City of Rockaway Beach
Sourcewater Protection Plan Development Advisory Committee (SPPDAC) Meeting Agenda

Date: Wednesday, November 20, 2024
Time: 9:30 AM– 11:30 AM
Location: Rockaway Beach City Hall, 276 Hwy 101 – 2nd Floor Conference Room

Join here to attend the meeting remotely:
https://us06web.zoom.us/j/83970912172?pwd=NZeKZUQNq3gC64QONl854LQhU4EcpQ.1
Meeting ID: 839 7091 2172
Passcode: 389676
Dial by your location
253 215 8782 US (Tacoma)

How to Provide Public Comment:

- Written Comments – submit in person at meeting or online at https://corb.us/advisory-committees/
- In Person – sign-up sheet and instructions will be located on the table inside the meeting room.
- Virtually on Zoom – use the "raise hand" feature when the Chair announces it is time to do so.

---

1. **CALL TO ORDER** – Sandra Johnson, Chair

2. **ROLL CALL**

3. **APPROVAL OF MINUTES**
   a. October 10, 2024 Meeting Minutes

4. **PUBLIC COMMENT**

5. **NEW BUSINESS**

   a. **Implementation Plan Ideas: Development Approach Overview and Discussion**
   - Suzanne de Szoeke, GSI Water Solutions

6. **NEXT STEPS**

7. **COMMITTEE COMMENTS**

8. **ADJOURNMENT**

NOTICE OF POSSIBLE QUORUM:
A quorum of the **CITY COUNCIL** may attend this meeting.
No deliberations or decisions will be conducted by the City Council at this meeting.

Rockaway Beach City Hall is accessible to persons with disabilities. A request for an interpreter for the hearing impaired or for other accommodations for persons with disabilities should be made at least 48 hours before the meeting to City Hall at 503-374-1752.

City of Rockaway Beach
Sourcewater Protection Plan Development Advisory Committee (SPPDAC) Meeting Minutes

Date: Thursday, October 10, 2024
Time: 10:00 A.M.

1. **CALL TO ORDER** – Sandra Johnson, Chair
   Johnon called the meeting to order at 10:01 a.m.

2. **ROLL CALL**

   Committee Members Present: Sandra Johnson, Jason Maxfield, Lydia Hess, Ron Cleman, Jay Udelhoven
   Council Members Present: Mayor Charles McNeilly
   Council Members Excused: Alesia Franken, City Council Liaison
   Staff Present: Luke Shepard, City Manager; and Melissa Thompson, City Recorder
   Consultants Present: Suzanne de Szoeke and Mikaela Clarke, GSI Water Solutions, Inc.

3. **APPROVAL OF MINUTES**

   a. **July 9, 2024 Meeting Minutes**

      Hess made a **motion**, seconded by Cleman, to approve the July 9, 2024 meeting minutes as presented.

      The **motion carried** unanimously.

   b. **July 29, 2024 Meeting Minutes**

      Hess made a **motion**, seconded by Cleman, to approve the July 29, 2024 meeting minutes as presented.

      The **motion carried** unanimously.

4. **PUBLIC COMMENT**

   No audience members were present.

5. NEW BUSINESS

Start time: 10:05 a.m.

a. Sourcewater Protection Plan Town Hall Recap

Suzanne de Szoeke, GSI Water Solutions, Inc., provided a brief recap of the Sourcewater Protection Plan Town Hall.

b. Risk Level Change Suggestions from Town Hall Attendees and SPP Team Input

De Szoeke reviewed public comments raised at the Town Hall, referring to the *Rockaway Beach Jetty Creek Sourcewater Protection Plan Strategies Ideas* table included in the agenda packet for the meeting. The Committee reviewed and discussed the changes proposed in the Town Hall.

There was discussion regarding public comment that the landslides risk ranking should be higher than medium. It was noted that landslide strategies included obtaining up-to-date high-quality data.

