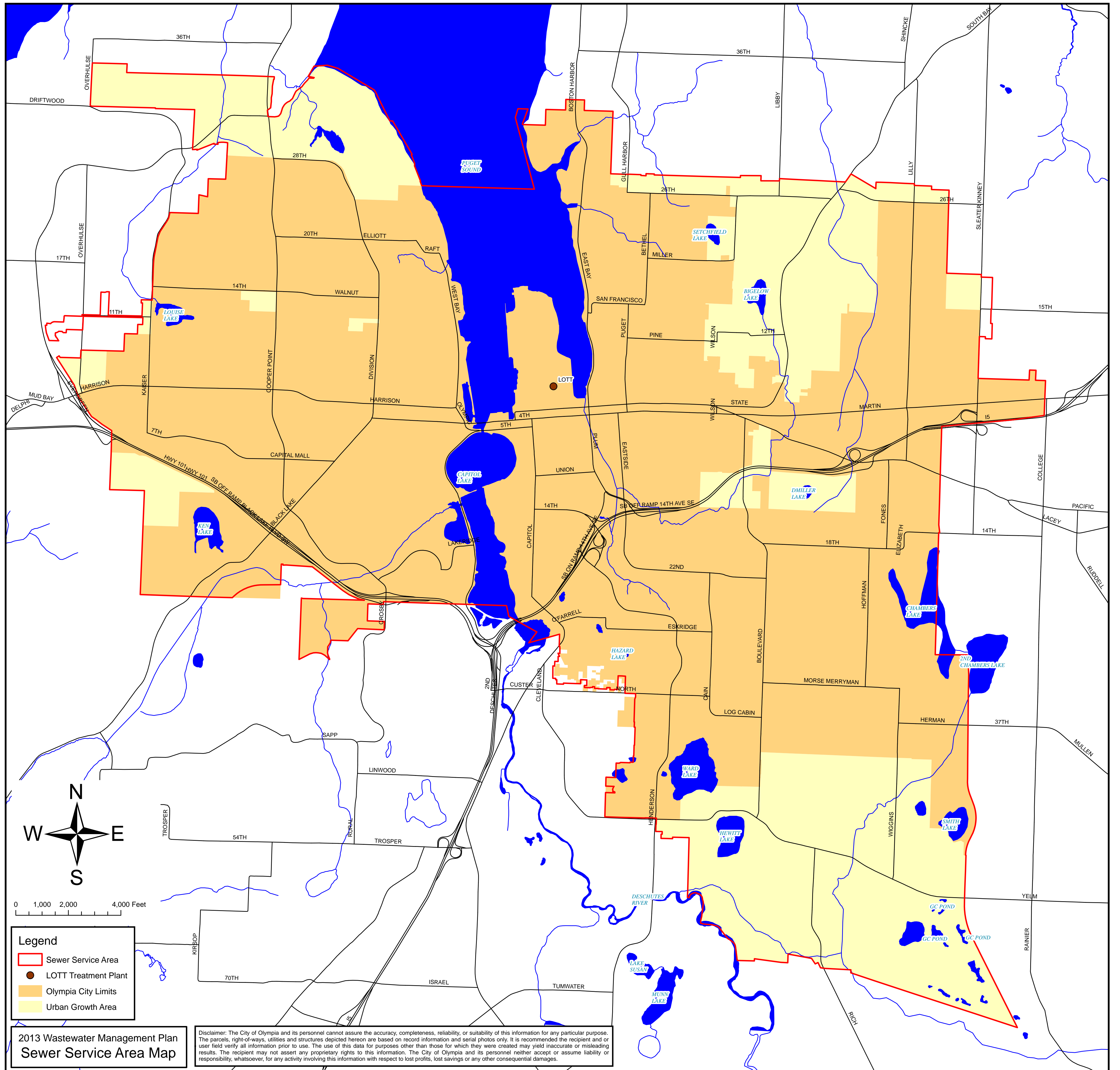


Appendix M - Maps

Electronic copies of maps are provided in a separate file named
“Appendix M - Maps.pdf”

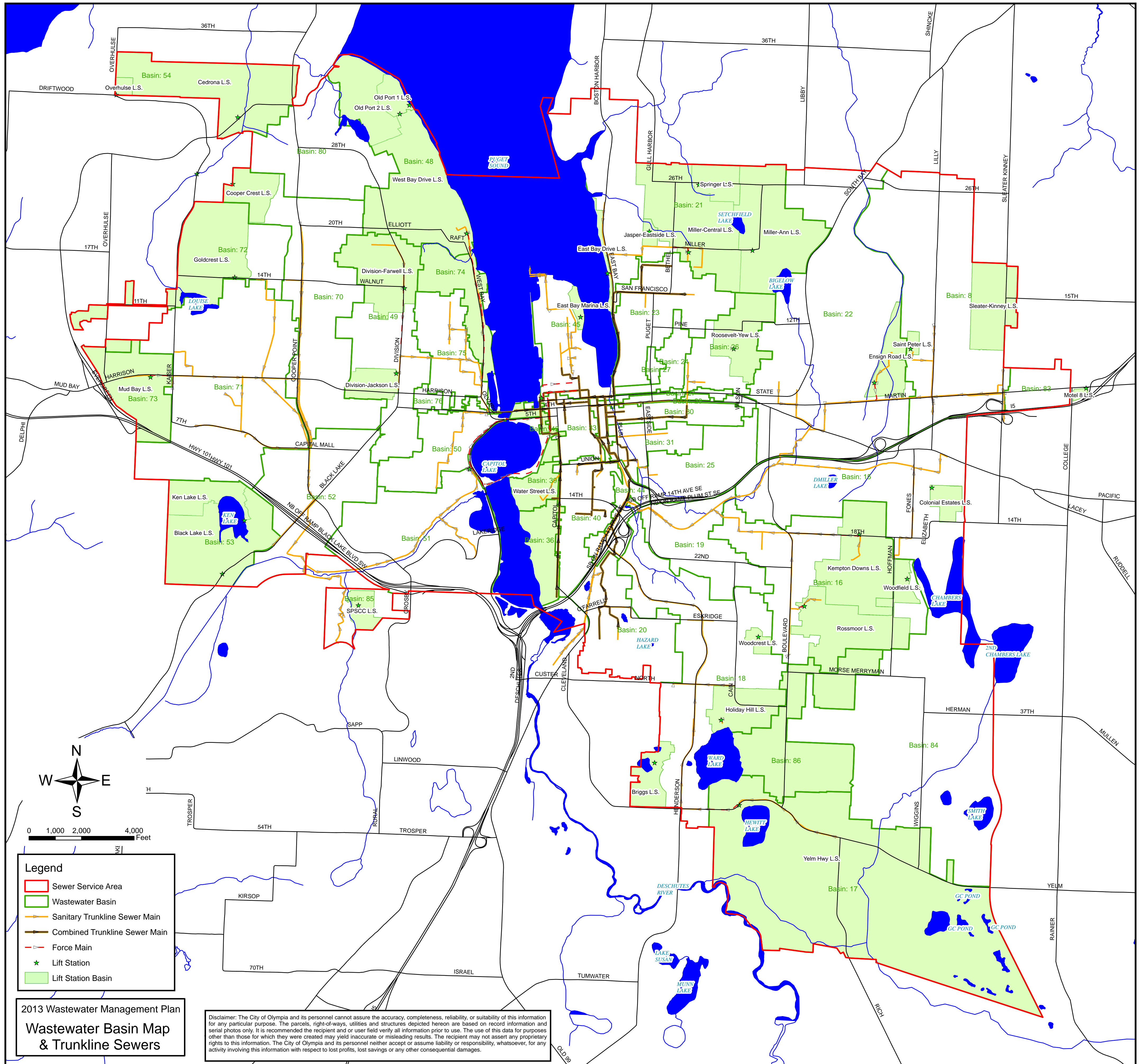
1. Sewer Service Area Map
2. Wastewater & Lift Station Basins Map, including Sewer Trunk Lines
3. Central Watershed Basin, including sewer infrastructure and OSS
4. Kettles Watershed Basin, including sewer infrastructure and OSS
5. Northeast Watershed Basin, including sewer infrastructure and OSS
6. Southeast Watershed Basin, including sewer infrastructure and OSS
7. Southwest Watershed Basin, including sewer infrastructure and OSS
8. Northwest Watershed Basin, including sewer infrastructure and OSS
9. Geography & Topography of the Sewer Service Area, including some Water System info
10. Thurston County Urban Area Onsite Septic System Analysis Maps (9)



- Legend**
- Sewer Service Area
 - LOTT Treatment Plant
 - Olympia City Limits
 - Urban Growth Area

