APPENDIX L

WATER SUPPLY ASSESSMENT

SB 610 Water Supply Assessment

For The

2006 Revised Snowcreek Master Plan

FINAL

Prepared by the Mammoth Community Water District

January 23, 2006

Table of Contents

Table of Tables

Table of Figures

Executive Summary

This water supply assessment covers the anticipated water demand associated with the Revised Snowcreek Master Plan Draft EIR. It covers the requirements of Senate Bill 610 that are described in Water Code section 10910 – 10915. This document was prepared referencing the District's 2005 Urban Water Management Plan and the water supply assessment that was prepared for the Town of Mammoth Lakes General Plan Update dated October 2005.

The District's projections herein rely on the following supplies to meet water demands in the future: existing groundwater supplies, existing surface water supplies, future groundwater well development, and recycled water. The District also anticipates utilizing techniques to reduce demands by implementing water conservation in drought periods in addition to ongoing water conservation education and rebate programs and continuing to pursue water loss reduction by replacing water main pipelines.

This water assessment has found that existing groundwater and surface water resources are insufficient to meet future anticipated water demands in multiple dry year conditions and in single dry year conditions. The development of additional groundwater supplies and the use of recycled water would create sufficient supplies to meet demands, including those from the Snowcreek Master Plan. The remaining small shortfalls seen after the implementation of these projects could be met through irrigation restrictions in drought years. There are uncertainties regarding the implementation of the future water supplies discussed in this assessment. As with the development of any water supply, the District will need to evaluate and respond to any environmental concerns associated with the projects, obtain any applicable governmental approvals, and address other considerations that may surround these projects. In addition, other currently undefined water supply projects may be used to replace and/or supplement those described in this assessment.

In conclusion, this water supply assessment shows that with the inclusion of several additional water supply projects, the District would have sufficient supplies through the next 20 years to meet the demands of the Snowcreek Master Plan in addition to other projected development in Mammoth Lakes.

Introduction

Senate Bill 610 (SB 610) requires that water supply assessments be furnished to local governments for inclusion in any environmental documentation for certain projects subject to the California Environmental Quality Act. The purpose of such an assessment is to determine if the water supplier will have sufficient supplies available during normal, dry, and multiple dry water years during a 20-year projection to meet the projected water demand of the proposed project, in addition to existing and other planned future uses.

The Town of Mammoth Lakes is planning to prepare an Environmental Impact Report for the proposed 2006 Revised Snowcreek Master Plan Project , which addresses the proposed build out of the Snowcreek Master Plan Area, or Snowcreek VII. The Town of Mammoth Lakes formally requested a SB 610 water supply assessment for this project in a letter dated December 18, 2006.

The 2006 Revised Snowcreek Master Plan Project EIR proposes to update the 1974 and 1981 EIRs for the Snowcreek Master Plan, which included a total of 2,368 residential units. A total of 1,141 of these units have already been constructed within the Master Plan area and the 2006 Project EIR proposes a slight reduction in the remaining units to be built, 1,050 instead of the original Master Plan that would have allowed for 1,227 units. The difference in proposed units between the original Master Plan and the 2006 Master Plan is 177 units. The original Snowcreek Master Plan also included 150,000 square feet of commercial space and the Revised Snowcreek Master Plan proposes to reduce this number to 75,000 square feet. The 1,227 remaining residential units and 150,000 square feet of commercial associated with original Snowcreek Master Plan were included in the Town of Mammoth Lakes 2005 General Plan Update, which was used in the preparation of the District's 2005 Urban Water Management Plan (UWMP). For this reason, the unit counts and demand projections used in the 2005 UWMP were used to prepare this water supply assessment.

In addition to the residential units described above, the Snowcreek Master Plan also includes the addition of nine holes of golf course that are located outside of the District's service area. The developer has stated that it would prefer to utilize recycled water for irrigation of the nine holes. However, the alternatives of utilizing an existing private well or another source of groundwater have also been discussed. The District is only required to assess the portion of the project that is within the service area, but the source of irrigation water utilized for the golf course addition could adversely affect the District's groundwater supplies and the availability of groundwater to serve new development. Future demand projections (i.e. those developed for the 2005 Urban Water Management Plan) do not include any potential demands from the additional nine holes discussed in the Snowcreek Master Plan.

The Snowcreek Master Plan may be considered a project under SB 610 because it appears to fit the definition of a "project" under Water Code section 10912 (a) (7). This section states that a "project" means a development that would result in the water demand equivalent to or greater than the amount of water required by a 500 dwelling unit project. Thus, using the District's historical meter record, 500 dwelling units, where a dwelling unit is considered equivalent to an EDU or single family home, would result in about 140 acre-feet of demand annually. Since the demand from the projected development associated with the Snowcreek Master Plan results in an estimated 229 acre-feet (see table below), it can be considered a project under the Water Code section described above. This project also could be considered a "specific plan" that only requires the water supply analysis as described in Government Code section 65352.5 and Government Code section 65453 (a). However, since the Town has requested a SB 610 analysis, the District has prepared this document.