After discussion, Cleman made a **motion**, seconded by Hess, to raise the landslide risk likelihood level to 4, and landslide impact risk to 5.

De Szoeke confirmed that the approval of the motion would result in a change to *High* risk.

Udelhoven expressed that he would abstain due to a lack of information. Maxfield expressed uncertainty due to lack of expertise. McNeilly suggested that erring on the side of caution was appropriate.

The **motion carried** by the following vote:
Aye: 4 (Hess, Johnson, Clemen, Maxfield)
Nay: 0
Abstain: Udelhoven

There was discussion regarding wildfire risk and a public suggestion to change the risk ranking to high.

Maxfield commented that published data indicated lower risk for wildfire and was comfortable leaving the ranking as is.

Hess made a **motion**, seconded by Cleman, to retain current wildfire risk rankings.

The **motion carried** unanimously.

There was discussion regarding public comment suggesting a high risk to riparian areas.

Johnson made a **motion**, seconded by Hess, to go with the suggested SPP team change from low to medium risk for riparian impacts.

The **motion carried** unanimously.

There was discussion regarding adding "not acquiring land in the watershed" as a risk.

After discussion, Maxfield made a **motion,** seconded by Hess, to recognize the significance of the risk of not acquiring land in the watershed, and that it should be part of the discussion, but is not appropriate to this particular risk analysis stage, and should be part of a larger preamble to the plan.

Udelhoven commented that it should be characterized as one of many risks to not taking actions.

The motion **carried** unanimously.

c. Strategy Ideas for Addressing Identified Risks Discussion
Start time: 10:46 a.m.

De Szoeke led the committee through a complete review and discussion of the Strategy Ideas in the table.

Cleman excused himself from the meeting at 11:05 a.m., and returned at 11:07 a.m.

Discussion and edits to the strategy ideas included:

- Suggestion to divide strategies into themes or types of activities.
- Suggestion to add a review of best practices from other communities.
- Consensus to add, for any acquired lands, to research other municipalities, best practices and develop a recreation management plan.
- Consensus to modify recreation permit bullet to "explore recreation permits".
- Suggestion to add explore public/private recreation partnerships for a portion of the land.
- Added "communicate with landowners about management practices" to Recreation.

McNeilly excused himself from the meeting at 11:25 a.m., and returned at 11:27 a.m.

- Added "natural and constructed" and two bullets about woody debris and beaver activity to the strategy to increase water storage capacity.
- Added "consider limiting development" or changing code to require water efficiency measures for new development to Development.
- Suggestion to consider compliance monitoring/impact monitoring as ongoing task, including conservation, restoration, recreation activities and impacts, road maintenance, forestry operations.
- Comment that there should be sufficient water supply, and management of system should focus timing and retention of water.

- Added a strategy to encourage tourism in winter to balance demands year-round.

De Szoeke explained that typically the plan would include an overarching review of the *Draft Strategy Themes/Categories* included in the meeting packet materials. She noted that items discussed in the meeting would be added to that area.

6. NEXT STEPS

Start time: 11:45 a.m.

De Szoeke stated that next steps would include an updated version of the strategies and the next meeting would focus on how to address strategies with an implementation plan. De Szoeke encouraged the committee to contact them if they had additional ideas.

7. COMMITTEE COMMENTS

Start time: 11:47 a.m.

Clemen commented that as long as there was plenty of water in the watershed, the city doesn't need to worry about looking for more. Clemen stated that the city should rely a little more on looking into wells.

8. ADJOURNMENT

Hess made a **motion**, seconded by Cleman, to adjourn at 11:48 a.m.

The motion **carried** unanimously.

