

Chapter 1

Regional Water Planning Policies and Criteria

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Background

NRS 540A includes among the intended contents of the Regional Water Plan, appropriate goals and policies to deal with current and future problems affecting the region as a whole with respect to the subjects of the plan. The initial Regional Water Plan and this update have identified the region's needs for water, wastewater, flood control and drainage capabilities over a 20-year timeframe, the constraints on meeting those needs and background information on these subjects. To adequately evaluate alternatives for meeting the region's needs and to evaluate future projects for conformance with this plan, it has been necessary to establish goals, policies and criteria for water, wastewater, and drainage projects. These policies should guide the evaluation of future projects, provide direction in the evaluation portion of the plan, and identify possible changes necessary to implement the plan.

During the time that this update of the Regional Water Plan was being prepared, the Second Judicial District Court, Department 9, on October 17, 2002, successfully mediated a settlement to a lawsuit, Washoe County and the Sun Valley GID versus Truckee Meadows Regional Planning Governing Board. The settlement centered on the 2002 Truckee Meadows Regional Plan. The Settlement Agreement states that the "comprehensive regional plan is natural resource constrained". The Agreement also describes a cooperative planning process to be followed by local governments when reviewing proposed amendments to master plan land use, zoning or development standards.

The Settlement Agreement delegated to the Regional Water Planning Commission (RWPC) the responsibility to set policies/criteria for water and water-related issues to be used to formulate cooperative plans and for evaluating proposed amendments to cooperative plans. The Settlement Agreement states that "Reno, Sparks and the County shall jointly request that the RWPC formulate interim criteria policies to be provided within 120 days from the execution of this agreement," and further stipulates that the criteria policies are to be included in the updated Regional Water Plan.

The RWPC developed interim water policies by reviewing its existing policies and either affirming them as-is, modifying them, or setting them aside as not immediately applicable to the evaluation of land use changes. Additional policies and criteria were developed, as the RWPC deemed necessary. The interim water policies as presented to Reno, Sparks, Washoe County, the Truckee Meadows Regional Planning Agency and the Court in compliance with the Settlement Agreement are contained in a report entitled "Interim Water Policies and Criteria," (RWPC, 2003). The RWPC re-evaluated those policies and criteria before including them in this Plan Update. Additionally, the RWPC revisited policies set aside as not immediately applicable to the evaluation of land use changes and also included them, with or without modifications, in this Plan Update.

The following policies and criteria are organized according to the RWPC's areas of responsibility as stated by the four goals shown below. Each policy correlates with one of eight specific objectives arranged under the goals.

- Goal 1: Plan for the development of sustainable water supplies
 - Objective 1.1 Promote efficient use of resources
 - Objective 1.2 Provide an acceptable level of service to the community
 - Objective 1.3 Implement measures to ensure a sustainable water supply

- Goal 2: Plan for regional wastewater treatment and disposal requirements
 - Objective 2.1 Promote efficient use of resources
 - Objective 2.2 Manage wastewater for protection and enhancement of water quality
- Goal 3: Plan for the protection of human health, property, water quality, and the environment through regional flood plain and storm water management
 - Objective 3.1 Effective and integrated watershed management
- Goal 4: Support the implementation of the Regional Plan
 - Objective 4.1 Coordinated Infrastructure Planning
 - Objective 4.2 Clarification of RWPC Role

Policies and Criteria

Goal 1: Plan for the Development of Sustainable Water Supplies

Objective 1.1 Promote Efficient Use of Resources

Policy 1.1.a: Geographic Use of Truckee River Water

Use of Truckee River water rights shall be limited to the hydrographic basins historically receiving Truckee River water. Use of Truckee River water rights in additional hydrographic basins shall be allowed only to the extent that such uses:

are an efficient use of water resources;

meet or satisfy all regulatory requirements and operating agreements;

maintain or improve water quality for downstream users;

maintain a healthy river environment, provide a recreation attraction for residents and tourists, and offer a focus for economic/tourism development.

Criteria to implement policy: Local governments and water purveyors shall apply the following criteria to identify approved areas for the use of Truckee River resources:

- The primary locations where Truckee River water may be used include the hydrographic basins where Truckee River water has historically been diverted for agriculture pursuant to the Orr Ditch Decree: Truckee Meadows Hydrographic basin 87, Spanish Springs basin 85, Truckee Canyon segment basin 91, and Tracy segment basin 83, plus areas where Truckee River water has been delivered for municipal and industrial use in Sun Valley basin 86 and Lemmon Valley basin 92.
- In reviewing requests for use of Truckee River Water, water purveyors and local government agencies shall determine that export of the Truckee River water resource to additional areas does not impair the ability to meet the demands associated with fulfilling the reasonable development potential of properties identified under Regional Plan

Policies 1.2.1 and 1.2.2, as calculated in the 2003 Water Resource Baseline (see Appendix D) and subsequent Water Resource Budgets.

- The proposed area of Truckee River water use is within the Truckee Meadows Service Area boundary, as it may be amended.
- Local governments and water purveyors have determined that the resource costs are found to be economically acceptable.
- Expanded use is consistent with water quality, wastewater disposal, environmental and flood control policies or regulations.

Discussion: It is in the best interest of the community to optimize the use of Truckee River resources, both within and by export of water from the Truckee River Basin. Use of limited Truckee River water supplies throughout the region is recognized as an ongoing and necessary practice that provides water supplies to areas that independently do not have sufficient water resources to accommodate existing and planned uses.

Policy 1.1.b: Water Conservation

Water conservation measures that promote smart management of the region's water resources will be implemented for the benefit of the community. Additionally, the community will be expected to conserve more water during drought.

Criteria to implement policy: Local governments and water purveyors shall enforce existing ordinances and work towards implementation of Base Case conservation measures.

