

## **Chapter 3 – Water Purveyors and Other Water Providers**

### ***Purpose and Scope***

This chapter describes the various water purveyors in the Planning Area, including public purveyors, and other providers of water. In addition, a section describing reclaimed water purveyors is included. Subjects covered in this chapter include service areas; major facilities to treat, convey and store water; conjunctive use; aquifer recharge; aquifer storage and recovery; water deliveries; average and peak demands; peaking capacity; and water resource dedication policies.

### ***Summary and Findings***

The major findings of this chapter include:

There are currently four major public water purveyors within the Planning Area; the Truckee Meadows Water Authority (“TMWA”) the Washoe County Department of Water Resources (“WCDWR”), the Sun Valley General Improvement District (“SVGID”), and the South Truckee Meadows General Improvement District (“STMGID”). These four purveyors provide 95 percent of the municipal water service within the Planning Area.

TMWA and WCDWR have entered into an agreement to move forward with consolidation of WCDWR water utilities with TMWA. STMGID, which relies on WCDWR for utility operation and maintenance, is evaluating alternatives for future operations which range from consolidation with TMWA to a standalone utility.

A small number of privately owned public utilities exist in the Planning Area, which are regulated by the Public Utilities Commission of Nevada (“PUC”). Numerous other small private water systems exist which are solely regulated by the Washoe County District Health Department (“WCDHD”). These systems are typically associated with commercial businesses which do not have municipal water service available.

A significant number of residential parcels within the Planning Area rely on individual wells for domestic water supply. The use of domestic wells is allowed for parcels where municipal service is not available. A concern regarding domestic wells has been development in certain areas where withdrawal of groundwater has resulted in the lowering of the water table. A variety of steps have been taken to address the issue including restrictions on development of parcels in certain hydrographic basins, which require retirement of water rights and restrictions on subdividing existing parcels without the dedication of water rights.

There are three reclaimed water purveyors within the Planning Area; the City of Reno (“Reno”), the City of Sparks (“Sparks”) and WCDWR. Reno and Sparks co-own the Truckee Meadows Water Reclamation Facility (“TMWRF”), which supplies approximately 4,000 acre feet (“af”) of reclaimed water per year to the two purveyors’ reclaimed water distribution systems. In addition, the Reno-Stead Water Reclamation Facility (“RSWRF”) supplies approximately 500 af of reclaimed water per year to Reno’s Stead reclaimed water system. Washoe County owns and operates the South Truckee Meadows Water Reclamation Facility (“STMWRF”), which supplies 100 percent of its effluent, approximately 2,300 af of reclaimed water per year, to the WCDWR reclaimed water system in the South Truckee Meadows.

## ***Introduction***

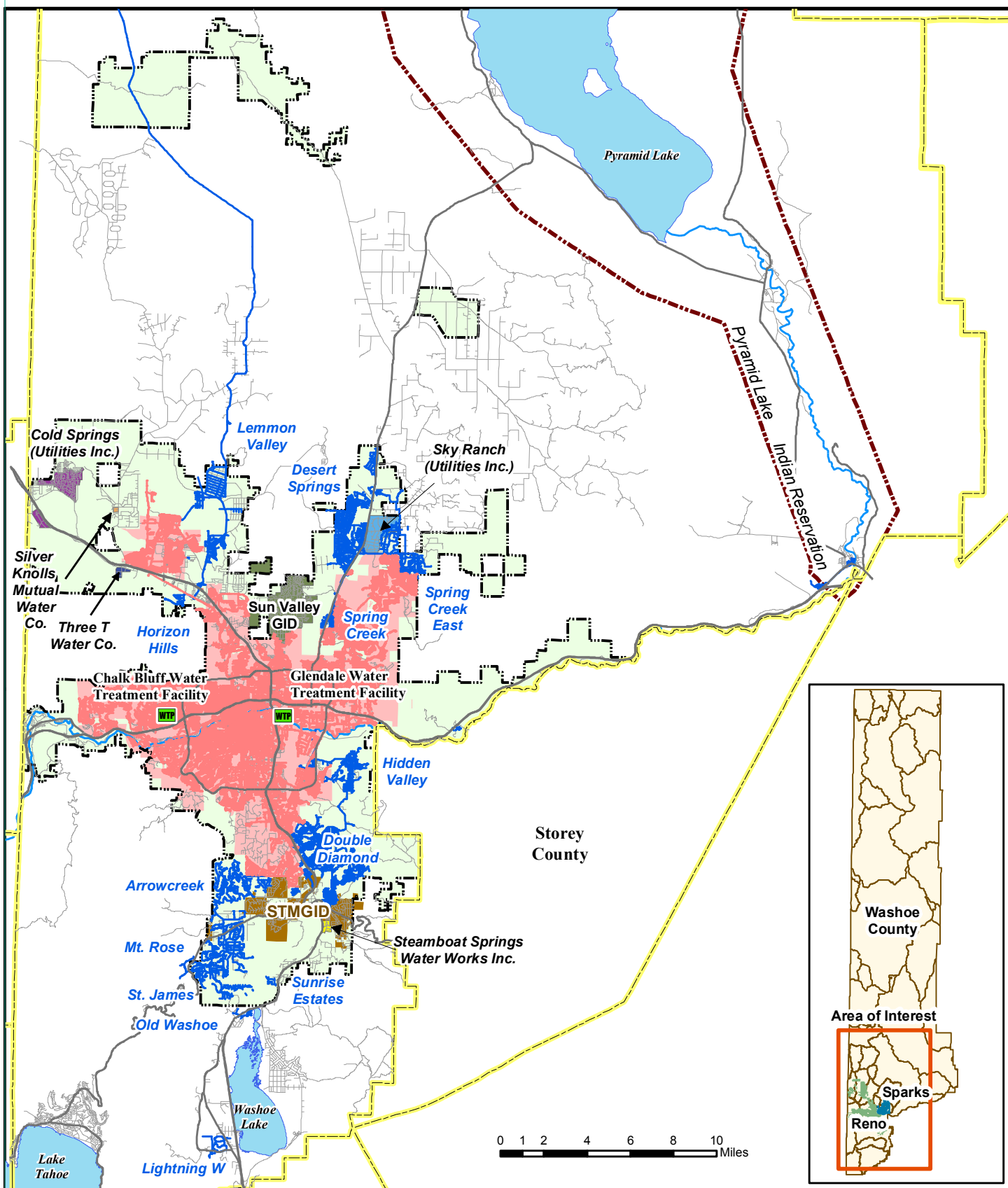
The Western Regional Water Commission (“WRWC”) Act defines four public purveyors: TMWA, WCDWR, SVGID, and STMGID. Various smaller private water companies in the Planning Area serve trailer parks (approximately 1,600 units) or small subdivisions in addition to a number of small systems that serve establishments such as parks, motels or restaurants. Three reclaimed water utilities owned and operated by Reno, Sparks and WCDWR provide water for non-potable uses including irrigation and industrial purposes.

### ***3.1 Public Water Purveyors***

The four public purveyors, TMWA, WCDWR, SVGID and STMGID, provide 95 percent of the municipal water in the Planning Area. Table 3-1 shows the approximate number of services for each public purveyor, water sources, approximate 2009 water deliveries, water demands and facility capacities where available. Figure 3-1 shows public purveyor water service areas and the locations of some smaller water systems described in the following sections.

**Table 3-1 2009 Public Purveyor Capacities**

<b>Water Purveyor</b>	<b>Year-End Active Connection*</b>	<b>Water Source</b>	<b>2009 Deliveries * (afa)</b>	<b>Average Daily Demand * (MGD)</b>	<b>Peak Day Demand* (MGD)</b>	<b>Number of Tanks/ Reservoirs</b>	<b>Total Storage Capacity (MG)</b>
TMWA	89,400	Truckee River 32 municipal wells	74,000	66	171	44	130.8
WCDWR	18,430	45 municipal wells TMWA wholesale	10,000	9.2	27.5	36	30.8
STMGID	3,900	9 wells	2,650	2.6	7.0	8	6.3
SVGID	6,000	TMWA wholesale	1,840	1.6	6.6	9	9.4
* Indicates values are approximate; afa – Acre feet annually; MG – Million Gallons; MGD – Million Gallons per Day							



**Figure 3-1 Water Systems and Service Areas**

Department of Water Resources

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May 2010

Department of Water Resources  
Resources Planning & Management Division  
Washoe County  
Nevada

4930 Energy Way  
Reno, Nevada 89502  
(775) 954-4600

### **3.1.1 Truckee Meadows Water Authority**

TMWA is the largest water purveyor in the Truckee Meadows. It currently serves more than 89,400 active services primarily located in Reno and Sparks. Water sources for this system include the Truckee River (approximately 67,500 af in 2009) and 32 wells (approximately 6,500 af in 2009). TMWA also provides wholesale water to SVGID and WCDWR. During normal years TMWA diverts approximately three percent of the water flowing in the Truckee River for municipal and industrial (“M&I”) uses, and about eight percent in drought years. Table 3-2 shows the distribution of Truckee River water diverted for M&I uses in the TMWA service area. This table shows that 93 percent of Truckee River water diverted for M&I use remains within the central Truckee Meadows.

