South Tacoma Groundwater Protection District Code Update

City of Tacoma | Planning and Development Services

Infrastructure, Planning and Sustainability Committee Meeting
January 22, 2025

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Agenda

- Background
- Updated Work Plan
- Outreach and Engagement
- Next Steps
- State Regulations
- Project Update
- Q&A

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Critical Areas & South Tacoma Groundwater Protection District (STGPD)

- **Growth Management Act (GMA) – Critical Areas**
  - *WAC 365-196-485 – Critical areas include the following areas and ecosystems:*
  1. Wetlands
  2. Critical Aquifer Recharge Areas (CARAs)
     - STGPD is one of Tacoma's CARAs
  3. Fish and Wildlife Habitat Areas
  4. Frequently Flooded Areas
  5. Geologically Hazardous Areas

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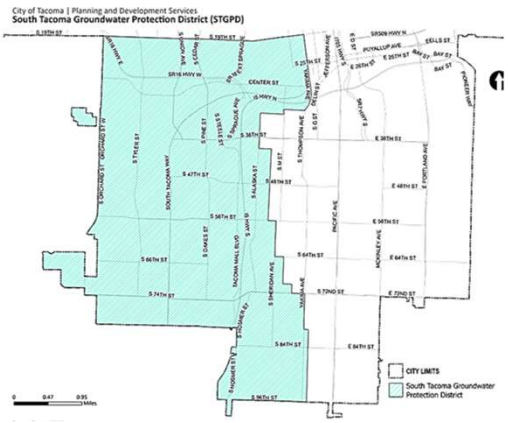
STGPD Background

- Created in 1988, prior to the State's establishment of the GMA and its guidance on CARAs
- **Purpose**: protect aquifer drinking water from contamination
- **Key Regulations in STGPD:**
  - Applies to businesses & commercial uses
  - Prohibits incompatible land uses
  - Establishes standards for:
    - Hazardous substance storage
    - Stormwater infiltration
    - Spill prevention
    - Inspections, testing and enforcement



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Updated Work Plan

- *Adopted by City Council in Resolution No. 40985 and updated by the Planning Commission*

1. High Impact Use Standards

- Review high impact use standards, including those from the South Tacoma Neighborhood Council application and ongoing moratorium:
  1. Metal Recycling/Auto Wrecking*
  2. Below Ground Storage Tanks*
     *(*Subject to moratorium)*
  3. Above Ground Storage Tanks

2. Infiltration Policy & Impervious Surface Standards

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Updated Work Plan

3. Landscaping & Tree Canopy Standards

- Industrial Zones, South Tacoma Manufacturing and Industrial Center (STMIC), Tacoma Mall Regional Growth Center (RGC) in STGPD

4. STGPD Health Impact Assessment (HIA)

5. Improve Integration of STGPD overlay zone with Critical Areas Ordinance (TMC 13.11)

6. Map Refinements

- South Tacoma Aquifer and CARAs

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Recent Outreach and Engagement

- January-March 2024: Spotlight on South Tacoma
- April 13, 2024: Sustainability Expo
- May 4, 2024: Dia de los Niños/Eastside Mini-Olympic Games
- May-June 2024: Nine One Tacoma Comprehensive Plan Workshops
- August 2024: Ocean Fest
- August 22, 2024: South Tacoma Neighborhood Plan Steering Committee
- September 18, 2024: Tacoma Permit Advisory Group
- September 19, 2024: South Tacoma Business District Association
- South Tacoma Neighborhood Council
- Tacoma Water Integrated Resource Plan Public Advisory Committee
- STGPD HIA Advisory Group

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Next Steps & Tentative Schedule

Date	Body	Action
January 2025	HIA Advisory Group	Initial baseline health assessment
January 2025	IRP Public Advisory Committee	STGPD Technical Memo for review
Jan – Feb 2025	City Council	Consider 6-month extension of moratorium Progress report on STGPD code update
February 20-28, 2025	One Tacoma Open Houses	Community input
March 2025	Planning Commission	Present best available science review and progress report
Feb – Mar 2025	HIA Advisory Group	HIA recommendations
Mar – May 2025	Planning Commission	Draft groundwater code Public comment period and recommendations
Jun – Sept 2025	City Council	Review Planning Commission recommendations Conduct public hearing Adoption