MINUTES APPROVED THE
20TH DAY OF NOVEMBER 2024

_____
Sandra Johnson, Chair

ATTEST

_____
Melissa Thompson, City Recorder

Strategy Category	Phase 1 Activities	Phase 2 Activities	Phase 3 Activities	Potential Partners
Critical Area Protection	• Continue identifying critical areas for protection and negotiating/communicating with landowners • Continue/start planning for potential acquisitions or easements (e.g., appraisals, due diligence, mapping) • Identify funding sources for acquisitions or easements (suggestions can be included in this plan) and apply for funding • Continue to connect with land trusts or other organizations for support • Explore developing additional MOUs or other agreements with landowners for management practices that help protect critical areas, as a backup plan for acquisitions/easements • Research other communities' strategies and best management practices for managing source water areas • Develop a broad Forest Stewardship Plan for critical areas ○ City has been awarded funding for developing a Forest Stewardship Plan (does not own land yet) • Conduct community engagement efforts	• Complete a land acquisition or easement with willing landowners • Refine and implement a Forest Stewardship Plan aligned with any acquired lands that addresses various risks to source water • Continue conducting community engagement efforts	• Track management successes and needs • Develop a land use plan for Jetty Creek watershed that addresses unauthorized camping and recreation (e.g., consider requiring permits to access land) among other land uses • Explore a public and private recreation partnership in the watershed (need more info about what this would look like) • Continue implementing activities identified in the Forest Stewardship Plan	• Landowners • Land trusts: North Coast Land Conservancy, Lower Nehalem Community Trust • Conservation Organizations: Sustainable Northwest, other? • Foresters (City could contract with foresters for Road Inventory and Assessments and maintenance)

Data Collection and Monitoring Programs	• Inventory existing ongoing monitoring efforts and identify priority data needs.
	  ○ Inventory the type, timing, and other details about current water quantity (i.e., streamflow) and quality monitoring efforts
	  ○ Use the inventory to identify water quality and water quantity data monitoring needs, such as changes to current monitoring approaches and new monitoring efforts
	  ○ Develop monitoring approaches (e.g., plans) and data management approaches
	• Investigate funding sources for potential monitoring programs
	• Learn about FPA rules and how they will impact current management practices
		• Apply for funding for potential monitoring programs
		• Implement new and/or expanded monitoring programs as resources allow
		• Continue existing monitoring efforts identified as needed during the monitoring inventory
		• Evaluate City's other surface water rights (not on Jetty Creek) for reliability and potential use as backup sources or other water rights strategies
		• Conduct outreach and community engagement efforts
			• Conduct public outreach to educate the community about monitoring programs and data findings/trends, at least as part of the Sourcewater Protection Plan 5-year update process
			• Continue implementing and tracking monitoring programs
			• Continue conducting outreach and community engagement efforts
				• Landowners
				• State agencies: ODF (resources for forest watershed stewardship: databases, funding, technical assistance, FPA, Forest Practices Monitoring Program), DEQ, OHA, OWRD, ODFW
				• Watershed councils: Nehalem Bay WC (formerly Lower Nehalem WC), Tillamook Bay WC
				• Tillamook Estuaries Partnership (TEP)