Table 1: Snowcreek Master Plan estimated water demands

Unit Type	Unit Count	Gallons Per Day	Annual Gallons	Annual AF
Residential				
Condominium	850	144,500	52,742,500	161.86
Condo-Hotel	400	40,000	14,600,000	44.81
Non Residential (sq ft)				
Market/General Store	3,500	45	16,000	0.05
Nature Center	900	45	16,000	0.05
Outfitter Cabin	1,700	Outside of MCWD Service Area		
Swim Club	8,000	3,480	1,270,200	3.90
Golf Shop	3,000	45	16,000	0.05
Meeting Rooms	25,000	3,125	1,140,625	3.50
Spa/Health Center	12,900	5,612	2,048,198	6.29
Restaurant	10,000	5,800	2,117,000	6.50
Retail Shops	10,000	1,500	547,500	1.68
		204,152	**74,514,023**	**229**

The District updated its Urban Water Management Plan in December of 2005 to include proposed development associated with the Town of Mammoth Lakes 2005 General Plan Update. While the current updates to the Town General Plan are an ongoing process, it represents the best, most current information regarding potential future development in the community. For this reason, the District included the unit counts in the Draft General Plan Update EIR dated October 2005 in the preparation of its 2005 UWMP. In addition, since the original Snowcreek Master Plan was included both in the Town General Plan and in the 2005 UWMP and the development projected to occur under the 2006 Snowcreek Master Plan (2,191dwelling units) is less than the development projected under the original Snowcreek Master Plan (2,368 dwelling units), it can be assumed that the development figures used to prepare the 2005 UWMP essentially included the 2006 Revised Snowcreek Master Plan.

The District prepared a SB 610 water supply assessment for the Town of Mammoth Lakes General Plan update in the fall of 2004 with amendments in September and November 2005. This document, as well as the 2005 UWMP, was used as a reference for the preparation of this water supply assessment. The District's Board of Directors approved this completed water supply assessment prepared pursuant to Water Code Section 10910 at special meeting held on January 16, 2007.

Documenting Water Supply

Water Code section 10910 (d) and (e) states that a water supply assessment must identify and quantify existing and planned sources of water available to the water supplier in 5-year increments for a 20-year projection. The following information regarding existing and planned sources of water is taken from the District's 2005 Urban Water Management Plan with updates through 2006.

Table 2: Existing water supplies

Annual amounts of water for each entitlement and right under normal year conditions

Supply	Acre-Feet per Year	Entitlement	Right	Ever Used
Local surface	2760	X		Yes
Groundwater	4000		X	Yes
Note: While the District currently has surface water rights that total a maximum of 2,760 acre-feet annually, the bypass flow requirements that the District operates under have not been permanently established and the final bypass requirements that are eventually established could potentially result in less surface water being available to the District. In addition, the volume of groundwater noted in this table is the maximum amount of groundwater that the District has projected to pump in any given year and does not necessarily represent the safe yield of the aquifer.				

Surface Water

The District currently has the right, through two licenses and one permit, to divert a total of 2,760 acre-feet of water annually from Lake Mary, located in the Mammoth Lakes Basin. The authorized amount of water that the District can divert under its surface water rights are set at a maximum instantaneous diversion of 5.039 cubic feet per second (cfs) and a maximum annual diversion of 2,760 acre-feet (AF). As part of this total, the District is allowed to store 606 acre-feet from April 1 to June 30 and an additional 54 acre-feet from September 1 to September 30 of each year.

The District's water rights are restricted by several management constraints that influence the amount of surface water that can be diverted. These include the bypass flow requirements in Mammoth Creek and lake level management of Lake Mary. The primary influence upon the amount of water that the District may store or divert are the bypass flow requirements in Mammoth Creek that are included as part of the District's water rights. The District measures Mammoth Creek flows at its Old Mammoth Road gage located near Mammoth Creek Park. The District is only allowed to directly divert natural flows entering Lake Mary and divert natural flows to storage when the flows, as measured at the Old Mammoth Road gage, exceed the bypass flow requirements. When the flows at the District's Old Mammoth Road gage are equal to or less than the bypass

flow requirements, no water may be directly diverted or diverted to storage, and the District must bypass all incoming flows to Lake Mary.

While the District must currently operate under the bypass flow requirements, there is potential for these requirements to become modified in the future due to their temporary nature. The District is currently preparing an EIR that evaluates the environmental effects of the proposed bypass flow requirements for Mammoth Creek. The outcome of this EIR and the resulting decision by the State Water Resources Control Board could modify the existing temporary bypass flows to a different regime that could result in less surface water being available to the District.

Surface water supply volumes used in the preparation of this water supply assessment assume that the existing bypass flow requirements will remain as they are currently established. Potential reductions in surface water supplies in the future are a possibility, but the amount of these reductions is currently unknown.