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Project Update

Team Introduction

- Jeff Hansen, PE; *HDR Engineering*
  - Professional Engineer; project manager for consultant team
  - 25 years in water resources planning/engineering
  - Led expert support to Pierce County and the Water Utility Coordinating Committee in developing the County's 2021 Comprehensive Water System Plan
- John Hildenbrand; *Terraphase Engineering*
  - Principal Environmental Scientist
  - 36 years contaminant investigation, environmental compliance
  - Completed and managed initial implementation STGPD performance standards
- Steve Hitch, PE; *HDR Engineering*
  - Professional Engineer, Certified Stormwater Manager
  - 30 years stormwater engineering and utility management
  - 20 years at City of Redmond developing and implementing the Wellhead Protection Program and Stormwater Manual

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State Regulations – WAC 365-190-080: Protecting Critical Areas

No Net Loss

- Counties and cities must prepare development regulations that protect all functions and values of critical areas to ensure **no net loss** of ecological functions and values.

Best Available Science

- Counties and cities must use the **best available science** when designating critical areas and developing protective policies and regulations.
- Special focus on preserving or enhancing **anadromous fisheries** and are encouraged to protect both surface water and groundwater.

Coordinated Regional Protection

- Encourage the development of regional critical areas protection programs combining interjurisdictional cooperation, public education, incentives to promote voluntary protective measures, and regulatory standards to protect critical areas.

Designate Critical Areas by Maps

- Maps raise public awareness but may not be precise for regulatory use.
- Primary reliance should be on performance standards for land use decisions.

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State Regulations – WAC 365-190-100: Critical Aquifer Recharge Areas

Groundwater and Recharge Areas

- Groundwater quality and quantity are linked to recharge areas.
- Counties and cities should use available studies or geological data to classify and designate recharge areas. Evaluate land uses that may pose contamination risks.

Classifying Recharge Areas by Vulnerability

- **High Vulnerability:** Indicated by hydrogeological conditions that facilitate contamination, especially with land uses that contribute to degradation.
- **Low Vulnerability:** Characterized by conditions that prevent contamination and land uses unlikely to contribute to degradation.
- **Factors to Consider:** depth to groundwater, aquifer properties, soil characteristics, land use, and proximity to contamination sources.

Examples of Critical Recharge Areas

- Sole source aquifers (Federal Safe Drinking Water Act)
- Wellhead protection zones
- Areas near marine waters vulnerable to saltwater intrusion
- Areas critical to fish and wildlife habitat conservation

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State Regulations – WAC 246-290-135: Source Water Protection

Wellhead Protection Program (WHPP)

- Applicability: Required for groundwater or spring-based water systems.
- Program Elements:
  - A completed susceptibility assessment or equivalent data
  - Delineation of wellhead protection areas (WHPAs); time-of-travel zones
  - Inventory of potential contaminant sources
  - Notification requirements
  - Contingency plan to ensure an adequate water supply in case of contamination
  - Coordination with local emergency responders

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Integrated Resource Plan (IRP) 2024 Update

- Evaluate water supply portfolio in light of growth and climate change
- Public Advisory Committee convened to help determine direction of long-term water supply planning
  - Members
    - Other local jurisdictions
    - State regulators (Department of Health)
    - Tacoma-Pierce County Health Department
    - Public
  - Meetings
    - Five meetings held May 2024 – January 2025

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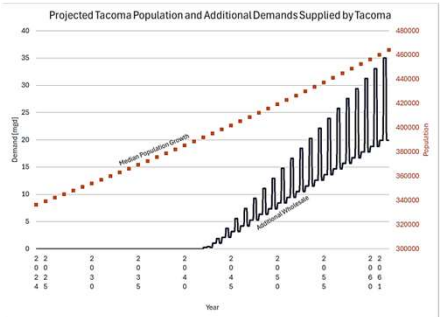
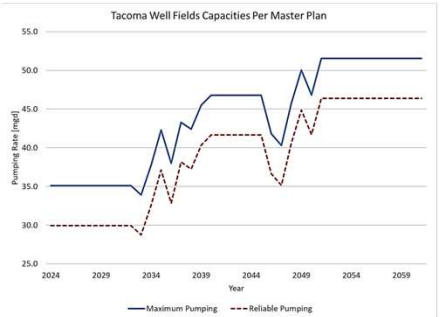
IRP – Water Supply vs. Demand

