Appendix C
Projected Future Water Rights and Demands for the Newlands Project

Newlands Project Planning Study
Special Report

Prepared by

Bureau of Reclamation
Mid-Pacific Region
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U.S. Department of the Interior
Bureau of Reclamation

April 2013

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Attachment 1 – Differences Between Study Demand and TROA EIS/EIR Demand

Attachment 2 – TCID Records of Newlands Project Water Rights, June 14, 2012[1]

Attachment 3 – AB 380 Program Final Report, January 2008[1]

Abbreviations and Acronyms

AB	Assembly Bill
BIA	Bureau of Indian Affairs
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
GBLW	Great Basin Land and Water
GIS	geographic information system
M&I	municipal and industrial
NDOW	Nevada Department of Wildlife
NWR	National Wildlife Refuge
OCAP	Operating Criteria and Procedures for the Newlands Project
Project	Newlands Project
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
Study	Newlands Project Planning Study
TCID	Truckee-Carson Irrigation District
USFWS	U.S. Fish and Wildlife Service
WQSA	Water Quality Settlement Agreement
WRAP	Water Rights Acquisition Program for Lahontan Valley Wetlands

[1] Available upon request to Reclamation Lahontan Basin Area Office.

Appendix C – Projected Future Water Rights and Demands for the Newlands Project

This document describes the records of water rights for the Newlands Project (Project) and their use in estimating the maximum potential future demand. The estimated future demand serves an important role in the Newlands Project Planning Study (Study), in that the Study seeks to provide reliable water supplies for the Project, and reliability will be assessed relative to the maximum future Project demand. The maximum future demands are based upon the current Project water rights and duties, and account for the anticipated completion of several programs that are currently changing the locations, patterns, and uses of Project water rights.

The Study describes the process followed for designing alternatives to meet the two Study objectives: addressing safety risks from Truckee Canal operations and serving Project water rights holders reliably. The alternatives developed by the Study were designed to meet both objectives; however, much of the Study focuses on methods available for providing reliability for Project water rights holders. As a concept, water supply reliability means that the water users who depend on Project supplies are capable of managing the expected range of shortfalls. Reliability is, therefore, a long-term balance between a demand and its water supplies. This appendix focuses on defining the former of these characteristics, Project demands. Assessments of reliability for these demands are provided in Appendix D1 through D7, and are summarized in Chapter 4.

The water rights described in this document establish the anticipated future ownership, and therefore the expected water demands for the Project, including: irrigated agriculture, municipal and urban water supplies, wetland management, and water quality enhancement on the Truckee River. These demands serve as inputs to several linked analyses, including the assessment of water supply reliability and assessments of payment capacity for the Truckee-Carson Irrigation District (TCID).

Characterization of Newlands Project Demand

This Study considers the ability to meet demands for the water-righted acreages within the Project. Calculating demand in this manner requires an assessment of three attributes for each right: acreage, duty, and whether or not the right is active (as opposed to abandoned, forfeited, unperfected, or unused). The following sections describe these characteristics and related assumptions used for the Study, and how these attributes were combined to estimate the potential future demand for the Project.

Water-Righted Acreage

Newlands Project water rights are tracked by a number of entities, including the U.S. Department of the Interior, Bureau of Reclamation (Reclamation), TCID, the Nevada State Engineer, and other agencies and stakeholders. The history of total Project water rights is blended with discussions of anticipated water-righted lands, limitations on potential exercise of water rights, the extent of Project lands being irrigated, and lands without Project rights receiving Project supplies. Among the various records that specifically discuss the total acreage of Project water rights, differences exist and are notable across time (Table C-1).

Table C-1. Records of Newlands Project Water-Righted Acreages

Year	Estimated Water-Righted Land in the Newlands Project (acres)	Note from Source
1926	74,500	Limitation on Project acreage from TCID O&M Contract[1]
1926	73,301	1987 Newlands Project OCAP historical estimate[2]
1989	"about 73,000"	Estimate used during litigation[3]
1992	73,859	Reclamation records[4]
1998	73,800	1998 Newlands Project OCAP[5]
2012	73,674.67	TCID records[6]

Sources

[1] *A Study of Water Rights and Their Enforcement [in the] Lake Tahoe, Truckee and Carson River Basins, Prepared by Water Rights Study Group, Pyramid Lake Task Force, [for the] U.S. Department of the Interior, Office of the Solicitor, Sacramento Region, Sacramento, California, August 1971*

[2] *Final Environmental Impact Statement for the Newlands Project Proposed Operating Criteria and Procedures, U.S. Department of the Interior, Bureau of Reclamation, Mid-Pacific Regional Office, Sacramento, California, December 1987*

[3] *Alpine II, 878 F.2d at 1223 (9th Cir. 1989)*

[4] *U.S. Department of the Interior, Bureau of Reclamation. 1992 Summary Statistics, Land, Water, and Related Data. U.S. Government Printing Office, 1995.*

[5] *Final Newlands Project Operating Criteria and Procedures, U.S. Department of the Interior, Bureau of Reclamation, Mid-Pacific Regional Office, Sacramento, California, December 1997*

[6] *Personal communication, TCID, June 2012 (see Attachment 2 to this appendix)*

Key:
O&M = operations and maintenance
OCAP = Operating Criteria and Procedures for the Newlands Project
TCID = Truckee-Carson Irrigation District

This Study selected the TCID record of Project water rights and ownership (Attachment 2) as of June 14, 2012, as the starting point for evaluating the amount of acreage that is capable of contributing to Project water demands in the future. For the past several years, TCID and Reclamation have been collaborating on refinements to the record of water rights, including transcription of the TCID database into a geographic information system (GIS) environment. It is anticipated that the total acreage may be adjusted in the coming years as a result of these ongoing refinements. With respect to the development of Study alternatives, the range of potential acreages (shown in Table C-1 to be between 73,300 and 74,500 acres) would have little bearing on

the final alternatives. Thus, no attempt was made to resolve differences between current TCID records and the previously cited acreages.

In some cases, discrepancies were discovered between the TCID records and records provided by other entities. The following sections note these discrepancies and explain any use of records other than those provided by TCID to describe total water rights held by a particular entity.

Water Right Duties

"Duty" is the maximum amount of water, per acre, that any property has the legal right to receive on an annual basis. In the Newlands Project, water duties are defined in the *Alpine* Decree based upon several factors, including soil, depth to groundwater, beneficial use, conveyance efficiency, on-farm efficiency, soil slope and character, weather, and consumptive use. The decree set irrigation duties at the amount of water that was reasonably necessary to grow alfalfa on Project lands, based on the above factors and the fact that alfalfa was the predominant cash crop in the Project. It also identified the net consumptive use surface water for Project irrigation at 2.99 acre feet per acre, which is based on the amount of water needed to produce an acre of alfalfa after considering the average rainfall in the Lahontan Valley.

As a result of a 2011 order by a Federal district court judge in Nevada *(Pyramid Lake Paiute Tribe of Indians v. Nevada State Engineer,* "In Re: Nevada State Engineer Ruling No. 5759," (D.Nev., 2011)), all water rights acquired for use at wetlands in the Project to support wildlife have a duty of 2.99 acre-feet per acre, which is equivalent to the net consumptive use for agriculture, as noted above. As a result, any Project water rights previously used for irrigation that are subsequently transferred to wetlands will be reduced from the irrigated land duty to a duty of 2.99 acre-feet per acre. If appeals on the court ruling are successful, these rights may be exercised at their full duty volume instead of 2.99 acre-feet per acre. However, the outcome of the appeals is uncertain, and USFWS has recommended that the 2.99 duty be assumed for the purposes of the Study. Table C-2 displays all of the water duties in the Project and the related documents in which they were established.

Table C-2. Established Water Duties in the Newlands Project

Type of Use	Duty	Reference
Irrigated Bench Land	4.5 acre-feet per acre	*Alpine* Decree[1]
Irrigated Bottom Land	3.5 acre-feet per acre	*Alpine* Decree[1]
Irrigated Pasture	1.5 acre-feet per acre	*Freeman* and *Kent* agreements[2]
Wetlands	2.99 acre-feet per acre	*Alpine* Decree;[1] May 2011 Federal Court Order[3]

Notes
[1] Source: United States v. Alpine Land and Reservoir Company, 503 F.Supp. 877 *(D.Nev., 1980)*
[2] Source: Freeman Vested Water Right Agreement, *July 21, 1919;* Kent Vested Water Right Agreement, *March 15, 1926.*
[3] Source: *Pyramid Lake Paiute Tribe of Indians v. Nevada State Engineer, "*In Re: Nevada State Engineer Ruling No. 5759," (D.Nev., 2011)

Potentially Active Water Rights

In addition to the number of water-righted Project lands and their associated duties, the Study incorporated a third element to establish Project demand: an assessment of which water rights could be activated at some point in the future, and by whom. In this manner, the Study is constructing a potential future condition with the conservative assumption that all legal water rights will be fully exercised for their specified beneficial uses. This assumption is consistent with the Study objective to satisfy the exercise of Project water rights and to develop methods for maintaining water supply reliability for all Project water rights holders into the future. Water supply reliability is discussed in Chapter 4 and evaluated in appendices D and F of the Special Report.

