



Southern Nevada Water Authority Major Construction and Capital Plan February 2011





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Cover — Project No. 070F 01—Lake Mead Intake No. 3 Shafts and Tunnel. The underground chamber at the bottom of the 600-foot deep access shaft being prepared by Vegas Tunnel Constructors for reception and assembly of the tunnel boring machine.



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Chapter 1—Introduction

Background

The Southern Nevada Water Authority (SNWA) was established in 1991 by cooperative agreement among its members to cooperatively address Southern Nevada's unique water needs on a regional basis. SNWA's mission is to manage the region's water resources and develop solutions that will ensure adequate future water supplies for Southern Nevada.

The members of SNWA are comprised of the following agencies having significant responsibility for regional water resources:

- Big Bend Water District
- City of Boulder City
- City of Henderson
- City of Las Vegas
- City of North Las Vegas
- Clark County Water Reclamation District
- Las Vegas Valley Water District

Efforts to manage Southern Nevada's water resources in a cooperative manner began in the middle of the 20th century when local municipalities, the State of Nevada, and the federal government together began exploring alternatives to deliver Colorado River water to the Las Vegas Valley on an extensive scale. These efforts resulted in a plan for staged financing and construction of the Southern Nevada Water Project. Under the direction of the United States Bureau of Reclamation and the Colorado River Commission of Nevada, the first stage of facilities for pumping, treating and conveying up to 200 million gallons per day of Colorado River water from Lake Mead to the Las Vegas Valley and Boulder City was completed in 1971. An expansion of these facilities to a capacity of 400 mgd was accomplished in 1982. These facilities collectively became known as the Southern Nevada Water System (SNWS).

Ongoing growth in Southern Nevada and increasing demands on the SNWS prompted SNWA to engage community stakeholders in developing a **Capital Improvements Plan (CIP)** to expand the SNWS to a regional capacity of 900 mgd. By 1996, all the projects initiated by the Colorado River Commission over the previous three years and all of the projects identified through the SNWA's integrated planning process had been consolidated into a single CIP. These projects included a second water intake in Lake Mead, a new water treatment facility, and a substantial contingent of water pipeline, pumping, and power supply facilities.

As the progress of the CIP began to approach the goal of a total SNWS capacity of 900 mgd, SNWA recognized that a new capital plan was needed that would provide for accomplishment of capital endeavors that were not directly related to the 900 mgd system capacity goal. Such endeavors could include acquisition of additional water resources, including non-Colorado River resources, system repairs and replacements, water quality enhancements, construction of facilities for increased reliability, and acquisition of energy resources. To identify and authorize these endeavors, in 2002, SNWA created a new capital plan called the **Major Construction and Capital Plan (MCCP)**.

The MCCP has been updated annually and modified in size and scope since 2002 to appropriately meet the changing water needs of the community. In 2010, given that the original purpose of the CIP had been achieved and given the MCCP's greater role as the dynamic document that defines the future major capi-



tal initiatives of SNWA, the few remaining projects of the CIP were integrated into the MCCP and the MCCP became the single capital plan combining all authorized capital projects and initiatives into a unified document¹. It reports on the costs of all completed projects of the SNWA. It defines all authorized projects and initiatives for new facilities, acquisition of assets such as water and energy resources, and all other capital related activities. It also identifies estimated costs and schedules for all approved projects and initiatives.

Organization of the MCCP

The MCCP includes a wide variety of projects, acquisitions, and initiatives addressing various objectives. To facilitate clarity and order, projects, acquisitions and initiatives are organized by chapters corresponding to their general purpose or other distinguishing characteristics. Chapters may be added or phased out in future amendments according to current needs and conditions.

The chapters of this issue of the MCCP defining the projects, acquisitions, and initiatives currently approved for implementation are organized as follows:

Chapter 2 - Water Resources. Projects, acquisitions or initiatives defined in this chapter require capital funding but may not involve the construction of SNWA facilities. Examples include planning for and study of future facilities, purchasing water resources, funding for permanent water conservation achievements and participation in resource initiatives that allow Southern Nevada to share in Colorado River storage and efficiency improvements.

Chapter 3 - Power Supplies and Energy Resources. Projects, acquisitions or initiatives described in this chapter are associated with procuring, generating, or transmitting electrical power for the energy requirements of the SNWS.

Chapter 4 - General System Improvements. Projects, acquisitions or initiatives defined in this chapter include construction of new facilities; upgrades; repairs and replacement of existing facilities or equipment to maintain or improve system reliability; and studies or engineering efforts related to the mission of the SNWA.

Chapter 5 - Intake No. 3. The projects defined in this chapter are associated with the establishment of an additional water intake in Lake Mead to preserve the ability of SNWA to deliver water from Lake Mead under drought conditions.

The chapters include brief descriptions of each project, acquisition or initiative. For simplicity, every approved project, acquisition, or initiative described in each chapter is referred to as a “project”. Tables in each chapter provide pertinent information as follows:

- The expected year of completion for each project, with projects grouped together by expected year of completion.
- Project numbers and titles that are used to facilitate identification and management of project activities and costs.

¹The Las Vegas Wash Capital Improvements Plan defines projects and initiatives under an authorization and funding program separate from the MCCP. The Las Vegas Wash Capital Improvements Plan is not a part of the MCCP.



- Estimated costs to complete each project that include administration, design, construction, and contingency, as appropriate.

Some projects in the tables are indicated to be deferred in response to current economic conditions. The tables include estimated costs to complete deferred projects, but those costs are given in current dollars since their planned dates of completion are not defined.

In the appendices are found identification of candidate projects, abbreviations and notes, projected future cash flow, cost variances from the previous MCCP amendment, funding sources, and completed projects.

The MCCP will be periodically revised in response to future reliability, water quality, system capacity, and water resource needs and in accordance with the SNWS Facilities and Operations Agreement. Updates to the MCCP will summarize the current state of the MCCP, highlight changes from the previous published MCCP, and contain revised tables which indicate the current costs and forward direction of the MCCP.

Overview of Current Status

Since the last amendment of the MCCP, five projects with a total cost of \$139.4 million have been completed. Two new projects have been added and one project has been split off from an existing project. Three previously deferred projects have been reactivated.

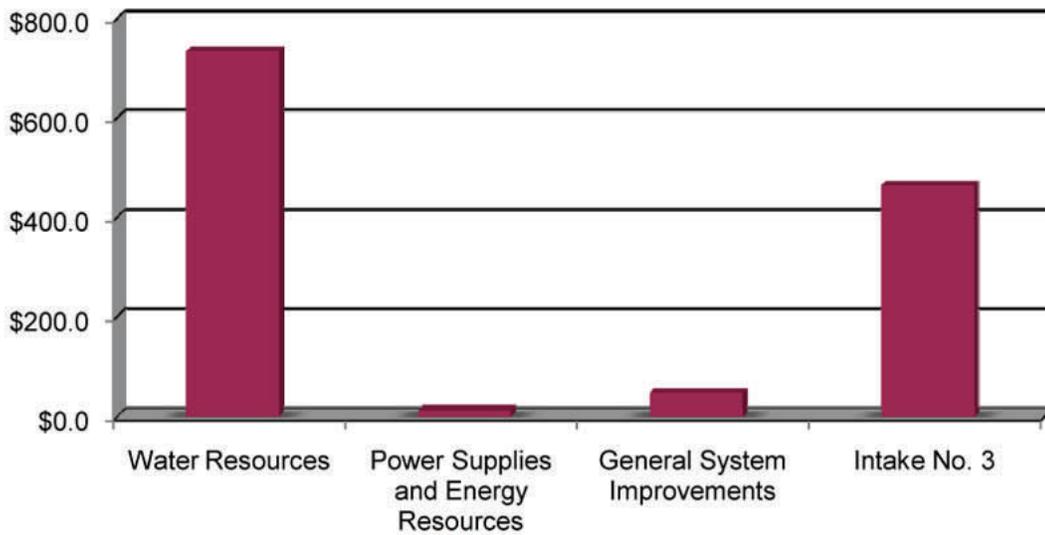
A total of 58 projects are defined by the MCCP, not including the completed projects. The current estimated total cost of these projects is \$2,593.1 million. However, 34 projects are to be deferred to reduce cash flow requirements during current economic difficulties. Deferred projects will be in stasis until economic conditions improve or necessity demands that a deferred project be reactivated. The total estimated savings from the deferred projects is \$394.6 million. Over 60% of this amount is a result of deferring components of the Intake No. 3 program. The remainder consists mostly of deferred general system improvements. The estimated future expenditures for the remaining active projects is \$1,258.4 million.

The 24 projects identified in this MCCP that continue to be active are in various stages of progress. Water resources and Intake No. 3 projects comprise over 90% of all active project costs.

Of these active projects, approximately \$902.7 million has already been spent. The following chart shows the estimated costs to complete the combined active projects of the MCCP.