**Table 3-2 2009 TMWA Truckee River Water Distribution (af)**

<b>Central Truckee Meadows</b>	<b>South Truckee Meadows</b>	<b>Lemmon Valley</b>	<b>Spanish Springs Valley</b>	<b>Truckee Canyon</b>	<b>Sun Valley</b>
53,600	1,700	5,200	8,600	2,700	2,200

The Chalk Bluff Treatment Plant (“CTP”) is TMWA’s largest surface water treatment plant, capable of producing approximately 83 MGD of finished treated water. CTP was constructed in phases: Phase I completed in 1994, Phase II completed in 1996, and Phase III completed in 2004. CTP treats raw water via a conventional water treatment process through settling of heavy solids, screening, flocculation and sedimentation, filtration, and chlorination. The plant is designed for modular expansions to an ultimate treatment capacity of 120 MGD. The next expansion of 15 MGD (nominal treatment capacity) will be accomplished primarily through the addition of mechanical equipment, such as filters and flocculation bays, to existing structures.

The plant sits on Chalk Bluff overlooking the Truckee River on the west side of Reno. Untreated (raw) water is delivered to the plant by gravity via the Highland Ditch or by pumps with 68 MGD capacity via the Orr Ditch Pump Station (“ODPS”). The Highland Canal historically has been used by TMWA to divert Truckee River water for both irrigation and drinking water demands. In April 2008, a series of local earthquakes destroyed a section of the Highland Canal flume structures on the east side of Mogul. Emergency pumping facilities and temporary pipes were installed to compensate for the lost delivery capacity to CTP. The design, rights-of-way acquisitions, and construction plans for the “Mogul By-Pass” pipeline went into high gear.

By spring 2009, the contract to begin construction was awarded and in April 2010, the project was completed thereby eliminating the need for the Highland Canal’s current alignment, which traverses around the north side of the Mogul area. Although the canal will no longer be used for domestic water purposes, the easements were transferred to Washoe County to utilize the remaining portions of the Highland Canal to capture storm water flows during storm events. This runoff is generated by developments and unimproved areas that exist generally to the north of the canal. Several flumes which cross natural drainage ways will be removed with storm channels constructed to transport storm water to existing, natural drainage ways coursing through Mogul.



With the completion of the Mogul By-Pass Project, the Highland Ditch has an estimated nominal capacity of 95 MGD and is approximately 6.1 miles in length from the diversion dam to CTP. The ditch conveys raw water to the CTP through a series of earthen and concrete-lined open channel sections, including flumes, siphons and highway and railroad crossings.

ODPS is located 1,000 feet due south of the plant on the river. The pumping station was built in conjunction with the construction of CTP and was expanded to a capacity of 68 MGD in 2008. The ODPS will be used to supplement supply to the Chalk Bluff plant at times of the year when the Highland Ditch cannot provide 100 percent of the raw water required to keep the plant at full load (typically June-September), or when the ditch is taken out of service for scheduled maintenance or repairs. Due to ice formation for a brief period of time in the winter months, the ditch is also taken out of service in favor of the ODPS.

CTP treats raw water through settling of heavy solids, screening, flocculation and sedimentation, filtration, and chlorination. The plant is designed for modular expansions to an ultimate treatment capacity of 120 MGD. The plant currently has 12 MG of finished water reservoir capacity with the ability to add another 4 MG reservoir.

The Glendale Treatment Plant (“GTP”) is the smaller of TMWA’s surface water treatment plants and is located in Sparks just east of the Grand Sierra Resort. The plant borders the north side of the Truckee River and diverts raw water from the river about 500 feet upstream of the plant. The plant was originally built in 1976 and upgraded in 1996. It employs the same treatment processes as CTP and also is authorized to filter at the same filtration rate as CTP. Although the plant is rated at 37.5 MGD, plant output is currently limited to 25 MGD because of the influent constraint of raw water diversion and the discharge restrictions from GTP to the distribution system.

The Glendale diversion project and other distribution improvements planned within the next two years will address these limitations by providing the ability to divert increased amounts of water from the river, especially during drought years, and increasing effluent capacity into the distribution system. These improvement projects in conjunction with groundwater blending and other improvements in the distribution systems will enable water production from GTP to be increased to take full advantage of GTP’s rated treatment capacity. The increased production will include an estimated net 37.5 MGD from surface water plus 6.8 MGD from groundwater from six wells that are pumped to GTP where it is blended with surface water and treated for arsenic for distribution throughout the water system. Expansion of the finished water pumping capacity will also reduce dependence on Chalk Bluff and provide increased flexibility to operate the Mill and Corbett wells on a year-round basis.

The current capacities of the two surface water treatments plants are summarized here.

	Design Capacity	Net Production Capacity	Planned Capacity
Chalk Bluff	90.0 MGD	83.0 MGD	120.0 MGD
Glendale	37.5 MGD	25.0 MGD	45.0 MGD

TMWA has 32 production wells used to meet the demands of its customers. Twenty eight of these production wells are located in the Truckee Meadows basin, three production wells in the West Lemmon Valley basin, and one production well is located in the Spanish Springs basin.

The wells are spread throughout the distribution system and the majority of wells pump water directly into the distribution system after chlorination. However, water from five wells (Morrill, Kietzke, High, Mill and Corbett) undergoes air-stripping treatment for perchloroethylene (“PCE”) removal, and water from six wells (Mill, Corbett, Greg, Terminal, Pezzi and Poplar #1) is pumped to GTP for arsenic removal. TMWA’s production wells have an overall rated capacity of approximately 63.0 MGD and are primarily used in the summer to handle peak water demands.

Over time, wells can lose production or deteriorate in water quality. Factors contributing to these declines may include chemical reactions between the well water, well formation and casing, leading to corrosive action that clogs the well’s screens, or by biological microorganisms that change the chemical and/or hydrogeologic characteristics of the water in the well. When the production rate or water quality of a well is affected negatively, TMWA begins an analysis to determine the cause of the decline and then take actions to rehabilitate the well so that the well production and water quality can be improved. Although well abandonment and drilling of a new well can mitigate the loss of well production, it is considered a last resort due to the expense to replace a well.

In the winter season, many of the wells are used to inject, or artificially recharge, treated water into the groundwater aquifer for storage and future peak seasonal use. This practice is known as Aquifer Storage and Recovery (“ASR”). TMWA’s ASR program has grown from 81 af of treated surface water injected during the 1993 pilot program to a peak of 2,600 af in 2003. The total volume of water injected in the Truckee Meadows aquifer since 1993 is 18,587 af, while 2,498 af has been injected into the West Lemmon Valley hydrographic basin.

### ***3.1.2 Washoe County Department of Water Resources***

WCDWR owns and operates 16 stand-alone water systems and provides both potable and irrigation water service in six hydrographic basins in and around the Truckee Meadows. As indicated in Table 3-3, the systems are located throughout the developed portion of the Planning Area and serve approximately 18,430 services. All of these systems supply chlorinated groundwater and some receive additional, wholesale supply from TMWA. In combination, these systems consist of 54 production wells, each system having at least 2 production wells except for the Truckee Canyon (Mustang) system, and Horizon Hills which receives water mostly from TMWA.

WCDWR also operates an aquifer recharge project in Golden Valley. The purpose is to inject approximately 70 afa to help offset declining water levels and to improve water quality. This small valley supplies groundwater to over 550 domestic wells with an approximate annual demand of 500 af, but receives natural recharge of only approximately 120 afa.

**Table 3-3 2009 WCDWR Water System Capacities**

<b>Water Purveyor</b>	<b>Approximate Connections</b>	<b>Production Wells</b>	<b>2009 Deliveries (afa)</b>	<b>Average Daily Demand (MGD)</b>	<b>Peak Day Capacity (MGD)</b>	<b># of Tanks / Reservoirs</b>	<b>Storage Capacity (MG)</b>
Thomas Creek	203	1	205	*	*	*	*
Hidden Valley	1,749	4	1,922	1.1	3.9	4	3.34
Double Diamond	6,964	2	205 wells 1,749 TMWA	2.9	1.2 7.8 **	4	7.04
Arrow Creek	909	3	421	0.61	2.1	2	2.58
Lemmon Valley	1,205	5	547	0.52	2.8	4	2.02
Horizon Hills	162	1	37	0.08	0.2	2	1.83
Desert Springs	3,993	4	383 wells 1,300 TMWA	1.9	2.7 6.0**	4	4.78
Springs Creek/ Countryside	1,797	6	1,369	0.95	8.1	6	4.09
Sunrise Estates	36	3	46	0.05	0.3	1	0.197
Mt. Rose	1,202	7	1,593	1.0	5.5	5	3.76
Old Washoe Estates	53	2	46	0.04	0.2	1	0.351
Lightning W	66	3	87	0.08	0.4	1	0.253
Wadsworth/ Stampmill	79	3	40	0.02	0.2	1	0.395
Mustang	9	1	9	0.01	0.1	1	0.148

\* Thomas Creek system uses STMGID system capacities; capacities and storage cannot be accounted for independently.