Table 3: Past, Current, Projected Water Supplies

Water Supply Sources	**1995**	**2000**	**2006 (Actual)**	**2006 (Projected Maximum)**	**2010**	**2015**	**2020**	**2025**
Lake Mary	1725	1971	2159	2760	2760	2760	2760	2760
Well #1	47	19	297	500	500	500	500	500
GWTP #1	890	672	528	2000	2000	2000	2000	2000
GWTP #2	230	574	241	1500	1500	1500	1500	1500
Future Wells						1000	1000	1000
Recycled Water					360	360	360	360
Total	**2892**	**3236**	**3225**	**6760**	**7120**	**8120**	**8120**	**8120**

Units of Measure: acre-feet per year
Note: Projected water supplies (2006 to 2025) represent maximum supplies that may be available in normal water years. Actual water supplies in 1995, 2000, and 2006 represent supplies that were made available to the community based upon demands. Groundwater pumpage reflects the metered amount of water pumped from individual wells, which tends to vary slightly from the flow measured through the treatment plants.

Future Water Sources

The District has identified groundwater as being a significant source of future water supplies for the community. These supplies would be extracted from either the Mammoth Basin watershed or the Dry Creek Basin watershed to the north of the Mammoth Basin. Additional groundwater production wells in the Mammoth Basin

would require environmental review and hydrogeology analysis to ensure that additional volumes of water can be safely extracted from the basin. Well development in the Dry Creek Basin would also require environmental review and hydrogeology analysis prior to utilizing this water source. The District has budgeted $14,755,000 through 2025 for the development of these sources.

The District also has identified recycled water as an additional water supply source for the community, which would primarily serve large turf irrigators, such as golf courses and parks. The 2006 Recycled Water Distribution Project EIR addresses Sierra Star Golf Course, Snowcreek Golf Course, and Shady Rest Park (operated by the Town of Mammoth Lakes) as customers for this project. The District will be considering the certification of a final EIR at its February 15, 2007, meeting and has budgeted over $10,000,000 through 2010 for the development of this project.

More detailed information regarding future water supplies are included on page 19 of this assessment.

Groundwater

Water sources that will serve the project include groundwater; therefore, according to Water Code section 10910 (f) detailed groundwater information must be included in the water supply assessment. The following information is taken from the District's 2005 Urban Water Management Plan.

The District completed a Groundwater Management Plan (GWMP) in 2005 that describes a monitoring and operation plan for the long-term use of local groundwater and surface water resources. The intent of the GWMP is to ensure that groundwater resources are managed in a manner that ensures sufficient, high quality groundwater resources while minimizing potential environmental impacts. The GWMP was adopted by the District Board of Directors in July 2005.

The District pumps groundwater from the Mammoth Basin watershed, which is located within the Long Valley Groundwater Basin identified by the Department of Water Resources as part of the South Lahontan Hydrologic Region. The Mammoth Basin is located on the eastern side of the Sierra Nevada Mountain Range. Surface elevations range from a high of about 12,000 feet at Mammoth Crest to 7,000 feet at the downstream easterly extremity. Mammoth Basin is the watershed of Mammoth Creek and is bounded on the south by the drainage divide of Convict Creek; on the west by the Mammoth Crest; on the north by the drainage divide of Dry Creek; and on the east extending along the watershed of Hot Creek. The area of the Mammoth Basin is about 71 square miles and extends approximately 13 miles west to east and 9 miles north to south.

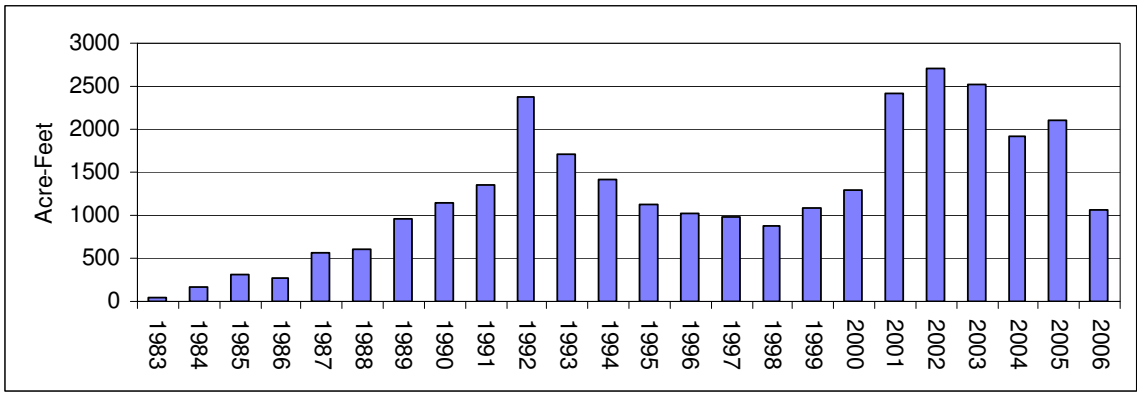
Elevated areas on the north and west that are comprised largely of extrusive igneous rocks generally form the Mammoth Basin; a central trough filled with alluvial and glacial

debris; and an abrupt southern flank of igneous intrusive and metamorphic rocks. The central trough area opens and drains to the east to the Owens River and Lake Crowley.