Active Project Estimated Costs to Complete (\$ Millions)



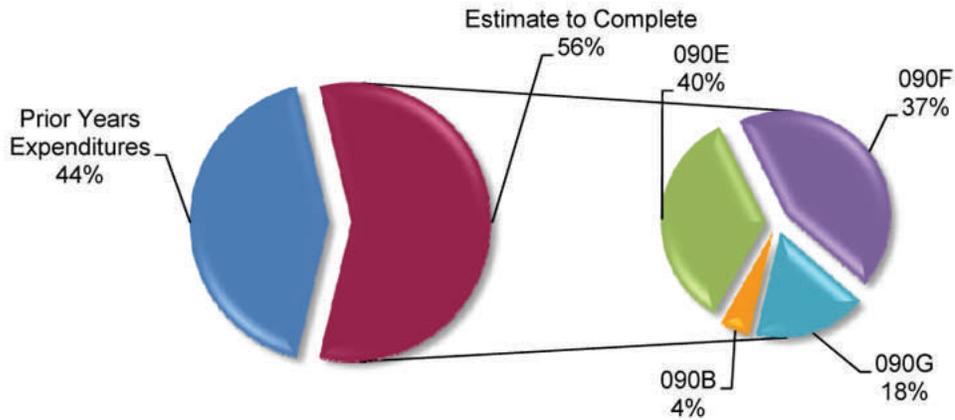


Chapter 2—Water Resources

Water resource projects require capital funding but may not involve the construction of SNWA facilities. Examples include planning for and study of future facilities to access and convey new water resources, purchasing new water resources, funding for the Water Smart Landscapes Rebate program, and resource initiatives such as Arizona Groundwater Banking. These water resources are more thoroughly defined in the SNWA Water Resource Plan.

The estimated total cost of the active water resources projects is \$1,306.9 million of which \$572.3 million has been spent and \$734.6 million is the estimated cost to completion as shown in the following chart.

Chapter 2 - Water Resources Active Project Cost Distribution (\$ Millions)



090B - Virgin and Muddy Rivers Water Resource Acquisition	\$33.0
090E - Interim Colorado River Supplies	\$292.8
090F - Water Resource Acquisition and Development	\$273.4
090G - Clark, Lincoln and White Pine Counties Groundwater Development	\$135.4
Estimate to Complete	\$734.6
Prior Years Expenditures	\$572.3



The summary table below groups the approved projects by the expected year of completion; however, many of these projects are of such a long-term, ongoing character that the identified completion year should be considered as very approximate.

Water Resources

Project Number and Title	Estimated Cost to Complete (Millions)
2020 Completion Year	
090B Virgin and Muddy Rivers Water Resources Acquisition	\$33.0
090F Water Resource Acquisition and Development	\$273.4
090G Clark, Lincoln and White Pine Counties Groundwater Development	\$135.4
2024 Completion Year	
090E Interim Colorado River Supplies	\$292.8
Total Number of Projects = 4	Total \$734.6

Deferred Projects

Project Number and Title	Estimated Cost to Complete (Millions)
090F06 Water Resource Acquisition and Development—Future Desalination Development	\$54.3
Total Number of Projects = 1	TOTAL \$54.3

Project Descriptions

090B – Virgin and Muddy Rivers Water Resources Acquisition

These costs represent acquisition of water shares in the Muddy Valley Irrigation Company and other water rights on the Muddy River and Virgin River.

090E – Interim Colorado River Supplies

This project includes funding for the Arizona Banking project and the Brock Reservoir on the All American Canal in California. The Arizona Banking project includes banking of Colorado River water in Arizona for Nevada's future use. An April 1, 2009 second amended agreement between the Southern Nevada Water Authority (SNWA), the Colorado River Commission (CRC) of Nevada and the Arizona Water Banking Authority (AWBA) guarantees 1.25 million acre-feet of water will be banked as long-term storage credits for the SNWA, including previously established storage credits. At the end of the calendar year 2010, AWBA has stored an estimated 600,252 acre-feet of the 1.25 million acre-feet of storage credits to be banked for SNWA. The second amended agreement allows SNWA to recover a maximum of 40,000 acre-feet annually (68,000 AFY with return flow credits) for consumptive use in Nevada until all the storage credits have been recovered or the year 2060.



The Brock Reservoir will store Colorado River water ordered by the Imperial Irrigation District, but not immediately needed, at the Brock Reservoir on the All American Canal in California's Imperial Valley. The storage of water in this reservoir will improve the efficiency of the Colorado River system and reduce system losses. By funding this reservoir, the Authority will obtain the rights to a significant volume of additional Colorado River water. These water supplies are akin to those acquired through the Arizona Groundwater Banking agreement. The cost of funding the Brock Reservoir has been combined with the cost for Arizona Groundwater Banking in a revision of the previously approved Project No. 090E, now called Interim Colorado River Supplies.

090F – Water Resource Acquisition and Development

Funding is provided to acquire water rights and to develop the water resources needed to meet the needs of the Southern Nevada community. These water resources include the Colorado River and Nevada's in-state water resources. For example, purchase of ranches in northern Nevada allows SNWA to acquire water rights to manage groundwater development in a manner that protects the environmental value of the area and the sustainability of the basin's aquifer. Funding is also provided for preliminary augmentation studies for brackish and ocean desalination and river basin imports to help meet long-term future needs. Funding for this project was increased in 2009 to include the ongoing costs of the Water Smart Landscapes Rebate program, which permanently removes high water use turf from residences and businesses in favor of low water use landscaping.

090F06 – Water Resource Acquisition and Development – Future Desalination Development

Funding for this project is associated with development of brackish and ocean desalination facilities to help meet the long-term needs of the Southern Nevada community.

090G – Clark, Lincoln and White Pine Counties Groundwater Development

Activities for this project include hydrologic studies, drilling of wells, preliminary facility planning and design, and environmental analysis required to secure permits and federal approvals for development of groundwater resources in Clark, Lincoln, and White Pine counties. Currently funding for this project does not include funding for design and construction of facilities.

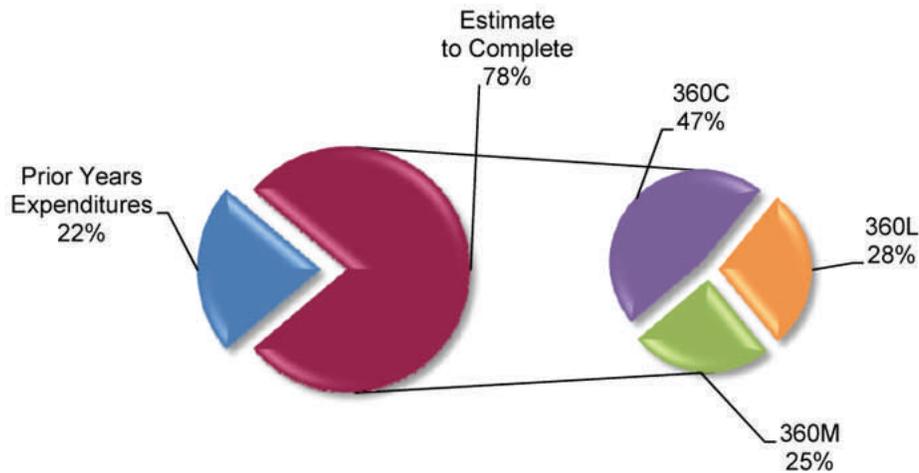


Chapter 3 - Power Supplies and Energy Resources

Projects in this chapter are associated with procuring, generating, or transmitting electrical power for the energy requirements of the SNWS. One project is listed as “deferred” in response to current economic conditions as projects are prioritized according to need and available funding.

The estimated total cost of the active power supplies and energy resources projects is \$16.6 million of which \$3.7 million has been spent and \$12.9 million is the estimated cost to completion as shown in the following chart.

Chapter 3 - Power Supplies and Energy Resources Active Project Cost Distribution (\$ Millions)



360C - Electric Power Transmission Facilities	\$6.1
360L - Arrow Canyon Energy Recovery Hydroturbine	\$3.6
360M - Renewable Energy Project Development	\$3.2
Estimate to Complete	\$12.9
Prior Years Expenditures	\$3.7

Active Projects

Project Number and Title	Estimated Cost to Complete (Millions)
2012 Completion Year	
360L Arrow Canyon Energy Recovery Hydroturbine	\$3.6
Beyond 2015 Completion Year	
360C Electric Power Transmission Facilities	\$6.1
360M Renewable Energy Project Development	\$3.2
Total Number of Projects = 3	TOTAL \$12.9



Deferred Projects

Project Number and Title	Estimated Cost to Complete (Millions)
360H Pumping Station Electrical Transformer Repairs	\$0.9
Total Number of Projects = 1	TOTAL \$0.9

Project Descriptions

360C – Electric Power Transmission Facilities

Plan, design and permit electric power transmission facilities to deliver electric power from generating resources and other power-purchase locations to water pumping and other identified loads.

360H – Pumping Station Electrical Transformer Repairs

Recondition or replace substation transformers at existing pumping stations.