\*\* Contractual maximum delivery from TMWA

### **3.1.3 Sun Valley General Improvement District**

SVGID was formed in 1967 to provide water and wastewater services for the growing community of Sun Valley, north of Reno. SVGID provides retail service for approximately 6,000 connections. The fully metered system is supplied with TMWA wholesale water. A January 16, 2008 amendment to the TMWA-SVGID Wholesale Agreement expanded the SVGID retail service territory in the northwest portion of the Sun Valley hydrographic basin.

### **3.1.4 South Truckee Meadows General Improvement District**

STMGID was formed in 1983 in order to purchase the failed Trans-Sierra Water Company and fund construction of water system improvements. The company was serving poor-quality groundwater to approximately 400 services in the Virginia Foothills area of the southeast Truckee Meadows. Since then, STMGID has grown through annexation into the primary water provider in the area with a service area covering a significant portion of the South Truckee Meadows. In the past 20 years, STMGID has developed a new wellfield consisting of nine operating wells along the north side of the Mt. Rose Highway. STMGID currently contracts its system operations and maintenance services to WCDWR.

## **3.2 Public Water Purveyor Consolidation Analysis**

### **3.2.1 TMWA - WCDWR Consolidation Analysis**

For the last several years, serious consideration has been given by the TMWA's Board of Directors and Washoe County's Board of Commissioners ("BCC") to the possible integration of some or all functions of TMWA and WCDWR. Formal direction was given to the WRWC to incorporate into its *Regional Water Plan*, "Evaluation and recommendations regarding the consolidation of public purveyors in the Planning Area, which must include costs and benefits of consolidation, the feasibility of various consolidation options, analysis of water supplies, operations, facilities, human resources, assets, liabilities, bond covenants, and legal and financial impediments to consolidation and methods, if any, for addressing any such impediments." (Western Regional Water Commission Act, Section 42[9]).

In furtherance of this directive, at its September 12, 2008 meeting, the WRWC asked staffs from TMWA and WCDWR to "conduct a focused financial analysis to assess the feasibility of some form of utility integration using their joint bond counsel and financial advisors..."<sup>9</sup> At the December 2008 WRWC meeting, the Phase One Financial Report was presented which consisted of a bond analysis addressing certain limitations and restrictions resulting from existing debt and what opportunities were available for refunding or refinancing existing debt. This analysis demonstrated that consolidating WCDWR into TMWA by defeasing WCDWR debt would be financially feasible within a reasonable time-frame, but that the converse, defeasing TMWA's debt, would not be a financially advantageous alternative. Since the presentation of that report, the respective staffs of TMWA and WCDWR have met on numerous occasions to

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<sup>9</sup> The Western Regional Water Commission Act requires analysis of consolidation of all "public purveyors" within the Planning Area. No analysis has yet been conducted of the SVGID and STMGID operations. It is generally felt that these entities function in a semi-autonomous fashion and that significant efficiencies in operations or resource management are unlikely to be achieved by consolidating their functions with a consolidated TMWA/WCDWR entity. However, some additional analysis of this question will be necessary to satisfy the requirements of the Act.

analyze the feasibility of whether the integration/consolidation of certain functions of the two entities was possible and, if so, whether efficiencies and benefits to the community would result.

In addition to presentations and discussion of Phase 1 financial analysis work in December 2008, WRWC received preliminary assessments reports (“PARs”) for System Planning and Engineering at its March 13, 2009 meeting, and Operations and Water Resources at its July 10, 2009 meeting. Each of these PARs analyzed the potential opportunities for improving efficiency, customer service, and reliability, as well as reducing long term operating and/or capital costs through some form of integration of WCDWR and TMWA. The PARs were prepared by interagency teams of employees who are familiar with the topics and were asked to base their analyses on the assumption that the TMWA and WCDWR water systems were operated as one rather than two systems. The PARs are included in Appendix F, and future updates to the WRWC, in the form of staff reports, are listed on WRWC agendas posted on the commission’s website at [www.WRWC.us](http://www.WRWC.us).

The System Planning and Engineering PAR concluded that integrated planning and operation of water system facilities could improve reliability, water quality and service levels for customers; and potentially result in decreased operating and/or capital costs as compared to stand-alone water systems, particularly in the South Truckee Meadows. Operational cost savings might be realized through a reduction in annual pumping costs by shutting down wells in the winter months to avoid electric costs and increasing deliveries of treated surface water from CTP.

The Operations PAR identified existing functions performed by each utility. Each of the operation’s functions was evaluated to determine if there were opportunities for improved efficiency, synergy, or other quantifiable benefits. Benefits identified are in the form of improving system reliability, water quality, and service levels to our customers through integration of staffs and joint operations in the following areas:

- Water Treatment Operations
- Distribution Maintenance
- Water Quality/Laboratory Operations
- Treatment Operations Maintenance
- Customer (Field and Meter) Services
- Facilities Location
- Backflow
- Field Inspection Services/Construction Management/Inspection
- Buildings and Grounds Maintenance/Fleet Maintenance/Materials Management

The Integrated Resource Management PAR concluded that integration efforts could produce one or more of the following benefits in each of the study areas:

- Improve aquifer supplies
- Improve aquifer water quality conditions
- Create resource reallocation opportunities
- Potential to reduce certain operating costs
- Potential to avoid certain capital costs and/or facility costs

- Create conjunctive opportunities

The findings of the PARs generally indicate that the majority of benefits from a consolidation, without clear delineation of financial impacts to be borne by either TMWA or WCDWR customers, accrue to WCDWR. These reports have generally indicated that operational and resource management efficiencies may be achieved through consolidation, that rate structures of the two agencies were sufficiently close that migration to one set of customer rates would not result in inequities to either customer base, and that no insurmountable labor issues are anticipated.

To facilitate the consolidation review, the WRWC appointed a Subcommittee on Integration/Consolidation in July 2009, which conducted two meetings with staff to consider certain aspects of consolidation. At its August 6, 2009 meeting, the WRWC-Subcommittee concluded that the integration/consolidation process should proceed and that the full WRWC Board make a formal recommendation to the governing bodies of both utilities to develop an inter-local agreement to implement integration of the two agencies leading to full consolidation. The respective governing bodies took action in September 2009 to direct staffs to proceed with the development of an inter-local agreement (“ILA”) to advance the integration/consolidation of WCDWR water functions into TMWA.

The ILA was executed in December 2009 and due diligence efforts began shortly thereafter to further identify and/or clarify any potential legal obligations/constraints, complete financial analyses to determine the costs/benefits to the respective utility’s customers, create an operating model of the combined systems to develop optimum production schedules and estimate related costs, and work out transition issues. Recent efforts have focused on facility assessments, engineering hydraulic modeling, land easement review, Supervisory Control and Data Acquisitions (“SCADA”) and Information Technologies (“IT”) assessments and ordinance, and rules review. This work will lead to development of an integrated operating model and additional financial analysis. Based on the 2009 ILA, one of the next major steps in the integration process is to create an addendum to the ILA that assesses the allocation of risks and benefits. Unless severe challenges to consolidation arise, the process will proceed toward complete consolidation subject to Washoe County’s ability to defease, refinance, or renegotiate its outstanding debt sometime in the future, which is required prior to full consolidation.

In December 2009, TMWA and WCDWR staff began a due diligence process to investigate WCDWR water production and distribution facilities. The following list is not intended to be comprehensive but presents the status of the most critical elements of the integration/merger due diligence process.

- Completed and documented site assessments of all WCDWR facilities with information being incorporated into draft Capital Improvement Plans (“CIPs”).
- SCADA access to WCDWR water facility sites was completed with operational information provided to TMWA. This information is being archived for future reference. This was a major accomplishment because of criticality of SCADA for future operations.
- Completed land and easement assessments and identified title deficiencies, for which WCDWR is prioritizing corrective measures.
- Water Rights assessments have been completed with no significant issues noted. Some areas of optimization will be reviewed.

- Preparation of draft operating plans for conjunctive use of water in the Spanish Springs area, the South Truckee Meadows, and the North Valleys are underway. These plans will provide the framework for staffing requirements, development of operating costs and ultimately provide the cornerstone for financial projections.
- Completed draft documents of WCDWR's and TMWA's short term and long term CIPs. TMWA has finalized the revised *2010-2030 Water Facility Plan*, which is key to anchoring the nature and timing of projects for TMWA's future capital expenditures. The next step is prioritization, timing confirmation, and risk assessment management of capital improvements.
- Human Resources due diligence is virtually complete with the exception of further work on the post retirement medical (underway), union discussions, and eventually employee transfer matters.