The Mammoth Basin has not been adjudicated or identified by DWR as being over drafted. In order to prevent the basin from being over drafted, the District maintains an extensive groundwater and surface water monitoring system. Groundwater levels are monitored in 8 production wells and in 15 shallow and deep monitor wells. Water level sensors are located on all production wells and are connected to the District's supervisory control and data acquisition (SCADA) system to allow for continuous monitoring. Surface water levels and flow rates are monitored at twelve locations throughout the basin watershed. The District prepares an annual groundwater monitoring report that provides an evaluation of groundwater level, surface flow, and water quality monitoring data accumulated throughout the year.

During the past 5-year period (2002 to 2006) the District pumped a total of 10,327 acre-feet of groundwater, averaging 2,065 acre-feet per year. The maximum historic volume pumped occurred in 2002 and amounted to 2,717 acre-feet. Groundwater was pumped from the District's eight (8) production wells located within the boundaries of the District's service area serving the Town of Mammoth Lakes. Production volumes of groundwater in any one year are dependent on the type of precipitation year experienced, the consequent availability of surface water, and the amount of demand from the community. The following graph shows annual groundwater volumes provided to District customers.

Figure 1: Annual volume of drinking water produced from District production wells 1983-2006



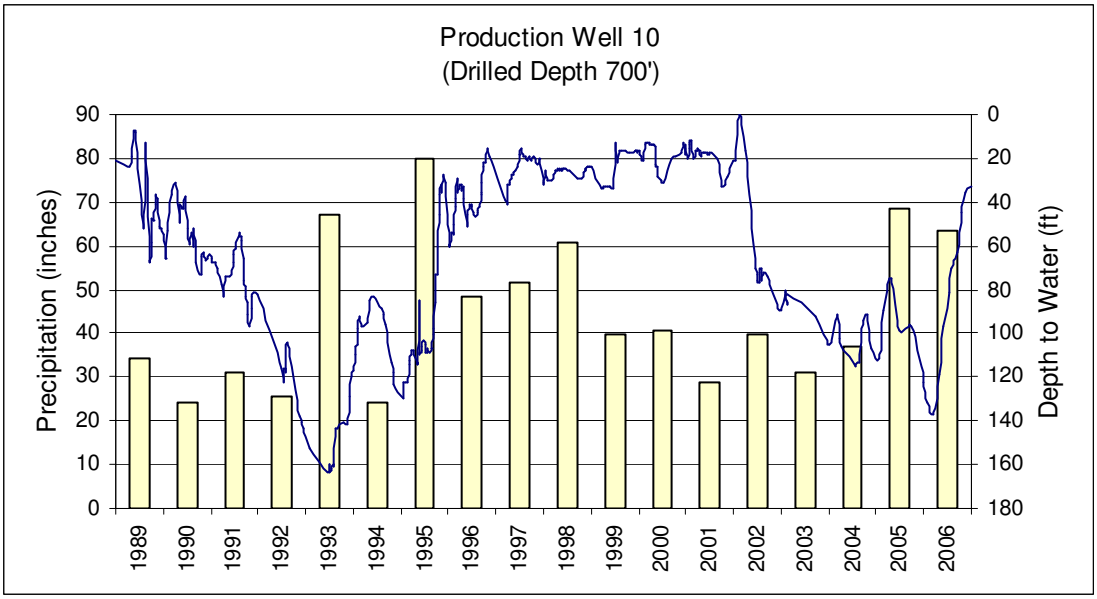
The following table shows detailed volumes of water pumped from each well over the past five years.

Table 4: Historical volumes (acre-feet) of groundwater pumped from individual production wells

Well No.	2002	2003	2004	2005	2006
1	132	184	71	188	297
6	184	454	347	554	1
10	1086	602	500	577	135
15	592	807	381	244	390
16	141	107	239	55	0
17	310	172	138	100	229
18	77	114	58	226	1
20	196	80	187	167	13
Total	2719	2520	1921	2111	1066
Note: Groundwater pumpage reflects the metered amount of water pumped from individual wells, which tends to vary slightly from the flow measured through the treatment plants.					

During dry-year periods, groundwater levels within the Mammoth Basin tend to decrease due to increased pumping and less recharge. During normal and above-normal precipitation years, groundwater levels increase and tend to recover after two years of normal precipitation. The following graph depicts historical groundwater levels in one of the District's production wells and shows the variability of groundwater levels based on pumping and type of recharge year.

Figure 2: Variability of groundwater levels in a District production well



Future groundwater production rates have been projected based on community growth projections and on type of climatic conditions. The following tables describe projected volumes of groundwater that will be pumped under normal and multiple dry-year water year conditions.