360L – Arrow Canyon Energy Recovery Hydroturbine

Construct an energy recovery facility on the Coyote Spring Valley to Moapa Valley Transmission Pipeline along with electrical transmission conductors to convey the energy to the power grid. Right-of-Way for this project has been granted by the Bureau of Land Management and a license has been issued by the Federal Energy Regulatory Commission.

360M – Renewable Energy Project Development

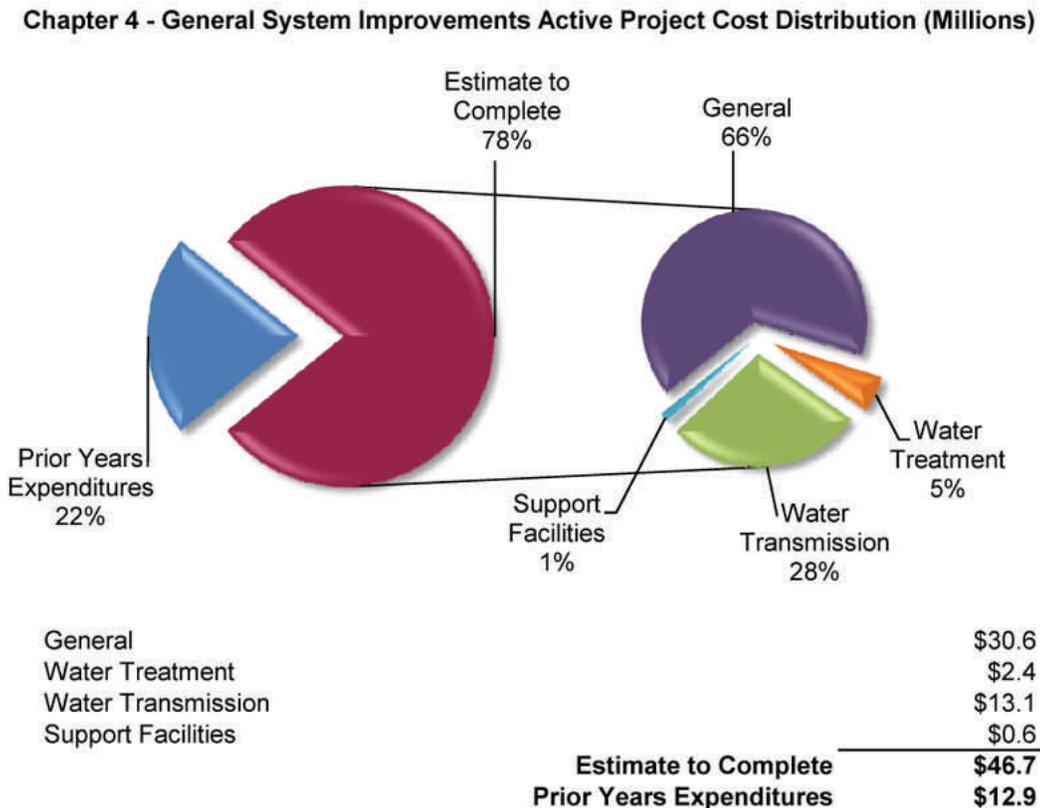
Fund feasibility studies of potential renewable energy projects. Feasibility studies will provide guidance on whether to proceed with implementation of projects.



Chapter 4 - General System Improvements

Projects, acquisitions or initiatives defined in this chapter include construction of new facilities; upgrades; repairs and replacement of existing facilities or equipment to maintain or improve system reliability; and studies or engineering efforts related to the mission of the SNWA. Some projects are shown to be “deferred” in response to current economic conditions as projects are prioritized according to need and available funding. Completion dates for deferred projects will be evaluated and defined in future MCCP amendments.

The estimated total cost of the active general system improvements projects is \$59.6 million of which \$12.9 million has been spent and \$46.7 million is the estimated cost to completion as shown in the following chart.



Active Projects

Project Number and Title	Estimated Cost to Complete (Millions)
2011 Completion Year	
General	
300M AMSWTF Miscellaneous Facilities Improvements	\$0.6
Support Facilities	
370S Mold Abatement at River Mountains Water Treatment Facility	\$0.3

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Active Projects — Continued

Project Number and Title	Estimated Cost to Complete (Millions)
2012 Completion Year	
General	
300H Facilities PLC Upgrades	\$1.8
Water Treatment	
320N AMSWTF A & B Clearwells Slide Gate Actuators	\$0.2
Water Transmission	
340B PO1A, 2A, 1B, 2B Pump Repairs and Flow Meter Installation	\$0.2
340V Sleeve and Miscellaneous Valve Repairs	\$1.7
Support Facility	
3700 AMSWTF Utility Building Air Handler Replacement	\$0.3
2013 Completion Year	
Water Treatment	
320P AMSWTF Chlorine Building I Rehabilitation	\$0.3
Water Transmission	
340D PS 1C, 2C, Sloan, Lamb, BPS1A, and BPS2 VFD Enhancements	\$2.3
340E Sleeve Valve Installation at Galleria, Simmons and Carlton ROFC Stations	\$0.2
340R Transmission Pipelines Cathodic Corrosion Protection - Phase 2	\$6.9
340X Simmons ROFCS Pipeline Repairs	\$1.8
2014 Completion Year	
General	
300E Control System Improvements	\$28.2
Water Treatment	
320F AMSWTF Filtration System Valve Repairs	\$1.9
Total Number of Projects = 14	TOTAL \$46.7



Deferred Projects

Project Number and Title	Estimated Cost to Complete (Millions)
General	
300A	PS6-Valley View Regulating Tank Security and Offsite Improvements \$1.1
300K	AMSWTF Flocculation Channel Concrete Repairs \$0.3
300L	Regulating Tank 6 Onsite and Offsite Improvements \$1.0
Water Supply	
310B	Three Lakes Valley Groundwater Development \$1.5
310G	Las Vegas Wash Flow Measurement Facility \$0.4
Water Treatment	
320B	Remodel Former AMSWTF Laboratory Spaces \$1.3
320I	AMSWTF Pilot Plant \$0.8
320O	AMSWTF Filter Improvements Demonstration \$0.8
320Q	AMSWTF Process Drainage Improvements \$0.9
320T	Water Quality Testing Equipment \$0.8
Water Transmission	
13010H	Disinfection Facilities: Horizon/Parkway/Bermuda \$3.3
19010D	Bermuda ROFCS Modifications \$0.8
20010A	Sloan 2160 PS Expansion \$12.9
20010B	Lamb 2350 PS Expansion \$8.1
20010C	Decatur 2538 PS Expansion \$8.1
20010D	Decatur 2350 Reservoir Expansion \$10.0
340C	Hacienda Pumping Station Improvements \$2.2
340J	Ductile Iron Pump Inspection and Evaluation \$0.3
340N	Stage II ROFC Isolation Valve Replacements \$2.8
340Q	Transmission Pipelines Discharge Modifications \$16.4
340S	South Valley Lateral Isolation Valves - Phase 1 \$10.4
340T	Sloan Pumping Station Foundation Repairs \$0.2
340U	Valve Operator Access Upgrades \$0.7
340W	BIF Venturi Flow Control Valve Unit Replacements \$2.8

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Deferred Projects

Project Number and Title		Estimated Cost to Complete (Millions)
Support Facility		
370A	Production Group Satellite Facility	\$0.2
370I	Evaporative Cooler Upgrades	\$2.8
370M	AMSWTF Machine Shop HVAC Unit Replacement	\$0.1
370Q	Machine Shop Equipment	\$2.7
370R	RMWTF Fire Alarm System Replacement	\$1.1
Total Number of Projects = 29		TOTAL \$94.8



Project Descriptions – General

300A – PS6 - Valley View Regulating Tank Security and Offsite Improvements

Construct security and off-site improvements, including walls, gates, sidewalks, curbs and gutters, lighting and landscaping at Pumping Station No. 6 and at the Valley View Regulating Tank.

300E – Control System Improvements

Phase 1 of this project defined requirements, evaluated potential systems and developed project criteria for a new Supervisory Control and Data Acquisition System (SCADA) for the entire Southern Nevada Water System. The Phase 2 effort is for design of the recommended system components and initial implementation of the SCADA system replacement.

300H – Facilities PLC Upgrades

Upgrade the programmable logic controllers at the pumping stations and rate-of-flow control stations of the SNWS.

300K – AMSWTF Flocculation Channel Concrete Repairs

Repair deteriorated concrete and access hatches in the area of the flocculation channels at the Alfred Merritt Smith Water Treatment Facility.

300L – Regulating Tank 6 Onsite and Offsite Improvements

Connect the regulating tank overflow pipeline to the Stewart Reservoir overflow system, construct a perimeter wall, and landscape the site.

300M – AMSWTF Miscellaneous Facilities Improvements

Accomplish a range of miscellaneous small improvement projects involving grading, drainage, piping, and mechanical and electrical systems.

Project Descriptions – Water Supply

310B – Three Lakes Valley Groundwater Development

Construct approximately 130,000 LF of 30-inch pipeline, up to 9 wells, required treatment facilities, a rate of flow control and hydroturbine facility, monitoring wells, power supply system and related appurtenances.