Discussion: In many communities, water conservation is viewed as an alternative to developing new water resources. However, due to institutional constraints, most water conservation programs in the Truckee Meadows do not result in new water resources for future use. Notwithstanding the limitations on water resource benefits resulting from conservation, valuable benefits can be realized, including:

- stretching drought or emergency water supplies
- delaying construction of new water and wastewater treatment facilities
- reducing cost of water system operations
- reducing energy costs
- enhancing downstream water quality
- improving environmental conditions
- enhancing access to water supply projects, including the Negotiated Settlement

Techniques that may be used to achieve the region's conservation goals include, but are not limited to, the following:

- water meters
- existing ordinance enforcement
- water saving indoor fixtures
- individual evapotranspiration controller system requirement
- minimum of 65% efficient irrigation for residential and commercial sites
- seasonal changes in irrigation timing

- functional turf areas
- proper soil preparation
- pressure reducing valves
- individual customer water budgets
- tiered pricing
- water audits
- reclaimed wastewater for landscaping

Policy 1.1.c: Management of Conserved Truckee River Water

Conserved water originating from the Truckee River shall be managed consistent with agreements among local entities and parties of interest to the Truckee River.

Discussion: During drought conditions, low river flows occur between the Glendale Water Treatment Plant and the Steamboat Creek confluence. During extreme drought periods flow is sometimes reduced to zero. The above policy is designed to generate a source of water that can be managed in the best possible way, depending on drought conditions, to achieve instream flows and habitat enhancement to the greatest degree possible. Storage of conserved water in upstream reservoirs will have requirements pursuant to TROA operations that provide drought protection and fish credit water. Water stored under TROA operations can be released for fish purposes thereby providing undiverted flow to the benefit of Pyramid Lake as well as Truckee River habitat. Implementation of the Water Quality Agreement and TROA are expected to enhance flows during critical low-flow periods.

Policy 1.1.d: Evaluation of the Unexercised Portion of Committed Water Supplies

The feasibility of alternative uses and management of the unexercised portion of committed water supplies shall be evaluated. This appropriated but unused water could possibly be dedicated to a variety of beneficial uses.

Discussion: Conversion of agricultural water rights to municipal and industrial uses and the various conversion ratios accepted (e.g. 1.12 af for one single-family home) have committed water resources that are not currently being used due to a variety of reasons, including conservation. This appropriated but unused water could possibly be dedicated to a variety of uses including environmental or a reduced water right dedication policy or could be added to existing water supply. Any one of these options has political or institutional barriers and could be hydrographic basin specific.

Policy 1.1.e: Water Meters

Water purveyors within the region shall meter to the extent practicable, all uses or sales of water within their respective service areas.

Objective 1.2 Provide an Acceptable Level of Service to the Community

Policy 1.2.a: Conjunctive Management of Surface Water and Groundwater Supplies to withstand a 10-year Drought Cycle

For planning purposes, the conjunctive management of surface water and groundwater supplies for municipal and industrial use shall be designed to withstand the worst drought cycle of record, that being the drought of 1987-1994, with 2 dry years (1987-1988) added to the cycle.

Discussion: When the 1995–2015 Regional Water Plan was being written (during the worst years of what would become the worst 8-year drought of record), the RWPC endorsed a drought protection policy designed to withstand an event more severe than the worst drought of record. The resulting policy required a 10-year drought design consisting of the actual drought of 1987–1994 plus two additional years, 1987-1988. The stricter, more conservative nature of that policy resulted, at least in part, due to the uncertainty of whether the 1995 water year would prolong the drought or end it. It so happened the drought ended after adoption of the policy.

In its 2005-2025 Water Resource Plan (TMWA, 2003), TMWA concluded that the threat of drought affecting the regional surface water supply is always present and no scientific research can provide a 100% reliable estimate of when a drought will occur or how long one will last. The longest drought period on record is eight years, from 1987 to 1994. In determining the level of threat from a drought and the appropriate length of time for which to plan, consideration must be given to the likelihood that a drought of eight or more years will occur and the costs that might be imposed on water customers to maintain an acceptable level of water supply to endure such a drought.

As part of its 2005-2025 Water Resource Plan, TMWA used historical Truckee River data to examine the likelihood of occurrence of droughts of various lengths and found that drought-year cycles are relatively rare events, similar to flood events. A TMWA / UNR modeling effort to analyze drought frequencies estimated that the likelihood of a 8-, 9-, or 10-year event occurring is extremely rare with frequencies of 1 in 230 years, 1 in 375 years and 1 in 650 years, respectively.

TMWA's 2005-2025 Resource Plan finds that 1) a ten-year drought design imposes an unrealistic burden on the Region's resources, 2) planning for the nine-year drought event with today's resources is more than adequate to meet expected drought frequencies. TMWA leans on the conservative side in its modeling efforts and concludes that its customers will have water available for all uses, provided there is increased conservation during the critical year, to withstand a nine-year drought. During the drought period of the late 1980s to the mid-1990s, use per connection decreased by almost 25% from the previous years' average usage, demonstrating significant consumer response to drought measures. In light of the above findings, the projected water demands of the region (see Chapter 6), and the anticipated cost to the community to support a 10-year drought design, the RWPC recommended a 9-year drought planning standard. The Board however, retained the more conservative 10-year standard reflected in Policy 1.2.a, above. Please see related sections on drought in Chapters 2 and 8.

The RWPC intends to review this policy, and revise it if necessary, during the next 3-year update of this Plan. Factors to consider in reviewing the performance of this policy might

include updated demand projections; more hydrologic/climatologic data and analyses; increased conjunctive use and other measures that provide flexibility in managing water resources; new sources of water supply; or other appropriate factors.

Policy 1.2.b: Water Resource Investigations

Where a water supply deficiency exists or a potential water supply deficiency may occur as a result of master plan, zoning or land use changes or changes to the Truckee Meadows Service Area boundary, or there is a need for additional water resources to meet other regional objectives, the RWPC may investigate alternatives to meet the potential water requirement.

Criteria to implement policy: The RWPC may initiate water resource investigations when any of the following criteria are met:

- The investigation has been identified as a required element of the RWPC’s regular updates to the Regional Water Plan, per NRS 540A.130.3(d).
- When the projection of potential demand indicates that less than 10 years of remaining water resources are available, based on the Water Resource Budget.
- When there is an identified need for additional water resources not associated with land use changes (examples: water for return flow requirements, Water Quality Settlement Agreement requirements, effluent reuse, domestic well conversion or augmentation, etc.).

Discussion: A method of accounting for potential water requirements and available water resources has been developed in the form of the 2003 Water Resource Baseline and the subsequent Water Resource Budgets. It may take up to 10 years to implement a new water resource option from the time a need for additional resources has been identified to the commencement of delivery of that resource. The RWPC will use the Water Resource Budget as a tool to identify the need to investigate additional water resource options.

