Conjunctive Operation of Surface and Groundwater Resources

The CTP and GTP make it possible for TMWA to operate a surface water treatment plant year-round thereby eliminating the need for winter groundwater pumping. TMWA manages its plants to maximize surface water production and limit or compress its groundwater pumping to help meet peak summer and early fall customer demands. This conjunctive operation of surface and groundwater supplies allows TMWA to increase its pumping during higher summer demands and beyond the summer months when necessitated by lack of river supplies during extreme dry years. This operational procedure also reduces facility use and overall cost of water production and creates the opportunity to aggressively pursue an aquifer storage and recovery program ("ASR") as described in Chapter 6.

The benefits of conjunctive management of TMWA's surface water and groundwater resources were recognized and resulted in the issuance by the State Engineer of "Groundwater Management Order 1161" ("the Order") on May 15, 2000. The order resolved several issues with respect to TMWA's ability to exercise its groundwater permits and provides the opportunity for improving the Truckee Meadows aquifer by: reducing over the long-term, the average-annual pumping of the Truckee Meadows aquifer; building up a credit of underground banked surface water for later extractions during droughts; and allowing up to 22,000 acre-feet[21] to be pumped for three consecutive years if sufficient credit has been accumulated during non-drought periods.

In the winter season, many of the wells are used to inject or recharge treated surface water into the groundwater aquifer for storage (see Table 7), water quality mitigation for marginal arsenic concentration wells, and future drought year use. The injection of treated water through TMWA's aquifer storage and recovery program ("ASR") has increased since the pilot program began in 1993. TMWA's ASR program has grown from storage of 81 acre-feet of treated surface water in 1993 to over 19,800 acre-feet by the end of 2008. The total amount of water injected in the Truckee Meadows hydrographic basin's aquifer since 1993 is 14,571 acre-feet, while 1,665 acre-feet since 2000 has been injected into the west Lemmon Valley hydrographic basin.

---

[21] When TROA goes into effect an average year pumping of 15,900 acre-feet will count against the 119,000 acre-foot demand of TROA. The ability to pump in excess of this amount as indicated here will not count against, and be in addition to the TROA water supply.

Table 7: Aquifer Storage and Recovery History (units in acre-feet)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Jun-09	Total, AF
Truckee Meadows Groundwater Basin																		
1 Lakeside Drive	3	9	116	132	111	377	194	246	258	218	292	194	192	213	148	270	154	3,126
2 Hunter Lake							196	290	332	175	246	34	22	0		122	197	1,614
3 View Street						173	327	486	433	260	353	598	264	202	179	291	68	3,633
4 Reno High							61	190	216	142	173	26	50	213	182	256	144	1,652
5 Poplar #1					22													22
6 Poplar #2								68	46	70	9	44	37	2				277
7 Kietzke Lane	26																	26
8 Morrill Avenue	27																	27
9 Forth Street	25							39	452	309	152	139	82	113	90	160	107	1,667
10 Glen Hare								36	117	62	99	15	9	0		62	46	445
11 Greg Street								76	135	137	177	164	41	0				731
12 Terminal Way								2										2
13 El Rancho								121	216	178	255	139	97	103	62	119	22	1,313
14 Holcomb Lane								21	39	187	123	72	17	137		40	32	667
15 21 st Street								61	202	193	259	172	108	151	108	154	84	1,490
16 Gallietti Way								81	239	234	262	218	119	175	149	225	138	1,840
17 Longley Lane									10	14								24
18 Sparks Avenue																19	11	30
19 Subtotal	81	9	116	132	133	550	778	1,717	2,693	2,177	2,401	1,815	1,037	1,308	918	1,718	1,003	18,587
West Lemmon Valley Groundwater Basin																		
20 Army Air Guard									242	205	180	157	137	163	136	118	32	1,370
21 Silver Lake								32	149	88	83	84	93	146	136	172	113	1096
22 Silver Knolls																32	0	32
23 Subtotal								32	391	293	263	241	230	309	272	322	145	2,498
Spanish Springs Groundwater Basin																		
24 Hawkings Court																	229	229
25 Subtotal																	229	229
TOTALS	81	9	116	132	133	550	778	1,749	3,084	2,470	2,664	2,056	1,267	1,617	1,190	2,040	1,377	21,314

TMWA's injection of treated water is governed by quantity permits issued by Nevada Division of Water Resources ("NDWR"), and quality permits issued by Nevada Division of Environmental Protection ("NDEP"). Permit R-016 was approved by the State Engineer in 2001; this permit consolidated the Truckee Meadows wells that were used under 1992 permits R-010 and R-013, which were subsequently cancelled into R-016. Recharge of 7,000 acre-feet annually is permitted under R-016. Coincident with issuance of R-016, on October 16, 2001 NDEP reissued Permit No. UNEV92200 authorizing TMWA to inject treated water into twenty-three wells within the Truckee Meadows hydrographic basin No. 87. Both permits have been revised and were reauthorized in 2006. Reports are issued every January and July to both agencies summarizing injection activities including water quality.[22]

ASR is one element of TMWA's integrated management strategy to augment drought reserve supplies for later use during a Drought Situation. ASR, together with TMWA's POSW and credit water releases and increased groundwater pumping, create opportunity to maximize to and expand service commitments while meeting critical-year-water-supply requirements during drought cycles; this is a primary purpose of water resource planning for the Truckee Meadows. Between now and when TROA takes effect recharged water can be stored using any of unexercised water rights and the water supply created will enhance pre-TROA drought needs. After TROA takes effect the drought needs will be met with TROA drought supplies and only those water rights which need not be stored under TROA will be available for recharge purposes. The ASR drought reserve development can then be utilized to support demands above TROA's 119,000 acre-foot supply.

The water supply provided by below average precipitation and intervening years of above average precipitation during a drought cycle is shown in Figure 16. Figure 16 shows a 16-year history of daily river flows (the "blue area") measured at Farad compared to TMWA's daily diversion of surface water (the "green area") and groundwater and POSW (the "red area"). When the "red area" extents beyond the peak irrigation season, TMWA must increase its groundwater production and/or begin releases of its POSW. In the summer months of the driest years groundwater and/or POSW is used be meet demands when river supplies are not available. The reader should note, however, that in all years the river is able to meet a large portion of TMWA's water production requirements.

Lake Tahoe is the largest storage reservoir on the Truckee River system; 95 percent of the water stored upstream and carried-over to the next year to be used to provide normal river flows can be captured in the lake. The top 6.1 feet of the lake is used as a storage reservoir. River flows, or Floriston Rates[23], are almost entirely dependent upon Lake Tahoe's elevation at any point in time throughout the year. When the elevation of the lake approaches its natural rim (elevation 6223.00-ft. Lake Tahoe datum), Floriston Rates drop off shortly thereafter. If these rates of flow fall off during the typical summertime demand season, it will impact TMWA's

---

[22] Appendix G contains the most recent (July 2009) copy of the semi-annual report filed with NDEP and NDWR.

[23] Floriston Rates are the minimum required rates of the flow in the Truckee River that must cross the California/Nevada state line daily.

water production operations. Since typically 85 percent of TMWA's raw water is derived from the Truckee River it is easy to see why Lake Tahoe is the best barometer regarding the health of our region's water supply. Depending on the projected elevation of Lake Tahoe determined by April 15 each year for the remainder of the year, appropriate demand-management measures described in Chapter 5 may need to be implemented depending on the projected impact to TWMA's drought reserves.

Availability of Truckee River water, TWMA's primary water supply, can be negatively impacted during low precipitation years which lead to Drought Situations. By extracting as much groundwater as possible in the critical months of a drought year, the reliance on surface water released from POSW in those months is reduced which: (1) delays or potentially avoids the use of limited reservoir storage, (2) improves drought year supply capability, and, (3) increases the yield of TMWA's combined resources.

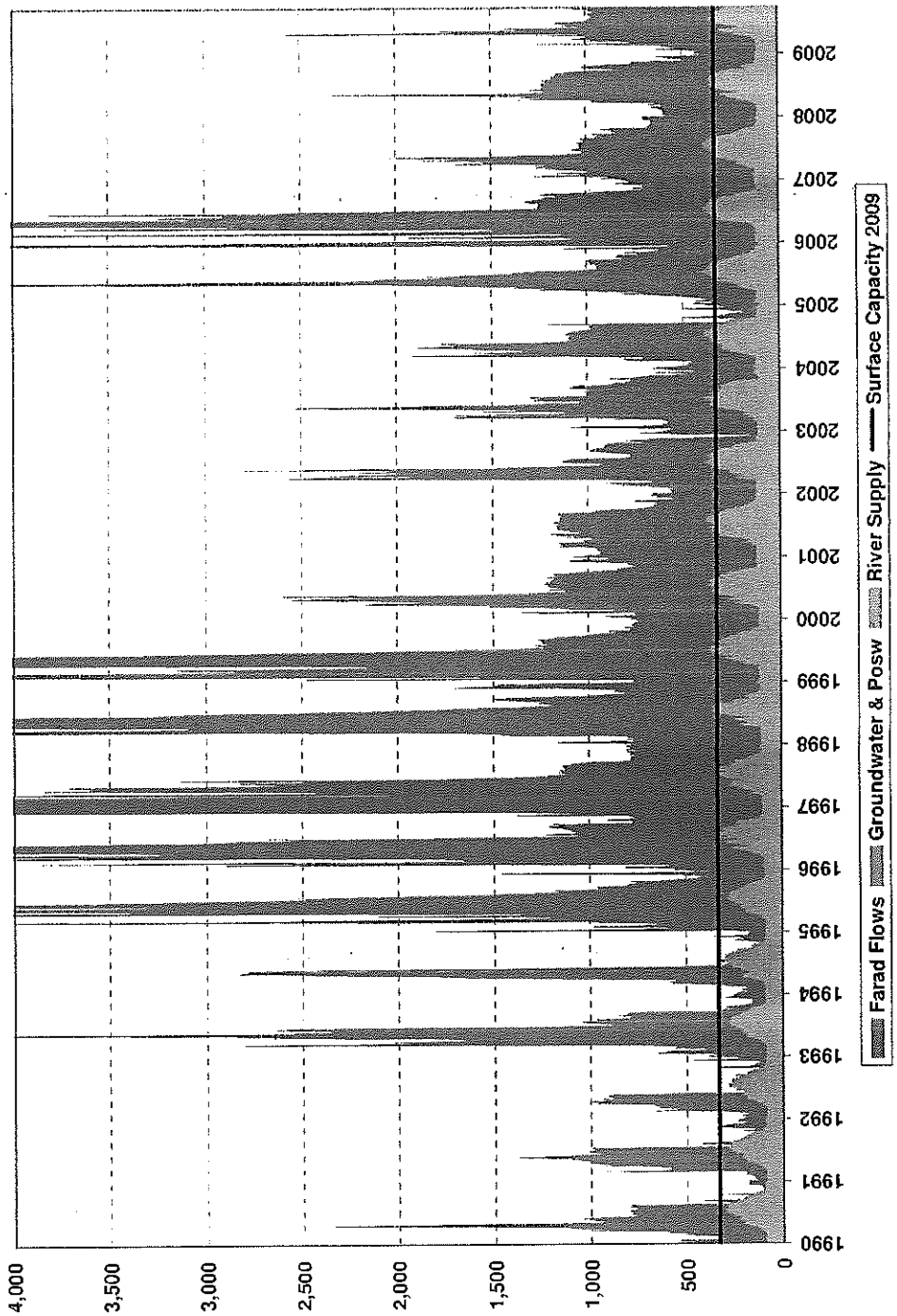


Figure 16: 1990 to 2009 Daily Water Sources

Under current operations river water is diverted up to the capacity of the surface water treatment plants; after this point the peak water demand is met using groundwater. During the summer months of drought years, groundwater, TMWA's pondage rights in Boca Reservoir (800 acre-feet), water stored in Federal reservoirs under the Interim Storage Agreement, Independence Lake (17,500 acre-feet), and Donner Lake (4,750 acre-feet) are used to augment the water supply needed to meet customer demands. Independence Lake is TMWA's largest drought backup water supply. The Independence Lake storage level reflects the severity of necessary actions during a drought because it is the last drought supply used, and because storage is re-filled in all but the driest years.

Although the resource management schemes vary between non-Drought and Drought Situation, experiences during prior droughts demonstrate the region's ability to manage its water resources during these dry periods. A comparison of non-Drought and Drought Situations operating strategies highlights the differences in resources management required in order to optimize available resources. The two resulting management scenarios ultimately determine the type of production facilities necessary to produce potable supplies; which facilities are discussed in Chapter 4. The non-Drought and Drought Situation resource management strategies include:

Non-Drought Situation:

- Maximize surface water diversions every month. Surface water production is the first supply to use.
- Limit groundwater use (attempting to pump an average of less than 15,950 acre-feet annually) to the critical months: July, August, and September, and eliminate its use as early as possible in October. No groundwater should be used in April, and if possible, delay its use until May or June preferably.
- Reserve TMWA POSW and credit stored water during the year.
- Artificial recharge, when required for operational purposes, should occur as early in October as possible and continue through April to store water underground for future use.
- Maximize establishment of POSW and credit water.

Drought Situation:

- Maximize surface water diversions every month while available. Surface water production is the first supply to use. This may include bringing the Glendale Water Treatment Plant on-line earlier in the spring and implementing artificial recharge operations early in the fall.
- Maximize opportunities to store water upstream including requesting early filling of reservoirs.
- Maximize groundwater use during the months of June through October results in reduction of the use of POSW and any other TMWA storage in surface reservoirs.
- Enhance water conservation measures as appropriate to reduce customer use.

- To the extent possible, meet remaining demand with groundwater use (up to 22,000 acre-feet annually in the Truckee Meadows). Some groundwater supplies will need to be reserved to meet peaking demands later in the year.
- Some POSW or credit water may be required to meet summer peak day demands in extended droughts, but this use should be delayed and minimized if possible to the months of June through October.
- Under TROA as the drought progresses, move water out of Tahoe as soon as practicable.

The 1987-1994 Drought was the most severe drought on record and now serves as the benchmark for water resource planning criteria.[24]. Hydrologic analyses confirmed TMWA's previous work of designing its resources to withstand the worst drought of hydrologic record of the Truckee River: 1987 to 1994. The model demonstrates that drought year cycles are rare events, similar to flood events. The analyses establish that appropriate drought design criterion should reflect conditions that impact the ability of TMWA to divert surface water and require TMWA to use its upstream reserves: the only time this happens is during the irrigation months and only during consecutive dry summer months. The effect of one summer month when Floriston Rates are not met does not necessarily impact upstream reserves; only consecutive months without meeting Floriston Rates during the irrigation season can significantly impact upstream reserves. The results presented in the 2025 WRP remain valid as the 1987 to 1994 Drought remains the most severe drought on record.

Drought cycles of 8-, 9- or 10-year are rare occurrences with frequencies of 1 in 230 years, 1 in 375 years, and 1 in 650 years, respectively. A 10-year drought would be so rare that using it as the design standard would impose an unrealistic burden on the region's resources. As a comparison, the 100-year flood is twice as likely as the 8-year drought. Four 100-year flood events, including the flood of 1997, appeared in the record of data used. Over this same period there were two eight-year drought events. It was found that the 10-year drought frequency is approximately 1 in 650 years; a 100-year flood is 6.5 times more likely than the 10 year drought! Based on comparable methods to flood planning and the statistical methods developed for this plan, planning for the 8-year event with today's resources is more than adequate to meet expected drought frequencies; under this scenario, TMWA's resources will support demands up to 113,000 acre-feet. Based on the 1987-1994 plus a repeat of 1987 hydrology drought planning criterion, TMWA has the ability to continue to acquire irrigation rights and extend its water service demands to 110,000 acre-feet.

Figure 17 illustrates drought reserves under the 8-year drought design (1987 to 1994) at 113,000 acre-feet of demand without TROA implementation. The figure shows annual declines in all reservoir storage is due to annual Fall releases required for dam safety reasons to ensure

[24] A complete description of this model and accompanying analyses were presented in Appendix J of the 2025 WRP.

there is sufficient flood storage capacity to capture excess runoff from winter storms in Donner Lake, drawdown of Independence by TMWA for reservoir operations, and credit storage drawdowns reflecting turnover of water stored in Stampede or Boca reservoirs for fish purposes. For comparison purposes, Figure 18 shows the estimated use of drought reserves under the 8-year drought design at 119,000 acre-feet of demand with TROA implementation.

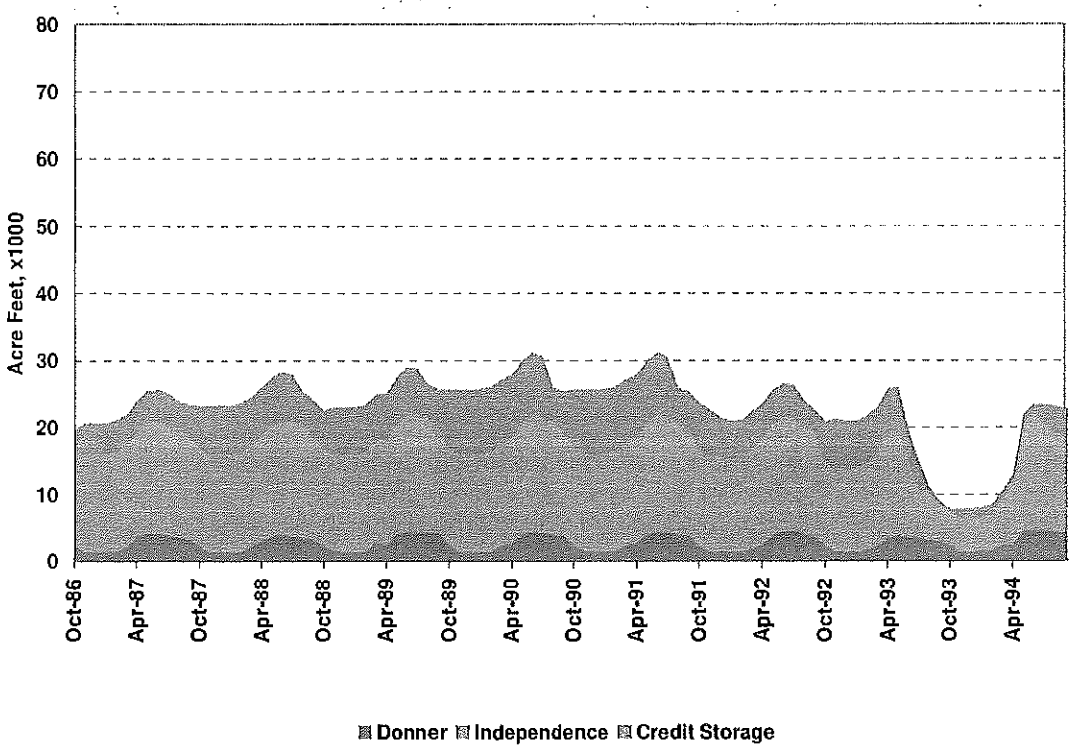


Figure 17: Remaining Drought Reserves During the Actual Hydrology of the 8-Year Drought Design with TMWA Demand of Yields 113,000 Acre-Feet

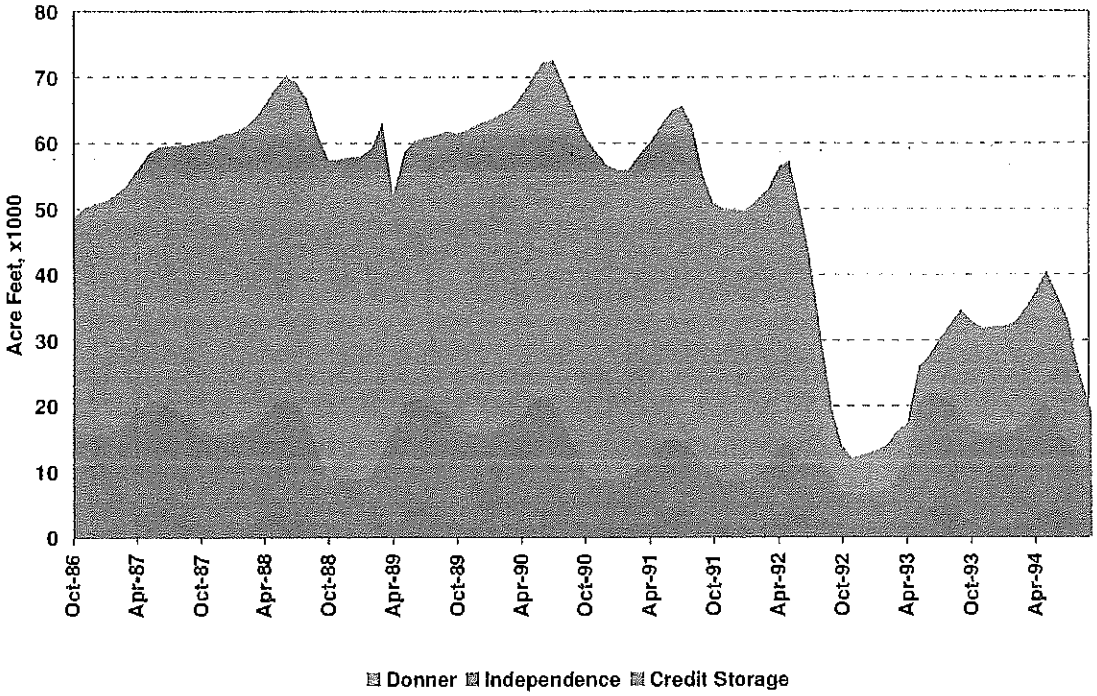


Figure 18: Remaining Drought Reserves During the Actual Hydrology of the 8-Year Drought Design with TMWA Demand of 119,000 Acre-Feet

Summary

This chapter has described TMWA's existing water rights and water production facilities. The key points of the analysis derived from conjunctively managing surface rights, groundwater rights, and water production facilities are:

1. Sustainability of water deliveries for the 20-year planning period and beyond is continually assessed both by TMWA and in coordination with other regional water purveyors to identify and engage in integration practices that are beneficial in terms of increasing the supply and/or quality of water supplies at minimum economic cost.
2. Subject to water-rights-market conditions, Truckee River water resources can sustain 119,000 acre-feet of demand under TROA.
3. Subject to water-rights-market conditions, there are sufficient Truckee River water rights to meet the TMWA's current and future demands through the planning horizon.
4. Current water rights include:
    - "40 cfs" right (28,959 acre-feet)
    - Hunter Creek (9,847 acre-feet)

- Independence Lake (17,500 acre-feet)
- Half of Donner Lake storage (4,750 acre-feet)
- The Interim Storage Agreement for storage in Stampede and Boca (up to 14,000 AF) until TROA is implemented
- The Truckee Meadows Groundwater Banking Order (allows variable pumping up to 22,000 acre-feet in a drought-year, and 15,950 acre-feet average year pumping)
- Approximately 64,541 acre-feet of acquired irrigation rights.

5. Current production capacities are:

Chalk Bluff	83.0 MGD
Glendale	25.0 MGD
Subtotal Surface	108.0 MGD
Groundwater	63.0 MGD
Total	171.0 MGD

6. An earthquake event in 2008 tested TMWA's emergency response plan to loss in water supply and demonstrated TMWA's ability to respond by having trained staff and available alternate water supplies.
7. Drought year cycles are rare events, similar to flood events. The estimated drought frequencies are:

8-year	1 in 230 years
9-year	1 in 375 years
10-year	1 in 650 years

8. Drought yield of TMWA's existing resources is a function of available resources and drought-year design. By continuing to acquire Truckee River irrigation rights, yield studies conclude TMWA has the ability to continue to extend its water service demands to 113,000 acre-feet with an 8-year drought design, which includes additional drought-year conservation needed during the peak irrigation season (June through October) of 7,800 acre-feet, or 7% of average year demand. Or, 119,000 acre-feet with an 8-year drought design once TROA is implemented, which includes additional drought-year conservation needed during the peak irrigation season (June through October) over and above the annual savings of about 12,000 acre-feet, or 10% of average year demand.

References

2005-2025 Water Resource Plan, Truckee Meadows Water Authority, March 2003.

2005-2025 Water Facility Plan, Truckee Meadows Water Authority, Dec 2005.

Chapter 4 Water Demand and Peak Day Projections

Water demand was projected through the year 2030 to ensure that TMWA will have the necessary water resources and facilities to serve its service area population. Projected water demand is based on projected population and water service connections through the planning period. Projected water demand has five main components: (1) Residential demand, (2) Commercial demand, (3) Irrigation demand, (4) Wholesale demand, and (5) System losses. Each of these components is projected using established historic water demand factors. The projections include estimates of land use consumption, growth in dwelling units and commercial buildings, and were developed in a three-step modeling process as follows:

1. Future population is forecast.
2. The number of dwelling units and land use are forecast as a function of population.
3. The number of commercial properties is forecast as a function of dwelling units.

In addition to the total annual water demand projections, an analysis and projection of peak day demand is presented for facility capacity planning purposes.

Water Demand Factors

The total demand for water is dependent on three general demands or uses. First, the residential desire to consume water for internal household consumption. Second, the commercial need to consume water as an input to produce goods and service in the local economy. For example, a hotel requires water as part to service of providing hotel rooms whereas a restaurant uses water for cooking and cleaning. Each business has a demand for water that is dependent of the type of business and the building that it occupies. Third, residential and commercial users desire to consume water for irrigation purposes. The quantity of water used for irrigation purposes depends on the type of landscaping that is being maintained and the weather. During periods of warm or hot temperatures irrigation increases as the landscape requires more water and during periods of cooler temperatures and/or rain, less water is required.

Residential demand is characterized by the number of people living in the community and the type of dwelling units. As the number of persons increase one can expect an increase in dwelling units and thus an increase in the residential demand for water. As people live in a community, they create the need for jobs and the demand for goods and services. The commercial demand for water is dependent on the population, the health of the economy, and types of commercial enterprises. Most separate irrigation water services are installed at commercial property complexes or multi-family complexes, as such the number of irrigation services can be projected as a function of multi-family services and commercial services.

The core variables that are used to project water demand are population, economic health, and land use / building patterns.

Population and Economy

Population growth and employment are an inter-related time series. In general, the population of a community grows faster during periods of low unemployment as the prospects of

new jobs are good[25] (i.e., unemployment rates below 6%) and grows slower during periods of higher unemployment. Employment is the primary variable affecting population growth as evidenced by historic events in Nevada.

Employment statistics for the State of Nevada have been collected since 1976. Figure 19 show how employment and population are related for the State of Nevada. During the 1970's through 1987, Nevada saw relatively slow population growth as the unemployment rate was consistently above 6%. Starting about 1988, population grew at a faster rate as the unemployment rate was generally below 6%, and in some years fell to record lows of less than 4% unemployment. When the unemployment rate increased in 2006 and continued to increase rapidly to what are now record highs, population growth slowed to almost no growth in 2008.

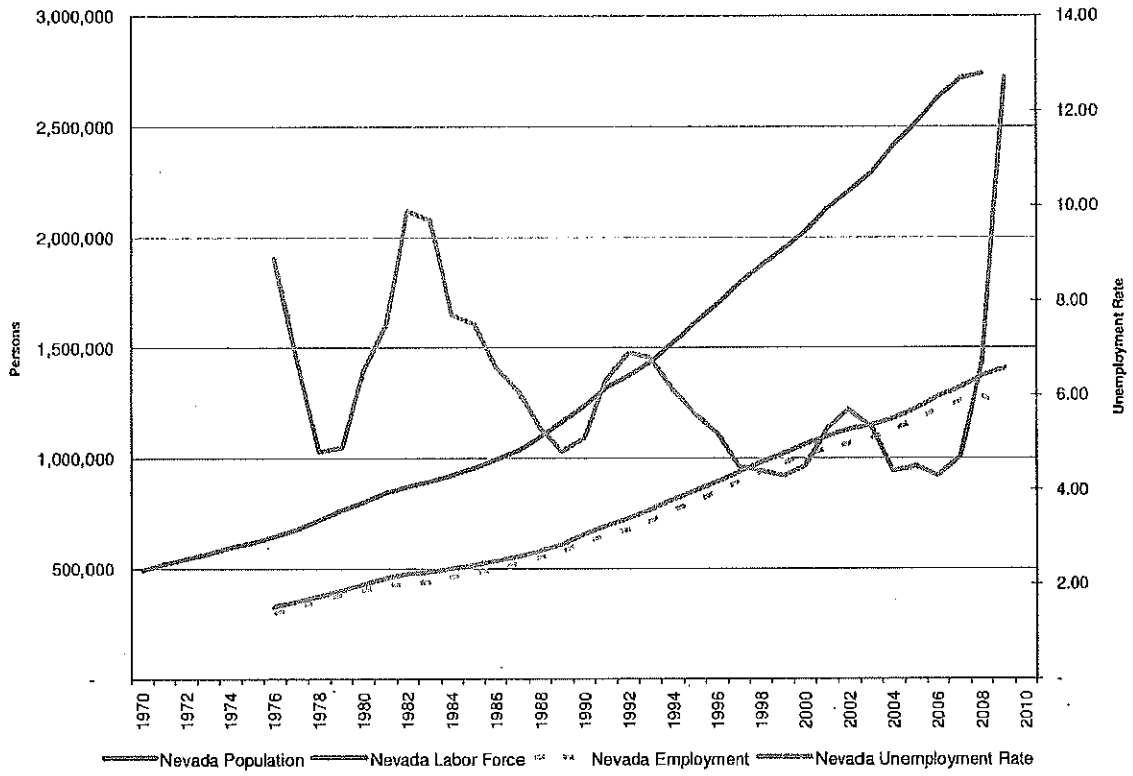


Figure 19: Nevada Population, Employment, and Unemployment 1970 to 2009

The employment trends in Washoe County are very similar to the State-wide trends shown above. Washoe County employment statistics from 1990 to 2009 are available from the Bureau of Labor Statistics. Figure 20 shows how the County experienced relatively stable population growth and low unemployment rates during the 1990's through 2006. Since late

[25] In most regions an unemployment rate of 5% is considered full employment.

2006, Washoe County has seen record unemployment rates and a flattening of the labor force that will translate into a period of slow population growth or a period of population contraction as people leave the region in search of jobs.

The sudden change in economic conditions implies that TMWA's prior employment population model has limited ability to provide a meaningful population projection. This combined with a change in labor reporting statistics required development of an alternative methodology for projecting population that is not directly dependent on employment.

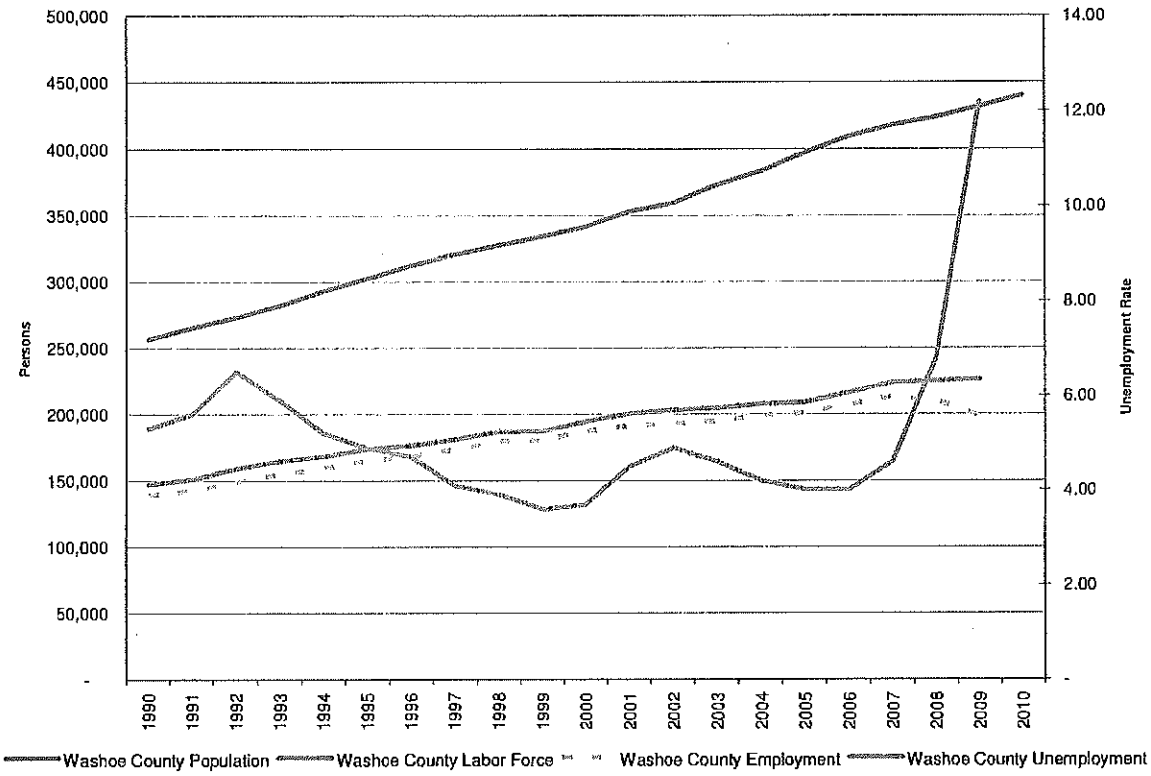


Figure 20: Washoe County Population, Labor force, Employment and Unemployment Rates

In developing a population projection, an important consideration is length of time period to be projected and available sources of data. This 2030 WRP requires a projection through the year 2030. The most recent population estimate is for 2008, thus a model is required to project for 22 years. Ideally, the source data series should be at least 22 years and cover similar economic conditions. The recent changes in labor reporting limits the usefulness of available historic employment data. Also, as described above the current economic conditions are not reflected in the available employment history.

Annual population estimates for Washoe County are available for the years 1950 to 2008. This meets the need of a long time series. This time series covers the recessions of the 1970's and 1980's and the periods of high growth seen in recent years.

Appendix H describes the population model development process and compares alternative population projection models. A summary of the selected population model, the logistic curve model, and its statistical properties, is provided below.

Logistic Curve Model

Many extrapolation methods that can be used to project population are not constrained by any limits on growth. This implies that population growth (or decline) can go on forever and in many cases, this is not a reasonable assumption. The logistic curve, one of the best-known growth curves in demography, solves the resource constraint problem by including an explicit ceiling on population. It is a symmetric sigmoid shape (S-shape) curve that has an initial period of slow growth, followed by increasing growth rates, followed by declining growth rates that eventually approach zero as population size levels off at its upper limit. The idea of limits on growth is intuitively plausible and is consistent with many theories of population growth, geographic impediments such as public lands and unbuildable terrain, growth constraints created by water resources and government policies, and in-fill of existing vacant residential sites. The population model developed for Washoe County is called a Keyfitz (1968) curve and is described as:

$$Y = \alpha \Big/ \left(1 + \beta_1 e^{-\beta_2 t}\right)$$

where "Y" is population, "t" is time, "α" is an estimated the population ceiling, "β_1" and "β_2" are parameters that define the shape of the logistic curve.

The estimated population is:

$\text{Population}_t = 676{,}985/(1 + 12.93262 * e^{-0.0513267 * t}) + 7{,}464$

Where t is time in years starting at t = 1 for 1950 and 7,464 is a model calibration factor.

This model's results fit the data with R^2 = 99%, and all parameters in this model are statistically significant. It is the lower bound on population ceiling of three models and was selected because the economy is still in a deepening recession.

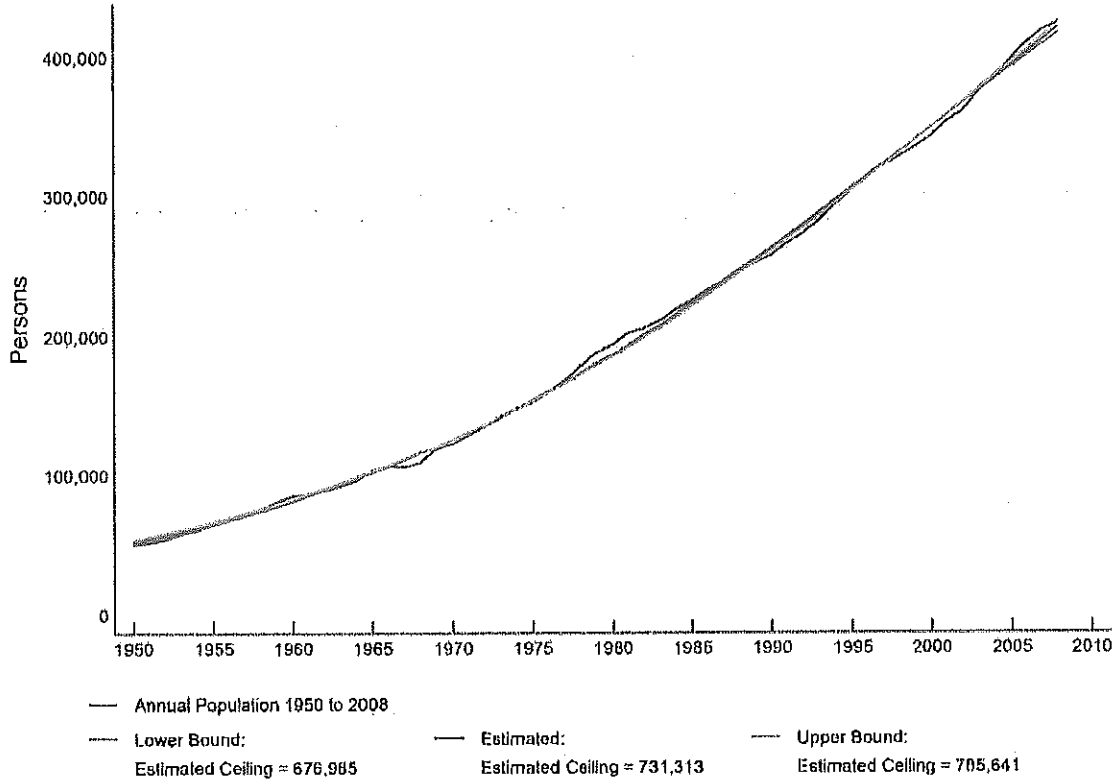


Figure 21: Population Logistic Curve Models Results

The results of all three logistic models are shown Figure 21. All three models fit the data equally well and each estimate has a R^2 = 99%. Figure 22 compares the models with the State Demographer projection and shows all three models provide essentially the same projection through the year 2015.

The State Demographer's population projection is one of two other population projection produced locally for planning; the other projection is the Washoe County Consensus Forecast. The consensus forecast was last published by Washoe County in 2008 based on data that excludes the current economic recession, therefore the consensus forecast needs to be updated before it can be used in this planning context.

The Demographer's projections are based on the REMI model and were last published in the fall of 2008. The REMI model is based on economic data since 2001 and thus has a limited ability to project population during this recession but is based on detailed local employment and economic data and can be compared with the logistic model. As shown in Figure 22, through the year 2020 there is no statistical difference between the logistic curves and the State Demographer's projection ("SDP"). For the years 2020 to 2030 the SDP trends towards the lower bound model. Since there is no statistical difference between the logistic curve and the SDP, (the SDP is contained entirely within the 95% confidence interval), the logistic curve

model using the lower bound of population ceiling is used as the population model for this 2030 WRP.

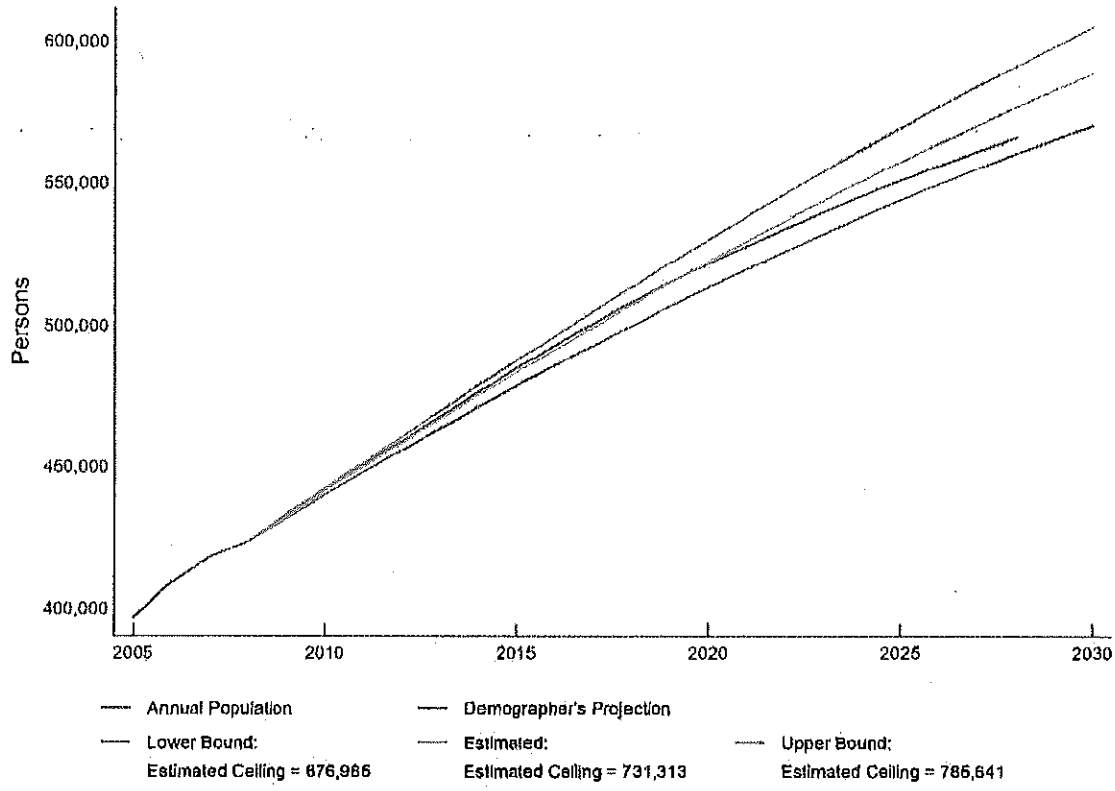


Figure 22: Logistic Lower, Estimated, Upper Bound and Demographer's Projections

Figure 23 shows the population projected out to year 2050 and compares the general trend with the SDP and the historic data used to estimate the model. The projected county population is expected to level out over time consistent with a logistic curve growth model.

Table 8 provides the Washoe County projections for 2010 to 2030 to be used as the basis for the water demand projection. Washoe County is projected to gain a total of 130,430 persons. This represents a 29.6% increase in population with an annual average increase of 1.33%.

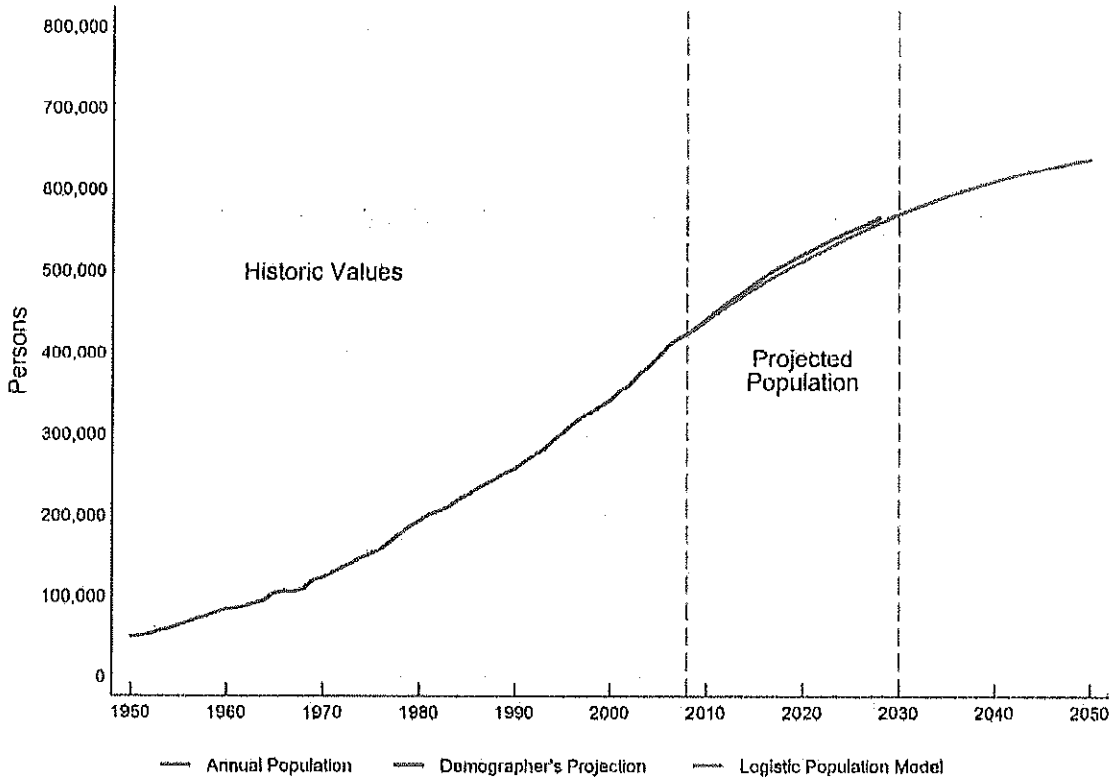


Figure 23: Population Projection Results

Table 8: Population Projections 2010 to 2030

Year	County	Percent Change	TMWA Retail	Total Wholesale	Balance of County
2010	440,081	1.87%	322,647	48,563	68,937
2011	448,038	1.81%	327,446	49,730	70,851
2012	455,872	1.75%	332,233	50,851	72,841
2013	463,577	1.69%	336,897	51,903	74,812
2014	471,146	1.63%	341,489	52,898	76,672
2015	478,572	1.58%	346,213	53,887	78,495
2016	485,851	1.52%	350,614	54,912	80,358
2017	492,977	1.47%	354,873	55,939	82,161
2018	499,946	1.41%	358,972	56,936	83,940
2019	506,754	1.36%	363,029	57,942	85,769
2020	513,398	1.31%	367,009	58,870	87,474
2021	519,876	1.26%	370,861	59,811	89,193
2022	526,185	1.21%	374,578	60,761	90,916
2023	532,324	1.17%	378,104	61,662	92,582
2024	538,291	1.12%	381,407	62,570	94,306
2025	544,088	1.08%	384,589	63,424	95,981
2026	549,713	1.03%	387,802	64,255	97,692
2027	555,166	0.99%	390,743	65,056	99,411
2028	560,450	0.95%	393,567	65,809	101,078
2029	565,564	0.91%	396,300	66,562	102,799
2030	570,511	0.87%	398,816	67,281	104,507
Total Change	130,430		76,169	18,718	35,570
Percent Change	29.64%	1.33%	23.61%	38.54%	51.60%

Note: Populations outside TMWA retail and wholesale areas are served by existing groundwater sources, and there other groundwater and/or importation projects that exist to supply future population (e.g., North Valleys Importation).

The disaggregation of population between TMWA's retail and wholesale areas and the balance of the county is a function of the location of dwelling units. An analysis of land use and distribution of the buildings in the different utility service areas and hydrographic basins provide the base data for projecting dwellings, commercial buildings, and the general consumption of land.

Data Construction and Trends

The Washoe County population is projected using a time series from 1950 to 2008. Since no formal similar time series for land use or building construction in Washoe County exists, it was constructed using information embedded in the County Assessor's data files. The County Assessor is the only source of detailed land use and building inventory for the entire county. A July 2009 snapshot of the assessor's data was downloaded from Washoe County's website for use in developing the projection of land consumption and building structures. The data provides a very detailed snapshot of what is known about each parcel and buildings that currently exist on

each parcel. This database, when combined with a GIS parcel boundary database provides sufficient information for developing building(s) and dwelling unit history that can be used as part of the water demand projections.

Using a GIS application, each parcel was attributed with a utility service area, and hydrographic basin. In this manner the database was used to model Washoe County land use, dwelling unit history, profile and distribution, and the distribution and development of commercial buildings. Figure 24 shows the constructed historic data from 1950 to 2009, historic population and the general trend in persons-per-dwelling units. The persons-per-dwelling units are used to disaggregate the population into utility service areas and hydrographic basins. The construction of the persons-per-dwelling units time series was possible because of the long life of buildings. The statistical models of dwellings and building presented below uses data from 1979 to 2009 due to a stable statistical relationship between number of dwellings to growth in population in that period.

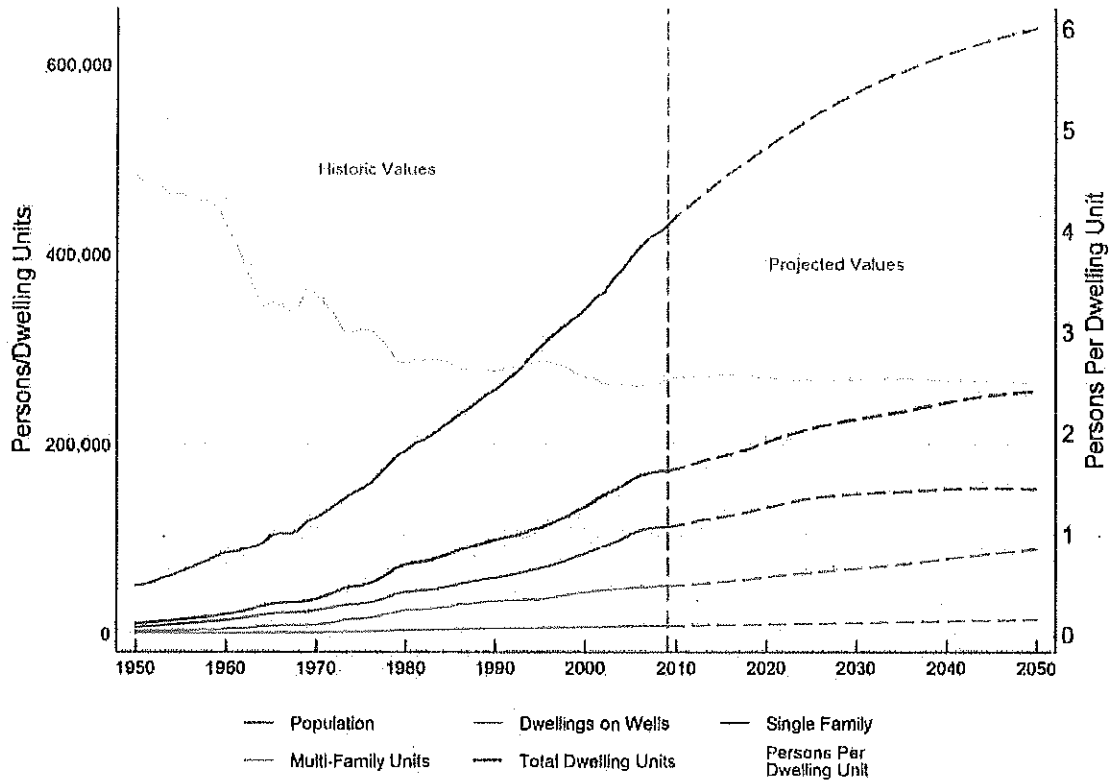


Figure 24: Washoe County Population, Dwelling Data and Projected Values

The Assessor's building data is reclassified into four classes that map to TMWA's customer classes. Dwelling units on domestic wells, while not served by any utility, are accounted for in the projection. Single family dwelling units (generally single family homes, townhouses, or condos) are serviced under the TMWA residential metered water service

("RMWS") rate class. Multi-Family dwelling units are apartments, duplexes, and any multi-family structure that would be billed on TMWA's multi-family metered water service ("MMWS") rate. Last is the commercial building group which includes any non-residential buildings that would receive water on the general metered water service ("GMWS") rate. Figure 24, Figure 25, and Figure 26 show the data used for the models and the projected units.

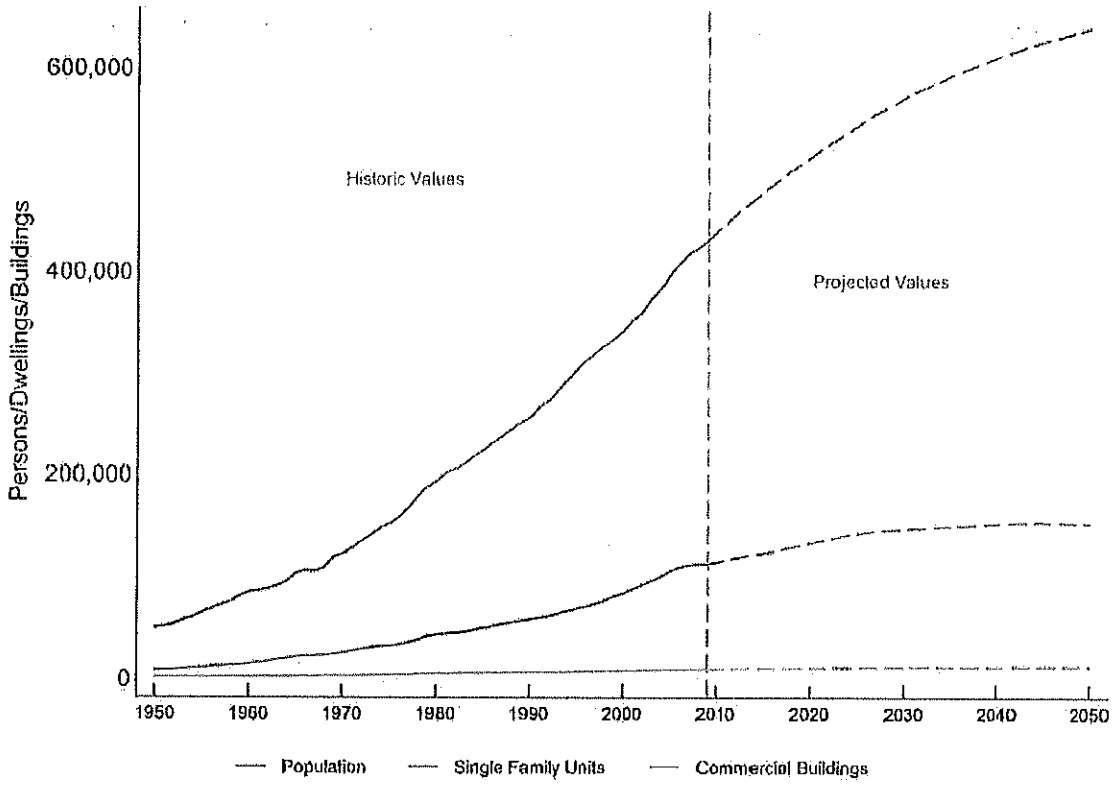


Figure 25: Washoe County Commercial Buildings Data and Projections

As a component of the model for dwelling units, Figure 26 shows the development of land over time and the projected amount of land that is projected to be developed through 2050.

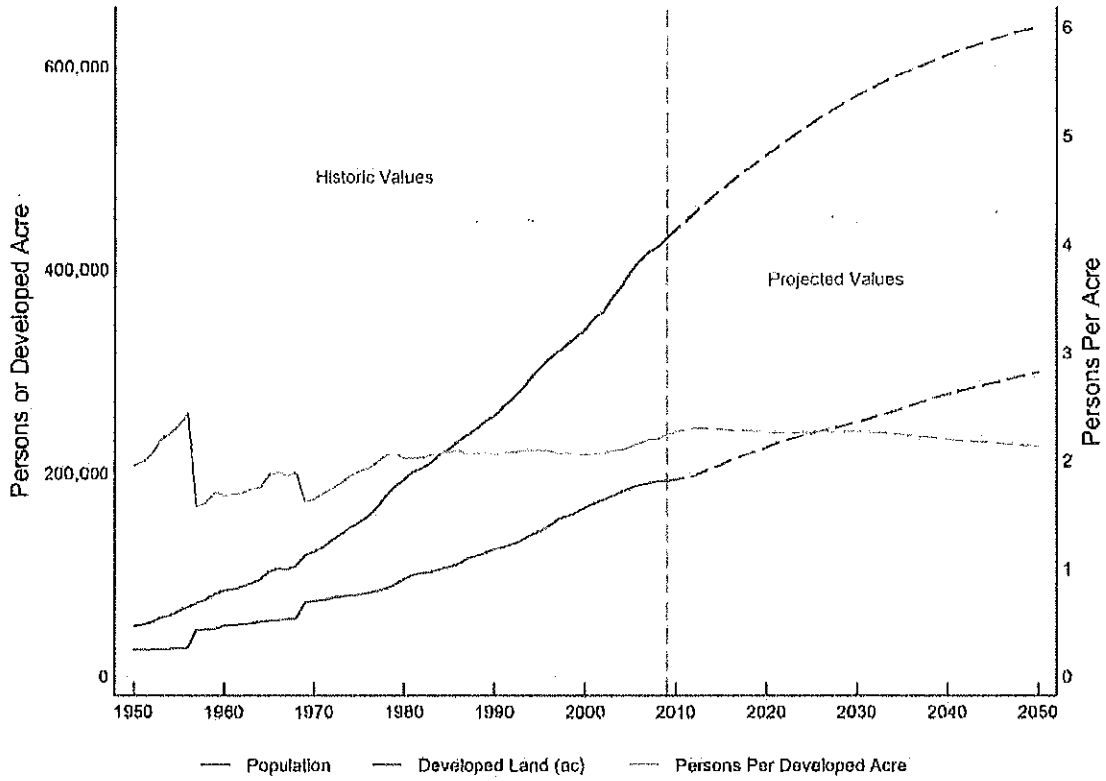


Figure 26: Washoe County Land Development Data and Projection

Statistical Analysis

Residential housing is the largest use of land, thus the development of land was best explained by residential housing units rather than commercial buildings. Figure 26 shows the projected development of land and the resulting persons per developed acre. The stock of single family and multi-family dwelling units in a given year is related to prior changes in population, number of new units constructed and current inventory of dwelling units. The stock of commercial buildings is related to prior economic activity including the number of single family units built in prior years.

Population is an exogenous variable to the housing model. When population projections change then the housing projections will change in response to the new population. The number of single family dwelling units is treated as an exogenous variable to the commercial building model in the same manner that population is exogenous to housing. The results of this three-step modeling process, using a vector autoregression model ("VAR") is shown with the data in Figure 24, Figure 25 and Figure 26. The three classes of dwelling units are inter-related and dependent on past values of each class along with population. A VAR is a common statistical method for modeling multiple variables that are related through time; the full statistical analysis is presented in Appendix I.

This model estimated the relationship between dwellings on wells, single family dwellings, multi-family units and developed land with population from the population model as the second step. The third and final step is estimating the relationship between commercial buildings and single family dwelling units. To summarize, the process models:

1. Population and projected dwelling units.
2. Housing and land development using vector autoregression and population.
3. Commercial buildings using vector autoregression and single family dwelling units and projections.

The persons per dwelling units and persons per developed acre are used as a measure of model quality. The population densities display how well the models are meeting the needs of the projected population. If the model is performing well at modeling the past trend then the there should be little change in the trends in the densities.

Persons per dwelling unit has remained stable since 1980 and the resulting projected dwelling units maintain the mix of units that will meet the future population needs. The persons-per-dwelling-unit is also used as the means to allocate county population to county sub-areas based on projected new dwelling units in a sub-area.

County Sub-Area Projections

The county projection is disaggregated into sub-areas listed here.

Utility Service Areas		Hydrographic Basins	
ID Code	Name	ID Code	Name
TR	TMWA Retail Area	085	Spanish Springs
RC	TMWA Combined Wholesale	086	Sun Valley
WC	Rest of Washoe County	087	Truckee Meadows
SV	Sun Valley	091	Truckee Canyon Segment
DD	Double Diamond	092	Lemon Valley
SS	Spanish Springs	000	All Other Basins in County

Sub-area projections are derived from the County total projection using a ratio share analysis that allows for trends in the area shares over time, while requiring the sum of the shares to always equal 1. This ensures that in any projection year the sum of the sub-areas will always equal the County total.

Figure 27 and Figure 28 show the disaggregation of population, units and commercial buildings for TMWA retail area and wholesale service areas. It is these values that form the basis for the water demand projections.

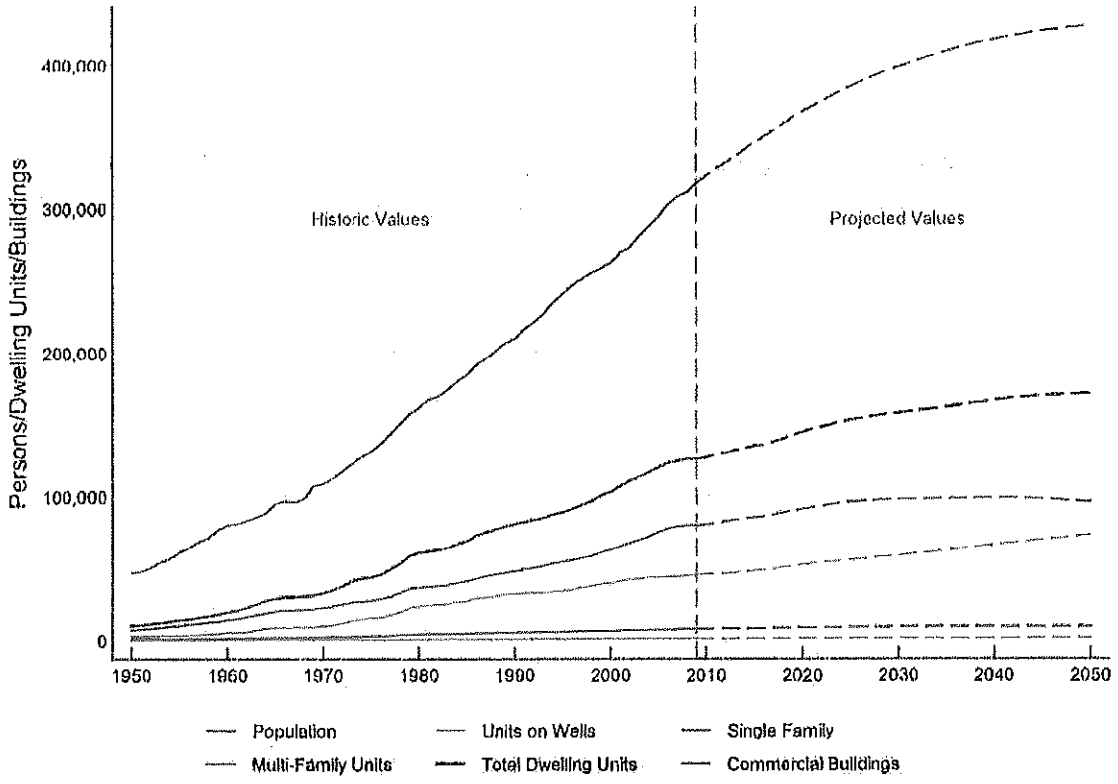


Figure 27: Dwelling Units and Commercial Building in TMWA's Retail Service Area

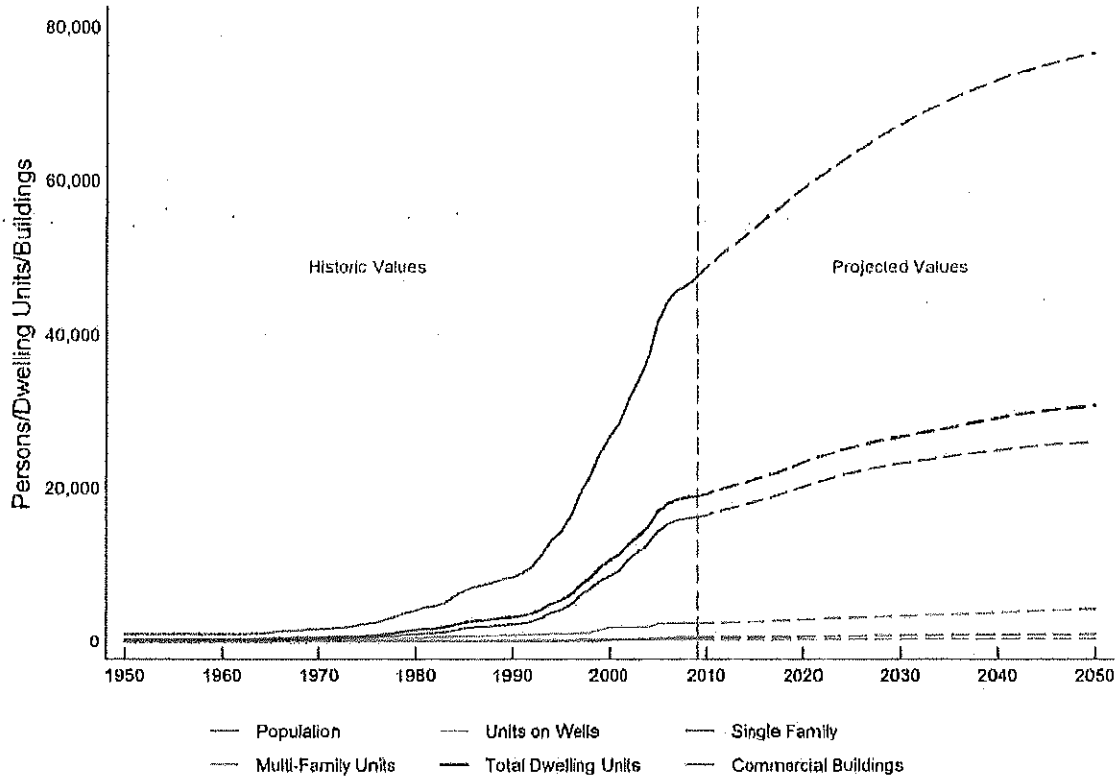


Figure 28: Dwelling Units and Commercial Buildings in TMWA's Wholesale Service Areas

Water Demand Projections

The Assessor's data does not match TMWA's billing records due to differences in how the data is recorded and used by each party. Not every parcel and building is served by TMWA and some buildings or properties may have more than one water service. To translate the dwelling and building projections into water services an adjustment factor is applied to each water service class.