Demand
- Growth
  - Increased population
  - Higher densities
- Climate change
  - Warmer temperatures; precipitation timing shifts
- Wholesale water deliveries
  - Potential additional customers

Supply
- Green River and groundwater
- Increased need for groundwater
  - Historically ~5% of annual supply
  - In future, potentially ~15% of annual supply





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Role of HDR and Terraphase

- Focus technical areas
  - High impact uses
  - Stormwater management
- Compare existing code against regulatory requirements
  - Best available science review
- Benchmarking against other jurisdictions

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Does the STGPD Comply with State Requirements?

Checklist Item	Addressed in Code?	Location in Code	Notes
If groundwater is used for potable water, do regulations protect the quality and quantity of groundwater? [Referenced regulations include RCW 36.70A.172(1), RCW 36.70A.070(1), and WAC 365-196-485(1)(d)]	Yes	TMC 13.06.070D (5) TMC 13.06.070D (6)	Stormwater element is tied to STGPD Infiltration Policy, which, in turn, references the City's Stormwater Management Manual
Are the critical aquifer recharge regulations consistent with current mapping of these critical areas? [Referenced regulation: WAC 365-190-100]	Partially	TMC 13.06.070D (1-c)	The STGPD boundary is not fully in alignment with WHPA and SSA boundaries This is fundamental to many recommendations noted later
Consider limiting impervious surfaces to reduce stormwater runoff, as required under municipal permits	Partially	TMC 12.08D.150.D	Impervious surfaces are not strictly limited, but "effective impervious surfaces" are limited through LID and BMPs (City's Stormwater Management Manual)

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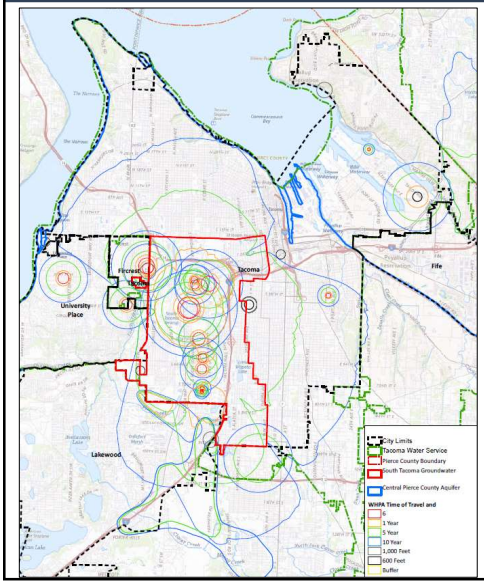
Geographic/Jurisdictional Considerations



STGPD
- Created to protect South Tacoma Wells before CARA
- CARA is designed to protect degradation of aquifer quality
- WHPA designed to prevent wells from being contaminated

South Tacoma Aquifer
- Represents a portion of the Central Pierce County SSA
- Wells/activities in other jurisdictions can impact Tacoma

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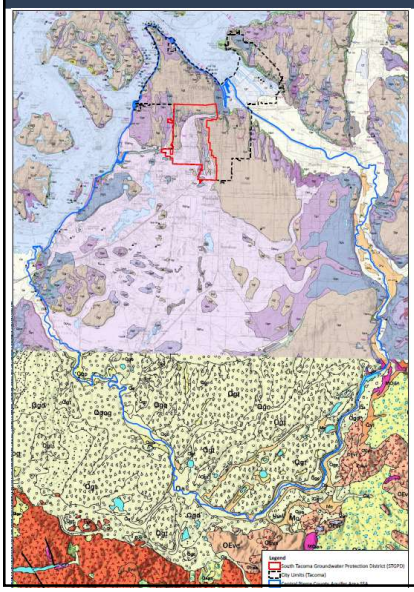
Code Location (STGPD vs CARA)