Policy 1.2.c: Emergency Water Supply Standard

Water service providers using Truckee River water rights supplemented with other water resources shall design and manage their supplies to withstand a short-term contamination event (1-2 days) with no interruption in service, and a 7-day event through the use of mandatory conservation. Water resources supplemental to Truckee River water rights shall be sufficient to meet system average daily demand for 7 days, which would be sufficient to meet all indoor water uses.

Discussion: The Truckee River and its tributaries may be subject to both natural and human-induced contamination events. Natural events may include turbidity caused by flooding, thunderstorms, and/or landslides in the watershed. Human-induced events may include leaks or spills associated with the transport of materials that would pollute water if released. This policy acknowledges emergency management plans required by state statute.

The purpose of this standard is to provide emergency water to the community during a potential contamination event that could render Truckee River water untreatable for an extended period. The minimum 7-day supply is intended to allow the contaminant to flush by the treatment plant intakes, and to provide sufficient response time to plan, implement and communicate temporary

treatment or other extraordinary measures to restore the water supply to the community. A water supply of at least the average day demand will provide basic community needs and assumes that mandatory water conservation is implemented.

An evaluation by the RWPC as to whether the region's existing facilities meet this standard was conducted in 2002. This analysis recommended five projects, described in Recommended Projects to Provide an Emergency Water Supply to the Truckee Meadows (ECO:LOGIC, 2002), for detailed evaluation to meet the standard. It is recommended that the RWPC examine these alternatives for future compliance with this service standard.

Policy 1.2.d: Water Supplies to Meet Safe Drinking Water Act Requirements

All drinking water supplies shall meet or exceed the requirements of the Safe Drinking Water Act.

Discussion: The region depends on both surface water and groundwater for its municipal drinking water supplies. Compliance with the Federal Safe Drinking Water Act will ensure a healthful water supply for the regional population.

Objective 1.3 Implement Measures to Ensure a Sustainable Water Supply

Policy 1.3.a: Wellhead Protection

To protect public health and to ensure the availability of safe drinking water, the Washoe County District Health Department (for domestic wells) or local governments with input from the water purveyors with groundwater production facilities in the vicinity of a proposed project shall review any proposed project that may cause possible groundwater contaminating activities. Water purveyors are encouraged to develop wellhead protection programs that can be integrated with local government new business or development review processes.

Criteria to implement policy: Local governments shall solicit comments from the water purveyor and/or the Washoe County District Health Department and consider such comments prior to taking action on a proposed project if there is the potential that a proposed project could result in development with possible contaminating activities within a Wellhead Protection Area.

A list of possible contaminating activities includes, but is not limited to:

- Septic tanks
- Solid waste transfer or storage facilities
- Tank farms
- Service stations
- Laundries and dry cleaning plants
- Auto repair services
- Batch plants
- Storage yards
- Electronic circuit manufacture or assembly plants
- Chemical storage, processing or manufacturing plants
- Industrial liquid waste storage areas

- Paint products manufacturing
- Printing and publishing establishments
- Wood preserving
- Plating plants
- Livestock yards
- Storm water infiltration systems

Discussion: A number of potential contaminating activities have been identified as risks for groundwater contamination. Wellhead protection programs are being implemented nationwide to provide assurance that inadvertent discharge of pollutants into the groundwater supply will not occur, since groundwater cleanup is often prohibitively expensive. In considering comments from the Washoe County District Health Department or water purveyors, local governments may choose to apply conditions to the approval of a proposed project in order to reduce the risk of possible groundwater contamination.

Policy 1.3.b: Protection and Enhancement of Groundwater Recharge

Natural recharge areas shall be defined and protected for aquifer recharge. Proposed projects and proposed land use changes in areas with good recharge potential shall be encouraged to include project features or adequate land for passive recharge.

Criteria to implement policy:

Natural recharge in drainage ways:

Local governments shall enforce existing ordinances referenced below. Local governments will protect the natural recharge and flood protection functions of the drainage ways shown on USGS 7.5 Minute Quad maps.

Undeveloped areas with recharge potential:

- Local governments shall perform a review of lands within proposed project or proposed land use change area and rank suitability for passive recharge based on site evaluation criteria: see RWPC Southern Washoe County Groundwater Recharge Analysis (Kennedy/Jenks, January 2001). Sites with a Hydrology/Geology matrix score of 2.2 or higher are considered to be sites with “good recharge potential”. Figure 1-1 shows areas of good recharge potential compiled from data presented in the report referenced above.
- If a site is determined to have “good recharge potential”, local governments shall, to the extent practicable, work with the project developer or land use change proponent to explore development features or configurations that maximize recharge while meeting other obligations regarding storm water quality and flood control needs.
- Passive recharge elements shall be designed such that they are consistent with water quality, environmental, storm water and flood control policies or regulations.

Discussion:

Natural recharge in drainage ways:

When combined, the requirements of the City of Reno Major Drainage Ways Ordinance and the Washoe County Development Code Article 418 “Significant Hydrologic Resources” provide for the protection of groundwater recharge in most natural drainage ways. There are additional drainage ways not identified in the two ordinances that are shown on USGS 7.5 Minute Quad maps as blue solid or dot-dash lines that represent perennial and ephemeral drainage ways. The intent of this policy is to protect the natural recharge and flood protection functions of these additional drainage ways.

Natural recharge through unlined irrigation ditches:

Insufficient information is available to develop policies at this time.

Areas with recharge potential:

The RWPC strongly encourages incorporation of passive groundwater recharge and/or storm water infiltration project components (infiltration basins or trenches, open space, meandering stream channels) when proposed projects or land use changes are considered on sites that have good recharge potential and the water to be recharged can meet water quality standards. An initial identification of 30 such sites is included in the RWPC Southern Washoe County Groundwater Recharge Analysis (Kennedy/Jenks, 2001). No funding source is currently in place to develop particular locations as passive recharge sites.

Policy 1.3.c: New Water Resources / Importation

New water resources, including imported water, may be developed provided they further the goals of the Regional Plan and the Regional Water Plan.