Using active water service counts for June of each year from 2003 to 2009 a ratio of active water services to dwelling units or buildings was computed (Table 9). The results of this analysis are that:

- RMWS services have numbered 96.45% of single family unit counts,
- MMWS services must be converted to water services by dividing 10.23 units per service.
- GMWS services have numbered 73.89% of commercial building counts.

Table 9: Active Water Service Ratios Per Year

Year	Average Multi-Family Dwelling Units per Service	Ratio of Active RMWS	Ratio of Active Multi-Family Units	Ratio of Active GMWS Services
2003	10.71	.9684	1.0391	.7162
2004	10.49	.9634	1.0581	.7413
2005	10.05	.9572	1.0667	.7427
2006	10.19	.9720	1.0459	.7284
2007	10.08	.9711	1.0675	.7380
2008	10.10	.9639	1.0497	.7450
2009	10.02	.9558	1.0603	.7610
Average Ratio	10.23	.9645	1.0553	.7389

The metered irrigation water service ("MIS") do not have a direct counter part in the Assessor's data and therefore, could not be projected using the same model. However, most irrigation water services are attached to multi-family complexes or commercial properties. A regression analysis of MIS services as a function of MMWS and GMWS resulted in a model that projects the number of irrigation services. The projection of MIS services is shown in Table 10.

Using the active water service ratios and the MIS regression, projected total active water services are displayed in Table 10. These service counts are combined with the average water use per service (Table 14) to create the water demand forecast presented below.

Table 10: Projected Active Retail Water Services

Year	Single Family Base	Single Family New	Total Single Family	Multi-Family Units	Multi-Family Services	General Metered Service	Metered Irrigation Service	Total Services
2010	76,890	806	77,696	48,143	4,720	5,733	2,612	90,761
2011	76,890	2,083	78,973	48,408	4,746	5,780	2,662	92,161
2012	76,890	3,231	80,121	48,846	4,789	5,839	2,731	93,480
2013	76,890	4,352	81,242	49,526	4,855	5,904	2,817	94,818
2014	76,890	5,102	81,992	50,201	4,922	5,960	2,898	95,772
2015	76,890	5,724	82,614	50,955	4,996	6,014	2,981	96,605
2016	76,890	6,536	83,426	51,526	5,052	6,062	3,049	97,589
2017	76,890	7,622	84,512	52,187	5,116	6,113	3,124	98,865
2018	76,890	8,970	85,860	53,072	5,203	6,175	3,220	100,458
2019	76,890	10,213	87,103	53,898	5,284	6,240	3,315	101,942
2020	76,890	11,365	88,255	54,932	5,385	6,311	3,426	103,377
2021	76,890	12,506	89,396	55,883	5,479	6,380	3,532	104,787
2022	76,890	13,494	90,384	56,652	5,554	6,445	3,624	106,007
2023	76,890	14,461	91,351	57,501	5,637	6,508	3,718	107,214
2024	76,890	15,370	92,260	58,198	5,706	6,567	3,802	108,335
2025	76,890	16,090	92,980	58,931	5,778	6,619	3,883	109,260
2026	76,890	16,661	93,551	59,710	5,854	6,667	3,962	110,034
2027	76,890	17,039	93,929	60,325	5,914	6,704	4,024	110,571
2028	76,890	17,309	94,199	61,006	5,981	6,735	4,086	111,001
2029	76,890	17,536	94,426	61,627	6,042	6,760	4,139	111,367
2030	76,890	17,663	94,553	62,196	6,098	6,778	4,185	111,614

Table 11: Average Water Use Per Service (x1,000 gallons)

Year	RMWS	RMWS Base	RFWS	SUFR	MMWS	GMWS	MIS
2003	156.76	167.82	205.62	97.23	432.32	696.72	1,050.09
2004	156.02	179.29	271.51	74.93	445.07	762.79	1,054.98
2005	143.01	162.88	270.00	82.95	409.78	824.57	1,043.45
2006	137.74	159..20	313.35	86.36	455.66	696.91	956.35
2007	150.37	168.59	331.82	73.50	440.38	682.93	1,047.21
2008	143.59	162.87	347.07	81.99	428.78	587.20	947.96
Average	146.94	166.61	271.54	84.28	435.00	707.22	1,013.15

The weighted average water use per service is multiplied by the projected number of water services to produce the annual projected water demand. The weighted average 2003-2008 water use per service is used as a way to compensate for variation in the weather conditions and number of active water services per year. The RMWS Base average use per service includes all existing RMWS, RFWS, and SUFR water services and is used as the base water use per service per year for current services. For new RMWS services the average of 147 thousand gallons is used. Table 12 shows the projected retail water sales and Figure 29 provides a graphical view of

the projected trends. Of note is the slow down of growth that starts after 2035. This is directly related to the slowing of population growth in these later years.

Table 12 includes projection for the individual wholesale areas. Each wholesale water service is projected from published facility plans or existing wholesale contracts, such as Sun Valley GID's updated facility plan in late 2007. Spanish Springs demands were extrapolated from historic water use. South Truckee Meadows demand was extrapolated to the year 2016 where the quantity demanded equals the current contract limit of 3,600 acre-feet per year.

Table 12: Projected Retail Water Use by Class Through 2030[26]

Year	RMWS	MMWS	GMWS	MIS	Total Retail	Sun Valley	Spanish Springs	South Truckee Meadows	Total Wholesale	Total Deliveries	System Loss	Total Production
2010	39,679	6,301	12,443	8,121	66,544	2,090	964	2,932	5,986	72,530	4,630	77,160
2011	40,255	6,336	12,545	8,277	67,413	2,130	1,018	3,088	6,236	73,649	4,701	78,350
2012	40,773	6,393	12,673	8,491	68,330	2,171	1,066	3,227	6,464	74,794	4,774	79,568
2013	41,278	6,483	12,814	8,759	69,332	2,212	1,109	3,351	6,672	76,004	4,851	80,855
2014	41,617	6,571	12,936	9,011	70,135	2,252	1,148	3,463	6,863	76,998	4,915	81,913
2015	41,897	6,668	13,053	9,269	70,889	2,293	1,183	3,565	7,041	77,930	4,974	82,904
2016	42,263	6,744	13,157	9,480	71,644	2,333	1,216	3,600	7,149	78,793	5,029	83,822
2017	42,753	6,830	13,268	9,713	72,564	2,374	1,246	3,600	7,220	79,784	5,093	84,077
2018	43,361	6,946	13,402	10,012	73,721	2,415	1,274	3,600	7,289	81,010	5,171	86,181
2019	43,922	7,054	13,543	10,307	74,826	2,455	1,301	3,600	7,356	82,182	5,246	87,428
2020	44,441	7,169	13,697	10,652	75,979	2,496	1,325	3,600	7,421	83,400	5,323	88,723
2021	44,956	7,314	13,847	10,982	77,099	2,536	1,349	3,600	7,485	84,584	5,399	89,983
2022	45,401	7,415	13,988	11,268	78,072	2,577	1,371	3,600	7,548	85,620	5,465	91,085
2023	45,837	7,527	14,125	11,560	79,047	2,618	1,392	3,600	7,610	86,657	5,531	92,188
2024	46,247	7,616	14,253	11,821	79,938	2,658	1,411	3,600	7,669	87,607	5,592	93,199
2025	46,572	7,712	14,366	12,073	80,725	2,699	1,430	3,600	7,729	88,454	5,646	94,100
2026	46,829	7,815	14,470	12,319	81,433	2,740	1,449	3,600	7,789	89,222	5,695	94,917
2027	47,000	7,895	14,550	12,512	81,957	2,780	1,468	3,600	7,846	89,803	5,732	95,535
2028	47,122	7,985	14,618	12,704	82,429	2,821	1,463	3,600	7,904	90,333	5,766	96,099
2029	47,224	8,068	14,672	12,869	82,831	2,861	1,498	3,600	7,959	90,790	5,795	96,585
2030	47,281	8,141	14,711	13,012	83,145	2,902	1,514	3,600	8,016	91,161	5,819	96,980

[26] System losses are estimated at 6 percent based on review of production and to metered consumption.

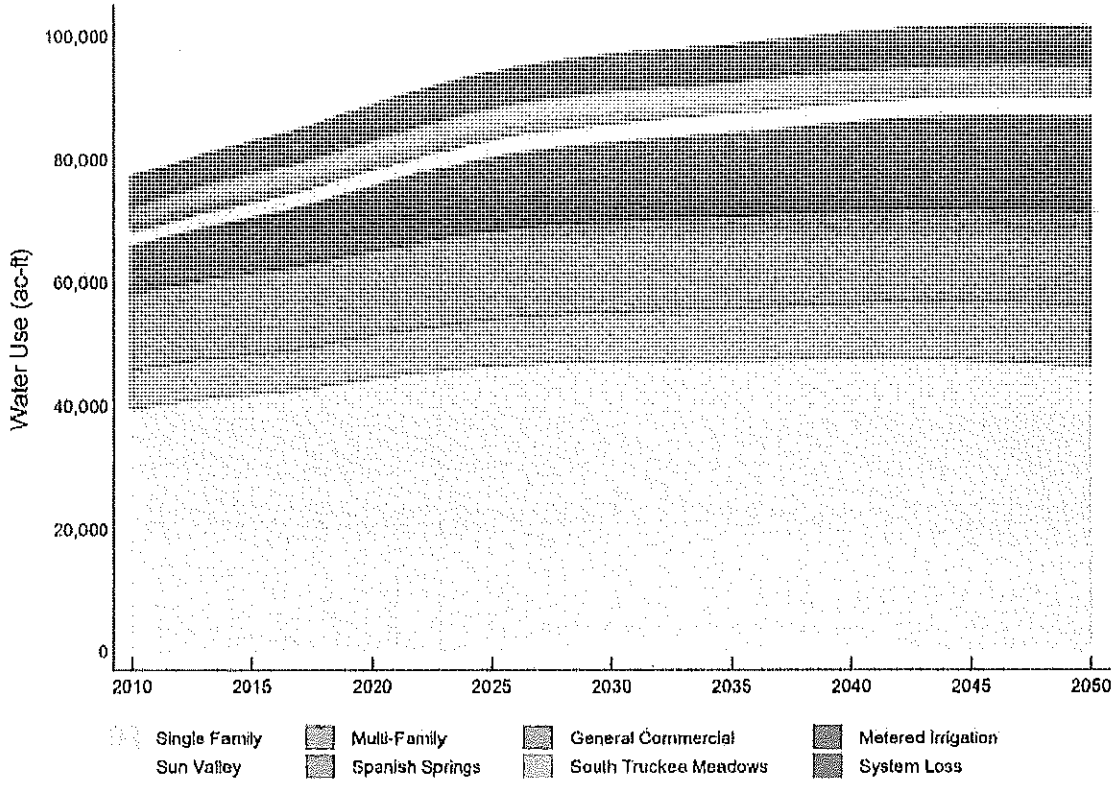


Figure 29: Projected Retail Water Use by Class Through 2050

Peak Day Projections

TMWA conjunctively manages its surface and groundwater production facilities, to satisfy the production requirements for both drought year and non-drought year conditions. Chapter 3 presented an overview of conjunctive management. Here, the facility planning goals are delineated further.

Production facilities are planned to meet two conditions. In "normal" years TMWA seeks to maximize the availability of surface water so more surface capacity is needed and used while groundwater pumping is minimized. Conversely, in Drought Situations TMWA seeks to maximize groundwater pumping so more well capacity is needed and used because reduced Truckee River flows prevent full utilization of available surface water production capacity. The projected demands indicate that "normal" year peak day demands increase from 136.8 MGD in 2010 to 171.9 MGD in 2030. Based on currently capacities -- 108.0 MGD surface treatment and 63.0 MGD groundwater – TMWA can meet the "normal" year peak day demand in 2030. However, during Drought Situations there is sufficient surface water supply is limited and groundwater capacity must increase 23.7 MGD, from 63.0 MGD to 85.7 MGD, in order to

maximize the use of TMWA's groundwater resources to meet 2030 Drought Situation peak-day requirements.

While drought years or other weather occurrences may see actual peak days varying from the non-drought year projections, the projections reflect the long-term trend in consumption, and the level of consumption to which system capacity must be able to respond. Projected peak day consumption during drought years is estimated to be non-drought year peak day consumption reduced by 5 percent. Historical data shows that peak day consumption has been reduced between 2 percent and 11 percent from prior year consumption when the Truckee Meadows has been experiencing drought. The projected rated surface water treatment and groundwater well production requirements are shown in Table 13.

Table 13: Projected Peak Day and Production Facilities Requirements

	Estimated Production	Non-Drought Year, Peak Day Consumption	Drought Year, Peak Day Consumption	Production Faciltities Requirements		
				Surface	Ground	Combined
	Acre-Ft	MGD	MGD	MGD	MGD	MGD
2010	77,160	136.8	129.9	108.0	63.0	171.0
2011	78,350	138.9	131.9	108.0	64.7	172.7
2012	79,568	141.0	134.0	108.0	66.3	174.3
2013	80,855	143.3	136.1	108.0	68.0	176.0
2014	81,913	145.2	137.9	108.0	69.7	177.7
2015	82,904	146.9	139.6	108.0	71.3	179.3
2016	83,822	148.6	141.1	108.0	73.0	181.0
2017	84,877	150.4	142.9	108.0	74.7	182.7
2018	86,181	152.7	145.1	108.0	76.3	184.3
2019	87,428	155.0	147.2	108.0	78.0	186.0
2020	88,723	157.2	149.4	108.0	79.7	187.7
2021	89,983	159.5	151.5	108.0	81.4	189.4
2022	91,085	161.4	153.4	108.0	83.0	191.0
2023	92,188	163.4	155.2	108.0	84.7	192.7
2024	93,199	165.2	156.9	108.0	85.7	193.7
2025	94,100	166.8	158.4	108.0	85.7	193.7
2026	94,917	168.2	159.8	108.0	85.7	193.7
2027	95,535	169.3	160.9	108.0	85.7	193.7
2028	96,099	170.3	161.8	108.0	85.7	193.7
2029	96,585	171.2	162.6	108.0	85.7	193.7
2030	96,980	171.9	163.3	108.0	85.7	193.7

Total production capability shown is greater than projected peak day consumption, be it groundwater in non-drought years or surface water in drought years. This cannot be avoided since water supplies dictate which facilities will be utilized in any given year. The projections shown here, however, reflect the minimum amount of production capacity required to maximize the yield of TMWA resources (as constrained by both the drought and non-drought scenarios).

The reader should note that existing surface capacity is sufficient to meet the 20-year planning horizon projection.

TMWA's 2005-2025 Water Facility Plan will need review to determine if changes in any facilities and/or their timing are warranted as a result of the current 2030 peak day forecast.

Summary

This chapter included TMWA's population forecast, water demand forecast, factors impacting the demand forecast, and peak day projections. The results are summarized:

1. A long term population projection through 2050 is developed using historic county population estimates from 1950 to 2008.
2. In the near term the economy is expected to be the constraint on population growth. Through the year 2030 the County is expected to see an average annual growth of 1.33% and a total population increase of 130,430 persons.
3. New water services are projected using historic building trends derived from Washoe County Assessor's data and a relationship between water services and County building inventories.
4. Using recent trends in average water use per service for 2003 to 2008 combined with projected new water services, water demand is projected through 2030.
5. Extrapolation of building trends and water demands show a plateau in water demand starting in 2035. Total water demand in 2030 is projected to be about 97,000 acre-feet.
6. Over 111,000 active water services are projected for the year 2030.
7. Peak day for 2030 is projected to be 171.9 MGD for non-drought year.
8. In developing the water demand forecast, TMWA's population forecast was found to be similar to State Demographer 2008 projection for Washoe County.
9. The projected peak day demands are a reasonable estimate to be used for planning future facilities. Just as managing the water resources in conjunctive manner produces the maximum committable yield of those resources, projected peak days under drought and non-drought conditions seek to maximize the use of surface and groundwater resources. In doing so the capital investment in additional production facilities is minimized.

Chapter 5 Water Demand Management

Water demand management is one of the key building blocks of integrated resource planning. It has been defined as the development and implementation of strategies, policies, measures or other initiatives aimed at influencing demand, so as to achieve efficient and sustainable use of the scarce water resource (Savenije and van der Zaag, 2002).

TMWA takes its role as steward of the region's water resources seriously. Whether through its commitment to sustainability of the region's ground and surface water sources, or as a result of regulation, TMWA's goal is to promote the wise and efficient use of water resources and the prevention of water waste through its water demand management programs.

Unlike many communities that utilize demand management programs to conserve water that can be reallocated to serve new growth, in essence creating a new water supply, TMWA can assure its customers that conserved water is used for their benefit as drought and emergency reserves or to benefit the health of the Truckee River system. Unused water rights associated with commercial or wholesale customers can be reallocated. Demand management programs reap many benefits, the most obvious of which are:

- Delayed need for future facilities or deferred timing of those facilities, and the cost associated with those facilities,
- Increased drought protection for the community as conserved water can be stored in upstream reservoirs
- Environmental benefits as a result of increased river flows (benefits riparian habitat and wildlife)
- Less water consumed means less energy required to produce and deliver water to customers as well as less energy consumed to process wastewater.

TMWA's water demand management programs must fulfill certain specific provisions, including water conservation requirements per the Joint Powers Agreement ("JPA"), which formed TMWA, the Nevada Revised Statutes ("NRS"), TROA, and regional planning, each of which are detailed below.

JPA Conservation Objectives. Article 5(i) of the JPA that formed TMWA requires the utility to "prepare, update and oversee the implementation of a water conservation plan for the use of municipal, industrial, and domestic water supplies within the retail service area of the Authority and to carry out the former Sierra Pacific role with regard to the Water Conservation Agreements with Members."

NRS Conservation Objectives. In addition to Article 5(i), TMWA is required to meet NRS 540.131 through 540.151, which calls for a conservation program that provides:

a) Methods of public education to (1) increase public awareness of the limited supply of water in the State and the need to conserve water, and (2) encourage reduction in the size of lawns and encourage the use of plants that are adapted to arid and semiarid climates;

b) Specific conservation measures required to meet the needs of the service area, including, but not limited to, any conservation measures required by law;

c) Management of water to (1) identify and reduce leakage in water facilities, inaccuracies in water meters and high pressure in water supplies, and (2) increase the use of treated effluent;

d) A contingency plan for drought conditions that ensures a supply of potable water;

e) A schedule for carrying out the plan; and

f) Measures to evaluate the effectiveness of the plan.

Truckee River Operating Agreement Along with other parties, TMWA is responsible to implement the water conservation element of TROA. The TROA Water Conservation Agreement was signed in July 1996 by PLPT, Sierra, Reno, Sparks, and Washoe County and signed off by the other TROA parties under the terms of the TROA agreement. Section 29(e) of the PSA stipulates that as a result of the agreement, the signatories will not make further determination whether such design criteria (10%) is met in ensuing drought situation years and agreement sets forth the parties' intent that because that agreement provides for normal year and drought year conservation that there will not be any further determination of whether the 10 percent design criteria has been met. TMWA submits reports annually to the signatory parties showing that the specific requirements are met.

The agreement requires TMWA to spend a minimum of $150,000 per year for landscape efficiency programs. The amount is in addition to $50,000 per year for public education and $100,000 per year for water waste prevention and water-saving device giveaways. TMWA has consistently spent in excess of $500,000 per year on water conservation consultants, devices, educational materials for school programs, Assigned-Day Watering communications, and a myriad of other educational materials dedicated to responsible water use.

The WRWC and its NNWPC are charged with overseeing and coordinating water resource planning and management in Washoe County including responsible water use planning. A priority of the NNWPC and WRWC work plans is to develop a new responsible water use plan for the region, replacing that which they inherited as part of the RWMP.

As the largest water purveyor in Washoe County, serving approximately 85% of the region's municipal water customers, TMWA is a key player in developing the region's responsible water use mission and will be integral in implementing programs that support that mission. It is highly likely, at least in the near-future, that TMWA's programs will continue to serve as the cornerstone of the region's efforts. TMWA will continue to be fully engaged in the regional dialogue on responsible water use and will implement programs for its customers that benefit the region and regional water use goals.

Since 1979, the community has evolved toward a metered water system by first metering all commercial and irrigation services. A formal program to retrofit of all TMWA's remaining flat-rate residential services began in earnest in June 1995. As of this plan, TMWA has completed the meter conversions on the original 42,000 single family residential water services that required retrofit when the program started in 1995. Finishing the retrofit program was a condition of NRS and a requirement of the Preliminary Settlement Agreement; this is a significant accomplishment toward implementing the Water Conservation Agreement that is part of TROA.

TMWA's water demand management strategy is comprised of many programs grouped under three headings:

System Management

Public Education

Other Demand Management Measures

The specific programs, the target audiences, and the primary benefit to TMWA of each program are summarized in Table 14.

Table 14: Water Demand Management Programs

	Primary Benefit	Target Audience
A. System Management		
Coordination of Treated Effluent Use	3, 4	Irrigation
Leaks and System Repairs	1, 4	All users
Meter Replacement	1	All users
Non-Potable Water Service	3, 4	Irrigation
System Pressure Standards	1, 4	All users
Unauthorized Use of Water	1, 4	Construction
B Public Education		
Assigned-Day Watering	1, 2, 3, 4	All users
Distribution of Water Savings Devises & Information	1, 2	Residential
Education Programs for Kids	2	Children
Homeowner Workshops	1, 2	Residential
Landscape Retrofit	1, 3	Irrigation & residential
Water Audits	1, 2	Residential & business
Water Waste Prevention	1	All users
C. Other Measures		
Codes and Ordinances	1	All users
Program Management and Droughts	1, 2, 3, 4	All users
Program Management and Emergency Supply Conditions	1, 2, 3, 4	All users
Water Management Programs	1, 3	Large water users
Water Rates	1, 4	All users

***
1 - Reduces water waste
2 - Education
3 - Peak day savings
4 - Minimize operation and maintenance to distribution facilities

System Management

Coordination of Treated Effluent Use with Local Agencies. Providing service connections with effluent leaves capacity for new municipal demand that requires treated water, enabling existing potable water resources to go further. TMWA cooperates with Reno, Sparks and Washoe County to ensure that the use of treated effluent is being applied for irrigation purposes at suitable sites where the infrastructure is, or is planned to be, installed. TMWA's rules require that new service applicants submit verification whether or not the site applying for municipal, treated water is designated to be or is within feasible range to be serviced by effluent water. If the project meets the effluent provider criteria for service, treated effluent will be provided for irrigation purposes instead of potable water from TMWA. Replacement water rights are provided as required by TROA.

Leaks and System Repairs. TMWA is aggressive with repairs of water main breaks and leaks. Of primary concern is assessing public safety and safety of work crews, minimal interruption to public and private services, as well as minimizing overtime expenditures. If water leaks are not large, not causing a safety problem, and are reported outside normal working hours, field supervisors will determine the urgency of the needed repairs and schedule repair work accordingly.

When the source of the leak is determined and the appropriate underground locations of other utilities are completed, the crew will excavate the leak site and make repairs. In the case of a leaking poly-butylene pipe, the crew will usually replace the entire service, as this type of pipe has proven particularly prone to repeated leaks. All leaks are reported and entered into a database. Since its inception in 2001, TMWA has replaced over 263,000 feet of main, and repaired 1,581 specific leaks.

Meter Replacement. TMWA has implemented an effective meter replacement program which targets the elimination of water waste by replacing meters within 15 years of their installation date to ensure they remain accurate since the internal working of the meter wear out. TMWA spends approximately $5.7 million annually on meter replacements. As meters are replaced, additional water savings may be achieved with this measure since improvements are made to the system when leaks in older facilities are found and repaired when the meter is replaced.

Non-Potable Service TMWA has a Non-Potable Service ("NPS") tariff to provide sources of untreated water to sites that can use untreated Truckee River water or poor quality ground water for non-potable applications with minimal capital investment. Non-potable water service is available at a reduced rate, providing incentive for qualified customers to switch to this service. The service reduces TMWA peak day demand and lowers system capacity needs. Irrigation and construction sites utilizing this NPS conserve potable water enabling existing water resources to go further.

Specific facility needs for each service connection are identified in the service agreements between TMWA and the customer receiving non-potable service. The recipient of the service demonstrates each site's ability to tolerate the interruptible nature of the service (due to system or drought requirements) and/or the potential to switch between treated and untreated water.

System Pressure Standard. Pursuant to NAC 445A TMWA engineering design criteria plan for a max-day-demand-residual pressure of 40 PSI be maintained at the customer's service connection. Pressures exceeding 125 PSI may increase the possibility of main breaks or accelerate the development of leaks, both on TMWA and the customer facilities. Excessive pressure results in more water delivered through the tap since flow rate is proportional to pressure. This can result in such forms of water waste as sprinkler overspray, faucet splashing and higher leakage flow rates.

Unauthorized Use of Treated Water Use of water without dedicated water rights, or for temporary purposes without TMWA's permission, is illegal. Examples of unauthorized use may include when there are two active service lines to one premise with one service that is not being billed, an illegal tap off a fire main, or an unauthorized hook-up to a fire hydrant. TMWA's rules and tariffs are designed to cover all costs to the utility in cases of illegal service taps, damage to TMWA facilities, and/or theft of water. Use of fire hydrants as a water source is also illegal under City ordinances except for City vehicles. TMWA monitors its system to locate and correct unauthorized water use on an ongoing basis.

Public Education

TMWA is deeply committed to public education about conservation and responsible water use. Because water use during the irrigation season is four times higher than during the winter months, much of TMWA's public education focuses on the efficient use of water on the landscape.

Assigned-Day Watering. Since 1987, TMWA has sponsored an advertising campaign for Assigned-Day Watering during the summer months, and for a fall cool-down period during the autumn months. It began as a voluntary program to spread the use of water more evenly throughout the week and reduce total weekly and daily water production used for landscape irrigation. The program calls for watering deeper and less often, and assigns days of the week when customers may water.

In 1996, the program became mandatory twice-per-week watering until such time that TMWA's flat-rate services were retrofit with meters. Outdoor watering is limited to a customer's assigned days (based on address) and watering between 1:00 p.m. and 5:00 p.m. is prohibited. TMWA continues to implement Assigned-Day Watering to help manage the delivery of water throughout the distribution system. Currently, this method enables residential services to water on Wednesday and Saturday, for even addresses, or Thursday and Sunday, for odd addresses. Commercial properties are assigned Tuesday and Friday for outdoor watering. Monday is used as a day for system recovery with no customer watering on this day.

TMWA was required to utilize twice-a-week watering, per the terms of the 1996 Conservation Agreement as part of the Preliminary Settlement Agreement, until such time at least 90 percent of its flat-rate-residential services were metered. As discussed earlier in this chapter, TMWA's predecessor, and subsequently TMWA, embarked on a meter retrofit program in June 1995 to meet this goal. TMWA has now retrofit its flat-rate-residential services to

meters thereby enabling TMWA's Board of Directors to modify the current watering schedule if appropriate.

Prior to changing the current watering schedule, however, TMWA staff assessed the impact of potential changes on TMWA's system and pressure zones. As a first step, and in an effort to gain better understanding of system-wide, average daily summer usage and assigned day water usage, TMWA began in 2004 testing alternate day watering schemes in three different neighborhoods. This was followed by a daily water demand study conducted between June 2, 2006 through August 15, 2006. Follow-up studies during the summers of 2007 and 2008 tracked peak day usage system-wide and focused on targeted specific pressure zones and neighborhoods (see Appendix J). This micro-level data, when combined with the system-wide water demand data, enabled TMWA to thoroughly assess the impacts of a modified watering schedule on all parts of its system and in particular, measure the impact on water service to customers, if any, during peak times. Those studies indicate that (1) more than one-half of all customers currently water more than twice-week; (2) a change from two-day-a-week to three-day-a-week watering is not expected to increase peak day water, it may actually decrease peak day use; and (3), total water use during the peak week is not expected to change. Thus, revising the Assigned-Day Watering schedule will not impact existing facilities or their operation.

All of the measures outlined in this chapter comprise TMWA's plan for conservation in every year through 2030 regardless of whether it is a Drought or non-Drought Situation. However, TMWA increases conservation efforts during droughts. The goal during droughts is to further reduce water use in the event successive drought years are experienced. Since the current Assigned-Day Watering schedule effectively keeps the community on a Stage Two drought alert, any future modifications to the current watering schedule should be made simultaneously with changes to the current response plan to Drought Situations. In addition, any proposed revisions to the drought plan would be conditioned upon the installation of water meters on all old and new residences within TMWA's service area, excluding existing unmetered apartments and condominium units or complexes which have all outdoor irrigation metered. Once this condition is satisfied, all services would be switched to and paying a metered rate for water service. In 2010, as TMWA completes its conversion to a fully-metered and volumetric-billing water system, it is anticipated that the Assigned-Day Watering will transition from mandatory twice-per-week watering to a program of three-times-per-week watering. No watering on Monday will be retained to ensure time and flexibility for system recovery. The revised water days schedule and restrictions on times of the day under Assigned-Day Watering is summarized here:

	MON	TUE	WED	THR	FRI	SAT	SUN
All "EVEN" addressed services	No	Yes		Yes		Yes	
All "ODD" addressed services	No		Yes		Yes		Yes

Along with the Assigned-Day revision and to discourage watering during the hottest, and typically the windiest part of the day, the restriction on time-of-day watering will expand to 12:00 P.M. to 6:00 P.M. from its current time restriction of 1:00 P.M. and 5:00 P.M. for the days between Memorial Day and Labor Day.

Distribution of Water-Saving Devices and Information. TMWA utilizes every opportunity to promote responsible water use by attending public events and distributing information. Organizations can request that TMWA present conservation advice to a specific

audience. TMWA's residential water guide provides water savings tips for indoor and outdoor water use, as well as some general usage information about TMWA services, leak detection and repair, and how to read your water meter.

Doorhangers are left whenever a TMWA conservation consultant has visited a home or business to remind customers of their watering times. Bill inserts remind customers of both summer and winter habits that can conserve water. TMWA also uses its billing system to print conservation messages and facts directly on customer's bills. A conservation section at TMWA's Web site (www.tmh2o.com) that provides indoor and outdoor water conservation facts and tips, and videos and animations that describe our water system and how we manage it for municipal purposes.

A key part of TMWA's educational messaging centers on understanding our region's water resources. TMWA's website (www.tmh2o.com) includes information on our water supply and how its managed. A key resource, launched in 2009, is the Truckee River Flows and Storage website at www.tmwastorage.com. This site includes a module that specifically tracks water storage in the largest reservoir on the Truckee River system, Lake Tahoe.

TMWA's "How Do You Save?" web site is a fun, interactive Internet site that allows visitors to post their tips for how to use water responsibly, view tips posted by others, and email tips of use to others. The site is located at www.howdoyousave.org.

Further, local weatherpersons act as liaisons between TMWA and the community by featuring information on the water supply, conservation, and Assigned-Day Watering during their weather forecasts.

Educational Programs for School Kids. TMWA provides EPA teaching materials for grade schools that meet the Nevada standards for science curriculum. Children are introduced to a subject and build their knowledge base with each grade that they progress through. Teachers are able to download the materials directly from the Internet, through TMWA Academy (www.tmwaacademy.com). The TMWA Academy Web site was created especially for teachers and students in the Truckee Meadows. It provides lesson plans and information for all grade levels of students and teachers on water in northern Nevada.

TMWA sponsors an annual poster contest that enables children from throughout the community to develop slogans and pictures highlighting the need for conservation. Winning poster art submissions are made into book covers and/or bookmarks which are distributed in cooperation with Washoe County School District. Throughout the year, TMWA staff members attend kids' fairs, give classroom and after-school presentations, and host water system and treatment plant tours for school kids.

TMWA continues to solicit input from its customers through its Standing Advisory Committee, an oversight committee made up of individuals representing all customer classes. TMWA also regularly engages with green industry representatives and landscape professionals in the area to ensure the effectiveness of water conservation programs and to assess partnership opportunities.

Homeowner Workshops. TMWA regularly partners with Washoe County to offer a 'Common Sense Gardening Series' at Rancho San Rafael, a regional park with an extensive arboretum. The arboretum contains examples of low water-use plants and native plants. TMWA

is co-sponsoring seminars that address design, operation and maintenance of irrigation systems, and related matters.

Landscape Retrofit Program. The landscape retrofit program encompasses promotion of water-efficient and climate-compatible landscapes in our high desert environment. TMWA has a well-known publication titled Water-Efficient Landscaping in the Truckee Meadows with ideas for yard designs, irrigation layout, plant selection, and maintenance. The online, interactive version of the landscape guide allows users to search for plants that meet desired criteria such as low water use, sun exposure, bloom time, native species, and more.

In partnership with local nurseries and NevadaHome magazine, TMWA coordinates an annual Water Efficient Landscape Awards Program that recognizes homeowners and professionals who have designed and installed water-efficient landscapes. Also, as part of its landscape retrofit program, TMWA has worked with area schools on large-area turf replacement.

In 2008, TMWA, in conjunction with other agencies and professionals engaged in urban forestry and landscape improvement programs, created the Truckee Meadows Community Forestry Coalition ("Community Forestry Coalition"). The purpose of the Community Forestry Coalition is to promote a sustainable community forest in and around the Truckee Meadows, recognizing the benefits of both public and private trees. Trees provide substantial environmental, economic and aesthetic benefits to the community; however, tree care needs, especially watering requirements, are not obvious to the average resident. Local arborists are concerned that growth in the area and the conversion to a fully-metered water system has resulted in tree losses throughout the community.

TMWA's involvement in the Community Forestry Coalition reflects its interest in implementing Best Landscape Practices ("BLPs") that achieve water-efficient landscapes. In 2009, the Community Forestry Coalition developed an educational Web site for tree care geared toward residents of the Truckee Meadows (www.communityforestry.org). The site articulates the values and benefits of the region's trees and serves as an educational resource for urban-forestry related programs and regulations. It also provides easy-to-follow tree care practices for homeowners. By year's end TMWA will update its landscape guide to include an updated list of climate-compatible trees as well as tree care practices with particular emphasis on practices that improve the water efficiency of trees in the landscape.

As part of the Community Forestry Coalition, TMWA participates in the annual Backyard Tree Care Workshop put on for homeowners each year.

Water Audits/Water Usage Review. In 2003 TMWA piloted a residential water audit program. The program was expanded to include commercial customers in 2005. As of December 2008, more than 7,000 customer reviews were completed (see Table 15). TMWA's Water Usage Review Program is co-sponsored by TMWA and the Northern Nevada Water Planning Commission.

Table 15: Water Usage Review by Year and Type

	Residential Reviews	Commercial Reviews	Total Reviews	Cumulative Total
2008	2,196	265	2,461	7,052
2007	1,804	221	2,025	4,591
2006	661	70	731	2,566
2005	771	123	894	1,835
2004	431	66	497	941
2003	402	42	444	444

Customer response to TMWA's Water Usage Review Program is extremely positive. Participating customers are typically keen to print conservation messages and facts directly on customer's bills. TMWA features a conservation section at its website (www.tmh2o.com) that provides indoor and outdoor water conservation facts and tips, and videos and animations that describe our water system and how we manage it for municipal purposes. While the majority of water usage reviews are initiated by a customer concern about a high bill, TMWA monitors spikes in water use to proactively assist customers achieve balance between water savings and healthy landscaping.

Water Waste Prevention. TMWA has permanent full time water use consultants as well as hires temporary, seasonal consultants during the summer months to consult with customers about leaks and water waste, provide outdoor watering advice to customers, and help high bill customers reduce their water consumption. TMWA's water conservation consultants investigate water waste complaints and provide tips to customers that help curb water usage.

In 2004 TMWA enhanced its rules by adding penalties which are billed directly to a customer for water waste violations and for watering on non-assigned days or times. These rules provide for a one-time warning followed by an increasing penalty of up to $75 per occurrence for repeat violations.

Other Conservation Measures

Codes and Ordinances TMWA is working with local agencies to require landscape designs that make sense in our high desert environment. The Cities of Reno and Sparks, and Washoe County (April 2002, July 2002, and March 2002 respectively) have enhanced ordinances that support TMWA's conservation efforts and allow enforcement of penalties to water wasters. The ordinances give TMWA's Board of Directors authority to recommend to the local governments that a water emergency be declared with associated watering restrictions. A copy of the waste water and water emergency ordinances are contained in the 2025 WRP Appendix.

Demand-Side Program Management and Droughts. During droughts affecting the Truckee River watersheds the TMWA's customers are expected to reduce water use. Depending on the severity of the drought and the amount TMWA's drought reserve water supplies (i.e.,

Independence Lake, Donner Lake, and extra groundwater pumping drought reserves) that may be drawn upon during a Drought Situation, the aforementioned conservation measures may be modified to achieve targeted and/or necessary water reductions to preserve TMWA's drought reserve water supplies. Similar to past drought responses in previous water plans, the need to change customer uses in response to a Drought Situation may vary during the year.

Currently and under TROA, the determination of a Drought Situation takes place in April. That determination indicates the amount of water available for the Truckee River system and provides an early indication as to when river flows will no longer support Floriston Rates (which is always associated with Lake Tahoe elevations at or near the rim). TMWA's and the region's current water plans link conservation actions during droughts to the loss of Floriston Rates. When Lake Tahoe's elevation is projected in April to be greater than 6225.5 feet by November 15 it means that at a minimum, normal Truckee River flows are expected to be available for the rest of the year and into the following year. No shortages or interruptions in Truckee River flows are anticipated over the course of the year. When Lake Tahoe's elevation is projected to be between 6225.5 and 6223.50 feet by November 15 it means that the region has experienced one or more consecutive, below average snowpacks and correspondingly below normal streamflow runoff seasons, and that the elevation of the lake is declining year over year. Carry-over storage used to meet Floriston Rates is being depleted. Normal Truckee River flows are expected to be maintained through the summer and fall months and TMWA's reserve water supplies are not expected to be used and water production operations will not be negatively impacted. TMWA is closely monitoring the Truckee River water supplies as far as reservoir storage is concerned because historical data suggests that shortages or interruptions in Truckee River flow could occur sometime within the current year and the next year, particularly with a below average snowpack season. Finally, when the projected amount of Floriston Rate water stored in Lake Tahoe (including Floriston Rate water stored in other reservoirs as if it were in Lake Tahoe) on or before the following November 15 will be equivalent to an elevation less than 6223.50 feet Lake Tahoe datum, carry-over storage used to make Floriston Rates is likely to be exhausted by the end of the year; the elevation of the lake is expected to be at or below its natural rim; Truckee River flows are expected to fall off before the end of the year; and TMWA operations, either from a hydro power generation perspective and/or community water availability will be impacted. The elevation of Lake Tahoe and subsequent Truckee River flows could fall off significantly earlier than normal creating operational challenges for TMWA; forcing TMWA to use its additional groundwater pumping and/or back-up drought supplies (POSW stored in upstream reservoirs) in order to meet the demands of its water customers prior to November.

During droughts it is important to explain to customers (1) climatological conditions that have lead to reduced precipitation, reduced snowpack accumulations, and resulting lower Truckee River supplies; (2) the need to use water more efficiently; and (3) the degree to which TMWA water supplies will be affected. It is difficult for customers to understand why "less-than-normal" river flow conditions may or may not have an effect on TMWA water supplies. TMWA's conjunctive management of all its available water supplies (which include diversion of natural river flows, groundwater, artificial recharge, and POSW in upstream reservoirs) in a dry year usually avoids or minimizes any impacts on customers' uses.

The current response plan is based on declaring one of four Drought Stages: (1) No Drought; (2) Drought Watch; (3) Drought Alert; and (4) Drought Emergency. The current process is a climatological based declaration of a drought year and does not clearly link the drought level to available water supplies (both natural river flows and TWMA's drought reserve water supplies). This is very problematic from a public education perspective since under the current system the region is always in a "drought" stage with little connection between the drought stage and available water supplies, and leaves little room to reduce water use when severe actions may be needed. To improve customer understanding between climatologically induced droughts and water supply TMWA has developed and will implement as part of this 2030 WRP a simpler way to explain the impact of Drought Situations on available water supplies. The new classification system is presented in Table 16 along with changes in existing conservation measures that take place through the course of a Drought Situation year. This revision replaces the four-stage drought classification with a three-stage supply classification.

Using 2009 as an example demonstrates how this revised system would work. On April 15, 2009 a Drought Situation, Floriston Rates were expected to drop-off in October, and Tahoe would be at its rim on or before November 15, 2009. The condition was "Supplies are Adequate" because normal river flows were available past Labor Day, the loss of Floriston Rates did not occur until October, and there was no need to pump additional groundwater or release any POSW. Thus water supplies through the summer were "adequate" as were the implementation of TMWA's demand-side management programs.

Should the 2009/2010 winter produce a water year in 2010 similar to or less than 2009, another Drought Situation would be declared and the response most likely would be "Supplies are Impacted" because Floriston Rates would be projected to drop-off before Labor Day the and additional conservation actions may be necessary to avoid or delay use of TMWA's drought reserves.

This revised classification system will improve TMWA's ability to create more meaningful, easier to understand information campaigns that relate needed reductions in customer use to available water supplies.

Table 16: Demand-Side Program Management in Response to Drought Situations

	Non-Drought Situation Supplies are Normal	*Drought Situation* Supplies are Adequate [River Flows Drop-Off After Labor Day]	*Drought Situation* Supplies are Impacted [River Flows Drop-Off Before Labor Day]
a	b	c	d
A *Assigned Day Watering*			
Monday	No water day	No water day	No water day
Even addresses:	Tuesday, Thursday and Saturday	Tuesday, Thursday and Saturday	Tuesday, Thursday and Saturday
Odd addresses:	Wednesday, Friday, and Sunday	Wednesday, Friday, and Sunday	Wednesday, Friday, and Sunday
B *Water Day Time Restrictions* Between Memorial Day and Labor Day	12 to 6 PM	12 to 6 PM	11 AM to 7 PM
C *Public Education & Advertising*	Standard programs	Standard programs	Increased programs
D *Water Waste Prevention*	Standard enforcement	Standard enforcement	Increased enforcement
E *Other Actions* Though not inclusive, these enhancements could be deployed depending on the severity of the circumstances and the potential impact to supplies			Expand water day time restrictions Reduce the number of watering days Set daily watering allotments Drought rates

NOTE: The term "supplies" refers to (1) Truckee River water available from natural flows plus releases from Federally operated reservoirs to support Floriston Rates and (2) TMWA's Privately Owned Stored Water held in Independence and Donner Lakes and Federal reservoirs.

Demand-Side Program Management and Emergency Supply Conditions. Natural disasters and other events can interrupt TMWA's available water supplies: these include floods, extreme low precipitation years, earthquakes, equipment failure, or distribution leaks. Sometimes the events are localized within the distribution system and sometimes the whole community can be affected. Chapter 2 characterized the nature and some of the potential risks to Truckee River water supplies. Chapter 3 described actions taken after the April 2008 earthquake. Other examples of events that have affected available river supplies include (1) a thunderstorm in July 1992 that caused a mudslide that sent a slug of muddy water into the Truckee River via Grey Creek and caused a shut-down of CTP; (2) in 1997 GTP was under water from the flood that year; and (3) in 1992 Floriston Rates dropped-off in June causing TMWA to use its POSW. All these types of events can affect TMWA's ability to produce water to minor or significant levels. When necessary during emergency events, the community is asked for and responds favorably to increased and more aggressive conservation messages and calls for water use reductions. Besides the progressive steps to be used under a Drought Situation, TMWA can call for mandatory water conservation, including watering restrictions (e.g., no outside watering or once per week during summer months), reduced laundry at commercial properties, use of paper plates in restaurants, no use of potable water for non-potable purposes, heavy fines for water wasters, drought rates, or other measures.

TMWA's goal is to minimize customer disruption when emergencies arise. TMWA personnel train for and practice responding to various emergency situations, which action has shown success during emergencies as water supply interruptions have been mitigated as swiftly and as cost effectively as possible. Increased conservation by TMWA customers during emergencies is just one element of successfully managing water supply interruptions.

Water Management Programs The Washoe County School District ("WCSD") is one of TMWA's largest municipal customers. TMWA prepared a Water Management Program for the School District to help them reduce water use on their sites, lowering their water bill, and reducing peak day demand for TMWA. For example, TMWA has worked with the WCSD to implement non-potable watering solutions at Reno High. Similar water management programs may be prepared for other large municipal customers in the future depending on interest.

A three-year evapotranspiration ("ET") Controller study was conducted from 2003 to 2006 at 20 commercial properties (see Appendix K). Combined, the properties had over two million square feet, or 47 acres, of turf that was irrigated with the use of ET Controllers. The goal of the study was to better understand potential water use reductions gained through using ET Controllers when they were constrained to watering on only their assigned day. To measure water savings as a result of the installation of ET Controllers, a base level of water usage for each site was established by averaging its water usage between May to October in 2000, 2001, and 2002. Water usage for May to October of each study year was then compared to this base level.

Data shows that the total water savings for the 2003-2006 study properties, measured as the deviation from at each site from its base period water usage and using an average approach, was 15.4 million gallons. Data indicates that approximately 22.9 million gallons were saved over the 3-year study duration. (See Table 17 and Table 18) Additionally, the study confirmed that all the individual commercial sites that used the ET Controllers as intended benefited from water savings during the study period. However, not all sites benefited proportionately the same

in each of the study years. The few sites that applied more water in relation to their established base level either had system leaks, changes in ET Controller settings, or changes in landscaping during the study timeframe.

Table 17: Summary Results of 2003 ET Controller Study Sites

Site	PERCENT SAVINGS OVER HISTORICAL AVERAGE				THOUSANDS OF GALLONS SAVINGS REPORTING PERIOD MAY - OCTOBER			
	2003	2004	2005	Total	2003	2004	2005	Total
2003 Controller Group								
Vistas HOA	10%	11%	3%	2%	2,145	2,309	536	4,989
Colt Plaza	23%	9%	23%	11%	280	113	274	666
Greg Center- Bldg. A	8%	13%	3%	7%	164	259	67	489
Greg Center- Bldg. B	18%	21%	11%	13%	226	269	137	631
Greg Center- Bldg. C	43%	23%	14%	22%	416	223	138	778
Greg Center- Bldg. D	44%	19%	26%	21%	166	72	99	338
Manogue - Church	2%	10%	26%	4%	23	125	307	454
Manogue - Post Office	32%	13%	45%	15%	322	130	444	897
McCarran Landing	35%	49%	56%	28%	704	978	1,134	2,817
Redfield Promenade	18%	7%	33%	8%	735	293	1,339	2,366
Sierra Marketplace Office	29%	24%	17%	18%	411	344	245	999
TOTAL (THOUSANDS OF GALLONS)				3%	5,591	5,113	4,719	15,423

Table 18: Summary Results of 2004 ET Controller Study Sites

Site	PERCENT SAVINGS OVER HISTORICAL AVERAGE				THOUSANDS OF GALLONS SAVINGS REPORTING PERIOD MAY - OCTOBER			
	2004	2005	2006	Total	2004	2005	2006	Total
2004 Controller Group								
4840 Mill St	18%	26%	26%	23%	85	125	126	335
1301 Corporate Blvd	55%	49%	-30%	25%	267	240	(146)	361
3001 Skyline Blvd	18%	34%	26%	26%	66	125	96	286
1150 Corporate Blvd	42%	61%	65%	56%	364	523	559	1,445
4865 Longley Ln	35%	45%	-48%	37%	121	153	(165)	109
Northgate Village HOA	25%	20%	17%	21%	1,477	1,221	1,013	3,712
Cimarron HOA [R]	6%	-2%	-4%	-7%	447	(122)	(264)	62
Mill Creek HOA [R]	1%	5%	3%	3%	56	239	126	421
The Fairways HOA [R]	31%	0%	11%	14%	1,110	(13)	381	1,478
Lakeridge Shores HOA [R]	15%	21%	28%	21%	3,391	4,725	6,556	14,673
TOTAL (THOUSANDS OF GALLONS)				16%	7,383	7,215	8,280	22,878

Since completion of the Commercial ET Controller Study, TMWA has monitored developments in the smart controller field, including applications to the residential market. The National Association of Homebuilders and Builders Association of Northern Nevada standards call for smart controllers as part of all new development. States including California and Texas have recently adopted energy-saving legislation mandating all controllers sold in the state be smart controllers by 2010. Nevada is still unsure; however, Las Vegas is already headed in that direction.

Some of the key benefits of smart controllers include:

- They are recognized as more water efficient than non-smart controllers.
- They can help remedy the problem of overwatering.
- There are smart controllers that allow for the application of fertilizers and other soil amendments while the landscape is being watered.
- Some of the more common controller brands (e.g., Hunter) have a smart controller upgrade that converts the existing timer to a smart controller.

TMWA will evaluate the implementation of a residential smart controller rebate program.

Water Rates Metered customer rates are assessed using an inverted block structure with three tiers as described in Table 19 effective since June 2009.

Table 19: Metered Rate Structure.

	Tier 1	Tier 2	Tier 3
Single family residential	$ 1.63 per 1,000 gals 0 - 6,000 gals	$ 2.64 per 1,000 gals 6,001 - 25,000 gals	$ 3.05 per 1,000 gals 25,001 + gals
Multiple unit residential (per unit)	$ 1.63 per 1,000 gals 0 – 4,000 gals	$ 2.64 per 1,000 gals 4,001 + gals	
Commercial (tiers are defined by size of meter)	$ 1.63 per 1,000 gals	$ 2.64 per 1,000 gals	$ 3.05 per 1,000 gals

TMWA will continue to use a tiered rate structure for all non-irrigation service volumetric billing. Irrigation services pay under a seasonal rate structure. During the peak summer months of June through September, the rate per 1,000 gallons of flow is higher than during the off-peak months to encourage new plantings during cooler months.

Summary

TMWA has a comprehensive and extensive demand-side management program. As water supply conditions oscillate between normal and below normal snowpacks, TMWA and its customers are able to respond to the degree and duration of conservation warranted by supply

conditions. TMWA will continually assess the benefits from these measures and may modify programs to reflect new practices and technologies. Success of a program is evaluated differently depending on the type of program, and may be measured by customer participation, water saved, estimated reduction of peak day usage, visibly improved water management practices, and number of children receiving water conservation education. This chapter has focused on TMWA's water demand management activities and how vital they are to system management, specifically sustainability of the water supplies, and finds that:

1. TMWA's water demand management programs meet the water conservation requirements of the JPA, NRS 540.313 through 540.151, and TROA.
2. TMWA will continue to be fully engaged in the regional dialogue on responsible water use and will implement programs for its customers that benefit the region and regional water use goals.
3. TMWA's water demand management programs pursue measures to efficiently use its available water resources by addressing water waste, system deficiencies (e.g., leaks, meter change out, pressure changes, etc.), public education and relations, watering schedules, and drought/emergency conditions. See Table 14 for details.
4. TMWA will continually assess the benefits of implemented programs and may modify programs to reflect new practices and technologies. Success of a program is evaluated differently depending on the type of program, level of participation, water saved, estimated reduction of peak day usage, visibly improved water management practices, or other measures.
5. Innovative ways to improve the efficient use of water will continue to be assessed, including expanded uses of effluent.
6. In conjunction with all services having a water meter, Assigned-Day Watering will change from 2 days-a-week to 3-days a week.
7. TMWA's management of its demand-side programs during Drought Situations progressively addresses the need to reduce water use as water supplies are impacted.
8. Demand-side management may be necessary in response to natural disasters and other events that have potential to interrupt TMWA's available water supplies.

Chapter 6 Future Water Resources

This 2030 WRP has demonstrated that TMWA currently and for the foreseeable future will continue to rely on the conversion of Truckee River water rights from irrigation to M&I use to meet projected growth. Pending the implementation of TROA which provides the ability to further utilize Truckee River water rights to meet demands up to 119,000 acre-feet annually, TMWA will continue to rely on the Interim Storage Contract (which will be superseded by TROA) in conjunction with the conversion of irrigation rights, optimize its recharge and conjunctive use opportunities, and if need be, begin to use some of the 8,000 acre-feet available from the North Valleys Importation Project should TMWA need resources to meet expansion of service in Lemmon Valley.

There are a number of water importation projects being pursued by private developers who are willing to bring these water supplies to the region. Also, the water supplies provided by TROA, ASR and conjunctive use can be timed either near term or into the future without losing the opportunity to pursue those projects. These water supplies are analyzed from the standpoint of long term water quantity and water quality because if the projects are not sustainable in perpetuity TMWA and its customers would be required to make up for such lack of water or water quality. However, to the extent these private developers find their projects to be environmentally permitable, cost effective and worth the financial risk they may take, TMWA would integrate these projects into its water resource supply mix and would accept will serve commitments against these supplies before other supplies are fully allocated.

Previous water resource plans identified various water supply projects that could be implemented to meet projected demands. Those projects still deemed potentially viable have been reiterated and updated for this chapter. In addition, new projects that may also be viable have been included. For this discussion it is assumed that future water resource projects will be implemented in the most economical fashion by the appropriate entity with the ability to assume the risk and invest the time and effort for permitting, design, construction, and financing of a water supply project - a function that TMWA does not currently perform.

Critical to any new water supply project is its yield or ability to provide water in a drought year, especially those projects that rely on the conversion of Truckee River irrigation rights to municipal use. The yield of a water right varies depending upon whether it is a wet or dry year. In dry years, the yield may be greatly reduced. To implement a reliable Truckee River water-right-dependent project two requirements must be met: 1) an adequate amount of existing irrigation water rights must be converted to municipal use, and 2) an adequate source of supply must exist from those rights during drought periods. Since groundwater rights are available for use at the same yield in both drought and non-drought years, projects that rely primarily on groundwater, such as groundwater importation projects, do not require additional drought supply contingencies.

The following is a list of potential water supply projects that TMWA and/or other purveyors may be able to use to expand future supply. Table 20 is based on data currently available and is by no means exclusive to any new combination or future configuration of how water resources could be integrated. All of the projects listed are available to the region; however, it is important to note that TMWA is not the project sponsor nor responsible for implementation for these projects, and may not be the direct beneficiary of the project's water supply. For example, three importation projects do not directly increase TMWA's water supply

yield but nevertheless are included since they would supply a portion of the regionally projected demands. Two of these projects are for Lemmon Valley and the third, Aqua Trac, is planned to supply water for the Fernley area, although there has been some suggestion that it may also provide water supplies to northern Spanish Springs.

Table 20: Potential Water Supply Projects.

Project	Estimated Yield	Irrigation Rights Required
	----a----	-----b----
Groundwater		
Aqua Trac, LLP	80,000+	
High Rock Holdings & Juniper Hills Partners, LLC	10,000 - 14,000	
Intermountain Water Project	2,000 - 3,000	na
North Valleys Importation	8,000	
Red Rock Valley Ranch, LLC	1,300	
Sonterra	7,200	na
Surface Water		
Aquifer Storage and Recovery	8,000	8,000
Negotiated Settlement (TROA)	119,000	36,000
South Truckee Meadows Surface Treatment Plant*	6,700	8,000-12,000

Groundwater Projects

There are several importation projects being proposed and/or pursued in hydrographic surrounding basins immediately adjacent to the Truckee Meadows. Some of these projects are proposed to provide water supplies for the North Valleys and possibly Cold Springs. Other projects propose to export water from northern Washoe County to other communities in Nevada; however, it is possible that some of these supplies could be used to meet water needs in southern Washoe County. For example, Aqua Trac is in the preliminary planning and design stages to bring additional water supplies to Fernley, but the project has been suggested as a possible supply to northern Spanish Springs. Table 21 presents the estimated yields and the number of water rights appropriated for each of the hydrographic basins where potential groundwater importation projects are being proposed.

Table 21: Summary of Estimated Yield and Water Rights from Importation Basins

Hydrographic Basin	Estimated Annual Yield	Active Municipal Rights	Active Irrigation Rights	Other Active Rights	Total Rights	Maximum Proposed Importation Quantity
97 Honey Lake Valley	13,000	22,440	1,790	250	24,480	8,000
99 Red Rock Valley	1,000	6	1,589	10	1,605	1,300
78 Granite Springs Valley	4,500	4	5,149	217	5,370	80,000
95 Dry Valley	1,000	4,445	26	-	4,471	3,000
22 San Emidio	2,500	1,175	6,155	2,120	9,451	7,200 *
24 Hualapai Flat	6,700	9	29,506	6,954	36,470	14,000

* Request for 7,200 af includes groundwater in both San Emidio and Hualapai Flat basins

Units are acre feet

Source: state engineer's water rights database; August & September 2007

Each importation project has a different place of use. North Valley Importation Project, sponsored by Vidler Water Company, and the Intermountain Water Project, and Red Rock Valley Importation projects propose to provide a water supply for Lemmon Valley and possibly Cold Springs. Aqua Trac was first introduced in 2004 and is in the preliminary planning and design stages to bring additional water supplies to Fernley, but has been suggested as a supply to northern Spanish Springs.

Figure 30 shows the proposed pipeline routes of the various importation projects.

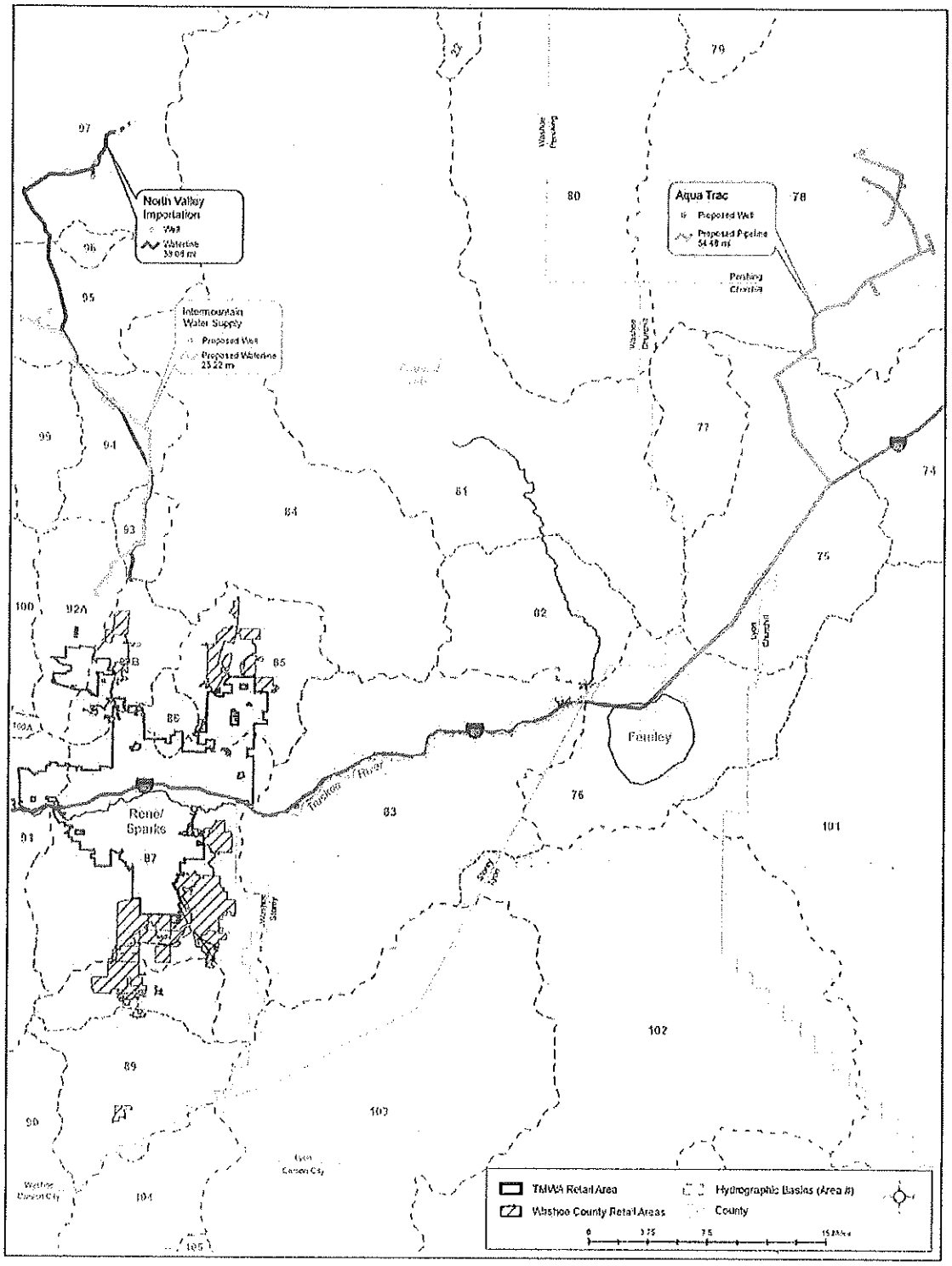


Figure 30: Proposed Importation Projects

Table 22 summarizes the status of proposed water importation projects in hydrographic basins outside of the Truckee Meadows. The descriptions that follow provide additional information on the projects. NVIP has been constructed and its water supply is available today while the balance of the projects is still in the preliminary development stages or permitting and therefore detailed information is limited. All of the projects listed are available to the region; however, it is important to note that private sponsors are responsible for implementation of these projects.

Table 22: Summary of Known Water Importation Projects

Project Name	Basin of Origin	Proposed Groundwater Quantity (af)	State Engineer Approval	Project Status	Approximate pipeline length
North Valleys Importation	Honey Lake Valley	8,000	Approved	Constructed	30 mi to North Valleys
Red Rock Valley Ranch, LLC	Red Rock	1,300	Pending a ruling	Pending, state & federal approvals	10 - 15 mi to the North Valleys
Aqua Trac, LLP	Granite Springs	80,000+	Applications to transfer denied 9/07	Pending, state & federal approvals	80 - 100 mi To Truckee Meadows
Intermountain	Dry Valley	2,000 - 3,000	Approved	Approved EIS	20 miles to North valleys
Sonterra	San Emidio & Hualapai Flat	7,200	Pre-hearing	Pending, state & federal approvals	100+ mi to Fernley / other
Lower Smoke Creek Importation	Smoke Creek Desert	14,000 *	Pending a ruling	Pending, state approvals with EIS applications to follow	30+ miles to Warm Springs basin
High Rock Holdings & Juniper Hills Partners, LLC	Hualapai Flat	10,000 - 14,000 *	Pre-hearing	Pending, state & federal approvals	100+ mi to Fernley / other

* includes groundwater and surface water importation

North Valley Importation Project ("NVIP"). The North Valley Importation Project is sponsored by Vidler Water Company ("Vidler"). The project was constructed and dedicated to Washoe County in July 2008; WDWR is responsible for the operation and maintenance of the project. NVIP is permitted to import 8,000 acre-feet of groundwater from the Honey Lake Valley

Basin to Lemmon Valley. The project includes a well field, pump station, substation, and 28-mile transmission line.

After completing its Environmental Impact Statement, obtaining a Record of Decision from the US Department of the Interior, receiving approval from the State Engineer, receiving a special use permit from Washoe County, and building a portion of the project, negotiations between PLPT and Vidler broke down and PLPT sued to halt construction citing potential negative impacts to PLPT's underground water rights. In June 2007, a settlement was reached between the parties in which Vidler Water Company agreed to limit the pumping and to pay PLPT $7.2 million and deed PLPT several thousand acres of real estate valued at $500,000. In addition, the parties agreed that in exchange for PLPT's agreement to not oppose additional permitting on the project, Vidler will pay them 12 percent of the gross sales price for water rights in excess of 8,000 acre-feet.

Intermountain Water Project ("IWP"). Sponsored by Intermountain Water Supply, Inc., the Intermountain Water Project proposes to import groundwater from Dry Valley and Bedell Flat to the North Valleys. A total of about 2,500 acre-feet per year is proposed for importation via 24 miles of water pipelines. Water delivered by the IWP will be available for use and distribution by either Washoe County or TMWA. The project will be constructed in up to three phases in order to match the demand for water in the North Valleys. Up to 1,500 acre-feet per year will be delivered in Stage One, with an additional 500 acre-feet per year each delivered in Stages Two and Three.

IWP has completed an EIS, and a Record of Decision that identified the Preferred Alternative has been issued by the US Department of the Interior. In addition, water use and inter-basin transfer rights for pumping in Dry Valley have been secured. The State Engineer has also approved a water right totaling 144 acre-feet per year for the IWP for Bedell Flat. At the time the Record of Decision was issued, an appeal and new water rights application were submitted by Intermountain Water Supply, the IWP sponsor, to the State Engineer for the remaining 356 acre-feet per year in Bedell Flat.

Red Rock Valley Importation ("Red Rock"). The Red Rock project proposes to bring between 1,000 to 1,300 acre-feet of water from the Red Rock groundwater basin to the north end of west-Lemmon Valley. TMWA entered into a purchase agreement with Red Rock subject to satisfying certain conditions of supply (e.g., 1,000 acre-foot minimum State Engineer permit) and facility construction. In January 2008 the State Engineer issued a permit for 855 acre-feet with conditions that allow the project to expand up to 1,273 acre-feet. TMWA has continued to work with Red Rock since it had contracted for first right of refusal should the project be built and able to deliver water.

Through 2008 Red Rock's project sponsors progressed with design and planning which lead to filing an application for a Special Use Permit with Washoe County in December 2008. The Board of Adjustment denied the application at its March 4, 2009 meeting and the BCC also denied an appeal in May 2009. Red Rock sued the BCC and anticipates a hearing sometime in late 2009.

Aqua Trac. In 2005 and 2006, Aqua Trac made numerous applications to appropriate water from Granite Springs hydrographic basin in amounts totaling over 90,000 acre-feet annually. In 2006, the project sponsors submitted a Right of Way Application to the U.S. Bureau of Land Management ("BLM Application"). Aqua Trac proposes to bring up to 20,000 acre-feet

of water to Fernley. The BLM Application indicates that up to 11 wells may be developed along with 28-miles of 48-inch and 11 miles of 16-inch buried pipeline, two or three 2.5 million gallons storage tanks, and associated service roads and electrical support systems proposed as part of the project. The groundwater would be transported via a pipeline from the Granite Springs Valley in Pershing County. If constructed, the imported water could be used to supplement municipal supplies in Fernley, Pyramid Lake tribal communities, and potentially to Spanish Springs Valley. A preliminary cost estimate for the well field and 26 mile pipeline is not known as of with this writing.