**2013 Wastewater Management Plan
Sewer Service Area Map**

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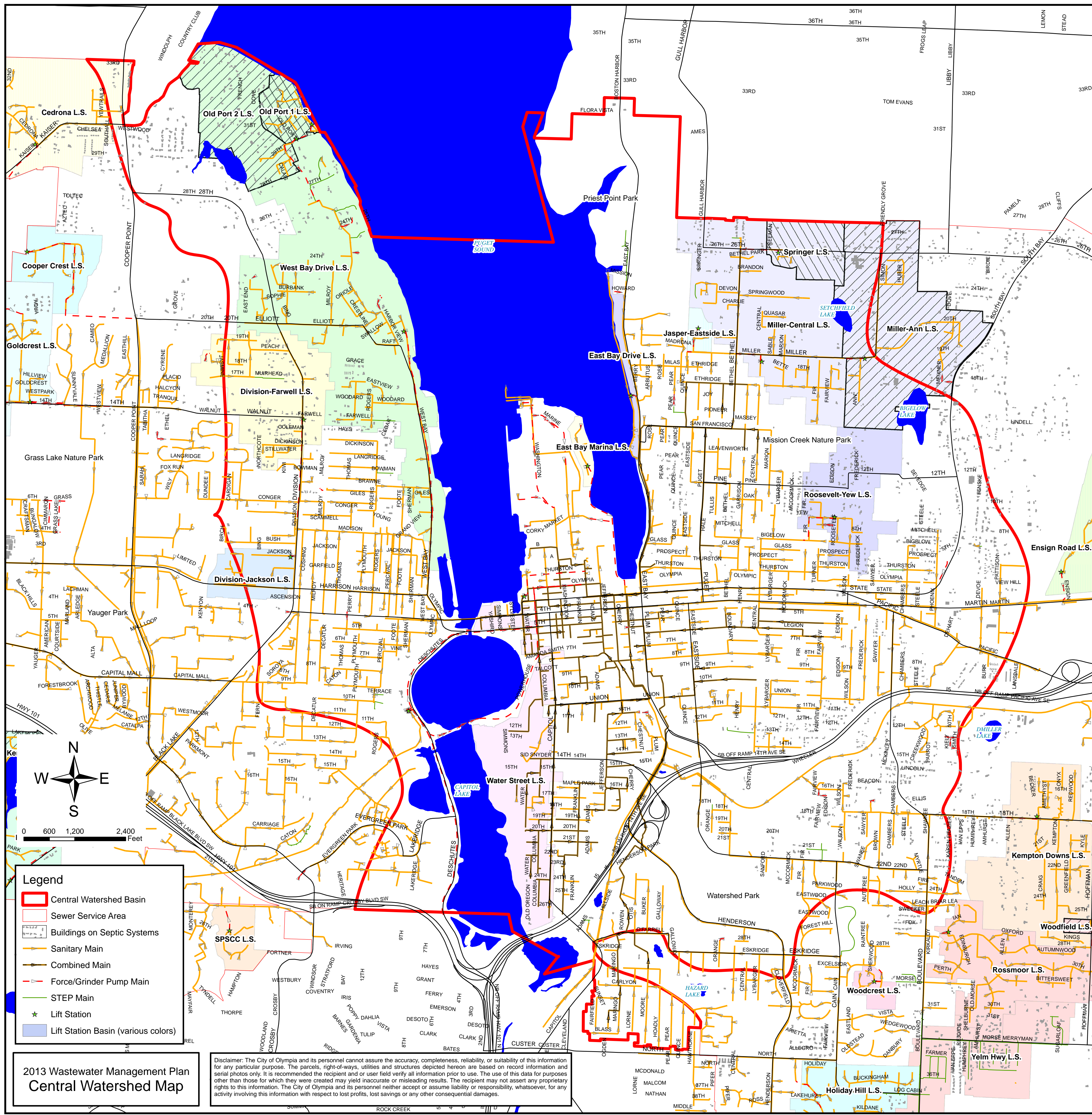


Legend

- Sewer Service Area
- Wastewater Basin
- Sanitary Trunkline Sewer Main
- Combined Trunkline Sewer Main
- Force Main
- ★ Lift Station
- Lift Station Basin

2013 Wastewater Management Plan
Wastewater Basin Map
& Trunkline Sewers

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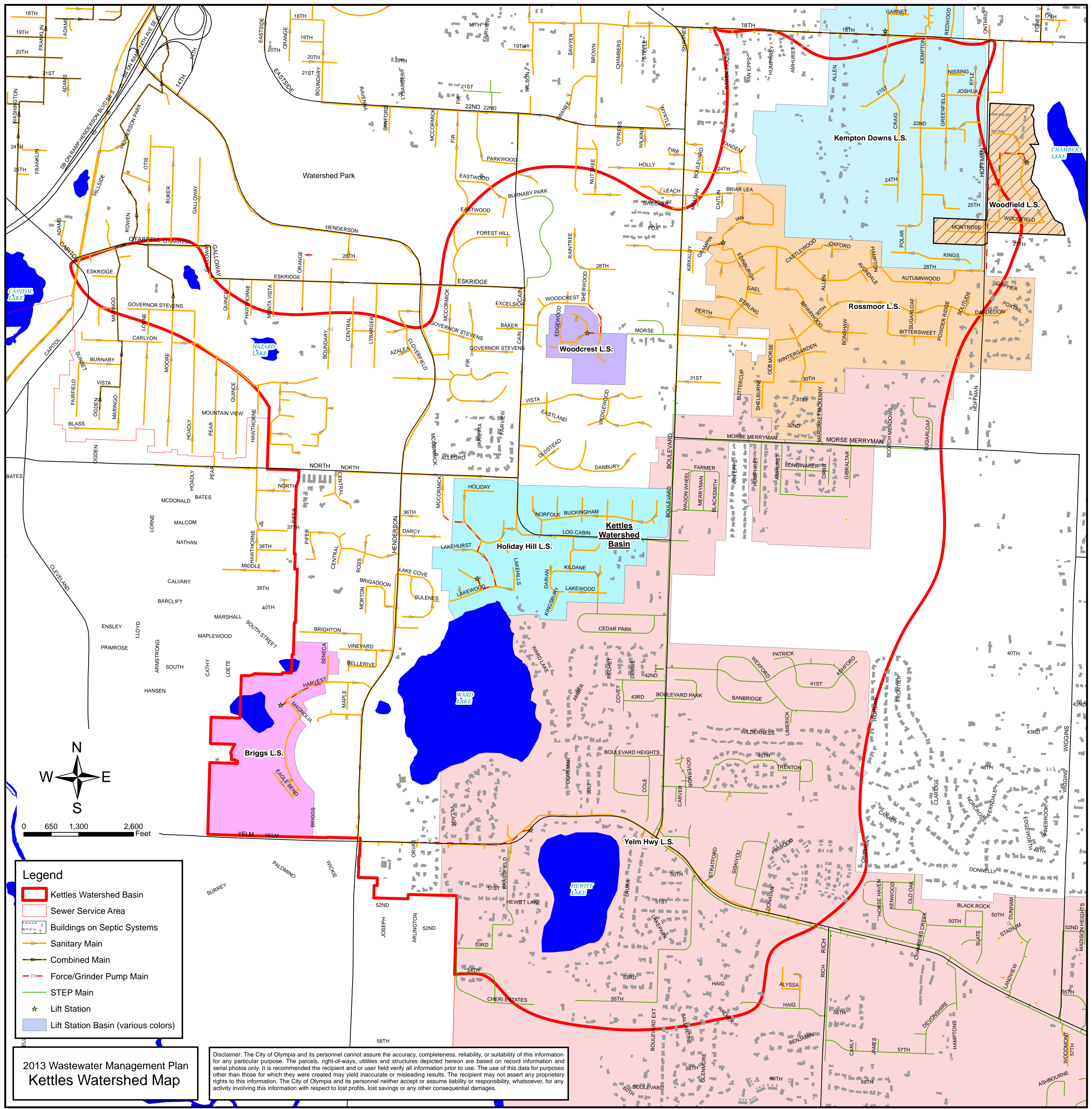


Legend

- Central Watershed Basin
- Sewer Service Area
- Buildings on Septic Systems
- Sanitary Main
- Combined Main
- Force/Grinder Pump Main
- STEP Main
- ★ Lift Station
- Lift Station Basin (various colors)

**2013 Wastewater Management Plan
Central Watershed Map**

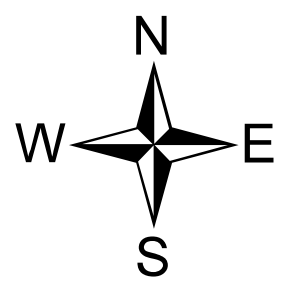
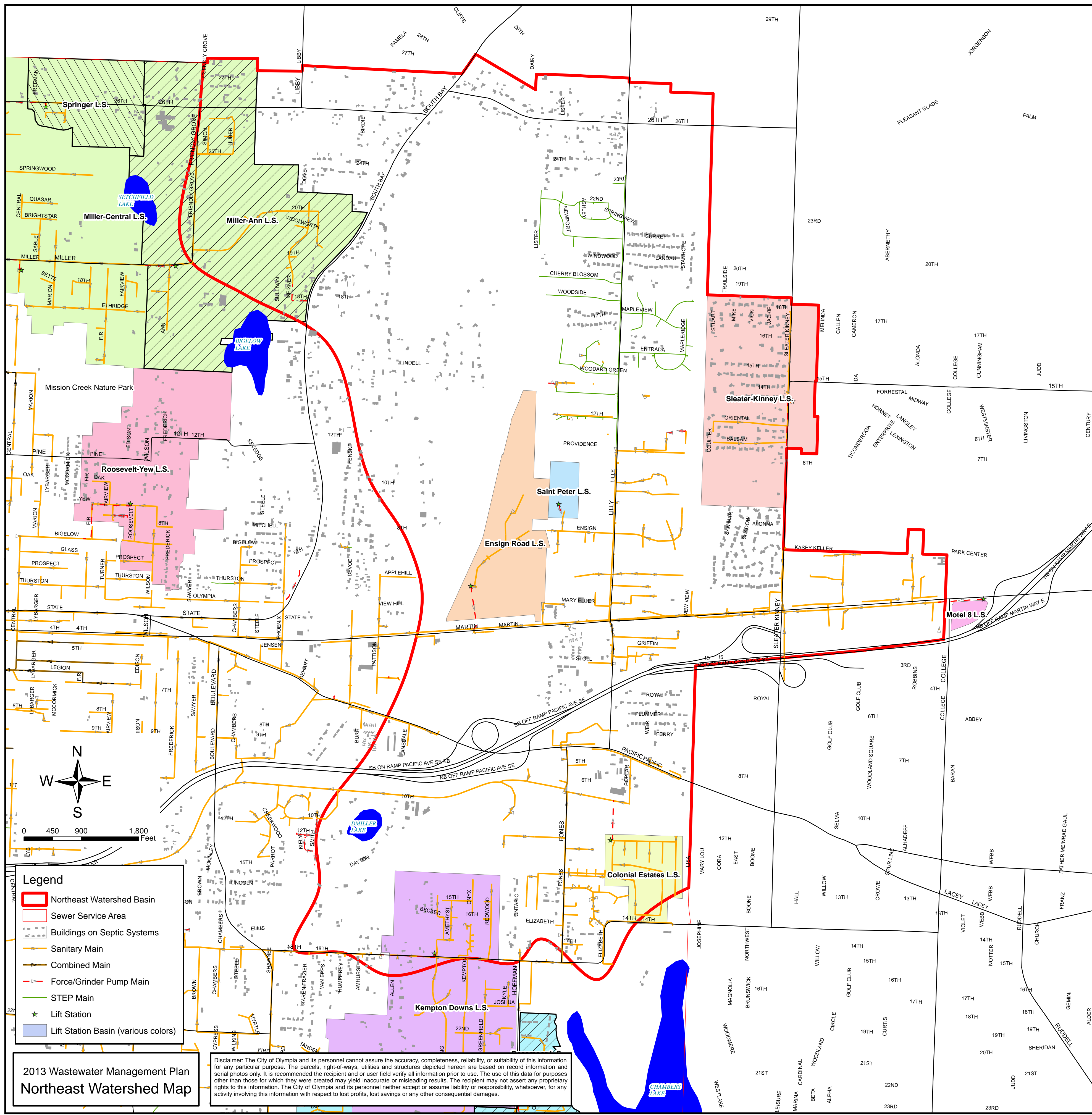
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- Legend**
- Kettles Watershed Basin
 - Sewer Service Area
 - Buildings on Septic Systems
 - Sanitary Main
 - Combined Main
 - Force/Grinder Pump Main
 - STEP Main
 - ★ Lift Station
 - Lift Station Basin (various colors)