Criteria to implement policy: Development of new water resources, including an importation water supply, may be pursued if the following criteria are met:

- The water is to be used within the Truckee Meadows Service Area boundary, as may be amended from time to time.
- There is a need for additional water resources to help meet the demands associated with fulfilling the reasonable development potential of properties identified under Regional Plan Policies 1.2.1 and 1.2.2, as calculated in the Water Resource Baseline or the subsequent Water Resource Budgets.
- Local governments or water purveyors have determined that the new water resource or importation of water is economically feasible and consistent with water quality, wastewater disposal, environmental and flood control policies or regulations.

Discussion: Water importation provides water supplies to areas that independently do not have sufficient water resources to accommodate existing and planned uses. Water importation is a component of the existing water supply for the region. This policy acknowledges that the State Engineer considers additional criteria for water importation according to NRS 533.370(4). Section 7.2.1 discusses this topic in more detail.

Policy 1.3.d: Water Resources and Land Use

Land use designations or zoning designations do not guarantee an allocation of future water resources. This applies to both surface water and groundwater, including groundwater for domestic wells. While a potential water supply deficiency may exist based on approved land uses, water supply commitments may only be approved pursuant to Policy 1.3.e.

Criteria to implement policy: Local governments shall consider the following criteria in reviewing proposed projects or in reviewing changes to land use or proposing changes to the Truckee Meadows Service Area:

- The potential resource requirement;
- The availability of uncommitted water resources in the hydrographic basin, as identified in the Water Resource Baseline¹;
- Whether or not a potential water supply deficiency is created and its timing, magnitude and regional water resource impacts;
- Existing water resource investigations that have been performed in accordance with Policy 1.2.b; or
- Timing and availability of potential new water resources developed in accordance with Policy 1.3.c and/or potential mitigation measures.

Discussion: Water resource options will be identified to help meet the potential water resource requirements associated with fulfilling the reasonable development potential of properties identified under Regional Plan Policies 1.2.1 and 1.2.2, as presented in the preliminary 2003 Water Resource Baseline¹ and subsequent Water Resource Budgets. The RWPC recognizes that proposed projects, master plan, zoning or land use changes may create a situation where there are insufficient water resources identified to supply the build-out of all approved land uses within the Truckee Meadows Service Area.

Policy 1.3.e: Water Resource Commitments

Issuance of new commitments against a water resource or combination of resources shall be made in conformance with existing State Engineer permits, certificates or orders; water purveyor rules or policies; and/or local government policies. The local governments, water purveyors, and State Engineer will seek to achieve a balance between commitments and the sustainable yield of the resources in the region.

Criteria to implement policy: The following criteria will be applied:

- The Water Resource Baseline (Appendix D) will be used by local governments and water purveyors as the basis for evaluating the availability of resources to serve proposed commitments. Not all basins within the Baseline have an estimate of the sustainable yield. In such cases where sustainable yield information is lacking, the local government or water purveyor shall use the best available information and may require or conduct additional studies, as it may deem necessary to make a decision.

¹ The RWPC 2003 Water Resource Baseline and subsequent Water Resource Budget are subject to continuing review and update by the RWPC.

- In areas where the approval of commitments through the parcel map, division of land into large parcel map or subdivision process would tend to create or exacerbate a deficit in the Water Resource Baseline balance between sustainable yield and commitments, the local governments and water purveyors will limit such approvals or take affirmative actions to mitigate the deficits through mechanisms such as artificial recharge and recovery of groundwater, conjunctive use of available resources, or the use of alternative water resources.
- In specific basins, resources have been regulated by the State Engineer (such as groundwater in Basin 92) or by water purveyors through the development of a management plan or discount factor that has been approved by the State Engineer, Regional Water Planning Commission, or local government. Such management plans may include short-term reliance upon the use of groundwater in excess of the sustainable yield, provided that such use is temporary and part of an overall management plan to bring the basin back into a condition of sustainability. In addition, certain orders have been issued by the State Engineer on specific resources (such as certain rights in Basin 100) detailing and regulating the amount of the resource available for municipal use while protecting the basin of origin. These resources shall be considered available sustainable yield and shall be managed in a manner consistent with such State Engineer order or regulation or an approved management plan or discount factor as described herein.

Discussion: While a potential water supply deficit may exist as described in Policy 1.3.d, it represents a hypothetical (or potential future) demand on water resources that might occur if the land is ultimately subdivided or developed in a manner that fully implements the land use plan. A commitment represents an obligation of a water purveyor to provide water to an approved project and therefore should be allowed up to the sustainable yield of the available resources or combination of resources. Properties with existing domestic wells and properties entitled to construct domestic wells constitute a form of commitment of water resources made by a local government when the parcels or lots are created, however there is no guarantee that well drilling will be successful. Maintaining a balance between commitments and the sustainable yield of the resources in the region is of great importance in the implementation of this plan. In areas where existing commitments exceed the sustainable yield the market place will play a significant role in the reallocation of the existing water resource commitments.

Policy 1.3.f: Well Siting and Geothermal Influence

Existing and proposed municipal and industrial well sitings must be evaluated for their influence on the potential for geothermal groundwater migration to areas of potable groundwater. Also, development of groundwater resources shall not result in deterioration of groundwater quality through migration of contaminants.

Discussion: The Region's groundwater supplies are limited in part due to the influence of geothermal systems, most notably the Moana Hot Springs and Steamboat Springs systems. Smaller geothermal systems also exist in Spanish Springs Valley, Washoe Valley near New Washoe City, and Warm Springs Valley. While these areas are fairly well known, it must be understood that large centers of municipal pumping peripheral to geothermal areas can induce geothermal water migration toward the production wells. Consequently, consideration must be given to the prevention of geothermal migration as a result of well placement or groundwater pumping.

Policy 1.3.g: Groundwater Resource Development and Management of Water Quality

Existing and proposed municipal and industrial well sitings must be evaluated for their influence on the potential for contaminated groundwater migration to areas of potable groundwater. Also, development of groundwater resources shall not result in deterioration of groundwater quality through migration of contaminants.

Criteria to implement policy: Long-term monitoring of groundwater quality by water service providers and participating domestic well owners shall be performed to identify potential deterioration in groundwater quality.

Discussion: Similar to the above discussion on the influence of geothermal systems, the Region's groundwater supplies are also limited because of the presence of other natural and man-caused contamination. Occurrences of nitrates, PCE, arsenic and TDS are documented in one or more locations within the Region. Municipal groundwater providers and other entities as required by law must take measures to prevent further contamination of potable groundwater supplies.