There are issues regarding the amount of sustainable water yield from groundwater sources in Kumiva Valley, Granite Springs Valley, and Winnemucca Lake Valley. Published US Geological Survey estimates show a much lower annual groundwater yield in each Valley than the project sponsor believes can be proven to the State Engineer. Further study is being conducted to better assess the sustainable yield, and the ultimate decision will be made by the State Engineer. Feasibility is dependent upon the findings of these studies, the outcome of the BLM Application, and the cost to construct the project.

On September 17, 2007 the State Engineer signed Ruling 5782 in which all Aqua Trac applications to appropriate the underground waters of Granite Springs hydrographic basin were denied based on: (1) insufficient water in the basins to support the application; (2) lack of identification of an amount of water to be used by a specific project or user; (3) no contracts in place with a water purveyor or other entity to put the water to beneficial use; and (4) no actual project identified to be constructed to use the water. It is not known at this writing what Aqua Trac's next steps will be nor the status of its BLM application.

Sonterra et. al. In June and July 2007, Sonterra Development filed the first batch of applications with the State Engineer to transfer at least 20,000 acre-feet of water per year from the Black Rock Desert area near Gerlach (in Washoe County) to Storey and Lyon Counties (specifically, Silver Springs, Stage Coach and Dayton). The groundwater rights together with a small surface water component proposed for export are primarily existing irrigation rights used for farming. All the applications associated with this exportation have now been protested by Washoe County based on: (1) availability of a long term sustainable resource beyond the already established yield estimates; (2) whether the applicant has justified the need to import the water from another basin as required under N.R.S. 533.370.6(a).; and (3), the State Engineer's consideration of demand for the resource within the County of origin.

Lower Smoke Creek Importation. The Smoke Creek Desert is a large hydrographic located directly north of Pyramid Lake. The original reconnaissance level USGS estimate of the basin's groundwater perennial yield was approximately 16,000 acre feet per year. Recent hydrogeologic modeling estimates the perennial groundwater yield may be 25,000 acre feet per year. LSC Development Inc. is the current owner and sponsor of this importation project. LSC Development Inc. plans to transport up to 14,000 acre feet per year from the Smoke Creek Desert approximately 35 miles south to the Spring Mountain development area in the Warm Springs basin. Additional water will be available for use in the North Valleys/Cold Springs or Spanish Springs, with potential uses in the East Truckee River corridor. Phase 1 of the project includes applications with the State Engineer to transport 10,570 acre feet annually. Once the State Engineer holds hearings sometime late 2010 or in 2011 and rules on the applications, an EIS process will begin based on the State Engineer permits and detailed design elements for the project.

Surface Water Projects

Aquifer Storage and Recovery ("ASR"). TMWA defines aquifer storage and recovery as the injection of treated surface water into the underground aquifer for later withdrawal. Chapter 3 provided a background of TMWA's recharge activities in the Truckee Meadows, Lemmon Valley, and Spanish Springs. ASR can increase the natural supply of groundwater by storing surface water underground when excess supply and treatment capacity exist, and by mitigating groundwater contamination. TMWA has equipped its production wells to allow for treated water to flow back into the wells under pressure during winter time operations.

Under TROA, TMWA can pump an average of 15,950 acre-feet annually which is included in the 119,000 acre-foot of demand TROA supplies. TMWA can pump groundwater in excess of 15,900 acre-feet annually with or without combining with other water rights as long as those other water rights do not rely on storage under the TROA. After TROA takes effect, new groundwater projects in excess of this 15,950 acre-feet can be pumped separately or paired with water rights that do not rely on TROA storage and will not be counted against TROA's 119,000 acre-foot demand. The greater the ability for groundwater drought-year pumping the greater surface water rights that can be supported thereby expanding the demands that can be made by adding more surface water rights.

This project would be in addition to the current Groundwater Management Order discussed in Chapter 3. TMWA will increase the amount recharged by 1,000 acre-feet per year in the non-drought years using groundwater rights not assigned to TROA or through acquisition of additional groundwater rights. This level of recharge will allow for an extraction of 4,500 acre-feet in drought years and this management of surface water and groundwater will support new service demands of 8,000 acre-feet.

To implement this resource, an additional 8,000 acre-feet of irrigation rights at an approximate cost of $200 million (8,000 times $25,000) must be dedicated to TMWA. TMWA projects 13 new wells capable of delivering a total of 13 MGD will be needed. Each well is estimated to cost $720,000 each; total capital cost for these wells would be $9.4 million. To facilitate the increase in recharge during non-drought-years, 14 MGD of surface water treatment would be required. The total project cost is estimated at $37.4 million in 2009 dollars.

Implementation of this project will require the location of at least 13 new well sites with good groundwater quality, otherwise a small treatment plant to treat this groundwater would be required with associated additional costs in the order of $42-56 million. This project would also require the approval of the State Engineer.

An additional ASR opportunity may exist with using WDWR well facilities in Spanish Springs for recharge; there may be sufficient capacity that could be used during drought years to extract additional groundwater. Assuming that all water rights owned by Washoe County in this area are fully committed to serve their present or future customers and to implement this project prior to TROA taking effect, TMWA would provide 1,400 acre-feet of recharge water annually to the wells in Spanish Springs. The yield is calculated by assuming that Spanish Springs would be served by Truckee River water eight months of the year and their full groundwater rights would be utilized during the four summer months for peaking in Drought Situations. No additional well capacity would be required to operate in this manner; however, additional injection, booster and/or pressure reducing facilities may be necessary. Prior to TROA taking effect TMWA may use any of its water rights for ASR; after TROA takes effect it will be

necessary to ensure that the obligations to store water rights under TROA are fulfilled before water rights are utilized to support this project. The amount of water rights available to this project will be utilized to calculate how many surface water rights this recharge concept would support. The project would not count against TROA's 119,000 acre-foot demand limit.

Negotiated Settlement and the Truckee River Operating Agreement ("TROA"). The Negotiated Settlement ("Settlement") of the Truckee River will provide drought reserves for the Truckee Meadows as well as quiet much of the controversy surrounding the operations of the Truckee River system to provide our current water supplies. The Preliminary Settlement Agreement signed May of 1989 between Sierra Pacific Power Company and PLPT was a successful first step to begin solving many Truckee River issues. That agreement, assumed by TMWA, will allow TMWA to store its changed irrigation water rights and POSW in federal reservoirs for drought use in exchange for waiver of its hydroelectric water rights when TROA takes effect. Water rights currently owned by TMWA would be stored in the excess space in the federal reservoirs for use during droughts cycles. Some storage under TROA is firm storage which does not evaporate of suffer losses unless it is the only water in the reservoir. Some storage is non-firm storage which spills when the reservoir fills and, in non-drought years, such storage in excess of certain base amounts is turned over to the US and PLPT to be used for recovery of endangered species and support of the fishery in the lower Truckee River. This settlement resource will support an annual demand of 119,000 acre-feet and, in addition, provide for additional drought reserves in the case of a worse than worst case drought. In 1990, Public Law 101-618 was passed that provides for the interstate allocation of water between California and Nevada on the Carson River, the Lake Tahoe basin, and the Truckee River basin subject to the finalization of TROA. The interstate allocation is an important resolution between the two states and gives TMWA the assurance of what water will continue to flow over the state line and into Nevada. TROA provides TMWA customers with certainty regarding the operation of the system and additional drought supplies for existing as well as new customers. The agreement creates benefits for those who do sign, and non-injury to the water rights of those who do not sign.

PL 101-618 also provided for an interim agreement to bridge the Truckee Meadows drought supply until TROA could take effect. This agreement will be superseded by the final TROA agreement. Some of the water rights that will need to be provided under TROA have already been provided and relied upon for new service commitments under the interim agreement.

Since the Settlement Act became law numerous additional benefits have been negotiated into TROA including new types of credit water that have been added to the categories set forth in the PSA; these include Water Quality Credit Water, California M&I Credit Water, California Joint Program Credit Water, California Environmental Credit Water, Additional California Environmental Credit Water, Fernley Municipal Credit Water, Newlands Project Credit Water and Other Credit Water. Additionally Minimum and Enhanced Reservoir Releases have been negotiated with guidelines for Preferred Instream Flows and Recreational Pools. There is a habitat restoration fund and Mandatory Exchanges for Donner Lake storage so that California can better meet their chosen instream flows and recreation pools in Donner Lake. Also a complex set of rules for exchange of water has been added.

TROA, signed September 6, 2008, was the culmination of 17 years of difficult negotiation of a new agreement for the operation of the federal reservoirs and TMWA's share of

Donner Lake and Independence Lake. In order for the TROA to become effective, five mandatory signatory parties signed it: TMWA, State of Nevada, State of California, U.S., and PLPT.[27] As its name implies, the Truckee River Negotiated Settlement is a negotiated agreement among many parties. The Truckee Meadows community both gains and gives up something as part of the Settlement. TMWA and its customers are major participants to making the Settlement a reality and its customers are among the beneficiaries. Since TMWA's water customers are the taxpayers and sewer customers of Reno, Sparks, and Washoe County, many of the Settlement's benefits overlap across jurisdictional lines in the Truckee Meadows. Many of the benefits have not and cannot be quantified for the purposes of the analysis as a resource but have been and will continue to be taken into account by the community in its support for the Settlement. In addition, since both states benefit from the interstate allocation of the Truckee and Carson Rivers and from the Tahoe Basin, there are other parties in the two states who indirectly benefit from the Settlement even without having participated.

Benefits and requirements of the Settlement are summarized below:

- Interim drought storage for the TMWA customers until Settlement becomes effective.
- Permanent drought storage for TMWA customers including emergency drought supplies during toxic spill conditions and worse than worst case droughts.
- Certainty associated with the Interstate Allocation of the Truckee and Carson Rivers as well as the Tahoe Basin between California and Nevada.
- Certainty regarding the continued operation of the reservoirs to support existing water rights.
- Improved flexibility of river operations to accommodate changing circumstances, policies and values while protecting historic water rights from injury.
- Improved timing of river flows for the threatened and endangered fish species in Pyramid Lake.
- Provides for enhanced minimum reservoir releases and protects from claims that would harm TMWA's water rights.
- Provides for increased recreational pools in the reservoirs.
- Provides for improved riparian habitat.
- Provides for improved water quality enhancement through flow augmentation and retiming of flow.
- Provides for reduced litigation and continued cooperation.

---

[27] These other parties to also signed TROA: Carson/Truckee Water Conservancy District; City of Reno; City of Sparks; Sierra Valley Water Company; City of Fernley; Washoe County; North Tahoe Public Utility District; Truckee Donner Public Utility District; and Washoe County Water Conservation District.

- Provides for water storage for California municipal and industrial use as well as environmental uses.
- Sets minimum bypass flows for the hydroelectric plants and protects from claims to the contrary and compensates for revenue reductions resulting from hydroelectric generation rather than demanding reduction in generation with no compensation.
- Provides for consistent dispute resolution.
- Provides reasonable and consistent rules for treated effluent reuse.

Although the development costs of TROA have been higher than predicted, it is probable that litigation costs would have exceeded the cost of negotiation. Most certainly the costs of uncertainty to the community would have grown as the issues in litigation grew. As shown by TMWA's conservation activities, the interim storage agreement, the Water Quality Settlement, the Tahoe-Truckee Sanitation Agency water quality settlement, PLPT's setting of water quality standards, and increased operations flexibility, the river system is already the beneficiary of increased communication and cooperation, and solutions are being found regularly to areas of previous impasses.

Having been signed several steps need to occur before the agreement can be implemented. These include:

- Publication of TROA in the Federal Register (December 5, 2008) and its promulgation as a regulation (final on January 5, 2009). TCID, Churchill County and the City of Fallon have initiated litigation in the United States District Court challenging the regulation, including a challenge to the adequacy of the Final Environmental Impact Statement for the Operating Agreement.
- Modify the Orr Ditch Decree to accommodate changes required by the Operating Agreement (submitted to the court in United States v. Orr Water Ditch Company, et al. for approval of modifications to the Orr Ditch Decree on November 17, 2008). The motion has been opposed by TCID, Churchill County and City of Fallon. The court has not taken action on the motion.
- The United States and TMWA submitted a joint motion to the court in United States v. Truckee River General Electric Company to modify the Truckee River General Electric Decree on November 20, 2008. The Court entered an order modifying the Decree on December 22, 2008. TCID has stated that it intends to move to have this order vacated, but has not yet done so.
- Change petitions (filed in 2004) are pending approval by the California State Water Resources Control Board of petitions to change the water rights for Boca Reservoir, Prosser Creek Reservoir and Stampede Reservoir, and for Independence Lake. A hearing date has not been established.
- Applications (filed in 2006 and 2007) are pending hearing and approval by the Nevada State Engineer to change to water rights in Nevada to allow TMWA to hold the consumptive use component of certain of its water rights in storage. Hearing is scheduled for December 2009. In addition, changes to the Water Authority's water rights to generate single purpose hydroelectric power may also need to be approved;

those change applications have been filed with the Nevada State Engineer, but no hearing date has yet been established.

- The Nevada State Engineer's ruling on unappropriated Truckee River water (granting the unappropriated Truckee River water to PLPT), State Engineer Ruling No. 4683, must be final, and the Orr Ditch Court must have made a determination that the Truckee River in Nevada is fully appropriated and closed to new appropriations. On March 30, 2009, the final appeal was dismissed, and Ruling No. 4683 is now final. However, the State Engineer's denial of an earlier TCID application for unappropriated Truckee River water is still pending in the Third Judicial District Court in and for the County of Churchill. It is anticipated that any decision by that court will also be appealed to the Nevada Supreme Court.
- Pyramid Lake Paiute Tribe v. California, Civil S-181-378-RAR-RCB, and United States v. Truckee-Carson Irrigation District, Civil No. 4-2987-RCB, cases pending in federal courts in California and Nevada, respectively, must be finally resolved. The United States v. Truckee-Carson Irrigation District case was dismissed with prejudice on August 10, 2009. Work is underway to have the remaining action dismissed with prejudice.

Upon TROA implementation, the Interim Storage Contract is superseded by the Settlement operation. To take advantage of TROA's 119,000 acre-foot supply, the following Truckee Meadows water rights are estimated for this project (the estimates here are those submitted for the TROA EIS/EIR process):

Water rights for municipal demands	42,340
Water rights for water quality	6,700
Total	49,040

Reflecting back to Table 3, the reader should be aware that the projected total of rights for the Settlement approximately equals the recoverable amount of direct diversion water rights available between Farad and Vista. However, if the tributary water rights are added into the equation and there is close cooperation and coordination between the water quality purposes and the water supply purposes, there are enough water rights.

The projected cost of implementing TROA will be borne by developers and is a function of the number water rights converted to M&I use times prevailing market prices.

South Truckee Meadows Surface Treatment Plant. The implementation of a project to fully utilize tributary creek supplies in the south Truckee Meadows does not directly increase TMWA's water supply but does meet the growing demands in the southern portion of the Truckee Meadows. The construction of a surface water treatment plant in the South Truckee Meadows would develop and conjunctively use the tributary creek rights -principally Whites, Thomas, Galena and Steamboat creeks - with existing groundwater and wholesale water service from WDWR's retail service area. Adopted in 2002, the South Truckee Meadows Water and Wastewater Facility Plan identified the need for new water and sewer infrastructure within the south Truckee Meadows. It also identified a water supply plan for meeting estimated build-out water demands in this area of over 15,000 AFA based on 6,900 AFA groundwater, 6,700 AFA creeks rights, and 1,800 AFA wholesale from TMWA (mainstem Truckee River rights).

The plan calls for the construction of two water treatment facilities, built over time, which can ultimately deliver up to 9 MGD of water. The lower water treatment facility would be located within the vicinity of Mt. Rose Highway and US 395. It would utilize water previously used for irrigation from Thomas and Whites Creeks. It would also have the capability to treat groundwater pumped to the facility from existing and new wells for arsenic mitigation. The water treatment facility would be constructed in phases, with the first phase originally planned to be constructed by 2008 and supplying 4 MGD, expandable to 6 MGD. The site is secured for the facility.

The South Truckee Meadows Water Treatment Facility will enhance existing water supplies by more efficiently managing existing groundwater resources, using secondary groundwater resources, and utilizing creek rights not previously used for M&I. The anticipated overall project cost is $50 million. This includes predevelopment as well as construction costs. The lower facility will yield an additional 6 MGD and the upper facility will yield an additional 4 MGD. Construction is on hold pending need for the plant(s).

Conceptual Projects

The following project descriptions come from various water supply plans but that have never made it past the concept stage. They are included to provide ideas for future water supply possibilities; little is known of the status of these projects, but economics may someday stimulate renewed interest.

Dixie Valley Ground Water Importation. This supply alternative proposes to develop ground water in Dixie Valley and transport it via a pipeline over the Stillwater Range to Lahontan Valley. The water could support growth in the Fallon area, provide irrigation water, or augment supplies in the Lahontan Valley wetlands. Water from Dixie Valley utilized in the Lahontan Valley could displace the use of Truckee River water. Water rights thereby freed-up on the Truckee River could be transferred upstream.

Humboldt Basin Ground Water Importation. The Humboldt Basin Ground Water Importation project, better known as the Gabbs Hay Company plan, proposed to develop groundwater sources in Pershing and Humboldt Counties to enhance beneficial uses for wildlife projects in Toulon, Fernley, and Fallon areas, water for future growth in western Pershing County, displace Newlands Project water rights essentially freeing those rights to be utilized upstream, specifically by Truckee Meadows municipal-industrial users, or connect approximately 130 miles of gathering and transmission pipelines to deliver water to Sparks. Preliminary estimates are to produce 20,000 to 30,000 acre-feet, which is permitted, and/or certificated.

Long Valley, California, Ground Water Recharge and Importation. Long Valley, California is located north of Reno and west of Bordertown, Nevada. The owners of Evans Ranch, Inc, have filed applications with various California governing agencies to recover an estimated 3,300 acre-feet of surplus surface water from the Long Valley Creek system and use this water to recharge ground water supplies in the valley. The surface water would replace ground water which would be withdrawn and transported for use in the lower (Nevada) portion of Evans Ranch and/or quasi-municipal uses in developing areas in Washoe County, Nevada.

Silver State Importation Project. Silver State Importation Project ("SSIP"), also called the Washoe County Ground Water Importation Project, is a proposal to develop ground water

sources in 19 hydrographic basins in central and northern Washoe County for importation into the Truckee Meadows. The plan was originally created to provide drought year water supplies for the Truckee Meadows served by TMWA and year-round supplies to Lemmon Valley, Spanish Springs Valley, Cold Spring Valley, Warm Springs Valley, and adjacent areas. SSIP was proposed to proceed in five stages over a 50-year period. The final project includes 372 miles of buried steel pipeline ranging in size from 14 to 60 inches, 8 pumping stations, 42 production wells, and underground terminal storage.

Purchase TCID's Share of Donner Lake Storage. The right to the water stored in Donner Lake (9,500 acre-feet) near Truckee is owned as tenants in common by TMWA and TCID. Since the 1988 WRP attempts were been made to purchase TCID's half of Donner Lake water but without success.

With TROA or if operated in conjunction with the ISA the estimated annual yield of purchasing TCID's half of Donner Lake water is approximately 2,400 acre-feet/yr. The reason the yield of Donner is lower than one-half of the actual volume of water that can be stored in the lake (9,500/2=4,750) is due to the facts that (1) there is a summertime lake level elevation requirement that restricts when and how much water can be released from the lake and (2) the physical outlet of the lake prevents complete release of the stored water (unless it were to be pumped out). The yield of a Donner project is only available when used in conjunction with the ISA or TROA; as a standalone project the elevation and flood releases restrict the ability to use the water on an annual M&I schedule. Costs associated with the Donner Lake storage option include acquiring TCID's share of the reservoir plus associated treatment cost. There is expected to be little, if any, environmental impact from this project since the operation of Donner Lake would not change significantly.

Sierra Valley Water Rights. Since the late 1800s, a diversion ditch has carried up to 60 cfs of water for agricultural use from the Little Truckee River above Stampede Reservoir out of the Truckee Basin to Sierra Valley, California, in the Feather River basin. The Little Truckee River diversions are inversely proportional to the Sierra Valley natural runoff, i.e., the lower the available flows in the native Sierra Valley streams, the higher the diversions from the Little Truckee River. Thus, these rights have a higher drought yield than a normal year yield, but the ability to store these rights would be required.

Summary

This chapter presents the status of various ground and surface water projects. The majority of them have been reviewed and analyzed in various water resource plans over the past 20 years. The projects discussed here are not all inclusive, but are projects that have been studied in the past or continue to be considered potentially viable. The selection of the next water supply project is strictly a function of project's yield, ease of implementation, sustainability, and financial feasibility as determined by existing regioual economic conditions and market forces that would or would not favor the development of a future water supply project. It may be that in the future as new technology becomes available or the political, regulatory or public opinion changes, new projects may be developed or projects previously thought infeasible may become feasible. Specific conclusions are:

1. TROA was signed September 6, 2008 and TMWA is actively pursuing completion of the remaining contingencies to implement this project.

2. TROA will provide 119,000 acre-feet of demand annually, sufficient to meet the projected demands through the planning horizon.
3. The North Valleys Importation Project with a place of use in Lemmon Valley was completed in 2008, is operational, and will yield 8,000 acre-feet annually.
4. The South Truckee Meadows Surface Treatment Plant design is complete and when built will conjunctively use 6,900 acre-feet of groundwater and 6,700 acre-feet of tributary creek water.
5. There are several importation projects for the Lemmon Valley area that are in various stages of permitting and/or design. Construction of these projects is subject to positive changes in economic conditions leading to increased demand for water supplies in Lemmon Valley.
6. Over the years, numerous projects have been proposed but remain unbuilt due to lack of financing, permitting, conceptual design, institutional or regulatory constraints, etc.

Chapter 7 Conclusions

The context of this water resource plan differs from previous planning efforts. Previous efforts concentrated on estimating future demands in order to determine and select between least-cost water-supply-development scenarios. For years the utility, and the region, focused its efforts on securing a long-term water supply comparing smaller, incremental supply projects to the larger river settlement project: the Truckee River Operating Agreement. Growth in the community was the primary driver and consumer of water resources in the Truckee Meadows. After nearly 20 years of negotiating, the final agreement was signed on September 6, 2008 and TMWA is diligently working through the remaining contingencies in order to implement TROA. That is not to say work on other supply projects is discontinued. On the contrary, TMWA continues to track progress on various projects as it looks beyond TROA and the projected water needs of the region.

Another contextual change for this water plan relates to the immediate and lingering effects of the economic slowdown in the region. Studies are indicating there will be little growth in the Truckee Meadows in the near-term. This change is significant for an area that was absorbing 3,000 to 4,000 residential units per year and projections are now under 1,000 units for at least the next 2 years[28]. Until (1) financing conditions improve nationally and locally for the Truckee Meadows business environment; (2) businesses are added to the region that can absorb the growing number of unemployed persons (currently the unemployment rate in Washoe County is estimated above 12 percent); and (3), the surplus number of existing vacant water services along with the large number of vacant lots (latest estimates approach 8,000 lots) with resources already dedicated but waiting for the structure to be built can be absorbed, TMWA's water production is projected not to exceed the highest production of approximately 86,000 acre-feet that occurred in 2001 until sometime in the next 7 to 9 years. The results of this situation will therefore not stress the management of TMWA's existing resources nor create a need to acquire new water resources for quite some time. It is interesting to note that by the time demands begin to grow, the legal challenges to TROA should have been exhausted allowing the full utilization of TROA and providing a water supply to meet the region's water supply needs through this 2030 WRP planning horizon and for many years thereafter.

Analysis has shown that between 2003 and 2006 the region experienced eight years' worth of historical development. During that time, twice the number of water resources was consumed for development within the region. This rapid period of growth and its associated consumption of land and water right resources highlighted the fact that the Truckee Meadows and its surrounding hydrographic basins faced some water resources challenges that affected future development within the region. But, as noted above the abrupt change in the local economy essentially halted that growth trend. The population model used for this plan which accounts for absorption of available land forecasts that population will increase at a decreasing rate of growth between 2010 and 2030 and beyond. The estimated water demand to support the

[28] Construction Report, Washoe County, 2nd Quarter 2009, Center for Regional Studies, College of Business, University of Nevada, Reno, Sep 2009, produced for Associated General Contractors.

projected population can be serviced and managed with existing resources through the planning horizon.

At this time, Truckee River irrigation rights continue to be the major source of water supplies for TMWA. Through continued conversion and commitment to M&I use the number of available Truckee River water rights available will meet the projected growth through the planning horizon. Note is made of the fact that the water rights market is becoming more competitive as there are other demands for these water rights such as M&I use in the Fernley area or for use as dilution or timing flows for water quality enhancement in the Lower Truckee River. Other factors discussed that are affecting the future acquisition of water rights in an open market environment include issues of ownership, finding willing sellers of the water rights, and the price of water rights. The factors affecting the price of Truckee River water rights was evidenced by TMWA's Rule 7 price which grew from approximately $5,000 an acre-foot in 2005 to over $32,000 an acre-foot in 2006; but has now settled back to between $6,000 to $12,000 an acre-foot in 2009. The lingering impacts as a result of significant price variation for water rights will continue to affect the availability and price of a Truckee Meadows water right.

In 2030, water will be delivered by TMWA to an estimated 400,000 persons living in he retail area and approximately 67,000 persons living in the wholesale areas. The 2030 water demand projected for this plan is approximately 97,000 acre-feet. Water demands will grow approximately 19,000 acre-feet, from approximately 78,000 acre-feet of water delivered for consumption in 2009. Approximately 172 MGD of combined surface treatment and groundwater wells will be needed to meet peak day consumption requirements in 2030. By replacing the diversion works and effluent pumps at Glendale and building Chalk Bluff Phase 4 along with the development of the groundwater water treatment facility in Sparks, these production targets can be achieved. The timing of construction for these facilities was presented in TMWA's 2005-2025 Water Facility Plan, and may be updated as a result of this plan.

Significant to water resource planning is the selection of a drought period to estimate the yield of TMWA's resources during Drought Situations. In years when sufficient precipitation occurs, there is no need for TMWA to pump significant amounts from its wells or release any of its privately owned stored water since the Truckee River can supply the majority of water to meet customer demands. TMWA manages its resources to take maximum advantage of Truckee River flows while minimizing use of its reserve supplies during non-Drought Situation years. Planning for the critical-year in a drought cycle therefore determines the maximum amount of water demands TMWA plans for. This plan showed that TMWA's current resources and continued dedication of river rights will allow TMWA to meet a demand of 119,000 acre-feet under TROA implementation or 113,000 acre-feet without TROA based on the historic drought from 1987 to 1994; this drought, the most severe on record, is used for the 8-year drought design criterion. Without TROA a 9-year drought design will support a demand of 110,000 acre-feet. Use of a more stringent drought cycle design, without data to support it, ultimately reduces the use of available resources and burdens the region with the costly requirement to replace the lost-committable resource. Using the 9-year drought design also preserves the opportunity for the local community to continue to develop in an orderly fashion without necessitating unreasonable and unnecessary interruptions during the next few years before TROA is implemented, which is projected to meet demands of 119,000 acre-feet annually.

Another significant change in the context of water planning for the Truckee Meadows is the fulfillment by TMWA to retrofit its flat-rate services in its retail service area. Completion of

this project, coupled with water savings from TMWA's demand-side management programs has reduced annual use per service which change has been captured in the data analyses of water use incorporated into the demand forecast in Chapter 4. Prior to meter retrofit completion, the Truckee Meadows has been required by ordinance to stay with the mandatory two-day-a-week that was introduced in 1986/1987. At that time, two-day-a-week, assigned-day watering was deployed to address peak day production facility limitations. Over time those limitations have been addressed through winter time operation of surface water plants, the addition of more well capacity, and ability to store POSW in federally owned/operated reservoirs. Four years of data collection and analyses of summer time irrigation habits of TMWA's retail customers has confirmed that revising the Assigned-Day Watering to allow three days-a-week will not impact peak day or overall water production during the peak irrigation months of July or August. Assigned-Day Watering will transition mandatory twice-per-week watering to a program of three-times-per-week watering and no watering on Monday will be retained to ensure time and flexibility for system recovery. Included with this water day revision is the expansion of no afternoon watering times to 12:00 P.M. and 6:00 P.M. from 1:00 and 5:00 p.m. to discourage watering during the hottest and usually windiest part of the day.

In conjunction with changing Assigned-Day Watering is a revision to the process of managing conservation and TMWA's demand management programs in response to Drought Situations. The current process is a climatological based declaration of a drought year but does not clearly link the drought level to available water supplies, both natural river flows and TWMA's drought reserve water supplies, and what actions from customers are necessary during the course of a Drought Situation year. This is very problematic from a public education perspective since the region is currently always in a "drought" stage with little connection between the drought stage and available water supplies, and leaves little room to reduce water use without severe actions. The new system replaces the four-stage drought classification with a three-stage supply classification, is easier understood, and will improve TMWA's ability to create more meaningful, easier to understand information campaigns that relate needed reductions in customer use to available water supplies.

Although TMWA can continue to convert Truckee River water rights and provide for new development based on its current pool of resources, TMWA is very active in ensuring the implementation of TROA. Projects awaiting resolution of TROA implementation – groundwater importation, aquifer storage and recovery, local reservoirs, etc – will remain under further investigation as to cost and feasibility. These activities are vital in order to have the next viable water resource available when demands dictate its need. In addition to securing the successful implementation of TROA, other projects that do not conflict with TROA requirements are included in this review. In reviewing the prior water plans, the number of water supply projects available for future development has decreased from a high of 20 projects to eight. The reduction in supply projects is a result of changes in conditions necessary to facilitate developing the supply project. For example, the loss in the number of potential reservoir sites is due to housing developments that have been built in the proposed reservoir site (e.g., Mogul Canyon west of Reno and Canoe Hill in the eastern foothills of Spanish Springs). At the same time, however, new projects have emerged, such as Aqua Trac and High Rock Holdings & Juniper Hills Partners, LLC, which may be available to the basins surrounding the Truckee Meadows. The estimated supply from future water supply projects has also decreased over the past 20 years, from a high of 73,000 acre-feet under the TROA supply scenario in 1994/1995 planning period to the current estimate of 44,000 acre-feet from all projects including TROA supplies. These

changes are due to reductions in the number of potential supply projects as noted above and/or as a result of changes in the scope of the project. For example, the North Valleys Importation Project (subsequently purchased by Vidler Corporation) originally sought a permitted yield of 13,000 AFA but is now permitted for 8,000 AFA. Although there has been a decline in the number of potential water supply projects and the decline in the quantity available from these water supply projects, the conclusion to draw is that future water supply development for areas beyond TMWA's retail and wholesale areas will reach further into northern Washoe County or into surrounding counties, and ultimately be very costly to implement.

Introduced in the 2007 Nevada Legislative Session, SB 487 proposed to create a new regional water resources entity in Washoe County. Pursuant SB 487 the cities of Reno and Sparks, the South Truckee Meadows General Improvement District, the Sun Valley General Improvement District, the Truckee Meadows Water Authority, and Washoe County formed Joint Powers Authority to operate the Western Regional Water Commission in 2008. SB 487 included a change of oversight and restructuring of the Regional Water Planning Commission into the Northern Nevada Water Planning Commission. This new entity is charged with coordinating resource management among the existing water purveyors in southern Washoe County. The WRWC began functioning and assumed oversight of the NNWPC in April 2008. The WRWC is required to produce a comprehensive regional water plan on or before January 1, 2011. That planning effort for the years 2010 to 2030 is in the early stages of developing the plan outline and calendar with a goal to finish sometime in Fall 2010. Since TMWA is a major contributor to the potable water management elements of that plan, adoption by TMWA's Board of this 2010-2030 WRP is necessary in Spring 2010 in order to incorporate its findings.

One of the last topics of significance for the context of this 2030 WRP is consideration of the possible integration of some or all functions of WDWR into TMWA. SB 487 directs the WRWC to incorporate an analysis of this topic into its 2011 Comprehensive Plan. The investigation began in Fall 2008 with favorable analyses presented to WRWC throughout 2009. Unless severe challenges to consolidation arise, the process is proceeding toward complete consolidation subject to various requirements to defeasing WDWR bonds, protecting the financial integrity of TMWA, and several other issues (transfer of employees, operating WDWR facilities, etc). From the aspect of treating and delivering potable water to customers, the consolidation of TMWA and WDWR is expected to enhance efficiencies related to the operation of water production and distribution systems. As it relates to current uses of or projected need for water resources, the consolidation of TMWA and WDWR should allow the expanded use of surface water and reduced use of groundwater thereby improving aquifer conditions in the various basins where TMWA and WDWR 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. On a forward looking basis, since WDWR uses TMWA's Rule 7 for estimating resource requirements for new development projects, future uses and dedication of resources would have similar outcomes whether consolidation occurs or not. Although the results of resource and facility planning conducted by WDWR for their current, respective service areas may change slightly under a combined operation, those changes would not significantly affect the projected demands or acquisition of resources for this planning effort.

84688

Application No. _____

APPLICATION FOR PERMIT TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA

THIS SPACE FOR OFFICE USE ONLY

Date of Filing in State Engineer's Office JAN 09 2015

Returned to applicant for correction _____

Corrected Application filed _____ Map filed JAN 09 2015

The applicant SIERRA PACIFIC INDUSTRIES

P.O. Box 496014 (Street Address or P.O. Box) of Redding (City or Town)

California 96049 (State and ZIP Code) hereby make(s) application for permission to appropriate the public waters of the State of Nevada, as hereinafter stated. (If applicant is a corporation, give date and place of incorporation; if a copartnership or association, give names of members.)

Sierra Pacific Industries is a Corporation registered in 1996 with the State of California.

RECEIVED 2015 JAN -9 PM 2:31 STATE ENGINEERS OFFICE

1. The source of water is Underground (Homestead Well)
   Name of the stream, lake, underground, spring or other sources.
2. The amount of water applied for is 4.14 cfs, 1500 acre-feet annually
   One second foot equals 448.83 gallons per minute.
   (a) If stored in a reservoir give the number of acre-feet _____
3. The water is to be used for Irrigation
   Irrigation, power, mining, commercial, domestic or other use. Must be limited to one major use.
4. If use is for:
   (a) Irrigation, state number of acres to be irrigated 375.00
   (b) Stockwater, state number and kind of animals _____
   (c) Other use (describe fully in No. 12) _____
   (d) Power:
      (1) Horsepower developed _____
      (2) Point of return of water to stream _____

Revised 07/13

Dry Valley 1-95

SPI APP 135

JA0189 wa

SE ROA 147

5. The water is to be diverted from its source at the following point: (Describe as being within a 40-acre subdivision of public survey, and by course and distance to a found section corner. If on unsurveyed land, it should be so stated.)

Homestead Well located within the SW¼ NW¼ of Section 09, T.24N., R.18E., M.D.B.&M., or at a point from which the S¼ Corner of Section 08, T.24N., R.18E., M.D.B.&M. bears S50°03'14.25"W, a distance of 5157.17 feet. Please refer to the Supporting Map accompanying this Application.

6. Place of use: (Describe by legal subdivision. If on unsurveyed land, it should be so stated)

Please refer to Attachment "A" and the Supporting Map accompanying this Application.

7. Use will begin about January 1 (Month and Day) and end about December 31 (Month and Day) of each year.

8. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and specifications of your diversion or storage works.) (State manner in which water is to be diverted, i.e. diversion structure, ditches and flumes, drilled well with a pump and motor, etc.)

Existing drilled and cased well to be equipped with pump, motor and flow meter. Power and transmission systems are also required to divert and place the water to beneficial use. Please refer to well log 21705.

9. Estimated cost of works: $100,000

10. Estimated time required to construct works: 3 years
(If the well is complete, describe works.)

11. Estimated time required to complete the application of water to beneficial use: 5 years

12. Provide a detailed description of the proposed project and its water usage (use attachments if necessary): (Failure to provide a detailed description may cause a delay in processing.)

Water will be pumped from the existing Homestead Well and the existing Lost Well, then piped to wheeled sprinkler lines and ditch networks to irrigate 750 acres of land located within Washoe County, Nevada and Lassen County, California.

13. Miscellaneous remarks:

The total combined duty under this Application (Homestead Well) and Application 64089 (Lost Well) shall not exceed 3,000 acre-feet annually.

Timothy P. Donahoe
Type or print name clearly

Timothy P. Donahoe
Signature, applicant or agent

SRK Consulting (U.S.), Inc.
Company Name

5250 Neil Road, Suite 300
Street Address or PO Box

Reno, NV 89509
City, State, ZIP Code

tdonahoe@srk.com
E-mail Address

(775) 828-6800 228
Phone No. Ext.

APPLICATION MUST BE SIGNED BY THE APPLICANT OR AGENT

Revised 07/13 $360 FILING FEE AND SUPPORTING MAP MUST ACCOMPANY APPLICATION

84688

ATTACHMENT "A"
Proposed Place of Use

T.24N., R.17E., M.D.B.&M.

A portion of Section 1.

T.25N., R.17E., M.D.B.&M.

A portion of Section 36.

T.24N., R.18E., M.D.B.&M.

A portion of Sections 4, 5, 6, 7, 8, 9, 10, 15, 16 and 17.

RECEIVED
2015 JAN -9 PM 2:31
STATE ENGINEERS OFFICE

IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATION NUMBER 84688
FILED BY Sierra Pacific Industries
ON January 9, 20 15

PROTEST

FILED
MAR 19 2015
STATE ENGINEER'S OFFICE

Comes now Buckhorn Land and Livestock, LLC, a Nevada limited liability company
Printed or typed name of protestant

whose post office address is 500 Damonte Ranch Parkway, Suite, 980, Reno, NV 89521
Street No. or PO Box, City, State and ZIP Code

whose occupation is Ranching and protests the granting

of Application Number 84688, filed on January 9, 20 15

by Sierra Pacific Industries for the

waters of Underground situated in Washoe
an underground source or name of stream, lake, spring or other source

County, State of Nevada, for the following reasons and on the following grounds, to wit:
Please refer to Attachment "A"

THEREFORE the Protestant requests that the application be Denied
Denied, issued subject to prior rights, etc., as the case may be

and that an order be entered for such relief as the State Engineer deems just and proper.

Signed
Agent or protestant

Gregory M. Bilyeu
Printed or typed name, if agent

Address 9480 Double Diamond Parkway, Suite 200
Street No. or PO Box

Reno, NV 89521
City, State and ZIP Code

(775) 352-7800 x 227
Phone Number

gregb@tecreno.com
E-mail

State of Nevada
County of Washoe

Subscribed and sworn to before me on 3-18-15

by Gregory M. Bilyeu

KAREN L. WOOSLEY
Notary Public - State of Nevada
Appointment Recorded in Washoe County
No: 98-4812-2 - Expires April 18, 2018

Karen L. Woosley
Signature of Notary Public Required

Notary Stamp or Seal Required

+ $30 FILING FEE MUST ACCOMPANY PROTEST. PROTEST MUST BE FILED IN DUPLICATE.
ALL COPIES MUST CONTAIN ORIGINAL SIGNATURE.

Attachment "A"
Protests to Applications 84688 & 84689

Applications 84668 & 84689 seek to appropriate groundwater from the Dry Valley Hydrographic Basin (Basin 95). Each application is filed for 1,500 acre-feet annually with a total combined duty of 3,000 acre-feet annually.

The Dry Valley Hydrographic Basin is currently fully appropriated by existing underground permits as determined by the Nevada State Engineer in Ruling 5568 issued in 2006 (and reinforced in Rulings 5622 and 5897). Current groundwater appropriations total 3,021.60 acre-feet, of which 2,996 acre-feet are issued for municipal use outside of the basin itself.

NRS 533.370(3) sets forth the criteria for rejection of an application to appropriate water. Said statute reads as follows:

"Except as otherwise provided in subsection 6, where there is no unappropriated water in the proposed source of supply, or where its proposed use or change conflicts with existing rights or with protectible interests in existing domestic wells as set forth in NRS 533.024, or threatens to prove detrimental to the public interest, the state engineer shall reject the application and refuse to issue the requested permit. If a previous application for a similar use of water within the same basin has been rejected on those grounds, the new application may be denied without publication."

Applications 84688 and 84689 seek to appropriate 3,000 additional acre-feet over and above the established perennial yield of Basin 95 and therefore no unappropriated water is available at the source.

Issuance of additional groundwater rights over and above the established perennial yield of Basin 95 would result in water being removed from storage within the basin, which in turn could cause excessive drawdown to the water table, resulting in adverse impacts to streamflow in Dry Valley Creek and to spring discharge within said basin and thus adversely affect and conflict with the Protestant's senior surface water rights from Dry Valley Creek and numerous springs within the basin.

The Protestant has recently granted conservation easements across much of its land to the United State of America. These easements provide for the preservation of open space for the benefit of wildlife and for recreational purposes. The diminished streamflow in Dry Valley Creek and spring discharges within the Dry Valley Hydrographic Basin would result in reductions in the amount of water available to both livestock and wildlife within the basin and thus the appropriations being sought threaten to prove detrimental to the public interest.

Attachment "A"
Protests to Applications 84688 & 84689

Finally, portions of the place of use of these applications (as well as the Point of Diversion for Application 84689) are located in California. These applications are also subject to the provisions of NRS 533.520, in particular those portions whereby the State Engineer, in determining whether or not the use of the water outside the State of Nevada complies with the provisions of NRS 533.324 to 533.450 must consider the following factors:

(a) The supply of water available in this State
(b) The current and reasonably anticipated demands for water in this State;
(c) The current or reasonably anticipated shortages of water in this State;
(d) Whether the water that is the subject of the application could feasibly be used to alleviate current or reasonably anticipated shortages of water in this State;
(e) The supply and sources of water available to the applicant in the state in which the applicant intends to use the water;
(f) The demands placed on the applicant's supply of water in the state in which he or she intends to use the water; and
(g) Whether the request in the application is reasonable, taking into consideration the factors set forth in paragraphs (a) to (f), inclusive.

Applications 84688 and 84689 fail to provide any information to the State Engineer that would allow him to make a determination as to whether or not the these applications comply with NRS 533.324 to 533.450 and thus they are deficient and should be rejected as failing to comply with NRS 533.520.

Therefore, based on the foregoing, Buckhorn Land and Livestock, LLC respectfully requests that Applications 84688 and 84689 be denied.

IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATION NUMBER 84688
FILED BY Sierra Pacific Industries
ON January 9, 20 15

PROTEST

FILED
FEB 27 2015
STATE ENGINEER'S OFFICE

Comes now Washoe County
Printed or typed name of protestant

whose post office address is P.O. Box 11130, Reno Nevada 89520-0027
Street No. or PO Box, City, State and ZIP Code

whose occupation is a political subdivision of State of Nevada and protests the granting

of Application Number 84688, filed on January 9, 20 15

by Sierra Pacific Industries for the

waters of Underground situated in Washoe
an underground source or name of stream, lake, spring or other source

County, State of Nevada, for the following reasons and on the following grounds, to wit:
Please refer to attached Exhibit "A".

THEREFORE the Protestant requests that the application be Denied
Denied, issued subject to prior rights, etc., as the case may be

and that an order be entered for such relief as the State Engineer deems just and proper.

Signed
Agent or protestant

Vahid Behmaram
Printed or typed name, if agent

Address P.O. Box 11130,
Street No. or PO Box

Reno Nevada 89520-0027
City, State and ZIP Code

(775) 954-4647
Phone Number

vbehmaram@washoecounty.us
E-mail

State of Nevada
County of Washoe

Subscribed and sworn to before me on 2/26/15

by Vahid Behmaram

JUNE L. DAVIS
Notary Public - State of Nevada
Appointment Recorded in Washoe County
No: 93-3504-2 - Expires June 18, 2018

Signature of Notary Public Required

Notary Stamp or Seal Required

+ $30 FILING FEE MUST ACCOMPANY PROTEST. PROTEST MUST BE FILED IN DUPLICATE.
ALL COPIES MUST CONTAIN ORIGINAL SIGNATURE.

Exhibit "A"

Applications 84688 & 84689

The above referenced applications propose to appropriate 3000 acre-feet of ground water from the Dry Valley Hydro-graphic Basin.

State Engineer's ruling # 5568 determined a perennial yield of 3000 acre-feet for this basin.

Existing appropriations against the ground water resources of this basin are at or slightly over the yield estimate. Furthermore, the State Engineer's records indicate an additional 3400 acre-feet of pending applications within this basin.

NRS 533.370 (5) states that:

> *The State Engineer is prohibited by law from granting an application to appropriate the public waters of State of Nevada where:*
>
> *A. There is no unappropriated water at the proposed source;*
>
> *B. The proposed use or change conflicts with existing rights;*
>
> *C. The proposed use or change conflicts with protectible interests in the existing domestic wells as set forth in NRS 533.024; or*
>
> *D. The proposed use or change threatens to prove detrimental to the public interest.*

Therefore, based on the foregoing Washoe County request that these applications be denied as granting them would be contrary to items A, B & D of the provisions of NRS 533.370 (5) listed above.

Application No. 84689

APPLICATION FOR PERMIT TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA

THIS SPACE FOR OFFICE USE ONLY

Date of Filing in State Engineer's Office JAN 09 2015

Returned to applicant for correction

Corrected Application filed _____ Map filed Jan 9 2015 under 84688

The applicant SIERRA PACIFIC INDUSTRIES

P.O. Box 496014 (Street Address or P.O. Box) of Redding (City or Town)

California 96049 (State and ZIP Code) hereby make(s) application for permission to appropriate the public waters of the State of Nevada, as hereinafter stated. (If applicant is a corporation, give date and place of incorporation; if a copartnership or association, give names of members.)

Sierra Pacific Industries is a Corporation registered in 1996 with the State of California.

RECEIVED 2015 JAN -9 PM 2:32 STATE ENGINEER'S OFFICE

1. The source of water is Underground (Lost Well)
   Name of the stream, lake, underground, spring or other sources.
2. The amount of water applied for is 4.14 cfs, 1500 acre-feet annually
   One second foot equals 448.83 gallons per minute.
   (a) If stored in a reservoir give the number of acre-feet _____
3. The water is to be used for Irrigation
   Irrigation, power, mining, commercial, domestic or other use. Must be limited to one major use.
4. If use is for:
   (a) Irrigation, state number of acres to be irrigated 375.00
   (b) Stockwater, state number and kind of animals _____
   (c) Other use (describe fully in No. 12) _____
   (d) Power:
      (1) Horsepower developed _____
      (2) Point of return of water to stream _____

Revised 07/13

5. The water is to be diverted from its source at the following point: (Describe as being within a 40-acre subdivision of public survey, and by course and distance to a found section corner. If on unsurveyed land, it should be so stated.)

Lost Well located within Lot 6 of Section 07, T.24N., R.18E., M.D.B.&M., or at a point from which the SE Corner of said Section 07 bears S15°27'28.36"E, a distance of 2346.84 feet. Please refer to the Supporting Map accompanying this Application.

6. Place of use: (Describe by legal subdivision. If on unsurveyed land, it should be so stated).

Please refer to Attachment "A" and the Supporting Map accompanying this Application.

7. Use will begin about January 1 (Month and Day) and end about December 31 (Month and Day) of each year.

8. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and specifications of your diversion or storage works.) (State manner in which water is to be diverted, i.e. diversion structure, ditches and flumes, drilled well with a pump and motor, etc.)

Existing drilled and cased well to be equipped with pump, motor and flow meter. Power and transmission systems are also required to divert and place the water to beneficial use. No well log available.

9. Estimated cost of works: $100,000

10. Estimated time required to construct works: 3 years

(If the well is complete, describe works.)

11. Estimated time required to complete the application of water to beneficial use: 5 years

12. Provide a detailed description of the proposed project and its water usage (use attachments if necessary): (Failure to provide a detailed description may cause a delay in processing.)

Water will be pumped from the existing Homestead Well and the existing Lost Well, then piped to wheeled sprinkler lines and ditch networks to irrigate 750 acres of land located within Washoe County, Nevada and Lassen County, California.

13. Miscellaneous remarks:

The total combined duty under this Application (Lost Well) and Application 64080 (Homestead Well) shall not exceed 3,000 acre-feet annually.

Timothy P. Donahoe
Type or print name clearly

Timothy P. Donahoe
Signature, applicant or agent

tdonahoe@srk.com
E-mail Address

(775) 828-6800 228
Phone No. Ext.

SRK Consulting (U.S.), Inc.
Company Name

5250 Neil Road, Suite 300
Street Address or PO Box

Reno, NV 89509
City, State, ZIP Code

APPLICATION MUST BE SIGNED BY THE APPLICANT OR AGENT

Revised 07/13 $360 FILING FEE AND SUPPORTING MAP MUST ACCOMPANY APPLICATION

84689

ATTACHMENT "A"
Proposed Place of Use

T.24N., R.17E., M.D.B.&M.

A portion of Section 1.

T.25N., R.17E., M.D.B.&M.

A portion of Section 36.

T.24N., R.18E., M.D.B.&M.

A portion of Sections 4, 5, 6, 7, 8, 9, 10, 15, 16 and 17.

RECEIVED
2015 JAN -9 PM 2:32
STATE ENGINEERS OFFICE

IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATION NUMBER 84689
FILED BY Sierra Pacific Industries
ON January 9, 20 15

PROTEST

FILED
MAR 19 2015
STATE ENGINEER'S OFFICE

Comes now Buckhorn Land and Livestock, LLC, a Nevada limited liability company
Printed or typed name of protestant

whose post office address is 500 Damonte Ranch Parkway, Suite, 980, Reno, NV 89521
Street No. or PO Box, City, State and ZIP Code

whose occupation is Ranching and protests the granting

of Application Number 84689, filed on January 9, 20 15

by Sierra Pacific Industries for the

waters of Underground situated in Washoe
an underground source or name of stream, lake, spring or other source

County, State of Nevada, for the following reasons and on the following grounds, to wit:
Please refer to Attachment "A"

THEREFORE the Protestant requests that the application be Denied
Denied, issued subject to prior rights, etc., as the case may be

and that an order be entered for such relief as the State Engineer deems just and proper.

Signed
Agent or protestant

Gregory M. Bilyeu
Printed or typed name, if agent

Address 9480 Double Diamond Parkway, Suite 200
Street No. or PO Box

Reno, NV 89521
City, State and ZIP Code

(775) 352-7800 x 227
Phone Number

gregb@tecreno.com
E-mail

State of Nevada
County of Washoe

Subscribed and sworn to before me on 3-18-15

by Gregory M. Bilyeu

Karen L. Woosley
Signature of Notary Public Required

KAREN L. WOOSLEY
Notary Public - State of Nevada
Appointment Recorded in Washoe County
No: 98-4812-2 - Expires April 13, 2018

Notary Stamp or Seal Required

+ $30 FILING FEE MUST ACCOMPANY PROTEST. PROTEST MUST BE FILED IN DUPLICATE.

ALL COPIES MUST CONTAIN ORIGINAL SIGNATURE.

Attachment "A"
Protests to Applications 84688 & 84689

Applications 84668 & 84689 seek to appropriate groundwater from the Dry Valley Hydrographic Basin (Basin 95). Each application is filed for 1,500 acre-feet annually with a total combined duty of 3,000 acre-feet annually.

The Dry Valley Hydrographic Basin is currently fully appropriated by existing underground permits as determined by the Nevada State Engineer in Ruling 5568 issued in 2006 (and reinforced in Rulings 5622 and 5897). Current groundwater appropriations total 3,021.60 acre-feet, of which 2,996 acre-feet are issued for municipal use outside of the basin itself.

NRS 533.370(3) sets forth the criteria for rejection of an application to appropriate water. Said statute reads as follows:

"Except as otherwise provided in subsection 6, where there is no unappropriated water in the proposed source of supply, or where its proposed use or change conflicts with existing rights or with protectible interests in existing domestic wells as set forth in NRS 533.024, or threatens to prove detrimental to the public interest, the state engineer shall reject the application and refuse to issue the requested permit. If a previous application for a similar use of water within the same basin has been rejected on those grounds, the new application may be denied without publication."

Applications 84688 and 84689 seek to appropriate 3,000 additional acre-feet over and above the established perennial yield of Basin 95 and therefore no unappropriated water is available at the source.

Issuance of additional groundwater rights over and above the established perennial yield of Basin 95 would result in water being removed from storage within the basin, which in turn could cause excessive drawdown to the water table, resulting in adverse impacts to streamflow in Dry Valley Creek and to spring discharge within said basin and thus adversely affect and conflict with the Protestant's senior surface water rights from Dry Valley Creek and numerous springs within the basin.

The Protestant has recently granted conservation easements across much of its land to the United State of America. These easements provide for the preservation of open space for the benefit of wildlife and for recreational purposes. The diminished streamflow in Dry Valley Creek and spring discharges within the Dry Valley Hydrographic Basin would result in reductions in the amount of water available to both livestock and wildlife within the basin and thus the appropriations being sought threaten to prove detrimental to the public interest.

Attachment "A"
Protests to Applications 84688 & 84689

Finally, portions of the place of use of these applications (as well as the Point of Diversion for Application 84689) are located in California. These applications are also subject to the provisions of NRS 533.520, in particular those portions whereby the State Engineer, in determining whether or not the use of the water outside the State of Nevada complies with the provisions of NRS 533.324 to 533.450 must consider the following factors:

(a) The supply of water available in this State
(b) The current and reasonably anticipated demands for water in this State;
(c) The current or reasonably anticipated shortages of water in this State;
(d) Whether the water that is the subject of the application could feasibly be used to alleviate current or reasonably anticipated shortages of water in this State;
(e) The supply and sources of water available to the applicant in the state in which the applicant intends to use the water;
(f) The demands placed on the applicant's supply of water in the state in which he or she intends to use the water; and
(g) Whether the request in the application is reasonable, taking into consideration the factors set forth in paragraphs (a) to (f), inclusive.

Applications 84688 and 84689 fail to provide any information to the State Engineer that would allow him to make a determination as to whether or not the these applications comply with NRS 533.324 to 533.450 and thus they are deficient and should be rejected as failing to comply with NRS 533.520.

Therefore, based on the foregoing, Buckhorn Land and Livestock, LLC respectfully requests that Applications 84688 and 84689 be denied.

IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATION NUMBER 84689
FILED BY Sierra Pacific Industries
ON January 9, 20 15

PROTEST

FILED
FEB 27
STATE ENGINEER'S OFFICE

Comes now Washoe County
Printed or typed name of protestant

whose post office address is P.O. Box 11130, Reno Nevada 89520-0027
Street No. or PO Box, City, State and ZIP Code

whose occupation is a political subdivision of State of Nevada and protests the granting

of Application Number 84689, filed on January 9, 20 15

by Sierra Pacific Industries for the

waters of Underground situated in Washoe
an underground source or name of stream, lake, spring or other source

County, State of Nevada, for the following reasons and on the following grounds, to wit:
Please refer to attached Exhibit "A".

THEREFORE the Protestant requests that the application be Denied
Denied, issued subject to prior rights, etc., as the case may be

and that an order be entered for such relief as the State Engineer deems just and proper.

Signed
Agent or protestant

Vahid Behmaram
Printed or typed name, if agent

Address P.O. Box 11130,
Street No. or PO Box

Reno Nevada 89520-0027
City, State and ZIP Code

(775) 954-4647
Phone Number

vbehmaram@washoecounty.us
E-mail

State of Nevada
County of Washoe

Subscribed and sworn to before me on 2/26/15

by Vahid Behmaram

JUNE L. DAVIS
Notary Public - State of Nevada
Appointment Recorded in Washoe County
No: 03-3504-2 - Expires June 18, 2018

Signature of Notary Public Required

Notary Stamp or Seal Required

+ $30 FILING FEE MUST ACCOMPANY PROTEST. PROTEST MUST BE FILED IN DUPLICATE.
ALL COPIES MUST CONTAIN ORIGINAL SIGNATURE.

Exhibit "A"

Applications 84688 & 84689

The above referenced applications propose to appropriate 3000 acre-feet of ground water from the Dry Valley Hydro-graphic Basin.

State Engineer's ruling # 5568 determined a perennial yield of 3000 acre-feet for this basin.

Existing appropriations against the ground water resources of this basin are at or slightly over the yield estimate. Furthermore, the State Engineer's records indicate an additional 3400 acre-feet of pending applications within this basin.

NRS 533.370 (5) states that:

> *The State Engineer is prohibited by law from granting an application to appropriate the public waters of State of Nevada where:*
>
> *A. There is no unappropriated water at the proposed source;*
>
> *B. The proposed use or change conflicts with existing rights;*
>
> *C. The proposed use or change conflicts with protectible interests in the existing domestic wells as set forth in NRS 533.024; or*
>
> *D. The proposed use or change threatens to prove detrimental to the public interest.*

Therefore, based on the foregoing Washoe County request that these applications be denied as granting them would be contrary to items A, B & D of the provisions of NRS 533.370 (5) listed above.

Debbie Leonard (Nevada Bar No. 8260)
McDONALD CARANO WILSON LLP
100 West Liberty Street, 10th Floor
Reno, Nevada 89501
Telephone: (775) 788-2000
Facsimile: (775) 788-2020
dleonard@mcdonaldcarano.com

Attorney for Applicant
Sierra Pacific Industries.

RECEIVED
2015 MAY 21 PM 4:10
STATE ENGINEERS OFFICE

IN THE OFFICE OF THE STATE ENGINEER

OF THE STATE OF NEVADA

* * * * *

IN THE MATTER OF APPLICATIONS 84688 AND 84689 FILED BY SIERRA PACIFIC INDUSTRIES

/

SIERRA PACIFIC INDUSTRIES's ANSWER TO PROTESTS

Pursuant to NAC 533.140 and the formal notice letter issued by the State Engineer on April 6, 2015, the Applicant Sierra Pacific Industries (SPI), through its counsel Debbie Leonard of McDonald Carano Wilson LLP, submits this Answer to the Protests regarding Applications 84688 and 84689. Applications 84688 and 84689 seek an appropriation of 3,000 acre-feet in the Dry Valley Hydrographic Basin (Basin 95).

This Answer consists of a project narrative followed by specific responses to each protest ground. Technical information contained herein was provided by SRK Consulting (U.S.) Inc. (SRK), which has thoroughly reviewed any information deemed pertinent to Applications 84688 and 84689.

///

///

///

///

///

///

McDONALD·CARANO·WILSON
100 WEST LIBERTY STREET, 10TH FLOOR • RENO, NEVADA 89501
P.O. BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775 788-2000 • FAX 775-788-2020

A. PROJECT NARRATIVE

1. SIERRA PACIFIC INDUSTRIES BACKGROUND

The Applicant SPI is a third-generation family-owned forest products company based in Anderson, California. SPI owns and manages nearly 1.9 million acres of timberland in California and Washington and is the second largest lumber producer in the United States.

SPI manages and maintains its lands in a responsible and sustainable manner to protect the environment while providing quality wood products and renewable power to consumers. SPI employs modern forestry practices that closely mimic natural forest events, and the expertise of SPI's professional foresters and natural resource specialists guarantees that wildlife habitat, water quality, and other forest values are protected. SPI is a certified participant in the independent Sustainable Forestry Initiative to help ensure that healthy, thriving forests are available for generations to come.

SPI has invested in state-of-the-art equipment to optimize the use of every fiber of each tree that is harvested. To that end, in addition to its forest management, regeneration and planting, harvest, lumber and millwork divisions, SPI has a business division devoted to green energy production from wood biomass. SPI turns wood waste such as bark, sawdust and other low-grade byproducts of the manufacturing process into energy for homes and businesses through eight state-of-the-art cogeneration plants. Cogeneration is the process of using steam twice, once to heat kilns to dry lumber and again to turn a turbine to create electricity. Wood fiber is burned in the cogeneration plants to create energy. Together, SPI's cogeneration facilities produce over 150 megawatts of electrical power. Some of the power is used to operate the mill where the power is generated. Excess electricity is transmitted to local public utilities and to energy service providers, which helps reduce the nation's dependence on fossil fuels.

Biomass power produces a number of societal and environmental benefits in addition to its displacement of fossil-fueled electricity generation. The biomass power industry provides an environmentally responsible means of disposal for about 25 metric tons of woody waste per year. It prevents the open burning of a substantial amount of this wood waste and the resulting air

///

McDONALD·CARANO·WILSON
100 WEST LIBERTY STREET, 10TH FLOOR • RENO, NEVADA 89501
PO BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775-788-2020

pollution. It also reduces the amount of wood waste buried in landfills and the resulting landfill gases.

The residual fiber from SPI's cogeneration plant(s) is screened into a black ash product that is listed with the Organic Materials Review Institute (OMRI) for use in organic agricultural production. When applied to soils, the ash raises the pH, increases phosphorous and potassium levels, increases soil moisture retention, darkens the soil and increases the soil temperature, which can extend the growing season. In addition to marketing the ash, SPI uses the ash in its own agricultural operations.

Ranching has been a part of SPI's family-owned business model since its beginnings along the California coast. SPI runs upwards of 2,000 pair of cattle across hundreds of parcels scattered across the California landscapes and leases grazing rights for over 5,000 head of cattle on tens of thousands of acres.

In addition to SPI's business divisions, the Sierra Pacific Foundation was established and funded in 1979 by R.H. "Curly" Emmerson. Since 1995, the foundation has provided over five million dollars in higher education scholarships to dependent children of SPI employees.

More information about SPI can be found at its website: http://www.spi-ind.com/index.aspx

2. WILBURN RANCH PROJECT BACKGROUND

SPI's landholdings include lands located in Dry Valley and Long Valley in Lassen County, California and Washoe County, Nevada. These are collectively referred to as the Wilburn Ranch. Wilburn Ranch has a long history of agricultural production.

Surface water use on the Wilburn Ranch by SPI's predecessor started in the 1900's with water from Dry Valley Creek that has since been adjudicated in the Long Valley Creek Adjudication, Lassen County Superior Court Decree No. 12999. Water use on the Wilburn Ranch under statutory water rights occurred later. In 1977, the Nevada State Engineer permitted 4,460 acre-feet of water rights for use on Wilburn Ranch. This quantity of water was comprised of 1,440 acre-feet of groundwater under Permits 32579 and 32580 and 3,200 acre-feet of surface water from Dry Valley Creek under Permit 34698. These water rights were cancelled in 1983 when SPI's predecessor did not comply with the provisions of the permits.

McDONALD·CARANO·WILSON
100 WEST LIBERTY STREET, 10TH FLOOR • RENO, NEVADA 89501
P.O. BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775-788-2020

SPI acquired the Wilburn Ranch in 2014 for agricultural production. Currently, 100 to 150 pair of cattle graze on the Nevada parcels and 50 to 100 pair of cattle graze on the California parcels of Wilburn Ranch. Approximately 180 acres in Nevada has been converted from sagebrush flats to meadow grass grazing areas. On the California parcels, approximately 800 acres has been converted from sagebrush flats to meadow grass grazing areas and irrigated crop production.

In Nevada, water for livestock and some meadow irrigation is supplied by natural springs along the easternmost boundary, the southern edge and Dry Valley Creek. Water from the southern springs is routed through a network of piping across the Dry Valley floor to form high-yield, irrigated, grazing areas for the cattle. So far, no subsurface ground water has been pumped in Nevada other than well testing, and no water has been transferred across the California/Nevada boundary. With approval of Applications 84688 and 84689, SPI plans to utilize the existing wells in Nevada and expand existing irrigation capabilities to include crop production.

In California, the water is pumped from four different artesian springs and three different wells. Sprinklers and flood irrigation are used for the crops. The crops planted have included potatoes, corn, wheat, oats, wheatgrass, rye grass, alfalfa, and most recently, triticale. SPI desires to bring the Nevada side of the Wilburn Ranch back into agricultural production and to expand currently irrigated acreage on the California side of Wilburn Ranch. Therefore, SPI submitted Applications 84688 and 84689 to facilitate the proposed expansion of the irrigated lands at Wilburn Ranch.

In addition to its water rights applications, SPI will obtain other permits from regulatory agencies in Nevada and California, as necessary, to support the Wilburn Ranch project.

3. APPLICATIONS 84688 AND 84689

In Applications 84688 and 84689, SPI seeks sufficient water to bring the Wilburn Ranch back into agricultural production. To put the water sought in Applications 84688 and 84689 to beneficial use, SPI anticipates it will use drilled and cased irrigation wells that are equipped with power, a pump, motor, discharge piping and flow meter. SPI's water transmission system is

///

McDONALD·CARANO·WILSON
100 WEST LIBERTY STREET, 10TH FLOOR • RENO, NEVADA 89501
PO BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775-788-2020

anticipated to include a ditch and pipe network that facilitates flood irrigation and sprinkler irrigation from wheel lines and hand lines.

SPI has an immediate need for the water it seeks and can immediately put the water to beneficial use in its existing and proposed expanded agricultural operations.

SPI does not propose to overdraft or "mine" groundwater from the basin. Rather, SPI is proposing, should its applications be granted, to use water in accordance with the Doctrine of Prior Appropriation. SPI's use of water would be subject to existing senior water rights.

4. INTERMOUNTAIN WATER SUPPLY PROJECT BACKGROUND

Intermountain Water Supply (IWS) holds 2,996 afa of underground water rights under various permits in Dry Valley. IWS proposes to export the water under its permits from Dry Valley into Lemmon Valley to supply what IWS has claimed to be anticipated municipal water demands. IWS also has applications pending for the same use. In order to put its permitted water and the water for which is has applied to beneficial use, IWS proposes to construct a new pipeline across private, county, state and federal land. IWS cannot exercise its permitted rights without construction of this pipeline.