Table 5: Groundwater pumping projections (acre-feet) to meet demands in a normal water year

Well No.	2010	2015	2020	2025
1	146	200	74	38
6	200	300	400	500
10	300	300	400	500
15	300	300	400	500
16	0	0	0	0
17	200	300	400	500
18	0	0	0	0
20	200	210	200	100
Future Well(s)	0	0	0	0
Total	1346	1610	1874	2138
Note: Groundwater projections based on utilizing 2760 ac-ft of surface water in normal year to meet projected demand				

Table 6: Groundwater pumping projections (acre-feet) to meet demands in multiple dry year conditions

Well No.	2010	2015	2020	2025
1	161	256	325	356
6	311	415	475	506
10	500	726	960	991
15	336	440	500	531
16	135	139	199	230
17	231	335	395	426
18	28	41	92	123
20	150	154	214	245
Future Well(s)	**0**	**0**	**0**	**406**
Total	1852	2506	3160	3814
Note: Groundwater projections based on utilizing 1084 ac-ft of surface water in multiple dry years to meet projected demand. The volume of 1084 ac-ft is derived from the actual available surface water that could have been available in 1992, the last year of a six-year drought and assumes existing bypass flow requirements. If the District's bypass flow requirements were revert to those set forth in the District's water right permit, there would be substantial reductions in the availability of surface water available to the District in multiple dry years, which would increase the need for additional groundwater supplies.				

As indicated by groundwater pumping projections for the future, the volume of groundwater currently available from existing wells is insufficient to meet the total demand under multiple dry-year conditions as the community nears build-out in the year 2025. However, the District currently supplements its groundwater supplies with surface water and may be supplementing existing well supplies with additional production wells in the future. A study conducted for the Mammoth Community Water District ("Investigation of Groundwater Production Impacts on Surface Water Discharge and Spring Flow", Wildermuth Environmental, Inc. November 2003) indicates that a total volume of 3800 acre-feet annually could be pumped from the Mammoth Basin during a three-year dry period.

Documenting Projected Demand

The projected water demand associated with the Snowcreek Master Plan was accounted for in the District's most recently adopted Urban Water Management Plan (UWMP) dated December 2005. Thus, according to Water Code section 10910 (c) (2), the analysis of water demand for the proposed project may be incorporated from the UWMP. The following table describes past, current, and future water demands from the District's Urban Water Management Plan.

Table 7: Past, current, and projected water use (acre-feet)

Water Use Sector	2000	2005	2010	2015	2020	2025
Single Family Residential	515	549	586	623	659	696
Condominium	961	948	960	973	985	997
Multi-Family Residential	144	140	211	282	353	424
Commercial/Industrial/ Public	217	257	374	469	565	660
Motel / Hotel	112	111	304	496	689	881
Public Sector	170	296	Included in commercial	Included in commercial	Included in commercial	Included in commercial
Golf Course**	297	263	400	400	400	400
Other*	53	107	80	80	80	80
Unaccounted	486	752	760	760	760	760
Total	**2955**	**3423**	**3674**	**4082**	**4490**	**4898**

Note: Existing hotel/motel water-use sector includes only those units that are separately metered and does not include units that share water meters with commercial. Commercial includes mixed uses such as restaurants, condo/hotel, retail, etc. Public sector is included in the commercial water-use sector for future projections for consistency with data from the Town of Mammoth Lakes General Plan EIR (2005).
*Other = treatment plant process water, fire fighting, line cleaning, etc.
** Golf course water use based on existing demand from Sierra Star and Snowcreek Golf Courses. This value may be reduced by recycled water use in the future.
Groundwater data in this table is based upon metered flows from the District's groundwater treatment plants, which varies slightly from amounts measured from individual wells.

Documenting Dry-Year Supply

The Mammoth Community Water District's existing sources of water supply consist of surface water and groundwater, both derived from the Mammoth Basin watershed. The area is susceptible to drought and both of these sources of supply are impacted to various degrees. Surface water supplies are immediately impacted following a drought season whereas groundwater supplies tend to be affected by an extended drought period of several years.

Over the past thirty years, below average precipitation conditions have been experienced 50% of the years. In 30% of the years, seasons with less than 70% of average precipitation have been experienced.

Table 8 provides water supply volumes for average, single dry, and multiple dry water years based on current supplies.

Table 8: Existing water supply reliability

			Multiple Dry Years			
Supply	**Normal Water Year**	**Single Dry Water Year**	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Projected Surface	2760	0	1780	1500	1100	1084
Projected Wells	4000	3410	3410	3408	3408	3408
Projected Total	**6760**	**3410**	**5190**	**4908**	**4508**	**4492**

Units of Measure: acre-feet per year
Note: While the District currently has surface water rights that total a maximum of 2,760 acre-feet annually, the bypass flow requirements that the District operates under have not been permanently established and the final bypass requirements that are eventually established could potentially result in less surface water being available to the District.