	• Collect existing/historical data (e.g., maps, watershed characteristics, water quality, streamflow, fire risk) • Partner with organizations for technical assistance or to connect to existing data sources • Gather more information about the borrow pit			
Watershed Restoration	• Identify high-priority areas for potential watershed restoration projects (e.g., riparian planting, invasive species removal) • Coordinate with landowners and organizations, like watershed councils, about identifying projects	• Pursue funding for potential projects and implement projects as funding allows	• Track success of project implementation • Continue tracking needs for restoration work and coordinating with landowners and organizations	• Landowners • Tillamook County Soil and Water Conservation District • <u>Watershed councils:</u> Nehalem Bay WC (resource: Nehalem Strategic Action Plan for Coho Recovery document), Tillamook Bay WC • OSU Extension • ODFW • TEP
Sediment and Erosion Control	• Identify high-priority areas for potential projects (e.g., steep slopes, highly erodible soils) using GIS and ground-truthing • Identify erosion impacts from different types of recreation • Identify projects for high-priority areas (e.g., road sediment reduction, erosion control, and culvert replacement projects) • Communicate with landowners about projects for high-priority areas and about their Road Inventory and Assessment plans • Identify technical assistance programs that could benefit landowners (including if City is a landowner) • Identify ODF stream classifications	• If land is acquired, create or build on existing road maintenance plans & inventories • Pursue funding for high-priority road sediment reduction, erosion control, and culvert replacement projects, and begin implementation once funding is secured • Coordinate with neighboring landowners	• Continue to implement road sediment reduction, erosion control, and culvert replacement projects • Continue to assess needs for sediment and erosion control projects and track progress made on implemented projects • Maintain road maintenance and assessments and inventories, either by communicating with landowners or updating City's plans if land is acquired	• Landowners • Tillamook County Soil and Water Conservation District • <u>Watershed councils:</u> Nehalem Bay WC, Tillamook Bay WC • OSU Extension • ODF (funding for erosion control projects, etc.) • Potential contracted foresters
Water Supply and Emergency Planning	<u>Water supply planning:</u> • Develop updated Water System Master Plans and Water Management and Conservation Plans • Assess future water needs, accounting for tourism and climate change • Continue pursuing expanding storage capacity in water system (City has applied for funding to expand storage capacity) • Explore alternative water sources • Identify other infrastructure needs that can address water supply concerns	• Implement measures to improve water supply reliability in and outside of the watershed (e.g., encouraging beaver activity or installing structures to enhance water retention (in watershed) and enhancing storage capacity or reducing leaks (in City)) • Evaluate road infrastructure and develop a transportation plan that maintains access roads for firefighting and emergency access • Assess infrastructure and watershed access to identify any vandalism vulnerabilities to address	• Continue updating emergency and water supply plans • Following an emergency event in the watershed, communicate with landowners and organizations about resources and restoration project	• City and/or County departments (e.g., Planning Department and Fire Department) • <u>State agencies:</u> DEQ (Drinking Water Protection Program), OHA (emergency planning (e.g., workshops & resources)), OWRD • Landowners • Tillamook County SWCD • <u>Watershed councils:</u> Nehalem Bay WC, Tillamook Bay WC • Sustainable Northwest

	<u>Emergency planning:</u> • Review existing plans and identify emergency planning needs (e.g., develop or update plans and protocols for natural hazards, such as for providing water supply) • Incorporate source water protection in existing emergency plans • Consider the impacts of climate change in emergency planning • Identify partners for climate change preparedness and emergency planning efforts			
Communications	• Continue communications with landowners, including participating in the Jetty Creek Work Group, about sourcewater protection, maintaining or pursuing MOUs, and best management practices • Gather information from landowners about management activities in watershed ○ Road inventory and assessment plans • Annually enroll in FERNS pesticide notifications • Communicate source water protection efforts to the community and relevant organizations	• Communicate with wildfire response planners and managers about how the Jetty Creek watershed is a water source and source water protection • Continue communicating source water protection efforts to the community and relevant organizations • Conduct outreach about best recreation practices in the watershed (e.g., potentially through regular public meetings held by the City's planned committee that will focus on forest stewardship) • Maintain FERNS enrollment	• Continue communication efforts • Maintain FERNS enrollment	• Landowners • Fire managers
Water Conservation Measures	• Continue conducting water conservation measures and water loss reduction initiatives (incorporated into WMCP and Master Planning) • Identify additional measures the City could implement and a schedule for implementation • Develop and disseminate water conservation outreach messaging for residents, tourists, and businesses • Identify potential partnerships or resources that could support City in water conservation measures • Explore funding for water conservation measures	• Implement additional water conservation measures identified in Phase 1 • Implement regulations to limit development or require water efficiency measures for new development	• Assess progress of implemented measures at the 5-year check in mark from the WMCP submittal • Continue to implement water conservation measures, including outreach to water users	• City Planning Department

