Strategies to Protect and Improve Water Quality

Summary

Strategies to protect and improve water quality were developed for watersheds and source water protection areas (SWPAs) to address water quality concerns. For ease of reference, this summary combines two strategies developed by local stakeholders through the ***2020 Watershed Management and Protection Plan for Tributaries to the Truckee River*** by the Truckee Meadows Stormwater Permit Coordinating Committee and the ***2020 Integrated Source Water and Watershed Protection Plan for Public Water Systems and the Truckee River through the Truckee Meadows*** by the Washoe County source water planning team.

Source Water Protection Area Identification and Management

A SWPA is a management area surrounding a surface water or groundwater resource that supplies water for public consumption. Activities within these areas can potentially affect the quality of water downstream or underground. These management strategies acknowledge the value of these SWPAs to prevent future contamination of sources of drinking water. A description of how the SWPAs were developed is provided in the Source Water Overview document.

There are two types of boundaries: SWPAs and Critical SWPAs as illustrated by this figure: HUC-12 Watershed Overview Protection Areas Figure

Source Water Protection Area

A SWPA represents an area where the community has established a precautionary boundary to safeguard the water quality of its drinking water sources. Within this boundary, education, monitoring, and management of human activities can help protect surface and ground water from becoming contaminated. This includes areas of groundwater capture zones, areas important to aquifer recharge, and areas surrounding surface water. For surface water, there is a 1000-foot buffer from the centerline of the stream, including the Truckee River.

Critical Source Water Protection Area

A Critical SWPA represents the land close to a well or stream where the water quality is potentially more vulnerable to contamination from human activities, and where the community may adopt strategies to protect the quality of their drinking water supply source. This includes the 20-year time of travel for municipal wells and springs or a 750-foot minimum radius for small public water system wells that have not been modeled. There is also a 300-foot buffer from each side of the Truckee River centerline and a 150-foot buffer from the centerline of the perennial streams that are tributary to the Truckee River.

The following strategies are significant in both future and on-going SWPA management:

- Inform landowners in SWPAs about their proximity to valuable drinking water sources and how they can help protect their water quality.
- Encourage coordination between Public Water Systems, landowners, and City or County planners to consider the importance of SWPAs in project reviews.
- Explore collaborative funding for water quality and watershed improvements and support the resource investigations needed to develop viable projects.
- Prioritize physical improvements in SWPAs to protect and improve source water quality.

Education and Outreach

The following education and outreach objectives are intended to help effectuate positive actions to protect water quality:

- Continue to support Central Truckee Meadows Remediation District (CTMRD) in education regarding tetrachloroethene (PCE) contamination in groundwater.
- Continue to support the Truckee Meadows Storm Water Permit Coordinating Committee (Storm Water Committee) outreach and education programs.
- Continue to work with Homeowners' Associations regarding source water pollution prevention measures.
- Develop outreach tools for presentations to boards and/or decision makers on the Program, Project Profiles and Procurement of Funding.
- Encourage coordination between landowners and County planners to consider the importance of SWPAs in project reviews.
- Engage residents in caring for their watershed.
- Increase knowledge about household and commercial chemical use, storage, and disposal.
- Increase knowledge of how to protect and preserve the pristine drinking water quality of this watershed.
- Increase knowledge of TDS leaching and nutrient discharge to the Truckee River from the residential areas to engage residents in caring for their watershed.
- Increase knowledge of water quality protection and the pollution in stormwater runoff (i.e. from dog and horse feces).
- Inform landowners and developers residing in critical SWPAs about the importance of avoiding contamination and their proximity to a valuable drinking water source.
- Prepare training for users of the Flex Viewer (planning, emergency management, etc.)
- Support the Storm Water Committee outreach and education programs.
- Develop and implement a public education program to reduce non-point source pollution.
- Educate the public at annual events (such as Truckee River Clean-up Day, Storm Drain Stenciling, and Earth Day) on tributary-contributing watershed problems, tributary projects, and how to preserve and protect the watershed.
- Provide data from watershed assessments and water quality sampling events.
- Coordinate with partners to improve implementation of watershed and source protection strategies.
- Acquisition of conservation easements.