The bulk of the aforementioned tasks was completed by September 2010. The findings will lead to the development and finalization of independent and combined operating plans. Then, the completion of the operating plans and finalization of CIPs will be achieved. Work continues on the following:

- TMWA and WCDWR personnel are reviewing TMWA's Rules of Service and WCDWR Ordinances for alignment and harmonization. Development of proposed changes to Rules of Service and Ordinances are underway to be completed in November 2011. Proposals will be brought forth shortly thereafter for both agencies. Regardless of whether the merger proceeds, this work is necessary to bring consistency to water service to the region.
- Plans for addressing issues related to certain developer agreements are underway. TMWA's legal counsel has communicated to WCDWR external legal counsel requirements for satisfactory resolution of certain terms and conditions.
- WCDWR is moving forward with alternatives to present to the STMGID Local Managing Board ("LMB") regarding STMGID alternatives. Final presentation for LMB action and recommendation to the Board of Trustees is to be completed in March 2011.
- TMWA and DWR have established joint planning areas for the South Truckee Meadows ("STM") and for Verdi for disposition of the Verdi Joint Service Area and groundwater management in the STM. This work, as well as the rules and ordinances, is to better serve water customers in the region regardless of whether a merger takes effect.
- Interpret and review Right of Way Tolls that would affect Reno and Sparks customers. About 550 customers in Washoe County service area are in Sparks. All of Double Diamond (roughly 6,000 accounts) and other areas in the STM are located within Reno's jurisdiction. These customers currently do not pay right of way ("ROW") fees but potentially would under TMWA.
- Water demand analysis for WCDWR service areas is being implemented for future demand projections, which ties into projection of future water sales.

As progress is made on the items listed above, the last major phase of the due diligence process will be the development of financial models incorporating critical elements of the operating plans and CIPs. The financial phase will analyze the differences between TMWA and WCDWR as stand-alone entities and as combined water agencies. The final analysis will include, but is not limited to, revising the respective agency's five-year financial plans; review, prioritize and risk based management of CIPs with emphasis on avoided costs; develop the

number and compliment of staffing for combined organization; cost to transfer customer accounts; cost for the eventual re-equipping of SCADA locations and communication links; potential incremental costs on TMWA facilities to house additional WCDWR personnel transferred to TMWA; determine adequacy of current water rates and developer fees and project the water rates and developer fees on a combined basis for comparative purposes; continue to monitor bond market conditions to identify opportunities to defease the outstanding water bonds issued by WCDWR in 2005; seek permission from the Nevada State Treasurer to assign the outstanding loans from WCDWR to TMWA; evaluate the impact of combined operating plans on WCDWR facilities, e.g., the Longley Lane Treatment Plant, in relation to loan requirements for those facilities; and numerous other factors or contingencies that may arise as the analysis progresses.

Based upon the results of the financial analyses an informed decision can be made with respect to integration/merger. This will include decisions about the positioning of both organizations to achieve a successful merger, and the timing of such a merger. Financial work may be completed early in 2011, with proposals for consideration by the TMWA Board and the BCC shortly thereafter.

From the aspect of treating and delivering potable water to customers, the consolidation of TMWA and WCDWR is expected to enhance efficiencies related to the operation of water production and distribution systems. This would include the likelihood of improved, unified conservation messaging along with enforcement. As it relates to current uses of or projected need for water resources, the consolidation of TMWA and WCDWR should allow the expanded use of surface water and reduced use of groundwater thereby improving aquifer conditions in the various basins where TMWA and WCDWR provide water service. There is minimal expectation that water usage will change by customers of the two utilities under a combined basis since the rates customers pay for service are comparable.

### ***3.2.2 STMGID Alternatives Analysis***

STMGID has begun the process of assessing the feasibility of its various options to replace the services currently provided by WCDWR. Since its creation by Washoe County in 1981, STMGID and WCDWR have defined their respective service territories and agreed upon terms and conditions for emergency and supply exchange interties and water wheeling by interlocal agreement. In addition, STMGID also receives administration, legal, customer service, professional engineering, and operation and maintenance services from the WCDWR through a contractual agreement which will expire in July, 2011.

On January 12, 2010, at a regularly scheduled joint meeting of the STMGID Board of Trustees and the STMGID LMB, the boards discussed a proposed approach for assessing STMGID's future. Staff proposed a two-phased approach for moving forward with the assessment:

- The first phase is to review, and modify if necessary, the current contract with the County to ensure that it can be assigned to TMWA should the consolidation with WCDWR occur prior to the July 2011 termination date of the contract. This would assure continuous support services for the contract duration, which, upon consolidation, will no longer be available through WCDWR.
- The second phase involves assessing the feasibility of various options for the future of STMGID. In addition to evaluating the practical and economic feasibility of proposed options, the assessment would include public meetings with STMGID customers to



provide input to the process. The possible future for STMGID ranges from consolidation with TMWA to becoming a standalone water company.

### **3.3 Other Non-Public Water Purveyors**

Numerous privately owned and operated water utilities exist within the Planning Area. While the majority of these small water systems are owned and operated by individuals or businesses, and are regulated solely through the WCDHD, several fall under the oversight of the Public Utilities Commission of Nevada (“PUC”).

#### ***Public Utilities Commission of Nevada***

PUC operates under portions of enabling legislation of the Nevada Revised Statutes (“NRS”) and Nevada Administrative Code (“NAC”), Chapter 704 and is intended to provide a means of impartial regulation for both the utility and the customer. PUC regulates water and wastewater utilities serving approximately 24,000 customers in Nevada and is responsible for ensuring that water utilities deliver clean, safe, and reliable water to their customers at reasonable rates. The PUC’s role is: 1) To provide for fair and impartial regulation of public utilities; 2) To provide for the safe, economic, efficient, prudent and reliable operation and service of public utilities; and 3) To balance the interests of customers and shareholders of public utilities by providing customers with just and reasonable rates.

Regulation under PUC is required for all non-municipal utilities having systems which serve more than 25 customers and have sales in excess \$25,000 within any preceding 12-month period. The three largest PUC regulated systems within the Planning Area are listed in Table 3-4. The table shows the approximate number of services for each private purveyor, water sources, approximate 2009 water deliveries, water demands and facility capacities where available.

#### **3.3.1 Utilities Inc. of Nevada**

Utilities Inc. of Nevada operates the water system in the Cold Springs area of Reno. The system consists of five wells and four storage reservoirs having a total capacity of 2,260,000 gallons.

#### **3.3.2 Sky Ranch Water Service Corp.**

The Sky Ranch Water Service Corp. operates the Sky Ranch water system in Spanish Springs Valley. The system consists of two wells and three storage tanks having a storage capacity of approximately 830,000 gallons.

**Table 3-4 2009 Private Purveyor Capacities**

<b>Water Purveyor</b>	<b>Year-End Active Connection*</b>	<b>Water Source</b>	<b>2009 Deliveries * (afa)</b>	<b>Average Daily Demand * (MGD)</b>	<b>Peak Day Demand * (MGD)</b>	<b>Number of Tanks/Reservoirs</b>	<b>Total Storage Capacity (MG)</b>
Utilities Inc. of Nevada	3,290	5 wells	1,430	1.3	2.8	4 Tanks	2.26
Sky Ranch Water Service Corp.	580	2 wells	620	0.5	1.4	3 Tanks	0.8
Steamboat Springs Water Works, Inc	290	3 wells	160	0.15	0.25	2 Tanks	0.42

\* Indicates values are approximate; afa – Acre feet per Annum (year); MG – Million Gallons; MGD – Million Gallons per Day

### ***3.3.3 Steamboat Springs Water Works, Inc.***

Steamboat Springs Water Works, Inc. operates the water system in the Steamboat Hot Springs area south of Reno. The utility has potable water wells in close proximity to geothermal wells used to generate electrical energy and to supply a spa. The utility provides water to approximately 290 services with the potential to add 40 acres of undeveloped land to its service area.

### ***3.3.4 Other PUC Regulated Water Systems***

Verdi Meadows Utility Company, Inc. operates three wells and serves 172 customers in the Verdi area. Silver Knolls Mutual Water Company operates two wells and serves 60 customers in Lemmon Valley. Rosemount Water Company provides spring water to 23 active connections in the Mount Rose area. Verdi Mutual Water Company provides spring water to several businesses and domestic parcels in the Verdi area.