IWS first filed water rights applications for its pipeline in 1999. In the 16 intervening years, IWS has yet to complete construction of the necessary infrastructure required to place the quantity of water applied for to beneficial use. IWS's proposed pipeline remains conceptual. IWS's permits have not been, and as a practical matter, cannot be developed for their intended beneficial use. There is no municipal demand for IWS's water, no infrastructure to transport IWS's water, no contractual relationship between IWS and a municipal water purveyor that would become the actual appropriator of IWS's appropriated water, and no evidence that IWS has the ability to finance or obtain financing for the necessary capital expenditures.

A water pipeline already exists to transport out-of-basin groundwater to the Reno/Sparks area. This existing pipeline was constructed in 2007 from Fish Springs Ranch in Honey Lake Valley to supply municipal water demands in the North Valleys. The Fish Springs Ranch pipeline has sat idle and unused for nearly a decade because there has been no municipal demand for its

///

McDONALD·CARANO·WILSON
100 WEST LIBERTY STREET, 10TH FLOOR • RENO, NEVADA 89501
PO BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775-788-2020

use. Future municipal demands for imported water would be supplied from the existing Fish Springs Ranch pipeline before IWS's proposed pipeline would ever be put to use.

Furthermore, rather than itself develop the water under its applications and permits, IWS is actively seeking to market its "water project." On a website called nevadawaterproject.com, IWS is offering its water permits and other pipeline permits for $12,000,000. According to the website, "This 22 mile long, federally approved, proposed pipeline ***along with 3068.1 acre feet of water*** is for sale in northern Nevada. It's ready for implementation." (*See* pages from www.nevadawaterproject.com, attached hereto as Ex. 1, accessed May 20, 2015) (emphasis added). Based upon this information, it is clear that IWS does not itself plan to actually appropriate the water, finance construction of the necessary infrastructure for a municipal water system, bear the cost of operating and maintaining the municipal water system, or put its permitted or applied-for water rights to beneficial use. Rather, IWS simply desires to sell its water rights appropriations.

5. **ANTI-SPECULATION DOCTRINE**

Water remains available for SPI to appropriate because IWS's permits and applications violate the anti-speculation doctrine. Speculation is the act of acquiring a resource for the purpose of subsequent use or resale, in hopes of profiting from future price fluctuations. The act of speculation allows an individual or entity to lock up scarce and essential water resources from use by individuals and communities who have an immediate need to provide water for crops or other uses (Ruling 6063). Nevada has adopted the "anti-speculation doctrine," which "addresses the situation in which the purported appropriator does not intend to put water to use for its own benefit and has no contractual or agency relationship with one who does." *Bacher v. State Engineer*, 122 Nev. 1110, 1119, 146 P.3d 793, 799 (2006) (quoting *Three Bells Ranch v. Cache La Poudre*, 758 P.2d 164, 173 n. 11 (Colo. 1988)). According to the anti-speculation doctrine, "an applicant seeking an interbasin groundwater transfer under NRS 533.370 must have an agency or contractual relationship with the party intending to put the water to beneficial use." *Id.* Where a permittee is speculating on anticipated need, the beneficial use requirement is not satisfied. *Id.* Nevada's statutory scheme "protects against speculation" by requiring financial

McDONALD·CARANO·WILSON
100 WEST LIBERTY STREET, 10TH FLOOR • RENO, NEVADA 89501
PO BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775-788-2020

ability, a reasonable expectation of constructing the work and applying the water, and reasonable diligence in putting the water to beneficial use. *Id.*, citing NRS 533.370(1)(c)(2); *see also* NRS 533.380. Even if the State Engineer was initially satisfied that IWS could meet these requirements, if changed circumstances indicate that the permittee is speculating, a permit should be canceled. *See* NRS 533.380.

IWS's proposed project to export water from Dry Valley hydrologic basin into Lemmon Valley involves water speculation, as there is no demand from the municipal water purveyor for the importation project, no infrastructure to transport the water and no evidence that IWS has the means to finance or obtain financing for the necessary capital expenditures. IWS has no contract with the Truckee Meadows Water Authority, the only municipal water supplier for the area. Through its own admissions, IWS simply seeks to sell the water rights, not put them to beneficial use. As a result, the water that has been permitted to IWS should be available for appropriation.

6. PERENNIAL YIELD FROM DRY VALLEY

The perennial yield of Dry Valley has been estimated by the U.S. Geological Survey (Rush, et al., 1967; Berger, et al., 2004), Desert Research Institute (Thomas, et al., 2003) and others (Smith, et al., 2000). Estimates of perennial yield from Dry Valley are as high as 6,000 afa. The Nevada State Engineer has estimated the perennial yield from Dry Valley to be 3,000 afa (Ruling 5568). Dry Valley has not been designated by the State Engineer to be in need of additional regulation.

Although the State Engineer has already granted 3,021.60 afa of water rights permits in Dry Valley basin, up to 2,996 afa of those permits issued are currently not being used and have no means of being used. As a result, granting SPI's Applications will not cause the amount of water pumped from Dry Valley Basin to exceed the perennial yield. *See* Ruling 5823 at p.22 (stating with regard to over-appropriation, "The State Engineer finds the protest claims warrant the consideration of the actual use of water, including factors such as consumptive use, the limited use of supplemental rights, dedication requirements, secondary recharge and artificial recharge projects. Through this analysis it can be shown that the use of water under committed water rights in the basin is within the acceptable range of recharge.")

McDONALD·CARANO·WILSON
100 WEST LIBERTY STREET, 10TH FLOOR • RENO, NEVADA 89501
P.O. BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775-788-2020

In many basins throughout Nevada where the permitted water rights exceed the perennial yield, there is no overdraft because permits are not being used in whole or in part to the full extent of the permitted right. *See, e.g.* Ruling 5823, 6227, 6229. Dry Valley is no exception. As long as actual consumption of pumped or otherwise discharged groundwater does not exceed the perennial yield for the basin, SPI contends that groundwater is available for appropriation from Dry Valley due to non-use and the speculative nature of existing water rights.

IWS lacks any means to divert, store and deliver for the intended beneficial use the 2,996 afa of water appropriations held by IWS in Dry Valley. Furthermore, there is no demand for IWS water and no municipal water purveyor that is currently willing to become the actual appropriator by bearing the costs to construct, operate and maintain the municipal water supply system proposed by IWS. Even if IWS changes the manner and place of use of its Dry Valley water rights, infrastructure for a water transmission system would still be required to export water from the basin because IWS does not own any land in Dry Valley.

SPI's Applications are preceded by three (3) applications that seek to appropriate a total duty of approximately 3,400 afa. Applications 66961 and 79548 were filed by IWS and seek an additional 2,000 afa above and beyond the 2,996 afa currently held under its existing permits. Given the nonuse and speculative nature of existing water rights permits, these IWS applications should be denied on the grounds of anti-speculation and in light of the facts that there is no current demand and no existing project for the water applied for. *See Bacher*, 122 Nev. at 1119, 146 P.3d at 799.

Application 69552 is held by Buckhorn Land and Livestock, LLC and seeks to appropriate 1,400 afa for the irrigation of 350 acres that may already be irrigated, in part or entirely, under Permit 11827, Certificate 4966; Permit 17830, Certificate 5021; and Permit 36647, Certificate 18128. It is possible that Application 69552, if granted, could be partially or entirely supplemental to existing rights.

Even if Application 679552 is granted, there is still water available that SPI can put to beneficial use without exceeding the perennial yield of Dry Valley Basin. Applications 69552, 84688 and 84689 could be granted for a total duty of 4,400 afa because the maximum Net

McDONALD·CARANO·WILSON
100 WEST LIBERTY STREET, 10TH FLOOR • RENO, NEVADA 89501
PO BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775-788-2020

Irrigation Water Requirement (NIWR) is estimated to be 2.9 afa/acre (Huntington, 2010) or 66.625% of the annual duty of 4.0 afa/acre. Therefore, the NIWR associated with Applications 69552, 84688 and 84689 would not exceed 2,931.5 afa and would not exceed the perennial yield from Dry Valley.

7. **CUMULATIVE IMPACTS**

SPI is seeking underground water rights permits, the use of which would be subject to existing and prior rights to the source. The State Engineer is authorized to require SPI to conduct monitoring and reporting and to regulate, curtail, and completely restrict the use of SPI's water rights, should the subject Applications be granted, in order to protect existing and senior underground water rights in Dry Valley. SPI does not propose to cause an overdraft condition in Dry Valley.

Cumulative impacts associated with groundwater development and exportation from Dry Valley to Lemmon Valley were modeled and assessed by federal, state and local officials in addition to numerous stakeholders and non-governmental organizations in the Final Environmental Impact Statement for the North Valleys Rights-of-Way Project (BLM, 2005). A Record of Decision (BLM, 2006) was issued by BLM, which authorized Approval of Issuance of Right-of-Way grants and the connected action involving IWS's proposed exportation of groundwater from Dry Valley to Lemmon Valley.

Any suggested effects from SPI's proposed water use under Applications 84688 and 84689 will be far less than those already evaluated for IWS's proposed exportation project because the consumption of water under SPI's proposed use is significantly less than the amount of water that would be consumed by exporting water from Dry Valley. The maximum Net Irrigation Water Requirement for the proposed use of water is estimated to be approximately 2.9 afa/acre (Huntington, 2010) or 66.625% of the annual duty of 4.0 afa/acre. Thus, the consumptive use under IWS's water rights would be 2,996 afa whereas consumptive use under SPI's applications would not exceed approximately 2,000 afa. In short, water that SPI proposes to apply through irrigation in Dry Valley will percolate into and provide a source of secondary recharge to the Dry Valley Basin aquifer, while water that IWS proposes to export will not.

McDONALD·CARANO·WILSON
100 WEST LIBERTY STREET, 10TH FLOOR • RENO, NEVADA 89501
PO BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775-788-2020

8. **PUBLIC INTEREST**

Agriculture has a long history of being in the public interest of Nevada. As noted by Nevada's Department of Agriculture, "Agriculture is one of Nevada's most important industries, contributing significantly to the economies of rural communities and the state as a whole." *See* http://agri.nv.gov/Administration/Administration/Agriculture_in_Nevada/. As a longstanding contributor to the state economy, particularly in rural areas, Nevada agriculture and its cluster industries have a symbiotic relationship; they provide and receive products and services from each other. Agriculture is a dynamic export-based sector that infuses dollars into the economy and is the basis for the future of economic development. (NDA, 2014, Economic Contribution of Nevada Agriculture, Nevada Department of Agriculture.)

Wilburn Ranch employs approximately six people full time. It indirectly affects 220 jobs at SPI's operations due to the use of SPI's byproduct wood ash as an effective organic soil supplement. The crop production enhancement from the wood ash has been dramatic, and the University of California at Davis has been involved in developing SPI's programs to apply the ash to agricultural lands. As a result, the granting of SPI's applications is in the public interest.

Water is a public resource that should be put to beneficial use. SPI proposes to immediately put the water it seeks to beneficial use in pasture and crop production.

The State Engineer has recognized that public interest can evolve over time. It is clear, based upon the number of protests filed against SPI's applications compared to IWS's applications, that the public is more opposed to IWS's project than SPI's project. Any perceived future benefit of transferring IWS's water from rural to urban areas to support residential and commercial growth must be balanced against the potential impacts to the rural areas from which the water will be exported. Loss of water in rural areas may affect the local economy and environment by taking agricultural and range lands out of production, reducing return flows, vegetation and habitat.

In Ruling 4548, the State Engineer recognized that the Nevada Legislature is becoming increasingly concerned about applications and permits filed for speculation where the sole intent of the applicant is not to place the water to a beneficial use, but merely to profit from the sale of

McDONALD·CARANO·WILSON
100 WEST LIBERTY STREET, 10TH FLOOR • RENO, NEVADA 89501
P.O. BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775-788-2020

water rights to interested parties (p.7). The State Engineer concluded that it would not be in the public interest to approve applications where the applicant has no intention itself of ever building a project, where the applicant cannot demonstrate the financial ability to place the water to beneficial use. The State Engineer further concluded that it would not be in the public interest to approve applications for use upon lands where the applicant does not control both the proposed well locations and the proposed places of use.

In Ruling 6063 and 6095, the State Engineer found that the beneficial use requirement provides that the applicant must demonstrate an actual beneficial use for the water applied for and does not allow for an applicant to tie up water for some project it might find in the future. The State Engineer further found that the Nevada Legislature has demonstrated its concern with speculating in water rights by enacting NRS § 533.370(1)(c), which requires that an applicant provide proof satisfactory of its good-faith intention to actually construct the project with reasonable diligence and that it has the financial ability and reasonable expectation to actually construct the project. The State Engineer concluded that it would threaten to prove detrimental to the public interest to allow an applicant to hold onto a water right application when it is unable to demonstrate an actual project for which the water will be used. *Accord* Ruling 5612.

As a result, SPI believes that IWS's permits and pending water right Applications 66961 and 79548 are detrimental to the public interest. The State Engineer should instead grant SPI's pending Applications 84688 and 84689.

B. SPECIFIC RESPONSES TO PROTEST GROUNDS SUBMITTED BY WASHOE COUNTY

1. *Existing appropriations against the groundwater resources of this basin are at or slightly over the yield estimate. Furthermore, the State Engineer's records indicate an additional 3400 acre-feet of pending applications within this basin.*

2. *NRS 533.370(5) [sic] states that:*

The State Engineer is prohibited by law from granting an application to appropriate the public waters of State of Nevada where:

A. There is no unappropriated water at the proposed source;

McDONALD·CARANO·WILSON
100 WEST LIBERTY STREET, 10TH FLOOR • RENO, NEVADA 89501
PO BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775 788 2020

B. The proposed use or change conflicts with existing rights;

C. The proposed use or change conflicts with protectible (sic) interests in the existing domestic wells as set forth in NRS 533.024; or

D. The proposed use or change threatens to prove detrimental to the public interest.

3. Therefore, based on the foregoing Washoe County request that these applications be denied as granting them would be contrary to items A, B & D of the provisions of NRS 533.370 (5) [sic] listed above.

Refer to the Project Narrative, provided above, to supplement this response to Washoe County's protest grounds listed as Items 1, 2 and 3 above. IWS's 2,996 afa of existing appropriations are unused and are speculative in nature. Therefore, in accordance with the Doctrine of Prior Appropriation, water is currently available for appropriation from Dry Valley without exceeding the perennial yield of the basin. SPI is merely proposing to use water that is unappropriated or that has gone unused, under existing rights, for over 16 years. SPI is not proposing to overdraft or "mine" groundwater from the basin. Applications 84688 and 84689, if granted, would not conflict with existing rights since the water would be used in accordance with the Doctrine of Prior Appropriation and could be further regulated by the State Engineer as necessary. *See* Ruling 5823. In addition, a conflict with existing rights cannot occur when existing water rights are not being used. Only one (1) domestic well is currently in use in Dry Valley. As described above, SPI's proposed use is consistent with the public interest in agriculture, putting water to beneficial use, and avoiding water speculation.

Cumulative impacts to public resources that may be associated with groundwater development in Dry Valley were modeled and assessed as part of the Final Environmental Impact Statement for the North Valleys Rights-of-Way Project. IWS's existing and unused water rights are unduly limiting growth and development in Dry Valley, which threatens to prove detrimental to public interest. There is no current or reasonably foreseeable municipal demand for IWS water from Dry Valley, nor is there any conveyance mechanism for IWS water from Dry Valley to alleviate any shortages. Therefore, granting SPI's applications and denying IWS's applications would be beneficial to public interest.

McDONALD·CARANO·WILSON
100 WEST LIBERTY STREET, 10TH FLOOR • RENO, NEVADA 89501
P.O. BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775-788-2020

C. **SPECIFIC RESPONSES TO PROTEST GROUNDS SUBMITTED BY BUCKHORN LAND & LIVESTOCK, LLC.**

1. *The Dry Valley Hydrographic Basin is currently fully appropriated by existing underground permits as determined by the Nevada State Engineer in Ruling 5568 issued in 2006 (and reinforced in Rulings 5622 and 5897). Current groundwater appropriations total 3,021.6 acre-feet, of which 2,996 acre-feet are issued for municipal use outside of the basin itself.*

2. *Applications 84688 and 84689 seek to appropriate 3,000 additional acre-feet over and above the established perennial yield of Basin 95 and therefore no unappropriated water is available at the source.*

3. *Issuance of additional groundwater rights over and above the established perennial yield of Basin 95 would result in water being removed from storage within the basin, which in turn could cause excessive drawdown to the water table, resulting in adverse impacts to streamflow in Dry Valley Creek and to spring discharge within the said basin and thus adversely affect and conflict with the Protestants' senior surface water rights from Dry Valley Creek and numerous springs within the basin.*

4. *The Protestant has recently granted conservation easements across much of its land to the United States of America. These easements provide for the preservation of open space for the benefit of wildlife and for recreational purposes. The diminished streamflow in Dry Valley Creek and spring discharges within Dry Valley Hydrographic Basin would result in reductions in the amount of water available to both livestock and wildlife within the basin and thus the appropriations being sought threaten to prove detrimental to the public interest.*

5. *Finally, portions of the place of use of these applications (as well as the Point of Diversion for Application 84689) are located in California. These applications area also subject to the provisions of NRS 533.520, in particular those portions whereby the State Engineer, in determining whether or not the use of the water outside the State of Nevada*

///

McDONALD·CARANO·WILSON
100 WEST LIBERTY STREET, 10TH FLOOR • RENO, NEVADA 89501
P.O. BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775-788-2020

complies with the provisions of NRS 533.324 to 533.450 must consider the following factors:

(a) The supply of water available in this State;

(b) The current and reasonable anticipated demands for water in this State;

(c) The current or reasonably anticipated shortages of water in this State;

(d) Whether the water that is the subject of the application in the state could feasibly be used to alleviate current or reasonably anticipated shortages of water in this State;

(e) The demands placed on the applicant's supply of water in the state in which he or she intends to use the water; and

(f) Whether the request in the application is reasonable, taking into consideration the factors set forth in paragraphs (a) to (f), inclusive.

6. Applications 84688 and 84689 fail to provide any information to the State Engineer that would allow him to make a determination as to whether or not these applications comply with NRS 533.324 to 533.450 and thus they are deficient and should be rejected as failing to comply with NRS 533.520.

Refer to the Project Narrative, provided above, to supplement this response to protest grounds submitted by Buckhorn Land & Livestock, LLC as Items 1 through 6, inclusive, above. Of the permitted rights in Dry Valley Basin, 2,996 afa of existing appropriations are unused and are speculative in nature. Therefore, in accordance with the Doctrine of Prior Appropriation, water is currently available for appropriation from Dry Valley without exceeding the perennial yield of the basin. SPI is merely proposing to use water that is unappropriated or that has gone unused, under existing rights, for over 16 years and is not proposing to overdraft or "mine" groundwater from the basin. Applications 84688 and 84689, if granted, would not conflict with existing rights since the water would be used in accordance with the Doctrine of Prior Appropriation and could be further regulated by the State Engineer as necessary to prevent unreasonable drawdown. In addition, a conflict with existing rights cannot occur when existing water rights are not being used. Only one (1) domestic well is currently in use in Dry Valley.

///

McDONALD·CARANO·WILSON
100 WEST LIBERTY STREET, 10th FLOOR • RENO, NEVADA 89501
PO BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775-788-2020

Protestant's concern with its claimed conservation easements granted to the United States, diminished streamflow in Dry Valley Creek and spring discharges is speculative in nature. Cumulative impacts to public resources that may be associated with groundwater development in Dry Valley were modeled and assessed as part of the Final Environmental Impact Statement for the North Valleys Rights-of-Way Project. Indeed, one of the proposed diversion points for the IWS project is on Buckhorn Land & Livestock, LLC's property. SPI's proposed use will keep the non-consumptive use portion of the water in the Dry Valley Basin, allowing percolation and a source of secondary recharge to the groundwater. If the State Engineer determines that the basin needs additional regulation, he can impose additional conditions on SPI's water use. *See, e.g.*, Ruling 5823.

SPI's proposed use of some of the water in California will not affect the supply of water available in Nevada, the current and reasonable anticipated demands for water in this State, or the current or reasonably anticipated shortages of water in this State. Groundwater in Dry Valley Basin flows from Nevada into California from Upper Dry Valley to Lower Dry Valley. SPI's proposed use of water in California will allow for the beneficial use of the water in this State before it flows down gradient into California. Moreover, SPI proposes to use water in Nevada that is diverted from California point(s) of diversion. As a result, SPI's Applications are reasonable and its proposed use will not affect shortages or the alleviation of shortages in Nevada.

///

///

///

///

///

///

///

///

///

///

McDONALD·CARANO·WILSON LLP
100 WEST LIBERTY STREET, TENTH FLOOR • RENO, NEVADA 89501
PO BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775-788-2020

D. REFERENCES

Berger, D.L., Maurer, D.K., Lopes, T.J., and Halford, K.J., 2004, *Estimates of Natural Groundwater Discharge and Characterization of Water Quality in Dry Valley, Washoe County, West-Central Nevada, 2002-2003*, Special Investigations Report 2004-5155, U.S. Geological Survey.

BLM, 2005, Nevada BLM, *North Valleys Rights-of-Way Projects, Final Environmental Impact Statement, Volumes I – IV*, U.S. Bureau of Land Management, October, 2005.

BLM, 2006, Nevada BLM, *North Valleys Rights-of-Way Projects, Record(s) of Decision, and Approval of Issuance of Right-of-Way Grants*, U.S. Bureau of Land Management.

Huntington, J.L. and Allen, R.G., 2010, *Evapotranspiration and Net Irrigation Water Requirements for Nevada*, Nevada Division of Water Resources (January 2010).

Nevada Department of Conservation and Natural Resources (NDCNR), 2008, *State Engineer's Ruling No. 5823*, Nevada Division of Water Resources.

Nevada Department of Conservation and Natural Resources (NDCNR), 2008, *State Engineer's Ruling No. 5897*, Nevada Division of Water Resources.

Nevada Department of Conservation and Natural Resources (NDCNR), 2010, *State Engineer's Ruling No. 6063*, Nevada Division of Water Resources.

Nevada Department of Conservation and Natural Resources (NDCNR), 2006, *State Engineer's Ruling Nos. 5568 and 5622*, Nevada Division of Water Resources.

Nevada Department of Conservation and Natural Resources (NDCNR), 2013, *State Engineer's Ruling No. 6227*, Nevada Division of Water Resources.

Nevada Department of Conservation and Natural Resources (NDCNR), 2013, *State Engineer's Ruling No. 6229*, Nevada Division of Water Resources.

Nevada Department of Conservation and Natural Resources (NDCNR), 2011, *State Engineer's Ruling No. 6095*, Nevada Division of Water Resources.

Rush F.E. and Glancy, P.A., 1967, *Water Resources Appraisal of Warm Springs-Lemmon Valley Area, Washoe County*, Nevada, Reconnaissance Report 43, U.S. Geological Survey.

Smith, D.L. and Katzer, T.C., 2000, *Hydrogeology of Dry Valley, Washoe County, Nevada*, Stantec Consulting and Cordilleran Hydrology.

Smith, D.L., 2006, *Summary of Exploration Drilling, Test Well Construction and Pumping Tests, Dry Valley Hydrographic Basin, Washoe County, Nevada*, Interflow Hydrology.

SWRCB, 1976, *Long Valley Creek Adjudication and Lassen County Superior Court Decree No. 12999, In the Matter of the Determination of the Rights of Various Claimants to the Waters of Long Valley Creek Stream System within Lassen, Sierra and Plumas Counties, California*, California State Water Resources Control Board.

Thomas, J.M., and Albright, W.H., 2003, *Estimated Groundwater Recharge to Dry Valley using the Chloride Mass Balance Method*, Publication No. 41191, Desert Research Institute.

McDONALD·CARANO·WILSON

Xu, A., and Donahoe, T.P., 2007, *Pumping Test Report, Winnemucca Ranch Test Well, Winnemucca Ranch, Washoe County, Nevada*, TEC Civil Engineering Consultants.

Sierra Pacific Industries website (http://www.spi-ind.com/, last accessed May, 2015)

E. CONCLUSION

For the foregoing reasons, SPI respectfully requests that the Nevada State Engineer overrule the protest grounds proffered by the protestants and grant Permits for Applications 84688 and 84689 without the necessity of an administrative hearing or formal field investigation.

Dated: May 21, 2015.

McDONALD CARANO WILSON LLP

By: Debbie Leonard

Debbie Leonard
100 West Liberty Street, 10th Floor
Reno, Nevada 89501
(775) 788-2000

Attorney for Applicant
Sierra Pacific Industries

McDONALD·CARANO·WILSON LLP
100 WEST LIBERTY STREET, 10TH FLOOR • RENO, NEVADA 89501
PO BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775-788-2020

CERTIFICATE OF SERVICE

Pursuant to NRCP 5(b), I hereby certify that I am an employee of McDONALD CARANO WILSON LLP and that on May 21, 2015, I served SIERRA PACIFIC INDUSTRIES's ANSWER TO PROTESTS on the protestants by placing a true copy thereof enclosed in sealed envelopes with postage prepaid thereon in the United States Post Office mail at 100 West Liberty Street, 10th Floor, Reno, Nevada 89501 addressed as follows:

Washoe County, Nevada
Attn: Vahid Behmaram
P.O. Box 11130
Reno, NV 89520-0027

Buckhorn Land and Livestock, LLC
500 Damonte Ranch Parkway, Suite 980
Reno, NV 89521

I am familiar with the firm's practice for collection and processing of correspondence for mailing with the United States Postal Service.

The envelopes addressed to the above parties were sealed and placed for collection by the firm's messengers and will be deposited today with the United States Postal Service in the ordinary course of business.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 21, 2015, at Reno, Nevada.

An employee of McDonald Carano Wilson LLP

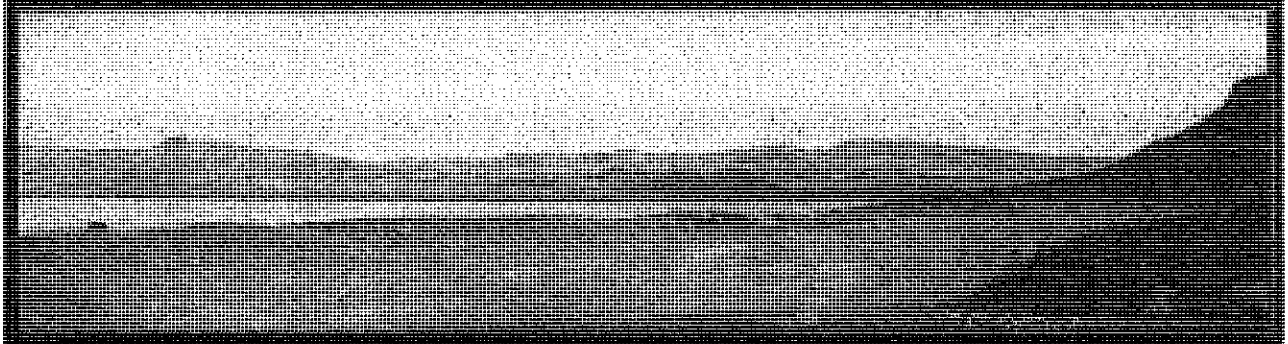
McDONALD·CARANO·WILSON
100 WEST LIBERTY STREET, 10TH FLOOR • RENO, NEVADA 89501
PO BOX 2670 • RENO, NEVADA 89505-2670
PHONE 775-788-2000 • FAX 775-788-2020

EXHIBIT 1

EXHIBIT 1

NevadaWaterProject.com

Home



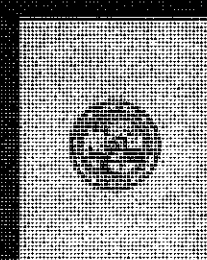
Offered for $12,000,000

This 22 mile long, federally approved, proposed pipeline along with 3068.1 acre feet of water is for sale in northern Nevada. It's ready for implementation.

Delivery

Maps

Engineering Reports



Federal and State Permitting

Contact Us

NevadaWaterProject.com

Home

Details

This water project is located in northern Nevada, U.S.A. just above the city of Reno. The project consists of a 23 mile proposed pipeline and 7 production water wells bringing a total of 2988+ acre feet of water into the Reno/Sparks metropolitan area.

All rights-of-way now exist to construct the project across Federal, State, County and Private land. (An extensive Environmental Impact Statement and Environmental Assessment were conducted to achieve most of these rights-of-way.)

Encouraging pump tests have been performed and electrical power needs and rights-of-way are in place with the local utility provider. All water rights are secured and permitted by the State Engineer of Nevada (permit numbers can be furnished.)

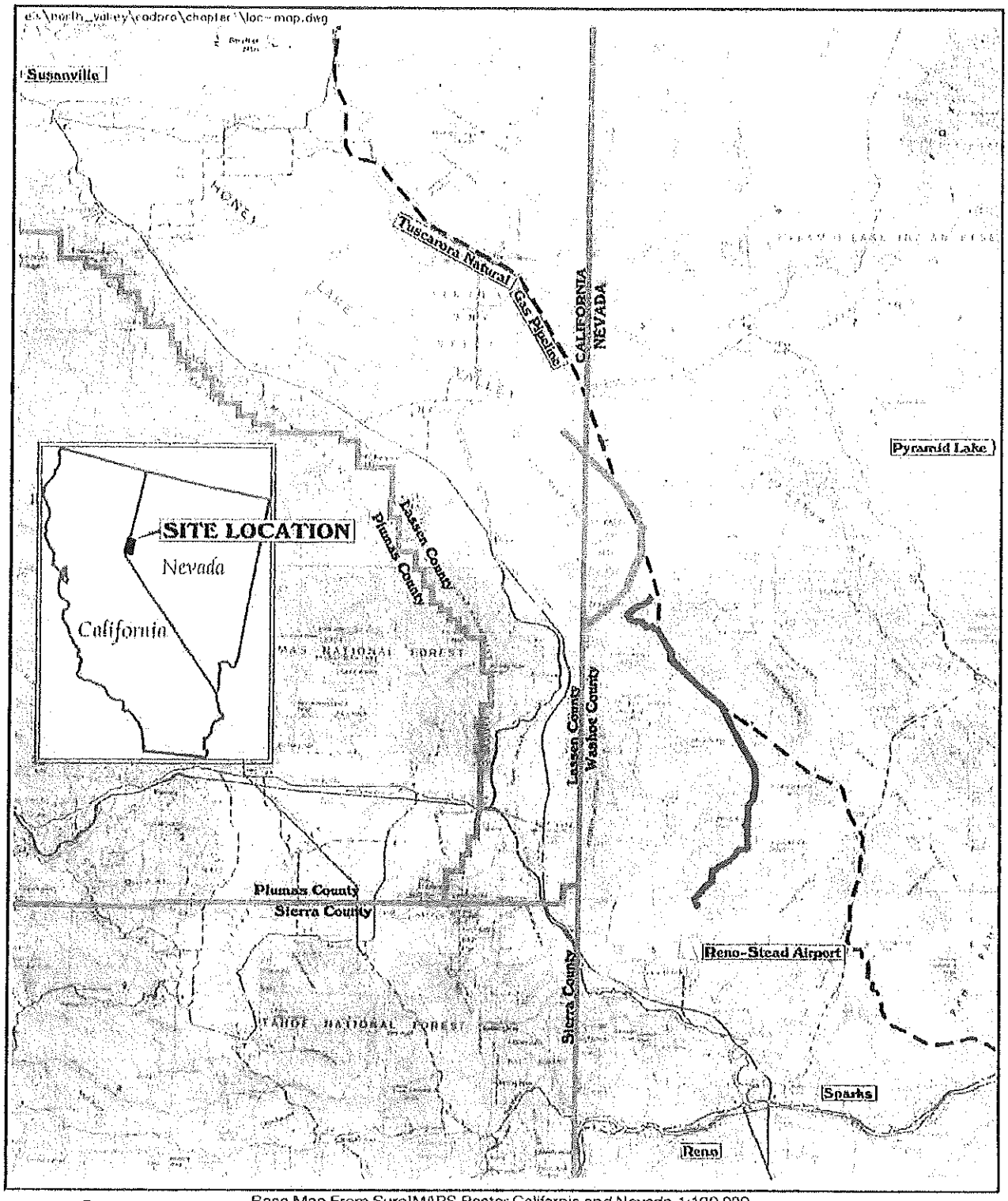
This project is owned by Intermountain Water Supply, LLC. Please email us for more information about purchasing.

http://www.nevadawaterproject.com/details-nevadawater.html 5/20/2015

NevadaWaterProject.com

Home

Maps



Base Map From SurelMAPS Raster California and Nevada 1:100,000

N

0 Miles 8

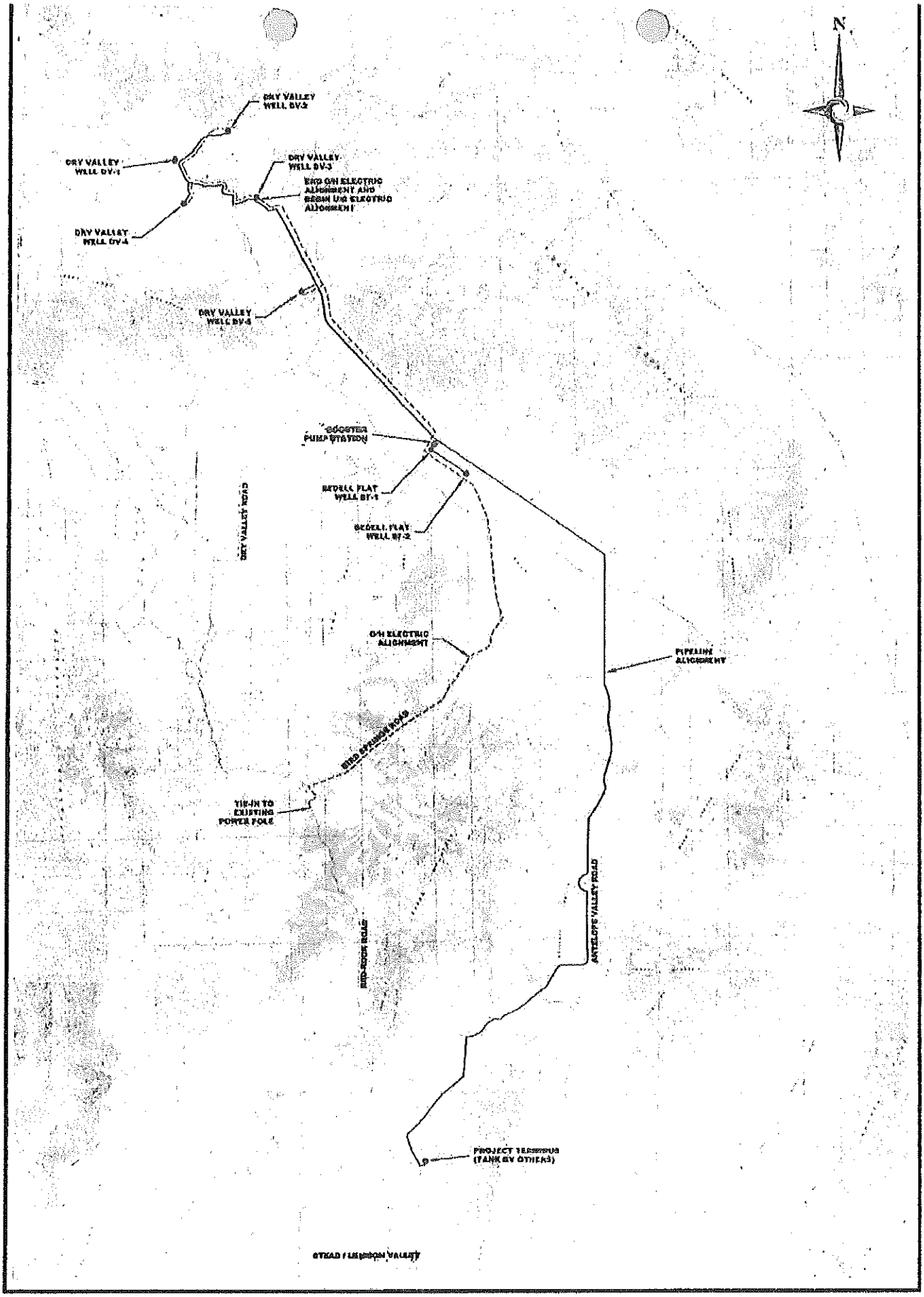
Proposed Intermountain Water Supply Waterline

Tuscarora Natural Gas Pipeline

Alturas Powerline

NevadaWaterProject.com

Washoe County, Nevada



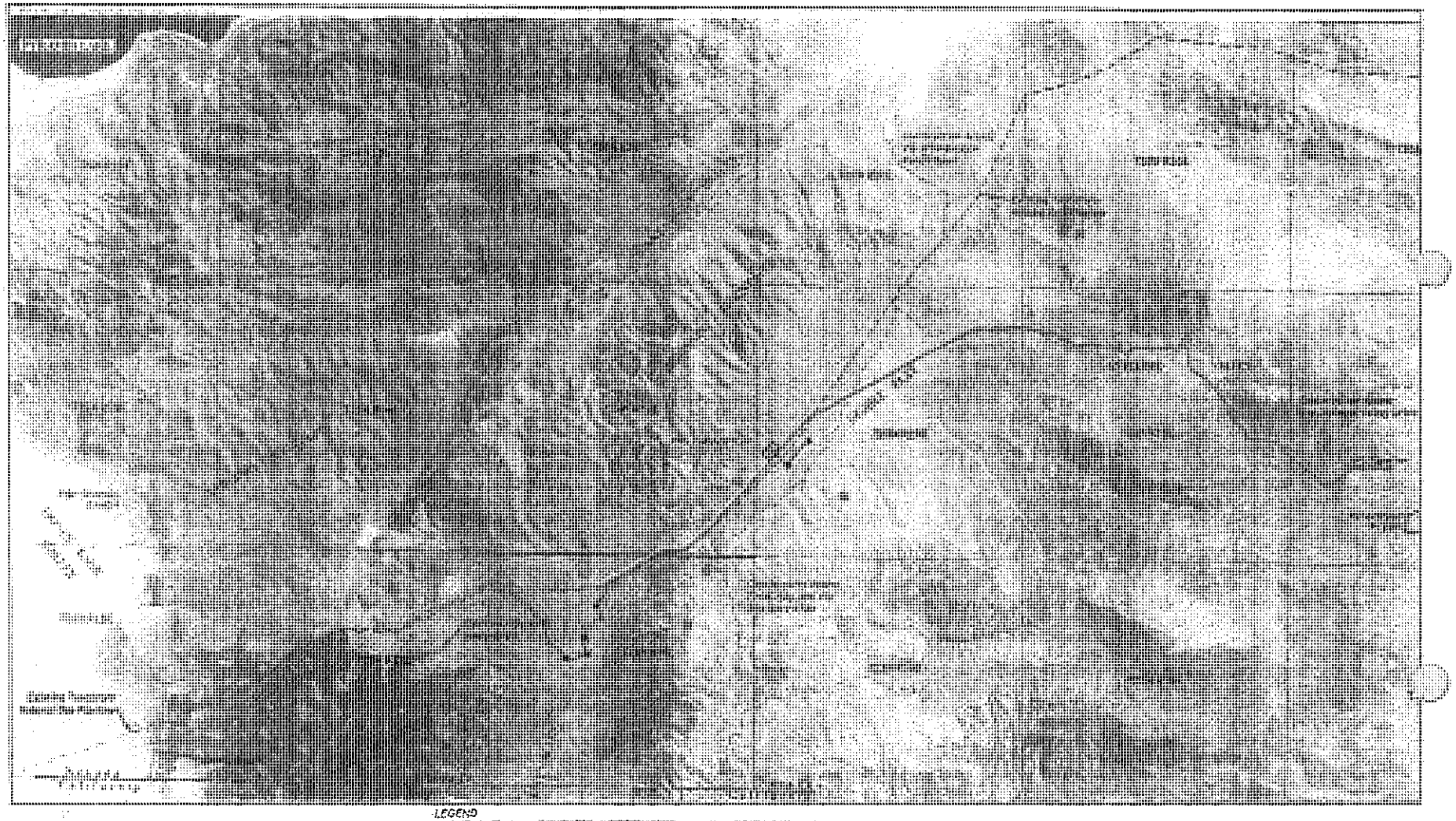
NevadaWaterProject.com

INTERMOUNTAIN WATER SUPPLY, LTD.

PROJECT ALIGNMENT MAP

SCALE: 1" = 8,000'

SPI APP 174



LEGEND

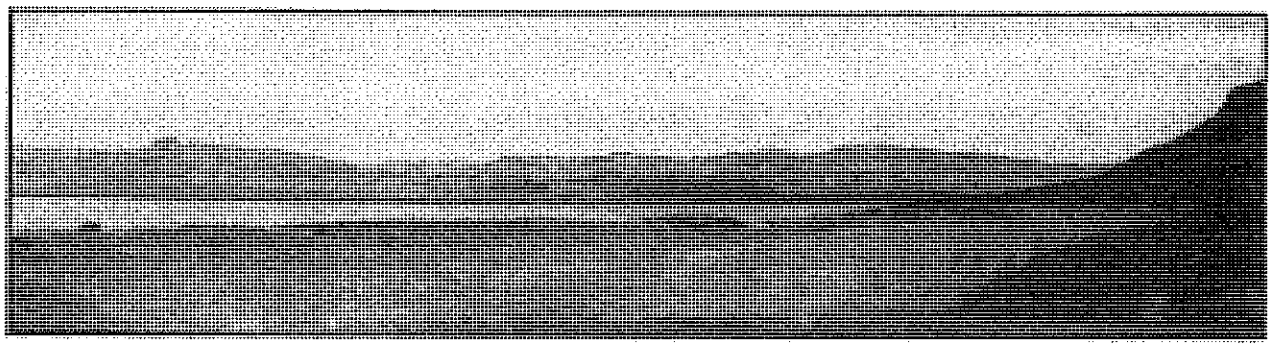
- IWS — INTERMOUNTAIN WATER SUPPLY
- PROPOSED ACCESS ROUTES
- TUSCARORA NATURAL GAS PIPELINE
- ALTURAS POWERLINE
- TOWNSHIP AND RANGE
- PROPOSED IWS WATERLINE
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED ABOVEGROUND ELECTRIC
- IWS WELL
- RADIO TELEMETRY SITE

N

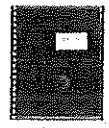
0 Miles 2

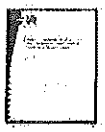
Site Map
NEVADAWATERPROJECT.COM
Washoe County, Nevada

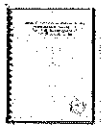
Home



Studies and Reports







JA0231

NevadaWaterProject.com

Home

Federal and State Permitting

Environmental Impact Statement 2006

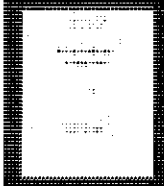
Proposed Right-of-way Grant 2006

BLM Right-of-way Grant 2007

Nevada County Special Use Permit 2008

Plan of Development 2007

Public Utilities Commission of Nevada UEPA Division 2007



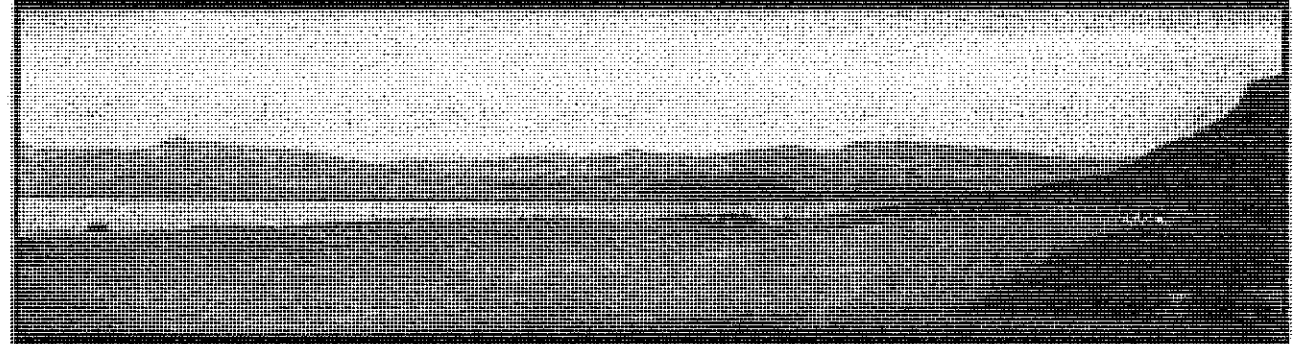
Pennsylvania Environmental Assessment 2008

SH-APP-177

SE ROA 189

JA0232

NevadaWaterProject.com



Contact Us

SPI APP 178

SE ROA 190

JA0233

2011-2030 Comprehensive Regional Water Management Plan

January 14, 2011

SPI APP 179

2011 – 2030

Comprehensive Regional Water Management Plan

January 14, 2011

Acknowledgements

Western Regional Water Commission
Mike Carrigan, Chairman, Truckee Meadows Water Authority
Dave Aiazzi, Vice-Chairman, City of Reno
John Breternitz, Washoe County
Bob Cashell, Truckee Meadows Water Authority
Steve Cohen, South Truckee Meadows General Improvement District
Patricia Lancaster, Sun Valley General Improvement District
Bob Larkin, Truckee Meadows Water Authority
Geno Martini, Truckee Meadows Water Reclamation Facility

Northern Nevada Water Planning Commission

Voting Members
John Erwin, Chairman, Truckee Meadows Water Authority
Jerry Schumacher, Vice-Chairman, South Truckee Meadows General Improvement District
George Ball, Washoe County Water Conservation District
Michael J. DeMartini, Domestic Wells Owner Representative
John Flansberg, City of Reno
Mickey Hazelwood, Public at Large
John Jackson, Pyramid Lake Paiute Tribe
Rosemary Menard, Washoe County
Darrin Price, Sun Valley General Improvement District
Neil Krutz, City of Sparks
Stan Shumaker, Truckee Meadows Water Reclamation Facility

Non-Voting Members
John Bird, Public at Large
Mark Clarkson, Public Utilities Commission
Harry Fahnestock, Nevada Landscape Association
Kelvin Hickenbottom, State Engineer's Office
Jon Palm, State of Nevada NDEP

Staff
Jim Smitherman
Chris Wessel
June Davis

Cover photo © 2009 by June L. Davis, Sparks, Nevada

2011 – 2030 Comprehensive Regional Water Management Plan

Requirement	Action
1. Northern Nevada Water Planning Commission public hearing and recommendation to Western Regional Water Commission Board of Trustees for approval and adoption, Sec. 45, Chapter 531, Statutes of Nevada 2007	Public hearing and recommendation by Resolution No. 10-2 on December 1, 2010
2. Western Regional Water Commission Board of Trustees public hearing and adoption of Plan, Sec. 46, Chapter 531, Statutes of Nevada 2007	Public hearing and adoption by Resolution No. 4 on January 14, 2011
3. Truckee Meadows Regional Planning Commission review for consistency with the Truckee Meadows Regional Plan, Sec. 43, Chapter 531, Statutes of Nevada 2007	Public hearing and finding of consistency on May 11, 2011

Executive Summary

1. Introduction

The Western Regional Water Commission ("WRWC") was created in 2007, effective April 1, 2008, by the Nevada Legislature, and by Cooperative Agreement among the WRWC member agencies. Chapter 531, Statutes of Nevada 2007, the Western Regional Water Commission Act (the "Act") also created the Northern Nevada Water Planning Commission ("NNWPC") and required the NNWPC to develop a comprehensive regional water management plan for the Planning Area covering municipal and industrial water supply, water quality, sanitary sewerage; sewage treatment, storm water drainage and flood control. The overall purpose is to deal with current and future problems affecting the Planning Area as a whole with respect to the subjects of the plan. The Act further requires the NNWPC to develop the initial *2011-2030 Comprehensive Regional Water Management Plan ("Regional Water Plan")* on or before January 1, 2011.

The *Regional Water Plan* compiles and integrates multiple sources of information in an effort to be inclusive, provide comprehensive, consistent policy-level guidance to regional and local entities and comply with the Act. The plan development process provided a broad level of coordination, data sharing and alternatives analysis that would not have otherwise occurred. The *Regional Water Plan* is not an enforcement-oriented plan and relies on the cooperation and collaboration of the WRWC member agencies, NNWPC members and local and regional government planning agencies for implementation.

Among the most valuable elements of the *Regional Water Plan* is the development of goals and policies to deal with current and future problems affecting the Planning Area. These policies provide a set of consistent guiding principles for public purveyors, other service providers and local and regional government planning agencies to consider when developing their plans and reviewing the plans of others.

Outcomes of plan implementation should include cost-efficient, integrated water-related services provided by public purveyors and local governments to current and future citizens of the Planning Area.

2. Policies

Background

The Act includes among the required contents of the *Regional Water Plan*, appropriate goals and policies to deal with current and future problems affecting the Planning Area. This Plan identifies the Planning Area's water-related needs over a 20-year timeframe, the constraints on meeting those needs and pertinent background information. To adequately evaluate alternatives for meeting the Planning Area's needs and to evaluate future projects for conformance with this Plan, the following policies will apply for the supply of municipal and industrial water, sanitary sewerage, treatment of sewage, drainage of storm water, and control of floods.

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 in additional hydrographic basins shall conform to the Regional Water Plan if 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 and maintain a healthy river environment, recreational opportunities, and economic development.

Policy 1.1.b: Water Conservation

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

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.

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.

Policy 1.1.e: Water Meters

Water purveyors within the Planning Area 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 9-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, plus one dry year (1987) added to the cycle.

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 ("TMSA") boundary, or there is a need for additional water resources to meet other regional objectives, the NNWPC may investigate alternatives to meet the potential water requirement.

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 meet all indoor water uses, and 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.

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

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

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 ("WCDHD") (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 review processes for new business or development.

Policy 1.3.b: Protection and Enhancement of Groundwater Recharge

Natural recharge areas shall be defined and protected for aquifer recharge. Applicants for 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.

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.

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.

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.

Policy 1.3.f: 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.

Policy 1.3.g: Corrective Action for Remediation of Groundwater

The corrective action taken for remediation of groundwater contamination is typically driven by public health and environmental concerns, and applicable local, state and federal regulations. Realizing this, the affected community shall consider the cost and level of cleanup for groundwater remediation.

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

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 Truckee Meadows Water Reclamation Facility ("TMWRF").

Objective 2.2 Manage Wastewater for Protection and Enhancement of Water Quality

Policy 2.2.a: Septic Tank Density and Groundwater Pollution

Future development using septic systems should not be allowed in densities that would risk groundwater or surface water quality degradation such that applicable water quality standards are threatened. When adverse surface water or groundwater impacts occur as a result of existing or proposed increases to the concentration of septic systems in an area, alternative sewage disposal, groundwater treatment, or other mitigation measures must be implemented based on cost, longevity of the solution, and existence of a credible entity to be responsible for the continuing performance of the selected system.

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 for the Truckee River

The NNWPC will review the regional Flood Plain Management Plan for the Truckee River watershed and forward its recommendations to local governments.

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 a Flood Plain Management Plan for the Truckee River, the local flood management staff[1], using the best technical information available and applicable local ordinances, 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 experienced during the 1997 flood. On an annual basis, all three local flood management agencies and the Flood Project shall jointly agree on and adopt the "best technical information" available for use in implementation of this policy.

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

As appropriate, the local flood management staff will work with proposed project applicants or proposed land use applicants 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.

Policy 3.1.d: Truckee River Restoration

In review of proposed projects and proposed land use changes within the areas identified for restoration in Figures 5-4 and 5-5, 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 Project being developed in conjunction with the Army Corps of Engineers ("ACOE").

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.

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 sources.

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 NNWPC for review, comment, and recommendations prior to incorporation into local government master plans.

---

[1] 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.

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.

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

Facility plans and infrastructure studies for flood control projects developed by local governments will be reviewed by the NNWPC according to Policy 4.1.a 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 Truckee Meadows Regional Plan

Objective 4.1 Coordinated Infrastructure Planning

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

Pursuant to Section 51 of the Act, facilities of a kind or size that affect the working of the Regional Water Plan as distinct from providing normal service to customers, including water supply and storage, wastewater collection and treatment, storm water, and flood control, shall be reviewed by the NNWPC for conformance with the Regional Water Plan, and recommended to the WRWC.

Policy 4.1.b: Timing and Sizing of Facilities

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

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

All the policies and criteria for facility plan review adopted by the NNWPC shall be consistent with and carry out the provisions of the 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.

Policy 4.1.e: Economic Decision-Making Criteria

NNWPC recommendations regarding economic decisions shall be, to the extent possible, based on 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: 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.

Objective 4.2 Clarification of the Role of the WRWC and the NNWPC

Policy 4.2.a: Role of NNWPC in Water Related Issues

The NNWPC shall address a water-related matter, consistent with its responsibilities as described in the Act.

Policy 4.2.b: Role of WRWC in Water Related Issues

The WRWC shall address a water-related matter, consistent with its purposes, powers and responsibilities as described in the Act.

3. Findings

The *Regional Water Plan* contains numerous findings relative to the subjects of the Plan, which are summarized below.

Water Resources

For the 2010-2030 planning horizon, sustainable water resources are estimated at approximately 183,000 acre feet per year ("afa"), including resources presently dedicated for municipal and industrial ("M&I") uses and those that may be converted from other uses to M&I. This planning-level estimate of available resources, however, should not be considered a commitment to, nor a guarantee of, the availability of a water allocation for any specific project or parcel.

Recent data show that more than 37,000 afa of reclaimed water is generated in the Planning Area, of which approximately 6,000 afa are used for non-potable purposes such as irrigation, construction and dust control; the remainder is discharged to the Truckee River, Swan Lake wetlands or to the ground via infiltration basins. The Nevada Division of Environmental Protection ("NDEP") is developing amendments to its reclaimed water regulations that are anticipated to allow for groundwater recharge using highly treated reclaimed water.

The primary water rights that applicants for new water service dedicate to the Truckee Meadows Water Authority ("TMWA") or Washoe County Department of Water Resources ("WCDWR") are mainstem Truckee River water rights. Although the number of remaining Truckee River mainstem irrigation water rights available for conversion to M&I use continues to decrease, analysis in TMWA's *2030 Water Resource Plan* shows that over 50,000 acre feet ("af") of Truckee River mainstem rights are potentially available for dedication to TMWA or WCDWR to support future will-serve commitments, and this amount is more than enough to meet TMWA's future water rights requirements through the planning horizon.

When implemented, the *Truckee River Operating Agreement* ("*TROA*") will allow for a congressionally authorized interstate allocation of water and change the operations of the Truckee River system to accommodate multiple beneficial uses for drought supply, endangered

and threatened fish species, water quality, California water use, and storage. In addition, operations will enhance riparian habitat, reestablish river canopy, enhance reservoir releases, improve recreational pools in the reservoirs, and improve the process for emergency drawdown procedures for Lake Tahoe. Although *TROA* was signed on September 6, 2008 by the Mandatory Signatory Parties (TMWA, Pyramid Lake Paiute Tribe ("PLPT"), California, Nevada, and the United States) and seven other parties, a number of contingencies have been satisfied since *TROA*'s execution, while others, primarily litigious actions, need resolution before the agreement can be implemented.

As much as 8,000 afa of groundwater is available for importation from the Honey Lake Valley hydrographic basin to Lemmon Valley by way of existing infrastructure. The timing of such groundwater importation will depend on future land development projects in Lemmon Valley.

The most imminent threats to the reliability of the Planning Area's water supplies are weather and source water supply contamination, both of which may affect the quantity and quality of available water supplies. Numerous purveyor programs are in place within the Planning Area to address existing problems and threats having the potential to affect available water supplies.

Water Purveyors and Other Water Providers

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

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

A small number of privately owned public utilities exist in the Planning Area, which are regulated by the Public Utility Commission of Nevada ("PUC"). Numerous other small private water systems exist which are solely regulated by the 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 allowable for parcels where municipal service is not available. A major 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; City of Reno, City of Sparks and WCDWR. Reno and Sparks co-own TMWRF, which supplies approximately 4,000 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.

Wastewater and Watershed-Based Water Quality Planning

Facilities

The five publicly owned wastewater treatment facilities in the Planning Area are each processing sewage at average daily flows well below maximum capacities.

Reclaimed Water

The North Valleys Initiative process showed that reclaimed water can satisfy multiple purposes with the appropriate level of treatment for each specific use.

Expanded use of reclaimed water is feasible and could include uses such as residential landscape irrigation and groundwater recharge or indirect potable reuse ("IPR"). Such uses are being studied with respect to regulatory issues, treatment technologies and public perception. Public involvement will be an important aspect of the decision-making process concerning expanded uses of reclaimed water.

Septic Systems

An Oregon study of nitrogen-reducing septic systems installed at residences found that, although several systems showed high levels of nitrogen reduction in test centers, they did not perform as well in the field. Nitrogen reduction below 10 milligrams per liter ("mg/L") appears to be difficult to achieve consistently without a secondary carbon source. Conversion of septic systems to a municipal sewer system appears to be the most reliable, albeit expensive, mitigation of nitrate contamination due to high densities of septic systems. Artificial groundwater recharge using fresh water injected into the aquifer, such as in Golden Valley, has also proven beneficial in improving water quality with respect to nitrate.

Watershed / Water Quality

The Truckee River water quality standard for total phosphorus was established by the state using a national guideline, rather than a site-specific approach. With advancement in the understanding of Truckee River functions and processes, a site-specific standard can be developed that is protective of the river and its beneficial uses without being overly restrictive.

The current Storm Water National Pollutant Discharge Elimination System ("NPDES") permit was issued to Reno, Sparks and Washoe County on May 26, 2010, and requires an update of the Storm Water Management Program within 18 months of the issue date (November of 2011).

Based upon conversations with NDEP and observations of national regulatory trends, the Storm Water Permit Coordinating Committee anticipates that there will be a waste load allocation ("WLA") assigned to Truckee Meadows storm water in the future.

Flood Management and Storm Water Drainage

Riverine flooding and alluvial fan flooding are both common in northern Nevada. Riverine flooding occurs when flows in rivers and streams rise over a period of hours or days and overtop

stream banks inundating nearby flood plains and low-lying areas. Alluvial fan flooding occurs when floodwaters emerge from a canyon flowing out of the upper mountains onto an alluvial fan, typically with little or no warning, and travel downstream at very high velocities carrying significant loads of sediment and debris.

Physical damages and economic impacts resulting from the 1997 Truckee River flood (the largest flood of record) totaled about $700 million[2] in Washoe County and $1 billion in the six-county area hit by the flood in northern Nevada. The property at risk from a 100-year flood in the Truckee Meadows was valued by Washoe County in 2004 at approximately $5 billion using a geographic information system ("GIS") compilation of the 1997 flood boundary and the assessed value for parcels within the boundary. A 2007 analysis by the Nevada Bureau of Mines and Geology ("NBMG") using a Federal Emergency Management Agency ("FEMA") loss estimation model to estimate 100-year flood risk in Washoe County estimated building exposure, a measure of the economic wealth of the county, at $25 billion and building-related economic losses at $980 million (NBMG, 2007).

Incorporation of hydrologic data since the mid-1980s has resulted in estimated peak flow for specific frequency events higher than originally thought[3]. The 100-year flood event (or one-percent risk flood) at Reno is now estimated to be 20,700 cubic feet per second ("cfs"). Peak flows for certain frequency events are shown below:

Exceedance (i.e., chance of occurrence in any single year)	**Peak Flow (cfs)**
1/20	9,200
1/50	14,800
1/100*	20,700
1/500	63,000

Source: ACOE

* Flooding that has a one-percent chance of being equaled or exceeded in any given year, also referred to as a 1 in 100 year flood event or a 100-year flood. Note: The USGS, using a different analysis technique to account for upstream reservoirs estimates the 1/100 peak flow to be approximately 26,000 cfs.

The peak water surface elevation for the January 1997 flood, considered to be slightly greater than the 100-year flood event, was approximately 1.6 feet higher than the existing FEMA base flood elevation at the Vista gage. Therefore the actual 100-year flood levels are higher than those shown on FEMA flood maps especially in the area east of U.S. Highway 395, with the greatest difference occurring east of McCarran Boulevard. Structures built to current FEMA standards within the area approximately bounded by Rock Boulevard, Interstate 80, and Mira Loma Boulevard are not necessarily protected during a 100-year flood event despite the depictions on the FEMA flood maps.

[2] In 1997 dollars. The ACOE estimated physical National Economic Development ("NED") Plan damage at about $500M. The Truckee River Water Management Council did an economic impact study that concluded total damage to be $780M.

[3] In the 1985 feasibility report for the Truckee River Flood Project, the estimated discharge for the 100-year event at Reno was computed at approximately 18,500 cfs. This flow has been used by FEMA to identify areas subject to flooding for flood insurance purposes.

FEMA maps were adopted for the region in 1984. Local ordinances were adopted shortly thereafter requiring the first floor of structures to be elevated either one or two feet above the FEMA base flood elevation. Structures constructed after 1984 were generally built in compliance with these ordinances and are at less risk of flooding, while structures constructed prior to 1984 are at higher risk. However, many of the FEMA current flood maps are off by 0.5 to 1 foot as demonstrated in the 1997 flood, during which some homes experienced flooding unexpectedly.

As land uses change in the Truckee River watershed, both runoff volumes and velocity of flows typically increase. This is reflected in changes in the shape and size of the hydrographs of flows entering the Truckee River at places such as the North Truckee Drain, Boynton Slough, Dry Creek, Evans Creek, and Steamboat Creek. Without mitigation, these changes could affect the functioning of the Truckee River Flood Project by causing higher peak flood elevations, thus reducing the effectiveness of the project and reducing the level of protection.

Population Forecast and Projections of Water Demand, Peak Day Requirements and Wastewater Flow

On April 9, 2010, the WRWC determined and made a finding that the draft Washoe County Consensus Population Forecast for 2030 is less than the estimated population that can be supported by the sustainable water resources identified in the *Regional Water Plan*. The finding was transmitted to the Truckee Meadows Regional Planning Agency ("TMRPA"), Reno, Sparks and Washoe County in May 2010.

The Washoe County Consensus Forecast is adequate for 20-year, county-wide population projections, but it is not adequate for facility planning as performed by public purveyors and other water-related utilities or for disaggregation to utility service areas.

A Regional Water Balance Flow Diagram has been developed, which is a graphical representation of the existing conditions (Figure 6-2) and the projected 2030 future conditions (Figure 6-3) for the water supply, wastewater treatment, reclaimed water and wastewater disposal requirements. The following conclusions can be drawn from this evaluation:

Water Resources

Overall, the region has available water resources to meet the projected 2030 increase in demand particularly for the Truckee Meadows, Sparks and South Truckee Meadows planning areas. These water resources include the *TROA* water supplies, the Fish Springs Water Importation Project, local basin groundwater supplies, and local tributary creeks including Galena, Thomas, Whites, Brown's and Steamboat Creeks. In addition to these water resources, the region has reclaimed water resources available for multiple uses from TMWRF, STMWRF, RSWRF and Cold Springs Water Reclamation Facility ("CSWRF").

In several planning areas, however, there are water supply imbalances that will need to be addressed over the long term. In particular, the demands from domestic wells and permitted municipal groundwater pumping in Cold Springs Valley, Lemmon Valley and Spanish Springs Valley exceed the respective State Engineer estimates of perennial yield of each basin. This is an issue that affects both existing and future water users, and exists under both current and projected 2030 conditions.

There will continue to be local area impacts within portions of these areas where mitigation of groundwater level declines and impacts to shallow domestic wells will continue to be necessary. The Mt. Rose fan area is an example of this situation.

Wastewater

Long term disposal and reuse of treated effluent will be a challenge throughout the different planning areas. Cold Springs and Lemmon Valley generally have sufficient disposal capacity to meet the projected needs until 2030. However, future disposal options will need to be identified to accommodate planned development beyond the 2030 time horizon.

In the Central Truckee Meadows, Sparks and Spanish Springs areas, discharge to the Truckee River through TMWRF may be limited in the future by several constraints. Roughly 7,700 af of additional disposal capacity will be required.

In the South Truckee Meadows area, 100 percent of the reclaimed water is used for irrigation. Based on the 2030 flow projections, approximately 5,700 af of additional water reclamation or disposal capacity will be required.

Water Conservation Plan - Efficient Use of Water

Water conservation ordinances will be retained by each of the jurisdictions in the Planning Area. All public purveyors in the Planning Area are essentially fully metered.

Increased use of reclaimed water and other non-potable water sources may be implemented subject to federal, state, local and WCDHD regulations, and to the extent supplies are available from TMWRF, RSWRF and STMWRF.

Additional conservation actions during droughts will be required when Floriston rates cannot be met during the irrigation season; however, there will be sufficient water for essential public health and safety needs, even during the worst drought years or during an emergency event.

TMWA has succeeded in retrofitting its flat-rate-residential services to meters thereby enabling TMWA's Board of Directors to modify the current watering schedule from two-day-a-week to three-day-a-week watering. Detailed studies indicated that (1) more than one-half of all customers currently water more than twice a week; (2) a change from two-day-a-week to three-day-a-week watering would not be expected to increase peak day water demand, and in fact may result in a decrease in peak day water use; and (3), total water use during the peak week would not be expected to change. Based on these studies and the fact that TMWA's system is essentially metered (fulfilling a *TROA* water conservation requirement), TMWA revised its watering schedules in 2010.