310G – Las Vegas Wash Flow Measurement Facility

Develop concepts for and construct a flow measurement facility in the Las Vegas Wash downstream of Lake Las Vegas to accurately measure base and flood flows from all sources of the Las Vegas Valley.

Project Descriptions – Water Treatment

320B – Remodel Former AMSWTF Laboratory Spaces

Remodel the former laboratory space at the AMSWTF. The remodeled space will house Maintenance Engineering and computer server equipment. It will also provide for a group assembly area.



320F – AMSWTF Filtration System Valve Repairs

Repair or replace valves and valve actuators in the filtration systems at the Alfred Merritt Smith Water Treatment Facility, including filter influent and effluent valves, wash water valves and air valves for filters 1 through 20.

320I – Alfred Merritt Smith Water Treatment Facility Pilot Plant

Construct a 10,000 square-foot, 10-gpm pilot plant for evaluation and optimization of treatment processes specific to the water quality characteristics at the AMSWTF.

320N – AMSWTF A and B Clearwells Slide Gate Actuators

Purchase and install new slide gate actuators with waterproof enclosures for the A and B Clearwells at the Alfred Merritt Smith Water Treatment Facility. Repair or replace the Stage 1 gates as necessary, particularly Forebay 2 Aqueducts A and B inlet gates.

320O – AMSWTF Filter Improvements Demonstration

Implement recommended improvements to the media and underdrain systems of one filter basin to demonstrate the effectiveness of the recommended improvements.

320P – AMSWTF Chlorine Building I Rehabilitation

Recalibrate tanker scales, test chlorine piping, and repaint the building.

320Q – AMSWTF Process Drainage Improvements

Incorporate improvements to allow hydraulic components and structures of the Alfred Merritt Smith Water Treatment Facility to be drained more quickly.

320T – Water Quality Testing Equipment

Procure new and replacement equipment for testing water quality characteristics.

Project Descriptions – Water Transmission

13010H – Disinfection Facilities: Horizon/Parkway/Bermuda

The project consists of the mass excavation and structural backfill, construction of three concrete and CMU block chlorination buildings including sodium hypochlorite storage tanks, chemical metering pumps, sampling and control systems, dilution water makeup systems, HVAC electrical, site paving and grading at the three locations. The design capacities differ at each location. Parkway-1 mgd, Bermuda-23 mgd, and Horizon Ridge-14 mgd.

19010D – Bermuda ROFCS Modifications

This project increases the capacity of the Bermuda ROFC Station from 80 mgd to 115 mgd.

20010A – Sloan 2160 PS Expansion

This project increases the capacity of the Sloan Pumping Station from 111 mgd to 175 mgd.



20010B – Lamb 2350 PS Expansion

This project increases the capacity of the Lamb Pumping Station from 111 mgd to 175 mgd.

20010C – Decatur 2538 PS Expansion

This project increases the capacity of the Decatur Pumping Station from 81 mgd to 105 mgd.

20010D – Decatur 2350 Reservoir Expansion

This project increases the capacity of the Decatur Reservoir from 20 MG to 30 MG.

340B – PS1A, 2A,1B, 2B Pump Repairs and Flow Meter Installation

Repair or replace impellers, shafts, seal rings, bearings, and casings on up to 28 pumps and install individual flow meters at Pumping Stations 1A, 2A, 1B, and 2B.

340C – Hacienda Pumping Station Improvements

Repair shafts, impellers, wear rings and bearings, machine pump casings, and grout pump bases, as needed, on seven pumps. Upgrade electrical switchgear and control system. Construct block wall and improve on-site and off-site drainage at Hacienda Pumping Station and Pumping Station No. 6.

340D – PS 1C, 2C, BPS1A, and BPS2 Variable Frequency Drive Enhancements

Enhance variable frequency drive backup capability by installing additional electrical gear for alternate constant speed operation in Pumping Stations 1C, 2C, BPS1A, and BPS2.

340E – Sleeve Valve Installation at Galleria, Simmons and Carlton ROFC Stations

Install sleeve valves to replace existing ball valves at the Galleria, Gibson, Simmons, and Carlton Rate-of-Flow Control Stations.

340J – Ductile Iron Pump Inspection and Evaluation

Inspect and evaluate ductile iron pumps within the Southern Nevada Water System to assess corrosion effects and corrosion protection systems.

340N – Stage II ROFC Isolation Valve Replacements

Replace isolation valves in the Stage II rate-of-flow control stations.

340Q – Transmission Pipelines Discharge Modifications

Modify various discharge facilities on transmission pipelines to improve pipeline drain times and reduce potential impacts from water discharges.

340R – Transmission Pipelines Cathodic Corrosion Protection System Repairs - Phase 2

Conduct a condition assessment study of Stage I, Stage II, CRC and CIP Laterals and repair and upgrade the overall cathodic protection systems for these laterals.

340S – South Valley Lateral Isolation Valves - Phase 1

Construct two isolation valves on the South Valley Lateral proximate to the College, Black Mountain, and Horizon Ridge Rate-of-Flow Control Stations.

340T – Sloan Pumping Station Foundation Repairs

Make repairs to address differential settlement in structural foundations.



340U – Valve Operator Access Upgrades

Modify valve vault structures, modify valve actuators, and install ladders at facilities on the South Valley Lateral and at the Foothills facilities site to improve operator access to system water valves.

340V – Sleeve and Miscellaneous Valve Repairs

Procure and install replacement valves at selected facilities.

340W – BIF Venturi Flow Control Valve Unit Replacements

Replace 12 existing BIF Venturi flow control valve units with new units.

340X – Simmons ROFCS Pipeline Repairs

Evaluate and make appropriate repairs to buried pipeline couplings associated with the rate-of-flow control station at the Simmons Pumping Station.

Project Descriptions – Support Facilities

370A – Production Group Satellite Facility

Evaluate alternatives for establishing a satellite maintenance facility in the Las Vegas Valley for the SNWS Production Group.

370I – Evaporative Cooler Upgrades

Replace the evaporative coolers at fourteen different pumping stations with more efficient evaporative coolers.

370M – AMSWTF Machine Shop HVAC Unit Replacement

Replace the heating, ventilating, and air conditioning unit in the machine shop at the Alfred Merritt Smith Water Treatment Facility.

370O – AMSWTF Utility Building Air Handler Replacement

Replace existing air handlers in the Utility Building at the Alfred Merritt Smith Water Treatment Facility.

370Q – Machine Shop Equipment

To procure special machinery, tools and equipment required to perform maintenance and repairs on the vertical turbine pumps and horizontal split case pumps within the system.

370R – RMWTF Fire Alarm System Replacement

Replace the current fire detection and alarm system at the River Mountains Water Treatment Facility, along with installation of fiber optic communication cables.

370S – Mold Abatement at River Mountains Water Treatment Facility

Abatement and demolition of contaminated ceilings and fire walls, relocation of fire sprinkler systems and replacement of fire walls, patching of roof leaks and potential chemical line relocations.

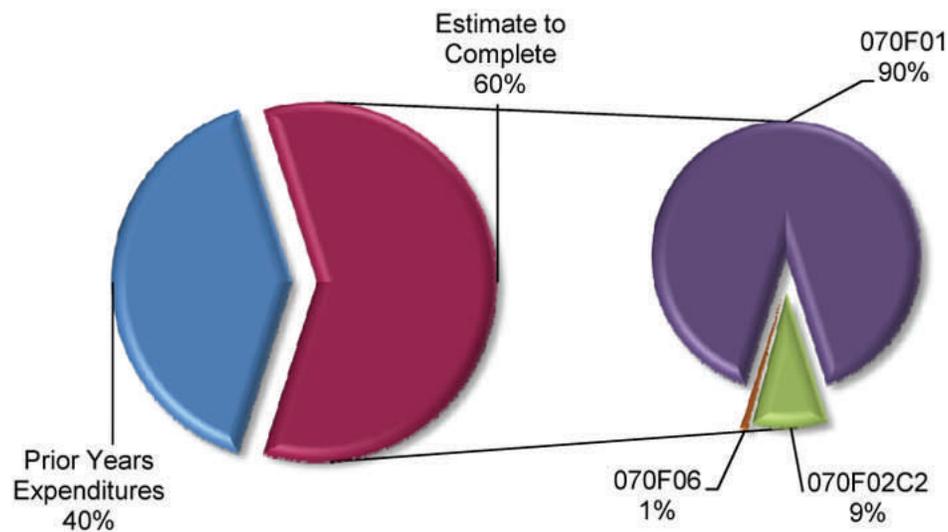


Chapter 5 - Intake No. 3

The projects defined in this chapter are associated with the establishment of an additional water intake in Lake Mead to preserve the ability of SNWA to deliver water from Lake Mead under drought conditions. Some project components of Intake No. 3 have been deferred in response to current economic conditions. The active projects will meet the critical objectives of Intake No. 3 in the near term. Completion dates for deferred projects will be evaluated and defined in future MCCP amendments.