The following table describes how each water year type was derived.

Table 9: Basis of water year data

Water Year Type	Year(s) Data is Based Upon	Base Year(s)	Historical Sequence
Normal Water Year	Normal water year based upon 10% deviation from April 1 average snowpack of 43 inches, or 38.7 to 47.3 inches on April 1. Normal water years have historically occurred about every nine years, or seven times in the last 62 years. Surface water supplies are based upon the maximum quantity of surface water available through the District's surface water rights.	1997 1996 1984 1971 1954 1949 1946	Every nine years
Single Dry Water Year	Single dry years are generally considered the lowest annual runoff for a watershed since the water-year beginning in 1903. For the Mammoth watershed, the year with the lowest April 1 snowpack is 12.3 inches of snow water equivalent on April 1, 1977. Groundwater data is based upon driest year that production wells were in use (1992 for wells #1, 6, 10, and 15 and 2001 for wells #16, 17, 18, and 20).	1977 1992 2001	
Multiple Dry Water Years	Multiple dry years are generally considered the lowest average runoff for a consecutive multiple year period (three years or more) for a watershed since 1903. The driest multiple year period in the Mammoth watershed was the six-year period from 1987 to 1992, which averaged 28.7 inches of snow water content at Mammoth Pass.	1987 through 1992	

Is the Projected Water Supply Sufficient or Insufficient for the Proposed Project?

In comparing projected future water demand estimates with current supply data, it is projected that water supply deficiencies would occur after the first year of a multiple year drought and in single dry year conditions. The following table compares current supply and future demands in normal, single dry and multiple dry years. This table shows that shortfalls in supply would occur if the District were to continue to utilize existing water supplies to meet demands at build out of the community, including the Snowcreek Master Plan (SMP).

Table 10: Comparison of current supply and demand for normal, single dry, and multiple dry years

Current Supply			Multiple Dry Water Years			
	Average/ Normal Water Year	Single Dry Water Year	Year 1	Year 2	Year 3	Year 4
Supply Total	6760	3410	5190	4908	4508	4492
Demand Total (without SMP)	4669	4669	4669	4669	4669	4669
Difference (without SMP)	**2091**	**-1259**	**521**	**239**	**-161**	**-177**
Demand Total (including SMP)	4898	4898	4898	4898	4898	4898
Difference (including SMP)	**1862**	**-1488**	**292**	**10**	**-390**	**-406**
Units of Measure: Acre-feet per year						

As can be seen by the above supply versus demand comparison table, the current available water supply is considered insufficient to meet demands from build-out of the community during dry water years. Deficiencies of over 1000 acre-feet would occur in a single dry year, which is considered the lowest historical runoff for the watershed. However, this shortfall in supply would likely be reduced through landscape watering restrictions, which have historically reduced demands by 25% during summer irrigation periods. These landscape restrictions are part of the District's water shortage contingency plans, which are included in the District's 2005 UWMP. The extent of the insufficiency in multiple dry years depends on the duration of dry year periods, but would generally occur after the first year of a multiple year drought. It should also be noted that demands from the Snowcreek Master Plan (SMP) increase the amount of deficiency of existing supplies in single dry and multiple dry year conditions, but not to a significant extent.

Table 11 describes future supply projections with demand totals anticipated at build out of the community according to the 2005 Town of Mammoth Lakes General Plan. These demand projections include the SMP. Supply projections are based upon planned future well development and the use of recycled water in the community.

Table 11: Comparison of 20-year projection of supply and demand for normal, single dry, and multiple dry years
(Includes Recycled Water Use and Future Wells)

2025 Supply			**Multiple Dry Water Years**			
	Normal Water Year	**Single Dry Water Year**	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Supply Totals	8120	4770	6550	6268	5868	5852
Demand Totals (without SMP)	4669	4669	4669	4669	4669	4669
Difference (without SMP)	**3451**	**101**	**1881**	**1599**	**1199**	**1183**
Demand Totals (including SMP)	4898	4898	4898	4898	4898	4898
Difference (including SMP)	**3222**	**-128**	**1652**	**1370**	**970**	**954**
Units of Measure: Acre-feet per year *Note: The supply totals on this table assume 1000 acre-feet of future groundwater well water and about 400 acre-feet of recycled water would be utilized in normal water years*						

The analysis of future demand included in the District's Urban Water Management Plan shows that sufficient supplies should be available in the future during normal and multiple dry year scenarios assuming recycled water use, future well development, and existing bypass flow requirements for Mammoth Creek. There are uncertainties regarding the implementation of each of these water supplies. As with the development of any water supply, the District will need to evaluate and respond to any environmental concerns associated with the projects, obtain any applicable governmental approvals, and address other considerations that may surround these projects. In addition, other currently undefined water supply projects may be used to replace and/or supplement those described in this assessment. The District is also currently working on a loss reduction program and the demand savings, estimated at a loss rate of 10 to 15%, from this program are not included in this table. It should again be noted that shortfalls seen in this table in single dry years would be met through landscape watering restrictions, which have historically reduced demands by 25% during summer irrigation periods.