Cost and Financing

At present, the need to invest in new facilities for additional capacity to serve new development has diminished. Over the last several years, there has been a decrease in both water use and flows to the wastewater treatment plants. This reduction in water demand and wastewater flow has created under-utilized capacity within major facilities. This excess capacity will allow the utilities and local governments to defer major capital expenditures for new capacity. This is in

sharp contrast to the projected expenditures reported in the *2009 Regional Water Plan Amendment*.

The need to provide for on-going repair and replacement of existing infrastructure remains a high priority. Approximately $144 million per year is projected to be spent on all water-related improvement projects over the next five years. Much of this funding is intended for implementation of the Truckee River Flood Project ("Flood Project"), and for existing facility repair and replacement programs. The timing of these improvements, both capital expenditures for existing and new, will be pursued as funding becomes available based on prioritization of need. Projected five-year cost requirements for water, wastewater and storm water facilities are shown below, in millions of dollars:

	User Rates*	Developer Fees	Sales Tax	Total
Washoe County	$36.2	$13.1		$49.3
City of Reno	99.3	11.5		110.8
City of Sparks	68.8	12.5		81.3
Truckee Meadows Water Authority	64.4	10.5		74.9
SVGID	1.5	3.4		4.9
Truckee River Flood Project	375.0	0.0	25.0	400.0
Total	$645.2	$51.0	$25.0	$721.1

* Includes funding from grants and loans

Based on "typical costs" for water rights, water connection fees and sewer connection fees, the estimated costs per equivalent residential unit ("ERU") for new water and sewer service are estimated as follows:

Water Rights	$4,700
Water Connection Fees	5,200
Sewer Connection Fees	5,900
Total Developer Fees	$15,800

Local governments and utilities plan for the ongoing repair and replacement of the existing infrastructure, which is critical to provide essential public health and safety services, and maintain the useful life of the infrastructure assets as a whole. Roughly $50 million per year should be reinvested to maintain the existing water and wastewater utility assets. This corresponds to the estimated annual and monthly rate amounts shown below. Significant portions of these costs are being collected in existing rates; however, the actual amounts reinvested are determined by the specific rate and fee setting practices adopted by the local governments and utilities.

	Annual per ERU	Monthly per ERU
User Rates	$300	$25

Municipal systems providing water, wastewater, effluent, storm drain and flood control services, in operation for most of 100 years, have been expanded and upgraded over time to provide additional capacity and meet increasingly stringent regulatory requirements. In total, the asset value of the community's investment in water and wastewater infrastructure is on the order of

$2.5 billion, as shown below:

	Estimated Value	Annual R&R Funding Needs*
City of Reno	$1 billion	$20 million
City of Sparks**	460 million	5 - 9 million
Washoe County DWR***	437 million	9.5 million
TMWA	600 million	11 - $13 million
SVGID	45 million	0.5 million
Total	$2.5 billion	$46 - $52 million

*Actual amounts may vary based on actual revenues and prioritization of needs
**Estimated values based on TMWRF shared capacity 31.37% and Reno's $1 billion asset value projection, and assumed 1% to 2% R&R funding level
***Includes STMGID

TMWA - WCDWR Consolidation Analysis

The *System Planning and Engineering Preliminary Assessment Report* ("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.

4. Issues and Action Items

Current and future issues affecting the Planning Area identified in various chapters of this *Plan* are summarized in the final chapter. Although numerous issues are identified and over 50 actions are proposed, shown in bold print below, only 21 are identified as needing near-term WRWC/NNWPC activity (see Table 9-1, page 9-36). These 21 Proposed Action Items, identified below in ***bold italicized*** print following "♠", are intended to guide the focus and activities of the WRWC and NNWPC over the next five years.

Municipal Water Resources

Central Truckee Meadows

TMWA developed and adopted its *2005-2025 Water Resource Plan* ("*2025 WRP*") in March 2003. In December 2009, TMWA's *2010-2030 Water Resource Plan* ("*2030 WRP*") was adopted following plan review, update, and/or modification of its water resource planning and management strategies due to a number of key events that have occurred since adoption of the TMWA *2005-2025 WRP*, which include:

- Legislative directives modified regional water resource planning for the Truckee Meadows and led to the creation of the WRWC, which needs TMWA's latest water resource strategies adopted and available to be incorporated into the *Regional Water Plan* that is due January 1, 2011;
- Economic changes of the past few years at the national, state and local level have affected the growth activity and patterns for the Truckee Meadows resulting in a need to examine current population trends and their potential impact on water demands and resource requirements;
- The five Mandatory Signatory Parties (TMWA, PLPT, California, Nevada, and the United States) and seven other parties signed *TROA* on September 6, 2008; and

- Retrofit of more than 98 percent of the original 44,651 flat-rate water services that were required to be retrofit with water meters as part of the 1989 *Negotiated River Settlement*.

Proposed Action Items

- ***Participate in Bureau of Reclamation ("BOR") climate change study for the Truckee River watershed, expected to commence in 2011.***
- ***Participate in the Desert Research Institute ("DRI") cloud seeding program for the Lake Tahoe basin and the Truckee River basin, and coordinate with DRI's efforts to continue the cloud seeding program statewide.***
- ***Adopt the* TMWA 2030 WRP *into the Regional Water Plan.***

South Truckee Meadows

In 2002, the Regional Water Planning Commission ("RWPC"), WCDWR and STMGID, completed an update to the water facility plans for the South Truckee Meadows. The *South Truckee Meadows Facility Plan* (ECO:LOGIC, 2002) provides a comprehensive water supply plan for build-out of the planning area, which encompasses an area stretching from just north of Double Diamond Ranch south to Pleasant Valley, east to the Virginia Foothills and west to Galena Forest. The major goals of the Facility Plan were to:

- Utilize the creek resources to their highest and best beneficial uses, and balance beneficial M&I uses with in-stream flow requirements for recharge, wildlife, riparian habitat, aesthetics and quality of life
- Ensure that recommended plans for water supplies and facilities conform to regional wastewater disposal / water quality requirements at STMWRF and TMWRF
- Allow development to proceed in a phased approach, keeping upfront capital costs low and total water service costs competitive, and provide reliable and economical utility service to the South Truckee Meadows
- Promote system integration, conjunctive use and expand reclaimed wastewater service to maximize the efficient use of water resources and facilities

Water supply needs also included consideration of existing and future domestic wells in the area. As presented in Section 6.3, Water Balance Model, the available groundwater resource is not over-utilized; however, relatively shallow domestic wells that penetrate the upper portion of the aquifer will continue to be affected by water level declines as a result of the combined pumping of both municipal and domestic wells.

Since completion of the 2002 *South Truckee Meadows Facility Plan*, a number of changes in the basic planning data made an update to the water facility plan necessary. Changes included modifications to planned land uses and planning area, unit demands, growth rate and changes in the location of available water resources. The draft *South Truckee Meadows Water Facility Plan Update* (ECO:LOGIC, 2009):

- Revises projected water demands based on the current planning area, existing and planned land uses and accepted unit demands.

- Updates the recommended water supply scenario presented in the 2002 *South Truckee Meadows Facility Plan* based on revised demands, new facility and water supply information, phasing plans and updated groundwater pumping projections.
- Incorporates groundwater modeling analyses to evaluate potential impacts to groundwater levels given new pumping scenarios and evaluates potential mitigation measures to groundwater drawdown if required.
- Updates the South Truckee Meadows and Hidden Valley water distribution system hydraulic models with current demand projections and water supply sources.
- Provides planning level opinions of probable cost for recommended facilities with project considerations and cost projections consistent with the requirements of NRS 278B.

Proposed Action Items

- **Continue development of the tributary creek water exchange program.**
- **Continue development of a plan to mitigate future groundwater level declines and potential impacts to domestic wells.**

Stead / Lemmon Valley

The WCDWR *2009-2028 Draft North Valleys Water Facility Plan* (ECO:LOGIC, 2009) identifies the water resources necessary to serve the WCDWR service areas. These supplies are fully developed (local groundwater, imported Truckee River water, and imported Fish Springs Ranch groundwater); however, the infrastructure necessary to distribute these water supplies is underdeveloped. The significant effort for the Lemmon Valley area over the coming 20-year planning horizon is to develop the infrastructure necessary to distribute the water supplies to planned growth areas.

Proposed Action Items

- **WCDWR and TMWA should develop a facility and financing plan for the required distribution system infrastructure in Lemmon Valley, including improvements necessary to integrate and utilize the Fish Springs water supplies for existing and future customers.**

Cold Springs

The demand for potable water supplies in Cold Springs will be met in the future using a combination of local groundwater resources, augmented with imported water supplies, such as the Fish Springs and Intermountain water importation projects. The 2030 Regional Water Balance identifies a water supply imbalance that will need to be addressed over the long term. In particular, the combined demand from domestic wells and permitted municipal groundwater pumping exceeds the perennial yield of the Cold Springs basin. This is an issue that affects both existing and future water users and exists under both current and projected 2030 conditions.

Plans for proposed water facilities are not integrated with the existing Utilities Inc. water system. Potential infrastructure savings could be realized with a conjunctive use operation of the two water systems.

Nitrate contamination of groundwater has been observed in areas with high densities of septic tanks. The *1995-2015 Regional Water Plan* expressed concern over continued installation of septic tanks in this hydrographic basin.

Importation of a new water supply into the Cold Springs hydrographic basin would result in the generation of additional effluent and storm water run-off volume in this closed basin.

Proposed Action Items

- **A facility plan needs to be completed for the build-out of approved land uses in the Cold Springs portion of the TMSA, including conjunctive use and system integration options with Utilities Inc.**
- **A comprehensive water resource plan needs to be prepared for Cold Springs and portions of the Long Valley hydrographic basin to estimate the perennial yield for the Water Baseline and the 2030 Regional Water Balance.**

Spanish Springs

Spanish Springs Valley includes water service areas within the jurisdictions of Sparks and Washoe County. The portion of the valley within the Sparks Sphere of Influence is served by TMWA from a combination of Truckee River water, Truckee Meadows groundwater and Spanish Springs groundwater pumped from TMWA wells. This portion of the hydrographic basin is managed in conjunction with TMWA's overall resource planning. WCDWR provides water service to its service areas in the unincorporated areas of the valley using local groundwater recently augmented with imported TMWA water from the Truckee Meadows basin.

Issues identified in the *1995-2015 Regional Water Plan* (RWPC, 1997), the *2004-2025 Regional Water Plan* (RWPC, 2005), the *Spanish Springs Valley Groundwater Budget Analysis* (ECO:LOGIC, 2004), and the *City of Reno and Washoe County TMSA/FSA Water, Wastewater and Flood Management Facility Plan* (ECO:LOGIC, 2007) are related to future water demands as a result of growth in the unincorporated area, water quality impacts due to existing growth and diminishing groundwater recharge:

- Allocation of groundwater resources in Spanish Springs has resulted in a situation where water rights and cumulative groundwater pumping by all entities exceeds the perennial yield of groundwater resources.
- Land use changes from irrigated agriculture to residential, commercial and industrial uses result in reduction of recharge occurring from surface water irrigation via the Orr Ditch, potentially exacerbating groundwater deficits.

In addition, based on the 2030 Regional Water Balance presented in Chapter 6, a water supply imbalance will need to be addressed over the long-term.

Proposed Action Items

- **Develop a long-term groundwater management strategy. Stakeholders include WCDWR, TMWA, the Sky Ranch Water Company, the City of Sparks, domestic well owners, the Red Hawk Golf Course, the Granite, Sha-Neva and Donovan quarry owners and other water rights owners.**

IN THE SUPREME COURT OF THE STATE OF NEVADA

Case No. 73933

Electronically Filed
Feb 08 2018 03:55 p.m.
Elizabeth A. Brown
Clerk of Supreme Court

SIERRA PACIFIC INDUSTRIES, a California Corporation,

Appellant,

v.

JASON KING, P.E., in his capacity as Nevada State Engineer; THE DIVISION OF WATER RESOURCES, DEPARTMENT OF CONSERVATION, an agency of the State of Nevada; and INTERMOUNTAIN WATER SUPPLY, LTD., a Nevada Limited Liability Company,

Respondents

Appeal From Order Denying Petition for Judicial Review
District Court Case No.: CV16-01378
Second Judicial District Court of Nevada

JOINT APPENDIX

VOLUME I

McDONALD CARANO LLP
Debbie Leonard, Esq.
100 W. Liberty St., 10th Fl.
Reno, NV 89501
775-788-2000 (phone)
775-788-2020 (fax)
dleonard@mcdonaldcarano.com
Attorneys for Appellant
Sierra Pacific Industries

RICHARD L. ELMORE CHTD.
Richard L. Elmore, Esq.
3301 S. Virginia St. Ste. 125
Reno, Nevada 89502
775-357-8170 (phone)
775-357-8172 (fax)
relmore@rlepc.com
Attorneys for Respondent
Intermountain Water Supply

NV ATTORNEY GENERAL
Micheline N. Fairbank, Esq.
100 North Carson Street
Carson City, NV 89701
775-684-1225 (phone)
775-684-1108 (fax)
mfairbank@ag.nv.gov
Attorneys for Respondent
NV State Engineer

Docket 73933 Document 2018-05358

CHRONOLOGICAL INDEX TO JOINT APPENDIX

DATE	DESCRIPTION OF DOCUMENT	VOLUME	PAGE(S)
6/29/2016	Notice of Filing Petition for Judicial Review (NRS 533.450) with 6/29/2016 filed Petition for Judicial Review and Exhibits	I	JA0001 – JA0028
7/22/2016	Order Granting Stipulation to Allow Intervention	I	JA0029 – JA0031
9/8/2016	State Engineer's Summary of Record on Appeal: SE ROA 1 – SE ROA 748	I – III	JA0032 – JA0790
	SE ROA 1-214	I	JA0043 – JA0256
	SE ROA 215-470	II	JA0257 – JA0512
	SE ROA 417-748	III	JA0513-JA0790
10/5/2016	State Engineer's Supplemental Summary of Record on Appeal: SE ROA 749 – SE ROA 2405	IV – X	JA0791 – JA2490
	SE ROA 749-965	IV	JA0830 – JA1046
	SE ROA 966-1220	V	JA1047 – JA1302
	SE ROA 1221-1471	VI	JA1303 – JA1554
	SE ROA 1472-1723	VII	JA1555 – JA1806
	SE ROA 1724-1974	VIII	JA1807 – JA2058
	SE ROA 1975-2225	IX	JA2059 – JA2308
	SE ROA 2226-2405	X	JA2309 – JA2490

DATE	DESCRIPTION OF DOCUMENT	VOLUME	PAGE(S)
10/7/2016	Petitioner's Sierra Pacific Industries' Opening Brief	X	JA2491 – JA2517
11/17/2016	Respondent-Intervenor Intermountain Water Supply's Answering Brief	XI	JA2518 – JA2561
11/28/2016	Respondent State Engineer's Answering Brief	XI	JA2562 – JA2583
12/30/2016	Petitioner's Sierra Pacific Industries' Reply Brief	XI	JA2584 – JA2603
12/30/2016	Exhibits 1-9: SROA 2406 – SROA 2475, to Petitioner Sierra Pacific Industries Motion to Supplement the Record, or in the Alternative, for Judicial Notice.	XI	JA2604 – JA2686
2/6/2017	Order Granting Sierra Pacific Industries' Motion to Supplement the Record	XI	JA2687 – JA2689
4/28/2017	Application for Setting via Teleconference	XI	JA2690 – JA2691
5/24/2017	Petition for Judicial Review – Minutes	XI	JA2692
5/24/2017	Petition for Judicial Review Oral Arguments Transcript	XI	JA2693 – JA2750
8/21/2017	Order Denying Petition for Judicial Review	XI	JA2751 – JA2759
8/22/2017	Notice of Entry of Order Denying Petition for Judicial Review (Order not recopied)	XI	JA2760 – JA2764
9/8/2017	Notice of Appeal with Clerk's Certificate (Notice of Entry & Order not recopied)	XI	JA2765 – JA2769

ALPHABETICAL INDEX TO JOINT APPENDIX

DESCRIPTION OF DOCUMENT	DATE	VOLUME	PAGE(S)
Application for Setting via Teleconference	4/28/2017	XI	JA2690 – JA2691
Exhibits 1-9: SROA 2406 – SROA 2475, to Petitioner Sierra Pacific Industries Motion to Supplement the Record, or in the Alternative, for Judicial Notice.	12/30/2016	XI	JA2604 – JA2686
Notice of Appeal with Clerk's Certificate (Notice of Entry & Order not recopied)	9/8/2017	XI	JA2765 – JA2769
Notice of Entry of Order Denying Petition for Judicial Review (Order not recopied)	8/22/2017	XI	JA2760 – JA2764
Notice of Filing Petition for Judicial Review (NRS 533.450) with 6/29/2016 filed Petition for Judicial Review and Exhibits	6/29/2016	I	JA0001 – JA0028
Order Denying Petition for Judicial Review	8/21/2017	XI	JA2751 – JA2759
Order Granting Sierra Pacific Industries' Motion to Supplement the Record	2/6/2017	XI	JA2687 – JA2689
Order Granting Stipulation to Allow Intervention	7/22/2016	I	JA0029 – JA0031
Petition for Judicial Review – Minutes	5/24/2017	XI	JA2692
Petition for Judicial Review Oral Arguments Transcript	5/24/2017	XI	JA2693 – JA2750
Petitioner's Sierra Pacific Industries' Opening Brief	10/7/2016	X	JA2491 – JA2517
Petitioner's Sierra Pacific Industries' Reply Brief	12/30/2016	XI	JA2584 – JA2603

DESCRIPTION OF DOCUMENT	DATE	VOLUME	PAGE(S)
Respondent-Intervenor Intermountain Water Supply's Answering Brief	11/17/2016	X	JA2518 – JA2561
Respondent State Engineer's Answering Brief	11/28/2016	XI	JA2562 – JA2583
State Engineer's Summary of Record on Appeal: SE ROA 1 – SE ROA 748	9/8/2016	I – III	JA0032 – JA0790
SE ROA 1-214		I	JA0043 – JA0256
SE ROA 215-470		II	JA0257 – JA0512
SE ROA 417-748		III	JA0513- JA0790
State Engineer's Supplemental Summary of Record on Appeal: SE ROA 749 – SE ROA 2405	10/5/2016	IV – X	JA0791 – JA2490
SE ROA 749-965		IV	JA0830 – JA1046
SE ROA 966-1220		V	JA1047 – JA1302
SE ROA 1221-1471		VI	JA1303 – JA1554
SE ROA 1472-1723		VII	JA1555 – JA1806
SE ROA 1724-1974		VIII	JA1807 – JA2058
SE ROA 1975-2225		IX	JA2059 – JA2310
SE ROA 2226-2405		X	JA2311 – JA2490

IN THE SUPREME COURT OF THE STATE OF NEVADA

AFFIRMATION

Pursuant to NRS 239B.030, the undersigned does hereby affirm that **JOINT APPENDIX VOLUME I** does not contain the social security number of any person.

DATED this 8th Day of February, 2018.

MCDONALD CARANO LLP

BY: /s/ Debbie Leonard

Debbie A. Leonard, Esq.
Nevada Bar No. 8260
100 West Liberty Street, 10th Floor
Reno, Nevada 89501
Tel.: (775) 788-2000
Fax: (775) 788-2020
dleonard@mcdonaldcarano.com

Attorneys for Appellant

CERTIFICATE OF SERVICE

Pursuant to NRCP 5(b), I hereby certify that I am an employee of McDonald Carano, LLP and that on February 8, 2018, **JOINT APPENDIX VOLUME I** was electronically filed with the Clerk of the Court for the Nevada Supreme Court by using the Nevada Supreme Court's E-Filing system (E-Flex). Pursuant to NRAP 30(f)(2), all Participants in the case will be served and provided an electronic copy via U.S. mail as follows:

Richard L. Elmore, Esq.
3301 S. Virginia Street, Suite 125
Reno, Nevada 89502

Office of the Nevada Attorney General
Micheline N. Fairbank, Esq.
100 North Carson Street
Carson City, NV 89701

/s/ Pamela Miller
An employee of McDonald Carano, LLP

4816-4068-7451, v. 1

F I L E D
Electronically
CV16-01378
2016-06-29 01:47:57 PM
Jacqueline Bryant
Clerk of the Court
Transaction # 5586354 : mpurdy

Code: 2610
Debbie Leonard (Nevada Bar No. 8260)
McDONALD CARANO WILSON LLP
100 West Liberty Street, 10th Floor
Reno, Nevada 89501
Telephone: (775) 788-2000
Facsimile: (775) 788-2020
dleonard@mcdonaldcarano.com

Attorney for Petitioner
Sierra Pacific Industries.

SECOND JUDICIAL DISTRICT COURT OF THE STATE OF NEVADA

IN AND FOR WASHOE COUNTY

*** * * * ***

SIERRA PACIFIC INDUSTRIES, a California corporation,

Petitioner,

v.

JASON KING, P.E., in his capacity as Nevada State Engineer, and the DIVISION OF WATER RESOURCES, DEPARTMENT OF CONSERVATION, an agency of the State of Nevada,

Respondents.
_____/

CASE NO.: CV16-01378

DEPT. NO.: 4

NOTICE OF FILING PETITION FOR JUDICIAL REVIEW
(NRS 533.450)

TO: JASON KING, P.E., Nevada State Engineer
All Interested Parties in the Service List Attached Hereto

PLEASE TAKE NOTICE pursuant to NRS 533.450 that on June 29, 2016, SIERRA PACIFIC INDUSTRIES, a California corporation, by and through its attorney of record Debbie Leonard of the law firm McDonald Carano Wilson LLP, filed a Petition for Judicial Review of the decision to grant an extension of time to prove completion of the diversion works and prove beneficial use of the following permit numbers: 72700, 64977, 64978, 66400, 73428, 73429, 73430 and 74327. A copy of the Petition for Judicial Review is attached hereto as Exhibit "1."

AFFIRMATION

Pursuant to NRS 239B.030, the Undersigned does hereby affirm that the preceding document does not contain the social security number of any persons.

Dated: June 29, 2016.

McDONALD CARANO WILSON LLP

By: /s/ Debbie Leonard

Debbie Leonard
100 West Liberty Street, 10th Floor
Reno, Nevada 89501
(775) 788-2000

Attorney for Petitioner
Sierra Pacific Industries

CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

Pursuant to NRCP 5(b), I hereby certify that I am an employee of McDONALD CARANO WILSON LLP and that on June 29, 2016, I served SIERRA PACIFIC INDUSTRIES's Notice of Filing Petition for Judicial Review by hand delivery to the following:

Jason King, P.E.
Nevada State Engineer
Division of Water Resources
901 South Stewart Street, Suite 2002
Carson City, NV 89701-5250

and by placing a true copy thereof enclosed in sealed envelopes with postage prepaid, certified, return receipt requested, in the United States Post Office mail at 100 West Liberty Street, 10th Floor, Reno, Nevada 89501 addressed as follows:

Robert W. Marshall
Intermountain Water Supply, Ltd.
625 Onyo Way
Sparks, NV 89441

Washoe County, Nevada
Attn: Vahid Behmaram
P.O. Box 11130
Reno, NV 89520-0027

Buckhorn Land and Livestock, LLC
500 Damonte Ranch Parkway, Suite 980
Reno, NV 89521

I am familiar with the firm's practice for collection and processing of correspondence for mailing with the United States Postal Service.

The envelopes addressed to the above parties were sealed and placed for collection by the firm's messengers and will be deposited today with the United States Postal Service in the ordinary course of business.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 29, 2016, at Reno, Nevada.

/s/ Pamela Miller
An employee of McDonald Carano Wilson LLP

LIST OF EXHIBITS

EXHIBIT	DESCRIPTION	PAGES
1.	Petition for Judicial Review	23

F I L E D
Electronically
CV16-01378
2016-06-29 01:47:57 PM
Jacqueline Bryant
Clerk of the Court
Transaction # 5586354 : mpurdy

EXHIBIT 1

EXHIBIT 1

F I L E D
Electronically
CV16-01378
2016-06-29 10:39:50 AM
Jacqueline Bryant
Clerk of the Court
Transaction # 5585466 : rkwatkin

Code: $3550
Debbie Leonard (Nevada Bar No. 8260)
McDONALD CARANO WILSON LLP
100 West Liberty Street, 10th Floor
Reno, Nevada 89501
Telephone: (775) 788-2000
Facsimile: (775) 788-2020
dleonard@mcdonaldcarano.com

Attorney for Petitioner
Sierra Pacific Industries.

SECOND JUDICIAL DISTRICT COURT OF THE STATE OF NEVADA

IN AND FOR WASHOE COUNTY

* * * * *

SIERRA PACIFIC INDUSTRIES, a California corporation,

Petitioner,

v.

JASON KING, P.E., in his capacity as Nevada State Engineer, and the DIVISION OF WATER RESOURCES, DEPARTMENT OF CONSERVATION, an agency of the State of Nevada,

Respondents.
_____/

CASE NO.:

DEPT. NO.:

PETITION FOR JUDICIAL REVIEW
(NRS 533.450)

Petitioner Sierra Pacific Industries, a California corporation ("SPI"), by and through its attorney Debbie Leonard of the law firm McDonald Carano Wilson LLP, petitions the Court for judicial review of a decision of Jason King, P.E., Nevada State Engineer, which granted an extension of time to prove completion of the diversion works and prove beneficial use of water under the following permit numbers: 72700, 64977, 64978, 66400, 73428, 73429, 73430 and 74327. The holder of those permits is Intermountain Water Supply ("IWS"), and the proposed purpose of those appropriations is to construct and operate an interbasin pipeline to bring municipal water to the North Valleys of the Reno/Sparks area. IWS has no contractual or agency

relationship with a municipal water purveyor for the North Valleys and therefore failed to satisfy the requirements of the Anti-Speculation Doctrine, which the State Engineer expressly adopted in the context of a request for extension of time. The State Engineer's decision, therefore, is not supported by substantial evidence, is marked by clear error of law and is arbitrary and capricious. The State Engineer's decision was issued on June 1, 2016 and is attached hereto as Ex. 1 ("the June 1, 2016 Decision").

This Petition for Judicial Review is filed pursuant to NRS 533.450. The State Engineer's June 1, 2016 Decision to issue extensions of time to complete the diversion works and prove beneficial use of Permits 72700, 64977, 64978, 66400, 73428, 73429, 73430 and 7432 injuriously affects Petitioner because it allows IWS to speculate in water and thereby prevent others from putting unused water in Dry Valley Hydrographic Basin (095) to beneficial use.

I. JURISDICTIONAL STATEMENT

This Petition for Judicial Review is timely filed pursuant to NRS 533.450(1). Under NRS 533.450(1), decisions of the State Engineer are subject to judicial review "in the proper court of the county in which the matters affected or a portion thereof are situated." The real property to which the water at issue in this appeal is appurtenant, and for which Petitioner seeks a new appropriation, lies within Washoe County. Therefore, the Second Judicial District Court of the State of Nevada in and for Washoe County is the proper venue for judicial review of the State Engineer's June 1, 2016 Decision.

II. FACTUAL BACKGROUND

A. Dry Valley Hydrographic Basin

Dry Valley Hydrographic Basin is located in western Washoe County along the border with Lassen County, California. The Nevada State Engineer has estimated the perennial yield from Dry Valley to be 3,000 afa (Ruling 5568), which is the amount of groundwater that the State Engineer has determined may be withdrawn from the Dry Valley Hydrographic Basin without causing overdraft. Although the State Engineer has already granted 3,021.60 afa of water rights permits in Dry Valley basin, up to 2,996 afa of those permits issued are currently not being used and have no means of being used.

B. Permits 72700, 64977, 64978, 66400, 73428, 73429, 73430 and 74327

Intermountain Water Supply ("IWS") holds 2,996 afa of underground water rights under Permits 72700, 64977, 64978, 66400, 73428, 73429, 73430 and 74327 in Dry Valley Basin. IWS proposes to export the water under its permits from Dry Valley into Lemmon Valley to supply what IWS has claimed to be anticipated municipal water demands. IWS also has water rights applications pending for the same use. In order to put its permitted water and the water for which is has applied to beneficial use, IWS proposes to construct a new pipeline across private, county, state and federal land. IWS cannot exercise its permitted rights without construction of this pipeline.

IWS first filed water rights applications for its pipeline in 1999. In the 17 intervening years, IWS has yet to complete construction of the necessary infrastructure required to place to beneficial use the quantity of water applied and permitted. Rather than itself develop the water under its applications and permits, IWS is actively seeking to market its "water project."

The State Engineer has granted multiple extensions of time to IWS to file proofs of completion and proofs of beneficial use of the water appropriated under Permits 72700, 64977, 64978, 66400, 73428, 73429, 73430 and 74327. On June 1, 2016, the State Engineer granted yet another extension of time such that IWS now has until February 7, 2017 to file proofs for Permits 64977, 64978, 66400, 73428, 73429, 73430 and 74327 and December 18, 2016 to file proofs for Permit 72700 ("the June 1, 2016 Decision"). In the June 1, 2016 Decision, the State Engineer expressly noted that the anti-speculation doctrine applies to extension requests, yet then granted the extensions to IWS without IWS providing any evidence that it has a contractual relationship with the end user of water, as required by *Bacher v. State Engineer*, 122 Nev. 1110, 1119, 146 P.3d 793, 799 (2006).

C. Background on Petitioner Sierra Pacific Industries

SPI is a third-generation family-owned forest products company based in Anderson, California. SPI has significant ranching and farming operations, running upwards of 2,000 head of cattle across hundreds of parcels and leasing grazing rights for over 5,000 head of cattle on tens of thousands of acres.

D. Wilburn Ranch

SPI's landholdings include lands located in Dry Valley and Long Valley in Lassen County, California and Washoe County, Nevada, collectively referred to as the Wilburn Ranch. SPI acquired the Wilburn Ranch in 2014 for agricultural production. Currently, 100 to 150 head of cattle graze on the Nevada parcels and 50 to 100 head of cattle graze on the California parcels of Wilburn Ranch.

SPI has appropriated water in both Nevada and California for its Wilburn Ranch operations. Approximately 180 acres in Nevada have been converted from sagebrush flats to meadow grass grazing areas. On the California parcels, approximately 800 acres have been converted from sagebrush flats to meadow grass grazing areas and irrigated crop production.

In Nevada, water for livestock and some meadow irrigation is supplied by natural springs, which SPI has the right to appropriate under Permits 70423 and 70424. So far, no subsurface groundwater has been pumped in Nevada other than well testing, and no water has been transferred across the California/Nevada boundary. In California, the water is pumped from four different artesian springs and three different wells. Sprinklers and flood irrigation are used for the crops. The crops planted have included potatoes, corn, wheat, oats, wheatgrass, rye grass, alfalfa, and most recently, triticale.

In 1977, the Nevada State Engineer permitted 4,460 acre-feet of water rights for use on Wilburn Ranch. These water rights were cancelled in 1983, however, when SPI's predecessor did not comply with the provisions of the permits. SPI desires to bring the Nevada side of the Wilburn Ranch back into agricultural production and to expand currently irrigated acreage on the California side of Wilburn Ranch. Therefore, SPI submitted Applications 84688 and 84689 to facilitate the proposed expansion of the irrigated lands at Wilburn Ranch.

E. Applications 84688 and 84689

In Applications 84688 and 84689, SPI seeks sufficient water to bring the Wilburn Ranch back into agricultural production. To put the water sought in Applications 84688 and 84689 to beneficial use, SPI anticipates it will use drilled and cased irrigation wells that are equipped with power, a pump, motor, discharge piping and flow meter. SPI's water transmission system is

anticipated to include a ditch and pipe network that facilitates flood irrigation and sprinkler irrigation from wheel lines and hand lines. With approval of Applications 84688 and 84689, SPI plans to utilize existing wells in Nevada and California to expand existing irrigation capabilities to facilitate increased crop production. SPI has an immediate need for the water it seeks and can immediately put the water to beneficial use in its existing and proposed expanded agricultural operations. Applications 84688 and 84689 are currently pending with the State Engineer.

Two protests to Applications 84688 and 84689 were filed: one by Buckhorn Land and Livestock, LLC (Ex. 2 hereto) and one by Washoe County (Ex. 3 hereto), as a holder of water rights in Dry Valley. Both protestants argued that SPI's Applications should be denied because IWS's Permits encompass the entire perennial yield (as determined by the State Engineer) of the Dry Valley Basin, and no water remains available to appropriate.

III. GROUNDS FOR PETITION

In granting extensions to IWS, the State Engineer arbitrarily and capriciously failed to correctly apply the Anti-Speculation Doctrine. Speculation is the act of acquiring a resource for the purpose of subsequent use or resale, in hopes of profiting from future price fluctuations. The act of speculation allows an individual or entity to lock up scarce and essential water resources from use by individuals and communities who have an immediate need to provide water for crops or other uses (Ruling 6063). Nevada has adopted the Anti-Speculation Doctrine, which "addresses the situation in which the purported appropriator does not intend to put water to use for its own benefit and has no contractual or agency relationship with one who does." *Bacher*, 122 Nev. at 1119, 146 P.3d at 799 (quoting *Three Bells Ranch v. Cache La Poudre*, 758 P.2d 164, 173 n. 11 (Colo. 1988)). The State Engineer has applied the Anti-Speculation Doctrine to extensions.

The State Engineer's June 1, 2016 Decision recognizes that IWS's proposed project to export water from Dry Valley Hydrographic Basin into the North Valleys is subject to the Anti-Speculation Doctrine. IWS failed to provide any evidence that it has a contract with any municipal water supplier for the proposed place of use. For this and other reasons, the June 1, 2016 Decision is not supported by substantial evidence, is affected by errors of law, is clearly

erroneous and is arbitrary and capricious. SPI reserves the right to present all grounds for this Petition in the briefs and argument in this matter.

IV. CONCLUSION

For the reasons explained above, and others that may be presented in briefing and argument, Petitioner respectfully requests that this Court to grant this Petition for Judicial Review and reverse the issuance of the extensions granted to IWS for Permits 72700, 64977, 64978, 66400, 73428, 73429, 73430 and 74327 or to remand the matter to the State Engineer with instructions to deny the extensions and cancel the permits.

Petitioner further requests that the Court set a schedule for submission of the record and briefing in this matter.

AFFIRMATION

Pursuant to NRS 239B.030, the undersigned does hereby affirm that the preceding document does not contain the social security number of any persons.

Dated: June 29, 2016.

McDONALD CARANO WILSON LLP

By: /s/ Debbie Leonard

Debbie Leonard
100 West Liberty Street, 10th Floor
Reno, Nevada 89501
(775) 788-2000

Attorney for Petitioner
Sierra Pacific Industries

CERTIFICATE OF SERVICE

Pursuant to NRCP 5(b), I hereby certify that I am an employee of McDONALD CARANO WILSON LLP and that on June 29, 2016, I served SIERRA PACIFIC INDUSTRIES's Petition for Judicial Review by hand delivery to the following:

Jason King, P.E.
Nevada State Engineer
Division of Water Resources
901 South Stewart Street, Suite 2002
Carson City, NV 89701-5250

and by placing a true copy thereof enclosed in sealed envelopes with postage prepaid, certified, return receipt requested, in the United States Post Office mail at 100 West Liberty Street, 10th Floor, Reno, Nevada 89501 addressed as follows:

Robert W. Marshall
Intermountain Water Supply, Ltd.
625 Onyo Way
Sparks, NV 89441

Washoe County, Nevada
Attn: Vahid Behmaram
P.O. Box 11130
Reno, NV 89520-0027

Buckhorn Land and Livestock, LLC
500 Damonte Ranch Parkway, Suite 980
Reno, NV 89521

I am familiar with the firm's practice for collection and processing of correspondence for mailing with the United States Postal Service.

The envelopes addressed to the above parties were sealed and placed for collection by the firm's messengers and will be deposited today with the United States Postal Service in the ordinary course of business.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 29, 2016, at Reno, Nevada.

/s/ Pamela Miller
An employee of McDonald Carano Wilson LLP

LIST OF EXHIBITS

EXHIBIT	DESCRIPTION	PAGES
1.	State Engineer's June 1, 2016 decision	7
2.	Buckhorn Land and Livestock, LLC protest	3
3.	Washoe County protest	2

F I L E D
Electronically
CV16-01378
2016-06-29 10:39:50 AM
Jacqueline Bryant
Clerk of the Court
Transaction # 5585466 : rkwatkin

EXHIBIT 1

EXHIBIT 1

STATE OF NEVADA

BRIAN SANDOVAL
Governor

LEO DROZDOFF
Director

JASON KING, P.E.
State Engineer

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES
901 South Stewart Street, Suite 2002
Carson City, Nevada 89701-5250
(775) 684-2800 • Fax (775) 684-2811
http://water.nv.gov

June 1, 2016

Robert W. Marshall
Intermountain Water Supply, Ltd.
625 Onyo Way
Sparks, Nevada 89441

Re: Applications for Extension of Time concerning Permits 64977, 64978, 66400, 72700, 73428, 73429, 73430 and 74327

Dear Mr. Marshall:

Please allow this correspondence to inform you as to the decisions to grant the extensions of time concerning the above-referenced permits.

Background

In or around 2014, Intermountain Water Supply (Intermountain) filed extensions of time for the proof of completion of work and/or proof of beneficial use concerning Project Permits[1] pursuant to Nevada Revised Statute (NRS) § 533.380. Shortly after the filing of the extension requests, an objection was filed by Sierra Pacific Industries (SPI).[2] The State Engineer requested Intermountain respond to the objection and provide evidence supporting its request for extensions of time. After considering that evidence, and the objection of SPI, the State Engineer granted Intermountain's extensions of time. SPI appealed that decision, and the decision of the State Engineer was subsequently affirmed in *Sierra Pacific Industries v. Jason King, P.E.*, Second Judicial District Court Case No. CV15-1257 (January 12, 2016).[3]

---

[1] The "Project Permits" include those that are the subject of the Objection, including 64977, 64978, 66400, 72700, 73428, 73429, 73430 and 74327, and Permits that not included in the Objection, but which are identified in the Affidavit of Robert Marshall at ¶ 2.

[2] Intermountain had been granted extensions of time in years prior to the 2015 extensions, but the 2015 extensions were the first year that SPI filed an objection.

[3] *See Order Denying Petition for Judicial Review* attached to Affidavit of Robert Marshall in support of the extensions of time.

Sierra Pacific Industries' Pre-Filed Objection to Intermountain's 2016 Extensions of Time

Shortly before the December 14, 2015, court hearing on the *Petition for Judicial Review*, *supra*, SPI pre-filed an objection on December 2, 2015, to the granting of any further extensions of time to Intermountain Water Supply (Objection). The Objection was supplemented on January 6, 2016. Intermountain's extensions of time were timely filed after the pre-filed Objection.[4,5] SPI argues in its Objection that Intermountain is engaging in water speculation and that it cannot satisfy the statutory requirements of NRS § 533.380, and requests the extensions be denied. SPI's Objection and Intermountain's extension requests are addressed below.

A. Extensions of time pursuant to NRS 533.380(3)

Upon the issuance of a permit, extensions of time to complete the works of diversion or to place water to beneficial use may be requested pursuant to NRS § 533.380(3).[6] The State Engineer may grant any number of extensions, but an application for extension must in all cases be accompanied by proof and evidence of the reasonable diligence with which the applicant is pursuing completion of work or placing water to beneficial use. The measure of reasonable diligence is the steady application of effort to perfect the application in a reasonably expedient and efficient manner under all the facts and circumstances. NRS § 533.380(6). When a project or integrated system is composed of several features, work on one feature of the project or system may be considered in finding that reasonable diligence has been shown in the development of water rights for all features of the entire project or system. *Id.*

1. Whether Intermountain has shown good faith and reasonable diligence

The concept of diligence in the application of water to beneficial use has its origins in the

---

[4] All extensions of time were filed by Intermountain on March 8, 2016, except for Permit 72700, which was filed on February 9, 2016.

[5] Intermountain argues the State Engineer should refuse to consider the Objection as a fugitive document where no extensions were pending at the time the Objection was filed. I decline to refuse to consider the Objection out-of-hand; however, I find the Objection generally re-raises the same legal arguments and cites the same evidence asserted against Intermountain's 2015 extensions of time, with the exception of the planning documents.

[6] NRS § 533.380(3) states: Except as otherwise provided in subsection 4 and NRS 533.395 and 533.4377, the State Engineer may, for good cause shown, grant any number of extensions of time within which construction work must be completed, or water must be applied to a beneficial use under any permit therefor issued by the State Engineer, but a single extension of time for a municipal or quasi-municipal use for a public water system, as defined in NRS 445A.235, must not exceed 5 years, and any other single extension of time must not exceed 1 year. An application for the extension must in all cases be:

(a) Made within 30 days following notice by registered or certified mail that proof of the work is due as provided for in NRS 533.390 and 533.410; and

(b) Accompanied by proof and evidence of the reasonable diligence with which the applicant is pursuing the perfection of the application.

→The State Engineer shall not grant an extension of time unless the State Engineer determines from the proof and evidence so submitted that the applicant is proceeding in good faith and with reasonable diligence to perfect the application. The failure to provide the proof and evidence required pursuant to this subsection is prima facie evidence that the holder is not proceeding in good faith and with reasonable diligence to perfect the application.

early development of the principles of prior appropriation in the water law of the Western states. *Bailey v. State*, 95 Nev. 378, 594 P.2d 734 (1979) (citing 1 S. Wiel, Water Rights in the Western States, s 382 (3d ed. 1911)). Whether an appropriator has used due diligence to utilize water for beneficial use must be determined upon the facts of each particular case. *Vineyard Land & Stock Co. v. Twin Falls Salmon River Land & Water Co.*, 245 F. 9 (9th Cir. 1917).

SPI argues that Intermountain cannot demonstrate that it is proceeding in good faith and with reasonable diligence where Intermountain points to sums expended over the last 16 years of the project. SPI argues that the amount of money spent does not alter the fact that Intermountain has no plans to put the water to beneficial use.

Intermountain submitted evidence of expenses incurred during the last extension period for permit expenses, well monitoring, BLM fees, legal work related to litigation and an archeological contract, and expenses related to document production for construction firms, all totaling $23,300.39. As well, Intermountain asserts that during the last year it negotiated and secured agreements with engineering and construction firms experienced in water systems development, Utilities, Inc., and with developers.

The Subdistrict v. Chevron Shale Oil Co., 986 P.2d 918 (Colo. 1999) discusses types of activities which may support a finding of reasonable diligence. The definition of "reasonable diligence" in NRS § 533.080(6) was based upon the Colorado definition of "reasonable diligence;"[7] therefore, I find *Chevron* instructive as to considerations of reasonable diligence. In *Chevron*, the Colorado Supreme Court reaffirmed that a fact-finder may consider numerous factors[8] on a case-by-case basis in a reasonable diligence analysis. *Id.* at 921. There, the opponent challenged Chevron's applications for a finding of reasonable diligence, arguing that Chevron had failed to construct any facilities even though the water rights were appropriated nearly forty-five years earlier; that it spent relatively little ($1.5M) on perfecting the rights during the prior extension period compared to the capital expenditure of its parent company ($3B), and that of the money spent during that period, nearly one-third ($500K) was spent on litigation unrelated to perfecting the water rights; and, that Chevron's participation with other companies on a joint venture slowed Chevron's progress in perfecting its own rights. The water court found in favor of Chevron, and on appeal, the Colorado Supreme Court upheld the water court's finding that "Chevron's efforts, although minimal [in the face of downturn in the shale oil industry], were sufficient to demonstrate a steady application of effort to complete its appropriation in a reasonably expedient and efficient manner. Chevron had planned for a diversion facility, planned a dam on Roan Creek, planned for pipeline facilities, prepared environmental baseline studies, prepared a detailed master planning document for Chevron's

[7] *See* SPI App 401.

[8] The non-exhaustive list includes (1) economic feasibility; (2) the status of requisite permit applications and other required governmental approvals; (3) expenditures made to develop the appropriation; (4) the ongoing conduct of engineering and environmental studies; (5) the design and construction of facilities; and (6) the nature and extent of land holdings and contracts demonstrating the water demand and beneficial uses which the conditional right is to serve when perfected. *Id.* at 921 (citing *Dallas Creek Water Co. v. Huey*, 933 P.2d 27, 36 (Colo. 1997)).

Parachute Creek Unit, and had participated in miscellaneous activities related to the conditional water rights such as litigation, research projects, and studies." *Id* at. 922.

In *Desert Irr., Ltd., v. State*, 113 Nev. 1049, 944 P.2d 835 (1997) (citing *People v. City of Thornton*, 775 P.2d 11, 18-19 (Colo.1989)), the Nevada Supreme Court has stated that mere statements of intent to put water to beneficial use, uncorroborated with any actual evidence, after nearly twenty years of nonuse was insufficient to justify a sixteenth PBU extension. Here, I find that Intermountain's extensions go beyond mere statements of intent and demonstrate a steady application of effort toward the project during the last extension period. The evidence submitted by Intermountain closely parallels the type of evidence relied upon in *Chevron* where the court made a finding of reasonable diligence.[9] To that end, I agree with SPI's statement that there must be a "good cause" finding anew with each extension requested; however, I disagree with SPI that any evaluation is limited to *only* the prior year's extension period. The language of NRS § 533.380(6) allowing a consideration of "all the facts and circumstances" and that work on one feature of the project may be considered in the development of water rights for the entire project, is broad enough to allow the State Engineer to look back into historical expenditures and/or progress on the project, in addition to reviewing the progress made during the last extension period.

2. Whether Intermountain is speculating in water

SPI makes numerous arguments that Intermountain's extension requests violate the anti-speculation doctrine.

First, SPI cites several past State Engineer rulings to argue that the anti-speculation doctrine applies to new applications and to permits. Intermountain argues that the cited rulings are inapplicable because the rulings pertain to decisions on initial applications pursuant to NRS § 533.370, rather than extensions of time pursuant to NRS § 533.380, and are therefore not controlling.[10] I agree that the rulings cited by SPI concern new appropriations examined pursuant to NRS § 533.370, requiring different considerations than for extensions of time pursuant to NRS § 533.380. SPI points to the legislative history of NRS § 533.380 as supporting its argument that anti-speculation applies to applications for extensions of time.[11] I find that the legislative history of A.B. 624 (1993) is not entirely clear on this point. While the committee minutes do mention speculation, A.B. 624 also enacted the provision now codified as NRS § 533.370(1)(c) – the provision traditionally viewed as limiting speculative appropriations. Therefore, it is unclear whether the references in the legislative history refer to that provision, or

[9] *Chevron* is likewise instructive in the respect of economic considerations. Chevron's diligence was examined within the scope of the oil shale industry (specifically its continuous efforts to develop the water rights despite the decline in oil prices), suggesting it is appropriate to consider economic conditions of the industry for which the permits were granted. Economic conditions affecting the ability of the holder to make a complete application of the water to a beneficial use is a factor found under NRS § 533.380(4). Intermountain cites TMWA's Plan and Draft Plan which recognize the severe economic downturn from 2007-2013, and the effect on the housing demand. *See* Extensions of Time at p. 5. I find that Intermountain's efforts were reasonable in consideration of the economic downturn, as affecting demand for municipal water.

[10] In any event, even if applicable, state agencies are not bound by *stare decisis*. *Motor Cargo v. Pub. Serv. Comm'n*, 108 Nev. 335, 337, 830 P.2d 1328, 1330 (1992).

[11] *See* Objection at pp. 2-3 (citing legislative history).

to the provisions adopted concerning extensions of time. Nevertheless, in Ruling No. 6343, recently issued, the anti-speculation doctrine was interpreted as applying to extensions of time to prevent a forfeiture; therefore, I find that it would be inconsistent to apply the doctrine, in appropriate cases, to forfeiture, but not to extensions concerning cancellation.[12] Accordingly, as discussed below, the doctrine may be a consideration in extensions of time to prevent cancellation in appropriate cases.[13]

SPI next cites *Bacher v. State Engineer*, 122 Nev. 1110, 146 P.3d 790 (2006) which formally adopted the anti-speculation doctrine in Nevada.[14] *Bacher* adopted the requirement that there be a formal contractual or agency relationship where the applicant intends to rely on a third party to demonstrate beneficial use. Notably, *Bacher* was issued after Intermountain's permits were issued;[15] therefore, there was no "formal contract or agency relationship requirement" at the time Intermountain's permits were issued. Consequently, the lack of contractual or agency relationship by Intermountain with third parties at the time the permits were issued (between 1999-2006), was not fatal to the issuance of the permits pursuant to NRS § 533.370. In the extension requests now pending, Intermountain affirms that it has secured agreements with engineering and construction firms, Utilities, Inc., and developers;[16] therefore, I am unpersuaded by SPI's argument that the extension requests are speculative on the basis that Intermountain lacks any contractual agreements: this requirement was not in place when the permits were granted and the sworn affidavit affirms that contractual agreements have been secured, in any event.

Third, SPI argues that Intermountain is actively seeking to market its water project in violation of Nevada's prohibition on anti-speculation.[17] Recently, the State Engineer examined the relationship between the anti-speculation doctrine and the alienability of water rights concerning extensions of time to prevent a forfeiture. In Ruling No. 6343, the State Engineer recognized that two years after *Bacher*, the Nevada Supreme Court decided *Adaven Mgt., Inc. v. Mtn. Falls Mountain Falls Acquisition Corp.*, 124 Nev. Adv. Op. 67, 191 P.3d 1189 (2008). The *Adaven* court opined that the anti-speculation doctrine does not prevent a property owner from selling to a third party his right to draw water, but that the doctrine focuses on use of water for which it was granted, not ownership. Accordingly, the Nevada Supreme Court clarified in *Adaven* that it did not adopt the anti-speculation doctrine in *Bacher* to limit the free alienability

---

[12] The analysis in Ruling No. 6343 relied, in part, on the legislative history of A.B. 624, stating it suggested the doctrine applied to extensions filed to avoid cancellation; however, upon further reading of the legislative history for this response, I find that inclusion of the provision codified as NRS § 533.370(c)(1), makes it less clear which provisions legislators were referring to in the discussion concerning speculation.

[13] As indicated by *Vineyard Land & Stock*, extensions of time are a fact dependent inquiry; therefore, I find that the State Engineer need not analyze every extension of time under the anti-speculation doctrine, nor make written findings regarding same, but that if circumstances warrant analyzing whether the extension request runs afoul of the doctrine it may be appropriate to engage in such an analysis. Because SPI has raised numerous arguments concerning speculation, the issue will be examined herein.

[14] *Bacher* concerned new applications to appropriate water, and specifically involved an inter-basin transfer of water, and was therefore analyzed under NRS § 533.370, not NRS § 533.380.

[15] *See* Objection at p. 2 (chart of permit approvals), *cf. Bacher* decision issued November 22, 2006.

[16] Extensions of Time, Affidavit of Robert Marshall ¶¶ 5, 6 and 7.

[17] Objection at pp. 3-4.

of water rights. Indeed, relying on Colorado authorities, the court stated that the doctrine by itself does not limit transfers of water rights ownership. In considering these authorities, I find there is no bright-line distinction when a project or transaction may be considered "speculative;" however, taking *Bacher* and *Adaven* together, Intermountain's attempt to sell the project at the same time it has demonstrated measurable progress during the last extension period, does not violate the anti-speculation doctrine.

B. Additional considerations pursuant to NRS § 533.380(4)

In addition to the considerations of NRS § 533.30(3), additional considerations are required for municipal rights pursuant to NRS § 533.380(4). All of Project Permits are permitted for municipal use. SPI argues that (1) there is no development to be served by Intermountain's water; (2) economic conditions do not prevent Intermountain from putting water to beneficial use; and (3) makes arguments concerning speculation (addressed in Section A(2)).

SPI includes the Truckee Meadows Water Authority 2010-2030 Water Resources Plan (TMWA Plan), the Truckee Meadows Water Authority Draft Plan for 2016-2035 (TMWA Draft Plan), and the Western Regional Water Commissioners' 2011-2030 Comprehensive Regional Water Management Plan (Regional Plan). SPI argues that these documents demonstrate there is no municipal demand by TMWA, or in Lemmon Valley.[18]

Intermountain argues that the documents make clear that TMWA has not committed itself to pursuing Intermountain's project, but that the risks and pursuit of the project remains with the private developers, *i.e.*, Intermountain. Indeed, Intermountain identifies specifically where in each plan TMWA references Intermountain's project in its Plan and Draft Plan.[19] I agree with Intermountain that the allocation of responsibility in the planning documents to pursue and develop the project does not render the project obsolete. The planning documents demonstrate that although TMWA has not committed itself to pursuing the project, it has not foreclosed using water from the project as may be developed privately by Intermountain.

Additionally, Intermountain notes that the TMWA Plan does not cover areas outside of TMWA's service area, *e.g.*, Cold Springs or Lemmon Valley, which are areas that could be served by the project.[20] As well, the 50,000 acre-feet of Truckee River water referenced by SPI does not include the North Valleys, which is the reason the TMWA Plan continues to reference Intermountain and Vidler's water projects in its plans. I find Intermountain's statements to this effect to be accurate; and further, the project at issue is the same project for which the permits were issued. Therefore, this analysis must be mindful of confining the examination to whether Intermountain has employed reasonable diligence in perfecting the permits for the project, and will avoid revisiting the decision to grant the permits, which became final decisions long ago.

---

[18] Objection at p. 7.
[19] *See* Extensions of Time at pp. 2-3.
[20] Extensions of Time at p. 4.

effect to be accurate; and further, the project at issue is the same project for which the permits were issued. Therefore, this analysis must be mindful of confining the examination to whether Intermountain has employed reasonable diligence in perfecting the permits for the project, and will avoid revisiting the decision to grant the permits, which became final decisions long ago.

C. The State Engineer will limit the review to the extensions of time, and not to other unrelated applications filed to appropriate water

SPI states that Intermountain's permits should be cancelled because SPI has pending applications in the Dry Valley Hydrographic Basin and it stands ready to put the water to beneficial use. I find that an examination of the factors identified in NRS § 533.380, as discussed above, is an appropriate examination of whether the extension requests should be granted. Accordingly, this analysis is confined to the evidence supporting the permits and not whether other applications stand in line to use water, which may be freed up by cancelling Intermountain's permits.[21]

Conclusion

In conclusion, in considering NRS § 533.380(3),(4), I find good cause for granting the extensions of time on the Project Permits, **provided however, that future extension requests must be accompanied by copies of the agreements you indicated in Paragraphs 5, 6 and 7 of your Affidavit that Intermountain has reached with engineering and construction firms, Utilities, Inc., and developers**.

You will receive confirmation of the extension dates and new proof filing dates under separate cover. If you have any questions regarding the foregoing please do not hesitate to contact me.

Sincerely,

Jason King, P.E.
State Engineer

cc: Debbie Leonard, E-mail
April Holt, E-mail

[21] *See* Order Denying Petition for Judicial Review at 7 (affirming that the SPI's need for water in Dry Valley is not relevant to the State Engineer's determination under NRS § 533.380, and the statute does not indicate the State Engineer should consider them as part of Intermountain's extensions of time).

F I L E D
Electronically
CV16-01378
2016-06-29 10:39:50 AM
Jacqueline Bryant
Clerk of the Court
Transaction # 5585466 : rkwatkin

EXHIBIT 2

EXHIBIT 2

IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATION NUMBER 84688
FILED BY Sierra Pacific Industries
ON January 9, 20 15

PROTEST

FILED
MAR 19 2015
STATE ENGINEER'S OFFICE

Comes now Buckhorn Land and Livestock. LLC, a Nevada limited liability company
Printed or typed name of protestant

whose post office address is 500 Damonte Ranch Parkway, Suite, 980, Reno, NV 89521
Street No. or PO Box, City, State and ZIP Code

whose occupation is Ranching and protests the granting

of Application Number 84688, filed on January 9, 20 15

by Sierra Pacific Industries for the

waters of Underground situated in Washoe
an underground source or name of stream, lake, spring or other source

County, State of Nevada, for the following reasons and on the following grounds, to wit:
Please refer to Attachment "A"

THEREFORE the Protestant requests that the application be Denied
Denied, issued subject to prior rights, etc., as the case may be

and that an order be entered for such relief as the State Engineer deems just and proper.

Signed
Agent or protestant

Gregory M. Bilyeu
Printed or typed name, if agent

Address 9480 Double Diamond Parkway, Suite 200
Street No. or PO Box

Reno, NV 89521
City, State and ZIP Code

(775) 352-7800 x 227
Phone Number

gregb@tecreno.com
E-mail

State of Nevada
County of Washoe

Subscribed and sworn to before me on 3-18-15

by Gregory M. Bilyeu

Karen L. Woosley
Signature of Notary Public Required

KAREN L. WOOSLEY
Notary Public - State of Nevada
Appointment Recorded in Washoe County
No: 99-4812-2 - Expires April 13, 2018

Notary Stamp or Seal Required

+ $30 FILING FEE MUST ACCOMPANY PROTEST. PROTEST MUST BE FILED IN DUPLICATE.
ALL COPIES MUST CONTAIN ORIGINAL SIGNATURE.

Attachment "A"
Protests to Applications 84688 & 84689

Applications 84668 & 84689 seek to appropriate groundwater from the Dry Valley Hydrographic Basin (Basin 95). Each application is filed for 1,500 acre-feet annually with a total combined duty of 3,000 acre-feet annually.

The Dry Valley Hydrographic Basin is currently fully appropriated by existing underground permits as determined by the Nevada State Engineer in Ruling 5568 issued in 2006 (and reinforced in Rulings 5622 and 5897). Current groundwater appropriations total 3,021.60 acre-feet, of which 2,996 acre-feet are issued for municipal use outside of the basin itself.

NRS 533.370(3) sets forth the criteria for rejection of an application to appropriate water. Said statute reads as follows:

"Except as otherwise provided in subsection 6, where there is no unappropriated water in the proposed source of supply, or where its proposed use or change conflicts with existing rights or with protectible interests in existing domestic wells as set forth in NRS 533.024, or threatens to prove detrimental to the public interest, the state engineer shall reject the application and refuse to issue the requested permit. If a previous application for a similar use of water within the same basin has been rejected on those grounds, the new application may be denied without publication."

Applications 84688 and 84689 seek to appropriate 3,000 additional acre-feet over and above the established perennial yield of Basin 95 and therefore no unappropriated water is available at the source.

Issuance of additional groundwater rights over and above the established perennial yield of Basin 95 would result in water being removed from storage within the basin, which in turn could cause excessive drawdown to the water table, resulting in adverse impacts to streamflow in Dry Valley Creek and to spring discharge within said basin and thus adversely affect and conflict with the Protestant's senior surface water rights from Dry Valley Creek and numerous springs within the basin.

The Protestant has recently granted conservation easements across much of its land to the United State of America. These easements provide for the preservation of open space for the benefit of wildlife and for recreational purposes. The diminished streamflow in Dry Valley Creek and spring discharges within the Dry Valley Hydrographic Basin would result in reductions in the amount of water available to both livestock and wildlife within the basin and thus the appropriations being sought threaten to prove detrimental to the public interest.

Attachment "A"
Protests to Applications 84688 & 84689

Finally, portions of the place of use of these applications (as well as the Point of Diversion for Application 84689) are located in California. These applications are also subject to the provisions of NRS 533.520, in particular those portions whereby the State Engineer, in determining whether or not the use of the water outside the State of Nevada complies with the provisions of NRS 533.324 to 533.450 must consider the following factors:

(a) The supply of water available in this State
(b) The current and reasonably anticipated demands for water in this State;
(c) The current or reasonably anticipated shortages of water in this State;
(d) Whether the water that is the subject of the application could feasibly be used to alleviate current or reasonably anticipated shortages of water in this State;
(e) The supply and sources of water available to the applicant in the state in which the applicant intends to use the water;
(f) The demands placed on the applicant's supply of water in the state in which he or she intends to use the water; and
(g) Whether the request in the application is reasonable, taking into consideration the factors set forth in paragraphs (a) to (f), inclusive.

Applications 84688 and 84689 fail to provide any information to the State Engineer that would allow him to make a determination as to whether or not the these applications comply with NRS 533.324 to 533.450 and thus they are deficient and should be rejected as failing to comply with NRS 533.520.

Therefore, based on the foregoing, Buckhorn Land and Livestock, LLC respectfully requests that Applications 84688 and 84689 be denied.

F I L E D
Electronically
CV16-01378
2016-06-29 10:39:50 AM
Jacqueline Bryant
Clerk of the Court
Transaction # 5585466 : rkwatkin

EXHIBIT 3

EXHIBIT 3

IN THE OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATION NUMBER 84688
FILED BY Sierra Pacific Industries
ON January 9 , 20 15

PROTEST

FILED
FEB 27 2015
STATE ENGINEER'S OFFICE

Comes now Washoe County
Printed or typed name of protestant

whose post office address is P.O. Box 11130, Reno Nevada 89520-0027
Street No. or PO Box, City, State and ZIP Code

whose occupation is a political subdivision of State of Nevada and protests the granting

of Application Number 84688 , filed on January 9 , 20 15

by Sierra Pacific Industries for the

waters of Underground situated in Washoe
an underground source or name of stream, lake, spring or other source

County, State of Nevada, for the following reasons and on the following grounds, to wit:
Please refer to attached Exhibit "A".

2015 FEB 27 AM 10:47

THEREFORE the Protestant requests that the application be Denied
Denied, issued subject to prior rights, etc., as the case may be

and that an order be entered for such relief as the State Engineer deems just and proper.

Signed
Agent of protestant

Vahid Behmaram
Printed or typed name, if agent

Address P.O. Box 11130,
Street No or PO Box

Reno Nevada 89520-0027
City, State and ZIP Code

(775) 954-4647
Phone Number

vbehmaram@washoecounty.us
E-mail

State of Nevada
County of Washoe

Subscribed and sworn to before me on 2/26/15

by Vahid Behmaram

Signature of Notary Public Required

JUNE L. DAVIS
Notary Public - State of Nevada
Appointment Recorded in Washoe County
No: 93-3504-2 - Expires June 18, 2018

Notary Stamp or Seal Required

+ $30 FILING FEE MUST ACCOMPANY PROTEST. PROTEST MUST BE FILED IN DUPLICATE. ALL COPIES MUST CONTAIN ORIGINAL SIGNATURE.

Exhibit "A"

Applications 84688 & 84689

The above referenced applications propose to appropriate 3000 acre-feet of ground water from the Dry Valley Hydro-graphic Basin.

State Engineer's ruling # 5568 determined a perennial yield of 3000 acre-feet for this basin.

Existing appropriations against the ground water resources of this basin are at or slightly over the yield estimate. Furthermore, the State Engineer's records indicate an additional 3400 acre-feet of pending applications within this basin.

NRS 533.370 (5) states that:

> *The State Engineer is prohibited by law from granting an application to appropriate the public waters of State of Nevada where:*
>
> *A. There is no unappropriated water at the proposed source;*
>
> *B. The proposed use or change conflicts with existing rights;*
>
> *C. The proposed use or change conflicts with protectible interests in the existing domestic wells as set forth in NRS 533.024; or*
>
> *D. The proposed use or change threatens to prove detrimental to the public interest.*

Therefore, based on the foregoing Washoe County request that these applications be denied as granting them would be contrary to items A, B & D of the provisions of NRS 533.370 (5) listed above.

FILED
Electronically
CV16-01378
2016-07-22 09:02:58 AM
Jacqueline Bryant
Clerk of the Court
Transaction # 5621670

IN THE SECOND JUDICIAL DISTRICT COURT OF THE STATE OF NEVADA

IN AND FOR THE COUNTY OF WASHOE

* * * * *

SIERRA PACIFIC INDUSTRIES, a California corporation,

Petitioner,

vs.

JASON KING, P.E., in his capacity as Nevada State Engineer, and the DIVISION OF WATER RESOURCES, DEPARTMENT OF CONSERVATION, an agency of the State of Nevada,

Respondents.

Case No. CV16-01378

Dept. No. 4

ORDER GRANTING STIPULATION TO ALLOW INTERVENTION

On July 8, 2016, Petitioner Sierra Pacific Industries, by and through its attorney, Debbie Leonard, Esq. of McDonald, Carano Wilson LLP, Respondents Jason King, P.E., in his capacity as Nevada State Engineer, and the Division of Water Resources, Department of Conservation, by and through their attorney, Micheline N. Fairbank, Esq., Deputy Attorney General, Office of the Attorney General, and Intervenor Intermountain Water Supply, Ltd., by and through its attorney, Richard L. Elmore,

///

///

///

///

///

Esq., filed a *Stipulation to Allow Intervention* wherein the parties stipulated and agreed to allow Intermountain Water Supply, Ltd. to intervene in this case as a respondent.

Based upon the foregoing and good cause appearing,

IT IS HEREBY ORDERED that Intermountain Water Supply is granted the right to intervene in this case.

DATED this 21 day of July, 2016

Connie J. Steinheimer
DISTRICT JUDGE

CERTIFICATE OF SERVICE

CASE NO. CV16-01378

I certify that I am an employee of the SECOND JUDICIAL DISTRICT COURT of the STATE OF NEVADA, COUNTY OF WASHOE; that on the 22 day of July, 2016, I filed the **ORDER GRANTING STIPULATION TO ALLOW INTERVENTION**] with the Clerk of the Court.

I further certify that I transmitted a true and correct copy of the foregoing document by the method(s) noted below:

_____**Personal delivery to the following: [NONE]**

✓ **Electronically filed with the Clerk of the Court, using the eFlex system which constitutes effective service for all eFiled documents pursuant to the eFile User Agreement.**

DEBBIE LEONARD, ESQ. for SIERRA PACIFIC INDUSTRIES
RICHARD ELMORE, ESQ. for INTERMOUNTAIN WATER SUPPLY, LTD.