Policy 1.3.h: Corrective Action for Remediation of Groundwater

The corrective action taken for remediation of groundwater contamination shall consider the level of cleanup desired by the affected community, realizing that public health concerns are typically the driving force for groundwater remediation.

Discussion: Groundwater contamination (solvents, fuels, etc.) from various sources occurs beneath the central Truckee Meadows, Sparks Tank Farm and near the Stead Airport. Currently, these sites are in various stages of study and corrective action. Until these areas of contamination have been "corrected", nearby groundwater production may be limited. Various levels of corrective action are available depending on several factors including whether contamination is a result of historic disposal practices or recent releases and whether a responsible party has been identified. Public health concerns as included in various State and Federal environmental laws and regulations may require or constrain certain corrective action alternatives. The affected community should consider the level and cost of corrective action taken.

Goal 2: Plan for Regional Wastewater Treatment and Disposal Requirements

Objective 2.1 Promote Efficient Use of Resources

Policy 2.1.a: Effluent Reuse - Efficient Use of Water Resources and Water Rights

The use of reclaimed wastewater for irrigation, recharge or other permitted uses should be pursued where such use is an efficient use of water resources and water rights.

Criteria to implement policy: Local governments, effluent providers, or water purveyors shall apply the following criteria to identify approved uses or areas for reclaimed effluent:

- Where it is an efficient use of water resources and water rights, local governments, effluent providers, or water purveyors may require the use of reclaimed wastewater, including the necessary facility improvements.
- The use of reclaimed wastewater will be included in the Water Resource Budget as both a supply and as a satisfied demand. To the extent that there may be requirements for make-up water associated with certain uses of reclaimed wastewater, those shall be included in the Water Resource Budget.
- Where such effluent reuse is consistent with water quality, wastewater disposal, public health, vector, environmental and flood control permits, policies or regulations.

Discussion: It is in the best interest of the community to optimize the use of available water resources, including treated wastewater. Effluent reuse is a wastewater disposal practice that provides multiple benefits to the region, including nutrient and TDS discharge permit compliance for TMWRF, drought benefits to the receiving user, water quality benefits to the Truckee River, wetland habitat and is the only present disposal option for the South Truckee Meadows Water Reclamation Facility. The expanded use of reclaimed wastewater may also extend potable water supplies by replacing existing water resources that could otherwise be used for municipal and industrial purposes, or by providing new, non-potable water supplies to existing and/or developing areas. Reuse water supply will be included as part of the Water Resource Budget and its use will be further evaluated with respect to that budget.

Policy 2.1.b: Reduction of Non-Point Source Pollution for TMWRF Pollutant Credit

Options for centralized wastewater treatment with surface water discharge shall include alternatives for reducing non-point source pollution, which may be more environmentally sensitive, and where appropriate should be pursued as pollutant credits for TMWRF.

Discussion: Various options exist for wastewater treatment and disposal of treated effluent, including location of treatment facilities and disposal by way of river discharge, effluent reuse, land application and infiltration. Chapter 3 discusses this complex subject in greater detail.

Discharge of treated wastewater effluent to the Truckee River is constrained by permit limitations and TMDLs for TDS, nitrogen and phosphorus. Water quality trading is a relatively recent option being evaluated and implemented around the country by communities facing the high cost of building treatment facilities to meet water quality standards. Water quality trading between a point source, such as TMWRF, and non-point sources, allows for a community to invest in measures to reduce non-point source pollution and receive credit toward its point source discharge rather than constructing additional wastewater unit processes to comply with water quality standards. This approach promotes economical and efficient water quality improvements. Water quality trading opportunities may include agricultural return flow reduction, best management practices, storm water treatment, livestock management, sewer conversion of septic systems and river restoration.

It is acknowledged that in addition to TMWRF investments, parties other than the owners of TMWRF may expend considerable resources on capital improvements that will reduce non-point source pollution and should provide water quality trading credits that may benefit TMWRF.

Objective 2.2 Manage Wastewater for Protection and Enhancement of Water Quality

Policy 2.2.a: Septic Tank Density and Groundwater Pollution

Development density and groundwater quality/accountability issues should determine whether individual sewage disposal systems can be utilized. When adverse surface water or groundwater impacts occur as a result of a concentration of septic systems, alternative sewage disposal, groundwater treatment, or other techniques shall be implemented. The selection of techniques to achieve this performance standard shall be based on cost, longevity of the solution, and existence of a credible entity to be responsible for the continuing performance of the selected system. Future individual septic systems shall not be allowed in densities that would degrade groundwater or surface water quality such that it no longer meets beneficial use standards.

Discussion: In areas where there is little recharge, effluent from septic systems can recycle through the groundwater system, increasing pollutants to unacceptable levels. Individual septic systems are generally used in areas where centralized wastewater treatment is not provided. Currently, these areas include Warm Springs, Washoe Valley, portions of Golden Valley and Lemmon Valley, Cold Springs and Spanish Springs. In 2000, the NDEP issued a directive to Washoe County to plan for sewerage existing lots with septic systems in the Spanish Springs area due to elevated nitrate concentrations detected in public drinking water wells. In 2001, the Washoe County District Board of Health approved a regulation that limits the minimum lot or parcel size to five acres for new subdivisions, and second and subsequent parcel maps proposing to use septic systems. The regulation allows for exceptions, but indicates that approvals will not be granted if the density of septic tanks will exceed the standard established by NDEP. This policy is intended to complement and not conflict with Truckee Meadows Regional Plan Policy 3.1.3 regarding requirements for the use of on-site sewage disposal systems.

Goal 3: Plan for the Protection of Human Health, Property, Water Quality, and the Environment through Regional Flood Plain and Storm Water Management

Objective 3.1 Effective and Integrated Watershed Management

Policy 3.1.a: Regional Flood Plain Management Plan and Regional Flood Control Master Plan

The RWPC will, after its review and approval of the Regional Flood Plain Management Plan and Regional Flood Control Master Plan, recommend that local governments adopt and implement those plans.

Criteria to implement policy: Until such time as the plans are adopted and implemented by local governments, proposed projects and proposed land use changes will follow the Criteria for Policy Implementation in Policies 3.1.b and 3.1.c.