### ***Public Water Systems List***

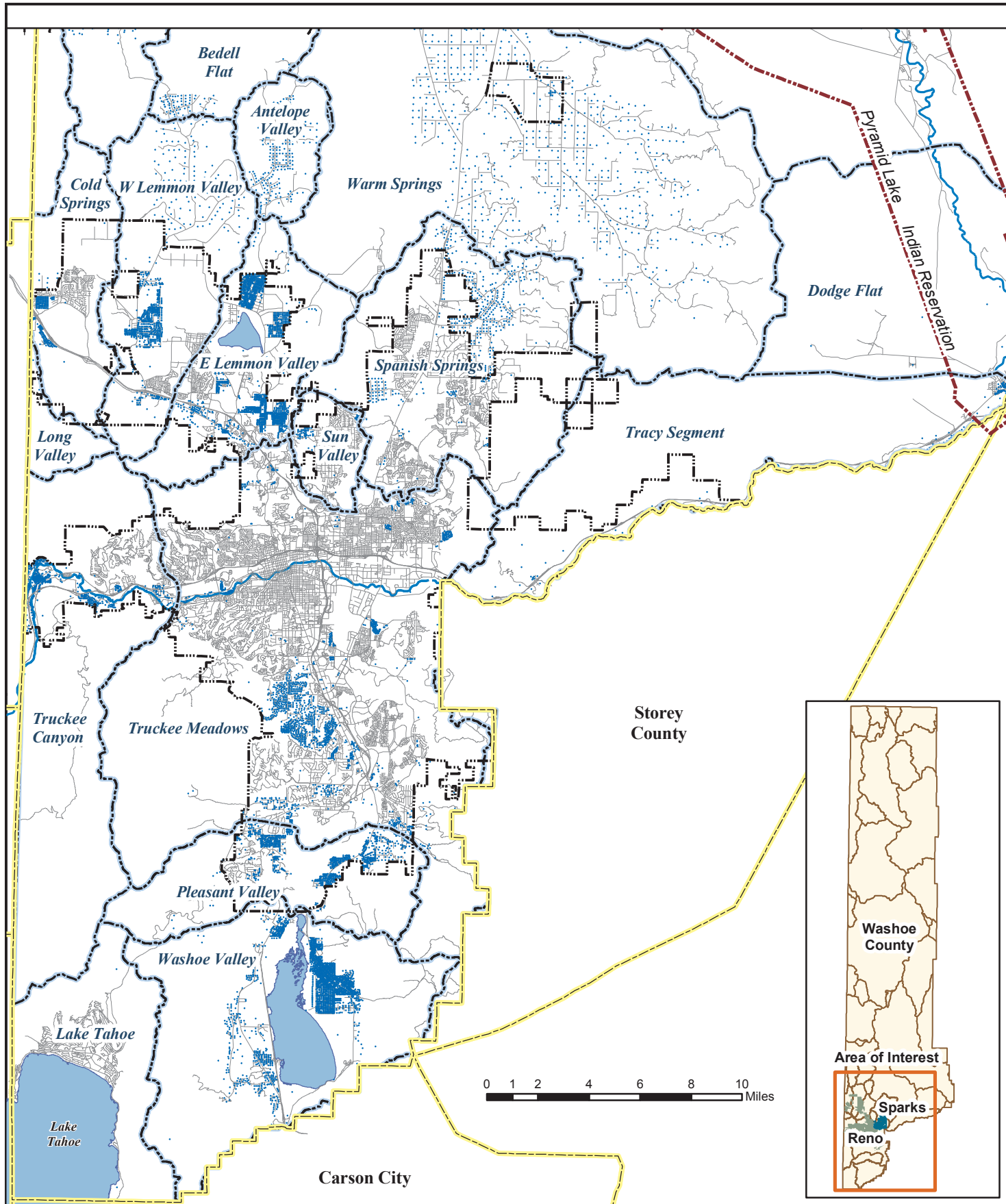
In addition to those described above, numerous small, privately-owned and operated, public water systems exist in Washoe County. These systems typically provide service to schools, parks, multi-residential properties (such as apartment complexes and mobile home parks), commercial businesses and special government facilities, for which municipal services were not available at the time of development. These systems fall under the oversight of the WCDHD. A current list of water systems that are in operation within the Planning Area appears in Table 3-5.

**Table 3-5 Public Water Systems in Washoe County**

---

4 <sup>th</sup> Street Bistro	Mount Rose Bowl HOA
Ace Apartments	Mount Rose Water Company
Air Base Inn	Mount Rose Campground
Air Sailing Gliderport	Mount Rose Ski Area
Arrowhead Mobile Home Park	NDOT Wadsworth Rest Stop
Bar M Bar	New Washoe City County Park
Biglieri Water System	North Valley Business Facility
Boomtown Hotel and Casino	Old Forty West Motel
Bowers Mansion County Park	Old Washoe Station
Bristlecone Family Resources	Pleasant Valley School
Chuck's Circle C Market	Reno Sahara Trailer Park
Conestoga Mobile Home Park	River Bend Mobile Home Park
Crosby's Lodge	Riverbelle Properties-Cedars
Crystal Peak County Park	Riverbelle Properties MHP
Crystal Trailer Park	Sage Trailer Park
Davis Creek County Park	Silver Spur Motel
Dutch Wife Motel	Sky Tavern (City of Reno)
Foothill Trailer Park	Slide Mountain Ski Area
Franktown Meadows	Saint James
Gold Ranch Casino	The Lodge at Galena
Golden Valley County Park	Thomas Creek Estates Water Co.
Grand View Terrace Water District	Timberline Estates
Hawk's Nest Bar	Truckee Canyon Water System
Horizon Hills GID	Verdi Business Park Water Co-op
J and K Hoffman	Verdi School
Jackson Food Store #23	Washoe Grill
Johnny's Little Italy Restaurant	Washoe Lake State Park
Ke Ta Mobile Home Park	Washoe Lake State Park, boat ramp
Lemmon Valley Horseman's Park	Washoe Regional Shooting Range
Magic Carpet Golf	Webb Mobile Home Park
Mel's Diner	Westerner Motel
Merry Wink Motel	

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**Figure 3-2 Domestic Wells**

- Parcel with Domestic Well
- TMSA Boundary
- Hydrobasin Boundary



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### **3.4 Domestic Wells**

Washoe County Assessor's files indicate that there are approximately 9,170 domestic wells in the County as of April 2010. Figure 3-2 illustrates the distribution of domestic wells within the southern portion of the Planning Area. In a sense, domestic wells represent a special type of private water system for which permission is granted by the State Engineer according to state water law to owners of residential properties who do not have access to municipal service at the time of development. The state's definition of what constitutes domestic use is as follows:

*Domestic use or domestic purposes extends to culinary and household purposes directly related to a single-family dwelling and an accessory dwelling unit for a single-family dwelling if provided for in an applicable local ordinance, including, without limitation, the watering of a family garden and lawn and the watering of livestock and any other domestic animals or household pets, if the amount of water drawn does not exceed 2 af per year. (NRS 534.013 and NRS 534.180)*

In addition to the State Engineer's permitting requirements, the WCDHD further regulates the construction of domestic wells within the Planning Area. The permit process requires that a property owner with a domestic well in need of deepening or replacement located within the service territory of a municipal service provider evaluate hook up to the municipal system. In addition, the WCDHD requires a domestic well construction permit, which not only outlines construction standards, but also regulates restrictions on proximity to water bodies, utility easements, irrigation ditches, flood-irrigated fields, flood plains, septic tanks and sewers.

In the 1970s and early 1980s over-development of parcels served by domestic wells in the West Lemmon Valley hydrographic basin became a major concern. The problem revolved around the subdivision of large parcels without a water rights dedication requirement for domestic wells. Eventually, this practice led to the over-allocation of groundwater. The situation prompted passage of Washoe County Ordinance 586 (subsequently revised by Ordinance 482) in 1984, requiring the dedication of 2.0 af of water rights for each newly subdivided parcel of land to be served by a domestic well in Washoe County. This dedication of water rights however, does not apply to existing parcels in the Planning Area. In addition, because of water rights over-allocation in the Warm Springs Planning Area, the dedication of 2.5 af of water rights is required for newly subdivided parcels to be served by domestic wells. Water rights dedicated from the Warm Springs hydrographic basin will remain irrevocably tied to the hydrographic basin.

### **3.5 Reclaimed Water Purveyors (Reno, Sparks and Washoe County)**

Reclaimed water provides both local and regional benefits. As the region grows according to its land use plans, reclaimed water use is one means to allow the growth to be accommodated while remaining within the treatment facility discharge permit limits. Reno, Sparks and Washoe County are working to improve the Truckee River ecosystem. The benefits are intended to improve the nutrient assimilative capacity of the river, which in turn may allow more flexibility in meeting the TMWRF discharge permit requirements. Using reclaimed water provides a more predictable way to ensure pollutant removal when compared with river discharge, but likewise competes with water needs for in-stream flows. Truckee River water that is transferred out of the basin for potable uses (and subsequently does not return to TMWRF as wastewater, such as in the Stead and South Truckee Meadows areas) generally requires that 50 percent of additional water rights be dedicated to provide for that return flow depletion.

Reclaimed water use provides a sound method of disposal and beneficial use through irrigation and other uses. The main local benefit in the use of reclaimed water is that it conserves potable water and provides a reliable, drought-resistant water source, even in times of restriction and conservation. Table 3-6 summarizes the 2009 reclaimed water usage from each of the region's water reclamation facilities.