✓ **Transmitted document to the Second Judicial District Court mailing system in a sealed envelope for postage and mailing by Washoe County using the United States Postal Service in Reno, Nevada:**

Jason King, P.E.
Nevada State Engineer
Division of Water Resources
901 South Stewart ST., STe. 2002
Carson City, NV 89701-5250

Washoe County, Nevada
ATtn: Vahid Behmaram
P.O. Box 11130
Reno, NV 89520-0027

Buckhorn Land and Livestock, LLC
500 Damonte Ranch Pkwy., Ste. 980
Reno, NV 89521

_____**Placed a true copy in a sealed envelope for service via:**

_____ Reno/Carson Messenger Service – **[NONE]**

_____ Federal Express or other overnight delivery service **[NONE]**

DATED this 22 day of July, 20__.

Audrey A Austin

F I L E D
Electronically
CV16-01378
2016-09-08 12:45:09 PM
Jacqueline Bryant
Clerk of the Court
Transaction # 5697787 : tbritton

3746
ADAM PAUL LAXALT
Attorney General
MICHELINE N. FAIRBANK
Senior Deputy Attorney General
Nevada Bar No. 8062
100 North Carson Street
Carson City, Nevada 89701-4717
Tel: (775) 684-1225
Fax: (775) 684-1108
Email: mfairbank@ag.nv.gov
Attorney for Respondent,
Nevada State Engineer

Office of the Attorney General
100 North Carson Street
Carson City, Nevada 89701-4717

IN THE SECOND JUDICIAL DISTRICT COURT OF THE STATE OF NEVADA

IN AND FOR THE COUNTY OF WASHOE

SIERRA PACIFIC INDUSTRIES, a California Corporation, Petitioner, vs. JASON KING, P.E., in his capacity as Nevada State Engineer, and the DIVISION OF WATER RESOURCES, DEPARTMENT OF CONSERVATION, an agency of the State of Nevada, Respondent, and, INTERMOUNTAIN WATER SUPPLY, LTD., a Nevada limited liability company, Intervenor-Respondent.	Case No. CV16-01378 Dept. No. 1

SUMMARY OF RECORD ON APPEAL

Jason King, P.E., the State Engineer, in his capacity as the Nevada State Engineer, Department of Conservation and Natural Resources, Division of Water Resources ("Nevada State Engineer"), by and through counsel, Nevada Attorney General Adam Paul Laxalt and Senior Deputy Attorney General Micheline N. Fairbank, hereby respectfully submits the attached documents constituting the record on appeal in this matter of protested Permit Nos. 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327, Bates-stamped pages SE ROA 1-748.

Office of the Attorney General
100 North Carson Street
Carson City, Nevada 89701-4717

Index to Administrative Record Re:
Permit Nos. 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327

DATE	DESCRIPTION	Bates Range SE ROA	
08/10/16	Certificate of Record	1	1
	PERMIT NO. 64977		
03/24/99	Application for Permit No. 64977	2	2
11/07/03	Abstract of Title	3	3
07/13/04	Summary of Ownership	4	4
12/02/15	Letter from Debbie Leonard to DWR re: Objection of Sierra Pacific Industries' Extensions for Intermountain Water Supply's Permits 64977, 64978, 66400, 66961, 72700, 73428, 73429, 73430, 74327, and 79548 with attached Index and documents marked SPI APP 001-414	5	426
12/03/15	Letter from DWR to Debbie Leonard re: Objection to Applications for Extensions of Time and No Indication that Objection was Served on Owner of Record of Permits	427	427
12/09/15	Letter from Debbie Leonard to DWR re: Response to Letter dated 12/03/15, with enclosed Certificate of Service	428	429
01/06/16	Letter from Debbie Leonard to DWR re: Supplement to Objection of Sierra Pacific Industries to Extensions for Intermountain Water Supply's Permits 64977, 64978, 66400, 66961, 72700, 73428, 73429, 73430, 74327, and 79548 with attached Truckee Meadows Water Authority 2016-2035 Draft Water Resource Plan (Pages 140-147 of Draft are missing and cannot be located)	430	579
01/12/16	Order Denying Petition for Petition for Judicial Review, *Sierra Pacific Industries v. Jason King, et al.*, Second Judicial District Court, Case No. CV15-01257	580	602
02/25/16	Letter from DWR to Intermountain Water Supply re: Final Notice for Permits 64977, 64978, 66400, 73428, 73429, 73430, and 74327 to file a Proof of Completion and Proof of Beneficial Use	603	604

Office of the Attorney General
100 North Carson Street
Carson City, Nevada 89701-4717

Index to Administrative Record Re:
Permit Nos. 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327

DATE	DESCRIPTION	Bates Range SE ROA	
03/08/16	Application for Extension of Time re: Permit 64977 with attached Statement in Opposition to Pre-filed Objections of Protestant Sierra Pacific Industries, Affidavit of Robert Marshall, and List of Expenditures and Supporting Invoices	605	617
06/01/16	Letter from DWR to Intermountain Water Supply re: Applications for Extension of Time Concerning Permits 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327 as to the Decisions to Grant the Extensions of Time	618	624
06/09/16	Letter from DWR to Intermountain Water Supply re: Permits 64977, 64978, 66400, 73428, 73429, 73430, and 74327 informing that the Application for Extension of Time has been Granted to 02/11/17	625	625
PERMIT NO. 64978			
03/24/99	Application for Permit No. 64978	626	626
10/07/03	Abstract of Title	627	627
07/13/04	Summary of Ownership	628	628
12/03/15	Letter from DWR to Debbie Leonard re: Objection to Applications for Extensions of Time and No Indication that Objection was Served on Owner of Record of Permits	629	629
12/09/15	Letter from Debbie Leonard to DWR re: Response to Letter dated 12/03/15, with enclosed Certificate of Service	630	631
01/06/16	DWR Memo to File: On 12/02/15, an Objection was filed to Intermountain Water Supply's Requests for Extension of Time in files 64977, 64978, 66400, 66961, 72700, 73428, 73429, 73430, 74327, and 79548. The document is very large and was only filed in file 64977. Supplement to file 64977 was filed on 01/06/16	632	632
02/25/16	Letter from DWR to Intermountain Water Supply re: Final Notice for Permits 64977, 64978, 66400, 73428, 73429, 73430, and 74327 to file a Proof of Completion and Proof of Beneficial Use	633	633
03/08/16	Application for Extension of Time re: Permit 64978	634	635

Index to Administrative Record Re:
Permit Nos. 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327

DATE	DESCRIPTION	Bates Range SE ROA	
06/01/16	Letter from DWR to Intermountain Water Supply re: Applications for Extension of Time Concerning Permits 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327 as to the Decisions to Grant the Extensions of Time	636	642
06/09/16	Letter from DWR to Intermountain Water Supply re: Permits 64977, 64978, 66400, 73428, 73429, 73430, and 74327 informing that the Application for Extension of Time has been Granted to 02/11/17	643	643
PERMIT NO. 66400			
05/22/00	Application for Permit No. 66400	644	644
10/07/03	Abstract of Title	645	645
07/13/04	Summary of Ownership	646	646
12/03/15	Letter from DWR to Debbie Leonard re: Objection to Applications for Extensions of Time and No Indication that Objection was Served on Owner of Record of Permits	647	647
12/09/15	Letter from Debbie Leonard to DWR re: Response to Letter dated 12/03/15, with enclosed Certificate of Service	648	649
01/06/16	DWR Memo to File: On 12/02/15, an Objection was filed to Intermountain Water Supply's Requests for Extension of Time in files 64977, 64978, 66400, 66961, 72700, 73428, 73429, 73430, 74327, and 79548. The document is very large and was only filed in file 64977. Supplement to file 64977 was filed on 01/06/16	650	650
02/25/16	Letter from DWR to Intermountain Water Supply re: Final Notice for Permits 64977, 64978, 66400, 73428, 73429, 73430, and 74327 to file a Proof of Completion and Proof of Beneficial Use	651	651
03/08/16	Application for Extension of Time re: Permit 66400	652	653
06/01/16	Letter from DWR to Intermountain Water Supply re: Applications for Extension of Time Concerning Permits 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327 as to the Decisions to Grant the Extensions of Time	654	660

Office of the Attorney General
100 North Carson Street
Carson City, Nevada 89701-4717

Index to Administrative Record Re:
Permit Nos. 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327

DATE	DESCRIPTION	Bates Range SE ROA	
06/09/16	Letter from DWR to Intermountain Water Supply re: Permits 64977, 64978, 66400, 73428, 73429, 73430, and 74327 informing that the Application for Extension of Time has been Granted to 02/11/17	661	661
	PERMIT NO. 72700		
05/03/05	Application for Permit 72700	662	662
12/03/15	Letter from DWR to Debbie Leonard re: Objection to Applications for Extensions of Time and No Indication that Objection was Served on Owner of Record of Permits	663	663
12/09/15	Letter from Debbie Leonard to DWR re: Response to Letter dated 12/03/15, with enclosed Certificate of Service	664	665
01/06/16	DWR Memo to File: On 12/02/15, an Objection was filed to Intermountain Water Supply's Requests for Extension of Time in files 64977, 64978, 66400, 66961, 72700, 73428, 73429, 73430, 74327, and 79548. The document is very large and was only filed in file 64977. Supplement to file 64977 was filed on 01/06/16	666	666
01/11/16	Letter from DWR to Intermountain Water Supply re: Final Notice for Permit 72700 to file a Proof of Completion and Proof of Beneficial Use	667	668
02/09/16	Application for Extension of Time re: Permit 72700	669	670
06/01/16	Letter from DWR to Intermountain Water Supply re: Applications for Extension of Time Concerning Permits 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327 as to the Decisions to Grant the Extensions of Time	671	677
06/09/16	Letter from DWR to Intermountain Water Supply re: Permit 72700 informing that the Application for Extension of Time has been Granted to 12/18/16	678	678
	PERMIT NO. 73428		
11/03/05	Application for Permit 73428	679	679
01/09/06	Abstract of Title	680	680
01/19/06	Summary of Ownership	681	681

Office of the Attorney General
100 North Carson Street
Carson City, Nevada 89701-4717

Office of the Attorney General
100 North Carson Street
Carson City, Nevada 89701-4717

Index to Administrative Record Re:
Permit Nos. 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327

DATE	DESCRIPTION	Bates Range SE ROA	
12/03/15	Letter from DWR to Debbie Leonard re: Objection to Applications for Extensions of Time and No Indication that Objection was Served on Owner of Record of Permits	682	682
12/09/15	Letter from Debbie Leonard to DWR re: Response to Letter dated 12/03/15, with enclosed Certificate of Service	683	684
01/06/16	DWR Memo to File: On 12/02/15, an Objection was filed to Intermountain Water Supply's Requests for Extension of Time in files 64977, 64978, 66400, 66961, 72700, 73428, 73429, 73430, 74327, and 79548. The document is very large and was only filed in file 64977. Supplement to file 64977 was filed on 01/06/16	685	685
02/25/16	Letter from DWR to Intermountain Water Supply re: Final Notice for Permits 64977, 64978, 66400, 73428, 73429, 73430, and 74327 to file a Proof of Completion and Proof of Beneficial Use	686	686
03/08/16	Application for Extension of Time re: Permit 73428	687	688
06/01/16	Letter from DWR to Robert Marshall re: Applications for Extension of Time Concerning Permits 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327 as to the Decisions to Grant the Extensions of Time	689	695
06/09/16	Letter from DWR to Intermountain Water Supply re: Permits 64977, 64978, 66400, 73428, 73429, 73430, and 74327 informing that the Application for Extension of Time has been Granted to 02/11/17	696	696
	PERMIT NO. 73429		
11/03/05	Application for Permit No. 73429	697	697
01/09/06	Abstract of Title	698	698
01/19/06	Summary of Ownership	699	699
12/03/15	Letter from DWR to Debbie Leonard re: Objection to Applications for Extensions of Time and No Indication that Objection was Served on Owner of Record of Permits	700	700

Index to Administrative Record Re:
Permit Nos. 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327

DATE	DESCRIPTION	Bates Range SE ROA	
12/09/15	Letter from Debbie Leonard to DWR re: Response to Letter dated 12/03/15, with enclosed Certificate of Service	701	702
01/06/16	DWR Memo to File: On 12/02/15, an Objection was filed to Intermountain Water Supply's Requests for Extension of Time in files 64977, 64978, 66400, 66961, 72700, 73428, 73429, 73430, 74327, and 79548. The document is very large and was only filed in file 64977. Supplement to file 64977 was filed on 01/06/16	703	703
02/25/16	Letter from DWR to Intermountain Water Supply re: Final Notice for Permits 64977, 64978, 66400, 73428, 73429, 73430, and 74327 to file a Proof of Completion and Proof of Beneficial Use	704	704
03/08/16	Application for Extension of Time re: Permit 73429	705	706
06/01/16	Letter from DWR to Intermountain Water Supply re: Applications for Extension of Time Concerning Permits 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327 as to the Decisions to Grant the Extensions of Time	707	713
06/09/16	Letter from DWR to Intermountain Water Supply re: Permits 64977, 64978, 66400, 73428, 73429, 73430, and 74327 informing that the Application for Extension of Time has been Granted to 02/11/17	714	714
PERMIT NO. 73430			
11/03/05	Application for Permit No. 73430	715	715
01/09/06	Abstract of Title	716	716
01/19/06	Summary of Ownership	717	717
12/03/15	Letter from DWR to Debbie Leonard re: Objection to Applications for Extensions of Time and No Indication that Objection was Served on Owner of Record of Permits	718	718
12/09/15	Letter from Debbie Leonard to DWR re: Response to Letter dated 12/03/15, with enclosed Certificate of Service	719	720

Office of the Attorney General
100 North Carson Street
Carson City, Nevada 89701-4717

Index to Administrative Record Re:
Permit Nos. 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327

DATE	DESCRIPTION	Bates Range SE ROA	
01/06/16	DWR Memo to File: On 12/02/15, an Objection was filed to Intermountain Water Supply's Requests for Extension of Time in files 64977, 64978, 66400, 66961, 72700, 73428, 73429, 73430, 74327, and 79548. The document is very large and was only filed in file 64977. Supplement to file 64977 was filed on 01/06/16	721	721
02/25/16	Letter from DWR to Intermountain Water Supply re: Final Notice for Permits 64977, 64978, 66400, 73428, 73429, 73430, and 74327 to file a Proof of Completion and Proof of Beneficial Use	722	722
03/08/16	Application for Extension of Time re: Permit 73430	723	724
06/01/16	Letter from DWR to Intermountain Water Supply re: Applications for Extension of Time Concerning Permits 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327 as to the Decisions to Grant the Extensions of Time	725	731
06/09/16	Letter from DWR to Intermountain Water Supply re: Permits 64977, 64978, 66400, 73428, 73429, 73430, and 74327 informing that the Application for Extension of Time has been Granted to 02/11/17	732	732
PERMIT NO. 74327			
05/23/06	Application for Permit No. 74327	733	733
12/03/15	Letter from DWR to Debbie Leonard re: Objection to Applications for Extensions of Time and No Indication that Objection was Served on Owner of Record of Permits	734	734
12/09/15	Letter from Debbie Leonard to DWR re: Response to Letter dated 12/03/15, with enclosed Certificate of Service	735	736
01/06/16	DWR Memo to File: On 12/02/15, an Objection was filed to Intermountain Water Supply's Requests for Extension of Time in files 64977, 64978, 66400, 66961, 72700, 73428, 73429, 73430, 74327, and 79548. The document is very large and was only filed in file 64977. Supplement to file 64977 was filed on 01/06/16	737	737

Office of the Attorney General
100 North Carson Street
Carson City, Nevada 89701-4717

Index to Administrative Record Re:
Permit Nos. 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327

DATE	DESCRIPTION	Bates Range SE ROA	
02/25/16	Letter from DWR to Intermountain Water Supply re: Final Notice for Permits 64977, 64978, 66400, 73428, 73429, 73430, and 74327 to file a Proof of Completion and Proof of Beneficial Use	738	738
03/08/16	Application for Extension of Time re: Permit 74327	739	740
06/01/16	Letter from DWR to Intermountain Water Supply re: Applications for Extension of Time Concerning Permits 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327 as to the Decisions to Grant the Extensions of Time	741	747
06/09/16	Letter from DWR to Intermountain Water Supply re: Permits 64977, 64978, 66400, 73428, 73429, 73430, and 74327 informing that the Application for Extension of Time has been Granted to 02/11/17	748	748

AFFIRMATION (Pursuant to NRS 239B.030)

The undersigned does hereby affirm that the preceding Summary of Record on Appeal does not contain the social security number of any person.

DATED this 6th day of September, 2016.

ADAM PAUL LAXALT
Attorney General

By: /s/ Micheline N. Fairbank
MICHELINE N. FAIRBANK
Senior Deputy Attorney General

Office of the Attorney General
100 North Carson Street
Carson City, Nevada 89701-4717

CERTIFICATE OF SERVICE

I certify that I am an employee of the State of Nevada, Office of the Attorney General, and that on this 6th day of September, 2016, I served a true and correct copy of the foregoing SUMMARY OF RECORD ON APPEAL (SE ROA 1-748), by electronic filing to:

DEBBIE LEONARD, ESQ.
Email: dleonard@mcdonaldcarano.com
Counsel for Sierra Pacific Industries

RICHARD L. ELMORE, ESQ.
Email: relmore@rlepc.com
Counsel for Intermountain Water Supply, Inc.

/s/ Dorene A. Wright

Office of the Attorney General
100 North Carson Street
Carson City, Nevada 89701-4717

F I L E D
Electronically
CV16-01378
2016-09-08 12:45:09 PM
Jacqueline Bryant
Clerk of the Court
Transaction # 5697787 : tbritton

3746
ADAM PAUL LAXALT
Attorney General
MICHELINE N. FAIRBANK
Senior Deputy Attorney General
Nevada Bar No. 8062
100 North Carson Street
Carson City, Nevada 89701-4717
Tel: (775) 684-1225
Fax: (775) 684-1108
Email: mfairbank@ag.nv.gov
Attorney for Respondent,
Nevada State Engineer

Office of the Attorney General
100 North Carson Street
Carson City, Nevada 89701-4717

IN THE SECOND JUDICIAL DISTRICT COURT OF THE STATE OF NEVADA

IN AND FOR THE COUNTY OF WASHOE

SIERRA PACIFIC INDUSTRIES, a California Corporation, Petitioner, vs. JASON KING, P.E., in his capacity as Nevada State Engineer, and the DIVISION OF WATER RESOURCES, DEPARTMENT OF CONSERVATION, an agency of the State of Nevada, Respondent, and, INTERMOUNTAIN WATER SUPPLY, LTD., a Nevada limited liability company, Intervenor-Respondent.	Case No. CV16-01378 Dept. No. 1

SUMMARY OF RECORD ON APPEAL

SE ROA 1 - 748

CERTIFICATE OF RECORD

STATE OF NEVADA)
) ss
CARSON CITY)

I, Susan Joseph-Taylor, Deputy Administrator of the Division of Water Resources, State of Nevada, duly appointed and qualified, having full charge of the records and files of the Office of the State Engineer, do hereby certify that any copies of originals provided herein are full, complete and true copies as appear in the records and files of the Office of the State Engineer of Nevada.

Susan Joseph-Taylor
Deputy Administrator

8/10/16
Date

SUBSCRIBED AND SWORN to before me
by Susan Joseph-Taylor this

10 day of August, 2016.

Notary Public

JANICE A. WILLHITE
NOTARY PUBLIC
STATE OF NEVADA
No. 04-92966-12 My Appt. Exp. Aug. 19, 2017

Record on Review
In the matter of Nevada State Engineer's Granting Extensions of Time Regarding Permits 64977, 64978, 66400, 72700, 73428, 73429, 73430, and 74327

SEE APPLICATION 69663 TO CHANGE P.O.D. WRD 8/15/03

File 1 of 4

No. 64977 Date Filed MAR 24 1999

Indexed under | Well Log

Name of applicant	X	
Map		Basin 7 - 95
Stream		DRY VALLEY
Township 24N Range 19E		County WASHOE

Point of diversion NW 1/4 NW 1/4 Section 11

Applicant INTERMOUNTAIN PIPELINE LTD. ASSIGNED

Source of Water UNDERGROUND

Returned for correction APR 02 1999 Abrogated by p 72700 1.38

Corrected application received MAY 28 1999

Map filed May 28 1999

Sent for publication JUN 08 1999

Proof of publication filed JUL 23 1999

Investigated on ground by

Protested

Ready for action AUG 20 1999

Approved 1/11/02 2.0 Municipal

Denied

	PROOF OF COMMENCEMENT	PROOF OF COMPLETION	PROOF OF BENEFICIAL USE	CULTURAL MAP
Date due		FEB 11 2005	FEB 11 2007	N/A
1st extension		~~08 09 10 11 12~~	~~08 09 10 11 12~~	
2nd extension		NO FURTHER EXTENSION	NO FURTHER EXTENSION	
Date filed				Filed under map

CERTIFICATE NO.		ISSUED		AMOUNT	
Use					

COMPUTER CHECK	File Entry	CMB	Publication	PS	Permit	B.M.	Certificate	

ADDRESS

SEE APPLICATION 72700 TO CHANGE P.O.D. P.O.U. OF A PORTION

SMEAD 45 SP74108

JA0044

SE ROA 2

ABSTRACT OF TITLE

Please retain this sheet underneath the Summary of Ownership form

PERMIT 64977
PAGE 1 of 1

DEED NO.	GRANTOR	GRANTEE	CFS	AFA	ACRES	FILED UNDER / DATE	DOC # / DATE	DOCUMENT DESCRIPTION/ REMARKS
1	Intermountain Pipeline Ltd.	Intermountain Water Supply, Ltd. a Nevada Limited Liability Company	2.0	1447	—	64977 / 10/7/2003	2871554 / 6/13/2003	Water Rights Deed
2								
3								
4								
5								
6								

SE ROA 3

JA0045

64977+ 64977abs

Printed on 7/13/2004

STATE OF NEVADA
DIVISION OF WATER RESOURCES

SUMMARY OF OWNERSHIP

Please retain this sheet on top of file

PERMIT: 64977 USE: MUN CFS: 2.0 DUTY: 1447 AFA _____ ACRES
CERTIFICATE: _____ ISSUED: _____ CFS: _____ DUTY: _____ AFA _____ ACRES

REVIEW DATE: 7/13/2004 BY: DLS
LAST UPDATE: _____ BY: _____

SUPPLEMENTAL TO: 64977, 64978 and 66400 total combined duty not to exceed 2996 acre-feet annually.

OWNER	CFS	DUTY AFA	APPURTENANT ACRES	CHANGED BY: STATUS	REFERENCED DOCUMENTS	DESCRIPTION
Intermountain Water Supply, Ltd.	2.0	1447	---	69663 WDR	1	
" "	0.83	600.0 AFA		72700 RFP		

ENCUMBRANCE(S) : YES ( ) NO (X)

JA0046

SE ROA 4

McDONALD·CARANO·WILSON LLP

Debbie Leonard
dleonard@mcwlaw.com

Reno Office

December 2, 2015

Jason King
Nevada State Engineer
Division of Water Resources
901 S. Stewart St., Suite 2002
Carson City, NV 89701

Re: Objection of Sierra Pacific Industries to Extensions for Intermountain Water Supply's Permits:

64977
64978
66400
66961
72700
73428
73429
73430
74327
79548

RECEIVED
2015 DEC -2 PM 3:14
STATE ENGINEERS OFFICE

Dear Mr. King:

Sierra Pacific Industries ("SPI") submits this objection to the State Engineer granting any additional extensions of time to Intermountain Water Supply, Ltd. ("Intermountain") for groundwater permits in the Dry Valley hydrographic basin.

Intermountain has the following permits in Dry Valley basin for which it cannot demonstrate proof of completion or proof of beneficial use:

Application No.	Status	File Date	Proof of Completion Due	Proof of Beneficial Use Due
64977	PER	3/24/1999	2/11/2016	2/11/2016
64978	PER	3/24/1999	2/11/2016	2/11/2016
66400	PER	5/22/2000	2/11/2016	2/11/2016
72700	PER	5/3/2005	12/18/2015	12/18/2015
73428	PER	11/3/2005	2/11/2016	2/11/2016
73429	PER	11/3/2005	2/11/2016	2/11/2016
73430	PER	11/3/2005	2/11/2016	2/11/2016
74327	PER	5/23/2006	2/11/2016	2/11/2016

No good cause exists for any extensions because Intermountain has no intention to put the water to beneficial use, cannot satisfy the statutory requirements, has no contract with the municipal water purveyor and engages in water speculation.

A. Intermountain is Engaging in Water Speculation

Through its statutory scheme and express adoption of the anti-speculation doctrine, Nevada law prohibits speculation in water. *See* NRS 533.370(1)(c); NRS 533.380; *Bacher v. State Engineer*, 122 Nev. 1110, 146 P.3d 793 (2006). The anti-speculation doctrine "addresses the situation in which the purported appropriator does not intend to put water to use for its own benefit and has no contractual or agency relationship with one who does." *Bacher*, 122 Nev. at 1119, 146 P.3d at 799 (2006) (quoting *Three Bells Ranch v. Cache La Poudre*, 758 P.2d 164, 173 n. 11 (Colo. 1988)). The State Engineer can only grant an extension for good cause, upon a showing of good faith and reasonable diligence to construct the diversion works and put the water to beneficial use and when all other statutory criteria justify additional time. NRS 533.380. By definition, these requirements are not met when water speculation occurs.

The anti-speculation doctrine applies to both permit applications and extension requests. This is made abundantly clear in the legislative history of NRS 533.380:

> Assemblyman Vivian Freeman, District 24, presented testimony as a proponent of AB 624. . . Mrs. Freeman said the particular goal or purpose of drafting AB 624 **was to try to prevent speculation on water in Nevada**... [T]he legislation would prevent water speculators from moving into a particular area and to take away the water which was available.

(Assembly Committee on Government Affairs, May 27, 1993 minutes at p.2, AB 624, 1993 Legislative History at 1847, 1849, SPI APP 375) (emphasis added).

> Senator Hickey questioned the need for the bill if the state engineer presently has the discretionary power to cancel permits. Mrs. Freeman responded the bill will give the state engineer **additional tools to prevent any speculation on water**.

(Senate Committee on Natural Resources, June 25, 1993 minutes at p.2, AB 624, 1993 Legislative History at 1768, SPI APP 394) (emphasis added). The State Engineer participated in the drafting of AB 624 and was present at the committee hearings at which it was discussed. (Assembly Committee on Government Affairs, May 27, 1993 minutes at p.2, AB 624, 1993 Legislative History at 1847, Addendum 121; Senate Committee on Natural Resources, June 25, 1993 minutes, AB 624, 1993 Legislative History at 1767-70, SPI APP 394-0396).

In granting Intermountain's past extensions, the State Engineer acknowledged that permit holders are equally prohibited from speculating in water as are water rights applicants. (June 4, 2015 Decision, citing the anti-speculation doctrine). And, past rulings of the State Engineer further confirm that Nevada's statutory scheme ensures that speculation cannot occur at any time during the permitting process:

> The State Engineer recognizes that the Nevada Legislature is becoming increasingly concerned over applications **and permits** filed for speculation where the sole intent of the applicant is not to place the water to a beneficial use, but merely to profit from the sale of water rights to interested parties.

(State Engineer's Ruling 4548 (emphasis added) (SPI APP 306-307); *see also* State Engineer's Rulings 6063, 5612, 5568, 4192 (prohibiting water speculation) (SPI APP 255-340).

Rather than develop the water under the Permits, Intermountain is actively seeking to market its "water project" in violation of the Nevada's prohibition against speculation. (SPI APP 171). On a website called nevadawaterproject.com, Intermountain is offering its water permits and other pipeline permits for $12,000,000. According to the website, "This 22 mile long, federally approved, proposed pipeline along with 3068.1 acre feet of water **is for sale** in northern Nevada. It's ready for implementation." (www.nevadawaterproject.com, SPI APP 0170) (emphasis added). In other words, Intermountain concedes that it does not itself plan to actually appropriate the water, finance construction of the necessary infrastructure for a municipal water system, bear the cost of operating and maintaining the municipal water system, or place water under its permitted or applied-for water rights to beneficial use. (*See also* May 26, 2015 letter from Intermountain to Kristen Geddes, in your file). In granting past extensions, the State Engineer expressly found that, through Intermountain's own admissions since 2011, Intermountain simply seeks to sell the water rights, not put the water to beneficial use. (June 4, 2015 Decision in your files, citing *Colorado River Water Conservation Dist. v. Vidler Tunnel Water Co.*, 594 P.2d 566 (Colo. 1979)).

Intermountain also conceded that its effort "to develop an appropriate agreement for Washoe County to obtain the Project ... failed due to political considerations[;] ... talks with Washoe County terminated in September 2014[;]... Washoe County is not going to purchase any part of the Project[;] "[t]he demand for the water ceased"; and Intermountain has no intention to itself put the water to beneficial use. (May 26, 2015 letter from Intermountain to Kristen Geddes at p.3). In the absence of a contractual or agency relationship with the municipal water supplier, and in light of Intermountain's candid admissions that its sole goal is to sell the permits on speculation in light of zero demand for additional imported water, the State Engineer has no discretion to grant further extensions to Intermountain.

B. Intermountain Cannot Satisfy the Requirements of NRS 533.380

Nevada's statutes limit the State Engineer's authority to extend the time period in which a permittee must show completion of the diversion works or prove up beneficial use: "The State Engineer shall not grant an extension of time unless the State Engineer determines from the proof and evidence so submitted that the applicant is proceeding in good faith and with reasonable diligence to perfect the application." NRS 533.380(3). With regard to extension requests for water rights that, as here, are meant to supply a municipal area, the State Engineer:

> **shall** ... consider, among other factors:
>
> (a) Whether the holder has shown good cause for not having made a complete application of the water to a beneficial use;
>
> (b) The number of parcels and commercial or residential units which are contained in or planned for the land being developed or the area being served by the county, city, town, public water district or public water company;
>
> (c) Any economic conditions which affect the ability of the holder to make a complete application of the water to a beneficial use;
>
> (d) Any delays in the development of the land or the area being served by the county, city, town, public water district or public water company which were caused by unanticipated natural conditions; and
>
> (e) The period contemplated in the:
>
> (1) Plan for the development of a project approved by the local government pursuant to NRS 278.010 to 278.460, inclusive; or

(2) Plan for the development of a planned unit development recorded pursuant to chapter 278A of NRS,

➔ if any, for completing the development of the land.

NRS 533.380(4) (emphasis added). "[T]he measure of reasonable diligence is the steady application of effort to perfect the application in a reasonably expedient and efficient manner under all the facts and circumstances." NRS 533.380(6). Intermountain cannot satisfy any of these statutory requirements.

1. There is No Development That Will be Served by Intermountain's Water

There are no "parcels, commercial or residential units" earmarked for the Intermountain project and no designated service territory or development that will use the water proposed to be imported. NRS 533.380(4)(b), (d)-(e). None of Intermountain's permit applications identify specific development(s) that will be served because there are no such developments. For that reason, Intermountain has not identified any development delays in the area purportedly to be served by Intermountain's water that were "caused by unanticipated natural conditions." NRS 533.380(4)(d). Nothing is slated to be served by Intermountain's water because the Lemmon Valley area is already being served by the existing water supply. As a result, any analysis of the factors in NRS 533.380(4) requires denial of Intermountain's extension requests.

2. Economic Conditions Do Not Prevent Intermountain From Putting Water to Beneficial Use

Intermountain's past reliance on purportedly "poor" economic conditions does not justify further extensions because Intermountain has no intention to put the water to beneficial use. The pertinent factor that the State Engineer must consider is "[a]ny economic conditions which affect the ability of the holder to make a complete application of the water to a beneficial use." NRS 533.380(4)(c) (emphasis added). Intermountain has not identified an approved, or even a planned, commercial or residential project that would not pencil out during the economic downturn. Similarly, Intermountain has never represented that it owns land on which the water rights, but for current economic conditions, would be put to beneficial use.

Rather, the economic conditions to which Intermountain has pointed in the past only affected whether Intermountain could market the water rights for sale. The evidence presented by Intermountain was that it has been unable to find a purchaser who is willing to buy water rights on speculation where there is no municipal demand for the water that Intermountain proposes to import. The absence of any demand for speculative water rights is not an economic condition that can satisfy the statutory criteria for an extension. Where Intermountain concedes that, as "the holder" of the permits, it has no intention "to make a complete application of the

water to a beneficial use," current economic conditions are immaterial to the extension request. NRS 533.380(4)(c).

3. Speculation Does Not Constitute Good Cause for the Extensions

Where Intermountain concedes that its sole goal is to now sell the water rights, no good cause exists for granting the extensions. "Good cause" is defined as "[a] legally sufficient reason." Black's Law Dict. 213 (7th ed. 1999). Because water speculation is contrary to Nevada law, Intermountain's stated purpose to sell the water rights rather than put them to beneficial use is not a legally sufficient reason to grant the extensions.

Intermountain wagered on Washoe County financing and developing the project or buying the water rights, but lack of political will dashed all such possibilities in December 2014. (*See* May 26, 2015 letter from Intermountain to Kristen Geddes at p.3 in file). Given the evidence that Intermountain's project has fallen flat, Nevada law does not grant the State Engineer any discretion to give Intermountain further time to find a speculative purchaser of the water rights. *See* NRS 533.380(4). Because water speculation does not constitute "good cause" for an extension, as a matter of law, the statutory requirements are not satisfied. NRS 533.380(3).

4. Speculation Does Not Constitute Good Faith and Reasonable Diligence

Likewise, how much time and money the permit holder has spent on a failed project does not change the analysis that speculation, as a matter of law, cannot justify an extension. Every time that a permittee seeks an extension, it must demonstrate "good faith and reasonable diligence" anew, and the State Engineer must make a good-cause finding anew. *See* NRS 533.380(3); 533.395(1). What may have constituted good faith and reasonable diligence for the granting of earlier extensions does not necessarily continue to meet the statutory standard when changed circumstances occur. *See* NRS 533.395(1). In reviewing Intermountain's extension requests, the State Engineer must view the "good faith and reasonable diligence" requirement in light of current circumstances, not past investments. *See* NRS 533.380(3); NRS 533.395(1).

To justify past extensions, Intermountain has focused on the time and money it has purportedly spent in the past 16 years on the proposed project. The sums expended and regulatory approvals obtained by Intermountain up until this point do not alter the undisputed fact that Intermountain has no plans to and cannot put the water to beneficial use. It is clear that Intermountain gambled and lost on Washoe County building the proposed project. (May 26, 2015 letter from Intermountain to Kristen Geddes at p. 3). Compassion towards Intermountain for having taken what turned out to be an unwise financial risk is not a ground on which the State Engineer may base an extension. *See* NRS 533.380.

C. There is No Municipal Demand for Dry Valley Water

In granting the extensions to Intermountain last year, the State Engineer relied on obsolete planning documents. The current and pertinent water resource plans indicate that the municipal demands for the Lemmon Valley area are being met by existing water supplies and will be met into the foreseeable future. The Truckee Meadows Water Authority ("TMWA"), which as of January 1, 2015, is the water purveyor for the service territory that encompasses Lemmon Valley has no need for the water that Intermountain's permits contemplate will be imported from Dry Valley. TMWA's Water Resource Plan for 2010-2030 ("the 2030 WRP") clearly indicates that TMWA has no immediate need for imported water. (SPI APP 116). TMWA's Plan provides:

> This 2030 WRP has demonstrated that TMWA currently and for the foreseeable future will continue to rely on the conversion of Truckee River water rights from irrigation to M&I use to meet projected growth.... [TMWA will] begin to use some of the 8,000 acre-feet available from the North Valleys Importation Project [i.e. the existing Fish Springs Ranch pipeline] should TMWA need resources to meet expansion of service in Lemmon Valley.

(SPI APP 116). When discussing other potential water supply projects, TMWA's Plan emphasized, "it is important to note that TMWA is not the project sponsor nor responsible for implementation for these projects, and may not be the direct beneficiary of the project's water supply... **private sponsors are responsible for implementation of these projects**." (SPI APP 0116, 0120) (emphasis added).

TMWA's Plan, in turn, is incorporated into the planning document of the Western Regional Water Commission ("WRWC"), which became the region's water management agency by special legislation in 2007, the same special legislation that disbanded the Washoe County Regional Water Commission. *See* SB 487, 74th Session of the Nevada Legislature (2007) (SPI APP 346, 362). WRWC adopted its 2011-2030 Comprehensive Regional Water Management Plan on January 14, 2011. (SPI APP 180). As WRWC's Comprehensive Plan notes:

> [A]nalysis in TMWA's 2030 Water Resource Plan shows that over 50,000 acre feet ("af") of Truckee River mainstem rights are potentially available for dedication to TMWA or WCDWR to support future will-serve commitments, and **this amount is more than enough to meet TMWA's future water rights requirements through the planning horizon**.

* * *

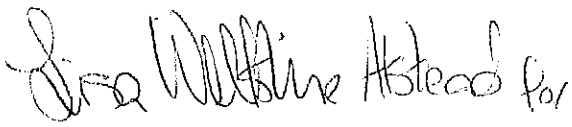
> As much as 8,000 afa of groundwater is available for importation from the Honey Lake Valley hydrographic basin to Lemmon Valley **by way of existing infrastructure**. The timing of such groundwater importation will depend on future land development projects in Lemmon Valley.
>
> * * *
>
> These supplies [for Lemmon Valley] are fully developed (local groundwater, imported Truckee River water, and imported Fish Springs Ranch groundwater)... (SPI APP 192-193, 253)

D. SPI is Currently Prepared to Put to Beneficial Use the Water on Which Intermountain is Speculating

SPI has applications to appropriate water from Dry Valley for irrigation purposes and is currently prepared to put to beneficial use the water being commandeered by Intermountain. Nevada's water is a public resource, and the beneficial use requirement to perfect a water appropriation is designed to ensure that the resource is used properly. NRS 533.025; NRS 533.035; *Bacher*, 122 Nev. at 1119, 146 P.3d at 799. SPI has submitted applications to appropriate 3,000 acre feet of water from Dry Valley to immediately put it to use in SPI's agricultural operations. (*See* SPI APP 135-137, 143-145). Those applications have been protested on the grounds that Intermountain has locked up the entire perennial yield of the basin such that no water is available to appropriate. (*See* SPI APP 138-142, 146-150). Where Intermountain is sitting on the entire resource and preventing the beneficial use of water, further water speculation should be disallowed.

Under these circumstances, the State Engineer should deny any extension requests made by Intermountain and cancel the permits so that the water can be made available for appropriation by others.

Sincerely,



Debbie Leonard

DAL/pm

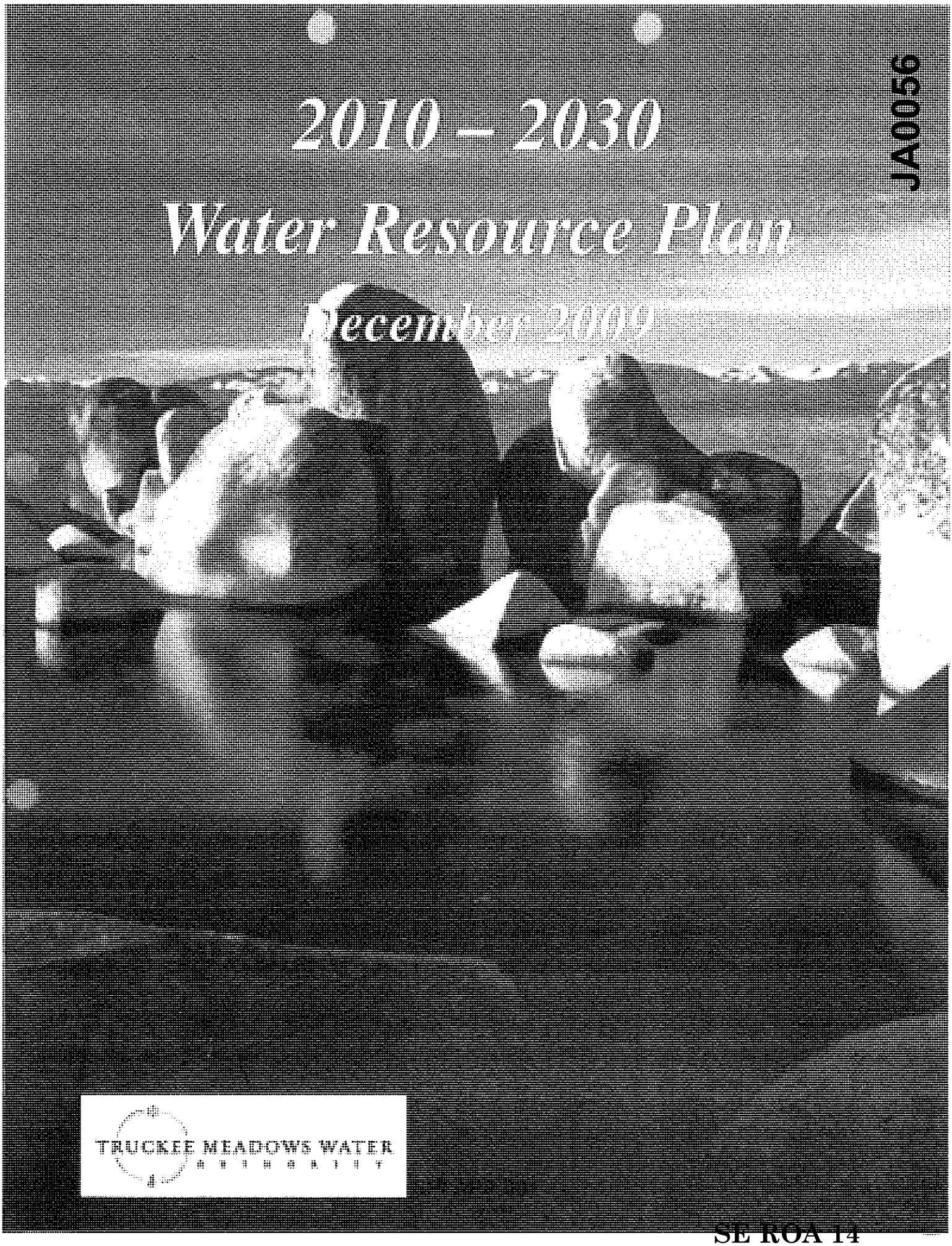
INDEX TO SPI'S APPENDIX OF DOCUMENTS TO SUPPORT OBJECTION TO INTERMOUNTAIN'S EXTENSIONS

Document Description	Date	Page Number
Truckee Meadows Water Authority's 2010-2030 Water Resource Plan (without appendices)	December, 2009	SPI APP 001-134
Sierra Pacific Industries' Application for Permit to Appropriate the Public Waters of the State of Nevada No. 84688	January 9, 2015	SPI APP 135-137
Buckhorn Land and Livestock, LLC's Protest to SPI's Application No. 84688	March 19, 2015	SPI APP 138-140
Washoe County's Protest to SPI's Application No. 84688	February 27, 2015	SPI APP 141-142
Sierra Pacific Industries' Application for Permit to Appropriate the Public Waters of the State of Nevada No. 84689	January 9, 2015	SPI APP 143-145
Buckhorn Land and Livestock, LLC's Protest to SPI's Application No. 84689	March 19, 2015	SPI APP 146-148
Washoe County's Protest to SPI's Application No. 84689	February 27, 2015	SPI APP 149-150
Sierra Pacific Industries' Answer to Protests (Applications 84688 and 84689)	May 21, 2015	SPI APP 151-178
Excerpts from Western Regional Water Commission's 2011-2030 Comprehensive Regional Water Management Plan	January 14, 2011	SPI APP 179-254
Nevada State Engineer Ruling 4192	June 19, 1995	SPI APP 255-299
Nevada State Engineer Ruling 4548	July 25, 1997	SPI APP 300-309
Nevada State Engineer Ruling 5568	February 28, 2006	SPI APP 310-317
Nevada State Engineer Ruling 5612	April 21, 2006	SPI APP 318-329
Nevada State Engineer Ruling 6063	October 18, 2010	SPI APP 330-340
SB 487, 74th Session of the Nevada Legislature (2007)	June 14, 2007 (approved by Governor)	SPI APP 341-365
Legislative History of A.B. 624, which amended NRS 533.380	1993	SPI APP 366-408
Excerpts of the Study of the Use, Allocation and Management of Water	December 1994	SPI APP 409-414

2010 – 2030

Water Resource Plan

December 2009



TRUCKEE MEADOWS WATER AUTHORITY

JA0056

SE ROA 14

Table of Contents

Table of Contents 1
List of Figures 3
List of Tables 4
Abbreviations 5
Key Findings and Recommendations 7
Chapter 1 Introduction 15
Background of Water Resource Planning for the Truckee Meadows 17
Factors Affecting Truckee Meadows Water Resources 21
Economic Conditions and Water Rights 21
State Legislative Changes 30
Water Purveyor Integration/Consolidation 30
Historic Uncertainties – Negotiated River Settlement and the Truckee River Operating Agreement ("TROA") 33
Summary 36
Chapter 2 Source Water Reliability 37
Weather 37
Climate Change 37
Winter Time Cloud Seeding 38
Droughts 39
Source Water Contamination 43
TMWA Source Water Quality Assurance Program 43
Source Water Protection Program 47
Summary 53
Chapter 3 Water Resource Management and Production 54
Water Rights 54
Water Production and Facilities 62
Chalk Bluff Treatment Plant ("CTP") 62
Glendale Treatment Plant ("GTP") 64
Production Wells 65
Conjunctive Operation of Surface and Groundwater Resources 68
Summary 76
References 77
Chapter 4 Water Demand and Peak Day Projections 78
Water Demand Factors 78
Population and Economy 78
Logistic Curve Model 81
Data Construction and Trends 85
Statistical Analysis 88
County Sub-Area Projections 89
Water Demand Projections 91
Peak Day Projections 95
Summary 97
Chapter 5 Water Demand Management 98

System Management 101
Public Education 102
Other Conservation Measures 106
Summary 112
Chapter 6 Future Water Resources 114
Groundwater Projects 115
Surface Water Projects 121
Conceptual Projects 126
Summary 127
Chapter 7 Conclusions 129

List of Figures

Figure 1: TMWA Planning Process 16
Figure 2: Truckee River System with Highest, Lowest and Averaged Recorded Flows 17
Figure 3: Truckee River Average Diversions During Non-Drought and Drought Situations 18
Figure 4: Historic Water Consumption and Washoe County Population 19
Figure 5: Annual Will-Serve Commitments Issued by TMWA 2001 -2009 22
Figure 6: Development of Land in Washoe County by Year Since 1980 23
Figure 7: Changes in Median Price of Existing Single Family Homes 24
Figure 8: Changes in Median Price of Existing Homes and TMWA's Annual Rule 7 Price 26
Figure 9: Month-End Rule 7 Price 27
Figure 10: Buildable Acres in TMWA with Potential to Use Truckee River Resources 29
Figure 11: Snowpack for the Truckee River Basin 40
Figure 12: Lake Tahoe Elevations during Drought Cycles 42
Figure 13: Production and Recharge Wells and Areas of Water Quality Concern 49
Figure 14: Primary Tributaries and Reaches of the Truckee River 56
Figure 15: Historic Water Diversions, Production, and Acquisitions of Water Rights 57
Figure 16: 1990 to 2009 Daily Water Sources 72
Figure 17: Remaining Drought Reserves During the Actual Hydrology of the 8-Year Drought Design with TMWA Demand of Yields 113,000 Acre-Feet 75
Figure 18: Remaining Drought Reserves During the Actual Hydrology of the 8-Year Drought Design with TMWA Demand of 119,000 Acre-Feet 76
Figure 19: Nevada Population, Employment, and Unemployment 1970 to 2009 79
Figure 20: Washoe County Population, Labor force, Employment and Unemployment Rates 80
Figure 21: Population Logistic Curve Models Results 82
Figure 22: Logistic Lower, Estimated, Upper Bound and Demographer's Projections 83
Figure 23: Population Projection Results 84
Figure 24: Washoe County Population, Dwelling Data and Projected Values 86
Figure 25: Washoe County Commercial Buildings Data and Projections 87
Figure 26: Washoe County Land Development Data and Projection 88
Figure 27: Dwelling Units and Commercial Building in TMWA's Retail Service Area 90
Figure 28: Dwelling Units and Commercial Buildings in TMWA's Wholesale Service Areas 91
Figure 29: Projected Retail Water Use by Class Through 2050 95
Figure 30: Proposed Importation Projects 117

List of Tables

Table 1: Typical Mineral Concentrations of Surface Water 44
Table 2: TMWA Wells Affected by Arsenic and Compliance Actions....52
Table 3: Orr Ditch Decree Water Rights by Reach by Major Owner....59
Table 4: Annual Water Production (units in acre-feet)....63
Table 5: Production Well Capacities....66
Table 6: Summary of Well Rehabilitation Activities....67
Table 7: Aquifer Storage and Recovery History (units in acre-feet)....69
Table 8: Population Projections 2010 to 2030....85
Table 9: Active Water Service Ratios Per Year 92
Table 10: Projected Active Retail Water Services....93
Table 11: Average Water Use Per Service (x1,000 gallons)....93
Table 12: Projected Retail Water Use by Class Through 2030....94
Table 13: Projected Peak Day and Production Facilities Requirements....96
Table 14: Water Demand Management Programs....100
Table 15: Water Usage Review by Year and Type....106
Table 16: Demand-Side Program Management in Response to Drought Situations....109
Table 17: Summary Results of 2003 ET Controller Study Sites....111
Table 18: Summary Results of 2004 ET Controller Study Sites....111
Table 19: Metered Rate Structure....112
Table 20: Potential Water Supply Projects....115
Table 21: Summary of Estimated Yield and Water Rights from Importation Basins 116
Table 22: Summary of Known Water Importation Projects....118

Abbreviations

AF	Acre-Feet, an acre-foot is equal to 325,851 gallons
AFA	Acre-Feet Annually or acre-feet per annum
ASL	Above Sea Level
ASR	Aquifer Storage and Recovery
BBER	Bureau of Business and Economic Research, University of Nevada Reno
BCC	Washoe County Board of County Commissioners
Board	Board of Directors for Truckee Meadows Water Authority
cfs	cubic feet per second
CIP	Capital Improvement Program
CTP	Chalk Bluff Water Treatment Plant
DRI	Desert Research Institute
FSA	Future Service Area
EPA	Environmental Protection Agency (U.S.)
EPDTS	Entry Points to the Distribution System
GIS	Geographic Information System
GTP	Glendale Water Treatment Plant
gdp	gross domestic product
gpcd	gallons per capita per day
gpm	gallons per minute
ISA	Interim Storage Agreement, 1994
JPA	Joint Powers Authority
µg/l	micrograms per liter or parts per billion (ppb)
MGD	Million Gallons per Day
M&I	Municipal and Industrial
NDEP	Nevada Division of Environmental Protection
NDWR	Nevada Division of Water Resources
NRS	Nevada Revised Statutes
NTU	Nephelometric Turbidity Unit
PCE	tetrachloroethylene, a volatile organic compound
PLPT	Pyramid Lake Paiute Tribe
POSW	Privately-Owned Stored Water, as defined in Truckee River Agreement

PSA	Preliminary Settlement Agreement
RAA	Running Annual Average
RPC	Regional Planning Commission
RSW	City of Reno, City of Sparks, and Washoe County
RWPC	Regional Water Planning Commission of Washoe County
SDWA	Safe Drinking Water Act
Sierra	Sierra Pacific Power Company
sq. ft.	Square Feet
STMFP	South Truckee Meadows Facility Plan, August 2002
SWE	Snow Water Equivalent
TCID	Truckee-Carson Irrigation District
tds	total dissolved solids
TMWA	Truckee Meadows Water Authority
TRA	Truckee River Agreement, 1935
TROA	Truckee River Operating Agreement, required under PL 101-618
USACE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation or BOR (defined above)
WCWCD	Washoe County Water Conservation District
WDWR	Washoe County Department of Water Resources
WCHD	Washoe County Health District
2005 RMWP	2004-2025 Comprehensive Regional Water Management Plan, Washoe County, January 2005
2005 WRP	2005-2025 Truckee Meadows Water Resource Plan, Truckee Meadows Water Authority, March 2003

Key Findings and Recommendations

1.1 2010-2030 Water Resource Plan

Findings:

TMWA's prior 2005-2025 Water Resource Plan: (1) laid the foundation for an understanding of the region's water supply system; (2) summarized the history of municipal water supply in the Truckee Meadows up to and including the formation of TMWA; (3) confirmed the use of Truckee River flows during the historical 1987-1994 drought period as the basis for prudent water supply planning for the Truckee Meadows; and (4), provided ongoing analysis of future water supply options to meet the region's development needs. This 2030 WRP reviews local events since the 2025 WRP and examines what, if any, those events have affected Truckee Meadows water resources and TMWA's plans and/or management strategies. Specific need for this plan relates to a number of key events that have occurred over the past 6 to 7 years which include: (1) legislative directives that modified regional water resource planning for the Truckee Meadows and led to the creation of the Western Regional Water Commission ("WRWC") which needs TMWA's latest water resource strategies adopted and available to be incorporated into its comprehensive water plan that is due January 1, 2011; (2) economic changes of the past few years at the national, state and local level that have affected the growth activity and patterns for the Truckee Meadows resulting in a need to examine current population trends and their potential impact on water demands and resource requirements; (3) the five Mandatory Signatory Parties (TMWA, Pyramid Lake Paiute Tribe, California, Nevada, and the United States) and seven other parties signed the Truckee River Operating Agreement ("TROA") on September 6, 2008; and (4), retrofit of more than 98 percent of the original 44,651 flat-rate water services that were required to be retrofit with water meters as part of the 1989 Negotiated River Settlement.

Recommendation:

The Board continue to review and revise its water resource management strategies through its planning efforts, as presented in documents such as this 2010-2030 Water Resource Plan, in response to current data, changing economic, institutional, and operating conditions.

1.2 Consolidation of TMWA and WDWR Water Operations

Findings:

In response to the WRWC legislative directive to evaluate the potential consolidation of water purveyors in the Truckee Meadows, Preliminary Assessment Reports prepared by TMWA and Washoe County Department of Water Resources ("WDWR") staffs for WRWC generally indicate that operational and resource management efficiencies may be achieved through consolidation, that rate structures of the two agencies are sufficiently similar that migration to one set of customer rates would not result in inequities to either

customer base, and that no insurmountable financial or labor issues are anticipated. The timeline for completing an inter-local agreement is late 2009 after which due diligence efforts will begin 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. Unless severe challenges to consolidation arise, the process will proceed toward complete consolidation which is a function of WDWR's ability to defease or refinance approximately $40 million of outstanding debt sometime in the future.

Recommendation:

The Board continue its participation with the process to fully evaluate and develop agreements leading to the consolidation of WDWR's water utility operations into TMWA.

1.3 Truckee River Operating Agreement

Findings:

The Truckee River Operating Agreement ("TROA") was signed by the five Mandatory Signatory Parties on September 6, 2008 whereby PLPT, the United States, California and Nevada set the stage for resolving river operation uncertainties; the parties are moving together to implement and make TROA effective. When TROA is effective a framework will be established which provides flexibility for river operations to allow parties to exchange water to accommodate emerging issues without injuring the water rights on which they rely and perhaps avoid future regulatory uncertainties surrounding the use of the Truckee River.

Recommendation:

The Board continue to support the efforts to implement TROA.

2.1 Sustainability of Source Water Supplies - Climate Change

Findings:

Climate change and drought are the most significant weather variables with potential to change the quantity and quality of raw water supplies, particularly surface water supplies. While the weather pattern consistently provides precipitation during the winter and spring months, the type of precipitation (snow versus rain), amount of precipitation, water content of snow, and speed of snowmelt are variable from year to year. TMWA manages the uncertainty of its raw water sources through storage in upstream reservoirs, conjunctive use of surface and groundwater supplies, and continually assessing the threats to water supply reliability from weather. Studies completed by DRI indicate that while the potential for climate change to alter the timing, type of, and quantity of

precipitation should continue to be monitored, it should not be artificially imposed as a constraint on current and future water supplies for this 20-year plan at this time.

Recommendation:

The Board (1) find that artificial restrictions on the management or implementation of water resources due to climate change are not warranted at this time and (2) continue to monitor and test for changes in climate in future planning efforts.

2.2 Sustainability of Source Water Supplies – Drought Cycles

Findings:

In its 2025 WRP TMWA worked with UNR to develop a stochastic model to analyze drought frequencies, similar to statistical analysis used to estimate flood frequencies. It was found that the likelihood of a 8-, 9- or 10-year drought event occurring is extremely rare with frequencies ranging from 1 in 230 years, 1 in 375 years, and 1 in 650 years, respectively. The 2000 to 2005 Drought did not change the probabilities previously estimated therefore this plan retains the Board adopted drought planning recommendation from the 2025 WRP.

Recommendation:

The Board continue to use for planning purposes the worst drought cycle of hydrologic record for the Truckee River.

2.3 Sustainability of Source Water Supplies - Source Water Contamination

Findings:

While there is a risk to surface water reliability from turbidity and toxic spill events, research conducted in 1996 and again in 2007 by UNR on behalf of TMWA has shown no recorded contamination event from rail or highway transportation. The recent study also suggests that the area of highest risk is downstream of TMWA's treatment facilities in the City of Sparks where there is a rail yard and a large number of warehouses and shipping companies that load/unload trucks and rail cars. TMWA's Source Water Protection Program (including its Wellhead Protection Plan) is designed to preserve and enhance available water supplies and to address known and potential threats to water quality. TMWA has sufficient well capacity and distribution storage to meet reduced customer demands during a water quality emergency, and has emergency plans in place in the event of extended off-river emergencies. TMWA coordinates with other regional water entities to identify and engage in integration practices that are beneficial in terms of increasing the supply and/or quality of water supplies at minimum economic costs to ensure the delivery of water through the 20-year planning horizon and beyond.

Recommendation:

The Board continue to (1) implement its source water protection strategies in cooperation with local entities; (2) maintain, as a minimum, the ability to meet daily indoor water use

with its wells, and for river outages lasting up to 7 days during a peak summer maintain the ability to meet average daily water using its wells, treated water storage, and enhanced conservation measures.

3.1 Water Rights Availability

Findings:

A review of available Truckee River water rights shows a sufficient number of water rights exist to meet future-average-year-TMWA-water-service demands through the 2010 to 2030 planning horizon. However, acquiring and transferring many of these water rights, which are fractionated and have ownership problems, will require additional time and expense before the right can be put to use. Over the past decades, demands for Truckee Meadows water rights have increased in response to a highly competitive development market, difficulties in finding willing sellers of significant quantities of water rights, and competing environmental and lower river uses of water rights for such things as Fernley water supply or enhancing water quality both in the Lower Truckee River and groundwater aquifers. TMWA will work with Reno, Sparks, Washoe County and Pyramid Lake Paiute Tribe to find opportunities that satisfy TMWA's operating requirements and enhance Truckee River flows below Vista to improve lower river water quality. Since the number of Truckee Meadows water rights is limited, close coordination of the various river interests must occur to avoid undo stress on the water rights market.

Recommendation:

The Board accept for planning purposes that the estimated number of mainstem Truckee River water resources is sufficient to support both TROA implementation and increased future development needs within TWMA's service areas.

3.2 Current Water Resources

Findings:

TMWA has over 142,000 acre-feet of decreed, storage, and irrigation rights to generate water supplies for customer demands. TMWA uses its Privately Owned Stored Water ("POSW") in conjunction with the Interim Storage Agreement and a portion of its groundwater for drought reserves. To ensure an adequate supply of water for all customers, TMWA's 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, if the applicant chooses to acquire from TMWA, the applicant pays for a will-serve commitment based on TMWA's costs incurred to acquire and process the necessary water rights. The primary water rights that applicants for new water service dedicate to TMWA are mainstem Truckee River water rights. Although the number of remaining Truckee River mainstem irrigation water rights available for conversion to municipal and industrial use decreases over time, analysis shows over 50,000 acre-feet of

Truckee River mainstem rights are potentially available for future dedication to TMWA to support future will-serve commitments, and this amount is more than enough to meet TMWA's future water rights requirements through the entire planning horizon.

Recommendation:

The Board continue to acquire water rights to meet future water demands pursuant to its Rule 7.

3.3 Yield of Conjunctive Management of Water Resources

Findings:

TMWA's current resources and continued dedication of river rights will allow TMWA to meet a demand of 119,000 acre-feet under TROA implementation or 113,000 acre-feet without TROA based on the historic drought from 1987 to 1994; this 8-year drought was the most severe on record. Without TROA a 9-year drought design will support a demand of 110,000 acre-feet. Use of a more stringent drought cycle design, without data to support it, ultimately reduces the use of available resources and burdens the region with the cost requirement to replace the lost resource. Using the 9-year drought design preserves the opportunity for the local community to continue to develop in an orderly fashion without necessitating unreasonable and unnecessary interruptions during the next few years before TROA is implemented, which is projected to meet demands of 119,000 acre-feet annually.

Recommendation:

The Board (1) until TROA is implemented, recognize that although demands could expand through the continued conversion of irrigation water rights to municipal to 113,000 acre-feet annually using an 8-year drought period use but manage demands to 110,000 acre-feet based on a 9-year drought period and (2) continue review of the performance of this standard based on factors such as demand growth, conservation improvements, hydrologic cycles, climate changes, etc. and update the Board should future conditions change.

4.1 Population Projection

Findings:

TMWA's population forecast estimates that population within TMWA's retail area and the wholesale areas will increase by slightly more than 95,000 people, from 371,000 people in 2010 to approximately 466,000 by 2030. This represents a 25 percent increase over the estimated 2010 population. The population estimates may change over time as the pace of development within the region or its sub-area varies and as the region moves towards greater intensification of land use. TMWA's forecast results compare favorably to the State Demographer's near-term projections.

Recommendation:

The Board accept TMWA's population forecast as a reasonable estimate of future population growth to be used by TMWA for planning purposes in its planning areas.

4.2 Water Demand Forecast

Findings:

Water demands within TMWA's service areas have decreased over time resulting in slower water demand growth in TMWA's extended forecast. Based on the review of current growth and economic trends in the region, future water demand is anticipated to grow in the central Truckee Meadows but at a slower pace than historically seen. As it relates to current uses of or projected need for water resources, whether TMWA and WDWR consolidate or not, the projected water demand in the respective service areas are not expected to change for two primary reasons: (1) the effective rates customers pay for service is comparable between the two purveyors and (2) both purveyors use TMWA's Rule 7 for estimating resource requirements and dedication of resources for new development.

The water demand forecast indicates that from 2010 to 2030 demand will increase 20,000 acre-feet, from a 2010 estimate of approximately 77,000 acre-feet. The projected 2030 demand of approximately 97,000 acre-feet is well within the maximum 119,000 acre-feet demand annually under TROA and does not fully capture any future conservation efforts.

Recommendation:

The Board accept for planning purposes that the water demand projects are reasonable estimates for use in TWMA's planning areas.

4.3 Water Production Facilities Forecast

Findings:

Production facilities are planned to meet peak day water demand under two conditions. In "normal" years TMWA seeks to maximize the availability of surface water so more surface capacity is needed and used while groundwater pumping is minimized. Conversely, in Drought Situations TMWA seeks to maximize groundwater pumping so more well capacity is needed and used while reduced Truckee River flows prevent full utilization of available surface capacity. The projected demands indicate that "normal" year peak day demands increase from 136.8 MGD in 2010 to 171.9 MGD in 2030. Based on current capacities -- 108.0 MGD surface treatment and 63.0 MGD groundwater – TMWA can meet the "normal" year peak day demand in 2030 with existing facilities, however, during Drought Situations there is insufficient groundwater capacity which must increase by 23.7 MGD, from 63.0 MGD to 85.7 MGD, in order to meet projected 2030 Drought Situation peak-day requirements. A review of TMWA's 2005-2025 Water Facility Plan will determine if any change in facilities and/or their timing is warranted.

Recommendation:

The Board accept for facility planning purposes in TMWA's planning areas the peak day forecast as a reasonable estimate of future peak day water.

5.1 Water Demand Management

Findings:

TMWA's Water Demand Management Programs include measures to enhance efficient use of water, reduce or eliminate water waste, and save water. Some specifics include change-out of old meters, leak repair, water theft prevention, landscape design/retrofit assistance, numerous education materials, Assigned-Day Watering, watering prohibited during the heat of the day, water audits, and Drought Situation responses. Combined, these measures are designed to the conservation goal agreed to in the 1996 Water Conservation Agreement between RSW, TMWA, PLPT and the United States. Continued levels of spending will be in accordance with that agreement. TMWA works with the WRWC in developing conservation plans for the region, and cooperates with WRWC in implementing its conservation programs. The water conservation activities embodied in this 2030 WRP satisfy Article 5(i) of the JPA and the Nevada Division of Water Resources requirements that public water systems have a water conservation plan as set forth in NRS 540.131 through 540.151.

TMWA is required to follow twice-a-week watering per the terms of the 1996 Conservation Agreement as part of the Preliminary Settlement Agreement until such time at least 90 percent of its flat-rate-residential services were metered; that goal has been met and surpassed. TMWA has retrofit its flat-rate residential services enabling TMWA's Board of Directors to modify the current Assigned-Day Watering schedule. In 2010, as TMWA completes its conversion to a fully-metered and volumetric-billing water system, it is anticipated that Assigned-Day Watering will transition from mandatory twice-per-week watering to a program of three-times-per-week watering. Analysis of this transition indicates potential reduction in peak day use when the twice-per-week restrictions are lifted. No watering on Monday will be retained to ensure time and flexibility for system recovery. The revised Assigned-Day Watering is summarized here:

	MON	TUE	WED	THR	FRI	SAT	SUN
All "EVEN" addressed services	No	Yes		Yes		Yes	
All "ODD" addressed services	No		Yes		Yes		Yes

Along with the Assigned-Day revision and to discourage watering during the hottest, and typically the windiest part of the day, the restriction on time-of-day watering will expand to 12:00 P.M. to 6:00 P.M. from its current time restriction of 1:00 P.M. and 5:00 P.M. applicable for the weeks between Memorial Day and Labor Day.