Several previous analyses, including those performed for the Truckee River Operating Agreement (TROA) Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) and for the Water Rights Acquisition Program for the Lahontan Valley Wetlands EIS, have estimated Project demand by using average diversions at Derby and Lahontan dams under the current condition, without quantifying the water-righted acreages or associated duties for the Project. Doing so limits the Project demands to the subset of water-righted acreages being irrigated over a particular period of time (termed "water-righted irrigated acreages"). Attachment 1 to this appendix describes the difference between the Study's demand assumptions with those prepared for the TROA EIS/EIR.

This analysis found that the acreage of water rights that are known to be permanently inactive did not fully account for the difference between the total acreage of rights on record and the historical average water-righted irrigated acreage. Without the ability to comprehensively assess the potential for each water right on record to become active, and acknowledging that the difference between historical averages and the record of potentially active rights could potentially be irrigated, this Study concluded that the use of historical average water-righted irrigated acres may not accurately depict the maximum Project

demand that could be called upon in the future. As a result, this Study relies upon an assessment of water rights that could be potentially active and associated duties for those rights to establish Project demand. The criteria that define potentially active water rights are described in the following subsection. For context, Table C-3 presents the historical water-righted irrigated acreages in the Project.

Table C-3. Summary of Newlands Project Irrigated Acreages

Year	Water-Righted Irrigated Acres (acres)	Year	Water-Righted Irrigated Acres (acres)
1985[1]	57,518	1998[2,8]	
1986[2]		1999[2,8]	
1987[3]	56,000	2000[9]	57,258
1988[3]	56,000	2001[10]	59,968
1989[3]	55,980	2002[11]	58,254
1990[4]	57,694	2003[12]	59,368
1991[5]	55,182	2004[13]	57,038
1992[3]	41,000	2005[14]	56,931
1993[6]	57,021	2006[15]	56,375
1994[2]		2007[16]	56,600
1995[7]	59,075	2008[17]	52,724
1996[2,8]		2009[18]	56,342
1997[2,8]		2010[19]	56,002

Notes:

[1] Source: Draft Environmental Impact Statement for the Newlands Project Proposed Operating Criteria and Procedures, May 1986

[2] No data

[3] Source: Reclamation file: "OCAP Annual Summary," March 24, 1994. Data from this working file is considered provisional

[4] Source: "Quarterly Report of Activities, Fallon Field Office, Third Quarter, July 1991 – September 1991, Newlands Project, Mid-Pacific Region, Bureau of Reclamation"

[5] Source: "Quarterly Report of Activities, Fallon Field Office, Fourth Quarter, October 1991 – December 1991, Newlands Project, Mid-Pacific Region, Bureau of Reclamation"

[6] Source: March 7, 1995, Reclamation letter to Lyman McConnell

[7] Source: Supplementary Information for the 1997 Amendment to the Operating Criteria and Procedures for the Newlands Reclamation Project, Nevada

[8] Based on a review of records of the U.S. Geological Survey for Gage Number 10312150 (Carson Rv Blw Lahontan Reservoir Nr Fallon, NV) and Gage Number 10312100 (Lahontan Res Nr Fallon, NV), releases to the Newlands Project were made in excess of Newlands Project demand due to high runoff and reservoir capacity limitations

[9] Source: June 14, 2001, Reclamation letter to Lyman McConnell

[10] Sources: March 6, 2002, Reclamation letter to interested parties and March 26, 2002, Reclamation letter to Lyman McConnell

[11] Sources: February 3, 2003, and March 3, 2003, Reclamation letters to interested parties

[12] Sources: January 29,2004, and February 24, 2004, Reclamation letters to interested parties

[13] Source: April 4, 2005, Reclamation letter to interested parties

[14] Source: May 15, 2006, Reclamation letter to interested parties

[15] Source: June 15, 2007, Reclamation letter to interested parties

[16] Source: October 1, 2008, Reclamation letter to interested parties

[17] Source: September 10, 2010, Reclamation letter to interested parties (preliminary determination; has not been finalized)

[18] Source: October 1, 2010, Reclamation letter to interested parties

[19] Source: September 30, 2011, Reclamation letter to interested parties

Definition of "Potentially Active" Water Rights

This Study considered a water right to be potentially active if a record of the right exists in the TCID database, *except* when the right has been:

- Retired – or identified for future retirement – as part of the Assembly Bill (AB) 380 program and the Water Rights Compensation Program
- Forfeited by court order
- Acquired by U.S. Fish and Wildlife Service (USFWS), but considered ineligible for use
- Acquired under the Truckee River Water Quality Settlement Agreement (WQSA) on behalf of the Pyramid Lake Paiute Tribe or by Reno, Sparks, and Washoe County.

It is possible that some of the Project water rights considered to be potentially active will never become active. The extent of permanently inactive acres in the Project is not fully understood, and would need to be determined through case-by-case evaluations of water rights that were beyond the scope of this Study.

Records of Newlands Project Water Rights

As previously noted, this Study relies upon TCID records as the basis (and starting point) for estimating current and future demand. A record of water rights has been provided by TCID for use in the Study. This record is included as an attachment to this appendix (Attachment 2) and its use in this Study is described in the following section.

TCID maintains records of water rights using the "serial number" that was assigned to each water-righted Project land in the early 1900s. At that time, rights were assigned to specific parcels, each land had a specific duty, and both land and water were treated as joined property. Over time, some of the lands and associated water rights have been subdivided. Subdivisions have been tracked by TCID with a notation system that adds hyphens and alphanumeric digits to the end of a serial number being divided. Many rights have been divided several times, creating long serial number codes with multiple hyphens and mixtures of letters and numbers. The methodology for using letters and numbers to designate a subdivision is neither standardized nor systematic, and appears to have varied over time, making it difficult to trace the progression of the subdivisions from the serial number codes alone.

Attachment 2 does not reflect whether the water rights associated with a particular serial number are being exercised (i.e., active) or the lands upon which rights are being applied (i.e., irrigated acres). Attachment 2 includes all

serial numbers in TCID's records, including those known to have been retired, and contains information for each serial number under the following headings:

- **Serial Number** – The code by which water-righted lands and water rights are tracked. Attachment 2 contains 8,875 unique serial numbers.

- **District Code** – Locational information for water-righted lands. Land within the Truckee Division is given a singular code (TD). Land in the Carson Division is identified within one of three districts: east (EA), west (WE), and central (CE). A fifth code (HO) applies to water rights in holding accounts. Holding accounts serve a number of administrative purposes. Several entities maintain holding accounts to consolidate billing and to manage a single account of water rights for a large place of use (e.g., Stillwater National Wildlife Refuge (NWR), Fallon Paiute-Shoshone Reservation, and City of Fernley). Individuals may remove water rights from parcels and place them into a holding account to facilitate transfers, and make it easier to identify lands are no longer water-righted. Further, some holding accounts have been established to track water rights that have been retired, forfeited, or acquired for eventual retirement.

- **County** – Locational information for water-righted lands in Carson (C), Lyon (L) or Storey (S) counties.

- **Total Acres** – Total acreage of land associated with each serial number. This acreage includes portions of land that cannot be irrigated, but are included as part of the property description for the serial number. The sum of this column is 122,974.03 acres.

- **Arable Acres** – Acreage of land that has been determined to be eligible for irrigation. Termed "irrigable acres" by TCID, this is labeled as "arable acres" in this document to prevent confusion with "irrigated acres," which are reported upon annually for the Operating Criteria and Procedures for the Newlands Project (OCAP) but not reported in Attachment 2. The sum of this column is 78,150.57 acres.

- **Water-Righted Acres** – Acreage of water rights attributed to a specific serial number. This acreage is further broken out by duty, as described in the next bullet. The sum of this column is 73,674.67 acres.

- **Duty** – The total water-righted acreage for each serial number is broken out among five categories. Many serial numbers contain acreages in multiple duty categories, making it difficult to map specific parcels of land attributed to each category. These categories include the four types of use described in Table C-2 (bench, bottom, pasture, and wetland), and a fifth category termed "special allocation."