Rockaway Beach Jetty Creek Sourcewater Protection Plan Strategies

11/4/2024

Table 1: Strategy Ideas by Risk

Risk Category	Risk & Risk Level	Strategy Ideas
Natural Hazards	Drought/low streamflows (high)	• Identify areas needing watershed enhancement projects, such as riparian planting, and support implementation • Monitor streamflow • Obtain historical streamflow (and potentially other) data • Conduct water supply planning for future water needs (e.g., Water Master Plan update, Water Management and Conservation Plan (WMCP)) • Protect critical areas through land acquisition or conservation easements • For any acquired lands, develop a forest management plan aimed at supporting a drinking water supply • Implement water conservation measures/regulations to reduce water demand by water customers and visitors (outside of watershed) • Evaluate the City's surface water rights and their reliability • Identify areas where forest management activities, such as ecological and pre-commercial thinning, cause impacts in terms of water retention • Install large woody debris structures or other man-made structures to enhance water retention in the watershed • Encourage beaver activity (without changing flow direction) and implement projects to retain water, like beaver dam analogs

Risk Category	Risk & Risk Level	Strategy Ideas
Natural Hazards	Climate change (high)	• Conduct water supply planning for future water needs (e.g., Water Master Plan update, WMCP) • Consider the impacts of climate change in emergency planning • Implement water conservation measures/regulations to reduce water demand by water customers and visitors (outside of watershed) • Monitor streamflow and potentially other trends in watershed (e.g., Air temperature, precipitation) • Obtain historical streamflow & other up-to-date data • Protect critical areas through land acquisition or conservation easements • For any acquired lands, develop a forest management plan that includes management strategies to reduce climate change risks • Identify and consider protection of City's additional historical water rights and/or sources • Create water storage (treated or untreated) for up to 14 days in the City's water system (State goal – follow up with Alyssa DEQ) • Install large woody debris structures or other man-made structures to enhance water retention in the watershed • Encourage beaver activity (without changing flow direction) and implement projects to retain water, like beaver dam analogs
	Highly erodible soils (high)	• Obtain up-to-date high-quality data • Map areas of high risk (steepest slopes etc.) • Identify and implement watershed enhancement projects (e.g., riparian planting, culvert replacements, road maintenance) • Protect critical areas through land acquisition or conservation easements • For any acquired lands, develop a forest management plan that includes strategies to retain soils and identify areas of high risk • Communicate with landowners about sediment management and related watershed enhancement projects and connect them with resources for technical assistance to support best management practices.

Risk Category	Risk & Risk Level	Strategy Ideas
Natural Hazards	Landslides (high)	• Obtain up-to-date high-quality data • Map areas of high risk (history of landslides, steepest slopes etc.) • Identify any watershed enhancement projects that could reduce landslide potential • Protect critical areas through land acquisition or conservation easements • For any acquired lands, develop a forest management plan that includes management strategies to reduce landslide risks • Communicate with landowners about sediment management and related watershed enhancement projects and connect them with resources for technical assistance to support best management practices.
	Earthquake (high)	• Conduct infrastructure planning and emergency response preparedness planning (in coordination with Water Master Plan) • Incorporate source water protection in existing emergency plans (e.g., coordinate with the County on Natural Hazards Mitigation Plan (NHMP)) • Following a major earthquake, coordinate with watershed groups, landowners, and/or others to implement watershed restoration projects as needed
	Tsunami (high)	• Conduct infrastructure planning and emergency response preparedness planning (in coordination with Water Master Plan) • Incorporate source water protection in existing emergency plans (e.g., coordinate with County on NHMP) • Following a tsunami, coordinate with watershed groups, landowners, and/or others to implement watershed restoration projects as needed