To improve customer understanding between climatologically induced droughts and water supply TMWA has developed and will implement as part of this 2030 WRP a simpler way to explain the impact of a Drought Situation on available water supplies. The

new classification system is presented in Chapter 5 along with changes in existing conservation measures that take place through the course of a Drought Situation year. This revision replaces the four-stage drought classification with a three-stage supply classification. In non-Drought Situations, "Supplies are Normal". In Drought Situations, "Supplies are Adequate" as long as Floriston rates are available through Labor Day; if Floriston Rates are not available through Labor Day "Supplies are Impacted". This revised system will improve TMWA's ability to create more meaningful, easier to understand information campaigns that relate needed reductions in customer use during Drought Situations.

Recommendation:

The Board (1) accept and adopt the Water Conservation Plan outlined in this 2030 WRP; (2) recommend the WRWC adopt for planning purposes the Drought Situation supply response classification system; (3) submit the updated plan to the State of Nevada Division of Water Resources in fulfillment of NRS 540.131-540.151; and (4) direct staff to modify TMWA's Rule 2 to reflect changes in Assigned-Day Watering once implemented.

6.1 Future Water Resources

Findings:

The selection of the next water supply project is strictly a function of a project's yield, ease of implementation, sustainability, and financial feasibility accompanies with existing regional economic conditions and market forces that would or would not favor the development of a future water supply project. It may be that in the future as new technology becomes available or the political, regulatory or public opinion changes, new projects may be developed or projects previously thought infeasible may become feasible. In addition to TROA moving toward implementation, the North Valley's Importation Project was completed in 2008 and is available to supply 8,000 acre-feet annually to Lemmon Valley.

TMWA is an active supporter and participant in the TROA process. TMWA will continue toward TROA implementation because of the numerous benefits it provides. In addition to working towards implementation of TROA, TMWA will also pursue other resource development projects that do not conflict with TROA requirements and will be necessary in order to meet water demands beyond the 2030 planning horizon.

Recommendation:

The Board continue to (1) support the efforts to implement TROA and (2) investigate, evaluate, and negotiate, where appropriate, other potential water supply projects consistent with and/or in addition to TROA.

Chapter 1 Introduction

TMWA developed and adopted its 2005-2025 Water Resource Plan ("2025 WRP") in March 2003. The Board reviewed its water resource plan strategy in 2007 and concluded that no deviation from the 2025 WRP was warranted at that time. The purpose or need for this 2010-2030 Water Resource Plan ("2030 WRP") is to review, update, develop and/or modify TMWA's water resource planning and management strategies due to a number of key events that have occurred over the past 6 to 7 years which include:

- Economic changes of the past few years at the national, state and local level have affected the growth activity and patterns for the Truckee Meadows resulting in a need to examine current population trends and their potential impact on demands and resource requirements. Projected changes in demands can affect TMWA's water facility and capital improvement plans which, in turn, can affect the funding of those plans and rates charged to customers and fees paid by developers.
- Legislative directives modified regional water resource planning for the Truckee Meadows and lead to the creation of the Western Regional Water Commission ("WRWC"). TMWA is a major contributor to the potable water management element within the 2010-2030 Comprehensive Regional Water Management Plan ("2030 RWMP") which must be completed and adopted by the WRWC before January 2011. That timeline requires TMWA to have its latest water resource strategies adopted and available to be incorporated into the 2030 RWMP sometime in the Spring of 2010.

  A subset of directives to the WRWC was to evaluate the effectiveness of combining water purveyors within the Truckee Meadows. In late 2008 and continuing in 2009 TMWA and Washoe County Department of Water Resources ("WDWR") began the process to evaluate consolidation of the two utilities. Initial findings on the integrated management of water resources and operations of the two utilities were favorable.
- The context of TMWA's water resource planning has changed as a result of the five Mandatory Signatory Parties (TMWA, Pyramid Lake Paiute Tribe, California, Nevada, and the United States) and seven other parties signing the Truckee River Operating Agreement ("TROA") on September 6, 2008. This is one of many milestones toward changing the way the Truckee River and its reservoirs will be managed once the agreement is implemented.
- Since TMWA's predecessor began the Meter Retrofit Program in 1995, TMWA has retrofit with water meters over 98 percent of the original 44,651 flat-rate water services that were required to be retrofit as part of the 1989 Negotiated River Settlement, which provides the opportunity to review and update TMWA's demand-side management plans and programs.

Other events since the 2025 WRP have complicated water resource planning necessary to accommodate the region's growth in future years. This Introduction frames the more significant challenges to the future development of water resources for the Truckee Meadows region and sets the context for this water resource plan. This 2030 WRP relies and builds upon the

information developed and contained in prior TMWA and various regional planning efforts. This plan will examine and analyze the water resource options available to TMWA to meet the water demands of its current and future customers. To ensure that resource planning, facilities planning, and financial planning are up-to-date and well coordinated, TMWA's coordinated approach addresses the water-resource, and ultimately the facility challenges facing the utility and the region in order to develop workable strategies that are cost effective while protecting the financial integrity of TMWA. A visual presentation of the functional relationships of this coordinated approach is shown below in Figure 1. This 2030 WRP begins the process for this coordinated effort.

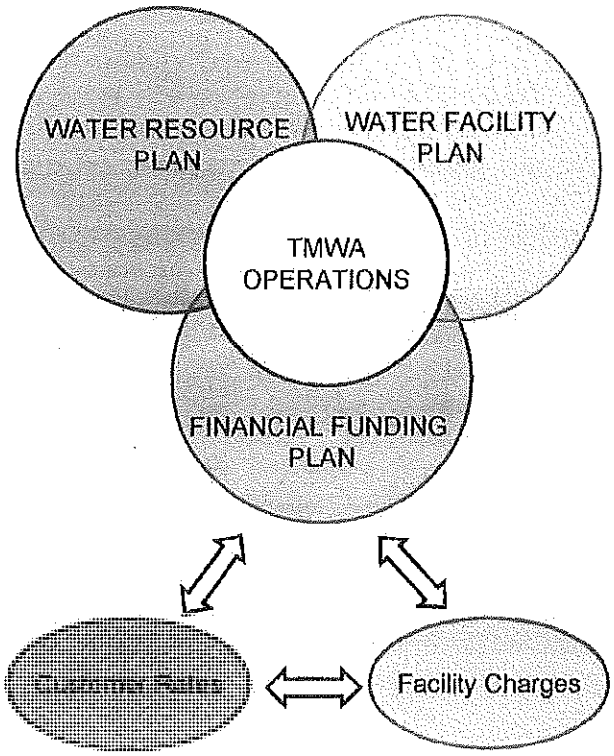


Figure 1: TMWA Planning Process

The information contained within this report is used to determine what, if any, changes are needed to TMWA's other key planning documents and determine any impacts to customer rates. This cycle of review and updating is a continuous process necessary to respond to changing economic and environmental factors that affect the Truckee Meadows region.

Background of Water Resource Planning for the Truckee Meadows

As shown in Figure 2, the Truckee River system extends from Lake Tahoe to Pyramid Lake. The river is fed by run-off from melting mountain snow carried by numerous creeks, streams and lakes. This snowpack-dependent, highly-variable river is diverted to meet the water supply ueeds of agriculture, municipal, recreation, wildlife, and the environment.

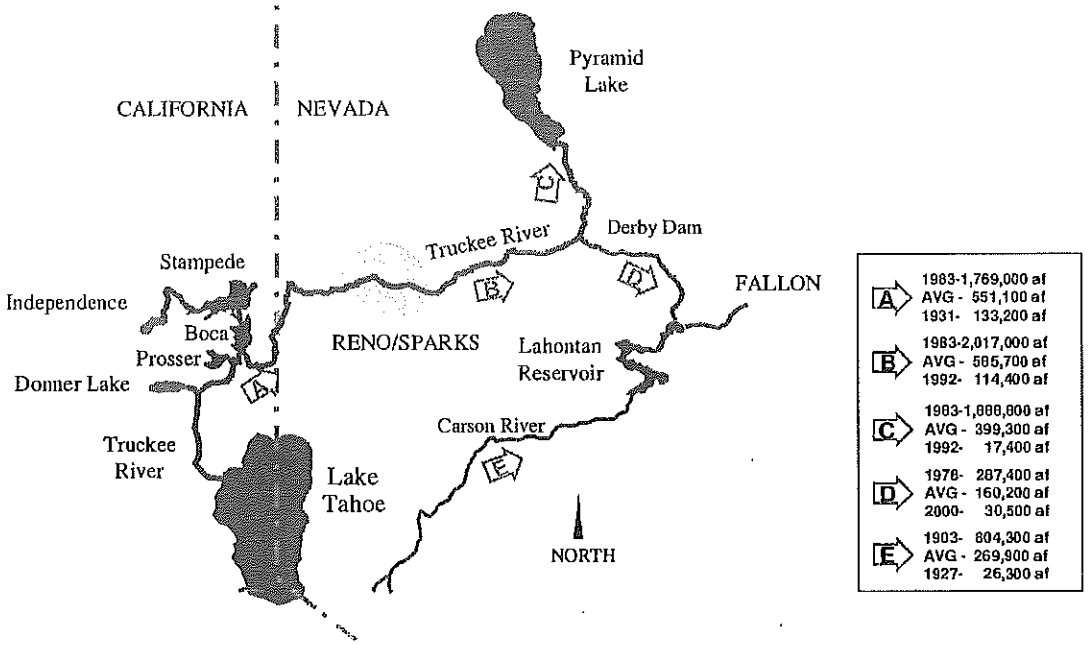


Figure 2: Truckee River System with Highest, Lowest and Averaged Recorded Flows

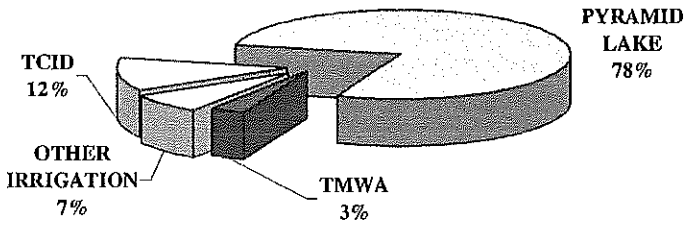
TMWA's water supply, both current and future, is primarily dependent on maximizing the resources available from the Truckee River, mostly maiustem[1] Truckee River water rights. This strategy has been followed by the purveyor since its inception in the 1800's due to the availability of the river, the association of hydroelectric diversions and diversions for municipal

[1] When used in this plan, the term "mainstem Truckee River resources (or water rights)" refers to those decreed irrigation water rights to divert the waters of the Truckee River directly from the river as opposed to diversion of water from tributaries to the Truckee River.

purposes, the quality of the supply, and the historic investment in surface water treatment facilities.

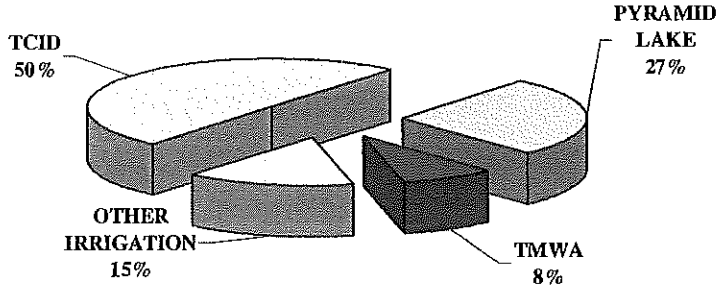
Typically, TMWA has met over 85 percent of its customer demands using Truckee River resources with 15 or less percent reliance on groundwater resources. This equates to only 3% the total water that flows down the Truckee River (Figure 3).

NON-DROUGHT SITUATION DIVERSIONS



* ~ 855 KAF Avg. 1985-1987, 1993, 1995-2000, 2005-2006

DROUGHT SITUATION DIVERSIONS



* ~ 353 KAF Avg. 1988-1992, 1994, 2001-2004, 2007-2009

Figure 3: Truckee River Average Diversions During Non-Drought and Drought Situations

In Drought Situations[2] the Truckee River may supply only 70 percent of water to meet TMWA demands with 30 percent reliance on groundwater resources and releases of TMWA's

[2] A "Drought Situation" means a situation under which it is determined each year by April 15 either there will not be sufficient run-off to maintain Floriston Rates through October 31, or the projected amount of water stored in Lake Tahoe (including. Lake Tahoe Floriston Rate water in other reservoirs as if it were in Lake Tahoe) used to support Floriston Rates would result in an elevation of Lake Tahoe less than 6223.5 feet Lake Tahoe Datum elevation on or before the following November 15.

stored water in upstream reservoirs. Because of the uncertainty and variability of annual meteorology and its resulting snowpack and spring run-off to the Truckee River system, TMWA's resource planning and management of its resources are designed to mitigate the weather uncertainty with minimal impact to customers.

Formal evaluation of the Truckee Meadows water supplies was conducted by TMWA's predecessor, Sierra Pacific Power Company ("Sierra"), as early as 1929. Sierra planned for and managed its water resources to meet the growth requirements for the greater Reno and Sparks metropolitan areas. Prior to significant population increases beginning in the late 1960's (see Figure 4), water resource planning was not as complex an issue as the utility was able to rely on the combination of its decreed water rights, the conversion of irrigation lands with their associated water rights to municipal use, and upstream storage. However, continued rapid and consistent growth in population within the Truckee Meadows challenged the region's ability to engage new water supplies and optimize the management of existing water supplies.

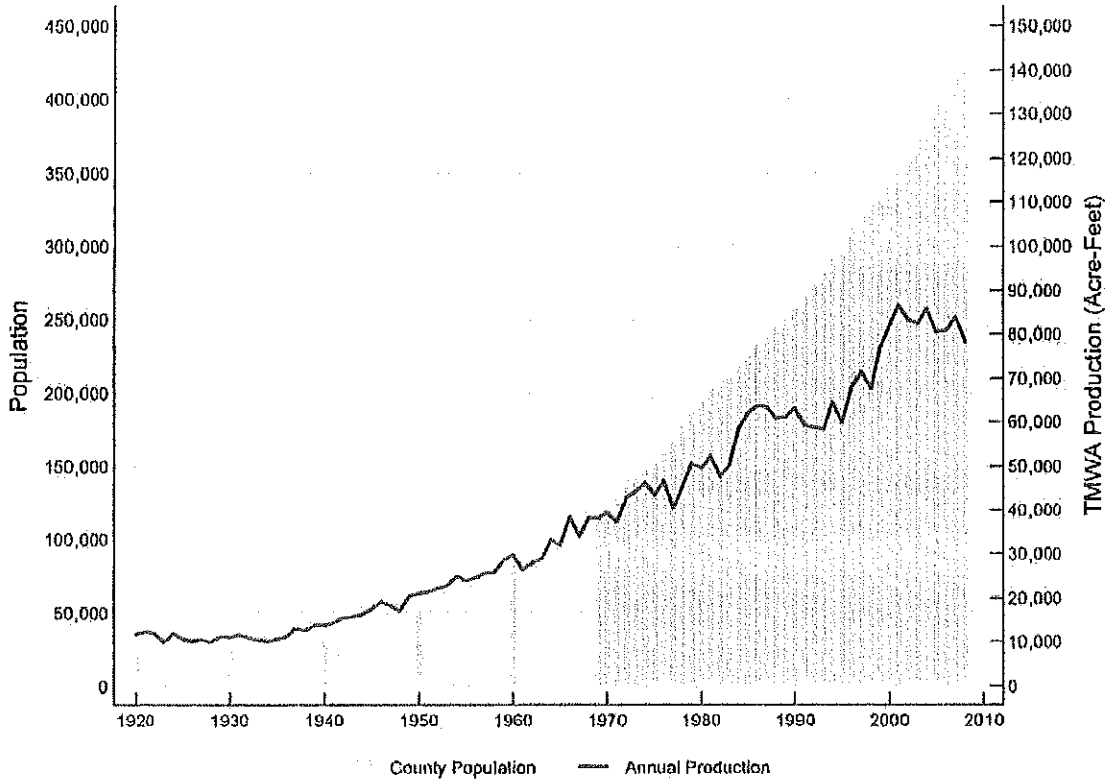


Figure 4: Historic Water Consumption and Washoe County Population

Throughout the history of water delivery in the Truckee Meadows, growth in water demands have been managed by the water purveyor by converting agricultural water rights and augmenting those river supplies with privately owned storage water ("POSW")[3] in Independence Lake and Donner Lake during dry years. The groundwater development program commences in the late 1960's to help balance growing demands within the region's widespread and multi-elevation distribution system, and to avoid problems with winter time ditch operations.

Planning for future water resources in the area required more concerted efforts beginning in the late 1970's due to accelerated growth in and around the Truckee Meadows, as well as extensive litigation over the water rights of the Pyramid Lake Paiute Tribe ("PLPT") and the Endangered Species Act which delayed and ultimately prohibited the implementation of Stampede Reservoir as a drought supply option. Sierra filed water resource plans for its service territory with the Public Utility Commission of Nevada ("PUCN") in 1986, 1988 and 1994. Regional water plans by the Regional Water Planning and Advisory Board of Washoe County and subsequently by the Regional Water Planning Commission ("RWPC") were published in 1990, 1997 and 2005. The RWPC also approved water resource plans for Spanish Springs in May 2004 and the South Truckee Meadows Facilities Plan ("STMFP") in August 2002. A draft facility and resource-related plan for Lemmon Valley was released by RWPC in October 2002 and subsequently updated in 2007.

The RWPC's 2025 RWMP was finalized and released in January 2005. The 2005 RWMP reviewed and summarized the current status of water resources (ground and surface water), water quality and wastewater, flood control/storm drainage, watershed management, and water conservation as these issues affect the hydrographic basins within the RWPC planning area. The 2005 RWMP was subsequently amended in 2006 and 2009.

While TMWA contributes to these regional planning efforts, its primary planning focus has been to ensure a consistent supply of water for its customers who comprise approximately 84[4] percent of the population of Washoe County residing in and around the cities of Reno and Sparks. TMWA's water resource plans focus on how to supply water during drought and non-drought periods in those hydrographic basins where it supplies water, principally the central Truckee Meadows, Sun Valley, Spanish Springs (both within its retail and wholesale service areas), west Lemmon Valley, and the Truckee Canyon (Verdi/Mogul). In 2003, TMWA adopted its 2025 WRP. Between 2004 and 2006, there was a flurry of events -- change in value of water rights, accelerated housing starts, near completion of the meter retrofit program, a drought between 2000 to 2005, continued discussion on the effects of global warming on water supplies, changing Regional Planning land use designation, and legislative investigation into water resource development trends in Washoe County -- that stimulated a review by TMWA's Board in 2007 of TMWA's 2025 WRP to determine what, if any, impacts may alter TMWA's resource planning directions. The primary conclusion in 2007 was that although there had been substantial

---

[3] Privately Owned Stored Water means water *stored* in lakes or reservoirs pursuant to the water rights of TMWA in Independence and Donner Lakes.

[4] Approximately 73% of the County population resides in TMWA's retail area and 11% resides in the wholesale areas.

shifts in land use, future population locations and planned densities, and changes in water rights value since 2005, the projected demands in the long-term were not significantly different from those of the 2025 WRP, and thus no deviation from the Board's 2025 WRP planning actions was warranted at that time.

This resource plan relies on and is dependent on prior regional and TMWA planning efforts. While TMWA's water resource mix and management has not changed since 2005, events and trends that have occurred during the past five years, and noteworthy changes affecting future water resource decisions are discussed in the next section of this introduction.

Factors Affecting Truckee Meadows Water Resources

TMWA's prior 2025 WRP (1) laid the foundation for an understanding of the region's water supply system; (2) provided the history of municipal water supply in the Truckee Meadows up to and including the formation of TMWA as the largest municipal water purveyor in Northern Nevada; (3) confirmed the use of Truckee River flows during the historical 1987-1994 drought period as the basis for prudent water supply planning for the Truckee Meadows; and (4), provided ongoing analysis of future water supply options to meet the region's development needs. This 2030 WRP analyzes changes since the 2025 WRP and examines what, if any, impacts of major trends affecting Truckee Meadows water resources will affect TMWA's plans and/or management practices.

Economic Conditions and Water Rights

This 2030 WRP comes at a unique time for the greater Truckee Meadows region. Prior to 2003, the number of will-serve commitments issued by TMWA for retail and wholesale water service averaged between 1,000 to 1,500 acre-feet per year; by 2004 and 2005 the number of will-serve commitments had more than doubled. The region experienced eight years worth of development in a four year period (2003-2006) followed by a precipitous drop in development activity beginning late 2006 (see Figure 5).

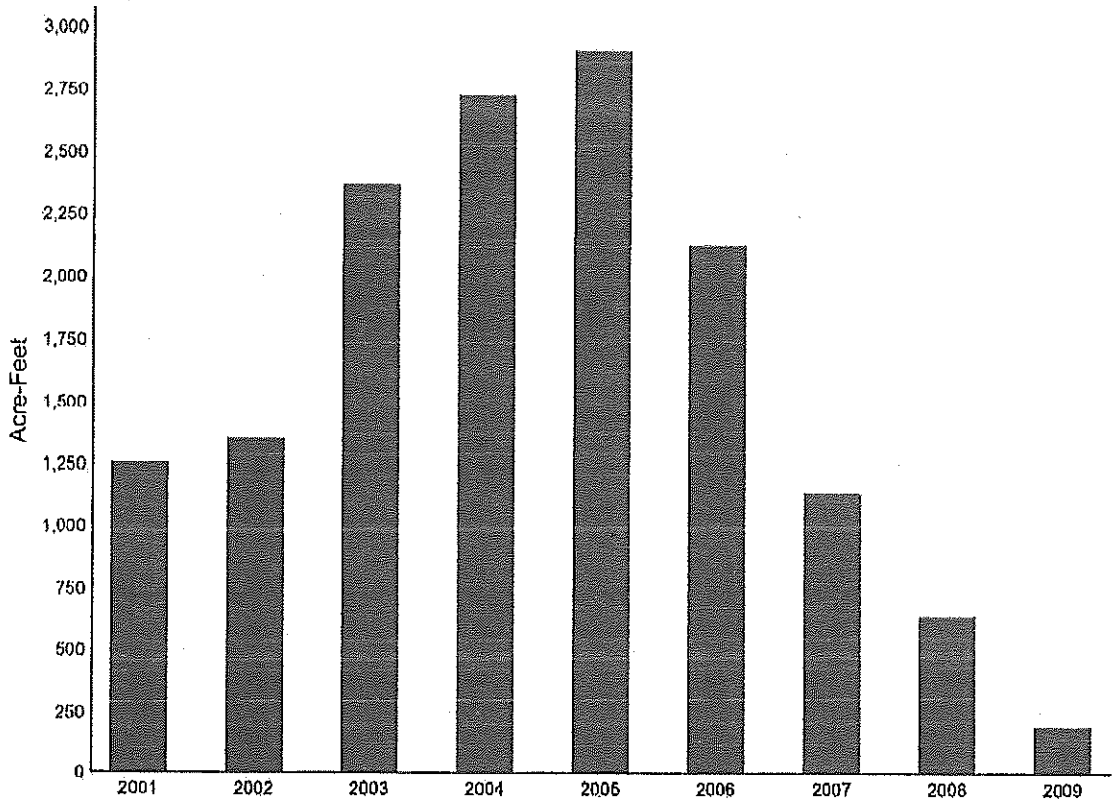


Figure 5: Annual Will-Serve Commitments Issued by TMWA 2001 -2009

With the increase in growth the amount of developable land necessary to house the region's population has decreased over the past 25 years in the hydrographic basins where TMWA provides water service. Figure 6 shows that since 1980 approximately 96,000 acres were developed, which is about the same number of acres that had been developed from the time the first settlements appeared in the Reno/Sparks area in the mid-1800's. The reduced supply of developable land during the time period reflected in the graph is just one factor that contributed to increases in real estate prices experienced since the late 1990's through 2006.

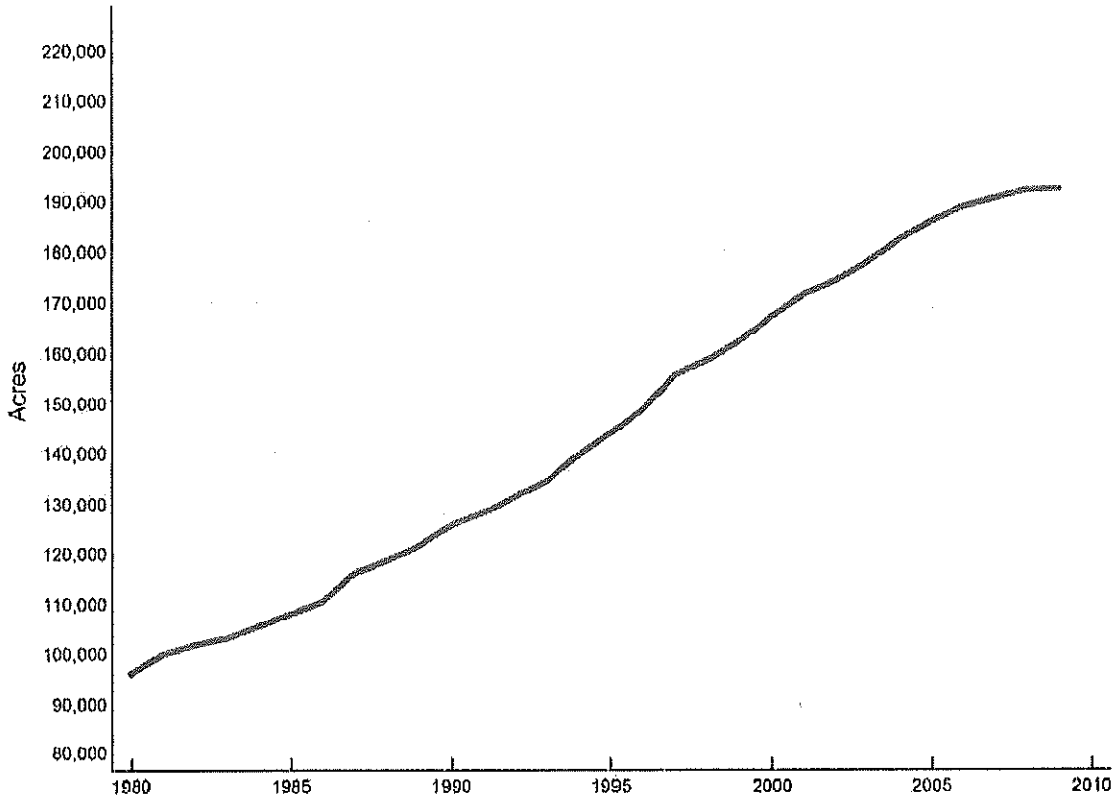


Figure 6: Development of Land in Washoe County by Year Since 1980

This 2003-2006 period of unprecedented growth exerted upward pressure on the price of housing as well as the price of water rights. The greatest increase in housing prices occurred between 2003 and 2005. Figure 7 shows that between 2000 and 2005, the median sales price of existing homes increased 103 percent, from $155,000 to $315,000. Some of the reasons cited for this rapid price increase in housing prices related to (a) relatively low home prices compared to California and other western markets; (b) historically low mortgage rates and access to mortgage loans in existence during that time; (c) high consumer confidence and spending at the national level; (d) a strong national economy; (e) an influx of national home builders to the region selling new homes at higher than average prices; (f) a surge in immigration and demand for new housing in the region; (g) a stable and favorable business climate compared to other regions in the west; and (h) increasing costs of raw materials for new construction brought about by high demands. At present the median price of existing single family homes is approximately $170,000. When the economy began to falter in Nevada beginning in late 2006, development of any significance declined substantially.

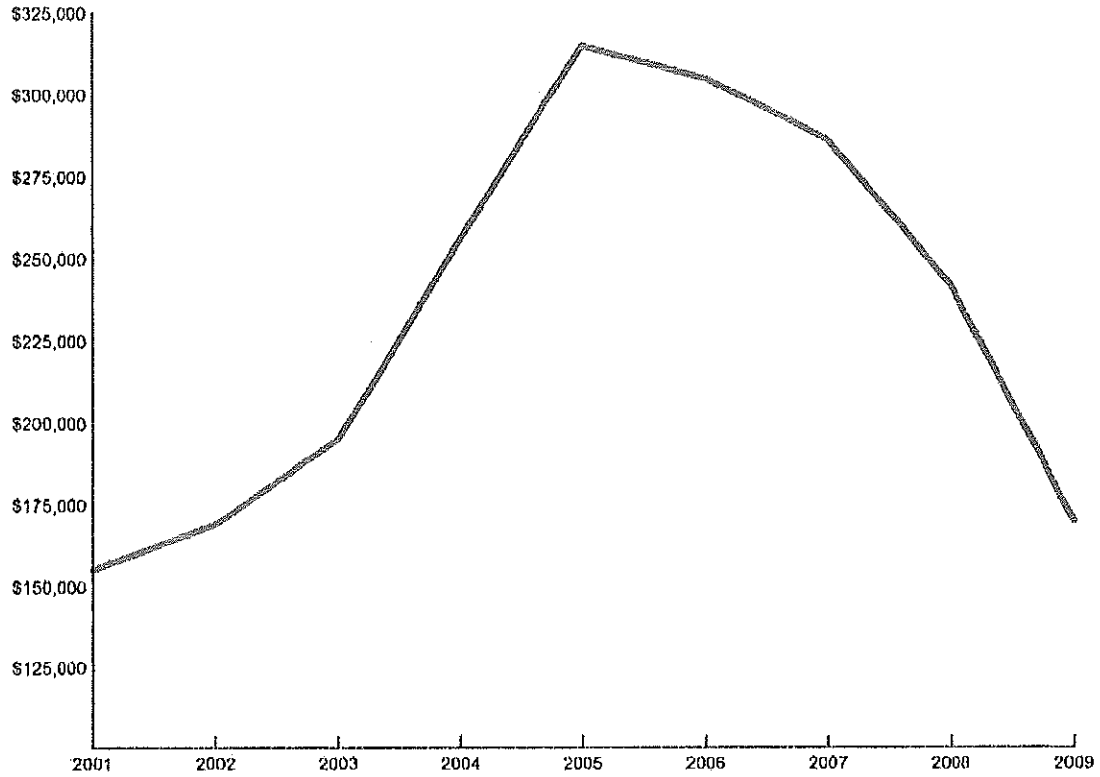


Figure 7: Changes in Median Price of Existing Single Family Homes

Unemployment was at a record low of 3.9% in the spring of 2006 statewide and is now at a record high of 12.4% in August 2009. The Reno MSA[5] unemployment rate tracks very closely to the statewide rate, and is currently 12.4%. The total number of people employed in the Reno MSA has decreased from 215,600 in 2007 to 200,300 in August 2009[6] . In addition to record unemployment, Nevada continues to rank in the top five states for the highest home foreclosure rate[7]. According to the Nevada Department of Employment, Training and Rehabilitation in August 2009, "Nevada is in the midst of the longest, deepest recession since World War II, and recent labor market trends show no sign of improvement."

---

[5] Reno Metropolitan Statistical Area ("MSA") includes employment from Washoe and Storey Counties.

[6] Source: Nevada Labor Force Summary Data, Department of Employment, Training and Rehabilitation. Research and Analysis Bureau, www.nevadaworkforce.com.

[7] Source: RealtyTrac.com.

The long-term effects of these fundamental changes to the region's economy are incorporated into TMWA's population and water demand forecasts discussed in Chapter 4.

The economic factors described above have had a direct impact on the water rights market, including water rights associated with the Truckee River system which is TMWA's primary source of new water resources. The water rights market experienced a major disruption in the first quarter of 2005. The activities of the various sellers and buyers in the market radically changed the cost of acquiring a water right which led to a temporary reduction in the availability of water for all water rights buyers, including TMWA. Throughout 2005 developers and other buyers of water rights were willing to pay prices as high as $60,000 per acre-foot at a time when the market price earlier in the year were averaging between $4,000 to $8,000 per acre-foot. The demand for water rights in the Truckee Meadows competed with other demands for Truckee River water rights. These other demands include rights purchased for historic agricultural uses or to improve lower-river water-quality affected by wastewater treatment plant effluent discharges to the Truckee River, M&I demands for Truckee water rights in the Fernley area, and other in-stream flows uses (e.g., fisheries, wildlife). These competing interests along with the cost and time needed to determine a water right's ownership contributed to limited available supply and higher water rights prices.

The effects of these trends are compared to the increase in median home prices in Figure 8. The graph shows that although an increase in the cost of water rights as measured by TMWA's average annual price of Rule 7 water resource inventory generally lagged the rapid increase in housing price; the magnitude of the price change was unprecedented.

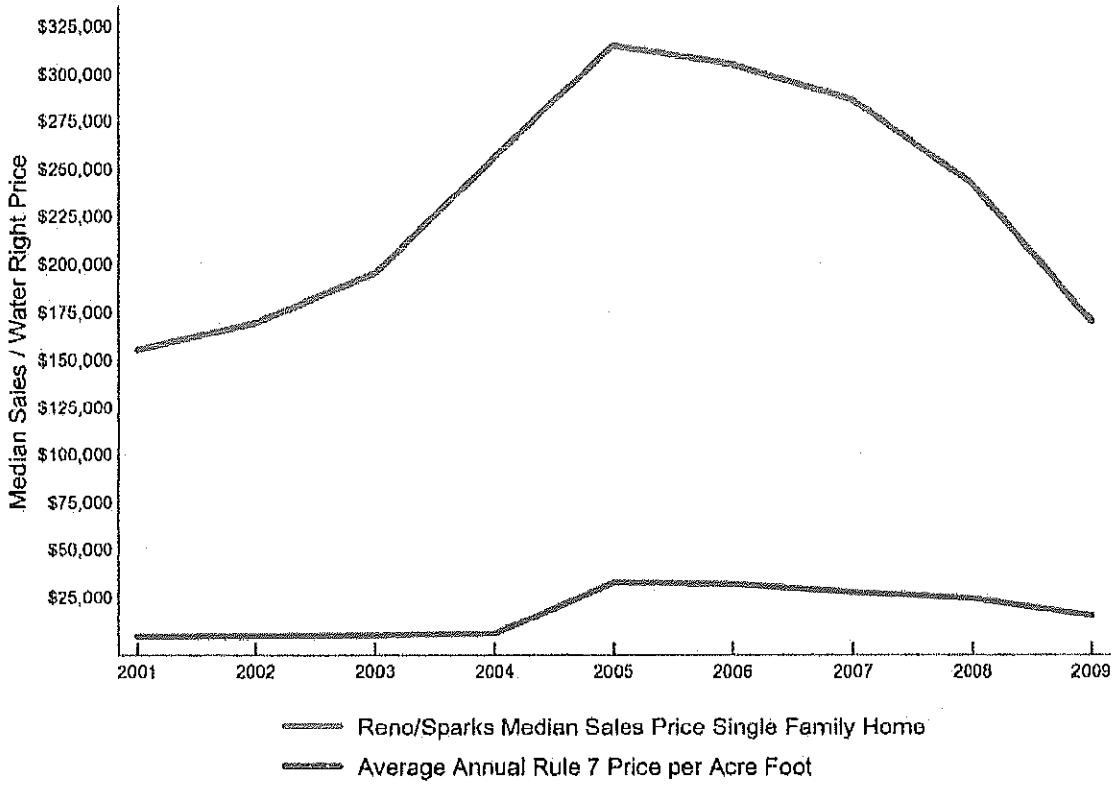


Figure 8: Changes in Median Price of Existing Homes and TMWA's Annual Rule 7 Price

Figure 9 shows this price shift in closer detail using the average month-end price of TMWA's Rule 7.

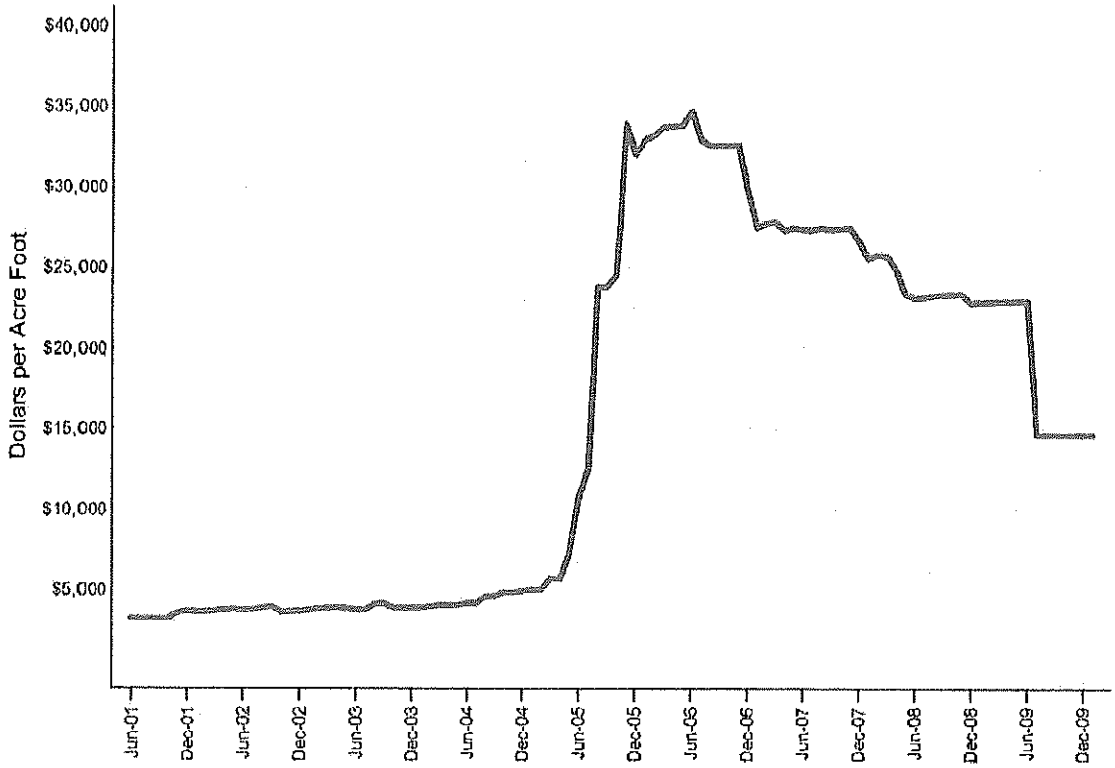


Figure 9: Month-End Rule 7 Price

The Orr Ditch Decree, issued in 1944, established the number of water rights associated with the Truckee River and all its tributaries by reach, by priority, by owner, and by quantity. It is important to note that although surface water rights can be subdivided and/or converted from one use to another, for example from agriculture to municipal use, the overall total number of surface water rights available from the Truckee River has not changed from the amount defined in the Decree. Having a sufficient number of water rights is essential to TMWA issuing new will-serve commitments. New development cannot proceed before demonstrating that adequate water resources exist to serve a project. At present, will-serve commitments can only be issued when, and if, water resources are available to service the estimated demand of a particular project and drought supplies can support the expansion of new demand. The needed water resources can either be purchased on the open market by an applicant for new water service and dedicated to a water purveyor or purchased directly from TMWA. Those purchasing will-serve commitments directly from TMWA are required to reimburse the utility for the costs it incurred in acquiring, processing and carrying the necessary water rights. This process for ensuring

adequate resources to meet demand was originally instituted by Sierra through their "Rule 17" approved by the PUCN in 1982.[8] Although somewhat modified under TMWA's "Rule 7", this process continues to be used to ensure new development provides sufficient resources for growth within TMWA's retail and wholesale areas.

The primary water rights that applicants for new water service dedicate to TMWA are mainstem Truckee River water rights. Although the number of remaining Truckee River mainstem irrigation water rights available for conversion to M&I use continues to decrease, analysis in Chapter 3 will show over 50,000 acre-feet of Truckee River mainstem rights is potentially available for future dedication to TMWA to support future will-serve commitments, and this amount is more than enough to meet TMWA's future water rights requirements through the planning horizon.

Figure 10 shows where buildable acres[9] are located with respect to water purveyors' service areas which can potential be served by Truckee River resources, both mainstem and/or tributary rights. Depending on the use of the land, commercial versus residential, and the resulting densities assigned to the land, the amount of water resources needed to meet this demand will vary. TMWA estimates an additional 20,000 acre-feet of water demand will be generated by 2030, requiring about 26,000 acre-feet of water resources. This is within the potentially available 50,000 acre-feet of water rights mentioned above, and is sufficient to meet projected growth in water demand and land use over the 2030 WRP planning horizon.

---

[8]In 1979, as the result of an extensive study by Sierra, the Washoe Council of Governments was informed of water supply problems resulting from the inability of the community to acquire use of Stampede Reservoir for municipal and industrial purposes. The State Engineer subsequently ordered that will-serve commitments for subdivisions could not be issued until a water budget showed that sufficient water was available for new projects. To address this situation, Sierra sought approval of "Rule 17" with the Public Utility Commission of Nevada (PUCN) in 1981. The PUCN issued its order on February 8, 1982 which created the Rule 17 process.

[9] Consistent with prior planning assumptions, buildable acreage excludes land with slopes greater than 30 percent and U.S. Forest Service lands (primarily to the west and southwest foothills of the Truckee Meadows).Although, over the years Federal lands have transferred to private use it cannot be predicted with certainty at this time where or the amount of Federal lands that may be transferred in the future for development purposes; it is a function of the region's economic and resulting growth plans of the local governments.

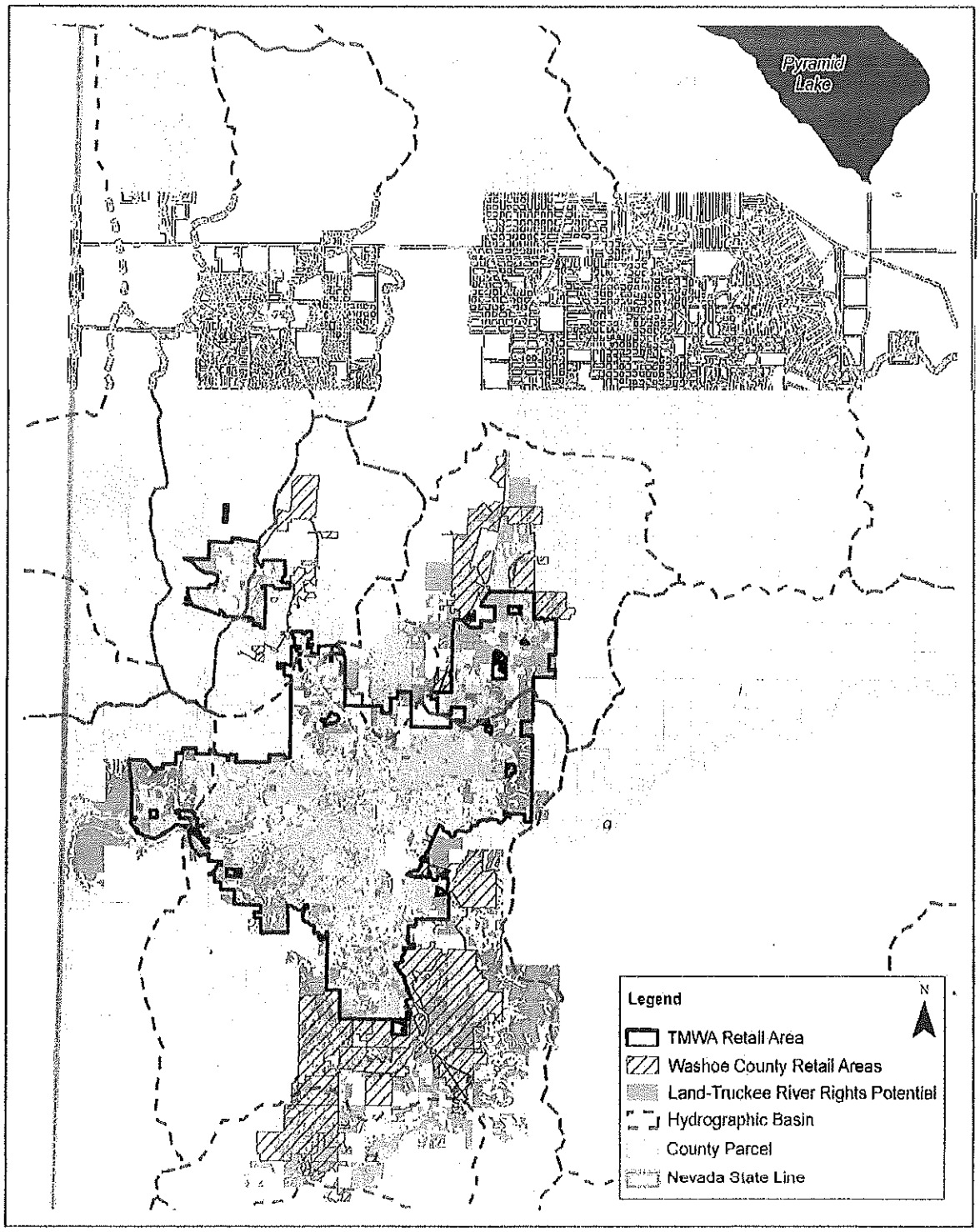


Figure 10: Buildable Acres in TMWA with Potential to Use Truckee River Resources

TMWA, pursuant to Board of Directors' actions, continues to maintain an inventory of water resources it has acquired from willing sellers at negotiated prices. In previous years, when there were fewer buyers and less demand for water rights, TMWA (like its predecessor Sierra) was very successful in acquiring water rights. Today, the water rights market is characterized by an increased number of buyers and a decreased number of individuals willing to sell water rights unless the seller achieves a high price for their water right. This characterization, coupled with the fact that many recent buyers have been willing to pay much higher prices than past or current market trends would have predicted, resulted in a 500 percent run-up in TMWA's Rule 7 price over a 6-month period in 2005. But market corrections are occurring, consistent with the recent decline in housing starts in the region and associated decreased demand for water rights, aligning the price of water rights closer to market conditions.

Discussions of demands are found in Chapter 4, while availability of water rights to meet TMWA's service area demands is found in Chapter 3.

State Legislative Changes

Introduced in the 2007 Nevada Legislative Session, Senate Bill ("SB") 487 proposed to create a new regional water resources entity in Washoe County. The bill was sponsored by the Interim Legislative Subcommittee created in 2005 by Senate Continuing Resolution 26. SB 487 created a new regional water entity in Washoe County to be effective April 1, 2008. Pursuant to this legislation, the cities of Reno and Sparks, the South Truckee Meadows General Improvement District, the Sun Valley General Improvement District, the Truckee Meadows Water Authority, and Washoe County, formed a Joint Powers Authority to operate the Western Regional Water Authority ("WRWC"). This new entity is charged with coordinating resource management among the existing water purveyors in southern Washoe County. This includes planning for, developing, and managing new and existing water resources for the region (excluding Gerlach and Incline Village). SB 487 included a change of oversight and restructuring of the Regional Water Planning Commission ("RWPC") into the Northern Nevada Water Planning Commission ("NNWPC"). The WRWC began functioning and assumed oversight of the NNWPC in April 2008.

Section 41(1) of Western Regional Water Commission Act requires the WRWC to "..develop, and as necessary recommend revisions to, a Comprehensive Plan for the planning area covering the supply of municipal and industrial water, quality of water, sanitary sewerage, treatment of sewage, drainage of storm waters and control of floods. The initial Comprehensive Plan must be developed on or before January 1, 2011." That planning effort is in the early stages of developing the plan outline and calendar. The goal is to complete the regional water management plan for the years 2010 to 2030 sometime in Fall 2010. Since TMWA is a major contributor to the potable water management elements of that plan, adoption by TMWA's Board of this 2010-2030 WRP is necessary in Spring 2010 in order that it findings may be incorporated into the regional water management plan.

Water Purveyor Integration/Consolidation

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 WDWR. Formal direction was given to the WRWC to

incorporate into its 2030 Comprehensive Water Plan an "[e]valuation and recommendations regarding the consolidation of public purveyors in the planning area, which must include costsand 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 WDWR to "conduct a focused financial analysis to assess the feasibility of some form of utility integration using their joint bond counsel and financial advisors...".[10] 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 WDWR into TMWA by defeasing WDWR 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 WDWR have met on numerous occasions to 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 WDWR 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 WDWR water systems were operated as one rather than two systems. The PARs are included in Appendix A.

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 Chalk Bluff.

---

[10] 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 Sun Valley GID and South Truckee Meadows GID 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/DWR entity. However, some additional analysis of this question will be necessary to satisfy the requirements of the Act.

The Operations PAR identified existing functions performed by each utility. Each of the operations 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, and 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 WDWR customers, accrue to WDWR. 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 the WRWC-Subcommittee meeting 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 WDWR water functions into TMWA. The timeline for completing the ILA is late 2009 after which due diligence efforts will begin 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. 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.

From the aspect of treating and delivering potable water to customers, the consolidation of TMWA and WDWR 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 WDWR should allow the expanded use of surface water and reduced use of groundwater thereby improving aquifer conditions in the various basins where TMWA and WDWR 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.

On a forward-looking basis, since WDWR uses TMWA's Rule 7 for estimating resource requirements for new development projects, future uses and dedication of resources would have similar outcomes whether consolidation occurs or not. Although the results of resource and facility planning conducted by WDWR for their current, respective service areas may change slightly under a combined operation, those changes would not significantly affect the projected use of resources for this planning effort.

Historic Uncertainties – Negotiated River Settlement and the Truckee River Operating Agreement ("TROA")

In order to fully understand the Truckee River Settlement it is important to take a look back at the history of uncertainty with respect to the uses and users of the water of the Truckee River. This uncertainty is more difficult to see today than it was in the early 1990s, because, since that time, much of the litigation has been put on hold and most parties with interests in the waters of the Truckee River have been successful in negotiating solutions to their issues. But, prior to the late 1980's, when negotiations had been largely unsuccessful, this community was in gridlock and was unable to rationally plan for its future. Prior to Senator Reid and Congresswoman Barbara Vucanovich taking on the project, there were two major unsuccessful attempts to get legislation through Congress and Sierra had made presentations to the Washoe Council of Governments stating it would be out of water and the community unable to grow unless many of these uncertainties were resolved.

Some of the uncertainties included: (1) whether the Truckee River reservoirs can be operated to accommodate the needs of the endangered and threatened species instead of providing water to water right holders; (2) the amount of water which California was entitled to use relative to the amount of water available for Nevada; (3) how would California agencies charged with managing wildlife issues implement their regulation programs such as increasing minimum releases or in-stream flows, and would those efforts cause our reservoirs to be depleted leaving more water unavailable in a drought; (4) how would a 60 year old court decree, dominated by agricultural uses, adapt to changing uses or conversion of water uses from irrigation to municipal; (5) how would pending litigation be resolved; (6) how would Tribal claims to water be resolved and whether their claim to higher priority water rights would affect Truckee Meadows water rights; and (7) what impacts would all these unsettled issues have on

the utility's ability to maintain existing water supplies, grow its water supplies and provide for the communities' future demand for water.

Eventually, in 1989, Sierra and PLPT were able to sign an agreement known as the Preliminary Settlement Agreement ("PSA"). The intent of the agreement was to settle numerous issues (some mentioned above), claims and counter-claims between these two parties and lay the foundation for a larger settlement to Truckee River issues that would include the five Mandatory Signatory Parties (United States, California, Nevada, Sierra (now TMWA), and PLPT) and other parties willing to participate.

In 1990, Congress passed and the President signed into law Public Law 101-618, the *Truckee-Carson-Pyramid Lake Water Rights Settlement Act* ("Settlement Act"). The Settlement Act, which incorporated and ratified the terms of the PSA; provided for the negotiation of a new operating agreement on the Truckee River; and preserved and protected the rights of all Orr Ditch water rights holders. The bill had provisions regarding other issues some of which were related to the settlement, such as economic development funds for PLPT; and some not related, such as the Fallon Tribe Settlement and the Newlands project reclamation reform provisions. Section 205(a) of PL101-618 directed the Secretary of the Interior to negotiate an agreement for the operation of Truckee River reservoirs. This agreement has become known as the Truckee River Operating Agreement ("TROA").

Negotiations on TROA began in the 1990's leading to the final agreement in September of 2008. When implemented, TROA will allow for a congressionally authorized interstate allocation of water and change the operations of the Truckee River system to accommodate multiple beneficial uses for drought supply, endangered and threatened fish species, water quality, California water use, and storage. In addition, operations will enhance riparian habitat, reestablish river canopy, enhance reservoir releases, improve recreational pools in the reservoirs, and improve the process for emergency drawdown procedures for Lake Tahoe.

TROA was signed by the Mandatory Signatory Parties (TMWA, Pyramid Lake Paiute Tribe, California, Nevada, and the United States) and seven other parties on September 6, 2008. A number of conditions must be met before TROA can be implemented. Some of these have been satisfied since TROA's execution, other remain to be accomplished. These include:

- Publication of TROA in the Federal Register occurred on December 5, 2008 and its promulgation as a regulation occurred on January 5, 2009. The Truckee-Carson Irrigation District ("TCID"), Churchill County and the City of Fallon have initiated litigation in United States District Court challenging the regulation, including a challenge to the adequacy of the Final Environmental Impact Statement for the Operating Agreement. TCID, Fallon and Churchill County dismissed their lawsuit under CEQA and the time to bring that action has since run out.
- Modification of the Orr Ditch Decree to accommodate changes required by the Operating Agreement (submitted to the court in *United States v. Orr Water Ditch Company, et al.* for approval of modifications to the Orr Ditch Decree on November 17, 2008). The motion has been opposed by TCID, Churchill County and City of Fallon. Service of process on water right holders is to be completed by mid December with a full hearing on the merits projected for some time next year.

- The United States and the Truckee Meadows Water Authority submitted a joint motion to the court in *United States v. Truckee River General Electric Company* to modify the Truckee River General Electrie Decree on November 20, 2008. The Court entered an order modifying the Decree on December 22, 2008 without objection from TCID Fallon or Churchill County. Now TCID has indicated that it intends to move to have this order vacated, but has not yet done so.
- Change petitions (filed in 2004) are pending approval by the California State Water Resources Control Board to change the water rights for Boca, Prosser Creek and Stampede Reservoirs, and for Independence Lake. A hearing date is expected in June 2010.
- Applications (filed in 2006 and 2007) are pending hearing and approval by the Nevada State Engineer to change the water rights in Nevada to allow Truckee Meadows Water Authority to hold the consumptive use component of certain of its water rights in storage. The hearing is scheduled for December 2009. In addition, changes to the Water Authority's water rights to generate single purpose hydroelectric power may also need to be approved; those change applications have been filed with the Nevada State Engineer, but no hearing date has yet been established.
- The Nevada State Engineer's ruling on unappropriated Truckee River water (granting the unappropriated Truckee River water to PLPT), State Engineer Ruling No. 4683, must be final, and the Orr Ditch Court must have made a determination that the Truckee River in Nevada is fully appropriated and closed to new appropriations. On March 30, 2009, the final appeal was dismissed, and Ruling No. 4683 is now final. However, the State Engineer's denial of an earlier TCID application for unappropriated Truckee River water is still pending in the Third Judicial District Court in and for the County of Churchill. It is anticipated that any decision by that court will also be appealed to the Nevada Supreme Court.
- *Pyramid Lake Paiute Tribe v. California*, Civil S-181-378-RAR-RCB, and *United States v. Truckee-Carson Irrigation District*, Civil No. 4-2987-RCB, cases pending in federal courts in California and Nevada, respectively, must be finally resolved. The *United States v. Truckee-Carson Irrigation District* case was dismissed with prejudice on August 10, 2009. Work is underway to have the remaining action dismissed with prejudice.

Additional accomplishments of the TROA parties or TMWA toward implementing PL 101-618 and TROA include the following: United States Bureau of Reclamation ("USBR") and TMWA executed a storage contract in 2008 and the referendum vote by PLPT held in 2008 was successful. TMWA has also completed the retrofit of its single family flat-rate services with meters. TMWA and the Mandatory Signatory Parties continue to work toward implementing TROA. Many or most of these accomplishments have or will be appealed by TCID, Fallon, Churchill County, or other parties. The effectiveness of TROA is conditioned upon all of these appeals being exhausted. It cannot be known with certainty when court rulings, regulatory or appeal processes will be complete.

- Snow water equivalent ("SWE") showed very high variability with some stations reporting a trend towards increased snowpack and others showing reduced snowpack trends.
- The SWE trends were highly correlated with instrument elevation, where high elevation stations observed increased SWE and the low elevation stations observed reduced SWE.
- Mean annual streamflow data varied widely between water years.
- Long-term streamflow volume and timing trends were investigated through linear regressions of the cumulative streamflow volumes. The records revealed no consistent trends in streamflow volume or timing for the period of record.
- Cumulative-volume-linear-regression analyses were also used to investigate trends in reservoir volumes. The reservoir volumes displayed an obvious dependence on precipitation, as periods of drought strongly influenced reservoir volumes.

In order to investigate correlations between hydrologic variables and possible modifications in hydrologic processes, the following double-mass analyses were conducted:

- Relationships between streamflow and precipitation were studied at four paired stations. The results confirmed the expected high degree of correlation between these variables. The functions between precipitation and streamflow remained consistent throughout the records, indicating no observed modifications in large scale precipitation-runoff-streamflow processes at un-dammed gages.
- Double mass analysis of precipitation and reservoir volumes further demonstrated the high degree of correlation between these variables.
- Analyses of SWE and streamflow data revealed a slight deviation from historical trends over the past four water years.
- No consistent departures from long term patterns were observed between streamflow and reservoir volumes.
- Patterns between SWE and reservoir volumes remained consistent throughout the period of record.

As a result of these analyses, DRI concluded that no significant changes were found in the climatic and hydrologic variables over the period of record. Temporal trends in temperature, winter precipitation, and SWE were observed at some stations. However, very high year-to-year variability was observed for all stations and parameters.

Winter Time Cloud Seeding

The winter snowpack is the primary source of precipitation that replenishes upstream reservoirs and provides the largest volume of stored water each year. As the snowpack grows over the course of the winter, water is stored until the spring stream flow runoff period. This melting can provide stream flows well into the summer months. For more than 25 years, DRI has

been conducting cloud seeding in the Lake Tahoe and Truckee River basins. The goal of cloud seeding is to enhance snowfall from winter storms and to increase the snowpack of the Tahoe and Truckee Basins through the application of wintertime cloud seeding technology. Studies have shown that snowfall can be increased by 5-15% annually by cloud seeding; during the prior 10 seasons it has been estimated that DRI state program yielded snow water increases ranged from 8,000 to 30,000 acre-feet per year, with an annual average of about 18,250 acre-feet. (See Appendix C)

It can not be estimated how much of the additional snowfall result in additional stream flow, groundwater recharge, or reservoir storage. It can only be stated that the cloud seeding program results in an increase in the snowpack and thus, a positive effect on the region's water supply.

Droughts

Consecutive years of low precipitation in the Lake Tahoe and Truckee River basins produce dry conditions and drought cycles for the Truckee Meadows. The length of a drought cycle is solely a function of climatic conditions over a period of years. A good indicator of an impending dry year is snowpack accumulation. Measured on April 1 of each year, the snowpack is used to forecast river flows through the year. Figure 11 shows snowpack for the Truckee River basin over the past 24 years. Annual snowpack accumulation in the Tahoe and Truckee River basins is the foundation for estimating the amount of water that will run-off and contribute to river flows during the year. In years of less than average snowpack, the risk increases as to whether or not there is a continuing drought cycle with less than average river flows.

The most recent drought cycle in the Truckee Meadows occurred from 2000 to 2005. As shown in Figure 11, snowpack within the Truckee River basin was below average in 2000 and continued that pattern again in 2001. While there was an improvement over 2001 in the amount of snowpack and runoff in 2002-2004, it was not enough to end the drought. Although TMWA did not need to utilize any POSW to meet customer demands during these five years, the reduced water availability made it difficult to sustain the required Floriston Rates in December 2002 and again from late 2003 into early 2004. In September 2004 Floriston Rate storage was exhausted and normal-river flows were not met again until the end of February 2005 which ended up being a 125 percent of average snowpack year in the Truckee River Basin. Due to heavy precipitation and flooding in late December 2005/early January 2006 the elevation of Lake Tahoe rose significantly. In fact, almost 11 inches of precipitation was recorded at the USGS Farad gauging station over a two week period (Dec 21, 2005 to Jan 3, 2006). An above average snowpack was recorded again (126 percent of average) in the Truckee River Basin in 2006. As a result, Lake Tahoe and all Truckee River Basin reservoirs filled as a result of the streamflow runoff that was produced the following spring. Those two consecutive above average snowpack years (2005 and 2006 respectively) effectively ended the five year drought cycle.

been conducting cloud seeding in the Lake Tahoe and Truckee River basins. The goal of cloud seeding is to enhance snowfall from winter storms and to increase the snowpack of the Tahoe and Truckee Basins through the application of wintertime cloud seeding technology. Studies have shown that snowfall can be increased by 5-15% annually by cloud seeding; during the prior 10 seasons it has been estimated that DRI state program yielded snow water increases ranged from 8,000 to 30,000 acre-feet per year, with an annual average of about 18,250 acre-feet. (See Appendix C)

It can not be estimated how much of the additional snowfall result in additional stream flow, groundwater recharge, or reservoir storage. It can only be stated that the cloud seeding program results in an increase in the snowpack and thus, a positive effect on the region's water supply.

Droughts

Consecutive years of low precipitation in the Lake Tahoe and Truckee River basins produce dry conditions and drought cycles for the Truckee Meadows. The length of a drought cycle is solely a function of climatic conditions over a period of years. A good indicator of an impending dry year is snowpack accumulation. Measured on April 1 of each year, the snowpack is used to forecast river flows through the year. Figure 11 shows snowpack for the Truckee River basin over the past 24 years. Annual snowpack accumulation in the Tahoe and Truckee River basins is the foundation for estimating the amount of water that will run-off and contribute to river flows during the year. In years of less than average snowpack, the risk increases as to whether or not there is a continuing drought cycle with less than average river flows.

The most recent drought cycle in the Truckee Meadows occurred from 2000 to 2005. As shown in Figure 11, snowpack within the Truckee River basin was below average in 2000 and continued that pattern again in 2001. While there was an improvement over 2001 in the amount of snowpack and runoff in 2002-2004, it was not enough to end the drought. Although TMWA did not need to utilize any POSW to meet customer demands during these five years, the reduced water availability made it difficult to sustain the required Floriston Rates in December 2002 and again from late 2003 into early 2004. In September 2004 Floriston Rate storage was exhausted and normal-river flows were not met again until the end of February 2005 which ended up being a 125 percent of average snowpack year in the Truckee River Basin. Due to heavy precipitation and flooding in late December 2005/early January 2006 the elevation of Lake Tahoe rose significantly. In fact, almost 11 inches of precipitation was recorded at the USGS Farad gauging station over a two week period (Dec 21, 2005 to Jan 3, 2006). An above average snowpack was recorded again (126 percent of average) in the Truckee River Basin in 2006. As a result, Lake Tahoe and all Truckee River Basin reservoirs filled as a result of the streamflow runoff that was produced the following spring. Those two consecutive above average snowpack years (2005 and 2006 respectively) effectively ended the five year drought cycle.

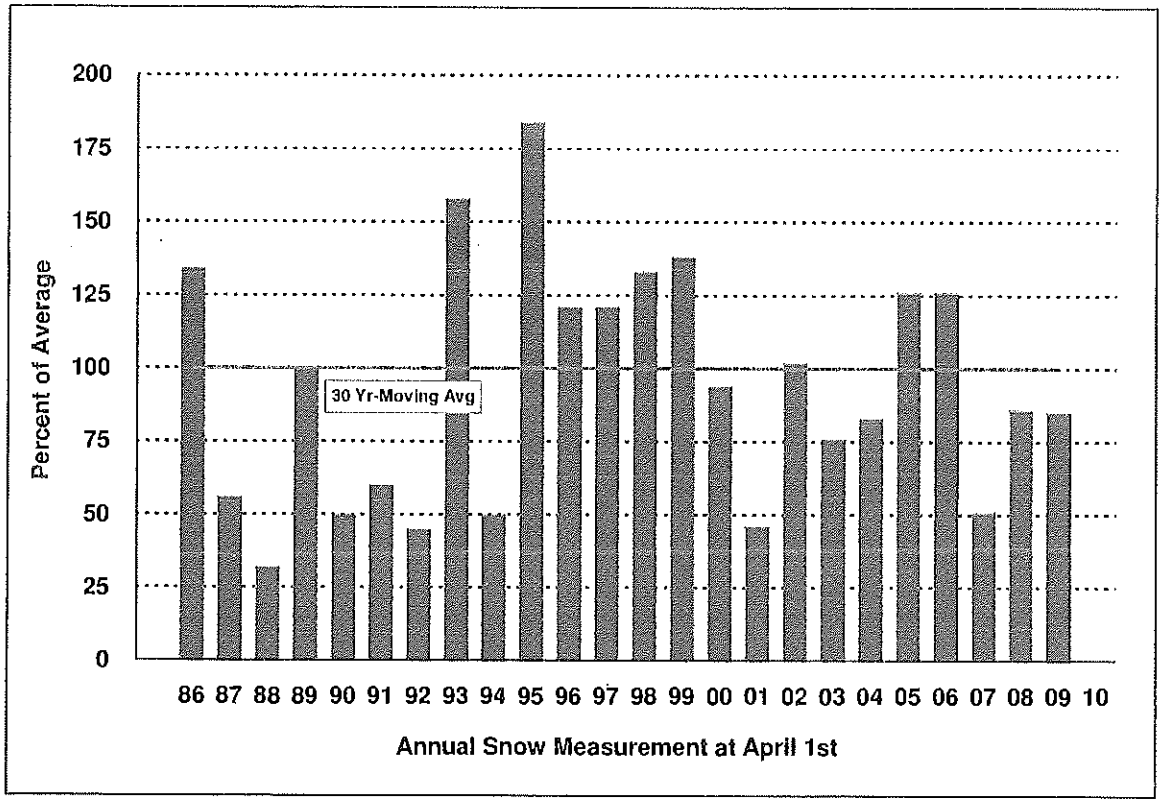


Figure 11: Snowpack for the Truckee River Basin

The severity of the 2000-2005 Drought as compared to prior droughts is illustrated by Lake Tahoe elevations in Figure 12. Month-end elevations of Lake Tahoe during the 1928 to 1935 Drought, the 1987 to 1994 Drought, and the 2000-2005 Drought are compared. On November 30, 1992, Tahoe reached an historic low elevation of 6220.2, or 2.8 feet below its rim. As shown, the graph also illustrates that reservoir operations cause reservoir depletions to extend over a period of 5 to 6 years, whereas the reservoirs can refill completely with a year of non-drought year precipitation or wintertime flooding (e.g., 2005-2006).