**2013 Wastewater Management Plan
Kettles Watershed Map**

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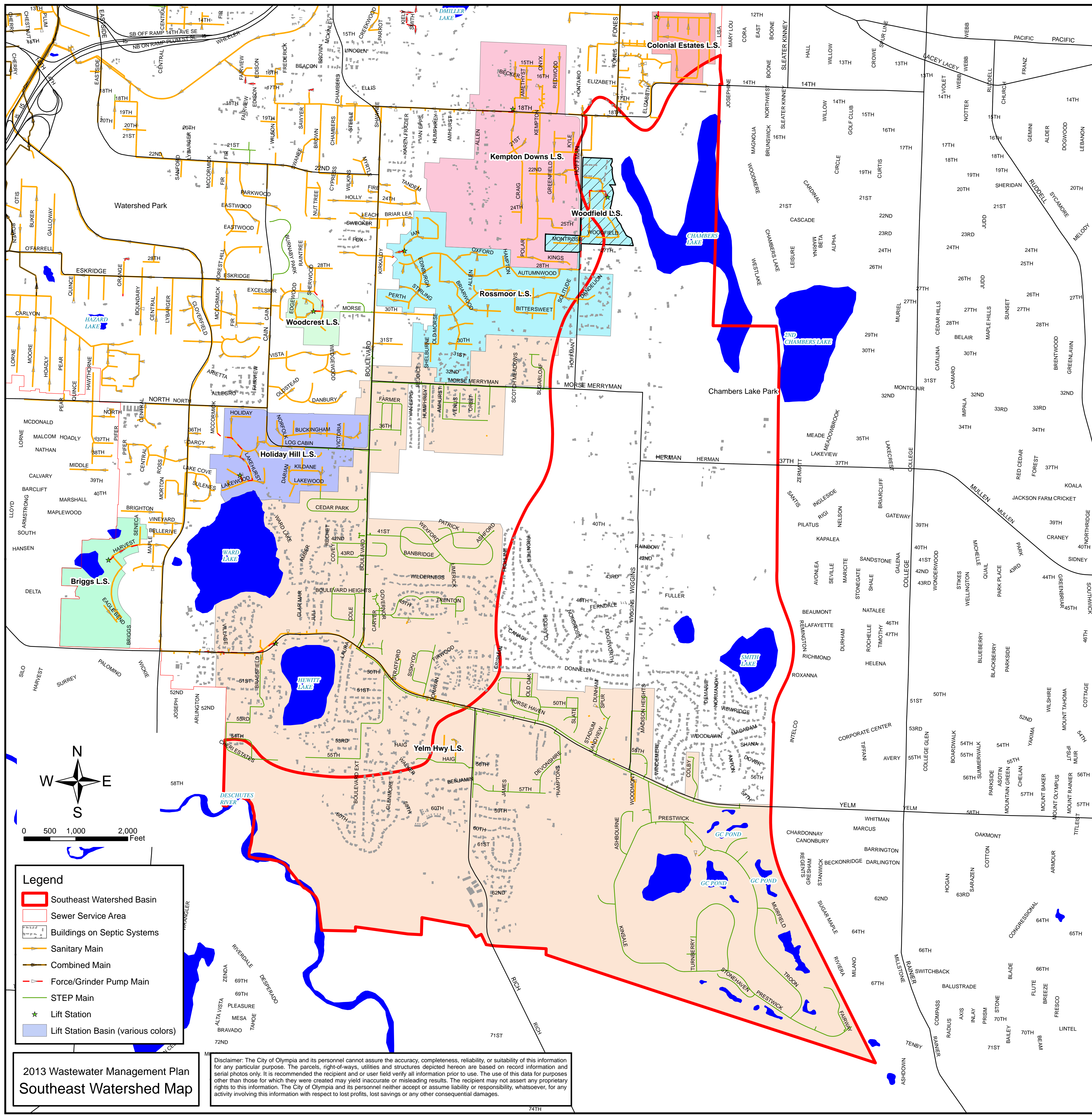
0 450 900 1,800 Feet

Legend

- Northeast Watershed Basin
- Sewer Service Area
- Buildings on Septic Systems
- Sanitary Main
- Combined Main
- Force/Grinder Pump Main
- STEP Main
- ★ Lift Station
- Lift Station Basin (various colors)

**2013 Wastewater Management Plan
Northeast Watershed Map**

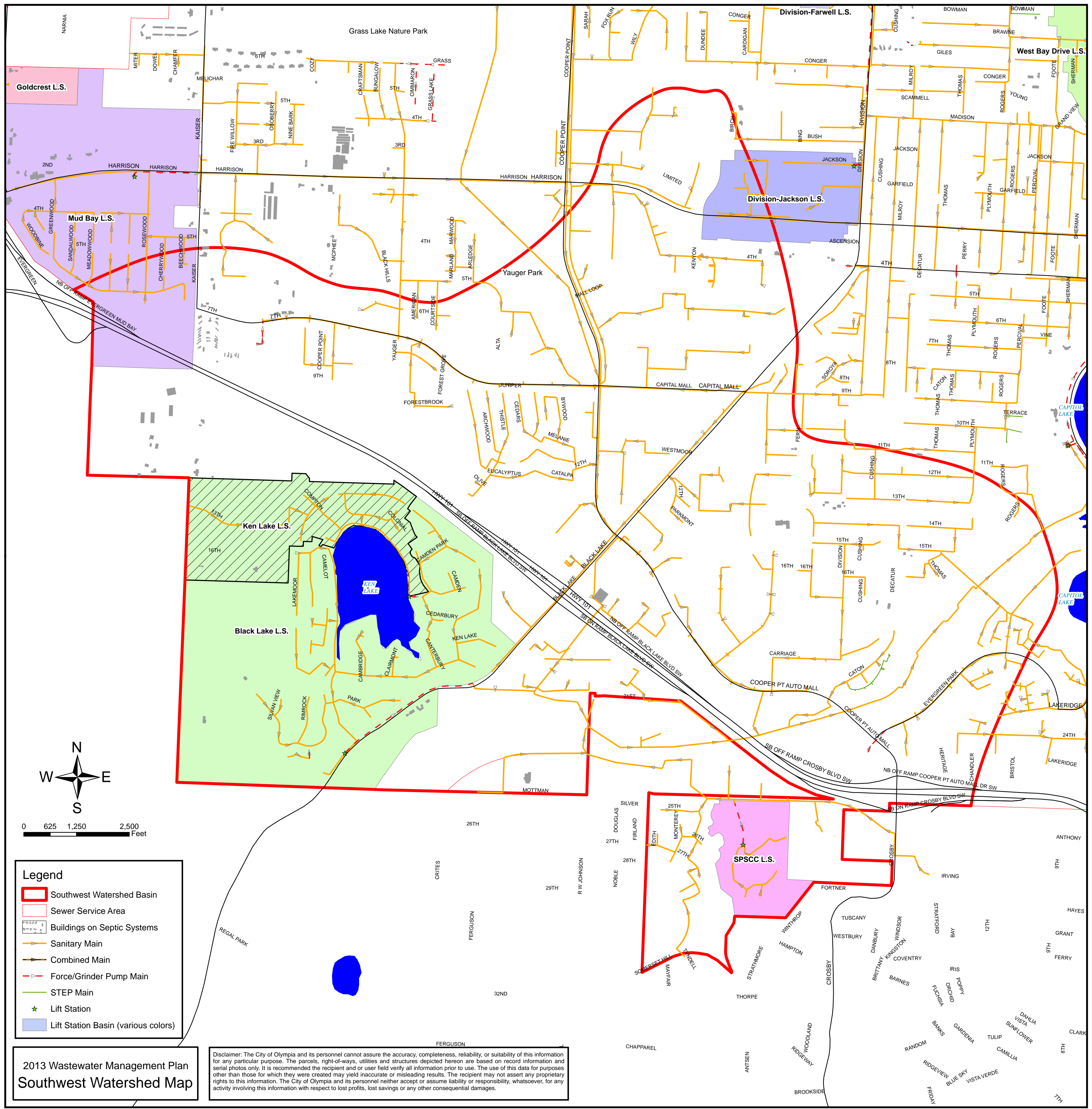
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- Legend**
- Southeast Watershed Basin
 - Sewer Service Area
 - Buildings on Septic Systems
 - Sanitary Main
 - Combined Main
 - Force/Grinder Pump Main
 - STEP Main
 - ★ Lift Station
 - Lift Station Basin (various colors)