**Table 3-6 2009 Reclaimed Water Usage**

Facility	MGD Average	MGD Max Month	AFA
TMWRF Reclaimed Water	3.6	8.3	3,980
STMWRF Reclaimed Water	2.0	4.8	2,270
RSWRF Reclaimed Water	0.4	1.0	440
Total Reclaimed Water Usage	6.0	14.1	6,690

### **3.5.1 TMWRF Reclaimed Water**

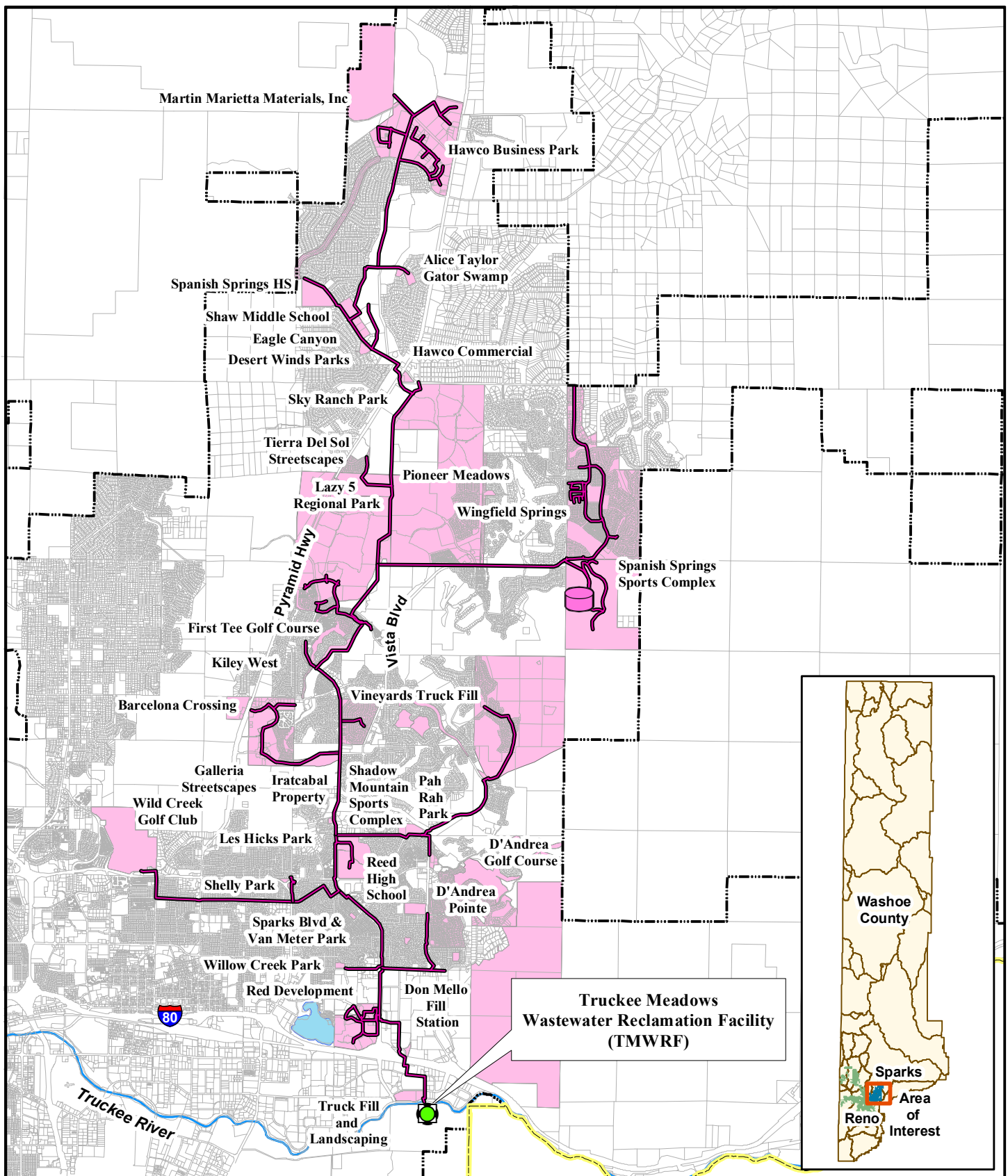
TMWRF currently supplies reclaimed water to numerous sites in Sparks, including Spanish Springs Valley, and to Reno, including the University of Nevada, Reno ("UNR") Farms property, Rosewood Lakes Golf Course and Mira Loma Park. Hidden Valley Golf Course is connected to the Reno system, but does not currently use reclaimed water. Reclaimed water is treated to very high standards that meet both the discharge limits to the Truckee River and the standards required for reclaimed water usage. The locations of these sites are depicted on Figures 3-3 and 3-4.

The reclaimed water delivery system consists of one main pump station and one auxiliary pump station located at TMWRF and one transmission line with two branches. The south branch of the pipeline serves UNR Farms property, Rosewood Lakes Golf Course and Mira Loma Park. The north branch of the pipeline serves the users in the City of Sparks and further north in Spanish Springs Valley. The 2009 reclaimed water balance for TMWRF is shown in Table 3-7.

**Table 3-7 2009 TMWRF Reclaimed Water Balance**

2009	MGD Average	MGD Max Month	AFA
Total Wastewater Flow	26.5	27.7	29,700
Reclaimed Water Usage			
Reno / UNR Farms Reclaimed Water Usage	1.8	4.3	2,040
Sparks Reclaimed Water Usage	1.7	4.0	1,940
Total Reclaimed Water Usage			3,980
Water Returned to the Truckee River			37,600





**Figure 3-3 Effluent Reuse System  
TMWRF - City of Sparks Sites**

- Effluent Reuse Sites
- Effluent Pipes
- Effluent Storage

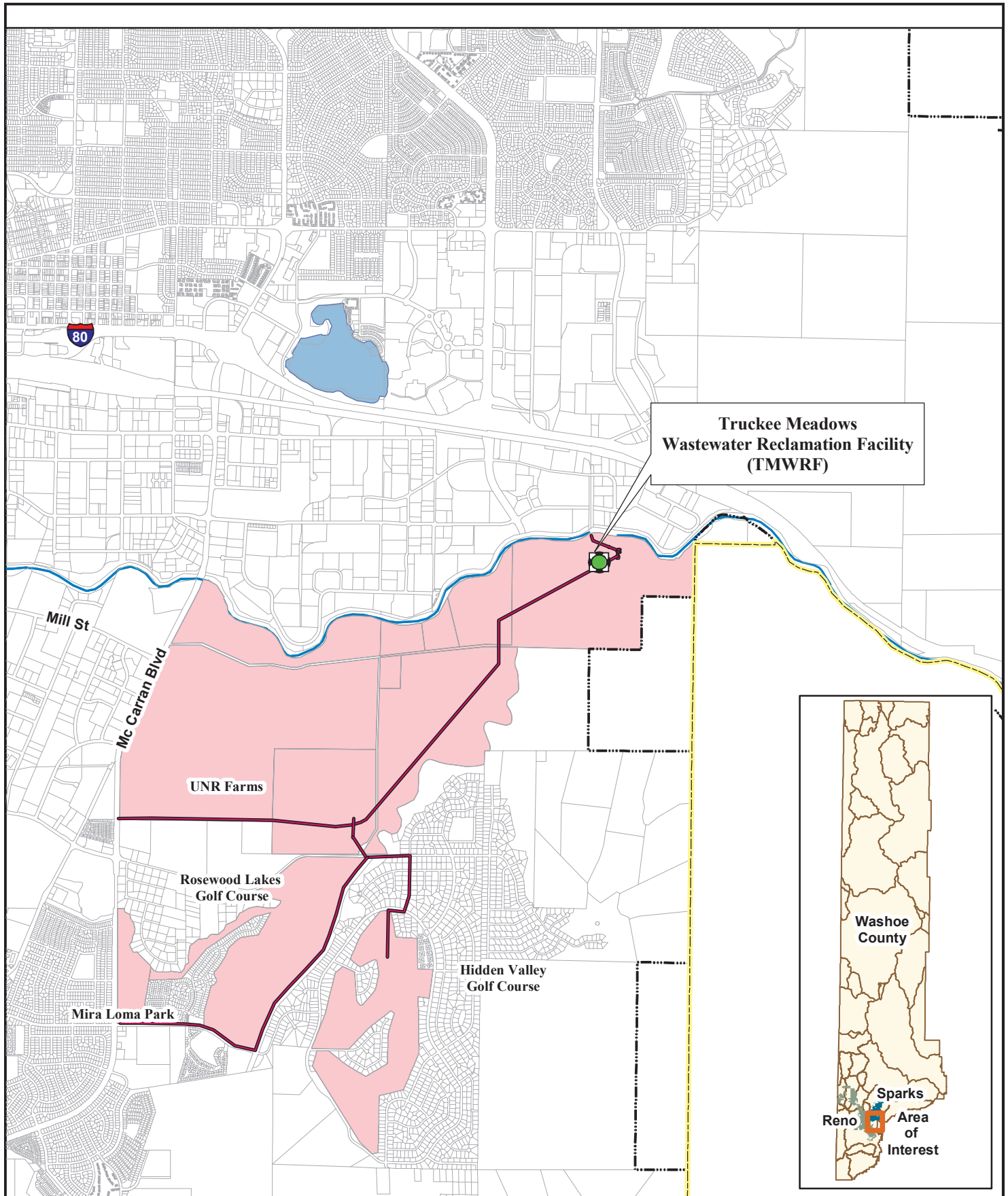
0 0.25 0.5 1 1.5 2 2.5 Miles

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- Effluent Reuse Sites
- Effluent Pipes
- Effluent Storage

**Figure 3-4 Effluent Reuse System  
TMWRF - City of Reno Sites**

0 0.25 0.5 0.75 1 Miles

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### **3.5.2 Sparks Reclaimed Water Facilities**

Sparks provides reclaimed water service to more than 35 sites within the City and further north in unincorporated Spanish Springs Valley for irrigation and industrial uses. Specific uses include irrigation at Wildcreek and d'Andrea golf courses, Reed High School, Shadow Mountain Sports Complex and numerous other parks and streetscapes. Industrial uses include Martin Marietta Materials and various truck fill facilities. In addition to the TMWRF pump station and transmission line, Sparks' reclaimed water facilities include a second pump station, a 3.25 MG storage tank near the Golden Eagle Regional Park and various distribution pipelines.