1. **Bench** – The portion of the water-righted acres dedicated to agricultural irrigation, and receiving 4.5 feet of duty. The sum of this column is 16,871.31 acres.

2. **Bottom** – The portion of the water-righted acres dedicated to agricultural irrigation, and receiving 3.5 feet of duty. The sum of this column is 43,569.08 acres.

3. **Wetland** – The portion of the water-righted acres receiving 2.99 feet of duty. The sum of this column is 10,200.08 acres.

4. **Pasture** – The portion of the water-righted acres receiving 1.5 feet of duty. The sum of this column is 3,023.00 acres.

5. **Special Allocation** – Temporary or one-year transfers of water rights are typically tracked through special allocations. This is done to prevent confusion, because the land receiving a transferred right is not always the same duty or acreage as the land holding the right. One account (single serial number 970-A) contains 11.2 acres owned by the USFWS. This acreage was designated under "Special Allocation" because its duty was 3 feet acre-feet per acre. For the purposes of the summary tables in this document, these 11.2 acres were counted as irrigated bench land. Water rights held by USFWS are discussed in a later section. This Study ignores the records of irrigated acres, including records of ongoing special allocations and temporary transfers. Therefore, Attachment 2 does not reflect special allocations associated with temporary transfers for specific irrigated acreages.

- **Ownership** – Ownership of each serial number with water rights is maintained by TCID. Personally identifiable information has been withheld to protect the privacy of rights holders who are private citizens. Where applicable, ownership by governments or public agencies has been identified.

- **Retired** – Six serial numbers are composed entirely of rights that are retired, including rights that have been forfeited and acquired by various land and water retirement programs. The holding accounts that maintain retired rights have the following serial numbers: 970-A, 5804-B, 5808, 5809, 6500, and 6500-A. The sum of the water-righted acreage for these six accounts is 6,013.26 acres.

Table C-4 summarizes the acreages reported in Attachment 2.

Table C-4. TCID Records of Newlands Project Water Rights (acres)[1, 2]

		Bench	Bottom	Wetland	Pasture	Special	TOTAL
Carson	East	1,621.15	14,162.76	7,883.49	3,023.00	-	**26,690.40**
	Central	1,663.89	14,596.64	2,314.36	-	-	**18,574.89**
	West	6,967.97	7,028.61	2.23	-	-	**13,998.81**
Truckee		2,596.79	21.05	-	-	-	**2,617.84**
Holding Accounts	Active	2,327.11	3,452.36	-	-	-	**5,779.47**
	Retired	1,694.40	4,307.66	-	-	11.20[3]	**6,013.26**
	TOTAL	**16,871.31**	**43,569.08**	**10,200.08**	**3,023.00**	**11.20**	**73,674.67**

Notes:

[1] Summary of TCID records as of June 14, 2012. This summary contains acreages of water rights that have been identified to be inactive, retired, forfeited or will remain unused. This total acreage and distribution among divisions and duties was used as a starting point for interpreting the maximum potential current and future demand for the Newlands Project.

[2] Water rights summarized in these accounts are not necessarily active or historically called upon. Inactive rights exist throughout the Project, and the extent of inactive acres is not exclusively captured by the acreages reported by the summary of "Retired" holding accounts. The following section describes the acreage of water rights that have been interpreted to be potentially active, by user category.

[3] All 11.2 acres are attributed to ineligible rights held by USFWS (serial number 970-A), which are classified as Special because they have a duty of 3.00 acre-feet per acre.

Water Demand Analysis Approach

Historically, water use in the Newlands Project has been driven by the water needs of irrigated crops, predominately alfalfa. Currently, much of the land devoted to irrigated agriculture remains in the production of hay and forage crops. However, there are a variety of land-use trends and programs affecting the demand for surface water on traditionally irrigated land in both the Truckee and Carson divisions. These factors have, over time, diminished the amount of irrigated land devoted to full-time, commercial farming operations and resulted in fewer total irrigated acres within the Project. For example, USFWS has been operating a water rights acquisition program in the Carson Division that is changing the use of water from irrigation to wetlands maintenance and enhancement. Acquisitions of Carson Division irrigation water rights for wetlands purposes in the Lahontan Valley have also been completed by the Nevada Department of Wildlife (NDOW), Bureau of Indian Affairs (BIA), and, non-governmental, entities. Population growth and land development activity in the Fernley area have changed water demand in the Truckee Division from agriculture to urban. In addition, an ongoing water rights acquisition program in support of in-stream flow enhancement in the lower Truckee River has reduced the volume of water diverted for agricultural purposes in the Truckee Division.

The Study required information about the potential future demand for eight groups of water users that require water delivery within the Project, as depicted in the water supply model used by the Study. The demand for each water user group is determined by the acreage of potentially active rights held by the group, and by the blend of duties for those rights. These users are listed below,

organized among three general water use categories (agricultural, municipal and industrial (M&I), and environmental):

Agricultural user groups:

1. Carson Division commercial and noncommercial farms
2. Truckee Division commercial and noncommercial farms
3. Fallon Paiute-Shoshone farms

Municipal & Industrial user groups:

1. City of Fallon and Churchill County
2. City of Fernley and Lyon County

Environmental user groups:

1. USFWS rights
2. Carson Lake and Pasture rights
3. Fallon Paiute-Shoshone Tribal Wetlands

The following section describes the evaluation of current water right ownership and projects a future demand for the Project from observable trends and the stated goals and objectives of ongoing water rights acquisition and retirement programs. This analysis was conducted by executing the following steps:

1. Describing existing water demand within the Project.
2. Assembling available information on water rights acquisitions for nonagricultural purposes.
3. Estimating future water rights acquisitions by end-use category.
4. Projecting future water demand by division and end-use category.

Existing Water Demand

This section summarizes the existing distribution of water rights within the Project. The analysis presented in this section relies primarily upon summary account data provided by TCID, summarized earlier in Table C-4, but also relies upon information assembled on water rights acquisition and retirement programs within the Truckee and Carson divisions.

Water rights owned by individuals within the eight desired water user groups are distributed among various serial numbers and attributed among the five district codes in the TCID records in a manner that requires interpretation.

Further, TCID records do not necessarily track the progress of various water rights acquisition programs or account for arrangements by owners to maintain the right as an inactive right. As a result, some interpretation was required to properly categorize water rights that were retired or unused, and to attribute active water rights in TCID holding accounts among water user groups in the Truckee and Carson divisions.

The status and trends in the water right acquisitions were obtained for the following water rights purchase programs seeking to maintain active water rights:

- USFWS Water Rights Acquisition Program for Lahontan Valley Wetlands
- NDOW Carson Lake and Pasture water rights acquisitions
- Fallon Indian Tribal Wetlands water rights acquisitions
- City of Fernley acquisitions/dedications for M&I
- City of Fallon and Churchill County acquisitions for M&I

This analysis also obtained records or information needed to quantify water rights purchased in order to retire water rights, and reduce Project demand, or arrangements to maintain water rights as inactive (resulting in no Project demand for the rights):

- AB 380 and Water Rights Compensation Program
- Inactive rights identified by AB 380, but not yet acquired
- Reno, Sparks, and Washoe County (Local Government Oversight Committee) for WQSA
- Pyramid Lake Paiute Tribe for WQSA
- Cap imposed by Public Law 101-618 on Fallon Paiute-Shoshone irrigation demand
- Water rights acquired by USFWS that were intended to be transferred, but were found to be ineligible for transfer and are, therefore, maintained in ownership by USFWS, but remain unused.

Table C-5 presents the distribution of the eight groups with active rights, and various programs or arrangements resulting in no demand, among the TCID district codes.

Table C-5. Attribution of TCID Water Rights Among the Study's Eight Water User Groups and Identified Retirement Programs

Water Use Category	District Code for TCID Records		
	Carson Division	Truckee Division	Holding Accounts
Agricultural Demand	Carson Division Commercial and Noncommercial Farms	Truckee Division Commercial and Noncommercial Farms	Carson Division Commercial and Noncommercial Farms
	Fallon Paiute-Shoshone Irrigated Lands		
Municipal & Industrial Demand	Churchill County	City of Fernley & Lyon County	City of Fallon & Churchill County
			City of Fernley
Environmental Demand	USFWS Water Rights		USFWS Water Rights
	Carson Lake and Pasture		
	Fallon Paiute-Shoshone Tribal Wetlands		
Retired, Transferred or Unused Rights	Inactive Newlands Project Rights identified by AB 380	WQSA Purchases of Truckee Division Water Rights	Court-Ordered Forfeits
			Water Rights Retired by AB 380
	Unused Fallon Paiute-Shoshone Tribal Rights, per Cap in Public Law 101-618		Water Rights Retired by the Water Rights Compensation Program
			WQSA Purchases of Truckee Division Water Rights
			Ineligible USFWS WRAP Acquisitions

Key:
AB 380 = Assembly Bill 380
TCID = Truckee-Carson Irrigation District
USFWS = U.S. Fish and Wildlife Service
WQSA = Water Quality Settlement Agreement
WRAP = Lahontan Valley Wetlands Water Rights Acquisition Program

Table C-6 summarizes the distribution of existing water-righted acres, and associated demands, among the identified categories of water users. All numbers are approximate.