The estimated total cost of the active Intake No. 3 projects is \$778.0 million of which \$313.8 million has been spent and \$464.2 million is the estimated cost to completion as shown in the following chart.

Chapter 5 - Intake No. 3 Active Project Cost Distribution (\$ Millions)



070F01 - Lake Mead Intake No. 3 Shafts and Tunnel	\$419.2
070F02C2 - Intake No. 3 - Connector Tunnel	\$41.2
070F06 - Lake Mead Intake No. 3 Chemical Feed System	\$3.8
Estimate to Complete	\$464.2
Prior Years Expenditures	\$313.8

Active Projects

Project Number and Title	Estimated Cost to Complete (Millions)
2014 Completion Year	
Water Supply	
070F01 Lake Mead Intake No. 3 Shafts and Tunnel	\$419.2
070F02C2 Intake No. 3—Connector Tunnel	\$41.2
070F06 Lake Mead Intake No. 3 Chemical Feed System	\$3.8
Total Number of Projects = 3	Total \$464.2



Deferred Projects

Project Number and Title	Estimated Cost to Complete (Millions)
070F02C1 Intake No. 3 Pumping Station	\$207.9
070F03 Intake No. 3 Pumping Station Power Supply Facilities	\$9.0
070F04 Intake No. 3 Pumping Station Discharge Pipeline	\$27.7
Total Number of Projects = 3	Total \$244.6

Project Description

070F01 - Lake Mead Intake No. 3 Shafts and Tunnel

Construct a submerged water intake shaft or riser structure on the lake bottom with an intake elevation of 860 feet, along with approximately 3 miles of 20-foot diameter tunnel under the lake from the new intake shaft to a new access shaft at the shoreline of Lake Mead near the Alfred Merritt Smith Water Treatment Facility. This intake and tunnel will replace the at-risk capacity of the existing Intake No. 1 and provide access to the better quality water deeper in the lake.

070F02C1 - Intake No. 3 Pumping Station

Construct a 600 million gallon per day pumping station to convey water from the new Intake No. 3 to the existing Alfred Merritt Smith Water Treatment Facility.

070F02C2 - Intake No. 3 Connector Tunnel

Construct a tunnel between the new access shaft of the 070F01 Project and the existing Intake No. 2. This connector tunnel will have a capacity of 600 million gallons per day and will allow the water from Intake No. 3 to be conveyed to the River Mountains Water Treatment Facility through Intake Pumping Station No. 2.

070F03 - Intake No. 3 Pumping Station Power Supply Facilities

Construct new power transmission lines and a power substation to supply electric power for the new pumping station.

070F04 - Intake No. 3 Pumping Station Discharge Pipeline

Construct a pipeline to convey water from the new pumping station to the existing Alfred Merritt Smith Water Treatment Facility.

070F06 - Lake Mead Intake No. 3 Chemical Feed System

Construct the chemical feed systems required to control quagga mussels in the water intake systems. The work of this project includes evaluation of alternatives, preliminary design, design and construction in two phases. The first phase will provide chemical feed facilities for existing intakes and the second phase will provide the chemical feed system for Intake No. 3.



Appendix A - Candidate Projects

The following projects are candidates for potential future approval. These candidate projects are conceptual, with uncertain schedule and cost projections that are subject to change. As more definitive information about the possible scope and schedule of these projects becomes available, they may become active projects in future amendments of this document or they may be dropped from further consideration. Estimated costs are not part of the total cost of the MCCP.

Project Title	Estimated Cost (Millions)
Athens Rate-of-Flow Control Station	\$10.0
Losee Rate-of-Flow Control Station	\$10.0



Appendix B - Abbreviations and Notes

Abbreviations

AMS	-	Alfred Merritt Smith
AWBA	-	Arizona Water Banking Authority
AFY	-	Acre Feet per Year
BPS	-	Booster Pumping Station
CRC	-	Colorado River Commission
EVL	-	East Valley Lateral
GAC	-	Granular Activated Carbon
GWD	-	Groundwater Development
HWL	-	High Water Level
IPS	-	Intake Pumping Station
ISWR	-	In-state Water Resources
MG	-	Million Gallons
mgd	-	Million Gallons per Day
NVL	-	North Valley Lateral
PS	-	Pumping Station
RM	-	River Mountains
ROFCS	-	Rate of Flow Control Station
SNWA	-	Southern Nevada Water Authority
SNWS	-	Southern Nevada Water System
SVL	-	South Valley Lateral
WTF	-	Water Treatment Facility

Notes

Category Descriptions

General category projects include control systems, security and building improvements and upgrades, and other work that does not fall under categories listed below.

Water Supply projects relate to new water or water supply, groundwater facility planning and development, and construction and installation of equipment and facilities.

Water Treatment projects in this category include water treatment studies, pilot plant construction, repair of existing treatment system components, equipment purchase and installation to improve water quality.

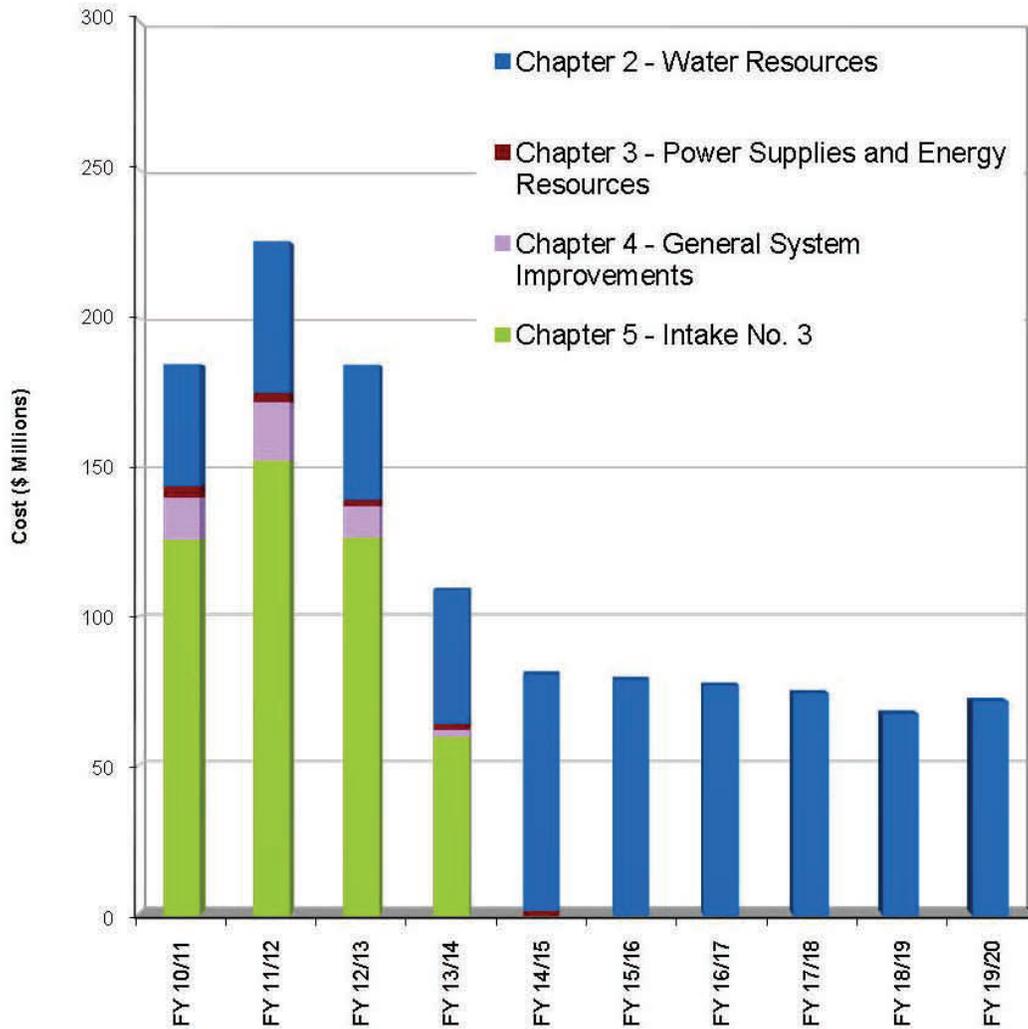
Water Transmission projects in this category relate to the development of new water transmission facilities, pipeline repair, and equipment purchase and installation to improve or maintain water transmission capabilities.

Support Facilities includes projects that are required to support and maintain the operation of the regional water delivery system.