The 1987 to 1994 Drought is still the most severe drought on record. Figure 12 shows that the Truckee River system is finishing the third year of an ongoing climatological drought cycle. It cannot be known whether the cycle will end with the 2009/2010 winter snowpack or continue on. Snowpack in the Truckee Basin was 51, 86, and 85 percent of average for the years percent of average in 2007, 2008, and 2009, respectively. In December of 2008 Floriston Rate storage ran out, and in 2009 Floriston Rates are expected to run out by the end of October with Lake Tahoe at its natural rim and Boca Reservoir down to its minimum pool elevation.

As is typically the case, it took three consecutive dry years for Lake Tahoe to fall to its rim prior to November. By definition, the region in 2009 is in a Drought Situation but the loss of river flows will come after the prime irrigation season with no impact to TMWA's POSW or

need to increase groundwater production. Should the 2009/2010 winter produce below average precipitation for a fourth year, the region will most likely be in a Drought Situation which could present an operational challenge for TMWA during Summer 2010.

Important observations to be drawn from reviewing the historical Truckee River hydrology and drought periods include:

- Water levels in all reservoirs are gradually depleted but refill rapidly following a drought, usually in a two to three year period.
- Truckee River supplies are available the majority of the year, whether climatological induced drought or non-drought year conditions persist.
- Donner and Independence Lakes typically fill each spring.
- Truckee River water supply provided by normal operation for Floriston Rates can diminish early in the summer of dry years.

Chapter 3 discusses the conjunctive management by TMWA of its available water resources -- annual river supplies, Privately Owned Stored Water in upstream lakes and reservoirs, credit water stored in Boca and Stampede Reservoirs per the Interim Storage Agreement, additional groundwater pumping, and artificial recharge – in order to meet customer demands through the worst drought on record.

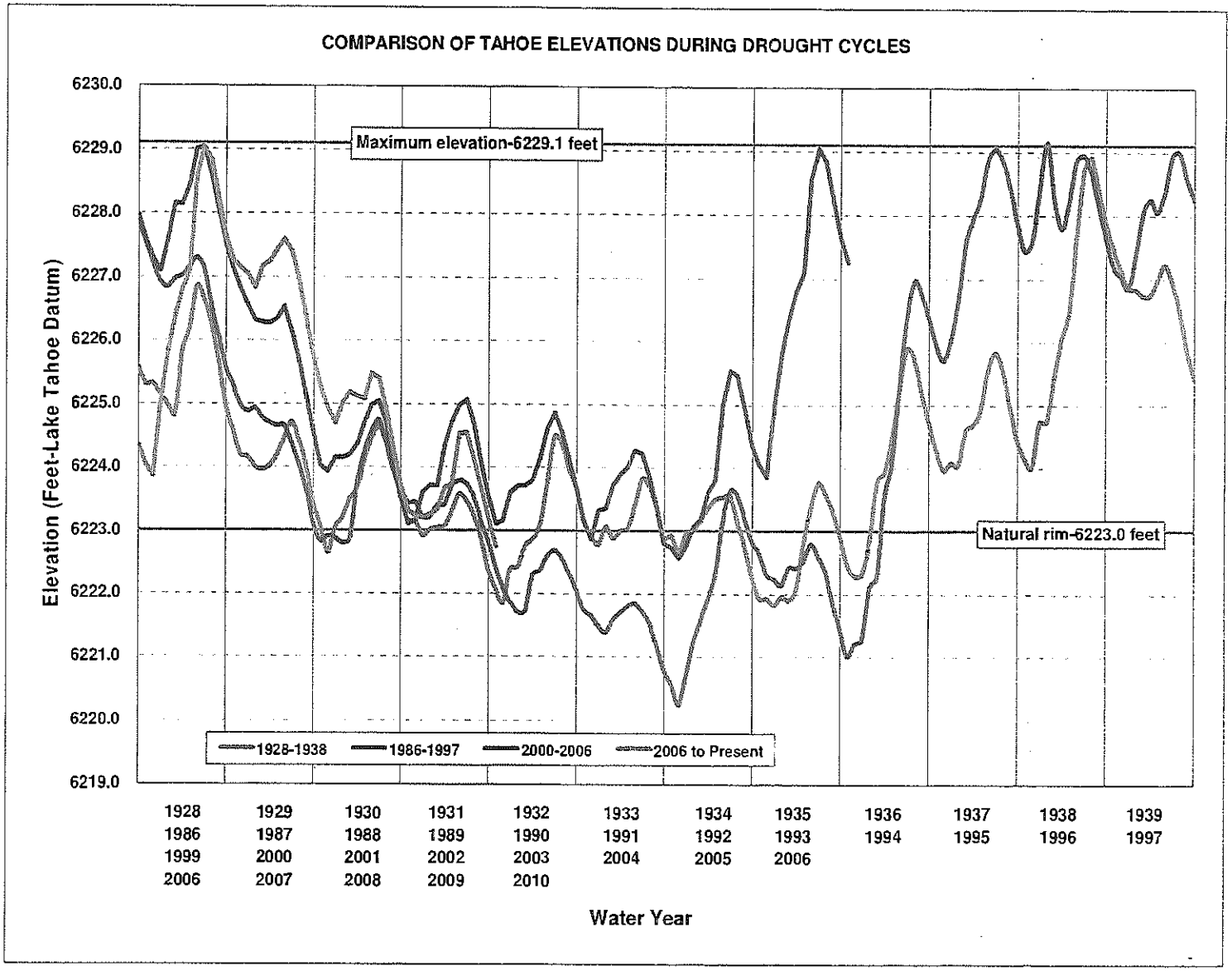


Figure 12: Lake Tahoe Elevations during Drought Cycles

Climate change and drought are the most significant weather variables with potential to change the quantity and quality of the water supply. Studies completed by DRI indicate that while potential for climate change to alter the timing, type of, and quantity of precipitation should continue to be monitored, it should not be artificially imposed as a constraint on current and future water supplies for this 20-year plan at this time. Drought cycles on the other hand have established historical patterns, with the most severe drought on record lasting eight years. TMWA plans for drought cycles by utilizing a combination of natural river flows, groundwater pumping, POSW releases, and extraction of accumulated groundwater injections. Operation of TMWA's water production facilities to meet demands during drought cycles is discussed in detail in Chapter 3.

Source Water Contamination

This section begins with an overview of TMWA's water quality and identified potential risks of water supply contamination, and summarizes TMWA's Source Water Protection Program.

As detailed within the *2008 Water Quality Report* found in Appendix D, TMWA continues to provide high quality water that meets or exceeds all US Safe Drinking Water Act standards. In addition, TMWA's water meets and, in most cases, significantly exceeds, all US Environmental Protection Agency ("USEPA") and Nevada State Health standards. On average, more than 1,000 laboratory tests are performed each month on over 180 samples taken from various locations in Reno and Sparks to ensure that TMWA's water meets all standards. In addition, TMWA takes samples from several locations in the distribution system on a monthly basis to continually demonstrate full compliance with the new arsenic standard put into effect in January 2006 by the USEPA.

TMWA Source Water Quality Assurance Program

TMWA's water quality goal is the delivery of high quality potable water to its customers at a reasonable price. In order to achieve and maintain this goal, TMWA utilizes a water quality assurance program. TMWA utilizes the following components in its water quality assurance program:

- Protection of Source Water Quality: TMWA has a fully integrated and coordinated source water quality program designed to protect or improve the quality of TMWA's surface water and groundwater supplies.
- Potable Water Treatment: TMWA utilizes modern-surface-water-treatment facilities for its raw-surface-water supplies and complies with all Federal and State drinking water regulations.
- Maintenance of Distribution System Water Quality: TMWA utilizes a highly skilled staff of scientists, engineers, and operators who continually monitor water quality in the distribution system.
- Cross Connection Control: TMWA has an extensive and fully engaged backflow prevention and cross-connection control program. The purpose of the program is to

prevent backflow of pollutants or contaminants from customer plumbing systems into TMWA's distribution system.

The water quality of the Truckee River is normally excellent. Surface water is of exceptional quality because base flows are composed of Sierra Nevada Mountain snowpack runoff and seepage or spring flow. Typical water quality data are shown in Table 1. Mineral concentrations are very low, and turbidity levels are typically less than five nephelometric turbidity units ("NTU"). However, water in the Truckee River can have higher turbidity because of storm runoff and/or algae growth associated with low flows and warm temperatures in summer.

Table 1: Typical Mineral Concentrations of Surface Water

Constituent	Minimum	Average	Maximum
Total dissolved solids, mg/l	34	86	132
Total suspended solids, mg/l	1	13	20,000*
PH	6.8	7.7	9.6
Temperature, C	0.5	0.0	20.0

* High turbidity events only, such as the July 1992 flash flood on Gray Creek.

The reliability of this source is governed by the ability of TMWA's surface-water-treatment facilities to treat Truckee River water during possible events of high turbidity and chemical or biological contamination. Three types of contamination events are identified:

- Turbidity events[11] – low frequency events that are flushed by river flows within hours.
- Non-persistent toxic spills – spills of substances that would be flushed by river flows, usually within an 8 hour period.
- Persistent toxic spills - spills lasting more than 2-4 days that do not flush through the river channel.

Higher than average turbidity events can occur in the Truckee River during periods of floods, storm runoff and/or algae growth associated with low flows and warm temperatures in summer. Turbidity at conventional filtration plants is removed through chemical stabilization (coagulation and flocculation), followed by sedimentation and filtration. All surface water is treated at CTP or GTP before distribution. The modern treatment facilities at CTP and GTP have

[11] The term "turbid" or "turbidity" is applied to waters containing suspended matter that interferes with the passage of light through water.

greatly reduced the water supply risks associated with turbidity events. Both CTP and GTP are designed to operate during intermittent turbidity events as high as 4,100 NTU lasting 5-10 days, but, it is more practical to shut the plants down and let the turbid water pass by to avoid significant clean-up efforts and costs at the treatment plants. Should a turbidity event that exceeds TMWA's ability to treat the water to required standards occur, it is possible to operate the system with only wells to supply an average day demand, more than sufficient to meet current indoor or winter daily demands of approximately 35 MGD.

Few toxic spills have occurred on the Truckee River and none were of major proportion. The most recent event was a sewage spill near Truckee, California which occurred in the spring of 1991, resulting in the shutdown of Glendale Treatment Plant operations for a day. Major toxic spills that would render the Truckee River unusable have not been recorded. However, toxic spills into rivers throughout the United States do occur, some of which have rendered water snpplies unusable for an extended period of time. In the event of an incident on the Truckee River the contaminant might be diluted and washed downstream within a day depending on the flow rate in the river at the time. TMWA might be able increase river flows through release of its stored water. These steps are likely to mitigate any contaminant that does not readily absorb into the river bed.

Past resource plans and a recent review of United States Department of Transportation data, resulted in the identification of several types of hazardous materials which are commonly carried through the Truckce River Watershed. They include:

Ammonia perchlorate	Hydrogen sulfide	White phosphorous
Anhydrous Ammonia	Nitro cellulose (wet)	Propargyl alcohol
Chlorine	Propane	Sulfuric Acid
Cyanide	Petroleum naphtha	Sodium hydroxide
Hydrochloric acid	Phosphoric acid	

These chemicals represent ingredients used in the formation of products ranging from rocket fuel to pesticides. Although most are extremely toxic it is likely that all would be flushed past TMWA's treatment plant intakes within one day. Chemicals that would likely adhere to the river bed include manufactured pesticides, herbicides, and fungicides. Each chemical would require a specific response depending on location, duration, and other factors of the water quality emergency. In the event of a spill, it is currently possible to operate using distribution storage and wells while the water quality emergency is being assessed.

In 2007 research was completed at the University of Nevada, Reno on behalf of TMWA (see Appendix E), to quantify the risk of a spill to the Truckee River using data that was previously not available. The analysis has shown no recorded contamination event from rail or highway transportation. The data also suggests that accidents tend to occur more frequently during the loading and unloading of trucks and rail cars. This suggests that the area of highest risk is downstream of TMWA's treatment facilities in the City of Sparks where there is a rail yard and a large number of warehouses and shipping companies.

Also completed by the University of Nevada, Reno in 2008 was a risk analysis and assessment accompanied by the development of a contaminant transport model of the Truckee River from Tahoe City to the Glendale Treatment Plant. The results of this research are provided in Appendix F and include travel times for various classes of chemicals at different flow rates.

The model is used to quantify the time periods required for the river to flush clear a spill from different possible locations.

While a toxic spill into the Truckee River is clearly a concern, this is an extremely rare event and such an event has not occurred to this date. However, depending upon the time of year, TMWA is able to operate without the river for a period of hours to days using system distribution storage and its production wells. A detailed plan cannot be developed for a major emergency on the Truckee River that would anticipate all possible combinations of circumstances requiring emergency actions. Variables include location, size, and type of spill; time of year; levels of reservoirs and streams; customer demands; and other factors. The supply of water available from TMWA's 32 production wells enables TMWA to meet demands for average indoor water use throughout the year. In addition to relying on its wells, other steps to reduce water use during an extreme event and/or extended river outage could include:

- Call for voluntary, then mandatory water conservation, including watering restrictions (e.g., once per week during summer months), reduced laundry at commercial properties, use of paper plates in restaurants, no use of potable water for non-potable purposes, and other measures.
- Engage all wells on the TMWA system for full operation subject to Health Department approval. This would include the use of wells that do not meet drinking water standards.
- Modify flows in the Truckee River to either flush, dilute, or isolate the contaminant.
- Utilize extraordinary treatment processes in the pre-treatment section of the water plants. An example of this might be neutralizing pH through chemical additions in the pre-settling basin or addition of granular-activated carbon to filters. The likelihood of these steps being successful will depend on the type of contaminant and its concentration.
- Where possible, utilize and expand emergency interconnections with other water systems.
- Acquire the use of all water in local irrigation ponds, recreational lakes, etc., to the extent that water can be conveyed to the TMWA's treatment plants through ditches or other means.
- Use isolated portions of the storm drain system and ditch system for conveying water from unusual source locations to the water treatment plants. This might include installing sandbag check dams in certain ditches, along with low head pumps, in order to move water up-gradient in a ditch to a treatment plant. For example, the creeks in the South Truckee Meadows might be conveyed to the Glendale Treatment Plant by collecting the water in Steamboat Creek, pumping it into Pioneer Ditch, and thence through step pumping to Glendale.
- Temporarily pump the discharge from the Sparks Marina to the Glendale Water Treatment Plant.
- When TROA is in effect utilize the emergency worse than worst case water supply to flush the river of contaminants.

Besides the types of spill events described above, there may be other events that interfere with the availability of Truckee River water. In April 2008 an earthquake triggered a rock slide destroying a 200-ft section of flume along the Highland Ditch in the Mogul area. This incapacitated the primary raw water supply for CTP just as customer demands were increasing with the onset of springtime temperatures. Raw water supply to CTP was quickly restored (that same day) via the Orr Ditch Pump Station ("ODPS") at a limited capacity of about 60 MGD, but more supply was required. The GTP was brought on-line early in order to help meet those increasing customer demands. Within a few weeks a temporary pumping station along the river was also set up to provide enough raw water in order for CTP to resume operating at its full capacity of 83 MGD. By July the damaged section of flume was bypassed with a 54-inch aboveground high density polyethylene pipe and gravity flow from the river to CTP was restored at a limited capacity of about 26 MGD. The ODPS was used to supplement the additional 57 MGD or so that the CTP required to operate at full capacity. The earthquake event has fast-tracked the Mogul Bypass Project which was in TMWA's Capital Improvement Plan for 2014. The project will bypass or re-route a substantial portion of the Highland Ditch around and south of the Mogul area, replacing a series of aging wooden flumes and earthen-lined sections with approximately 8,400-ft of 69-inch steel pipe placed underground.

Though it cannot be predicted when a river interruption event will occur or what the nature of an event will be, TMWA plans for and practices scenarios to manage-through emergency events. The more extraordinary measures that can be engaged are believed to only apply in an extreme, worse-than-historic event that would occur in the peak of the summertime irrigation with contamination occurring between Boca and the diversion point of the Steamboat Ditch. Most combinations of scenarios as to time, place, and nature of event are manageable with existing production facilities and management options without such drastic measures. It must be emphasized that these are broad guidelines only. They are not intended as a definitive instruction list as to the response which should be taken in any given emergency situation. The event, if it occurs, must be evaluated on its specific conditions, and a response plan devised accordingly.

Source Water Protection Program

Surface Water. With the exception of a small appropriated water right from Hunter Creek, all of TMWA's surface water rights used for municipal water supply come from the Truckee River. Attitudes have changed over the years and today the Truckee River, its tributaries, and watershed are recognized as a pristine, high quality water source that must be maintained and protected. Several governmental agencies[12] are charged with protecting the

[12] The Tahoe Regional Planning Agency, or TRPA, is a bi-state planning agency authorized by Federal Government. Its goal is to ensure that anthropogenic activities, including new development, do not degrade the quality of Lake Tahoe, its tributaries, or watershed. Standards are strictly enforced by TRPA to minimize sediment and nutrient loading to the Lake, and TMWA certainly benefits from this enforcement and its programs. In California, the Lahontan Regional Water Quality Control Board enforces water quality standards on the Truckee River and tributaries outside of the Tahoe Basin. This Board derives its authority from the federal government and the Clean Water Act. The Nevada Division of Environment Protection ("NDEP"), under authority derived by the

Truckee River and its watershed. All of the local agencies derive their authority from the Clean Water Act and the Environmental Protection Agency.

In support of Truckee River source water protection and TMWA's reliance on the Truckee River for most of its water supply, the Truckee River Fund ("The Fund") was established by TMWA in 2005. The Fund is used to support projects that protect and enhance water quality or resources of the Truckee River, or its watershed. In addition, the Fund provides TMWA a vehicle for not only responding to the numerous requests from outside groups and organizations that are involved in promoting and improving the health of the Truckee River system and watershed, but a means to encourage matching funds for the projects. Participation in these projects benefits the primary water source for the community and, in the long-run, TMWA customers. The Fund's Advisory Committee reviews potential new projects once a request for proposal is submitted to the committee.

To-date the Fund has approved and funded 46 diverse projects that further the goals of the Fund. Examples include river riparian cleanup and restoration, planning and construction of Pioneer Dam, Independence Lake Forest and Wildfire Management Plan, and many others completed or underway listed at www.truckeeriverfund.org.

Groundwater. Groundwater protection is an important element of the water quality assurance program. The need to protect source waters gathered momentum in the 1990's when TMWA's predecessor, Sierra, implemented groundwater treatment at a number of wells which had become contaminated from solvents ("PCE") used in dry cleaning operations. The well map in Figure 13 depicts rough outlines of the extent and nature of some of the current threats to groundwater TMWA, WDWR, Reno and Sparks, Washoe County, and NDEP are monitoring and managing.

Clean Water Act, has a mission to preserve and enhance the environment of the state in order to protect public health, sustain healthy ecosystems, and contribute to a vibrant economy.

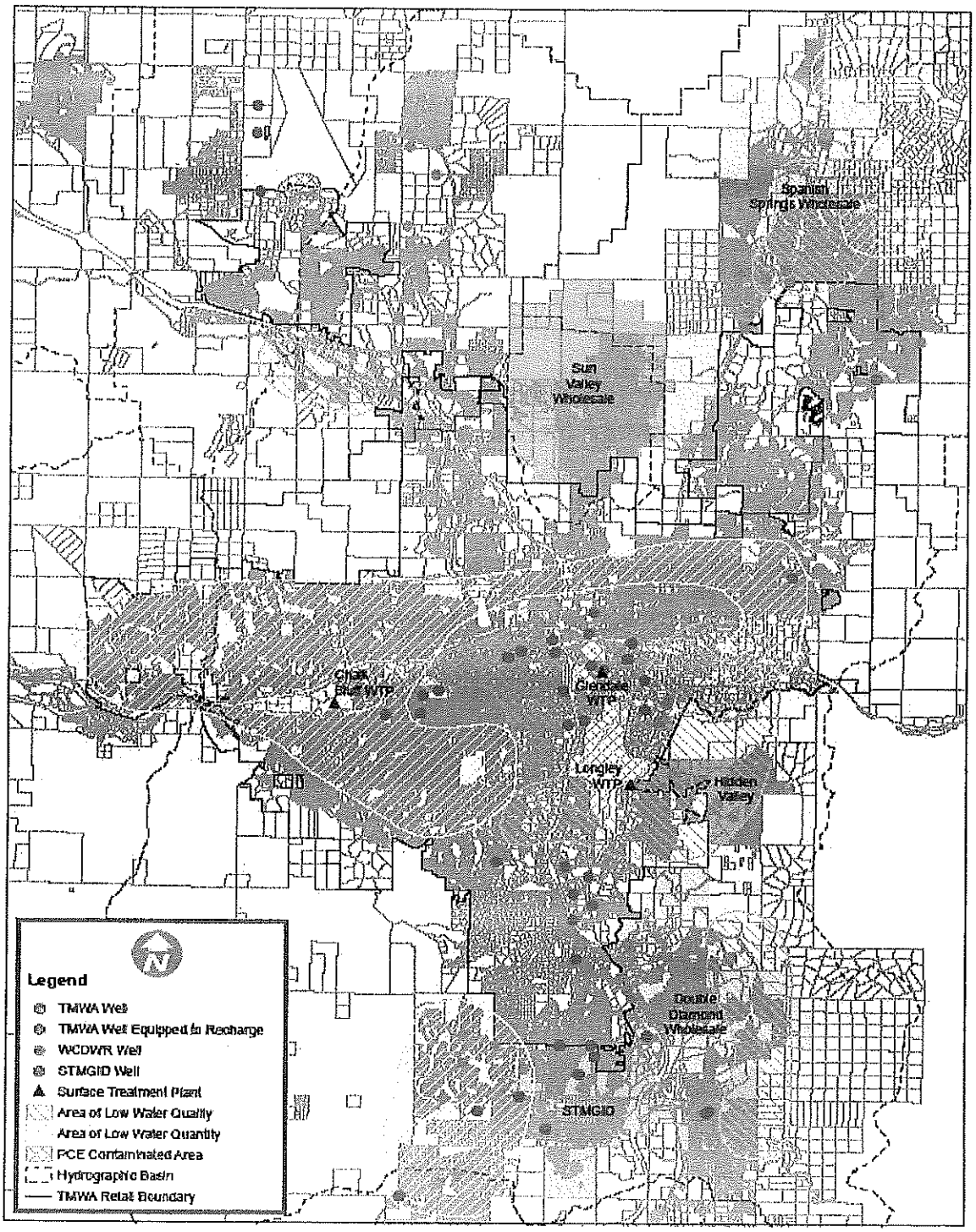


Figure 13: Production and Recharge Wells and Areas of Water Quality Concern

Shortly after treatment was implemented, local governmental entities created the "Central Truckee Meadows Remediation District" to provide administration to the PCE clean-up effort and to collect funds necessary for the construction, operation and maintenance of the treatment facilities. Groundwater protection has received even more emphasis with the recent implementation of TMWA's Wellhead Protection Plan ("WHPP"). The plan, recently endorsed by the Nevada Division of Environmental Protection, outlines a comprehensive action plan to protect TMWA's aquifer from further sources of contamination. Key components of the Wellhead Protection Plan are the delineation of capture zones by production wells coupled with a current inventory of Potential Contaminant Sources ("PCS's"). This information provides the baseline data by which TMWA can develop and implement groundwater protection strategies, including educational outreach.

TMWA's current overall groundwater protection action plan (which incorporates specific wellhead protection items) is fully integrated with other local agencies and includes the following elements:

- Water Quality Monitoring. TMWA has over 65 monitoring wells located within the Truckee Meadows, West Lemmon Valley and Spanish Springs hydrographic basins. Of the 65 monitoring wells, 16 are privately owned by the Central Truckee Meadows Remediation District ("CTMRD"). The remaining wells were drilled by TMWA. TMWA monitors water levels in these wells on a monthly basis and CTMRD samples for inorganic and organic constituents in the central Truckee Meadows on a quarterly basis. The results of this testing, along with sampling and testing of TMWA production wells, allows TMWA to be proactive in joint groundwater remediation efforts and to prudently plan the location of future wells and groundwater treatment facilities.

- Reno-Sparks PCE Contamination. TMWA works and communicates closely with the CTMRD concerning PCE removal and treatment at TMWA wells and is also proactive in the up-to-date delineation of PCE Plumes. The plumes in the central Truckee Meadows are shown in Figure 13. The plume contours were developed as part of TMWA's WHPP.

- In 1987, testing of TMWA's wells identified the presence of an organic solvent known as perchloroethylene and tetrachloroethylene ("PCE"). This solvent has been used since the 1930's in a variety of commercial/industrial operations such as commercial dry cleaning, paint manufacturing, and auto repair. The PCE contamination occurs in several plumes located along the current and historical commercial/industrial corridors along old U.S. 40 (Fourth Street/B Street/Prater Way), Virginia Street, and Keitzke Lane. Mitigation of the PCE plumes is managed by the CTMRD program which has paid for three air-stripping-treatment facilities that remove PCE from five of TMWA's 32 wells: Keitzke Lane, Mill Street, High Street, Morrill Avenue, and Corbett School. The CTMRD program has achieved success in plume capture and containment resulting from the implementation of a prescriptive pumping schedule of the TMWA wells fitted with PCE treatment equipment. The PCE plumes do not appear to be moving or growing.

- Sparks Solvent/Fuel Site Remediation. TMWA is an active team participant in monitoring the clean-up effort of this groundwater contamination site. Mitigation efforts are supervised under NDEP Permit UNEV-97207. TMWA's concern is the quality assurance of the clean-up operation with containment such that existing and future production wells are not compromised by movement of solvent/petroleum based plumes. Figure 13 depicts the extent of the existing contaminant plume.
- Stead Solvent Site Remediation. TMWA is an active team participant in the monitoring of the clean-up of solvent groundwater pollution in on the southern boundary of the Stead Airport in the West Lemmon Valley hydrographic basin. TMWA's goal is to ensure that clean-up and containment efforts are performed in such a way that nearby TMWA production wells are not compromised by movement of the solvent based plume. Clean-up of TCE related material since 1999 at the Stead Solvent Site has successfully reduced the spread of the contaminant plume. All cleanup plans are developed and supervised under the direction of NDEP.
- Leaky Underground Storage Tanks. As part of its WHPP implementation efforts, TMWA has identified seven leaking underground storage tanks in relatively close proximity to TMWA production wells. All thirteen sites are being remediated under the supervision of NDEP and the Washoe County District Health Department. As part of the remediation process, TMWA receives and evaluates quarterly reports concerning remediation of these sites, closely monitors water quality of nearby production wells, and provides input to regulatory/enforcement agencies as necessary.
- Arsenic Compliance Plan. TMWA's compliance plan is based on three USEPA accepted methods of mitigation: (1) blending higher arsenic concentration source water with lower arsenic concentration source water, (2) minimizing use of higher-arsenic-concentration-source water throughout the year to achieve a running annual average ("RAA") of less than 10-ppb at the Entry Points to the Distribution System ("EPTDS"), and, (3) treatment.

  As a result of TMWA's cost effective arsenic compliance plan, it received an award in February 2007 from the Nevada Division of Environmental Protection ("NDEP") and the USEPA. The NDEP Drinking Water State Revolving Fund awards recognize the most innovative projects that effectively use state revolving funds to protect public health, comply with the Safe Drinking Water Act, and rank high on a public health benefits priority list.

The arsenic concentration in treated Truckee River water is typically below 2 ppb, and the arsenic concentration in the wells varies from below 10-ppb to as high as 88 ppb. Attaining allowable arsenic levels (the maximum contaminant level ("MCL") for arsenic of 10 parts per billion (ppb)) from groundwater sources is an issue for TMWA's well operations. At 10 ppb, 11 of TMWA's 32 production wells are affected. Four of the wells that exceed the 10 ppb MCL (Greg, Pezzi, Poplar #1, and Terminal) are piped to Glendale Treatment Plant ("GTP") for treatment and/or blending with treated surface water. Two of the five PCE wells (Mill and Corbett) are also piped to GTP. The other three PCE wells (High Street, Morrill, and Kietzke) may be piped to GTP in the future while two other wells (View Street and Poplar #2) may

require special mitigation for arsenic. Because of TMWA's ability to maximize Truckee River water and minimize groundwater use to the summer months, USEPA recognizes the annual running average of TMWA's water supplies to attain drinking water standards.

Table 2 summarizes data on 13 of TMWA's 32 production wells with arsenic above or near 10 ppb and the mitigation action taken at each well in order to ensure compliance with drinking water standards.

Table 2: TMWA Wells Affected by Arsenic and Compliance Actions

	Well Name		Average Arsenic Value (ppb)	Treat at Glendale	Sample at EPTDS*	RAA** (ppb)
1	Terminal Way	1	88	X		1.84
2	Poplar No. 1	1	85	X		1.84
3	Pezzi	1	72	X		1.84
4	Mill Street	1	37	X		1.84
5	Greg Street	1	19	X		1.84
6	Corbett	1	17	X		1.84
7	Morrill Avenue		12		X	4.42
8	Silver Lake		10		X	4.61
9	High Street		9		X	4.42
10	Kietzke Lane		9		X	4.71
11	Sparks Avenue		9		X	4.87
12	Poplar No. 2		7		X	3.97
13	View Street	2	5		X	2.38

1. Well output blended and treated with surface water at Glendale Treatment Plant

2. The historical arsenic concentration has been as high as 13 ppb; however extensive artificial recharge activities (underground blending) result in a current wellhead concentration of approximately 5 ppb

* EPTDS - Entry Point To Distribution System

** RAA - Running Annual Average, average of four quarterly As testing results

Summary

This chapter has described major factors affecting TMWA's primary water supplies and finds that:

1. Weather and source supply contamination are of greatest concern in assessing the quantity and quality of water supplies available for continued municipal uses.
2. Changes in management of or any restriction to implementation of water resources due to climate change are not warranted at this time.
3. Low precipitation years that lead to low snowpack accumulations affect the amount of water available to the Truckee River system; Lake Tahoe elevations provide an indication of the severity and duration of historic drought cycles.
4. Drought cycles have established patterns, typically taking three years of consecutive dry winters to cause Lake Tahoe to fall to its rim; however, all the reservoirs may be replenished quickly with one or two wet winters.
5. Drought cycles occur in the Truckee Meadows and have ranged in duration from a few years to 8 years with intervening "wet" and "dry" year within the drought cycle.
6. TMWA's source water is of very high quality, meeting and exceeding all required standards. A Water Quality Assurance program has been implemented to ensure this high standard continues to be met in the future.
7. While there is a risk to source water reliability from turbidity and toxic spill events, TMWA has sufficient well capacity and distribution storage to meet reduced customer demands during a water quality emergency; additional actions are available to TMWA in the event of extended off-river emergencies. An earthquake event in 2008 tested TMWA's emergency response plan to loss in water supply and demonstrated TMWA's ability to respond by having trained staff and available alternate water supplies.
8. TMWA has a Source Water Protection Program in place designed to preserve and enhance available water supplies and to address known and potential threats to water quality.
9. TMWA coordinates with other regional water entities to identify and engage in integration practices that are beneficial in terms of increasing the supply and/or quality of water supplies at minimum economic costs to ensure the delivery of water through the 20-year planning horizon and beyond.

Chapter 3 Water Resource Management and Production

This chapter examines the relationship between water resources, including all reservoir storage rights, Truckee River surface water rights and ground water rights, and TMWA's surface and groundwater production facilities. Information contained in this chapter builds upon, and in some instances reiterates, the review of water rights, water production facilities, and water service demands provided in the 2025 WRP. The conjunctive management of TMWA's various rights with its production facilities makes it possible for TMWA to meet its service demands in drought and non-drought years as discussed in this chapter.

Water Rights

Identification of sustainable water resources for 20-year planning purposes requires consideration of both the legal and practical availability[13] of water rights that can be converted from irrigation to M&I uses. Sustainability, in the context of water resource planning, may be defined as the ability of a water resource to meet present needs while, over the life of the water resource taking advantage of opportunities for future generations to optimize potential future economic, social and environmental benefits. Water resources accepted by TMWA for will-serve commitments must meet these criteria.

Surface and groundwater rights are generally established in Nevada by the appropriation system administered by the State Engineer. TMWA coordinates with and often relies on the State Engineer to determine the sustainable yield of water supplies. For example, the State Engineer makes an assessment of the perennial yield[14] based upon the best available science before allowing appropriation of groundwater from a hydrographic basin. TMWA also relies on its Rule 7 to govern the acquisition and dedication of water resources prior to the issuance of a will-serve commitment. TMWA may acquire through dedication or purchase rights in the future as the need for surface water resources arises, but 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.

Most surface water rights, such as rights to the waters of the Truckee River and its tributaries, have also been adjudicated through court decrees. The Orr Ditch Decree, issued in 1944, established the number of water rights by reach, by priority, by owner, and by quantity associated with the Truckee River and all its tributaries. It is important to note that although water rights can be subdivided and/or converted from one use to another, for example agriculture

---

[13] Availability is a function of factors such as economic, hydrologic, environmental, financial, or legal factors that may constrain and pose opportunity for resource development.

[14] Perennial yield is defined as "the amount of usable water of a groundwater reservoir that can be withdrawn and consumed economically each year for an indefinite period of time. It cannot exceed the sum of the Natural Recharge, the Artificial (or Induced) Recharge and the Incidental Recharge without causing depletion of the ground water reservoir. Also referred to as Safe Yield. http://water.nv.gov/WaterPlanning/dict-1/ww-dictionary.pdf

to municipal use, the overall total number of surface water rights available from the Truckee River will not change from the amount of water rights defined in the Decree.[15] In addition to the Orr Ditch Decree, the Truckee River is governed by several operating agreements, which will be superseded by the TROA when it is fully implemented. TROA was negotiated over the course of several decades and was subject to an extensive environmental review. TROA is designed to provide long-term sustainable water operations for the multiple stake-holders on the Truckee River system through the continued use of converted irrigation rights to M&I purposes. This is crucial since TMWA derives approximately 85 percent of its M&I water from the Truckee River and its tributaries. The Truckee Meadows is fortunate in having significant capacity for storage in upstream reservoirs and in Lake Tahoe to integrate with other resources to maximize the yield of the Truckee River. TROA further enhances the ability to maximize storage for drought supplies.

Figure 14 identifies the various reaches and more accessible "creek areas" of the Truckee River. The water rights within each reach or creek have varying priorities and yields that impact the ability to build a sufficient, consistent supply. For example, the Derby Dam to Pyramid Lake reach is of keen interest to PLPT and the Cities because during critical years, when flows are low, the water quality of the river as influenced by discharge of the treated effluent in the river at Vista can impact in-stream habitat. Transfer of direct diversion irrigation water rights to this reach could be used to mitigate lower-river, low-flow conditions.

TMWA's accumulation of Orr Ditch Decree irrigation rights was begun by TMWA's predecessor Sierra in the 1900's. Figure 15 compares the accumulation of TMWA's water rights (irrigation, groundwater, and Decree rights) over time to the annual production of water. The graph shows that until the 1960's, the demands of customers could be satisfied using the utility's base decree rights along with storage from Donner and Independence Lakes. As demands increased, more irrigation rights were acquired. In addition, groundwater resources began to be developed in the late 1950's and 1960's because the utility was limited in the amount of surface water it could treat, particularly to meet winter demands due to icing of the river and ditches. Adding wells was a less expensive alternative than adding surface water treatment plants in order to have production capacity to meet a growing summer peak demand. This strategy was heavily employed in the 1980's and 1990's in order to ensure peak-production capacity throughout the distribution system which was expanding further and further away from the centralized surface water treatment plants adjacent to the Truckee River.

---

[15] The State Engineer granted Permit No. 4683 which granted PLPT right to all unappropriated water (e.g., flood waters) over and above Orr Ditch rights.

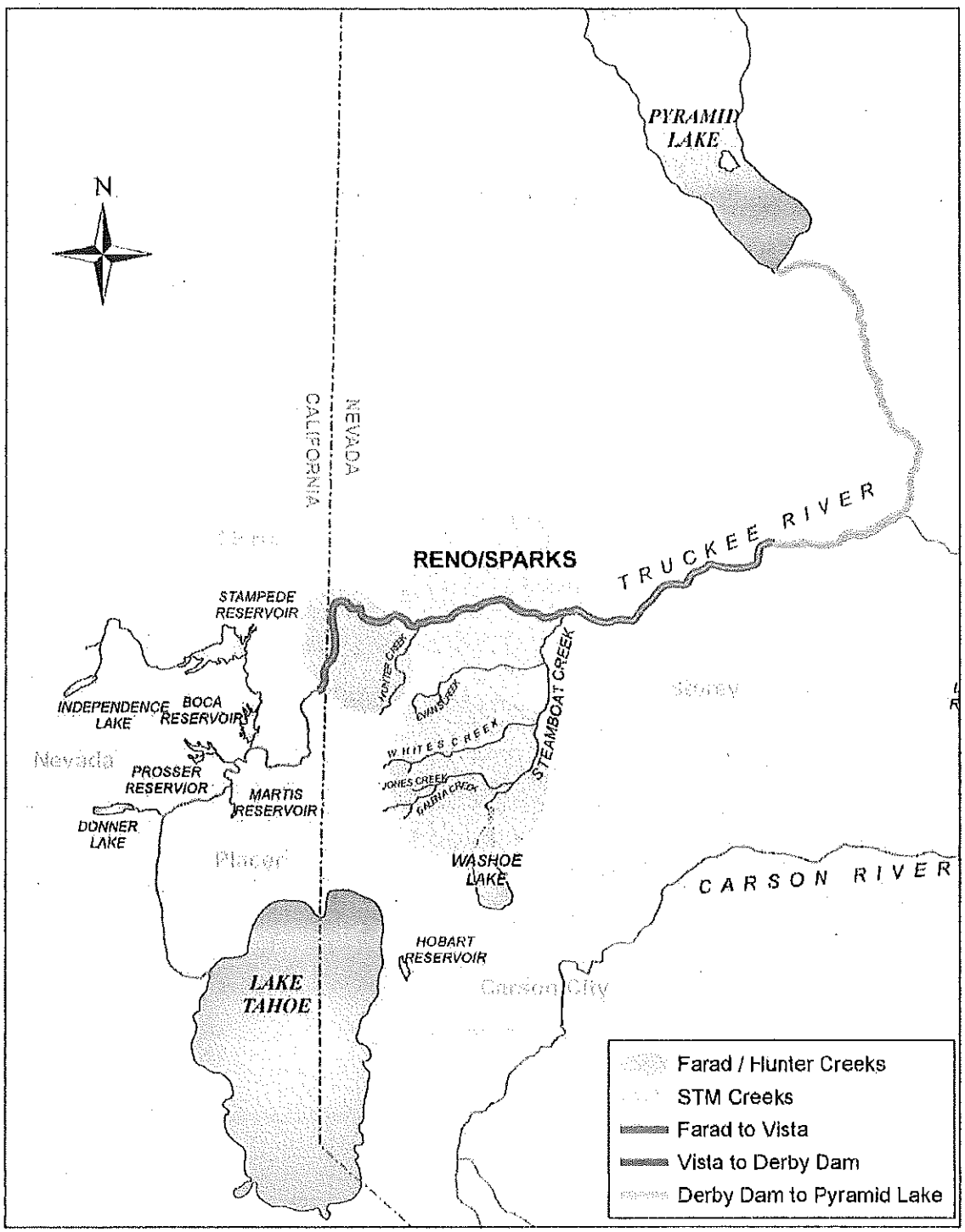


Figure 14: Primary Tributaries and Reaches of the Truckee River

This operational strategy changed dramatically in 1994 with the advent of year-round operation of Phase I of Chalk Bluff Water Treatment Plant (Phase II was completed in 1996 and Phase III completed in 2004). The Glendale Treatment Plant, originally completed in 1976, underwent significant upgrades in 1996 to comply with Safe Drinking Water Act; it, too, can operate year-round if needed. Given Chalk Bluff's ability to operate as the baseload surface water plant for both winter and summer demands, TMWA can utilize more of its surface water resources thereby preserving groundwater for use during the heavy summer demand months of July through September. This strategy allows better management of resources for drought and non-drought conditions and increases summer peaking capacity. Coupled with the continued acquisition and conversion of water rights from agricultural to municipal/industrial ("M&I"), this strategy has enabled TMWA to meet a larger drought year demand and thereby allowed the utility the continued ability to issue will-serve commitments.

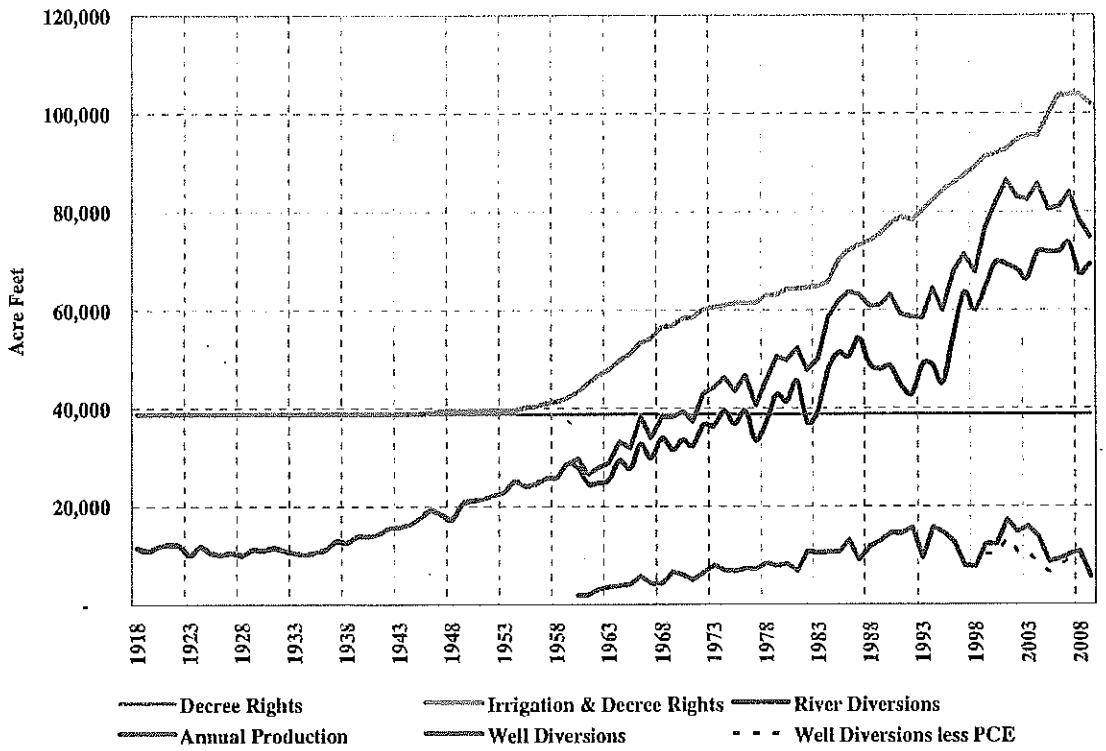


Figure 15: Historic Water Diversions, Production, and Acquisitions of Water Rights

After acquisition of a water right, TMWA ensures applications to change the points of diversion, place of use, and manner of use are filed with the Nevada State Engineer. TMWA's primary diversion points for surface water include the Highland Ditch and the Orr Ditch Pump Station for the Chalk Bluff Treatment Plant and the Glendale Diversion Dam for the Glendale Treatment Plant.

In addition to its decreed municipal water rights, TMWA has acquired and converted to M&I use over 64,500 acre-feet of irrigation rights. These transferred irrigation rights, are used in conjunction with TMWA's other groundwater and storage rights to create its water supply. The priorities of the acquired rights vary from very early priority, e.g., 1861, to later priorities of the early 1900's. TMWA has over 142,900 acre-feet of decreed, groundwater, storage, and irrigation rights sufficient to generate water to serve approximately 101,000 acre-feet of commitments as of June 2009.

Decreed rights	
Truckee (40 cfs)	28,959
Hunter Creek (13.6 cfs)	9,847
	38,806
Storage Rights	
Independence Lake	17,500
Donner Lake (1/2 interest)	4,750
	22,250
Groundwater Rights	
Truckee Meadows Basin[16]	16,010
Lemmon Valley West Basin	883
Spanish Springs Basin	410
	17,303
Mainstem Truckee River Irrigation Rights	64,541
	142,900

To ensure an adequate supply of water, TMWA's "Rule 7" requires that applicants for new water service dedicate sufficient water rights to service their development. Applicants for new service can buy water rights in the open market and dedicate sufficient, acceptable water rights to the utility or, if the applicant chooses to acquire from TMWA, the applicant pays for a will-serve commitment based on TMWA's costs incurred in acquiring and processing the necessary water rights.

[16] TMWA's groundwater diversion rights total 41,811 acre-feet annually, which rights are limited to average year pumping of 16,010 acre-feet annually, but during Drought Situations an additional 6,000 acre-feet can be pumped pursuant to State Engineer Order 1161.

Table 3 summarizes the number of acre-feet of water rights that were assigned in the Orr Ditch Decree to each river reach as well as the tributary creeks, and identifies the ownership of significant blocks of those water rights.

Table 3: Orr Ditch Decree Water Rights by Reach by Major Owner

Reach	Orr Decree (af)	Pyramid Lake Paiute Tribe (af)	TMWA (af)	Washoe County (af)	Reno/Sparks & County Streets (af)	Tracy Power Plant (af)	Available Water Rights* (af)
Farad to Vista	149,638	0	85,071	15,352	3,409	0	45,806
Vista to Derby	2,488	461	462	364	0	0	1,201
Derby to Pyramid	35,898	25,997	2,968	79	0	2,700	4,154
Subtotal	188,024	26,458	88,501	15,795	3,409	2,700	51,161
Farad to Highland Creeks	10,815	0	9,901	112	56	0	746
South Truckee Meadows Creeks**	25,561	0	892	5,003	207	0	19,459
Subtotal	36,376	0	10,793	5,115	262	0	20,206
TOTALS	224,400	26,458	99,294	20,910	3,672	2,700	71,367

*The summation of water rights present in this table is not complete as to the identification of all the parties of interest to a Truckee River water right, nor an indication of the willingness of a party of interest to a Truckee River water right to sell that interest.

**Does not include Brown, Ophir, or Franktown Creeks, waste and drain rights or Alexander Lake.

Although it appears a significant block of water rights is available for future will-serve commitments, recent trends in the water rights market introduced in Chapter 1 have impacted the ability to acquire water rights. The water rights market is a classic free market environment for private property. Like any other market where the quantity of goods sold takes place between willing sellers and willing buyers, these exchanges are governed by the expectation of sellers attempting to maximize their return and the willingness of buyers to pay the market clearing price for the commodity. The process is complicated by the fact that water rights in the state of Nevada, including Truckee River rights, are private property bought and sold in a free, open market. The fact that TMWA is just one participant attempting to acquire a commodity in the free, open market exposes TWMA, and TMWA's customers, to the same risks as other participants. The lingering impacts as a result of the 2003 to 2005 housing bubble in the Truckee Meadows and the subsequent negative consequences of the 2007 Recession will continue to affect the availability and price of a Truckee Meadows water rights, and TMWA's ability to acquire water rights. In addition to the economic pressures, other issues affecting water resources

that may be available for dedication to TMWA or acquired through the purchase by the utility include:

1. *Ownership*. Prior to 1979 the utility was solely responsible for the acquisition of water resources. However, since that time, water rights have been dedicated by project sponsors to the utility to meet a project's demand, or the utility purchased small quantities of water rights via Rule 7 and then subsequently sold will-serve commitments to meet the project's demand. Ownership[17] of a water right is ultimately transferred to the utility through recordation of a deed with the County Recorder.

   TMWA has an obligation to protect its customers' interests and resources by accepting only transferable, usable water. Title to a water right is evidenced by a deed recorded at the County Recorder. This may be a deed of the real property including the water rights as appurtenances, or a deed for only the water rights. When TMWA accepts a water right and issues a will-serve commitment, it becomes obligated to provide water service to new projects in perpetuity. Although TMWA takes great care to ensure that it receives clear title to water rights offered for dedication and avoid potential conflicts in title and subsequent encumbrance of TMWA's resources, recording of ownership of water rights in Nevada has historically been somewhat haphazard, and it is sometimes difficult to obtain a complete and accurate chain of title. Such factors will limit TMWA's ability to accept certain water rights.

   Another complication with ownership of available Truckee River water rights between Farad and Pyramid Lake (the rights TMWA accepts for service) is finding the owner. Based on Federal Water Master records, mainstem water rights and Truckee Meadows creek rights are fractionated in more than 41,000 pieces spread over more than 32,500 individual parcels, ranging in size from hundredths of an acre-foot on up. The complexities associated with fractionated water rights may require tremendous amounts of time and effort to research the information with respect to which water rights a seller owns and may be willing to sell.

2. *Use*. Clear title does not necessarily imply the utility has the ability to "use" the water right. The State Engineer is required by State law to ensure that any change of use of a water right does not negatively affect other existing uses, including existing domestic wells, and is not detrimental to the public interest. This analysis takes place after the State Engineer has received an application from the developer or utility telling the State Engineer that the utility owns the water right and wants to change the use of the water, usually from agricultural to M&I use. This process may take place after TMWA has issued a will-serve commitment.

---

[17] The exception to this applies to water rights dedicated for service between 1985 through 1996 during which time the rights were dedicated to Reno, Sparks or Washoe County in accord with an Internal Revenue Service ruling. Through water treatment or lease agreements, the utility is able to use those rights for the purpose for which they were dedicated.

The change application process is intended to consider the propriety of changing the point of diversion, place of use, or manner of use of a water right, but does not adjudicate conflicting claims to title. The State Engineer reviews the abstract of title and all other transfer documents relating to the actual water right referenced in the application. If the State Engineer is satisfied that the utility owns the water right and all the acre-feet associated with the water rights, he issues a permit. It is important to recognize that the State Engineer's review is substantive and not simply ministerial, and the process is necessarily time consuming.

There are instances when the State Engineer finds fault with the ownership claim or with the amount of acre-feet in the application. When this happens, the utility must resolve the ownership question or correct the amount of acre-feet, because, in most cases with old water rights, applications, or permits, the acquisition by the utility was incorrect or the original grantee is gone.

3. *Yield*. The third issue facing the acquisition and use of water rights is how much water the water right will actually produce during a drought period. Prior to a water right being accepted as to its ownership and use, the "yield" of the right must be known.

   The current mix of resources (storage rights, groundwater rights, and surface rights) managed under TROA can support a yield (or demand) of approximately 119,000 acre-feet annually with TROA or 113,000 acre-feet annually without TROA simply through the continued addition of Truckee River irrigation water rights. A greater yield is achieved by increasing drought reserve resources or adding other resources not reliant on TROA. If water rights dedicated to the utility subsequently fail the ownership or use tests, overall resource yield can be negatively impacted. This could impact TMWA's ability to meet its service obligations and must be carefully evaluated before water rights are accepted for service.

There are a myriad of issues surrounding the ongoing development, acquisition, and management of water rights in the Truckee Meadows. With constrained amounts of river supplies resulting at times from climatological drought conditions, TMWA continuously works to maximize the yield it receives from its existing water rights--decreed, converted irrigation, storage, and groundwater--to generate a water supply that will meet the current and future needs of its customers. Over the years TMWA has acquired a sufficient number of water rights to meet current customer demands as well as maintaining rights available for new will-serve commitments through its Rule 7 processes. TMWA is fortunate to have rules in place to protect current customers and provide opportunity for new development to receive water service. TMWA will continue to have a role in optimizing the water resources available to it to meet future water supply requirements subject to existing constraints on the water rights market.

Water Production and Facilities[18]

Table 4 presents water production by source since 1990. The wells typically supply between 10 to 15 percent of total water production during non-Drought Situations, but during Drought Situations groundwater production has ranged between 20 and 30 percent of total water production. The facilities employed to produce water for TMWA's customers is described in this section.

Chalk Bluff Treatment Plant ("CTP")

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. The 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"). 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 has been 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.

The Highland Ditch has a nominal capacity of 55 MGD, and is approximately 7.3 miles in length from the diversion dam to CTP. The ditch conveys raw water to the Chalk Bluff plant through a series of earthen and concrete-lined open channel sections, including flumes, siphons and highway and railroad crossings.

---

[18] Though not used in the production of treated water, TMWA operates four hydroelectric power-generating facilities located on the Truckee River above Reno. These hydroelectric plants are valuable assets, because of the historic diversion rights associated with hydroelectric generation, and the clean, renewable hydroelectric energy that they (3 operating plants since Farad has been inoperable since the Flood of 1997) generate offsets up to 50% of TMWA's annual electrical power costs.

Table 4: Annual Water Production (units in acre-feet)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
SURFACE PLANTS																			
1 Glendale	11,987	11,389	12,775	13,508	13,666	12,098	14,021	11,726	10,066	13,704	13,234	10,925	13,087	12,438	12,360	10,095	10,012	7,899	8,678
2 Chalk Bluff					12,134	17,662	38,425	51,827	50,011	50,675	56,423	58,333	55,231	54,082	59,424	61,767	61,856	65,814	58,830
3 Highland	19,221	16,513	15,999	17,005	12,494	11,899	3,047												
4 Hunter Creek	10,977	10,559	11,051	14,636	9,372	3,607													
5 Idlewild	6,397	6,277	3,138	3,723	1,143														
6 Subtotals	48,582	44,738	42,963	48,871	48,808	45,265	55,492	63,553	60,076	64,379	69,656	69,257	68,318	66,520	71,784	71,862	71,869	73,713	67,508
WELLS																			
7 Mill Street	1,651	1,370	1,596	1,035	1,679	17	0	8	0	601	850	1,224	1,196	331	1,395	724	917	685	770
8 High Street	1,081	1,340	716	16	86	132	1,287	840	551	1,319	722	1,600	1,596	1,861	1,372	645	1,052	1,107	859
9 Kietzke Lane	1,142	848	1,150	629	1,676	557	0	0	247	1,072	1,045	1,450	1,480	2,511	2,256	1,068	1,446	1,411	1,458
10 Morrill Avenue	1,213	1,171	539	20	69	0	1,113	1,422	1,385	855	840	1,351	1,419	1,616	1,201	782	887	899	822
11 So. Virginia	1,063	1,018	784	527	483	388	452	475	243	269	264	303	210	164	163	25	114	16	91
12 Fourth Street	1,184	1,033	974	292	721	867	738	559	389	602	432	784	309	398	204	139	182	228	76
13 Peckham Lane	441	488	620	261	218	201	0	0	0	0	19	0	0	0	0	0	0	0	0
14 View Street	1,321	1,483	1,691	943	1,841	1,719	1,199	521	396	660	481	669	328	197	259	176	177	183	515
15 Poplar #2	1,684	1,071	903	373	594	506	341	502	341	660	590	720	393	302	205	183	195	388	881
16 Greg Street	1,417	875	819	640	685	1,024	879	525	587	736	735	857	612	480	276	265	2	44	164
17 Delucchi Lane	390	355	292	219	0	51	106	152	125	157	89	122	111	79	72	31	33	0	287
18 Sparks	833	428	355	157	106	77	77	76	71	108	132	174	71	82	0	33	22	94	288
19 Poplar #1	0	0	277	526	828	1,166	669	328	253	379	949	682	342	454	64	283	0	56	207
20 Pezzi	31	21	264	178	488	685	235	19	14	113	454	375	207	259	0	73	0	26	77
21 Terminal Way	39	58	212	67	556	412	303	129	134	20	274	439	286	435	5	276	0	37	133
22 Lakeside Drive	555	632	560	166	188	192	276	358	171	262	137	182	86	134	75	51	88	124	160
23 Holcomb Lane	486	623	150	23	200	111	169	193	425	184	21	137	139	90	184	118	117	12	129
24 Patriot	24	531	986	847	853	679	553	323	292	408	197	280	255	190	170	230	211	89	227
25 21st Street	0	549	954	728	1,124	1,189	822	474	390	615	710	757	664	450	337	273	305	277	76
26 Reno High	0	567	1,854	1,757	1,997	2,226	1,481	293	366	758	429	707	437	533	1,376	749	147	132	352
27 El Rancho	0	0	0	88	522	361	485	257	798	335	297	185	232	230	79	27	86	71	87
28 Corbett	0	0	0	0	454	81	0	0	155	682	590	1,068	1,039	1,365	1,343	458	590	462	463
29 Swope	0	0	0	0	358	803	298	69	81	121	66	115	62	85	35	1	0	19	61
30 Hunter Lake	0	0	0	0	0	1,273	1,148	334-	327	836	463	762	1,209	1,419	545	19	168	170	423
31 Glen Hare	0	0	0	0	0	0	0	0	0	0	376	407	295	246	76	335	448	12	111
32 Galetti	0	0	0	0	0	0	0	0	0	0	526	837	783	631	384	354	390	1,566	225
33 Longley	0	0	0	0	0	0	0	0	0	0	213	375	358	547	874	651	668	659	593
34 Sierra Plaza	0	0	0	0	0	0	0	0	0	0	0	0	159	349	436	101	163	338	222
35 Mendive	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	58	0	0	13
36 Silver Knolls	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	251	126
37 Air Guard	0	0	0	0	0	0	0	0	0	188	159	412	236	212	112	146	191	183	3
38 Silver Lake	0	0	0	0	0	0	0	0	0	308	228	246	308	311	372	370	421	642	650
39 Hawkins Cl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	231
40 Subtotals	14,557	14,461	15,696	9,490	15,728	14,718	12,629	7,857	7,744	12,249	12,290	17,239	14,821	15,960	13,875	8,642	9,021	10,184	10,780
41 TOTALS	63,139	59,199	58,658	58,362	64,536	59,983	68,121	71,410	67,821	76,628	81,946	86,496	83,139	82,480	85,659	80,504	80,890	83,897	78,288
% Surface Water	77%	76%	73%	84%	76%	75%	81%	89%	89%	84%	85%	80%	82%	81%	84%	89%	89%	88%	86%
% Groundwater	23%	24%	27%	16%	24%	25%	19%	11%	11%	16%	15%	20%	18%	19%	16%	11%	11%	12%	14%
Retail GPCD	269	247	243	238	255	228	250	261	245	264	266	269	255	243	248	225	219	222	204

When completed, the Highland Canal Master Plan Project will increase the carrying capacity of the Highland Ditch from 55 MGD to 95 MGD. Remaining projects include the Mogul Bypass Siphon, the replacement of two additional sections of flume and installation of a parallel siphon in Chalk Canyon just west of the CTP which are expected to complete in early 2010. At that time TMWA will realize significant savings in power costs as the Highland Ditch will supply via gravity 100 percent of the raw water requirements to the CTP and the ODPS will only be used to supplement raw water supplies on a limited basis.

Glendale Treatment Plant ("GTP")

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[19] 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

[19] GTP can treat water from the Mill, Corbett, Greg, Terminal, Pezzi, and Poplar #1 wells. The combined output of those wells is about 16 MGD, which in drought years is used to augment the reduced Truckee River flows into GTP. In non-drought years, when Truckee River water is available and its use is maximized, groundwater use from these wells is reduced.

Production Wells

TMWA has 32 production wells used to meet the demands of its customers. Twenty eight (28) of these production wells are located in the Truckee Meadows basin[20], three production wells in the west Lemmon Valley basin, and one production well is located in the Spanish Springs basin. Capacities for these wells are noted in Table 5. 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 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 and 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 the expense to replace a well.

As shown in Table 5 19 of TMWA's 32 production wells are more than thirty years old. TMWA has over the years carried out well rehabilitation on 18 wells, some of them two or three times (see Table 6). TMWA's approach to its well rehabilitation program has involved use of a combination of industry established methods along with specific monitoring and testing steps suitable for each well. Various reasons have prompted the rehabilitation at each well as shown in Table 6. Where extensive rehabilitation work was performed, the well's productive capacity was improved and/or restored. Fortunately, TMWA's wells have not had water quality deterioration problems except for production of sand at 5 wells.

[20] Additionally, the Peckham Lane Well and the Stanford Way Well are used for non-potable purposes (e.g., construction uses) due to high arsenic and other water quality issues.

Table 5: Production Well Capacities

	Well Name	In-Service Year	Rated Capacity [MGD]	Cumulative Rated Capacity [MGD]
	Truckee Meadows Groundwater Basin			
1	Mill St.	1960	2.6	2.6
2	High St.	1961	2.2	4.8
3	Kietzke Ln.	1972	3.3	8.1
4	Morrill Ave.	1963	2.0	10.1
5	S. Virginia	1969	1.5	11.6
6	Fourth St.	1971	2.2	13.8
7	View St.	1969	2.4	16.2
8	Poplar # 2	1967	2.2	18.4
9	Greg St.	1967	2.0	20.4
10	Delucchi Lane	1972	0.8	21.2
11	Sparks Ave.	1967	0.9	22.1
12	Poplar # 1	1963	2.3	24.4
13	Pezzi	1974	1.3	25.7
14	Terminal	1961	1.7	27.4
15	Lakeside	1985	0.9	28.3
16	Holcomb	1988	1.0	29.3
17	Huffaker	1990	1.8	31.1
18	21st St.	1991	2.0	33.1
19	Reno High	1991	3.3	36.4
20	El Rancho	1992	1.2	37.6
21	Corbett	1993	2.1	39.7
22	Swope	1993	0.9	40.6
23	Hunter Lake	1995	3.3	43.9
24	Glen Hare	1999	1.7	45.6
25	Galletti Way	2000	2.3	47.9
26	Longley Lane	2000	2.2	50.1
27	Sierra Plaza	2002	2.0	52.1
28	Mendive	2005	0.3	52.4
	West Lemmon Valley Groundwater Basin			
29	Air Guard	1968	1.6	54.0
30	Silver Lake	2005	3.2	57.2
31	Silver Knolls	2006	1.7	58.9
	Spanish Springs Groundwater Basin			
32	Hawkings Ct.	2008	4.3	63.2

TMWA continues to monitor its wells with a view to detecting those that need rehabilitation and set up a routine well rehabilitation program. The rule of the thumb for doing rehabilitation work on a well is if it loses 20% to 25% of its design production rate. The rehabilitation program will save TMWA from drilling replacement wells, especially in view of the diminishing well sites within TMWA's services areas that can provide sufficient, high quality production capacity at minimal capital outlay.

Table 6: Summary of Well Rehabilitation Activities

Well	Rehab Date	Reason	Treatments: Video	Line Brush	Rotary Brush	High Pressure Water Jetting	Single swabbing	Double Swabbing, Pumping, airlifting, bail	Acid Treatment	Patch	Spinner Flow Survey	Directional charge blasting	Flow Rate, gpm: Before	After
Truckee Meadows Groundwater Basin														
1 Morrill Avenue	Nov-08	Clean and check well condition	X	X			X	X					1,430	1,685
2 High Street	Oct-08	Clean and check well condition	X	X			X	X					1,680	1,900
3 Poplar #1	Oct-08	Clean and check well condition	X	X			X	X	X		X		1,750	2,900
4 Swope School	Dec-06	Producing sand	X	X			X	X		X	X			
5 Greg Street	Apr-05	Change pump	X	X			X	X			X			
6 Corbett School	Jan-05	Change pump	X	X				X			X			
7 Sparks Avenue	May-04	CTMRD request to patch well	X	X				X		X				
8 Nichols Blvd	Dec-03	Clean and check well condition	X	X			X	X			X			
9 El Rancho Drive	Oct-03	Drawing air	X	X			X	X						
10 Mill Street	Mar-03	Loss of production	X	X	X	X		X	X		X	X	1,400	2,500
11 Sparks Avenue	Nov-02	Loss of production	X	X	X			X	X		X		500	700
12 View Street	Nov-02	Loss of production	X		X			X			X		1,600	2,450
13 Poplar #2	Sep-02	Pump failure	X	X		X	X	X	X		X			
14 El Rancho Drive	Jul-01	Producing sand	X	X			X	X	X	X				
15 Holcomb Lane	Nov-00	Producing sand	X	X			X	X	X	X			450	700
16 Peckham Lane	Apr-00	Clean and check well condition		X				X						
Lemmon Valley Groundwater Basin														
17 Army Airguard	Mar-09	Drawing air	X	X				X					900	1,100
18 Red Rock	Jun-03	Clean and chek well condition	X	X				X			X			275
19 Silver Knolls	May-03	Clean and chek well condition	X	X				X		X	X			1,000
20 Army Airguard	Feb-03	Producing sand	X	X				X						
21 Red Rock	May-01	Clean and chek well condition	X	X				X						
22 Silver Knolls	May-01	Clean and chek well condition	X	X				X						
23 Army Airguard	May-00	Clean and check well condition		X				X						