Table C-6. Estimated Current and Potentially Active Newlands Project Water Rights, with Associated Maximum Potential Demand[1]

Carson Division Rights		Bench (acres)	Bottom (acres)	Wetland (acres)	Pasture (acres)	TOTAL Acres	Maximum Demand (acre-feet)
Ag	Commercial and Noncommercial Farms	10,105	30,893	22	2,382	43,403	157,239
	Fallon Paiute-Shoshone Irrigated Lands	-	3,025	-	-	3,025	10,588
M&I	City of Fallon and Churchill County	118	648	-	-	766	2,799
Env	USFWS Water Rights	-[2]	-[2]	8,298[2]	641	8,939	25,773
	Carson Lake and Pasture	-[2]	-[2]	2,403[2]	-	2,403	7,183
	Fallon Paiute-Shoshone Tribal Wetlands	-	-	468	-	468	1,400
	Carson Division Subtotal	10,223	34,566	11,191	3,023	59,003	204,981
Truckee Division Rights		**Bench (acres)**	**Bottom (acres)**	**Wetland (acres)**	**Pasture (acres)**	**TOTAL Acres**	**Maximum Demand (acre-feet)**
Ag	Commercial and Noncommercial Farms	2,301	-	-	-	2,301	10,355
M&I	City of Fernley and Lyon County	2,103	189	-	-	2,292	10,124
	Truckee Division Subtotal	4,404	189	-	-	4,593	20,479
	TOTAL Potentially Active Newlands Project Rights	**14,627**	**34,755**	**11,191**	**3,023**	**63,596**	**225,461**

Notes:
[1] Figures have been rounded to their whole-number equivalents; as a result, some rounding errors may exist.
[2] TCID records indicate acreages of water rights attributed to USFWS and Carson Lake and Pasture with bench and bottom land duties. This Study assumes that these acreages will be transferred to a Wetland duty designation, and values of USFWS rights have been adjusted to reflect this assumption. Unadjusted acreages for USFWS were 15, 888, and 7,395 for bench, bottom and wetland, respectively. Unadjusted acreages for Carson Lake and Pasture were 60, 28, and 2,314 for bench, bottom and wetland, respectively.
Key:
Ag = Agricultural
Env = Environmental
M&I = Municipal and Industrial
USFWS = U.S. Fish and Wildlife Service

Table C-7 summarizes the water rights that appear within the TCID records, but which do not result in Project demands because they have been identified as retired, forfeited, or are known to be inactive.

Table C-7. Estimated Inactive or Retired Newlands Project Water Rights[1]

		Bench (acres)	Bottom (acres)	Wetland/ Pasture (acres)	Special (acres)	TOTAL Acres	Associated Demand (acre-feet)[2]
Ag	Remaining Inactive Newlands Project Rights to be Acquired for AB 380	741	622	-	-	1,363	5,510[2]
Env	Water Rights Retired by AB 380	338	4,098	-	-	4,436	15,864[2]
	Water Rights Retired by Water Rights Compensation Program	54	12	-	-	66	287[2]
	Water Rights Removed from Project by the WQSA (Truckee Division Rights, Only)	975	1	-	-	976	4,390[2]
Retired	Court-Ordered Forfeits	28	159	-	-	187	684[2]
	Ineligible USFWS Acquisitions	32	591	-	11	635	2,216[2]
	In Excess of Cap on Fallon Paiute-Shoshone Use	-	2,415	-	-	2,415	8,454[2]
TOTAL for Project Rights Without Demand		**2,169**	**7,898**	**-**	**11**	**10,079**	**37,405**[2]

Notes:
[1] Figures have been rounded to their whole-number equivalents; as a result, some rounding errors may exist.
[2] Associated demands are provided for informational purposes. Inactive and retired rights are treated as if they have no demand (zero acre-feet) in all analyses performed by the Study.

Key:
AB 380 = Assembly Bill 380
Ag = Agricultural
Env = Environmental
USFWS = U.S. Fish and Wildlife Service
WQSA = Water Quality Settlement Agreement

Nonagricultural Demand in the Carson Division

The following subsection explains how records of water rights acquired by nonagricultural users in the Carson Division were combined with TCID records to estimate ownership of water-righted acres and potentially active acres, as reported in Tables C-6 and C-7.

AB 380 and Water Rights Compensation Program Beginning in 1993, the Pyramid Lake Paiute Tribe challenged 190 water rights transfers within the Carson Division that would have exercised rights the tribe believed to have been abandoned or forfeited. These challenges were associated with a total of 9,429 water-righted acres. These disputed transfers led to the enactment of Nevada's AB 380, which authorized the Carson Water Subconservancy District to manage a program to acquire from willing sellers. Ultimately, an agreement was negotiated to retire 6,500 acres of historically inactive or unused water rights that had been identified by the Pyramid Lake Paiute Tribe. The program also

accepted "unchallenged" water rights if they became available at the established prices. The AB 380 program began in 1999 and ended in 2006 having acquired and retired 4,436 acres in the Project, of which 4,166 acres came from the Carson Division.

Additional Federal funding has since been provided for the Water Rights Compensation Program, overseen by Great Basin Land and Water (GBLW), to acquire the remaining water rights and avoid potential litigation with the Pyramid Lake Paiute Tribe. When complete, an additional 2,064 acres of inactive Project water rights will have been retired toward AB 380. At present, 66 acres have been retired, and 1,998 acres remain to be retired in order to meet the original AB 380 goal of 6,500 acres.

Consistent with the AB 380 and Water Rights Compensation Program assumptions, this Study assumes that all 6,500 acres identified for retirement under AB 380 are currently inactive, do not demand water, and will not be transferred or allowed to demand water in the future—regardless of whether the full 6,500 acres have actually been purchased yet. This analysis assumes that water rights acquired by USFWS and determined to be ineligible will eventually contribute toward meeting the remaining 1,998 acres. At present, USFWS holds 635 acres of rights considered to be ineligible (discussed further below), leaving a remaining 1,363 acres of inactive rights needed to meet the original AB 380 goal of 6,500 acres.

TCID records of water rights acquired by AB 380 and the Water Rights Compensation Program were used directly by this Study and match acreages reported in the AB 380 Program Final Report (Attachment 2). The blend among bottom and bench lands for remaining Newlands Project water rights was based upon the proportion of water rights retired to date under both the AB 380 program and Water Rights Compensation Program.

USFWS Water Rights Acquisition Program Pursuant to the program authorized by Public Law 101-618, USFWS has been acquiring water rights for the restoration and maintenance wetlands in the Lahontan Valley, which were historically supported by flows from the Carson River. To date, USFWS reports having acquired 9,574 water-righted acres. Not all of the water rights appurtenant to these lands are considered eligible for transfer and use at the wetlands. In the Water Rights Acquisitions Program for Lahontan Valley Wetlands EIS, USFWS noted that properties being contested by the Pyramid Lake Paiute Tribe (as described on the "Composite Map" included in the EIS) would not be transferred or used. To date, 635 acres of land have been acquired with appurtenant water rights that are not considered eligible for transfer to the wetlands; these rights are unused, and are maintained in a TCID holding account (serial number 970-A).

USFWS records on water rights acquisitions do not entirely match those kept by TCID. TCID records reflect a greater number of acres acquired (9,613 acres)

than do the USFWS records obtained (9,574 acres). Also, the TCID records of ineligible rights (582 acres in TCID holding account 970-A) is smaller than the USFWS records of ineligible rights (635 acres). These differences are small, and would have little effect on the results of the Study; thus, this Study adjusted TCID records to reflect USFWS records of water rights.

NDOW To date, NDOW has acquired rights for use at Carson Lake and Pasture. TCID records indicated that NDOW holds 2,403 water-righted acres (7,183 acre-feet), and these rights have been attributed to NDOW management of Carson Lake and Pasture. The Study team did not collect records from NDOW, and the rights assumed to be dedicated to Carson Lake and Pasture were taken from TCID under serial numbers 975 and 5800. A separate 1,450-acre water rights account held by USFWS (serial number 970-C) has a dual place of use with Carson Lake and Pasture, but has been included with the USFWS rights (applied to Stillwater NWR in the water resource model).