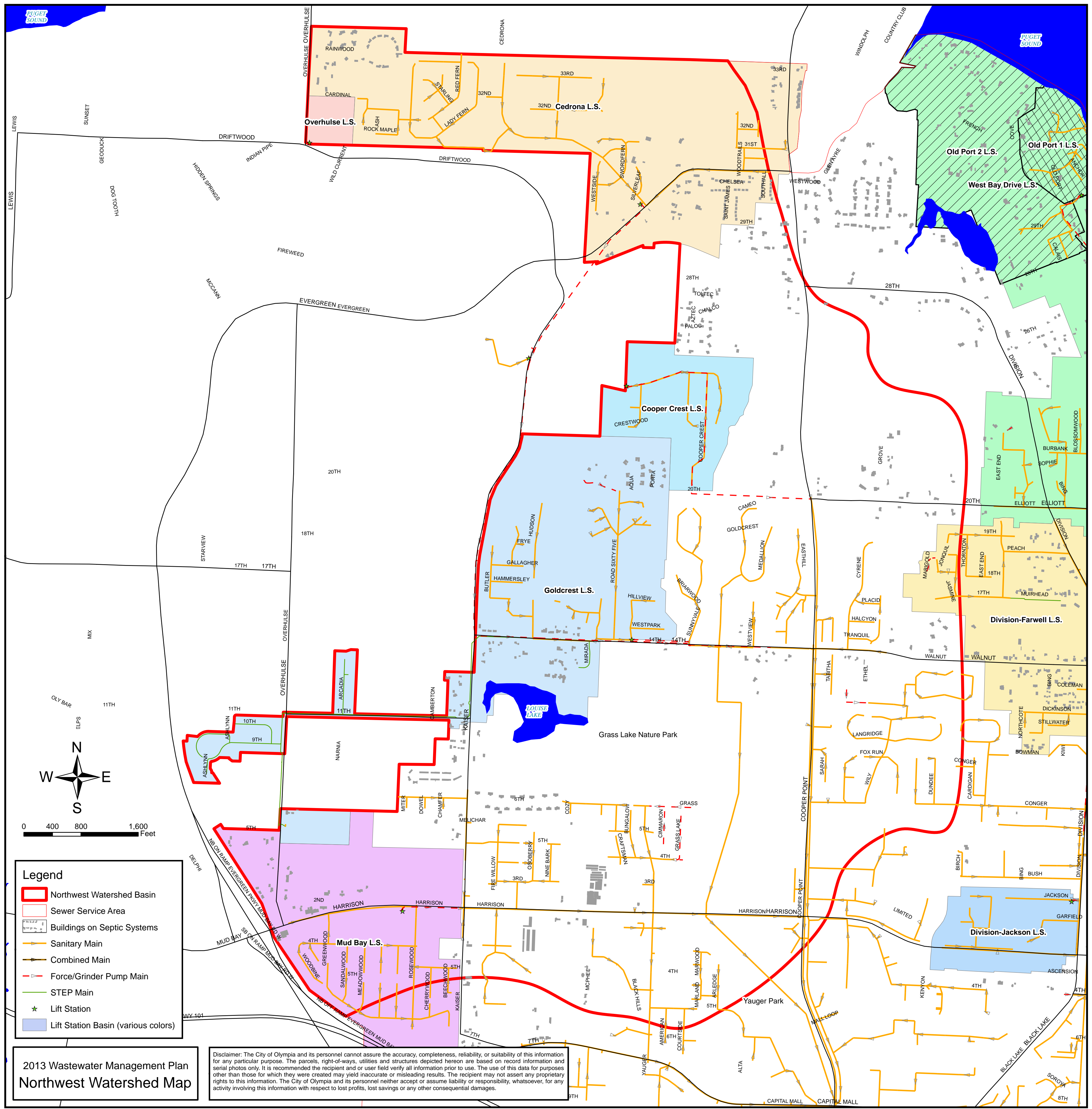
**2013 Wastewater Management Plan
Southeast Watershed Map**

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**2013 Wastewater Management Plan
Southwest Watershed Map**

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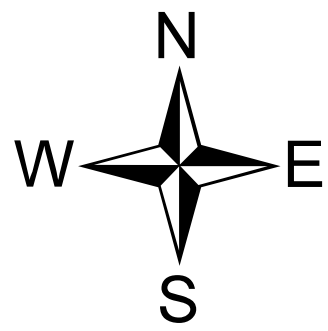
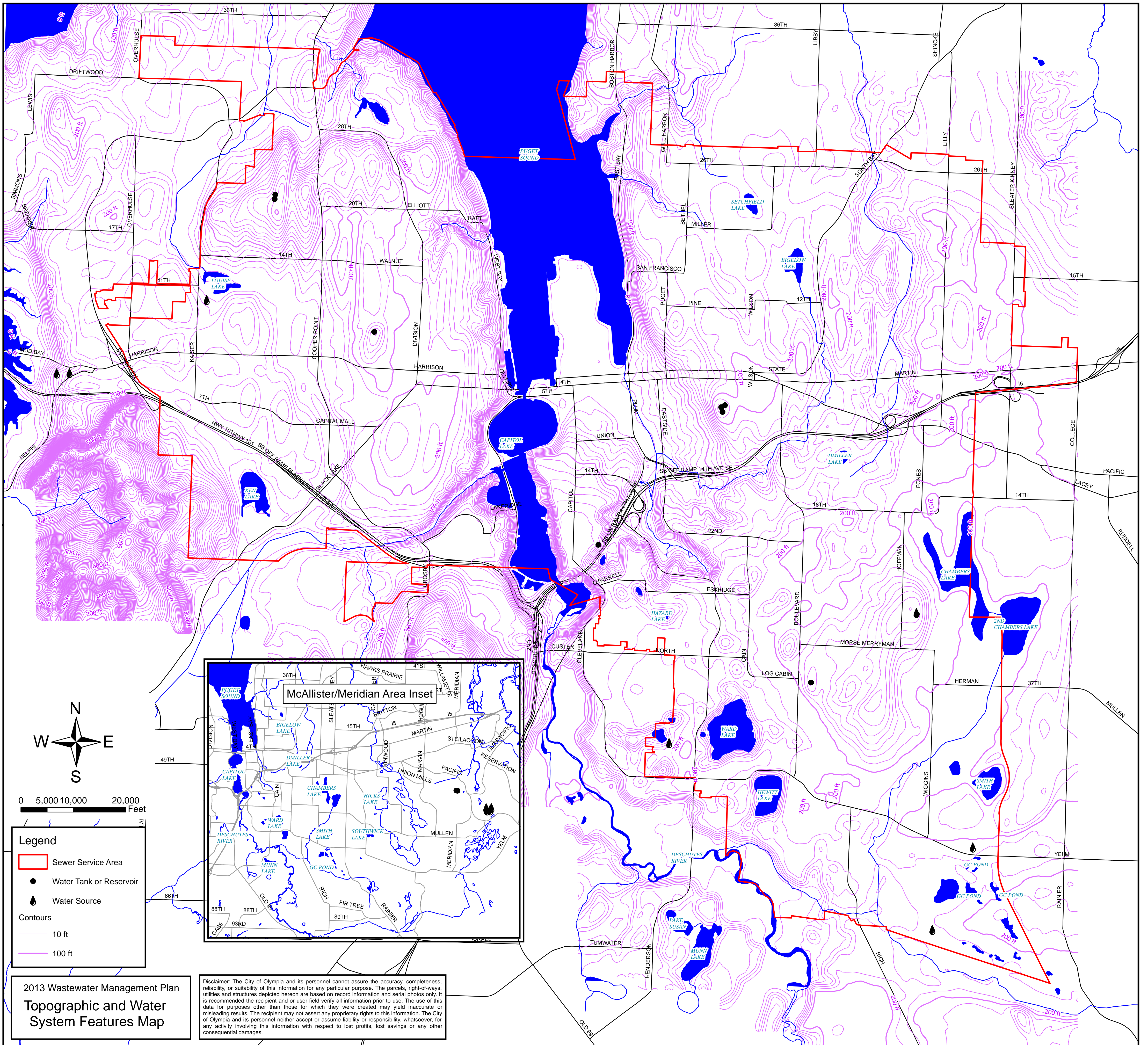


Legend

- Northwest Watershed Basin
- Sewer Service Area
- Buildings on Septic Systems
- Sanitary Main
- Combined Main
- Force/Grinder Pump Main
- STEP Main
- ★ Lift Station
- Lift Station Basin (various colors)