Appendix C - Cash Flow

Projected Cash Flow (active projects as of 1/21/11)



	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20
Chapter 2 - Water Resources	40.6	50.8	44.9	45.0	79.2	79.0	77.0	74.4	67.6	71.9
Chapter 3 - Power Supplies and Energy Resources	3.8	3.1	2.2	2.0	1.7	-	-	-	-	-
Chapter 4 - General System Improvements	14.1	19.5	10.5	2.4	-	-	-	-	-	-
Chapter 5 - Intake No. 3	125.9	152.1	126.5	59.8	-	-	-	-	-	-



Appendix D - Variance Report

Active and Completed Projects

Project No.	Project Title	Cost (\$ Millions) ^{1,2}				Actual Costs thru Jun 30, 2010
		Feb 2010	Feb 2011	Adjustment	New Projects	
Chapter 2 - Water Resources						
090B	Virgin and Muddy Rivers Water Resource Acquisition	124.9	134.8	9.9		101.8
090E	Interim Colorado River Supplies	472.3	527.9	55.6		235.1
090F	Water Resource Acquisition and Development ⁵	149.2	389.4	240.2		116.0
090G	Clark, Lincoln and White Pine Counties Groundwater Development	126.4	254.8	128.4		119.4
		872.8	1,306.9	434.1		572.3
Chapter 3 - Power Supplies and Energy Resources						
360C	Electric Power Transmission Facilities	5.1	6.4	1.3		0.3
360L	Arrow Canyon Energy Recovery Hydroturbine	4.1	3.7	-0.4		0.1
360M	Renewable Energy Project Development	5.1	6.5	1.4		3.3
		14.3	16.6	2.3		3.7
Chapter 4 - General System Improvements						
300E	Control System Improvements	21.4	33.6	12.2		5.4
300H	Facilities PLC Upgrades	4.9	4.9	0.0		3.1
300M	AMSWTF Miscellaneous Facilities Improvements	0.2	0.6	0.4		0.0
310F	IPS-2 Test Pump Procurement and Installation ¹	43.1	42.0	-1.1		42.0
320F	AMSWTF Filtration System Valve Repairs ⁴	1.5	1.9	0.4		0.0
320N	AMSWTF A and B Clearwells Slide Gate Actuators	0.4	0.4	0.0		0.2
320P	AMSWTF Chlorine Building I Rehabilitation	0.2	0.3	0.1		0.0
320S	Quagga Mussel Evaluation and Control Facilities ¹	0.4	0.4	0.0		0.4
340A	Coyote Spring Valley Well and Moapa Transmission System ¹	64.7	53.7	-11.0		53.7
340B	PS 1A, 2A, 1B and 2B Pump Repairs and Flow Meter Installation	0.7	0.6	-0.1		0.4
340D	PS 1C, 2C, Sloan, Lamb, BPS1A, & BPS2 Variable Frequency Drive Enhancements ⁴	1.7	2.3	0.6		0.0
340E	Sleeve Valve Installation at Galleria, Simmons and Carlton ROFC Stations	0.6	0.6	0.0		0.4
340R	Transmission Pipelines Cathodic Corrosion Protection - Phase 2	7.8	9.8	2.0		2.9
340V	Sleeve and Miscellaneous Valve Repairs	3.3	2.2	-1.1		0.5
340X	Simmons ROFCS Pipeline Repairs ⁴	0.9	1.8	0.9		0.0
370B	Security System Upgrades ¹	4.4	4.0	-0.4		4.0
370O	AMSWTF Utility Building Air Handler Replacement	0.3	0.3	0.0		0.0
370S	Mold Abatement at River Mountains Water Treatment Facility	0.0	0.3	0.3	0.3	0.0
		156.5	159.7	3.2	0.3	113.0
Chapter 5 - Intake No. 3						
070F01	Lake Mead Intake No. 3 Shafts and Tunnel	613.6	686.0	72.4		266.8
070F02C2	Intake No. 3 - Connector Tunnel	55.9	88.2	32.3		47.0
070F05	Lake Mead Intake No. 2 Connection and Modifications ¹	40.1	39.3	-0.8		39.3
070F06	Lake Mead Intake No. 3 Chemical Feed System	0.0	3.8	3.8	3.8	0.0
		709.6	817.3	107.7	3.8	353.1
Active and Completed Projects Total		1,753.2	2,300.5	547.3	4.1	1,042.1



Appendix D - Variance Report — Continued

Deferred Projects ³

Project No.	Project Title	Cost (\$ Millions)				
		Feb 2010	Feb 2011	Adjustment	New Projects	Actual Costs thru Jun 30, 2010
Chapter 2 - Water Resources						
090F06	Water Resource Acquisition and Development - Future Desalination Development		54.3	54.3		0.0
		0.0	54.3	54.3	0.0	0.0
Chapter 3 - 1)						
360H	Pumping Station Electrical Transformer Repairs	0.9	0.9	0.0		0.0
		0.9	0.9	0.0	0.0	0.0
Chapter 4 - General System Improvements						
13010H	Disinfection Facilities - Horizon/Parkway/Bermuda	3.6	3.6	0.0		0.3
19010D	Bermuda ROFCs Modifications	0.8	0.8	0.0		0.0
20010A	Sloan 2160 PS Expansion (64 mgd/175 mgd total)	12.9	12.9	0.0		0.0
20010B	Lamb 2350 PS Expansion (64 mgd/175 mgd total)	8.1	8.1	0.0		0.0
20010C	Decatur 2538 PS Expansion (24 mgd/78 mgd total)	8.1	8.1	0.0		0.0
20010D	Decatur 2350 Reservoir Expansion (10 MG/30 MG total)	10.0	10.0	0.0		0.0
300A	PS6 - Valley View Regulating Tank Security and Offsite Improvements	1.2	1.2	0.0		0.1
300K	AMSWTF Flocculation Channel Concrete Repairs	0.3	0.3	0.0		0.0
300L	Regulating Tank 6 Onsite and Offsite Improvements	1.0	1.0	0.0		0.0
310B	Three Lakes Valley Groundwater Development	4.1	4.1	0.0		2.6
310G	Las Vegas Wash Flow Measurement Facility	0.4	0.4	0.0		0.0
320B	Remodel Former AMSWTF Laboratory Spaces	2.0	2.0	0.0		0.7
320I	AMSWTF Pilot Plant	1.3	1.3	0.0		0.5
320O	AMSWTF Filter Improvements Demonstration	0.8	0.8	0.0		0.0
320Q	AMSWTF Process Drainage Improvements	1.1	1.1	0.0		0.2
320T	Water Quality Testing Equipment	0.8	0.8	0.0		0.0
340C	Hacienda Pumping Station Improvements	9.4	9.4	0.0		7.2
340J	Ductile Iron Pump Inspection and Evaluation	0.3	0.3	0.0		0.0
340N	Stage II ROFC Isolation Valve Replacements	3.5	3.5	0.0		0.7
340Q	Transmission Pipelines Discharge Modifications	17.9	17.9	0.0		1.5
340S	South Valley Lateral Isolation Valves - Phase 1	10.4	10.4	0.0		0.0
340T	Sloan Pumping Station Foundation Repairs	0.2	0.2	0.0		0.0
340U	Valve Operator Access Upgrades	0.7	0.7	0.0		0.0
340W	BIF Venturi Flow Control Valve Unit Replacements	2.8	2.8	0.0		0.0
370A	Production Group Satellite Facility	0.2	0.2	0.0		0.0
370I	Evaporative Cooler Upgrades	2.8	2.8	0.0		0.0
370M	AMSWTF Machine Shop HVAC Unit Replacement	0.1	0.1	0.0		0.0
370Q	Machine Shop Equipment	2.7	2.7	0.0		0.0
370R	RMWTF Fire Alarm System Replacement	1.1	1.1	0.0		0.0
		108.6	108.6	0.0	0.0	13.8
Chapter 5 - Intake No. 3						
070F02C1	Intake No. 3 Pumping Station	229.9	229.9	0.0		22.0
070F03	Intake No. 3 Pumping Station Power Supply Facilities	9.0	9.0	0.0		0.0
070F04	Intake No. 3 Pumping Station Discharge Pipeline	29.3	29.3	0.0		1.6
		268.2	268.2	0.0	0.0	23.6
Deferred Projects Total		377.7	432.0	54.3	0.0	37.4
All Projects Total		2,130.9	2,732.5	601.6	4.1	1,079.5

¹ Final costs for projects completed since the last amendment are subject to adjustments where expenditures may be incurred after June 30, 2010

² Administrative costs have been proportionately distributed into project costs beginning with the 2010 amendment

³ Deferred projects - amounts are in 2009 dollars and do not include allowances for inflation

⁴ 320F, 340D, and 340X were moved from Deferred to Active status

⁵ Future desalination development under Project No. 090F has been transitioned to the Deferred Projects List as Project No. 090F06



Appendix E - Project Funding Sources

Projects of the MCCP are funded under the Regional funding plan or the Wholesale Delivery Charge, or a combination of both. This appendix defines the intended funding source for each project.