The most recent NDOW water rights acquisitions occurred in 2003.

Fallon Indian Tribal Wetlands To date, approximately 468 water-righted acres have been acquired for the benefit of Fallon Indian tribal wetlands in the Carson Division. The volume associated with these rights at the time of their transfer was approximately 1,756 acre-feet; however, using the transferable volume of 2.99 acre-feet per acre for wetlands, the total volume applied is 1,400 acre-feet. These rights are tracked by TCID under the serial number 713-37, and these records match those kept by USFWS, who acquired the rights on behalf of BIA and the tribe.

The most recent purchase for the tribe's wetlands occurred in 2001.

Churchill County M&I For a brief period, Churchill County was actively acquiring water rights in the Carson Division in support of future development. TCID records reflect that the county owns 655 water-righted acres. In addition to this, TCID records indicated that the City of Fallon owns 111 water-righted acres. In combination, 766 water-righted acres (2,799 acre-feet) are held for M&I use within the Carson Division.

The county and city have not expressed any plans to acquire additional water rights at this time.

Nonagricultural Demand in the Truckee Division

The following subsection explains how records of water rights acquired by nonagricultural users in the Truckee Division were combined with TCID records to estimate ownership of water-righted acres and potentially active acres, as reported in Tables C-6 and C-7.

City of Fernley and Lyon County M&I The City of Fernley has obtained a large number of water rights previously used for irrigation purposes in the Truckee Division, primarily through dedications by real estate developers with

projects in Fernley. TCID records indicate that Fernley and Lyon County hold 2,255 and 37 water-righted acres, respectively. The dedications to Fernley have come from lands throughout the Truckee Division, including lands in and around Fernley, Hazen, and Swingle Bench. In combination, Fernley and Lyon County hold 2,292 water-righted acres (10,124 acre-feet) for M&I use within the Truckee Division.

A large portion of the water rights have been permitted for municipal use, and applications for conversion of the remaining water rights to municipal use are under review by the Nevada State Engineer.

WQSA The cities of Reno and Sparks, and Washoe County (collectively referred to as the Local Government Oversight Committee), and the Pyramid Lake Tribe have been acquiring Truckee River surface water rights to augment streamflow in the lower Truckee River to improve water quality. These water rights have been acquired from the main-stem Truckee River and from within the Truckee Division. Records provided by GBLW indicate that 976 water-righted acres (4,390 acre-feet) have been acquired from the Truckee Division under the terms of the WQSA.

Records obtained from GBLW do not entirely match TCID records, in part due to the fact that updating of records at TCID is ongoing and lags behind sales recognized by GBLW. The difference between the records is small (within 10 water-righted acres) and difficult to track because personally identifiable information was not available on the water rights acquired; however, the difference would have little effect on the results of the Study. This Study adjusted TCID records to reflect GBLW records of water rights.

Water rights acquisitions on behalf of the Pyramid Lake Paiute Tribe for WQSA are ongoing.

AB 380 and Water Rights Compensation Program The Water Rights Compensation Program has retired rights primarily within the Carson Division to achieve the purpose and goal of the AB 380 program, as described previously in this document. However, the program has acquired some water rights in the Truckee Division, as well. The AB 380 program acquired 270 acres in the Truckee Division, approximately 6 percent of the total 4,436 acres acquired under AB 380.

Additional Considerations

Cap on Water Rights Exercised by Fallon Paiute-Shoshone Tribe The Fallon Paiute-Shoshone Tribe holds 5,440 acres (19,041 acre-feet), but through an agreement formalized in Public Law 101-618 their total annual demand for irrigation is capped at 10,587.5 acre-feet (approximately 3,025 acres of usable rights). To account for this, this Study considers 2,415 acres (8,454 acre-feet) of the Fallon Paiute-Shoshone tribal irrigation rights to be unused into

perpetuity. TCID records do not appear to provide a distinction for precisely which rights (serial numbers beginning with 713) are set aside.

Private Holding Accounts TCID records include serial numbers for several privately owned water rights maintained in holding accounts, including some acreages maintained by TCID. These rights include 307 acres (1,163 acre-feet) and are assumed to be potentially active irrigation water rights within the Carson Division. The remainder of the active water rights in holding accounts are owned by public entities, such as USFWS and the Fallon Paiute-Shoshone Tribe.

Court-Ordered Forfeiture TCID records indicate 173 acres of water-righted acres (serial number 5804-B) that the courts have ordered forfeited. This number is less than the 187 acres of water rights reported as forfeited by the AB 380 Program Final Report (Attachment 2). The difference between the records is small (within 20 water-righted acres), and difficult to track because the records obtained do not reflect which rights are considered forfeited. Others who track water rights ownership, such as the Pyramid Lake Paiute Tribe, may also report slightly different figures for the total acres forfeited due to court order. However, all of these differences would have little effect on the results of the Study. This Study adjusted TCID records to reflect records from the AB 380 Program Final Report. These acreages are assumed to be permanently retired.

Estimated Future Water Rights Acquisitions

The following section describes the expected future water rights acquisitions for active water rights transfer and retirement programs. The following assessments are used to modify the current demands (described in Table C-6) and thereby estimate future Project water demand for each group of water users identified by the Study. Table C-8 summarizes the projected future water rights acquisitions by program and division.

Table C-8. Projected Future Water Rights Acquisitions

Program	Intended Use	Water Rights Acquired	
		Acres	Source
USFWS Water Rights Acquisition Program	Wetlands (acres eligible for use)	12,064	Carson Division Irrigation Rights
	Wetlands (acres ineligible for use but acquired with eligible acres)	534	Carson Division Irrigation Rights
Water Rights Compensation Program	Retire	779	Inactive Carson Division Rights
		50	Inactive Truckee Division Rights
WQSA	Removed from Project	600	Truckee Division Irrigation Rights
City of Fernley	M&I	250	Truckee Division Irrigation Rights

Key:
M&I = municipal and industrial
USFWS = U.S. Fish and Wildlife Service
WQSA = Water Quality Settlement Agreement

Nonagricultural Demand in the Carson Division

USFWS Water Rights Acquisition Program USFWS has the authority to acquire up to 75,000 acre-feet of water rights in the Carson Division. This target refers to the volume of water currently being applied on irrigated lands within the Carson Division. As previously noted, transfer restrictions reduce the duty of these rights to 2.99 acre-feet per acre when they are applied by USFWS to wetlands. As a consequence, the acreage of active water rights remains unaffected by USFWS transfers, but the Project demand is reduced overall.

According to USFWS records, the total water rights volume acquired to date had an original duty equivalent to approximately 32,500 acre-feet. The TCID records do not reflect this volume because many of the rights have been reclassified under wetland, which receives a duty of 2.99 acre-feet per acre. Because of this, USFWS records – which preserve information about the original bottom or bench duty classifications for each water right acquired – were used as the basis for determining the additional acreage of water rights

needed to meet the goal of acquiring a total 75,000 acre-feet volume of water rights from agricultural users.

Two trends noted in the USFWS acquisition records were used in this analysis. First, after excluding the rights acquired from pasture, 97 percent of the water-righted acres acquired come from bottom lands. Second, USFWS' acquisition goals are based upon *eligible* acres: in reaching 32,500 acre-feet, USFWS has acquired an additional 7 percent of the water-righted acres that are found to be ineligible for transfer. These trends were applied to estimate the acreage of eligible water-righted land that will be acquired by USFWS (12,064 acres), the resulting transferred volume for use at wetlands (36,072 acre-feet). The acreage of ineligible land acquired by the completion of the program (534 acres) was estimated using current trends, and modified to reconcile information obtained from USFWS, AB 380 and TCID. Table C-9 displays a breakdown of eligible water-righted acres and volumes of duty acquired from Carson Division irrigation users, and acreages of ineligible acres acquired.

Table C-9. Projected Future Water Right Acquisitions by USFWS[1]

	Water Rights Acquired from Eligible Rights		Transferred Volume (acre-feet)	Ineligible Rights Acquired (acres)
	(acre-feet)	(acres)		
Bench Land	1,240	276	*Transferred as wetland duty*	58
Bottom Land	41,260	11,789	*Transferred as wetland duty*	476
Wetland			36,072	
TOTAL	**42,500**	**12,064**	**36,072**	**534**

Note:
[1] Figures have been rounded to their whole-number equivalents; as a result, some rounding errors may exist.