**2013 Wastewater Management Plan
Northwest Watershed Map**

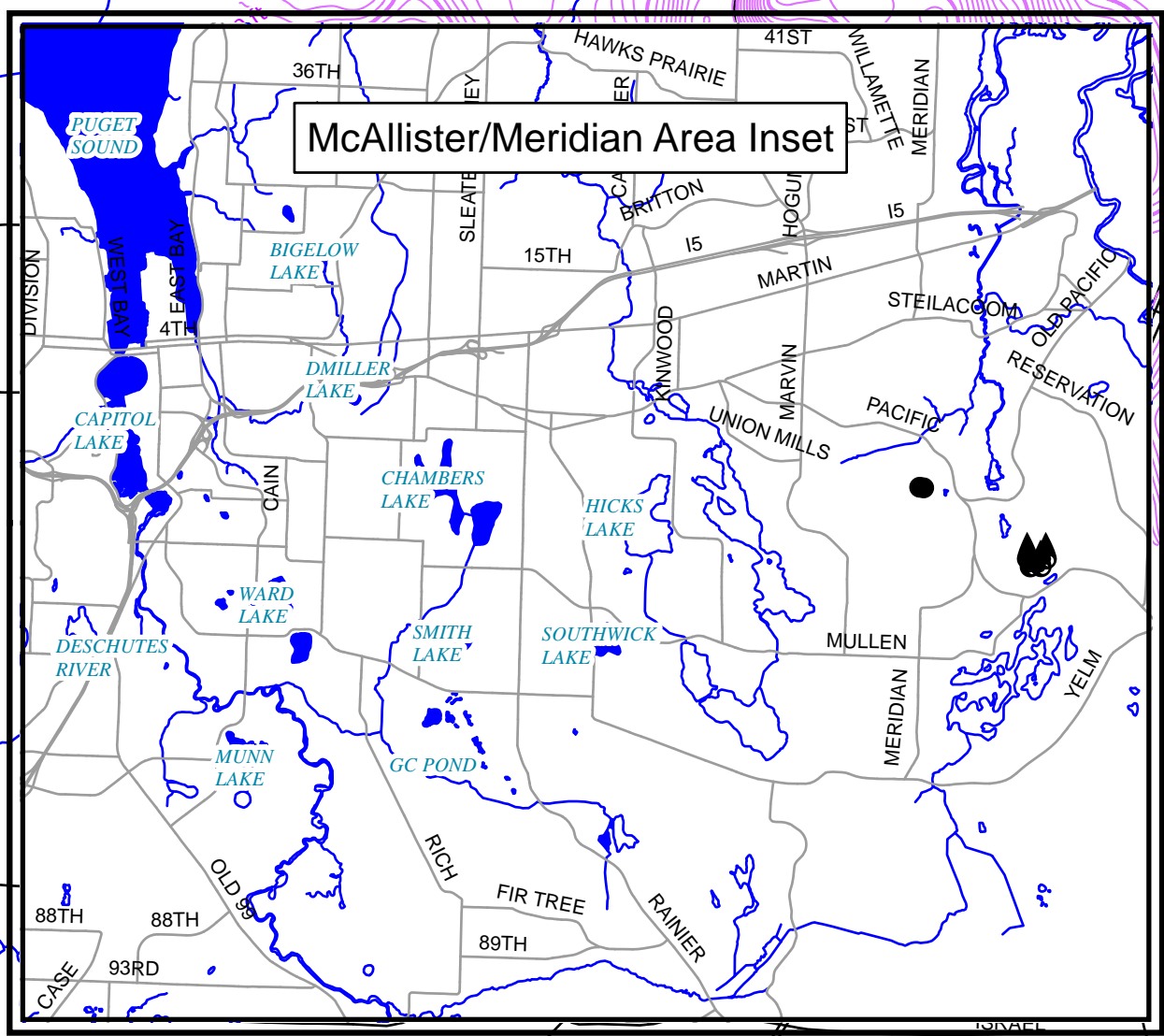
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0 5,000 10,000 20,000 Feet

Legend

- Sewer Service Area
- Water Tank or Reservoir
- Water Source
- Contours
- 10 ft
- 100 ft



**2013 Wastewater Management Plan
Topographic and Water
System Features Map**

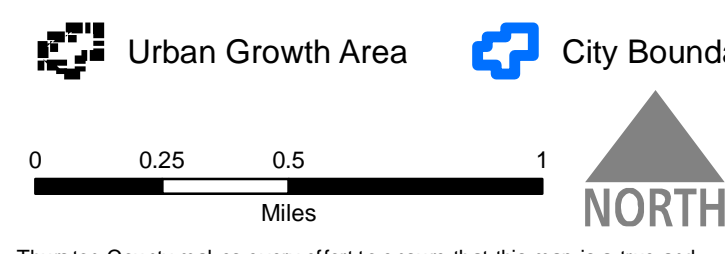
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Urban Area Septic System Analysis

Neighborhood Septic Density Analysis

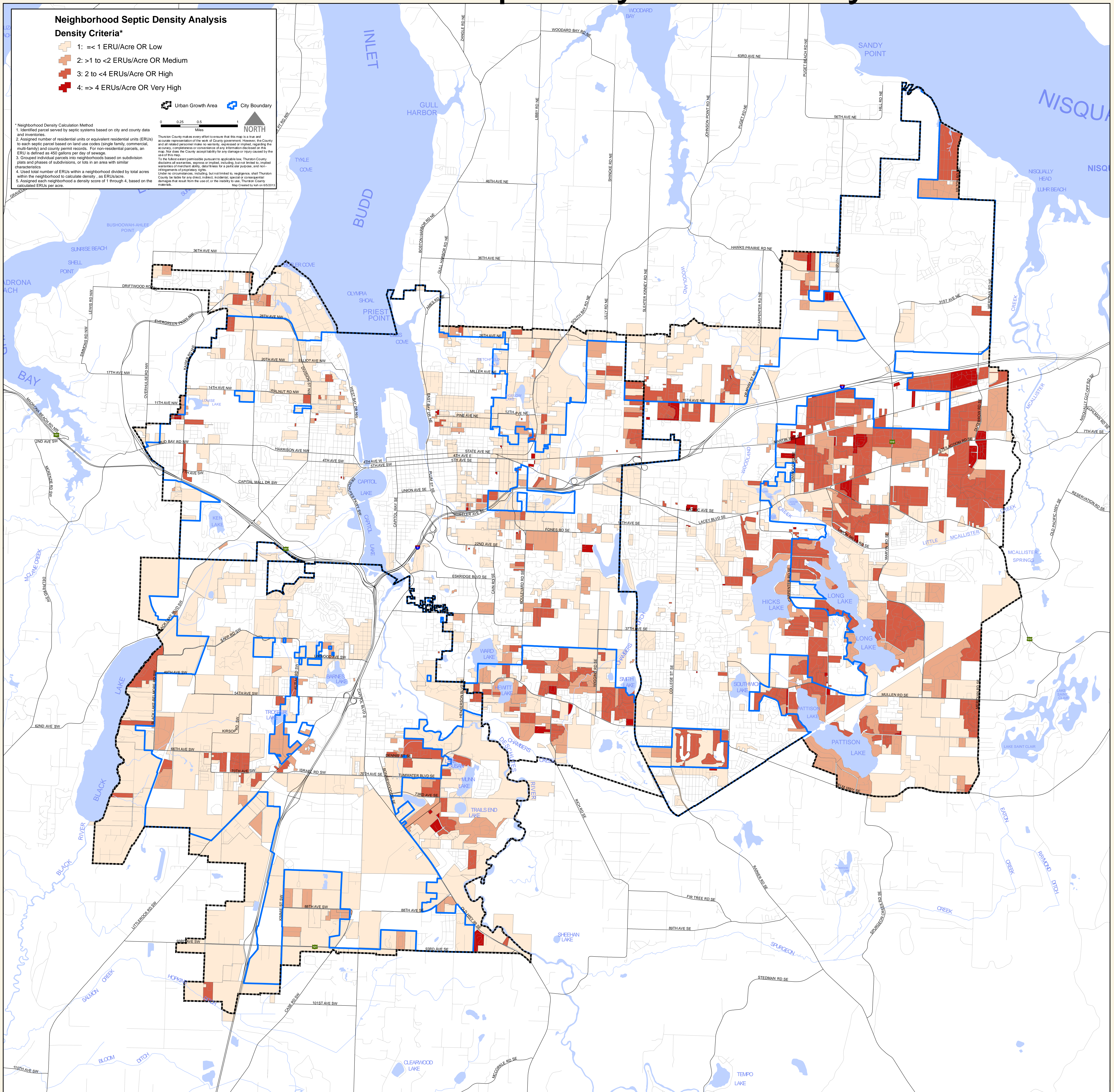
Density Criteria*

- 1: ≤ 1 ERU/Acre OR Low
- 2: > 1 to < 2 ERUs/Acre OR Medium
- 3: 2 to < 4 ERUs/Acre OR High
- 4: ≥ 4 ERUs/Acre OR Very High



*Neighborhood Density Calculation Method
 1. Identified parcel served by septic systems based on city and county data and inventories.
 2. Assigned number of residential units or equivalent residential units (ERUs) to each septic parcel based on land use codes (single family, commercial, multi-family) and county permit records. For non-residential parcels, an ERU is defined as 450 gallons per day of sewage.
 3. Grouped individual parcels into neighborhoods based on subdivision plans and phases of subdivisions, or lots in an area with similar characteristics.
 4. Used total number of ERUs within a neighborhood divided by total acres within the neighborhood to calculate density - as ERUs/acre.
 5. Assigned each neighborhood a density score of 1 through 4, based on the calculated ERUs per acre.

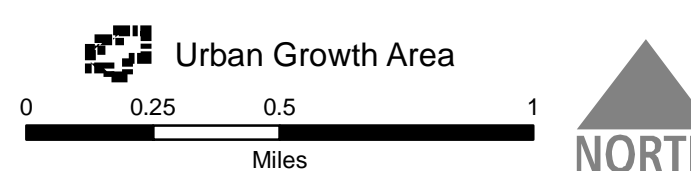
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Urban Area Septic System Analysis

Septic Density Analysis - Septic Parcel to Neighborhood Relationship

- Reported Septic Parcel with at Least One Reported ERU/Septic
- Neighborhood with at Least One Reported ERU/Septic
- Mapped Sewer Lines



Neighborhood Density Calculation Method

- Identified parcel served by septic systems based on city and county data and inventories.
- Assigned number of residential units or equivalent residential units (ERUs) to each septic parcel based on land use codes (single family, commercial, multi-family) and county permit records. For non-residential parcels, an ERU is defined as 450 gallons per day of sewage.
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- Assigned each neighborhood a density score of 1 through 4, based on the calculated ERUs per acre.

