



OCTOBER 2014 REPORT

by

THE NEW MEXICO INTERSTATE STREAM COMMISSION

to the

INTERIM WATER AND NATURAL RESOURCES COMMITTEE

on

THE 2004 ARIZONA WATER SETTLEMENTS ACT

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EXECUTIVE SUMMARY

Mr. Chairman and Members of the Committee,

This report presents the ongoing and anticipated planning efforts and associated work that will take place under the Arizona Water Settlements Act (AWSA) through 2014. .

The AWSA

The AWSA was signed into federal law in December 2004. The AWSA allocates to New Mexico up to \$128 million in non-reimbursable federal funding and an annual average of 14,000 acre-feet of additional water from the Gila Basin, a 47% increase over New Mexico's current Gila basin apportionment. Sixty-six million dollars of funding may be used) to develop the new water and/or other water utilization alternatives to meet water supply demands in the Southwest Water Planning Region of New Mexico. Up to \$62 million in additional funds may be disbursed only for development of the new water through the construction of a New Mexico Unit of the Central Arizona Project (CAP).

New Mexico must inform the U. S. Secretary of the Interior by December 31, 2014 if New Mexico will build a New Mexico Unit of CAP. If New Mexico does not choose to develop any of the additional water, the water will continue to flow to Arizona and up to \$62 million of federal funding will be forfeit.

The Planning Process

In September 2004, the New Mexico Interstate Stream Commission (NMISC) formally adopted a policy to guide it when considering uses of the water and funding provided to New Mexico in the AWSA:

"The Interstate Stream Commission recognizes the unique and valuable ecology of the Gila Basin. In considering any proposal for water utilization under Section 212 of the Arizona Water Settlements Act, the Commission will apply the best available science to fully assess and mitigate the ecological impacts on Southwest New Mexico, the Gila River, its tributaries and associated riparian corridors, while also considering the historic uses of and future demands for water in the Basin and the traditions, cultures and customs affecting those uses."

The three main tenets of the NMISC Gila are to recognize and mitigate any impacts to the Gila ecology, to use the best available science, and to provide for current and future water uses. The tenets of the Gila policy also have guided the planning process.

To date, there have been over 200 public meetings on the AWSA, conducted in various venues throughout the region. In September 2007, the Southwest New Mexico Stakeholders Group (SWNMSG) was formed to reach a consensus among stakeholders on projects for use of the 14,000 acre-feet of water and federal funding in the AWSA. After several years of work, the SWNMSG was not able to find consensus on a workable number of projects.

Consequently, in the spring of 2011, the NMISC began its own two-tiered evaluation process of forty-one project proposals submitted by stakeholders. The NMISC established an Evaluation Panel that reviewed and ranked proposals. The evaluation panel was composed of one representative each from the New Mexico Environment Department; the Office of the State Engineer; the Department of Game and Fish; the NMISC; and the Energy, Minerals, and Natural Resources Department. Twenty proposals passed Tier-1 and were then ranked in Tier-2. On February 29, 2012, after considering the Tier-2 rankings, rankings from the Gila San Francisco Water Commission, and the NM First Town Hall on the Gila, the NMISC approved sixteen projects for further assessment, integration, and/or refinement. See Figure 1 for locations of the selected projects. The Commission also approved \$100,000 to fund a pilot municipal conservation program and directed staff to conduct studies of wetlands restoration and agricultural conservation. The City of Bayard's proposal to treat and reuse municipal effluent was subsequently withdrawn, leaving 15 projects for further assessment.

During the planning process, numerous comments and inputs have been received from stakeholders and the general public. They were summarized and presented to the NMISC in August 2014 and can be found at <http://nmawsa.org/meetings/isc-meeting-august-26-2014/isc-staff-presentation-maps-study-summaries/view>.

Ongoing Work and Next steps

New Mexico must inform the Secretary of the Interior by December 31, 2014 if New Mexico will utilize any of the additional AWSA water Congress allocated to New Mexico by building a New Mexico Unit of CAP. The NMISC will make that decision in November 2014.

Each of the fifteen remaining stakeholder proposals has been undergoing comprehensive assessments of technical feasibility, economic costs and benefits, cultural impacts, water supply, and environmental impacts. In response to stakeholder requests, many additional studies are under way or completed. Those studies include surveys of cropping patterns and agricultural conservation, GIS modeling, wetlands studies, hydrologic and hydraulic modeling, geotechnical and geomorphic studies, ecologic impacts assessment, and climate change projections.