Key:
USFWS – U.S. Fish and Wildlife Service

The projected total acreage of eligible water rights acquired by the USFWS at the conclusion of the Water Rights Acquisition Program is 21,003 acres, with a transferrable duty of 61,844 acre-feet. The projected total acreage of ineligible water rights held by USFWS is 1,169 acres. As described previously, these acreages are assumed to remain inactive and contribute toward the AB 380 goal of retiring 6,500 acres of inactive water rights from the Carson Division.

Water Rights Compensation Program It is anticipated that the goal of AB 380 (the retirement of 6,500 acres land with inactive Project water rights), will be met under the current program. It is expected that the program goal will be met in part by the projected total acreage of ineligible rights acquired by USFWS (1,169 acres) as part of their Water Rights Acquisition Program. This analysis assumes that the program's acquisition target will be reached and that

the water rights acquisitions will conform with previous trends, with 94 and 6 percent from the Carson and Truckee divisions, respectively. The water-righted acreage required from the Carson Division to meet the AB 380 goal is estimated to be 779 acres. Because these rights are considered inactive under the current condition, this did not result in any decrease in demand within the Project for this Study.

Nonagricultural Demand in the Truckee Division

WQSA In total, 976 acres of water rights have been acquired to date under the program. The program is still active. Based upon the remaining funding and the projected costs of water rights, it is anticipated that the program will acquire between 2,500 and 3,000 acre-feet of water rights in the future. This is equivalent to a range of 556 and 667 acres of Truckee Division water rights. This analysis assumes that the program will successfully acquire 600 additional water-righted acres.

City of Fernley M&I Real estate development activity has virtually ceased within Fernley due to the economic slowdown and the number of homes currently available on the market. Currently, the city has an excess supply of water rights and limited funding to support additional acquisitions. As a result, near-term water rights acquisitions or dedications of significant volumes appear unlikely. In the longer term, it is possible that acquisitions or dedications will continue with recovery in the real estate market. This analysis assumes that an additional 1,125 acre-feet (250 acres) will be purchased by or dedicated to Fernley.

Water Rights Compensation Program A majority of the water rights acquired under the program have been in the Carson Division. However, some Truckee Division water rights were purchased as well. This analysis assumes that the program's acquisition target will be reached and that the water rights come from both the Carson and Truckee divisions based upon the proportion of each in prior transactions: 94 and 6 percent from the Carson and Truckee divisions, respectively. The water-righted acreage required from the Truckee Division to meet the AB 380 goal is estimated to be 50 acres. Because these rights are considered inactive under the current condition, this did not result in any decrease in demand within the Project for this Study.

As an interesting side note, any water-righted acres purchased for the WQSA but found to be ineligible have usually been resold to the AB 380 program, with the revenue used for acquiring additional eligible land. Historically, 5 percent of the water rights acquired are found to be ineligible. At current trends, fulfillment of the WQSA will uncover 66 acres of ineligible rights for sale to the Water Rights Compensation Program.

Estimated Future Project Water Demand

In summary, the projected maximum future Newlands Project demand is estimated to decrease by 9,128 acre-feet (14 percent); however, the potentially active acreage only decreases by 600 acres (1 percent). Table C-10 summarizes the changes within each division of the Project, by type of water use.

Table C-10. Projected Changes in Potentially Active Newlands Project Water Rights[1]

		Current Rights (acres)	Future Rights (acres)	Change	
				(acres)	(acre-feet)
Carson Division	Ag	46,428	34,363	-12,064	-42,500
	M&I	766	766	-	-
	Env	11,810	23,874	+12,064	+36,072
Truckee Division	Ag	2,301	1,451	-850	-3,825
	M&I	2,292	2,542	+250	+1,125
TOTAL		**63,597**	**62,996**	**-600**	**-9,128**

Note:
[1] Figures have been rounded to their whole-number equivalents; as a result, some rounding errors may exist.

Key:
Ag = Agricultural
Env = Environmental
M&I = municipal and industrial

Table C-11 summarizes the distribution of existing water-righted acres, and associated demands, among the identified categories of water users and duty classifications. All numbers are approximate.

Table C-11. Projected Future Potentially Active Newlands Project Water Rights, with Associated Maximum Potential Demand[1]

Carson Division Rights		Bench (acres)	Bottom (acres)	Wetland (acres)	Pasture (acres)	TOTAL Acres	Maximum Demand (acre-feet)
Ag	Commercial and Noncommercial Farms	9,830	19,104	22	2,382	31,338	114,739
	Fallon Paiute-Shoshone Irrigated Lands	-	3,025	-	-	3,025	10,588
M&I	City of Fallon & Churchill County	118	648	-	-	766	2,799
Env	USFWS Water Rights	-[2]	-[2]	20,362[2]	641	21,003	61,844
	Carson Lake and Pasture	-[2]	-[2]	2,403[2]	-	2,403	7,183
	Fallon Paiute-Shoshone Tribal Wetlands	-	-	468	-	468	1,400
	Carson Division Subtotal	9,948	22,778	23,255	3,023	59,003	198,553
Truckee Division Rights		**Bench (acres)**	**Bottom (acres)**	**Wetland (acres)**	**Pasture (acres)**	**TOTAL Acres**	**Maximum Demand (acre-feet)**
Ag	Commercial and Noncommercial Farms	1,451	-	-	-	1,451	6,530
M&I	City of Fernley & Lyon County	2,353	189	-	-	2,542	11,249
	Truckee Division Subtotal	3,804	189	-	-	3,993	17,779
	TOTAL Potentially Active Newlands Project Rights	**13,752**	**22,966**	**23,255**	**3,023**	**62,996**	**216,332**

Notes:

[1] Figures have been rounded to their whole-number equivalents; as a result, some rounding errors may exist.

[2] TCID records indicate acreages of water rights attributed to USFWS and Carson Lake and Pasture with bench and bottom land duties. This Study assumes that these acreages will be transferred to a Wetland duty designation, and values of USFWS rights have been adjusted to reflect this assumption. Unadjusted projected acreages for USFWS are 290, 12,667, and 7,395 for bench, bottom, and wetland, respectively. Unadjusted acreages for Carson Lake and Pasture are 60, 28, and 2,314 for bench, bottom, and wetland, respectively.

Key:
Ag = Agricultural
Env = Environmental
M&I = municipal and industrial
USFWS = U.S. Fish and Wildlife Service

Table C-12 summarizes the projected future ownership of water rights that do not result in Project demands because they have been identified as retired, forfeited, or are known to be inactive. All numbers are approximate.

Table C-12. Projected Future Inactive or Retired Newlands Project Water Rights[1]

		Bench (acres)	Bottom (acres)	Wetland/ Pasture (acres)	Special (acres)	TOTAL Acres	Associated Demand (acre-feet)[2]
Ag	Remaining Inactive Newlands Project Rights to be Acquired for AB 380	-	-	-	-	-	-[2]
Env	Water Rights Retired by AB 380	338	4,098	-	-	4,436	15,864[2]
	Water Rights Retired by the Water Rights Compensation Program	738	157	-	-	895	3,869[2]
	Water Rights Removed from Project by the WQSA (Truckee Division Rights, Only)	1,575	1	-	-	1,576	7,090[2]
Retired	Court-Ordered Forfeits	28	159	-	-	187	684[2]
	Ineligible USFWS Acquisitions	90	1,068	-	11	1,169	4,143[2]
	In Excess of Cap on Fallon Paiute-Shoshone Use	-	2,415	-	-	2,415	8,454[2]
TOTAL for Project Rights Without Demand		**2,769**	**7,898**	**-**	**11**	**10,679**	**40,105[2]**

Note:
[1] Figures have been rounded to their whole-number equivalents; as a result, some rounding errors may exist.
[2] Associated demands are provided for informational purposes. Inactive and retired rights are treated as if they have no demand (zero acre-feet) in all analyses performed by the Study.

Key:
AB 380 = Assembly Bill 380
Ag = Agricultural
Env = Environmental
USFWS = U.S. Fish and Wildlife Service
WQSA = Water Quality Settlement Agreement

Historically, the Project's agricultural water rights holders have a long-standing cultural practice of calling on less than their full maximum demand. While the reasons for this are not well documented, likely vary from farm-to-farm, and could change in the future, the trend is well documented and is noted in the Newlands Project Operating Criteria and Procedures(43 CFR 418, 1997). In terms of historical averages, the Carson and Truckee divisions have typically called upon 92 and 95-percent of their annual maximum demand, respectively.

The Study anticipates that the cultural practice of calling on less than the maximum demand (Table C-11) will continue for the Project's agricultural users. To account for this, the maximum Project water rights demands for commercial and non-commercial agricultural users have been reduced to reflect existing cultural practices. These adjustments in demand are reflected in the estimated future project water demands in Table C-13, which are used for the

evaluation of the Study alternatives described in Chapters 5 and compared in Chapter 6.