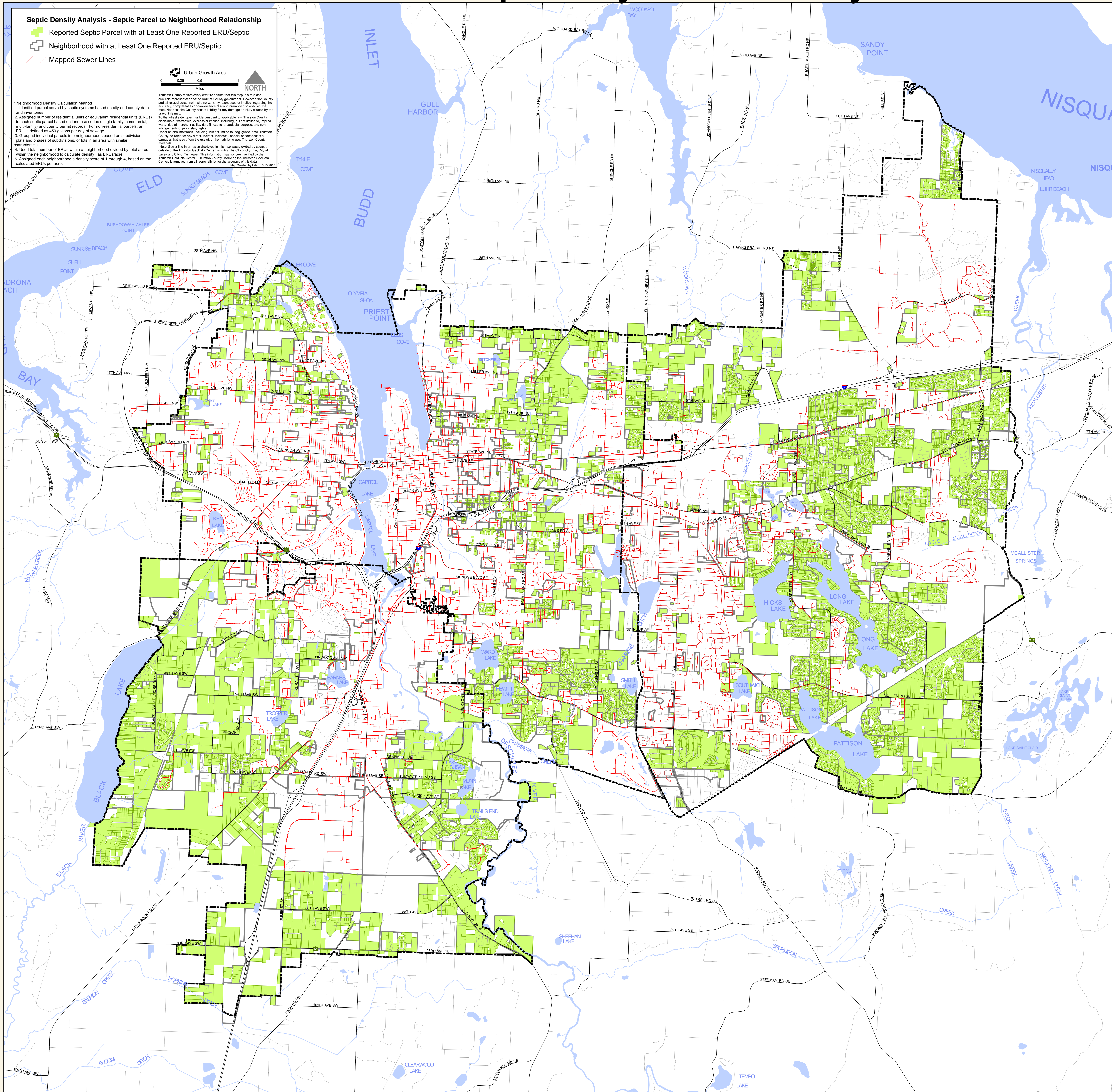
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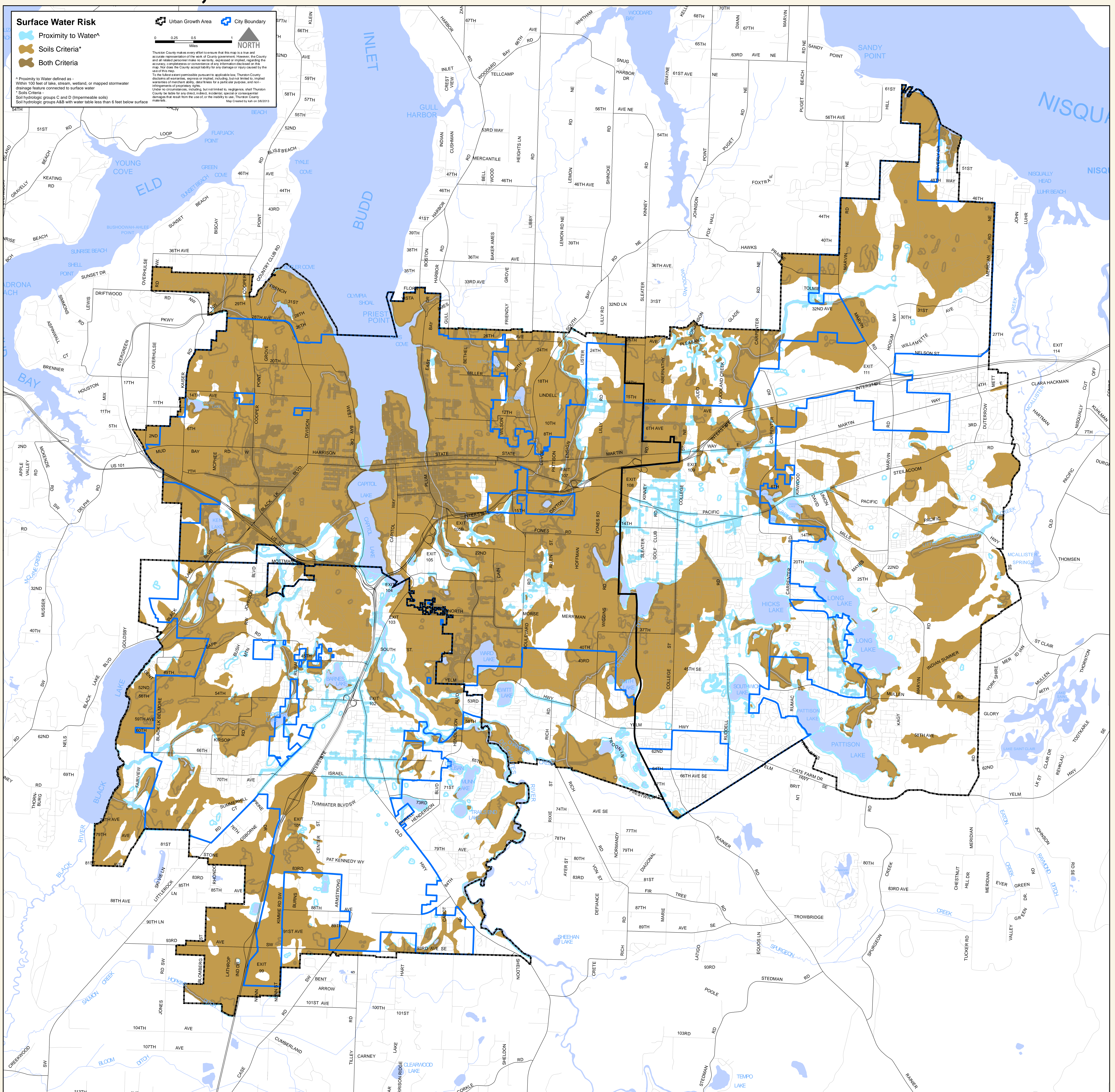
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Note: Sewer line information displayed in this map was provided by sources available to the Thurston Geographic Center including the City of Olympia, City of Lacey and City of Tumwater. This information has not been verified by the Thurston Geographic Center. Thurston County, including the Thurston Geographic Center, is removed from all responsibility for the accuracy of this data.

Map Created by tsh on 03/23/2013










OLYMPIA, LACEY & TUMWATER SEPTIC ANALYSIS



Urban Area Septic System Analysis

Surface Water Risk Categories - Neighborhoods



Surface Water & Density Overall Score

-  No Septic Parcels Reported
-  1 - Low Density
-  2 - Low + 1 Risk Category OR Medium
-  3 - Low + 2 Risk Categories OR Medium + 1 Risk Category OR High
-  4 - Medium + 2 Risk Categories OR High + 1 Risk Category OR Very High
-  5 - High + 2 Risk Categories OR Very High + 1 Risk Category
-  6 - Very High + 2 Risk Categories

Surface Water Criteria
Proximity to Water defined as -
Within 100 feet of lake, stream, wetland, or mapped stormwater drainage feature connected to surface water.

Soils Criteria
Soil hydrologic groups C and D (impermeable soils).
Soil hydrologic groups A&B with water table less than 6 feet below surface.