Current Status
- Groundwater protection regulations in the code are limited to the STGPD
- Code does not contain broader CARA regulations applicable to recharge areas outside the STGPD boundary

Recommendations
- The STGPD code as currently located is an effective way of addressing aquifer protection in this highly important area. **It is recommended that the overlay continue**.
- However, there is value in expanding the City's groundwater protections to apply to the entire SSA located within City of Tacoma boundaries. **Therefore, it is recommended that the City establish CARA regulations that apply to the entirety of Tacoma's portion of the SSA.**

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Developing CARA Regulations

Recommendations

- Tacoma should **coordinate with neighboring jurisdictions** regarding the development of policies and regulations protecting groundwater resources throughout the SSA **because of the overlap** between land use jurisdictions, the SSA boundary, and mapped WHPAs.
- **Varying levels of protection in the portions of the SSA outside of the STGPD should be established** through technical analysis of physical and hydrogeologic characteristics (e.g., surficial geology, aquifer properties, well use, and groundwater flow patterns). Along with mapped geology, this should be informed by the recently produced USGS Southeast Sound groundwater model of the aquifers in the SSA, in conjunction with utility-prepared WHPAs. This approach is consistent with other jurisdictions' use of WHPAs in determining which portions of a CARA should be afforded more or less protection.

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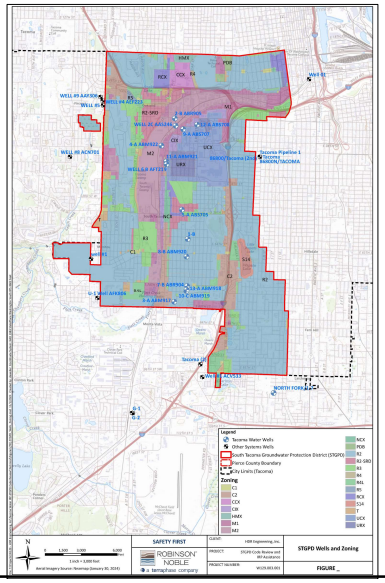
High Impact Uses and Contamination in the STGPD



Historical Land-Use

- Historical Management/Engineering Practices
- Lack of Regulation
- Contaminant Survey

STGPD Land-Use

- Uses allowed
- Changes in Industry

STGPD vs. Other Jurisdictions

- Uses Allowed
- Aquifer zones and geology

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High Impact Uses

Review of Other Jurisdictions

- Redmond
- Pierce County
- Fife, Fircrest, University Place
- Thurston County
- Vancouver, Spokane County, Issaquah

Summary of Findings

- Uses on Tacoma's list are commonly included by other jurisdictions
- Other jurisdictions include additional uses, particularly in wellhead protection areas
- Some jurisdictions apply graduated levels of restriction based on time of travel zones
- STGPD actually regulates and inspects business operations with enforcement ability

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High Impact Uses - Benchmarking

Land use	Tacoma	Pierce County	Fife	Lakewood	University Place	Fircrest
Hazardous waste treatment, storage, or disposal facilities	**X**	X	P	X	P	X
Underground storage tanks*	**X**	P	P	P	P	P
Wood products preserving	**X**	X		X	P	X
Chemical manufacture and reprocessing	**X**	X			P	
Creosote/asphalt manufacture or treatment	**X**	X				
Manufacture of Class 1A or 1B flammable liquids	**X**					
Petroleum and petroleum products refinery, including reprocessing	**X**	X				
Metal recycling/auto wrecking facilities*	**X**	X			P	
Electroplating activities	**X**	X				

Key
X = Prohibited
P = Permitted with restrictions
* = Prohibited in STGPD by a temporary moratorium set to expire in March 2025

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High Impact Uses - Benchmarking