Discussion: The Community Coalition has spent over two years developing the Truckee River Flood Management project alternatives. The alternatives being evaluated in the Army Corps of

Engineers (Corps)'s integrated General Re-evaluation Report and Environmental Impact Statement were designed according to the Corps' regulations and address only current 100-year flood conditions. The project alternatives do not account for full development of the urbanizing watersheds. It is anticipated that the Regional Flood Plain Management Plan and the Regional Flood Control Master Plan will address future development.

The Truckee River Flood Management project was designed based on the assumption that future conditions in the region would not cause a net loss of flood plain storage volumes and would not cause an adverse change to the base flood elevation in the project's hydrology. The Corps will require that the local sponsors agree to *maintain* the protection level provided by the Truckee River Flood Management project; this protection level will be maintained by implementation of the Regional Flood Plain Management Plan and the Regional Flood Control Master Plan.

The RWPC is undertaking flood damage reduction planning efforts that will work together to provide guidance at the regional level on what needs to be done to: 1) protect the flood damage reduction benefits that will be provided by the Truckee River Flood Management project, and 2) plan for full development of the urbanizing watersheds in southern Washoe County to maintain the protection level provided by the Truckee River Flood Management project. These planning efforts also address areas outside of the Truckee River watershed.

The first planning effort is the Regional Flood Plain Management Plan. The Regional Flood Plain Management Plan will provide guidance from a policy level on items such as identification of flood hazard areas, strategies to mitigate different types of flood hazards, strategies to reduce flood damages in already developed areas, and strategies to manage future development in a way that doesn't increase flood damages.

The second planning effort is the Regional Flood Control Master Plan. This plan is intended to complement the Regional Flood Plain Management Plan. It is much more specific in terms of recommended facilities and development of hydrologic and hydraulic models of the watersheds. The Regional Flood Control Master Plan takes guidance in terms of philosophical approach and flood damage reduction strategies from the Regional Flood Plain Management Plan.

The Regional Flood Plain Management Plan and the Regional Flood Control Master Plan also cover areas outside of the Truckee River watershed.

Policy 3.1.b: Flood Plain Storage within the Truckee River Watershed

Until such time as Reno, Sparks, and Washoe County adopt and begin to implement the Regional Flood Plain Management Plan and the Regional Flood Control Master Plan, the local flood management staff², using the best technical information available, will work with a proposed project applicant or a proposed land use change applicant to determine the appropriate level of analysis required in order to evaluate and mitigate the impacts to 100-year flood peaks and flood plain storage volumes. On an annual basis, all three local flood management agencies shall jointly agree on and adopt the "best technical information"

² Each local government has assigned one or more staff members the responsibility of designing and reviewing flood management projects. These staff members are also responsible for reviewing certain proposed projects to address concerns of drainage and flooding.

available for use in implementation of the Regional Water Plan policies relating to flooding. The local flood management staff would be responsible for coordinating with the other appropriate local government agencies.

Criteria to implement policy: The local flood management staff shall evaluate impacts using qualitative or quantitative analysis and the evaluation may be uncomplicated and brief. If a more in-depth analysis is appropriate, the following “tiered” approach and criteria shall be used:

- Current ordinance requires that a project not increase the 100-year peak flow at the boundary of the property. If the project can also demonstrate no increase in volume of 100-year runoff at the boundary of the property, the analysis is complete.
- If there is an increase in 100-year volume of runoff at the boundary of the property, the project may demonstrate either:
 - The increase in volume of runoff will have no adverse impact to downstream properties and no adverse impact³ to hydrologically connected properties, or
 - The increase in volume of runoff will be mitigated in a regional project without adverse impact to hydrologically connected and downstream properties. (Until a storage mitigation plan is in place with respect to this paragraph, no flood plain storage mitigation will be required.)
- Impacts of a proposed project will be evaluated by comparing conditions without the proposed project (current conditions) and conditions with the proposed project.
- Impacts of a proposed land use change will be evaluated by comparing conditions without the proposed land use change (current conditions) and conditions with the build out of the reasonable development potential of the proposed land use change.

The watershed is divided into four zones with different project size thresholds for the purposes of review (See Figure 1-2):

- Zone 1: Critical flood pool – all proposed land use changes and proposed projects will be reviewed for their impact on hydrologically connected and downstream properties
- Zone 2: Existing flood pool that will be removed from the flood pool by the proposed Truckee River Flood Management project – proposed land use changes and proposed projects 5 acres and larger will be reviewed
- Zone 3: Adjacent sheet flow areas not part of the flood pool – proposed land use changes and proposed projects 5 acres and larger will be reviewed
- Zone 4: Remainder of the Truckee River Watershed – proposed land use changes and proposed projects 10 acres and larger will be reviewed

Policy 3.1.c: Flood Plain Storage outside of the Truckee River Watershed

As appropriate, the local flood management staff will work with the proposed project applicant or proposed land use applicant to identify the best approach to mitigate the impacts of changes to 100-year flood peaks and flood plain storage volume that are a result of proposed land use changes or proposed projects.

Criteria to implement policy: The local flood management staff shall evaluate impacts using qualitative or quantitative analysis. A more in-depth analysis and a tiered approach will be required when significant impacts must be mitigated. Local flood management staff will develop guidelines for evaluation and mitigation of impacts in specific closed basins. In multi-

³ See Glossary for definition of “no adverse impact”.

jurisdictional basins such guidelines will be developed with the concurrence of all responsible agencies.

- Current ordinance requires that a project not increase the 100-year peak flow at the boundary of the property. If the project can also demonstrate no increase in volume of 100-year runoff at the boundary of the property, the analysis is complete.
- If there is an increase in 100-year volume of runoff at the boundary of the property, the project may demonstrate either:
 - The increase in volume of runoff will have no adverse impact on other properties within the basin, or
 - The increase in volume of runoff will be mitigated in a regional project without adverse impact to hydrologically connected and downstream properties. (Until a storage mitigation plan is in place with respect to this paragraph, no flood plain storage mitigation will be required.)
- Impacts of a proposed project will be evaluated by comparing conditions without project (current conditions) and conditions with the proposed project.
- Impacts of a proposed land use change will be evaluated by comparing conditions without the proposed land use change (current conditions) and conditions with the build out of the reasonable development potential of the proposed land use change.
- Impacts to perennial and ephemeral streams and playas must be included in the evaluation.