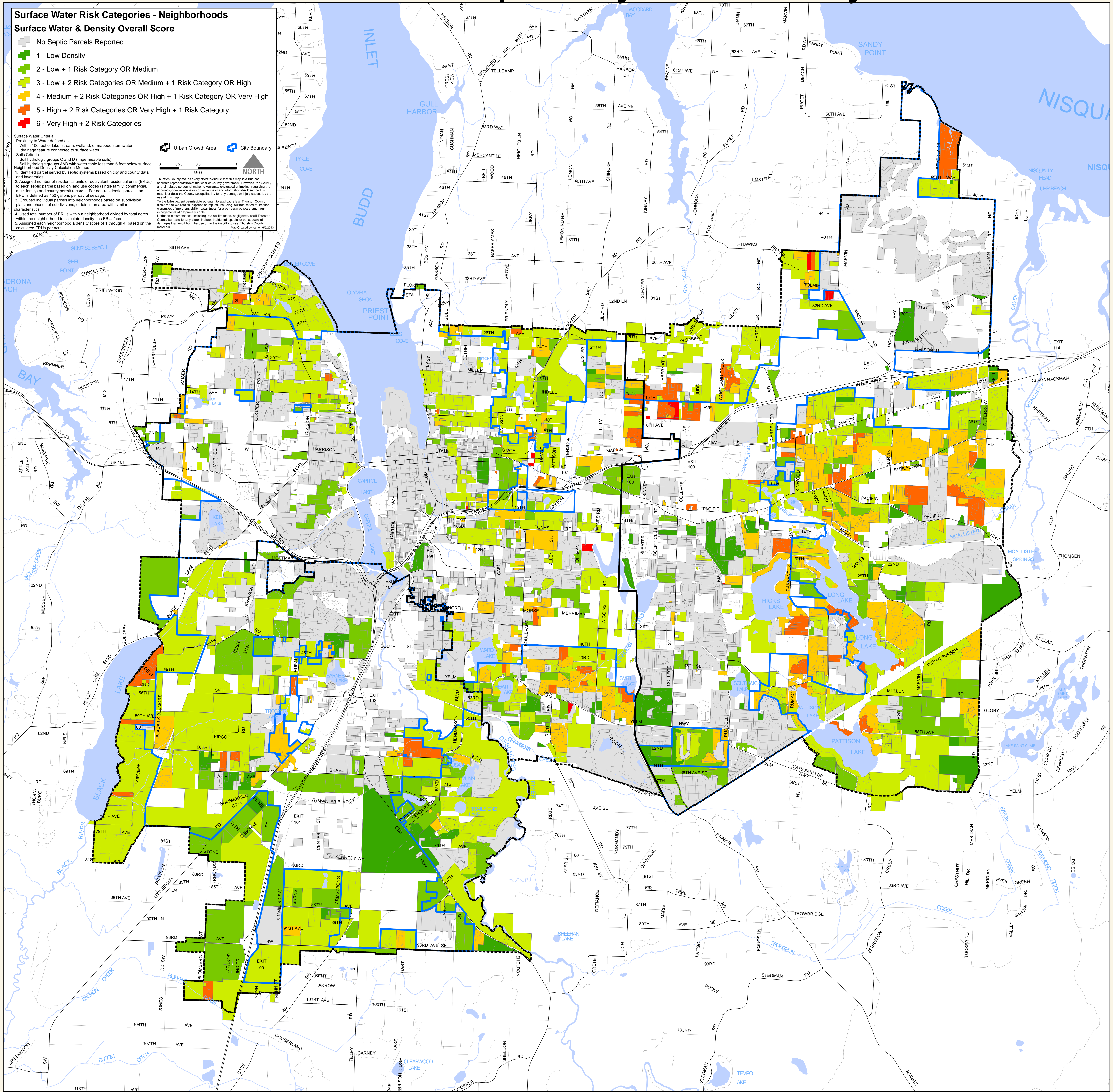
Neighborhood Density Calculation Method
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3. Grouped individual parcels into neighborhoods based on subdivision plans and phases of subdivisions, or lots in an area with similar characteristics.
4. Used total number of ERUs within a neighborhood divided by total acres within the neighborhood to calculate density, as ERUs/acre.
5. Assigned each neighborhood a density score of 1 through 4, based on the calculated ERUs per acre.

Urban Growth Area  **City Boundary** 

0 0.25 0.5 1 Miles

NORTH

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Urban Area Septic System Analysis

High Risk Surface Water - Neighborhoods

Surface Water & Density Overall Score

- 5 - High + 2 Risk Categories OR Very High + 1 Risk Category
- 6 - Very High + 2 Risk Categories

Surface Water Criteria
Proximity to Water defined as -
Within 100 feet of lake, stream, wetland, or mapped stormwater drainage feature connected to surface water

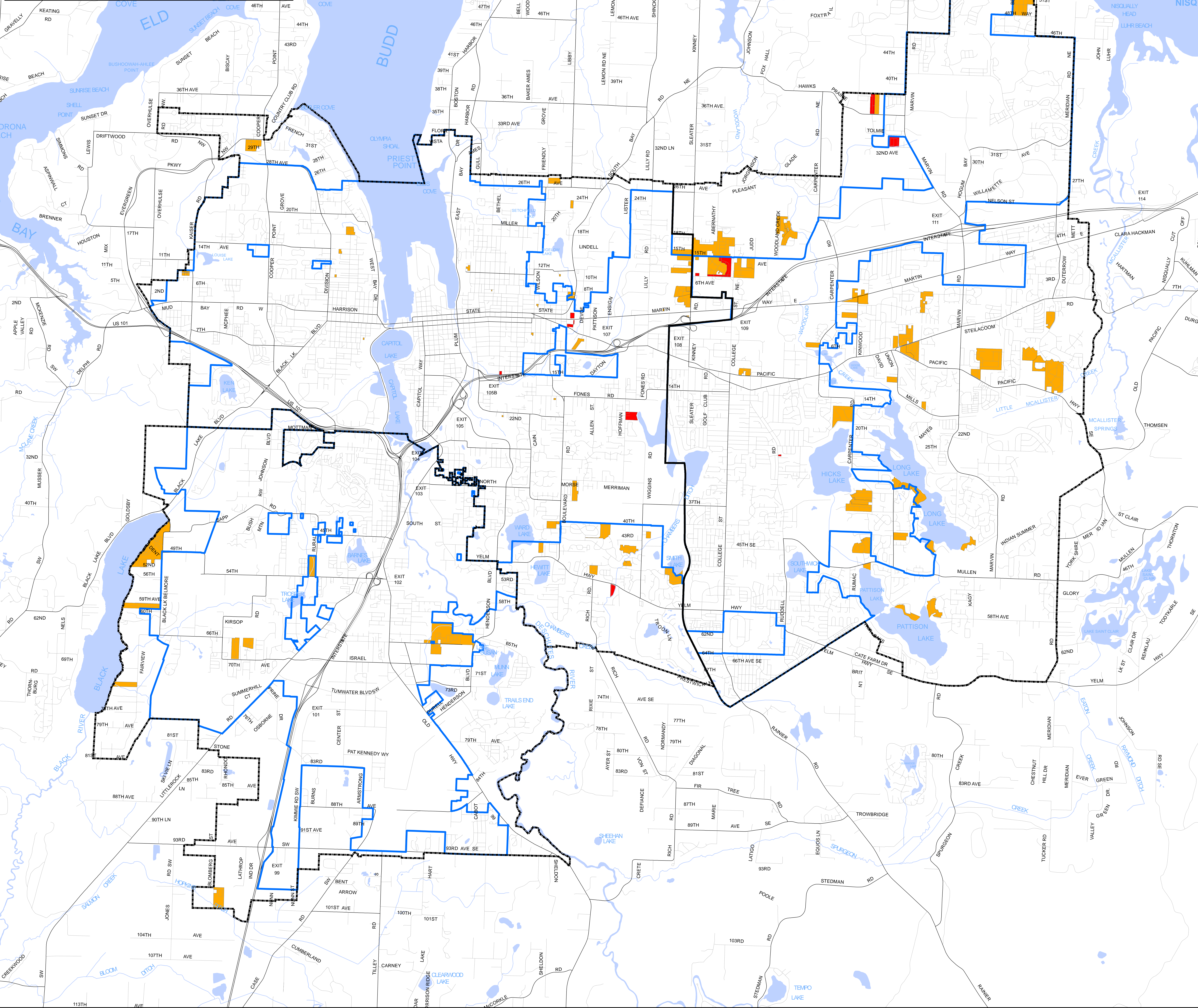
Soils Criteria -
Soil hydrologic groups C and D (impermeable soils)
Soil hydrologic groups A&B with water table less than 6 feet below surface

Neighborhood Density Calculation Method
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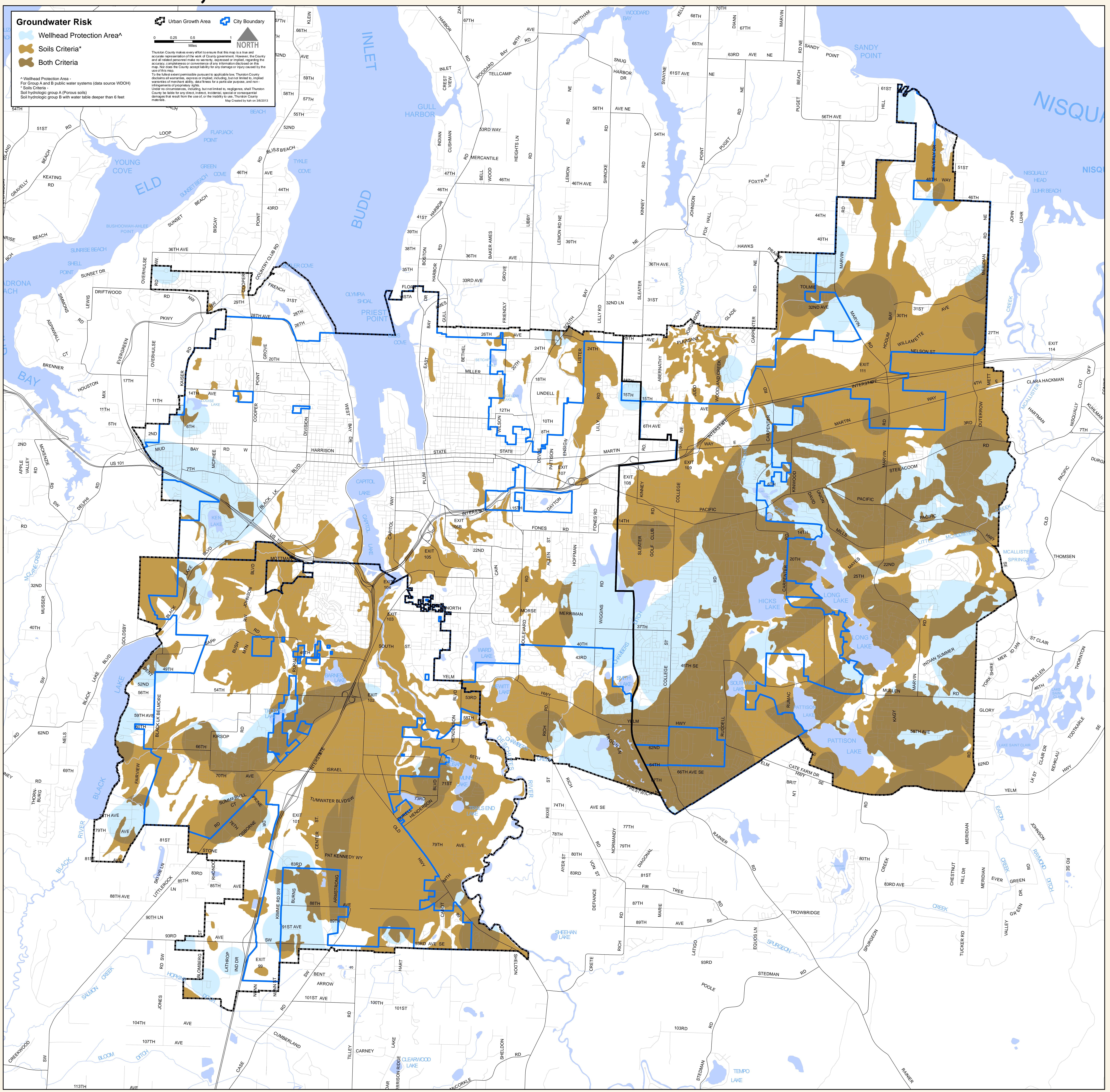
Urban Growth Area City Boundary