Plan for Acquiring Additional Future Water Supplies

Under Water Code 10911 it is required, that if, as a result of its assessment, the public water system concludes that its water supplies are, or will be, insufficient, the public water system shall provide to the city or county its plans for acquiring additional water supplies. Since existing supplies are insufficient and future water supplies still result in a shortfall in single dry years, the District has developed the following plans regarding implementation of water conservation measures, use of recycled water, and development of new supplies.

Implementation of Water Conservation Measures

Estimated Total Costs and Proposed Method of Financing

Reductions in water use would affect District revenues during the months of June through September. It is estimated that the decrease in revenue during this period would amount to approximately $300,000 to $600,000 depending upon the level of restrictions implemented. The District maintains an operating reserve in its budget to compensate for conditions, such as lost revenue due to emergencies.

Federal, State, and Local Permits, Approvals or Entitlements

Water conservation measures are included in the District's Water Code. Therefore, the implementation of measures, such as landscape irrigation restrictions, would occur by action of the Board of Directors.

Source of Supply

In 1992, the District implemented water restrictions that included limiting landscape irrigation to 3 days per week. This restriction resulted in an average reduction in water demand of 25% for the irrigation period of June through September. At build-out of the community under the 2005 General Plan, the projected savings from implementation of water conservation measures amounts to about 500 acre-feet annually.

Estimated Timeframes for Implementation

Projections of available water supply are prepared each year after final snowpack measurements are made on April 1. At that time, if projections indicate possible water supply insufficiencies, the District's Board of Directors may declare the existence or threatened existence of a drought and may then implement any level of restrictions as deemed necessary.

Utilization of Recycled Water

Estimated Total Costs and Proposed Method of Financing

The total estimated cost of a recycled water project for the purpose of golf course irrigation amounts to approximately $11,000,000. This project would provide the capability to produce 1.55 million gallons per day of recycled water. The Mammoth Mountain Ski Area (Sierra Star Golf Course) has already paid a connection fee of $1,040,000 for their portion of recycled water once it is made available. The remaining costs of the project would be paid through additional connection fees and through the District's water capital expansion program budget. The District has also calculated a preliminary rate for recycled water, which would cover the operating and maintenance costs, as well as for facility and equipment depreciation. This rate amounts to $1.55 per 1,000 gallons.

Federal, State, and Local Permits, Approvals or Entitlements

Permits that would be required to provide recycled water for irrigation include a waste discharge permit from the Regional Water Quality Control Board and a design and use permit from the State Department of Health Services.

Source of Supply

The source of supply would come from the District's wastewater treatment facility. Although the facility can produce recycled water, there are some upgrades necessary to meet current State Department of Health standards which upgrades would be capable of producing up to 1.55 million gallons per day of recycled water. Parallel recycled water pipelines would be installed from the wastewater treatment plant to the Sierra Star Golf Course and the Snowcreek Golf Course. A third pipeline would be installed from the wastewater treatment plant to Shady Rest Park.

The District currently supplies untreated groundwater for irrigation of the Snowcreek and Sierra Star Golf Courses and supplies potable water to Shady Rest Park. The volume of groundwater supplied to the Sierra Star Golf Course over the past seven years (2000 to 2006) has averaged 238 acre-feet per year. The volume of groundwater supplied to the Snowcreek Golf Course over the past seven years has averaged 85 acre-feet per year. Water supplied to Shady Rest Park over the past four years averaged about 30 acre-feet per year. The maximum water supplied to these locations in dry water years has totaled about 440 acre-feet.

The Recycled Water Project plans for providing recycled water to both golf courses and Shady Rest Park. Recycled water use at Shady Rest Park and Sierra Star Golf Course would result in a direct offset of potable water. Recycled water provided to the Snowcreek Golf Course would be provided to a portion of the existing nine holes and possibly the entire additional nine holes planned for development. Recycled water provided to the additional nine holes planned at the Snowcreek Golf Course would not

offset any current demands for potable water. Overall, it is anticipated that the amount of potable water that could be made available through the implementation of this project is about 400 acre-feet annually. However, depending upon customer demands, the recycled water project could potentially supply about 550 acre-feet annually to large turf irrigators in the community during the summer irrigation season.

As stated previously in this assessment, demands from the additional nine holes proposed in the Snowcreek Master Plan have not been included in demand projections in the District's Urban Water Management Plan or this water supply assessment since this area is outside of the District's service area. While the developer has stated a preference for utilizing recycled water, it is still an uncertain supply source. If the developer chooses to utilize either the District's groundwater supplies or private groundwater supplies within the Mammoth Basin, it could adversely affect the District's supply, influence demand projections, and could cause a reduction in potable water available to the community.