Table C-13. Estimated Potential Future Newlands Project Water Demands, Reflecting Cultural Practices of Agricultural Users

Carson Division Rights		Maximum Future Demand (acre-feet)	Estimated Future Demand (acre-feet)
Ag	Commercial and Noncommercial Farms	114,739	105,560
	Fallon Paiute-Shoshone Irrigated Lands	10,588	10,588
M&I	City of Fallon & Churchill County	2,799	2,799
Env	USFWS Water Rights	61,844	61,844
	Carson Lake and Pasture	7,183	7,183
	Fallon Paiute-Shoshone Tribal Wetlands	1,400	1,400
	Carson Division Subtotal	198,553	189,374
Truckee Division Rights		**Maximum Future Demand (acre-feet)**	**Estimated Future Demand (acre-feet)**
Ag	Commercial and Noncommercial Farms	6,530	6,204
M&I	City of Fernley & Lyon County	11,249	11,249
	Truckee Division Subtotal	17,779	17,453
	TOTAL Potentially Active Newlands Project Rights	**216,332**	**206,826**

Note:
Figures have been rounded to their whole-number equivalents; as a result, some rounding errors may exist.

Key:
Ag = Agricultural
Env = Environmental
M&I = municipal and industrial
USFWS = U.S. Fish and Wildlife Service

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Appendix C
Projected Future Water Rights and Demands for the Newlands Project

Attachment 1: Differences Between Study Demand and TROA EIS/EIR Demand

Newlands Project Planning Study
Special Report

Prepared by

Bureau of Reclamation
Mid-Pacific Region
Lahontan Basin Area Office

U.S. Department of the Interior
Bureau of Reclamation

April 2013

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Differences Between Study Demand and TROA EIS/EIR Demand

This attachment presents the characterization of the Newlands Project demand and water supply shortages formulated for this Study in comparison with similar assessments conducted for the TROA EIS/EIR, and identifies reasons for differences between the two analyses.

Differences in Assumed Demand

As described in this "Potentially Active Water Rights" section of this appendix, this Study's approach to calculating Project demand differs from the approach taken by other analyses, such as those performed for the TROA EIS/EIR, resulting in a higher level of demand.

This Study was developed to meet the full potential demand of the Project and recognizes that there is a difference between the full volume of water rights used in the Study and the average historic use of those rights. Within the Study, Reclamation identified over 10,000 acres within the Project as retired, forfeited, or otherwise ineligible to receive Project water. As a result, the Study plans for meeting the demand of approximately 63,000 acres of water rights. This is approximately 4,000 acres (6 percent) more than the 59,000 acres irrigated in recent decades (see Appendix C, Table C-3). Reclamation recognizes that there is a large acreage of rights that have been traditionally "inactive." However, the Nevada State Engineer has indicated that inactive rights within the Project would be considered as potentially valid for transfers, so long as they meet certain basic criteria (e.g. demonstrating a history of paying operation and maintenance fees). Reclamation believes that, without formal retirement, the owners of these rights cannot be assumed to continue paying for the maintenance of their rights while leaving them idle into perpetuity. Thus, formulating alternatives that do not consider these rights would produce planning options that would be incomplete from either a cost perspective or from a water service perspective. As such, Reclamation cannot with certainty exclude inactive rights from consideration in the Study.

The Study does acknowledge uncertainty in water rights and is careful not to commit to an interpretation of the validity of water rights that would need to be determined by the State Engineer. Reclamation feels strongly that the costs to serve or retire the water rights that may be inactive must be considered as part of project planning costs. As a result, the Study developed an extensive approach to future water rights and demands for the Project, which is contained in Appendix C to the Special Report. This version of the document has been

shared with the Pyramid Lake Paiute Tribe, TCID, City of Fernley, USFWS, Fallon Paiute-Shoshone Tribe, and Churchill County.

The TROA EIS/EIR estimates of Project demand are limited to the service of Project water users that had been active over recent years, and effectively assumes that inactive water rights will remain-so into perpetuity. Because these water rights may potentially be considered active by the Nevada State Engineer, this Study has included consideration for the water service or cost of retirement needed for the approximately 4,000 acres of historically inactive Project water rights.

Table C-1-1 presents the acreages and volumes of Project demand developed for this Study and for the TROA EIS/EIR, along with the average and maximum irrigated acres since 2001 for comparison.

Table C-1-1. Differences in Historical and Assumed Future Demands

	Historical Irrigated (2001 – 2010)[1]	TROA EIS/EIR's Current Conditions[2]	TROA EIS/EIR's Future Demand[2]	Study's Estimated Future Demand
Active Water Rights Served (acres)	Up to 59,968; Avg. of 56,950	59,314	57,496[3]	62,996[4]
Anticipated Demand at Headgates (acre-feet)	Varies	193,108	182,337[3]	206,826[4]

Notes:
[1] See Table C3 for a summary of Project irrigated acreages since 1985.
[2] Estimated as part of the future "No Action" condition (Reclamation et al. 2008).
[3] Includes 1,444 acres (6,500 acre-feet) of water rights anticipated by TROA EIS/EIR to be held by City of Fernley.
[4] Includes 2,542 acres (11,249 acre-feet) of water rights anticipated by Study to be held and exercised by the City of Fernley.

Key:
avg. = average
EIR = environmental impact report
EIS = environmental impact statement
TROA = Truckee River Operating Agreement

Features of the Future Demand Condition

Both this Study and the TROA EIS/EIR rely on a projection of future Project demand to analyze alternatives and their effects.

TROA EIS/EIR

Future Project demand in the TROA EIS/EIR is characterized as part of the "No Action" condition (Reclamation et al. 2008), and is based on the following assumptions:

- The future condition occurs by 2033.
- In the Truckee Division:
  - All water rights will be acquired by Fernley for M&I purposes or on behalf of the Pyramid Lake Paiute Tribe. No Project water rights will be used for agricultural production.
  - The summary of demand for the Truckee Division states that total acres are zero, which does not include acres of Project water rights obtained and diverted by the City of Fernley.
- In the Carson Division:
  - USFWS will purchase sufficient water rights to meet the goals of the Water Rights Acquisition Program for Lahontan Valley Wetlands. The transfer of these rights reduces demand.
  - The acreage of agricultural water rights considered was limited to the average acreage that had been irrigated over the previous decades minus those which had been transferred to USFWS.

Newlands Project Planning Study

Future Project demand for this Study is described in Appendix C and Chapter 3 of this Special Report, and is based on the following assumptions:

- The future condition occurs by 2050.
- In the Truckee Division:
  - Use of Project water rights for agricultural production will continue, although commercial farming enterprises are expected to sell their rights for M&I or environmental uses.
  - Use of Project water rights by City of Fernley is included in the summaries of total Project demand.
- In the Carson Division:

- USFWS will purchase sufficient water rights to meet the goals of the Water Rights Acquisition Program for Lahontan Valley Wetlands. The transfer of these rights reduces demand.

- The acreage of agricultural water rights considered includes all potentially active water rights, regardless of whether they had been irrigated over the previous decades, minus those which had been transferred to USFWS. Potentially active water rights include all those not retired by the Water Rights Compensation Program, AB 380, or which are otherwise considered permanently retired, inactive, or ineligible.

- The Water Rights Compensation Program will acquire the remaining water-righted acres from both Project divisions needed to achieve the goal of AB 380 (retirement of 6,500 water-righted acres).

Differences in Estimated Water Supply Shortages

The differences in assumptions between the Study and the TROA EIS/EIR creates expected differences in the simulated future water supply reliability for the Project. Water supply reliability is typically characterized by two features: (1) the frequency of shortfall, and (2) the magnitude of shortfall.

This Study did not include analyses based on a "current condition" for Project reliability because the Truckee Canal's current capacity restrictions (350 cfs through the Fernley Reach) are not reflective of its capacity before the 2008 Truckee Canal breach. Instead, the Study developed a scenario called "Desired Reliability," which is described in Chapter 2 of this Special Report and in Appendix D1. The Study's Desired Reliability scenario is based upon the hydrology on the Truckee and Carson rivers between 1901 and 2000, estimated maximum potential water demand (225,461 acre-feet, see Appendix C, Table C-6), existing regulatory conditions, including OCAP; and the Truckee Canal's more recent maximum operating capacity of 900 cfs (from Derby Dam to Lahontan Reservoir).