Policy 3.1.d: Truckee River Restoration

In review of proposed projects and proposed land use changes within the areas identified for restoration in Figure 1-3, the local governments shall make findings supporting the implementation of potential restoration projects as identified in the Lower Truckee River Restoration Plan or the Truckee River Flood Management project being developed in conjunction with the Corps.

Discussion: There is a regional collaborative effort to restore the lower Truckee River below Vista. The three local governments and the Pyramid Lake Paiute Tribe have signed a Memorandum of Understanding supporting the multiple goals to be achieved through river restoration.

The Memorandum of Understanding generally describes the benefits, goals and management principles that the major stakeholders agree are necessary to develop a comprehensive program to restore the lower Truckee River. The lower river, running from the Truckee Meadows metropolitan area to Pyramid Lake, is a vital natural resource that serves multiple public and private purposes. An unprecedented opportunity exists for interagency collaboration to achieve multiple public goals. The lower river falls under the jurisdiction of multiple local, state, and federal agencies and units of government, and involves multiple private landowners. To successfully take advantage of this opportunity, public agencies and private landowners need to cooperate and coordinate their river restoration activities. This statement of public benefits, goals, and management principles agreed upon by key lower river stakeholders, represents a common understanding and foundation from which more detailed work programs may be pursued with a high likelihood of success.

Public Benefits

- Water quality and related wastewater treatment capacity of the region, which is fundamental to economic growth
- Accommodation of increased flood flows
- Parks, open space, fishing, canoeing and activities that are fundamental to the region's quality of life
- Habitat and wildlife benefits for fish, birds, mammals and plant communities that are part and parcel of our region's natural heritage

Public Goals

- Cost-effective wastewater treatment via a natural process
- A stable and energy-dissipating channel, achieved through re-establishment of river meanders and reconnection of river to flood plain, to accommodate increased flood flows
- Enhancement of parks system, preservation of open space, enhancement of public recreation opportunities that are high quality, easy to access and ample in number
- Preservation and restoration of aquatic and terrestrial habitat in the river corridor
- Environmental enhancement of the river will favorably affect adjoining properties

Policy 3.1.e: Watershed Protection

Watershed protection programs shall be implemented for the Truckee River, its tributaries, and other perennial streams in the region.

Discussion: Surface and groundwater quality can be affected by pollutant sources, including erosion, in watershed drainages. Programs are being developed that identify existing and potential sources of pollutants, propose alternatives to the control of these pollutants, and make recommendations for the management of these watersheds. These programs are prudent investments toward water quality concerns for the regional community.

Policy 3.1.f: Adoption of Storm Water Quality Programs

A storm water quality program shall be implemented region-wide, including the continuation and/or enhancement of existing programs in Reno/Sparks/Washoe County, such as the Truckee Meadows Regional Storm Water Quality Management Program, to address not only urban runoff but also other non-point source contributions.

Criteria to implement policy: Local government management strategies should ensure that:

- Activities comply with the terms of the storm water NPDES permits.
- Ordinances are enforced with respect to erosion control and runoff.

Discussion: A "uniform" or regional storm water quality framework is beneficial from the standpoint of implementation and compliance by the regulated community. It is recognized that each of the entities has unique conditions and/or ordinances that may conflict with the adoption of a "uniform program". However, to the extent that each entity is able, the goal is to adopt consistent storm water quality programs.

Policy 3.1.g: Management Strategies for Slopes Greater than 15 Percent

Local government management strategies for hillsides with natural slopes greater than 15 percent and less than 30 percent shall be submitted to the RWPC for review, comment, and recommendations prior to incorporation into local government Master Plans.

Criteria to implement policy:

Local government management strategies should ensure that:

- Activities comply with the terms of the storm water NPDES permits.
- Development on such slopes incorporates on-site and/or off-site mitigation measures for impacts to habitat and water quality.
- Ordinances are enforced with respect to erosion control and runoff.
- Local governments and entities with responsibility for the provision of utilities such as water, wastewater, and flood control services have identified the additional costs of infrastructure, operations, and maintenance associated with development in these areas, and said costs are economically feasible.
- Natural recharge areas are identified and protected.
- An analysis is performed to identify flood and erosion hazard areas and potential mitigation measures.

Discussion: Regional Plan Policy 2.2.1 requires local governments to develop management strategies for areas with slopes greater than 15 percent but less than 30 percent within one year of adoption of the Regional Plan. Proposals for watershed changes in areas with slopes greater than 15 percent are of concern as they relate to areas under the jurisdiction of the RWPC. Therefore, the management strategies that are developed as a requirement of Regional Plan Policy 2.2.1 shall be submitted to the RWPC for review, comment and recommendation.

Policy 3.1.h: Adoption of Storm Water Drainage Guidelines

Regional guidelines for storm water hydrologic criteria and drainage design shall be pursued to address, to the extent practicable, inconsistencies between local governments' existing criteria and design standards.

Discussion: Recommendations in the 1995–2015 Regional Water Plan resulted in the development of the draft Hydrologic Criteria and Drainage Design Manual. The manual was not adopted uniformly by the entities, in part because the National Oceanic and Atmospheric Administration (NOAA) was updating its rainfall information. That work is now completed and new maps and data are available. The RWPC has retained a consulting engineering firm to evaluate this new information and related new runoff modeling information, and make recommendations for an update to the draft manual. Hydrologic criteria and drainage design guidelines for storm water facilities are beneficial to the community, especially at jurisdictional boundaries where storm drainage systems join. It is recognized, however, that each of the entities has unique conditions and/or ordinances that may conflict with the adoption of hydrologic criteria and drainage designs. It is also recognized that, to the extent each entity is able, the goal of adopting regionally consistent storm water hydrologic criteria and drainage design guidelines should be pursued.

Policy 3.1.i: Flood Plain Management / Flood Control Projects Subject to RWPC Review

Flood control projects developed by local governments will be reviewed by the RWPC to ensure coordination of local projects with regional water management objectives, including but not limited to, regionally coordinated flood damage reduction, preservation or enhancement of recharge, preservation of natural drainage ways, preservation of riparian habitat, protection or enhancement of surface and groundwater quality.