Risk Category	Risk & Risk Level	Strategy Ideas
Natural Hazards	Severe storms (medium)	• Conduct infrastructure planning (preparations for high turbidity events, e.g., Water Master Plan) • Create water storage (treated or untreated) for up to 14 days in the City's water system (State goal – follow up with Alyssa DEQ) • Conduct emergency response preparedness planning • Identify and implement sediment and erosion control projects • Monitor water quality during and following storms and monitor streamflow • Protect critical areas through land acquisition or conservation easements • For any acquired lands, develop a forest management plan that includes management strategies to reduce risks from severe storms • Install large woody debris structures or other man-made structures to enhance water retention in the watershed • Encourage beaver activity (without changing flow direction) and implement projects to retain water, like beaver dam analogs • Evaluate road infrastructure and develop a transportation plan that maintains access roads for firefighting and emergency access. Maintain roads and access routes or alternative routes for use during severe storms and wildfires.
Natural Hazards	Wildfire (medium)	• Communicate with landowners about forest management and other activities to reduce wildfire risks • Protect critical areas through land acquisition or conservation easements • For any acquired lands, develop a forest management plan that includes management strategies to reduce wildfire risks • Conduct emergency response preparedness planning • Identify water system infrastructure needs for wildfire preparedness • Coordinate with watershed groups about watershed restoration projects/resources following fires • Evaluate road infrastructure and develop a transportation plan that maintains access roads for firefighting and emergency access. Maintain roads and access routes or alternative routes for use during severe storms and wildfires. Communicate with wildfire response planners/managers about how Jetty Creek watershed is a water source and ensure firefighting practices to protect the water source are used.

Risk Category	Risk & Risk Level	Strategy Ideas
Natural Hazards	Volcanic ashfall (low)	• Conduct emergency response planning
Forestry	Clearcut harvesting (high)	• Protect critical areas through land acquisition or conservation easements • For any acquired lands, develop a forest management plan aimed at supporting a drinking water supply (e.g., supporting ecological services that enhance water quality and quantity) • Learn about updated Forest Practices Act rules that could benefit water quality and quantity and communicate with landowners about planned forestry activities • Encourage landowners to change forest management practices (e.g., change harvesting approach) to reduce risks and enhance water quality and quantity benefits • Pursue funding for and conduct water quality testing (for turbidity and other parameters, particularly after storms and first flush of rain following summer) • Identify and implement watershed enhancement projects, such as sediment and erosion control measures
	Pesticides (including herbicides) (high)	• Protect critical areas through source water area land acquisition or conservation easements • Communicate with landowners and receive notification of aerial spraying in the source water area (already occurring) • Plan for timing of shut-offs and diversion of the system (already occurring) • Pursue funding to test for chemicals being sprayed • Maintain MOU/pursue additional MOU or contract with landowner to avoid spraying on roads or elsewhere • Subscribe to the Forest Activity Electronic Reporting and Notification Systems (FERNS), which is where forest chemical applications are reported, to monitor for spraying plans.

Risk Category	Risk & Risk Level	Strategy Ideas
Forestry	Riparian impacts (medium)	• Protect critical lands through source water area land acquisition or easements • For any acquired lands, develop a forest management plan that includes management strategies to increase protections of riparian areas • Learn about updated Forest Practices Act rules that could benefit riparian areas and communicate with landowners about riparian buffers • Encourage landowners to change forest management practices in the riparian zone to reduce risks and enhance water quality and quantity benefits • Identify and implement watershed restoration projects, such as riparian planting and invasive species removal

	Access roads (low)	• Protect critical areas through land acquisition or conservation easements
		• For any acquired lands, develop a forest management plan that includes road management strategies to reduce erosion and pollution
		• Communicate with landowners about:
		  ○ Erosion management and related watershed enhancement projects (e.g., culvert replacements and protections)
		  ○ Their roads inventory and Assessment and Maintenance Plan (associated with the updated Forest Practices Act rules)