Because the Study's Desired Reliability scenario represents a range of water supply conditions that Project water rights holders could have expected had the 2008 canal breach not resulted in capacity restrictions, it is the closest of the Study's scenarios to the TROA EIS/EIR "current conditions" scenario. Had the Study assumed a Project demand that was equal to the average irrigated acreages, it is expected that the frequency and severity of Project shortages in the Desired Reliability would have been more similar to the conditions reported for the future condition in the TROA EIS/EIR.

The following tables and graphics have been assembled to compare the frequency and magnitude of shortfalls between the "current condition" for the TROA EIS/EIR and the Desired Reliability scenario in this Study. Table C-1-2 presents a comparison of the frequency and magnitude of simulated shortages.

Table C-1-2. Comparison of Reliability in Study (Desired Reliability) with TROA EIS/EIR Current Conditions

	Demand Met in Driest Year (%)		Number of "Shortage" Years Simulated between 1901 and 2000	
	Study Desired Reliability Scenario	TROA EIS/EIR Current Conditions	Study Desired Reliability Scenario[2]	TROA EIS/EIR Current Conditions
Carson Division	42	47.2[1]	14	9
Truckee Division	15	51.5[1]		
TOTAL Project	40	not reported		

Notes:
[1] Agriculture only.
[2] Years in which the reliability falls below 95 percent of Project demand met are considered "shortage" years in this Study.

Key:
EIR = environmental impact report
EIS = environmental impact statement
Study = Newlands Project Planning Study
TROA = Truckee River Operating Agreement

Selected graphics from the TROA EIS/EIR have been provided below to allow the reader to see the relative performance of the Newlands Project in TROA relative to under the Study alternatives. Additional analysis and figures prepared by the TROA EIS/EIR can be found in the TROA EIS/EIR (Reclamation et al. 2008).

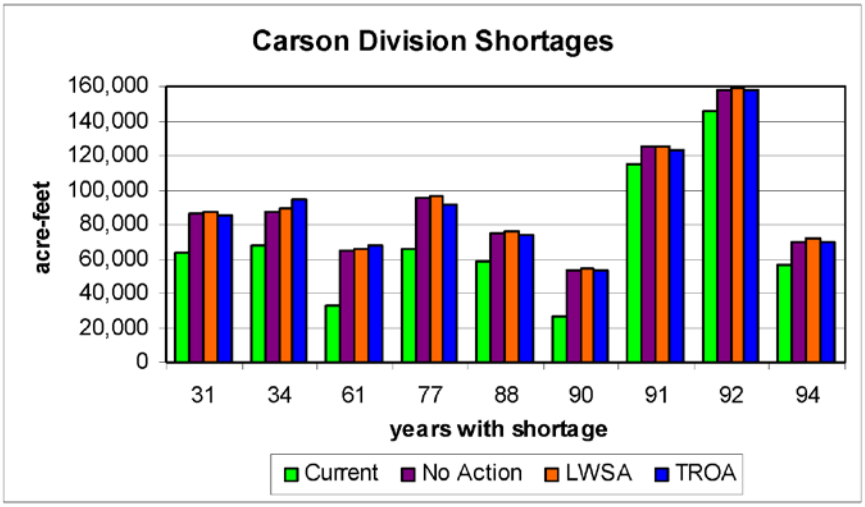


Figure 3.23—Operations model results for Carson Division agricultural shortages.

Figure C-1-1. TROA EIS/EIR Figure Depicting Potential Shortages to Agricultural Water Rights Holders in the Carson Division for the Current Condition (green bars)

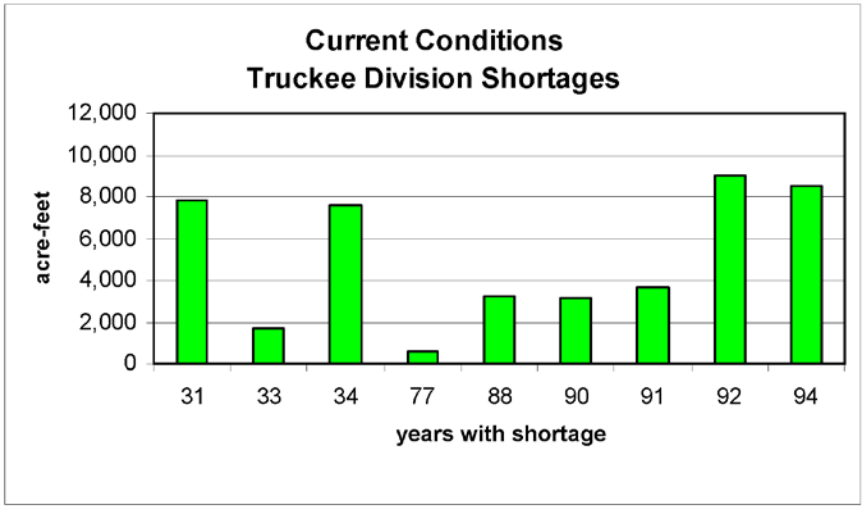
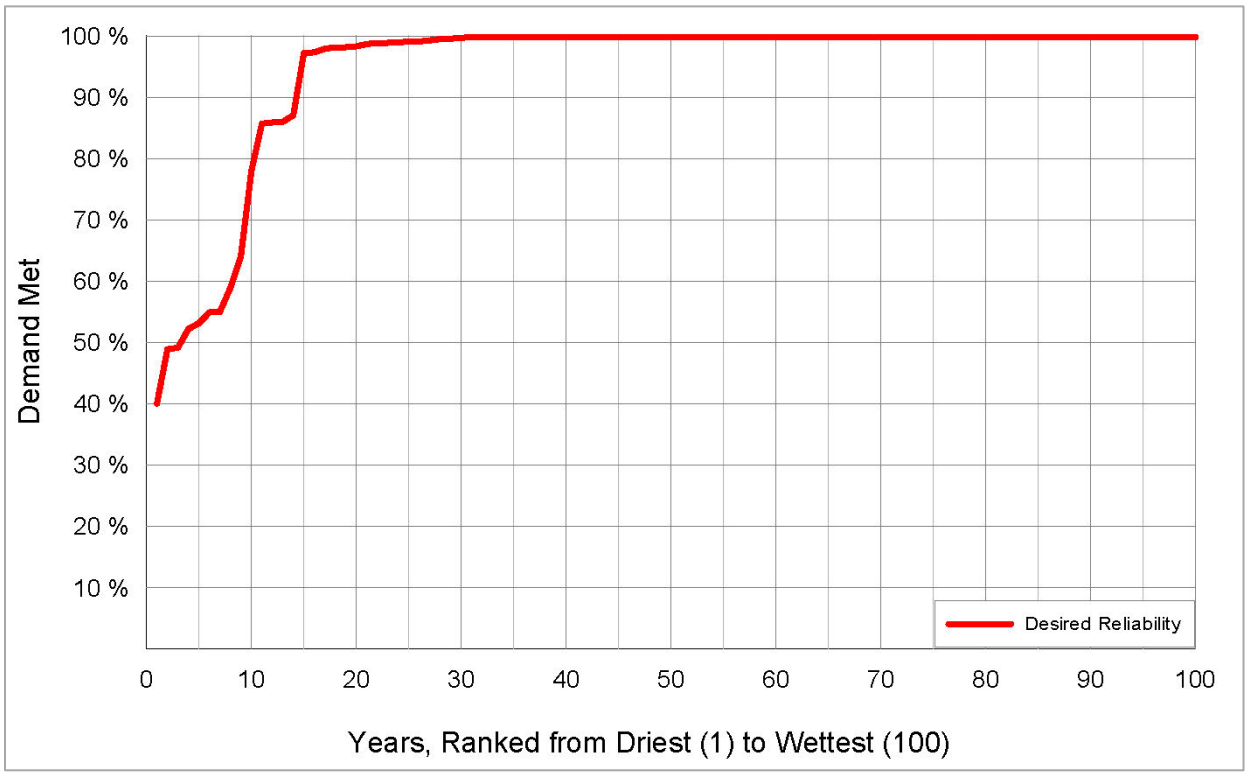


Figure 3.22—Operations model results for current conditions Truckee Division agricultural shortages. (It is assumed that, in the future, all Truckee Division water rights would be acquired for Fernley M&I and water quality improvement purposes.)

Figure C-1-2. TROA EIS/EIR Figure Depicting Potential Shortages to Agricultural Water Rights Holders in the Truckee Division for the Current Condition

Figure C-1-3 below illustrates water supply conditions under the Desired Reliability scenario used in this Study. It depicts 100 years of simulated water supply deliveries to Project water rights holders.



Notes:
Simulations based on 100-year hydrology for the Truckee and Carson river basins, 1901–2000.
Key:
cfs = cubic feet per second

Figure C-1-3. Newlands Project Planning Study Figure Depicting Desired Reliability for the Newlands Project

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