Goal 4: Support the Implementation of the Regional Plan

Objective 4.1 Coordinated Infrastructure Planning

Policy 4.1.a: Facility Plans and Infrastructure Studies – Conformance with Regional Water Plan

Pursuant to NRS 540A.230, facility plans and infrastructure studies of such a kind or size that affect the working of the Regional Water Plan, including water supply and storage, wastewater collection and treatment, storm water, and flood control, shall be reviewed by the RWPC for conformance with the Regional Water Plan.

Criteria to implement policy:

- The RWPC shall review facility plans and infrastructure studies of such a kind or size that affect the working of the Regional Water Plan to make a determination that the facility or study conforms to the policies and criteria included in the Regional Water Plan;
- Proposed facilities and infrastructure shall:
 - be consistent or coordinate with existing facility plans or master plans, or demonstrate how they will address any differences with or changes to existing facility plans or master plans, and
 - coordinate to avoid unnecessary duplication of facilities
- An evaluation may be provided of the project's impacts on other water-related issues (e.g. a proposed water project must indicate the potential impacts it would have on wastewater treatment.)
- Any plan or study that is funded in whole or in part by the Regional Water Management Fund shall be subject to conformance review.

Discussion: The RWPC and local governments provide ongoing planning for the community's water, wastewater, storm water and flood control needs. Identification and review of potential impacts to existing or planned infrastructure, and needs for new or improved facilities, should provide for integrated planning and management of the region's water resources and cost-effective infrastructure development and improvements.

Facilities are designed and constructed by water purveyors, wastewater treatment providers, and local governments as part of their respective Capital Improvement Programs (CIPs). CIPs are updated annually, at a minimum. When entities update and approve their CIPs, the RWPC

shall review them and recommend that pertinent facilities be found in conformance with the Regional Water Plan pursuant to NRS 540A, Washoe County Code (WCC) Chapter 40, this policy, and RWPC administrative policies and procedures.

As the RWPC, local governments, wastewater treatment providers, and water purveyors update their respective facility and resource plans, they analyze alternatives for financing and funding proposed facilities, sources or other requirements, and the effects of the funding alternatives on other facilities included in the Regional Water Plan. These plans are then presented to the RWPC for either conformance review or informational purposes, as appropriate under the NRS 540A, this policy, and RWPC administrative policies and procedures. Presentation of these plans to the RWPC provides Commissioners the opportunity to raise questions regarding linkages and comprehensive regional planning for water resources, with the result that overall resource issues can be addressed or additional work can be undertaken, as needed. Lists of such plans that are relevant to regional resource planning are contained at the end of various chapters, and again at the end of this plan. These plans also contain detailed alternatives for financing and funding the respective facilities or sources and should be consulted for such detail.

Facility plans reviewed and found in conformance with the Regional Water Plan are added to a list of projects maintained by the RWPC staff (See Appendix J). Pursuant to the RWPC administrative policies and procedures, the list is submitted as appropriate to the Board of County Commissioners for approval and is included in periodic updates of the Regional Water Plan.

The RWPC recognizes that not all facilities required to implement the Regional Water Plan are listed due to unforeseeable circumstances and/or the frequent necessity to alter facilities once final design and construction proceed. Consequently the RWPC will review facilities that are not in the current edition of the Regional Water Plan if such facilities are of such a kind or size that affect the working of the Regional Water Plan.

Policy 4.1.b: Timing and Sizing of Facilities

To the extent allowed by State statutes, codes and local ordinances, planning for facilities (defined under NRS 540A) shall be based on existing data and forecasts of future trends, including conservation, to ensure that facilities will be built pursuant to local entities' CIPs with sufficient lead-time to ensure public demands are met.

Discussion: In order to provide cost-efficient infrastructure, it is important that facilities be constructed at the appropriate time and at the appropriate size to meet regional needs. A balance must be struck between allowing sufficient lead time to construct facilities for projected demands, allowing time for conservation efforts to be realized, and minimizing customer costs from too-soon or too-large facility construction. The RWPC shall take the lead in avoiding rigid rules for sizing and/or timing of facilities in order to allow case-by-case optimization to occur.

Policy 4.1.c: RWPC Programs and Policies to Reinforce Goals of Regional Plan

All the policies and standards for performance for project review adopted by the RWPC shall be consistent with and carry out the provisions of the Truckee Meadows Regional Plan.

Policy 4.1.d: Inclusion of Non-Economic Criteria in Evaluation of Alternatives

Non-economic criteria including, but not limited to, environmental impact, public impact, and archeological impact will be evaluated during the program or project alternative selection process.

Discussion: The primary purpose of developing fiscal and economic standards is to equally evaluate program and facility alternatives. It is also recognized; however, that cost-based evaluation is not the only important criterion to apply to projects.

Policy 4.1.e: Economic Decision-Making Criteria

RWPC recommendations regarding economic decisions shall to the extent possible be based upon minimizing the costs to the entire community for providing adequate services as defined by the policies and criteria of this Plan.

Policy 4.1.f: Facilities Excluded from Conformance Review

Facilities excluded from plan conformance review are limited to the following:

Facilities included in the adopted Regional Water Plan

Facilities to be constructed in response to an emergency as defined in this Plan (see Glossary)

Facilities intended to provide normal service to customers.

Policy 4.1.g: Examination of Long-Term Impact on Availability of Water Resources

In considering water, wastewater, and flood control projects or management options, the long-term impact on the availability of water resources shall be examined.

Discussion: Water resources within the Truckee River drainage area are finite. Since the river is a closed system, terminating in a desert lake with no outlet, all water uses must be accommodated within the total quantity available. Since water, wastewater, and flood control options may impact the total quantity and quality of water available, actions proposed by entities in the Region affected by this Plan should be reviewed for their potential impacts on the ultimate limit of the resource.

Objective 4.2 Clarification of RWPC Role

Policy 4.2.a: Involvement of RWPC in Water Related Issues

The RWPC shall become involved in a water-related matter when a regional problem exists or when the proposed solution to the situation is expected to create a regional impact.

Discussion: There are many issues surrounding water, wastewater, and flood control that are local in nature and may not require intervention by the RWPC. A balance must be struck as to the RWPC's providing cohesive leadership on all water-related issues in the region without its tackling every small item that could divert its energies from the larger issues. This policy shall provide guidance as to when it is appropriate for the RWPC to become involved in a resolution of a water-related issue.