Land use	Tacoma	Pierce County	Fife	Lakewood	University Place	Fircrest
Mining		X		X	P	X
Landfills		X	P	X	X	X
Wastewater treatment		X	P	P	P	
Vehicle maintenance		X		P	P	P
Animal containment areas/feedlots		X	P	P	P	P
Machine shops		X				
Infiltration of reclaimed water		X				P
Industrial uses		X		P		
Golf courses		P				
Funeral facilities and cemeteries		X				
Sawmills		P			P	
Other			P			P

Key
X = Prohibited
P = Permitted with restrictions

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High Impact Uses

Recommendations

- **The special protections afforded by the STGPD ordinances and its performance standards should be maintained**.
  - However, some areas of the STGPD with underlying geology indicating lower risk of impact to groundwater (such as the Tacoma Mall area) could be allowed additional uses or less restriction if desired.
  - Such determinations could be made when determining levels of protections for areas within the CARA but outside the STGPD.
- **Consider neighboring jurisdictions' high impact land use restrictions** when developing those for regulations applying to the SSA outside of the STGPD.

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Stormwater Infiltration

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Stormwater Runoff Treatment Requirements for Infiltration

Protection Level

Jurisdiction/ Guidance	Non-Pollution Generating Surfaces	Residential	Commercial/Multifamily	Industrial or High Vehicle Traffic Area
Ecology Stormwater Manual and UIC Guidance	Pre-Treatment	Follow Health Department requirements and local ordinances Basic Treatment	Follow Health Department requirements and local ordinances Basic Treatment	Follow Health Department requirements and local ordinances Basic and Oil Control
Pierce County	Same as Ecology			
Fircrest	Same as Ecology			
Lakewood	Same as Ecology			
Tacoma SWMM	Same as Ecology outside STGPD; STGPD Policy in STGPD			
STGPD Policy	No Treatment Required	Basic Treatment	Enhanced Treatment	Enhanced and Oil Control
Redmond	Pre-Treatment	Basic Treatment	Infiltration Prohibited *(except in Marymoor, then enhanced)*	Infiltration Prohibited *(except in Marymoor, then enhanced and oil control)*
Renton	Infiltration Prohibited	Infiltration Prohibited	Infiltration Prohibited	Infiltration Prohibited

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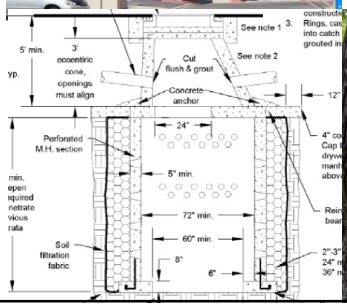
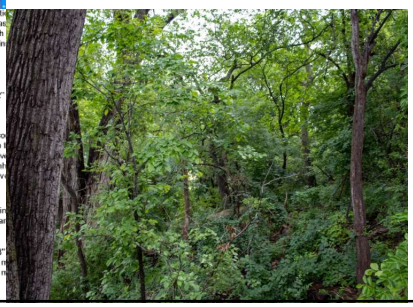
Groundwater Recharge





- Open Space
- Lot Coverage (Reserve Space)
- Engineered Infiltration Recharge
- State Environmental Policy Act (SEPA) Authority

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Stormwater Infiltration

Recommendations

- Understand:
  - Where does the aquifer's water originate?
  - How does groundwater flow?
  - Where is groundwater extracted?
- Determine the ideal places to:
  - Infiltrate stormwater (low impact land use and high infiltration potential)
  - Avoid infiltration (high impact land use or low infiltration potential)
  - Protect from land use (high infiltration potential)
- Coordinate with neighbors to implement common policies
  - Community confidence in aquifer protection (quantity and quality)
    - Developer understanding and buy-in of requirements that support development while protecting the critical resource

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Ongoing Consultant Support

- Refine recommendations for potential code modifications
  - High Impact Uses
  - Boundary Modifications for CARA and STGPD
  - Soil Contamination and Infiltration Policy
- Identify areas warranting more in-depth analysis

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South Tacoma Groundwater Protection District Code Update

City of Tacoma | Planning and Development Services

Infrastructure, Planning and Sustainability Committee Meeting
January 22, 2025

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