	Borrow pit (low)	• Collect & record more in-depth data about borrow pit, such as location, size, characteristics, potential risks to water quality, and whether it is active or could be reopened • Identify other potential borrow pits/gravel quarries in the watershed and assess whether the pits could be active or reopened • As needed, communicate with government agencies, landowners, and watershed councils about activities that could minimize this risk
Municipal	Vandalism (medium)	• Conduct emergency planning in response to vandalism • Assess infrastructure and watershed access to identify any vulnerabilities to address

Risk Category	Risk & Risk Level	Strategy Ideas
Land Use	Unauthorized camping (medium)	• Implement outreach measures to try to prevent unauthorized camping (e.g., signage) • Explore potential prevention measures • Identify and utilize resources to assist with site cleanup • For any acquired lands, develop a plan for minimizing the likelihood of unauthorized camping and addressing it if it occurs • Communicate with landowners about management practices (landowners currently require permits to access land)

	Recreation (medium)	• Conduct outreach about best recreation practices (e.g., minimizing impacts on land and water through signage or other methods)
		• Monitor recreation that occurs and any impacts
		• Identify erosion impacts from different types of recreation, and then identify and implement erosion control projects
		• For any acquired lands, develop a plan for minimizing impacts of recreation if recreation will be an allowed activity or for minimizing impacts of unauthorized recreation if recreation will not be permitted
		  ○ Research other municipalities' best practices/strategies and successes and develop a recreation management plan
		  ○ Explore recreation permits
		  ○ Explore public/private recreation partnerships for a portion of the watershed
		• Communicate with landowners about management practices (landowners currently require permits to access land)

Risk Category	Risk & Risk Level	Strategy Ideas

Demands on Water Supply (outside of watershed)	Development (high)	• Conduct water supply planning for future water needs
		  ○ Water Master Plan will include information about water demand and consumption, population, projected demands on water supply, infrastructure needs, and potential future water supply sources.
		  ○ Water Management and Conservation Plan will include the current water supply, City's water rights, water conservation program, water curtailment plan, projected water demands, and potential water rights/supply strategy for meeting demands.
		• Implement water conservation measures and conduct conservation outreach
		• Implement regulations to help reduce water demand
		  ○ Consider limiting development or changing code to require water efficiency measures for new development
		• Continue Implementing water loss reduction initiatives (e.g., leak detection & line replacement) to conserve water supply and reduce demand (will be included in plans)
		• Explore increasing natural and constructed storage capacity (raw and treated)
		  ○ Install large woody debris structures or other man-made structures to enhance water retention in the watershed
		  ○ Encourage beaver activity (without changing flow direction) and implement projects to retain water, like beaver dam analogs

	Tourism (high)	• Conduct water supply planning that considers tourism (e.g., Water Master Plan and WMCP) ○ Explore increasing storage capacity (raw and treated) • Conduct water conservation outreach to tourists to encourage responsible use of the City's water and discourage pollution • Encourage tourism in the winter in addition to the summer to balance water demands year-round (e.g., indoor activities, businesses)