Interagency Communication

The following interagency communication objectives are important tools to both reinvigorate and invest additional resources in water quality, as well as utilize existing resources and programs:

- Each agency may evaluate how to improve lines of communication within and between jurisdictions regarding water quality issues; i.e. City of Reno, City of Sparks, Washoe County, Truckee Meadows Water Authority (TMWA), Nevada Division of Environmental Protection (NDEP), Washoe County Health District, Forest Service, Bureau of Land Management (BLM), and Reno-Sparks Indian Colony.
- Continue to increase coordination and communication between the appropriate agencies regarding spills and corrective actions along major roads, the railroad, and the Reno-Tahoe International Airport.
- Evaluate how to collaborate with stakeholders such as TMWA and the Storm Water Committee on incorporating drinking water protection into community outreach and education strategies.
- Collaborate with the Washoe/Storey Cooperative Weed Management Area to support their efforts in noxious weed management

Wildfire and Fuel Management

Wildland fire is a threat to water quality; coordinated fuel management on wildlands can help reduce risks to water quality. Stakeholders and partners may consider the following objectives as they pertain to wildfire and fuel management:

- Encourage development, maintenance, and implementation of the Community Wildfire Protection Plans.
- Support and collaborate with the Nevada Cohesive Strategy effort and the Shared Stewardship Agreement, the blueprint to address Nevada's wildland fire issues.
- Support for the Nevada Network of Fire Adapted Communities and their local chapters for people in high fire threat locations to fully prepare themselves, their homes, and the landscape where they reside to survive the destructive force of wildfire.
- Encourage the development of a wildland fire risk reduction and emergency recovery plan to reduce the risk of wildfire, quickly restore burned areas, and reduce the risk of catastrophic post-fire erosion and sedimentation.
- Collaborate and coordinate to treat invasive and noxious weeds pre-and post-fire to reduce risk of wildfire and watershed destabilization.

Resource Investigation and Planning

Stakeholders may consider supporting the following resource investigations and planning, which can help fill data gaps, inform implementation designs, and prioritize projects:

- Consider expanding groundwater quality monitoring.
- Consider expanding the household hazardous waste collection program.
- Continue research for decreasing mercury in the Steamboat Valley watershed (WRWC, 2017).
- Development and implementation of integrated vegetation management programs.
- Development of the Mt. Rose Water Treatment Plant at Whites Creek.
- Efforts to increase the quantity and quality of groundwater recharge.
- Explore and engage funding sources available for small public water systems to expand monitoring, implement improvements, and develop contingency plans.
- Identify areas where septic systems may be impacting groundwater quality near municipal wells and identify solutions and funding.
- Provide technical assistance to host regular Team meetings (i.e. annually) to ensure this Plan is up to date including a list of active Team members.
- Research how to identify private wells that present a groundwater contamination risk and that might need to be repaired or abandoned.
- Research the potential for irrigation and seepage through desert soils to contribute to nitrate in groundwater.
- Research to assist federal and local agencies in managing for fire risk.
- Research to identify non-point pollutant sources in the watershed and options for treatment.
- Support existing and future groundwater sampling efforts in SWPAs for incorporation into GIS databases, ongoing or new groundwater studies, etc. (private wells in domestic and agricultural areas).
- Support Infrastructure Projects (green and gray) that will enhance SWPAs and focus on pollution prevention (i.e. well closure, well upgrades such as sanitary seal, fencing, and security).
- Water quality improvement planning for tributaries to the Truckee River.

Water Quality Best Management Practices

Stakeholders may consider supporting the following Water Quality Best Management Practices (BMPs), that may improve and prevent degradation to water quality resources:

- Erosion reduction and sediment control measures.
- Fertilizer and pesticide management plans for irrigated green spaces.
- Invasive weed removal and integrated vegetation management for creek stabilization.
- Nutrient management measures for irrigated green spaces.
- Pet waste cleanup initiatives.
- Physical improvements prioritized in SWPAs for water quality improvement and protection.
- Proper abandonment of unused/orphaned wells.
- Recommendations in the tributary assessments.
- Support septic to sewer conversions.
- Water quality improvement projects.

Physical Improvements

Stakeholders may consider implementing physical improvements that may improve and prevent degradation to water quality resources:

- Implement channel restoration and stabilization such as:
  - Restore low flow channel
  - Reshape and stabilize channel banks
  - Restore channel floodplain
  - Control head-cut erosion
  - Design and implement erosion control projects
  - Improve sinuosity
  - Restore riparian vegetation
- Develop and enforce land use management such as:
  - Create riparian vegetation buffers
  - Control encroachment of development into riparian areas
  - Control impacts from vehicle/road encroachment
  - Reduce livestock impacts
  - Prohibit stockpiling of manure
  - Sweep streets
  - Waste management and reduction
- Implement integrated vegetation management practices such as:
  - Control invasive weeds
  - Restore upland vegetation
  - Remove litter debris
  - Reduce lawn care chemicals
  - Limit herbicide use
- Implement stormwater management actions such as:
  - Manage and/or treat stormwater runoff
  - Attenuate stormwater runoff
  - Design, construct, and maintain stormwater treatment basins
  - Enforce construction site BMPs
  - Reduce flooding to nearby street(s)
  - Replace culvert(s)