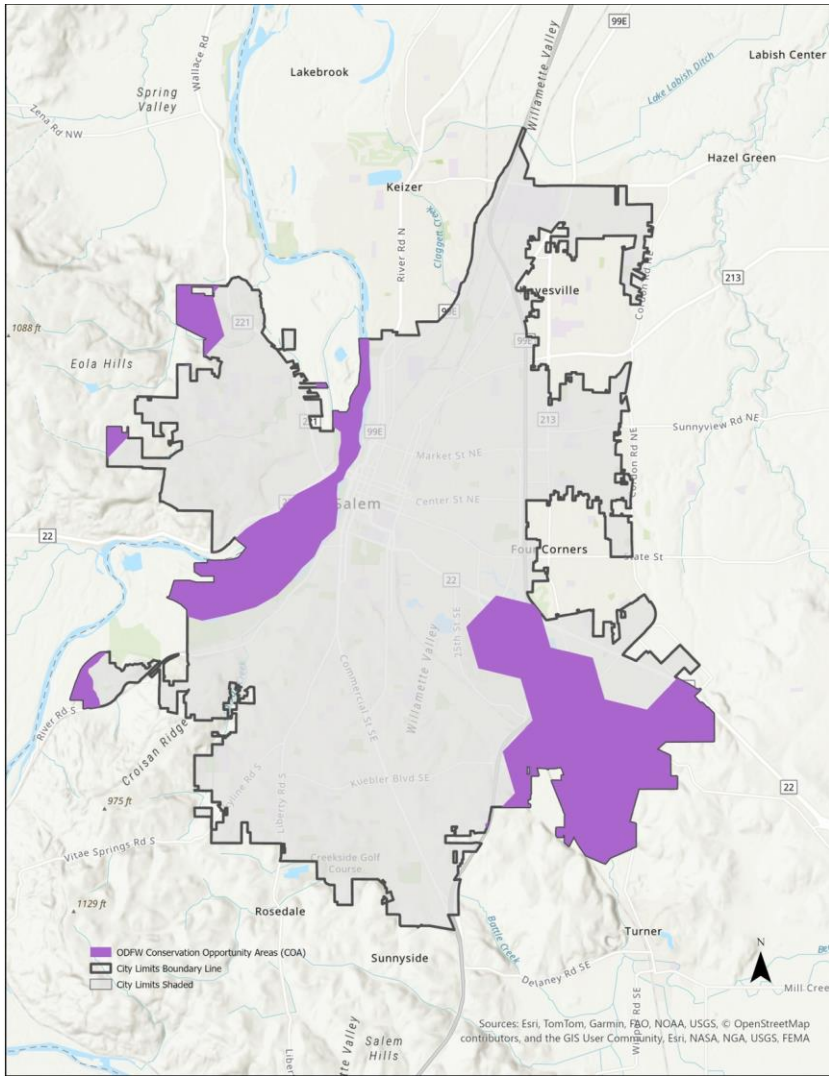
GIS Analysis by Jennifer Mongolo and Michael Slater.

Map 13. Overlap Between BLI and ESL.



GIS Analysis by Jennifer Mongolo and Michael Slater.

Map 14. Conservation Opportunity Areas

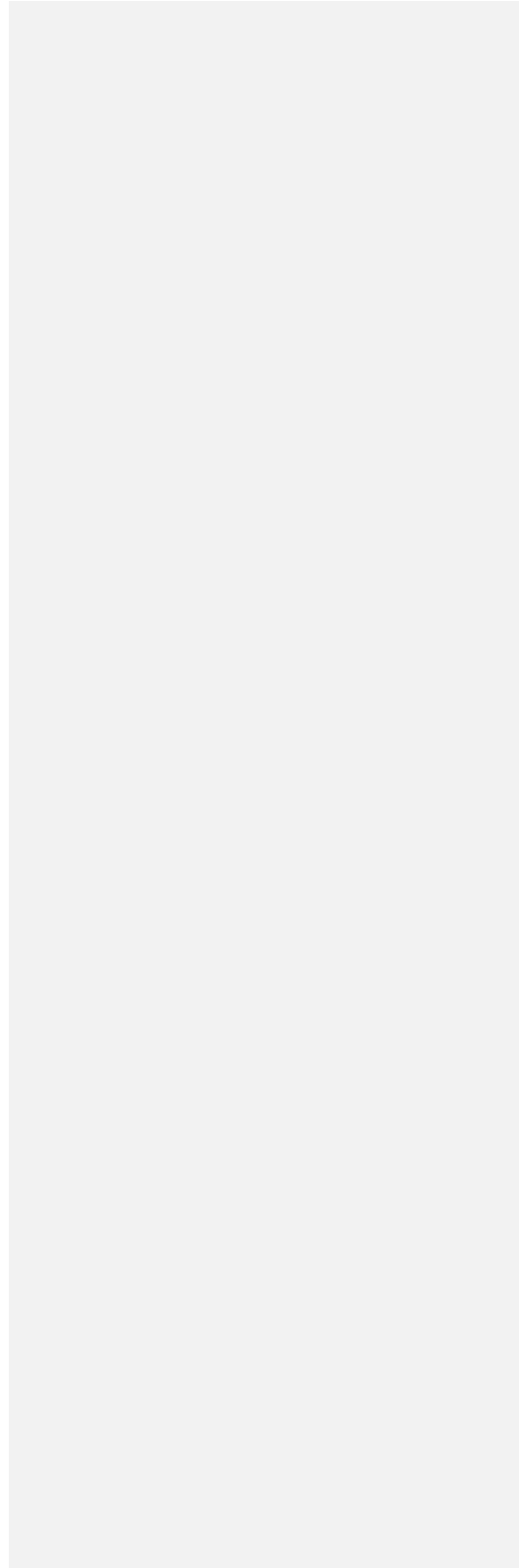


GIS Analysis by Jennifer Mongolo and Michael Slater.

Map 15.

05. Maps

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