0 0.25 0.5 1 Miles

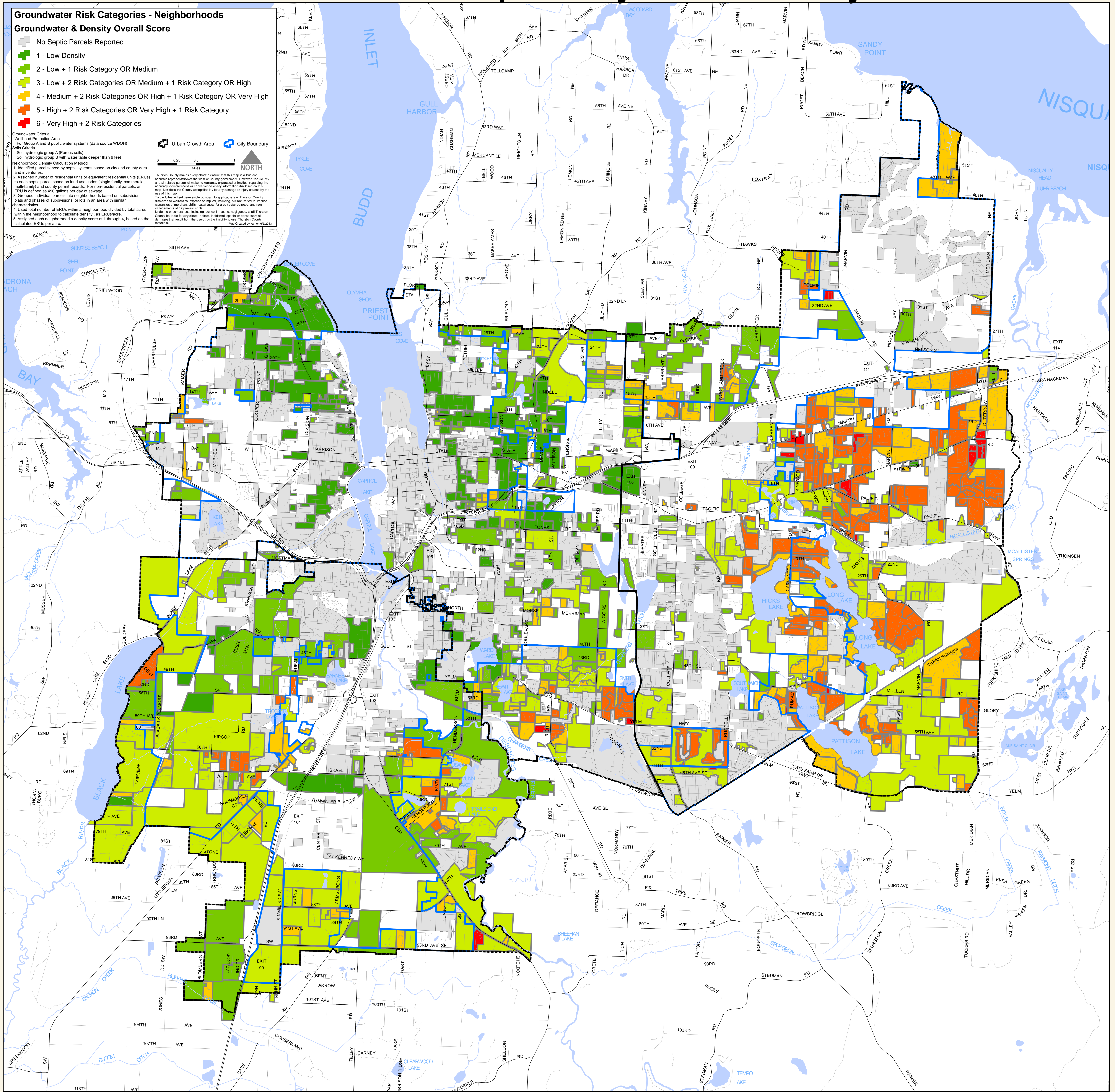
Map Created by kah on 6/5/2013



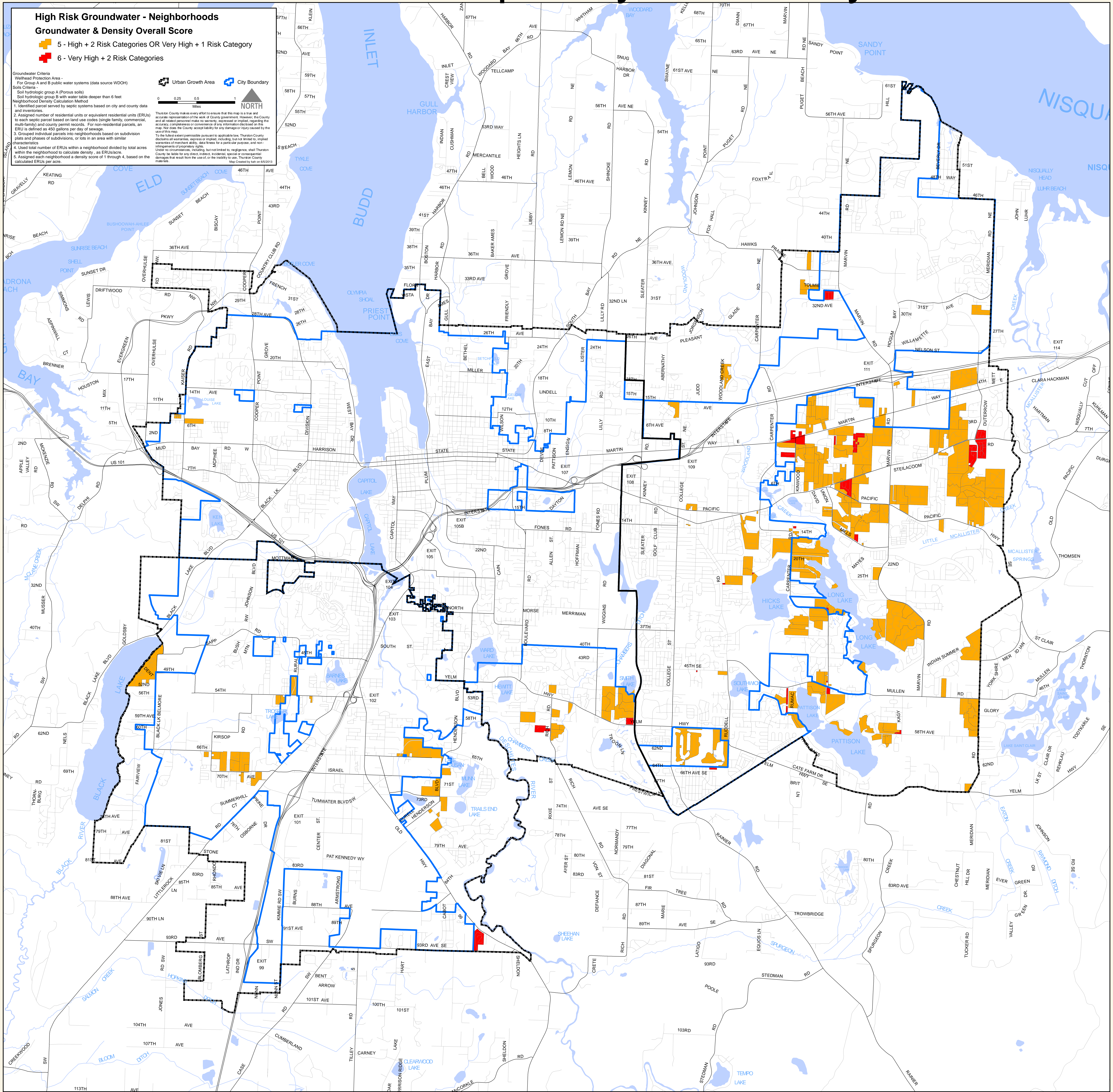
OLYMPIA, LACEY & TUMWATER SEPTIC ANALYSIS



Urban Area Septic System Analysis



Urban Area Septic System Analysis



Urban Area Septic System Analysis