Estimated Timeframes for Implementation

It is currently estimated that the total project would take three construction seasons to fully complete. Therefore, recycled water is projected to be available for use by the summer of 2010.

Water System Loss Reduction

Estimated Total Costs and Proposed Method of Financing

This project is budgeted for approximately $2,300,000 per year over the next 8 years. The District funds water line replacement projects through its capital replacement program, which is derived from primarily property tax revenues.

Federal, State, and Local Permits, Approvals or Entitlements

Local permits are required for the excavation of pipelines in the public roadways.

Source of Supply

The District has been implementing an aggressive main water pipeline replacement program to replace old leaking water pipes since 2001. Over the past several years, an average of 10,000 feet of pipeline per year have been replaced. As a result of the completion of this replacement work, the District expects to achieve a reduction in water loss within the system of approximately 300 acre-feet.

Estimated Timeframes for Implementation

It is estimated that replacement of existing old pipelines in the entire system will occur over the next 8-year period. As stated above, approximately 10,000 feet of pipeline per year will be replaced.

Development of New Supplies

Estimated Total Costs and Proposed Method of Financing

Development of new groundwater supplies in the Dry Creek watershed and/or the Mammoth Basin are projected to cost approximately $14,755,000. Both of these projects are budgeted in the District capital expansion fund, which is funded by new water connection charges.

Federal, State, and Local Permits, Approvals or Entitlements

These projects would require permits and approvals from the State Department of Health Services and the U.S. Forest Service where potential well sites are located on federal land. This project also would require both State of California and federal environmental review.

Source of Supply

Overall, depending upon supplies needed, about 1,000 acre-feet of additional groundwater supplies may be developed in the future from either the Mammoth Basin watershed or the Dry Creek watershed. Volumes of groundwater projected to be available from the Dry Creek watershed are estimated at 1,500 acre-feet per year during normal years and 1,245 acre-feet per year during multiple dry year periods.

The District is evaluating whether or not there is additional water available to be pumped from the Mammoth Basin without causing environmental impacts. Continued monitoring of the Mammoth Basin over the next two years should provide sufficient data to evaluate the potential of additional groundwater that could be safely pumped from the basin.

Estimated Timeframes for Implementation

Evaluation of the potential for increased withdrawal from the Mammoth Basin should be completed within two years. Potential groundwater extraction from the Dry Creek watershed is currently budgeted to begin within the five-year period commencing in 2014.

Summary of Additional Water Supplies

Table 12: Summary of future water supply projects

Project Name	Demand Reduction (acre-feet)	Supply Increase (acre-feet)	Projected Completion Date
Recycled Water Project		400 acre-feet	2010 (depends upon customer commitments)
Water Conservation	About 500 acre-feet at build out with irrigation restriction enforced		N/A
Water Pipeline Replacement (reduce water losses)	10-15% loss rate goal (about 300 ac-ft at build out)		Ongoing, full implementation anticipated by 2011
New groundwater development		1000 ac-ft (or amount needed to meet demands)	As needed

Conclusion

This water supply assessment shows that with the inclusion of several additional water supply projects, the District would have sufficient supplies through the next 20 years to meet the demands of the Snowcreek Master Plan in addition to other projected development in Mammoth Lakes. However, as noted in this assessment, there are uncertainties regarding the implementation of these additional supplies. It is essential that additional water supplies are developed and demand reductions are utilized to their full potential to ensure that future demands can be met, especially in dry year conditions.

MAMMOTH COMMUNITY WATER DISTRICT
POST OFFICE BOX 597
MAMMOTH LAKES, CALIFORNIA 93546
(760) 934-2596 FAX (760) 934-4080

March 29, 2007

Town of Mammoth Lakes
Planning Division
Attn: Jen Daugherty
Post Office Box 1609
Mammoth Lakes, CA 93546

Re: Water Supply Assessment for Snowcreek Master Plan
Water Supply for "Outfitter Cabin"

The Mammoth Community Water District issued on January 23, 2006 a Final SB 610 Water Supply Assessment for the Snowcreek Master Plan ("Snowcreek WSA"). On page 6 of the Snowcreek WSA the District noted that the Outfitter Cabin for the Snowcreek project was to be located outside the District's service area. However, that description was not intended to communicate a refusal by the District to provide water service for the Outfitter Cabin. The nominal volume of water needed to supply the restroom and ancillary needs for the Outfitter Cabin is available to Snowcreek from the District and could be provided through a separate agreement for District customers located outside of the service area. The District is willing to provide water service to the Outfitter Cabin and the nominal annual volume of water estimated for such a use (less than 0.3 acre-feet) does not in any way change our opinions or conclusions expressed in the Snowcreek WSA.

Should you have any questions regarding this matter, please feel free to contact me at the District office at 934-2596, extension 238.

Sincerely,
MAMMOTH COMMUNITY WATER DISTRICT

Gary Sisson

GARY SISSON
General Manager

cc: Snowcreek Development Company