Strategy Categories

- Critical Area Protection
    - Land acquisition or conservation easements
    - Development of a forest management plan that addresses a variety of risks
    - Development of a land use plan for the watershed that addresses unauthorized camping and recreation
    - Access permits
    - Research best management practices and learn from other communities' strategies
    - Public/private recreation partnership
- Data Collection and Monitoring
    - Obtaining more data
        - Maps with up-to-date data on watershed characteristics like steep slopes, soils, fire risk, landslide risk, etc.
        - Historical streamflow data
        - Historical City demand/usage/population data (part of Master Plan)
        - Historical water quality testing data
        - Borrow pit(s) location(s), characteristics, activity, and potential for reopening
        - Climate data (temperature, precipitation, etc.)
        - Data from landowners, like access roads inventory/ roads conditions assessments
        - Evaluate the City's surface water rights and their reliability (part of WMCP)
    - Monitoring
        - Streamflow monitoring
        - Water quality ongoing testing or periodic sampling for pesticides and related to storms & other risks
        - FERNS
        - Ongoing compliance monitoring/impact monitoring of implementation of Sourcewater Protection Plan strategies
            - E.g., conservation measures, restoration projects, recreation activities and impacts, road maintenance, forestry operations
    - Learn about Updated Forest Practices Act rules
        - Utilize resources in FPA and from ODF for watershed stewardship
            - Forest Practices Monitoring Program
            - Databases
            - Funding resources
            - Technical assistance
- Watershed Restoration (focused on water quality and quantity, streamflow restoration, benefits to fish & wildlife)
    - Riparian planting and buffers
    - Invasive species removal
    - Large woody debris or other man-made structures
    - Beaver habitat restoration and beaver dam analogs
- Sediment and Erosion Control (focused on reducing turbidity in streams)
    - Road maintenance
    - Culvert maintenance and drainage improvement
    - Riparian restoration projects
- Water Supply and Emergency Planning
    - Infrastructure projects
    - Demand and population projections
    - Future alternative sources planning

    - Increased storage capacity (raw and treated); Create water storage for up to 14 days in the City's water system (including natural processes)
    - Evaluate road infrastructure and develop a transportation plan that maintains access roads for firefighting and emergency access
- Communications
    - Communication with landowners
        - Harvesting practices
        - MOUs with landowners about pesticides and other activities potentially
        - Pesticide application and harvesting notifications
        - Riparian zone management
        - Best management practices for source water protection (e.g., allowable types of recreation, requiring permits to access land)
    - Communication with organizations and agencies about emergency management resources or collaboration on watershed restoration projects (watershed councils, DEQ, etc.)
    - Communication with wildfire response planners/managers about how the Jetty Creek watershed is a water source and firefighting practices
- Water Conservation Measures
    - Implement measures to help the City use less water (e.g., replace leaky waterlines, use efficient irrigation practices if applicable)
    - Conduct outreach to encourage voluntary water conservation
    - Implement regulations to limit development or require water efficiency measures for new development
    - Water conservation public outreach

[Team suggestion: Consider which strategies could be easier or not easier to pursue with acquisition vs. without (could be 2 implementation plans)]

Table 2: Overview of Risks Addressed by Strategy

Risk Category	Specific Risks	Risk Level[1]	Critical Area Protection	Data Collection and Monitoring Programs	Watershed Restoration	Sediment and Erosion Control	Water Supply and Emergency Planning	Communications	Water Conservation Measures
Natural Processes	Drought and low flows	High (5, 5)	●	●	●		●		●
	Climate change	High (5, 5)	●	●	●	●	●		●
	Highly erodible soils	High (4, 4)	●	●	●	●	●	●	
	Landslides	High (4, 3)	●	●	●	●	●	●	
	Earthquakes	High (3, 5)			●	●	●	●	
	Tsunamis	High (3, 5)			●	●	●	●	
	Severe storms	Medium (4, 3)		●	●	●	●		
	Wildfire	Medium (2, 3)		●	●	●	●	●	
	Volcanic ashfall	Low (1, 3)					●		
Forestry	Clearcut harvesting	High (5, 3-4)	●	●	●	●		●	
	Pesticides (including herbicides)	High (5, 4)	●	●	●			●	
	Riparian impacts	Medium (3, 3)	●	●	●			●	
	Access roads	Low (2, 2)		●		●		●	
	Borrow pit	Low (1, 1)		●				●	
Municipal	Vandalism	Medium (2, 4)					●		
Land Use	Unauthorized camping	Medium (3, 2)	●	●				●	
	Recreation	Medium (3, 2)	●	●				●	
Demands on Water Supply (outside of watershed)	Development	High (4, 4)					●		●
	Tourism	High (4, 4)					●		●

[1] Numbers in parentheses refer to the likelihood and consequence of each risk, respectively. These components of risk are presented on a scale of 1 to 5, with 5 being the highest.