Regional Funding Plan (includes Regional Connection Charge, Regional Commodity Charge, Regional Reliability Charge, State Sales Tax, Southern Nevada Public Land Management Act)

Project No.	Project Title
070F01	Lake Mead Intake No. 3 Shafts and Tunnel
070F02C1	Intake No. 3 Pumping Station
070F02C2	Intake No. 3 - Connector Tunnel
070F03	Intake No. 3 Pumping Station Power Supply Facilities
070F04	Intake No. 3 Pumping Station Discharge Pipeline
070F06	Lake Mead Intake No. 3 Chemical Feed System
090B	Virgin and Muddy Rivers Water Resource Acquisition
090E	Interim Colorado River Supplies
090F	Water Resource Acquisition and Development
090G	Clark, Lincoln and White Pine Counties Groundwater Development
300E	Control System Improvements
300L	Regulating Tank 6 Onsite and Offsite Improvements
300M	AMSWTF Miscellaneous Facilities Improvements
310B	Three Lakes Valley Groundwater Development
310G	Las Vegas Wash Flow Measurement Facility
320I	AMSWTF Pilot Plant ¹
320O	AMSWTF Filter Improvements Demonstration ¹
320T	Water Quality Testing Equipment - 7/1/08 to 6/30/09
340Q	Transmission Pipelines Discharge Modifications
340S	South Valley Lateral Isolation Valves - Phase 1
340U	Valve Operator Access Upgrades
340V	Sleeve and Miscellaneous Valve Repairs
360C	Electric Power Transmission Facilities
360L	Arrow Canyon Energy Recovery Hydroturbine
360M	Renewable Energy Project Development
370A	Production Group Satellite Facility ¹
13010H	Disinfection Facilities - Horizon/Parkway/Bermuda
19010D	Bermuda ROFCs Modifications
20010A	Sloan 2160 PS Expansion (64 mgd/175 mgd total)
20010B	Lamb 2350 PS Expansion (64 mgd/175 mgd total)
20010C	Decatur 2538 PS Expansion (24 mgd/78 mgd total)
20010D	Decatur 2350 Reservoir Expansion (10 MG/30 MG total)



Appendix E - Project Funding Sources

Wholesale Delivery Charge

Project No.	Project Title
300A	PS6 - Valley View Regulating Tank Security and Offsite Improvements
300H	Stage I and II Facilities PLC Upgrades
300K	AMSWTF Flocculation Channel Concrete Repairs
320B	Remodel Former AMSWTF Laboratory Spaces
320F	AMSWTF Filtration System Valve Repairs
320I	AMSWTF Pilot Plant ¹
320N	AMSWTF A and B Clearwells Slide Gate Actuators
320O	AMSWTF Filter Improvements Demonstration ¹
320P	AMSWTF Chlorine Building I Rehabilitation
320Q	AMSWTF Process Drainage Improvements
340B	PS 1A, 2A, 1B and 2B Pump Repairs and Flow Meter Installation
340C	Hacienda Pumping Station Improvements
340D	PS 1C, 2C, Sloan, Lamb, BPS1A, and BPS2 Variable Frequency Drive Enhancements
340E	Sleeve Valve Installation at Galleria, Simmons and Carlton ROFC Stations
340J	Ductile Iron Pump Inspection and Evaluation
340N	Stage II ROFC Isolation Valve Replacements
340R	Transmission Pipelines Cathodic Corrosion Protection - Phase 2
340T	Sloan Pumping Station Foundation Repairs
340W	BIF Venturi Flow Control Valve Unit Replacements
340X	Simmons ROFCS Pipeline Repairs
360H	Pumping Station Electrical Transformer Repairs
370A	Production Group Satellite Facility ¹
370I	Evaporative Cooler Upgrades
370M	AMSWTF Machine Shop HVAC Unit Replacement
370O	AMSWTF Utility Building Air Handler Replacement
370Q	Machine Shop Equipment
370R	RMWTF Fire Alarm System Replacement
370S	Mold Abatement at River Mountains Water Treatment Facility

¹ Funding split: 50% Regional Funding and 50% Wholesale Delivery



Appendix F - Completed Projects

Project Number	Project Title	Completion Year	Actual Cost ¹ (\$ Millions)
.	Planning/Environmental for 1995 CIP Administrative		41.2
.	Operational Decision Support System	1997	1.3
B01	Batch Plant at AMSWTF	1997	1.8
C11	Communications	1997	1.3
D01	Scrubber Prepurchase at AMSWTF	1997	0.0
D11	Disinfection Facilities Upgrades at AMSWTF	1997	4.1
F11	Filter Additions at AMSWTF	1997	11.1
H01	Hacienda Pumps Prepurchase	1997	0.0
L11	Low Lift Pump Station	1997	0.0
M11	Gibson Lateral (48" - 2.0 miles)	1997	5.4
P11	Plant Improvements at AMSWTF	1997	9.2
P12	Plant Mass Excavation at AMSWTF	1997	0.6
R11	RM Tank (46 MG)	1997	15.9
R12	RM Tank Mass Excavation	1997	1.9
S11	Simmons Pumping Station (71 mgd)	1997	9.0
T01	Valve Prepurchase	1997	1.0
T11	RM Tunnel (144" - 4.0 miles)	1997	20.5
T12	RM Tunnel Portal Connection	1997	13.7
T13	RM Regulating Tank Mass Excavation	1997	1.4
W11A	West Valley Lateral (60" - 3.3 miles) - Section A	1997	17.4
W11B	West Valley Lateral (60" - 2.9 miles) - Section B	1997	15.4
07010A	Lake Mead Intake No. 2 (100 mgd)	2002	104.7
07010B	Raw Water Pumping System (108" - 2.0 miles 100 mgd)	2002	143.3
07010C	RM Aqueduct (108" - 3.2 miles)	2002	18.1
07010D	Low Lift PS Improvements (Phase I)	2003	3.7
07010E	BWC Pipeline Relocation	2002	0.6
07011B	Raw Water Pumping System - Warranty	2009	1.7
07012B	Flowserve Pump Replacement at BPS-1A & BPS2	2009	1.5
070F05	Lake Mead Intake No. 2 Connection and Modifications²	2010	39.3
07210A	Raw Water Pumping System Expansion (200 mgd RMWTF + 160 mgd AMSWTF 460 mgd total)	2007	68.0
07210B	Low Lift PS Improvements (Phase II)	2003	3.0
07210C	Intake No. 2 to AMSWTF By-pass Pipeline	2006	17.7
08010A	RMWTF direct Filtration (150 mgd); Ozone at RMWTF (150 mgd); Clearwell Exp. 25 MG/50 MG total)	2002	266.8
08010B	Prepurchase Oxygen/Ozone Equipment (AMSWTF & RMWTF)	2003	19.5
08010C	Ozone Addition to AMSWTF (Pre-design)	2000	0.6
08010D	Site Preparation for Ozone Addition to AMSWTF	2000	4.2
08010ER	Ozone Addition to AMSWTF (600 mgd)	2003	96.0
08010F	AMSWTF Process Improvements	2007	71.4
08010H	AMSWTF Modulating Weirs	2002	0.4
08010J	Intake System and RMWTF Communications	2002	2.6
08010K	East C-1 Detention Basin	1999	7.7
08010L	Chemical Containment System at AMSWTF	1999	1.8
08010M	Magic Way RMWTF Entrance Improvements	2002	3.6
08010N	RMWTF Temporary Fluoridation	2002	1.3
08010T	Intake System and RMWTF Controls	2003	4.3
08010V	Ozone Training and Start-up Services	2004	1.0
08010W	AMSWTF Ozone Controls	2003	0.6
08210A	RMWTF Expansion (150 mgd/300 mgd total)	2006	76.8
08210B	RMWTF Prepurchase Ozone Equipment (150 mgd/300 mgd total)	2005	6.7
090A	Water Resource (Coyote Spring Valley)	2000	31.6
090S	Virgin and Muddy Rivers Surface Water Development	2007	8.8
10010C	Substation Mass Excavation	1997	6.9
10010M	NPC Connections to Sloan PS and Lamb PS	2000	1.4
10010P	NPC Connection to Decatur 2538 PS	2004	0.0
10010Q	CRC RM PS Expansion Power Supply	2004	1.9
10010Z	CRC Power Development (Phase I)	1999	46.2
10020A	CRC Power Development Project (Phase II)	2001	11.8
10020B	CRC Power Development Project (Phase III)	2001	14.3
100D	SNWS Power System Upgrades - Equipment Prepurchase	2003	6.4
100E	SNWS Power System Upgrades - Equipment Installation	2003	16.9
100F	CRC Power System Upgrades	2003	5.0
100G	SNWS Power System Upgrades - Material Prepurchase	2003	1.0
100T	SNWS Power System Upgrades - Remote Terminal Units	2003	0.5