### **3.5.3 Reno Reclaimed Water Facilities**

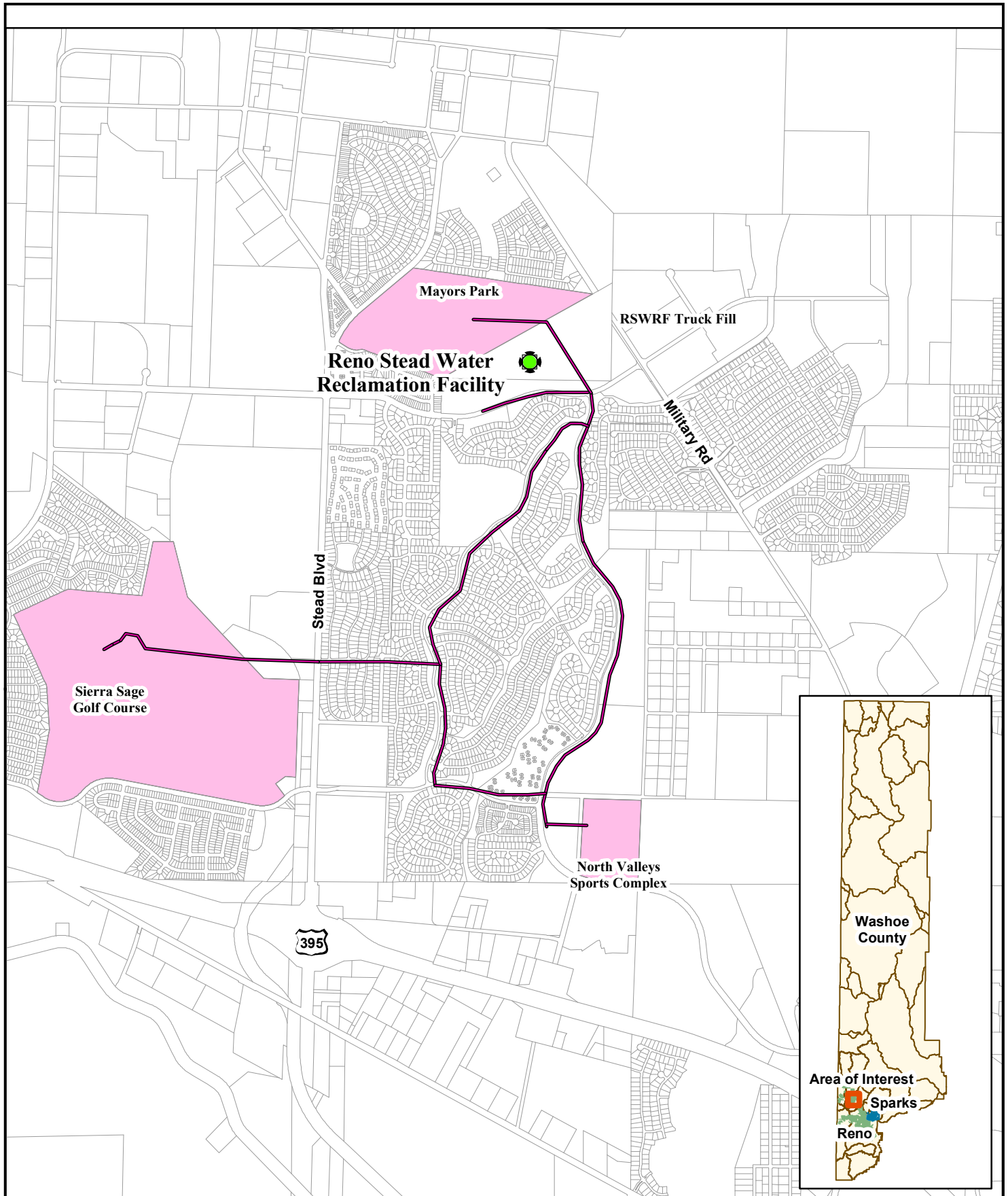
#### **RSWRF Reclaimed Water**




RSWRF has an annual average flow of 1.40 MGD. During the winter and when reclaimed water flows are in excess of irrigation demands, the reclaimed water is discharged into a natural drainage channel that flows to the nearby Swan Lake playa. This is the primary disposal site for RSWRF, which is permitted to discharge an average of 2.35 MGD (2,630 afa) to the playa. A minimum of 159 million gallons per year (490 afa) is sent to the Swan Lake playa per an agreement to sustain the existing wetlands. Under present operation, the RSWRF reuses an average of 0.45 MGD, or about 32 percent of its total flow for irrigation primarily from March through October. Essentially all of the reclaimed water is discharged to the Swan Lake playa from November to February. Figure 3-5 depicts the existing reclaimed water infrastructure and reuse sites in the Stead area.

The current RSWRF reclaimed water demands are approximately 500 afa. Uses include the Sierra Sage Golf Course, the North Valleys Sports Complex, Mayors Park and a truck fill at the treatment plant, which is utilized heavily for construction water and dust control. The RSWRF reclaimed water balance for 2009 is shown in Table 3-8.

**Table 3-8 2009 RSWRF Water Balance**


	MGD Average	MGD Max Month	AFA
2009			
Total Wastewater Flow	1.40	1.5	1,570
Reclaimed Water Usage			
Stead Reclaimed Water Usage	0.45	1.1	500
Total Reclaimed Water Usage	0.45	1.1	
Water Released to Swan Lake Wetlands	1.00	1.5	1,080



-  Effluent Reuse Sites
-  Effluent Pipes
-  Effluent Storage


**Figure 3-5 Effluent Reuse System  
Reno - Stead WRF**


0 0.125 0.25 0.375 0.5 Miles



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### 3.5.4 Washoe County Reclaimed Water Facilities

#### STMWRF Reclaimed Water

##### Existing Reclaimed Water Uses

STMWRF is one of the few water reclamation facilities in the United States that operates a zero discharge system with 100 percent reuse. Reclaimed water produced at STMWRF is used for community irrigation of parks, schools, golf courses, commercial landscapes, and thoroughfare median landscapes. Specific reuse areas include the South Meadows Industrial Park, Double Diamond and Damonte Ranch residential areas, the Arrow Creek and Wolf Run Golf Courses, the South Valley Regional Park, and Manogue High School, among others. Irrigation with reclaimed water for all of these areas conserves potable water that would otherwise be used for irrigation. Figure 3-6 depicts the existing reclaimed water infrastructure and reuse sites in the South Truckee Meadows area.

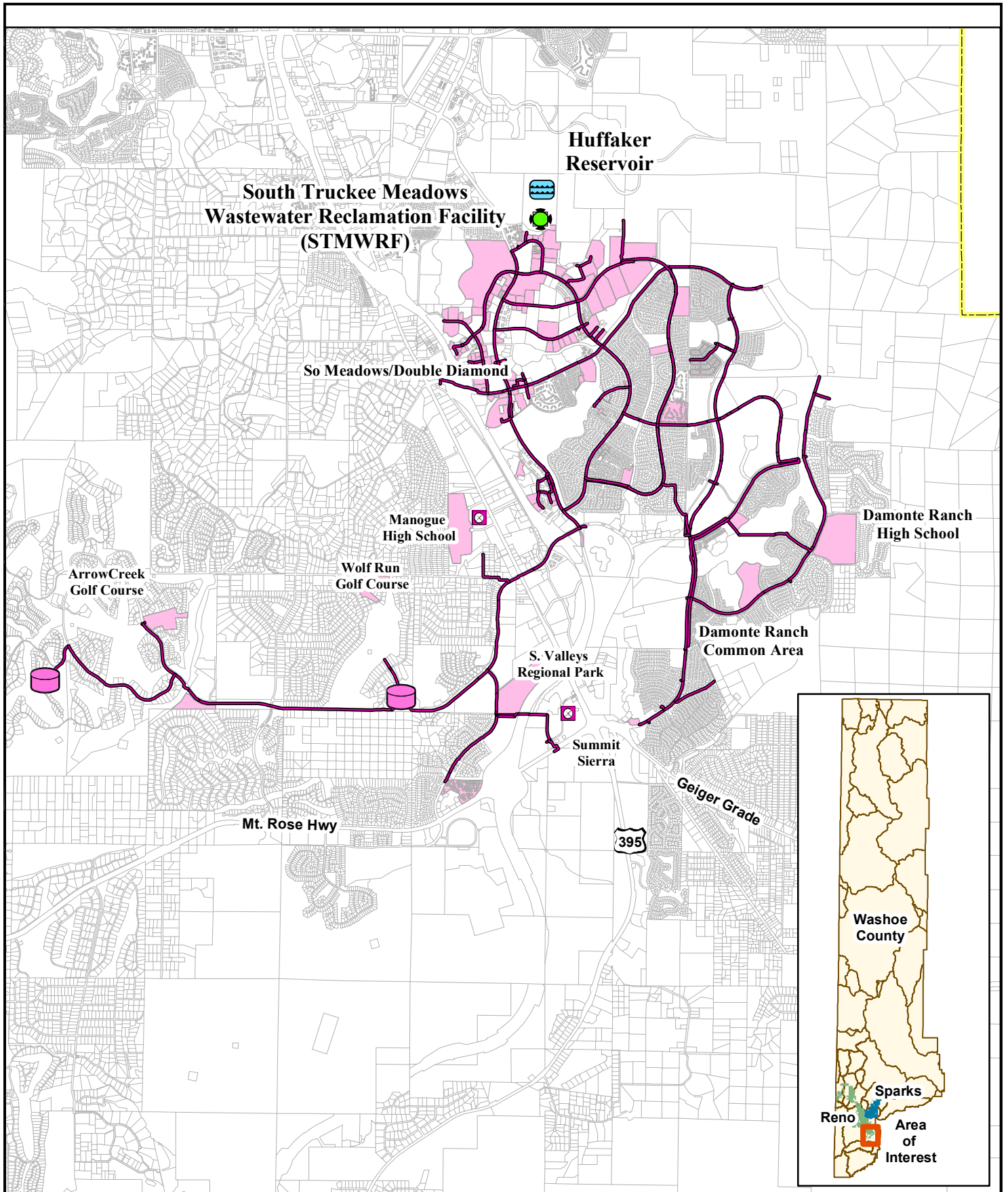
Under current operation, surface water from Whites Creek and Thomas Creek is combined with reclaimed water and pumped to Huffaker Reservoir to supplement the reclaimed water supply. Seepage losses from Huffaker Reservoir have placed additional demand on STMWRF reclaimed water supplies in past years, but will diminish in the future. Huffaker Reservoir was constructed in 1988 and has a storage capacity of approximately 4,000 af. This reservoir was initially constructed with a compacted soil liner but has been losing significant quantities of stored water to seepage. In order to conserve water and to mitigate concerns from reservoir seepage, a partial membrane liner was completed, which lined the lower portion of the reservoir to an elevation of 4,482 ft. A second membrane lining project is planned for 2012 to line the remainder of the reservoir up to an elevation of 4,552 ft. Following completion of these projects, the need for supplemental water to compensate for seepage losses will diminish.




The 2009 STMWRF reclaimed water balance is shown in Table 3-9. The STMWRF reclaimed water, creek diversions, and reclaimed water use volumes are all metered values, while the reservoir seepage and net evaporation loss is estimated from the reservoir mass balance. Since the reservoir net evaporation loss is estimated to be in the range of 50 afa at current reservoir operating levels, the majority of the 530 afa loss is attributed to reservoir seepage.

**Table 3-9 2009 STMWRF Reclaimed Water Balance**

2009	MGD Average	MGD Max Month	AFA
Total Wastewater Flow	2.65	2.77	2,970
Reclaimed Water Usage			
STM Reclaimed Water System Usage	2.03	4.48	2,270
Huffaker Reservoir Seepage and Net Evaporation			530*
Total Reclaimed Water Usage			2,800
Supplemental Creek Diversions	0.47	1.75	520

\* Estimated



-  Effluent Reuse Sites
-  Effluent Pipes
-  Effluent Storage


**Figure 3-6 Effluent Reuse System  
STMWRF - Washoe County Sites**

0 0.25 0.5 0.75 1 Miles

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## ***CSWRF Reclaimed Water***

### ***Existing Reclaimed Water Uses***

The Cold Springs Water Reclamation Facility (“CSWRF”) currently disposes all treated reclaimed water to rapid infiltration basins (“RIBs”), and does not reclaim water for irrigation purposes. However, facility improvements can be added in the future as the demand for additional reclaimed water warrants. The 2009 reclaimed water balance for Cold Springs is presented in Table 3-10.

**Table 3-10 2009 CSWRF Water Balance**

2009	MGD Average	MGD Max Month	AFA
Total Wastewater Flow	0.28	0.30	319
Reclaimed Water Usage None at this time	0		0
Water disposed to RIBs	0.28	0.30	319

## ***LVWRF Reclaimed Water***

### ***Existing Reclaimed Water Uses***

In addition to the reclaimed water generated from RSWRF, Washoe County owns and operates the Lemmon Valley Water Reclamation Facility (“LVWRF”). Presently, the water from this treatment plant is evaporated from on-site ponds, but with additional treatment, it could be available to help meet future reclaimed water demands. Periodically, a small portion of the water is released to Swan Lake to help manage water levels in the ponds. The 2009 reclaimed water balance for Lemmon Valley is presented in Table 3-11.

**Table 3-11 2009 LVWRF Water Balance**

2009	MGD Average	MGD Max Month	AFA
Total Wastewater Flow	0.20	0.30	219
Reclaimed Water Usage None at this time	0		0
Water disposed to Evaporation Ponds	0.20	0.30	219

## ***3.6 Water Rights Requirements***

### ***3.6.1 Water Rights Dedication Requirements for Municipal Service***

For those purveyors (e.g., TMWA, SVGID, and portions of WCDWR’s Spanish Springs or Double Diamond retail areas) using Truckee River water rights for will-serve commitments,



typically TMWA's Rule 7 is the basis of water rights required. TMWA Rule 7 requires that applicants for any new water service dedicate sufficient water rights to meet the demand of their development. Applicants for new service can buy water rights on the open market and dedicate sufficient, acceptable water rights to TMWA, or the applicant can pay for a will-serve commitment based on TMWA's costs incurred to acquire and process the necessary water rights. Before accepting a water right for a will-serve commitment, TMWA considers a water right's source, priority, quantity, dry-year supply, yield, permitability, unencumbered ownership, and the long-term ability to provide water. In this manner, TMWA ensures that future resources can be sustained in perpetuity. In addition, an applicant requiring irrigation service must furnish a local government determination as to whether it can provide reclaimed water service for some or all of the irrigation demand.

TMWA Rule 7 requires a water demand calculation using factors for the type of unit (such as single family dwellings and lot size, mobile home parks, multi-family complexes, commercial) and irrigation. Depending on the source of water, a multiplier is applied to compute the number of af required for new service. TMWA Rule 7 is included as Appendix G.

To ensure consistency within the Planning Area, WCDWR also uses TMWA Rule 7 for estimating resource requirements and dedication of resources for new development.

In the case of Truckee River water that will be supplied for M&I service by TMWA, there are existing agreements and facilities that provide storage capacity upstream of the Truckee Meadows. These facilities store water when it is available, and release it as needed to satisfy demands. The reservoirs provide a reserve for both seasonal fluctuations in demand and annual variations between wet and dry years. TMWA uses the reservoirs in conjunction with its groundwater resources to make up the entirety of its water supply.

In the future, *TROA* operation of Truckee River reservoirs will be expanded, thereby increasing dry year reserves. In exchange for greater flexibility in reservoir operation, TMWA is required to dedicate 0.11 af of water rights for each af of new demand. This dedication must be made from Truckee River water rights. (Refer to *TMWA's 2030 Water Resource Plan* for complete description of TMWA water resources, agreements, and drought planning, see Appendix B).

The water resources for the proposed South Truckee Meadows water treatment plants differ from TMWA surface water resources in that there is no upstream surface water storage planned to equalize the fluctuations in seasonal tributary flow and variations in annual flow that result from wet and dry years. This affects the amount of water that can be derived from a particular water right (the "yield"). Another factor that affects the yield of a water right is its priority with respect to other water rights on the same system.

Without storage, additional water rights must be dedicated for service above the normal amount that will actually be consumed to ensure that a minimum supply can be maintained under drought conditions. During drought conditions, the highest priority rights will receive water and lower priority rights may not be fulfilled. During non-drought conditions, however, the additional water that is available under these rights can be used to satisfy other needs such as aquifer recharge, enhancement of Truckee River water quality, satisfaction of effluent return flow requirements, etc. Because the use of tributary water rights for municipal water supply purposes in the Truckee Meadows is a new practice, the specifics of how these rights will be managed is an opportunity for efficient, integrated water rights use.

For non-Truckee River water rights dependent purveyors, each has water resource dedication policies that utilize groundwater resources subject to State Engineer permits issued for those water resources.

### ***3.6.2 Reclaimed Water Rights Requirements***

Reclaimed water rights are exchanged for will-serve commitments in a manner that differs significantly from potable water rights dedication requirements. Reclaimed water is appropriated by the entities that own and operate the water reclamation facilities, i.e. Reno, Sparks and Washoe County. Parties interested in obtaining reclaimed water service from WCDWR submit an application for service in accordance with Washoe County Ordinance 1299. The County will approve or deny the application for service based on its ability to provide service and how the reclaimed water is to be used. Similarly, Sparks enters into reclaimed water service agreements as per Title 13.85 of the Sparks Municipal Code. Reno enters into individual contract agreements for reclaimed water service.

Reclaimed water service customers must obtain, and operate in accordance with, a permit from the Nevada Division of Environmental Protection. Permits require the development and approval of an effluent management plan. Service can be discontinued if reclaimed water use is not consistent with the permit or the effluent management plan conditions.

***References Cited***

Truckee Meadows Water Authority, 2009, *2010 - 2030 Water Resource Plan*.