Appendix F - Completed Projects, Continued

Project Number	Project Title	Completion Year	Actual Cost ¹ (\$ Millions)
10510A	NPC - Leased Fiber Optic systems - Phase I	2002	0.7
10510B	NPC - Leased Fiber Optic Systems - Phase II	2003	1.7
11010A	RM Lateral (72" - 3.8 miles)	1999	9.6
11010B	SVL - Major Crossings	1999	6.1
11010C	SVL (108" - 9.8 miles)	1999	24.6
11010D	Foothills 2210 PS (140 mgd)	1999	20.1
11010E	RM 2530 PS (140 mgd)	1999	24.6
11010G	Horizon Ridge 2375 Resv (10 MG), SV Regul Resv (4 MG)	1999	13.5
11010H	SVL (90" - 5.0 miles, 54" - 0.2 miles)	1999	14.6
11010I	SVL - MacDonald Ranch (108" - 1.1 miles)	1999	5.8
11010J	SVL Communications	1999	2.9
11010K	SVL (84" - 6.8 miles)	1999	20.9
11010L	Burkholder 2210 Regulating Reservoir (25 MG)	1999	14.9
11010M	ROFCS	1999	8.0
11010P	Pipe Prepurchase (108")	1999	27.0
11010Q	Pipe Prepurchase - 11010H Phase I (90")	1999	1.8
11010R	SVL Regul Resv Inlet/Outlet Pipeline (90" - 0.6 miles, 54" - 0.2 miles)	1999	2.6
11010S	SVL - MacDonald Ranch Extension (108" - 0.4 miles)	1999	2.0
11010T	SVL Controls	1999	1.0
11010W	SLV - Disinfection (Complete)	1999	0.5
11010X	Black Mountain ROFCS (25 MG)	1999	3.0
11010Z	R-8 Lateral (24" - 0.8 miles)	1999	1.0
12010A	SNWS Phase II Mass Excavation	1999	2.4
12010B	SNWS Phase II System "C" (225 mgd) (27 MG)	1999	75.5
13010A	EVL - Hollywood/DI to Sloan PS (78" - 2.7 miles)	2000	22.4
13010B	EVL - Sloan PS to Las Vegas Bldg. (78" - 5.7 miles)	2000	22.8
13010C	EVL - Las Vegas Blvd. To Lamb PS (78" - 4.5 miles)	2000	22.7
13010D	Sloan 2160 PS (20 mgd)/Structure (175 mgd)	2000	32.2
13010E	Lamb 2350 PS (20 mgd)/Structure (175 mgd)	2000	26.4
13010F	Grand Teton 2330 Reservoir (10 MG)	2000	12.5
13010I	Disinfection Facilities: Carlton Square/Twin Lakes	2000	3.3
13010J	EVL Communications	2000	2.4
13010K	EVL Interconnections	2005	6.5
13010T	EVL Controls	2000	0.5
13010W	EVL Disinfection	2000	0.3
13510A	Bolder City Water Delivery Improvements (30" - 7.0 miles, 10 mgd)	2002	24.3
14010A	NVL - Washburn Rd to Decatur 2350 Res. (24" to 72" - 6.0 miles)	2002	12.0
14010B	Carlton Sq. Lateral, Cole Ave to Washburn Rd (42" - 3.9 miles)	2002	10.6
14010C	Gowan 2350 PS (24 mgd)	2002	8.7
14010D	Decatur 2350 Reservoir (20 MG)	2002	12.7
14010E	Deer Springs ROFCS (80 mgd)	2002	4.3
14010F	Foothills PS Turbine Project	2003	2.8
14010G	College ROFCS (25 mgd)	2002	3.8
14010J	NVL - Communications	2002	2.2
14010T	NVL - Controls	2002	0.5
15010A	RM 2530 PS Expansion - Equestrian Addition (7 mgd/14 mgd total)	2007	0.9
16010A	RM PS B (175 mgd/315 mgd total), and Clearwell Expansion C (25 MG/75 MG total)	2004	44.0
17010A	EVA - river Mtns. Res. To Desert Inn Rd. (78" - 8.2 miles)	2005	49.8
17010B	NVL - Grad Teton 2330 Res. To Valley Drive (72" - 7.0 miles)	2004	22.4
17010C	NVL - Grand Teton Drive to Beltway (60" - 2.4 miles)	2003	9.8
17010D	Sloan 2160 (91 mgd/111 mgd total) and Lamb 2350 (91 mgd/111 mgd total) PS Expansion	2004	15.1
17010F	Decatur 2538/2430 PS (54 mgd-2538, 27 mgd-2430/Structure 105 mgd)	2004	31.1
17010G	NVL - Beltway Crossing (60" - 0.4 miles)	2003	3.0
17010H	NVL - Decatur 2538/2430 PS to Grand Teton Drive (60" - 2.5 miles)	2003	6.6
17010J	EVL and NVL Communications Improvements	2004	0.4
17010K	Valley Drive Isolation Valve	2004	0.6
17010L	In-Valley Isolation Valves	2007	4.4
19010A	Horizon Ridge 2375 Reservoir Expansion (10 MG/20 MG total)	2005	11.9
19010B	Duck Creek Isolation Valve	2009	4.2
19010C	Magic ROFCs (15 MGD)	2009	5.9
300B	Radio Communication System Upgrades	2008	0.6
300C	Overhead Crane Upgrades	2008	0.2
300D	Roofing Replacements	2009	0.9
300G	RMWTF Operators Video Display Upgrade	2007	0.2



Appendix F - Completed Projects, Continued

Project Number	Project Title	Completion Year	Actual Cost ¹ (\$ Millions)
300I	AMSWTF Asbestos Removal	2008	0.0
300J	Warm Springs ROFCS Offsite Improvements	2009	0.0
310C	IPS-1 Pump and Motor Replacements	2008	28.7
310D	EBROFC Valve Replacements	2009	2.6
310E	North I-15 Treatment and Transmission Facilities Planning - Phase I	2009	0.9
310F	IPS-2 Test Pump Procurement and Installation²	2011	42.0
320A	RMWTF Water Quality Laboratory and Pilot Plant	2008	42.1
320C	Disinfection By-Products Control Strategy	2004	0.2
320D	AMSWTF Filter Media and Underdrain Improvements Study	2004	0.2
320E	AMSWTF Cathodic Corrosion Protection System Repairs and Upgrades	2008	1.5
320G	Lake Mead Intake No. 1 Modifications	2004	7.4
320H	Pumping Plant 6 Rechlorination Station	2004	0.0
320J	Disinfection By-Products Studies	2009	0.3
320K	Surface Water Treatment Pilot Studies	2009	1.9
320L	AMSWTF Electrical Disconnect Switch Replacements	2008	0.2
320M	Spare Filter Backwash Control Valve	2008	0.1
320R	Water Quality Sampling and Testing Equipment	2008	1.0
320S	Quagga Mussel Evaluation and Control Facilities²	2010	0.4
340A	Coyote Spring Valley Well and Moapa Transmission System²	2010	53.7
340F	Transmission Pipeline Cathodic Protection System Repairs	2005	1.1
340G	Transmission Pipelines Discharge Modifications Study	2007	0.4
340H	Pumping Plant No. 7 Upgrades	2009	0.6
340I	South Valley Facilities Expansion - Phase I	2009	13.4
340K	Reservoir Vent Modifications	2008	0.4
340L	Hemenway ROFC Improvements	2009	0.5
340M	Air Vacuum and Relief Valve Piping Adjustments	2008	0.1
340O	Pumping Station 6 Forebay Relining	2009	0.1
340P	Charleston Heights Lateral Repair and Valve Installation	2009	1.9
360A	Equity Purchase of Electric Power Generation Facilities - Silverhawk Project	2004	120.0
360B	Equity Purchase of Electric Power Generation Facilities	2003	55.3
360D	Energy Supplier Conversion	2008	0.1
360E	Feasibility Study of Intermountain Project Unit 3	2005	0.5
360F	ROFC Energy Recovery	2008	8.1
360G	Intermountain Power Project Unit 3 - Predevelopment	2008	0.6
360I	Hacienda Pumping Station Electrical Substation Upgrades	2008	1.8
360J	AMSWTF & RMWTF Solar Photovoltaic Electric	2008	0.1
360K	High Concentrating Solar Photovoltaic Demonstration and Research	2009	2.3
360N	Solar Photovoltaic Panels at AMSWTF Filters & Flocculation Basins	2009	0.1
370B	Security System Upgrades²	2010	4.0
370C	RMWTF Fleet Maintenance & Electrical Maintenance Facility	2009	4.0
370D	Fiber-Optic Network Improvements	2007	1.3
370E	AMSWTF Mechanic Maintenance Shop Addition	2009	13.0
370F	AMSWTF Utility Building Chiller Replacement	2005	0.0
370G	AMSWTF Computer Room HVAC Replacement	2007	0.0
370H	Flame Detection Equipment for High Pressure Hydraulic System	2006	0.2
370J	SNWA Office Tenant Improvements	2008	42.5
370K	AMSWTF Warehouse Storage System Improvements	2008	0.0
370L	SCADA Communications Upgrades	2009	0.4
370N	AMSWTF Standby Generator Replacement	2009	0.3
370P	Purchase SNWA Office Space	2008	36.5
177 Completed Projects		TOTAL	2515.3

¹ Administrative costs have been proportionately distributed into project costs beginning with the 2010 amendment

² Final costs for projects completed since the last amendment are subject to adjustments where expenditures may be incurred after June 2010



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**Southern Nevada Water Authority
Major Construction and Capital Plan
February 2011**

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