Over fifty different studies or investigations are nearing completion or have been completed by the NMISC. The NMISC has also considered studies performed by others. All final studies may be found, along with their respective goals, methods, and results at <http://nmawsa.org/meetings/isc-meeting-august-26-2014/isc-staff-presentation-maps-study-summaries/view>. Please also see First Half FY15 AWSA Work Plan, beginning page 16.

Ongoing work will be completed in October 2014. This includes economic studies of all stakeholder proposals, additional ecologic studies of potential impacts from water diversions and water diversion facilities, reviews of some of the chapters in The Nature Conservancy's (TNC) Gila Flow Needs Assessment report (<http://nmconservation.org/Gila/GilaFlowNeedsAssessment.pdf>), and a Value Engineering Workshop.

The Value Engineering Workshop will provide important information for the NMISC's consideration prior to the Commissioners' decision. A more complete description of the workshop can be found in Appendix 2, Value Engineering Workshop and Engineering Design Flowchart beginning page 22.

Budgeting from the New Mexico Unit Fund

The New Mexico Unit Fund has received \$9.04 million in January for each of calendar years 2012, 2013, and 2014. An identical amount will be deposited in the Fund in January 2015. For FY2015, NMISC budgeted \$403,800 of the \$27.12 million in the Fund into the NMISC operating budget for 3.5 FTEs and supporting costs. For FY12 through FY15, the NMISC has budgeted a cumulative total of \$ 7,460,000 to support contractual services for engineering, hydrologic, geologic, ecologic, and economic assessments of proposals. For the current FY15, the work budgeted totals \$3,310,000. Ecologic studies and assessments account for more than \$1.060 million of that total. Details for First Half FY15 work can be found in Appendix 1, First Half FY15 AWSA Work Plan, beginning page 16. Additional funding may be budgeted if necessary. As of October 3, 2014, the cash balance in the NM Unit Fund is \$23,934,967.45.

Public Involvement

The NMISC has continued its process of public involvement, including facilitated quarterly public meetings. The NMISC has also created a website dedicated to the New Mexico portion of the AWSA (www.nmawsa.org). Scopes of work, reports, and ongoing efforts are posted there. The public and stakeholders may also post comments on the website.

The NMISC has convened a smaller "Input Group" composed of fifteen members from local governments, agricultural interests, municipalities and environmental NGOs to provide representative, broad-based input on specific issues. During 2014, the NMISC has heard comments from numerous members of the public, stakeholders, and proponents and opponents of the proposals.

Climate Change Scenarios

The NMISC contracted with Dr. David Gutzler, climatologist at the University of New Mexico for a study of potential effects of climate change in the Gila. His study, posted on the New Mexico AWSA website at <http://nmawsa.org/ongoing-work/draft-stream-flow-projections-for-the-upper-gila-river/view>, used both dynamic models and a statistical empirical model to estimate stream flow reductions in the Upper Gila River due to projected climate change. The study concluded that the best estimate of the effect of projected climate change on average peak season flow in the Upper Gila River is a reduction of approximately 8% by 2050 relative to a baseline period of 1951--2012. Dr. Gutzler's study also concluded that climate change would mean that spring runoff would occur earlier in the year and at lower volumes, and that natural variability will continue to overwhelm flow reductions. The Nature Conservancy commissioned a climate change model by researchers at the University of Arizona. The TNC climate study is a chapter in the TNC Gila River Flow Needs Assessment report. That study estimated a 6% reduction in mean flow on the Upper Gila River and a 15% reduction in median flows.

Incorporating the TNC parameters resulted in an approximate reduction of 3% in average annual diversions under the AWSA. Incorporating a 10% decrease in every daily flow results in an approximately 2% decrease in average annual flow volumes. Results under all three projections indicate that flow reductions under climate change scenarios appear to pose no problem in harvesting the additional water allocated to New Mexico in the AWSA.

OCTOBER 2014 REPORT BY THE NEW MEXICO INTERSTATE STREAM COMMISSION TO THE NEW MEXICO INTERIM WATER AND NATURAL RESOURCES COMMITTEE ON THE 2004 ARIZONA WATER SETTLEMENTS ACT

This report presents a summary of the process the New Mexico Interstate Stream Commission (NMISC) has undertaken to secure the benefits of the 2004 Arizona Water Settlements Act, or “AWSA” for New Mexico. Also discussed are the current and on-going studies, engineering, technical evaluations, and associated planning efforts that have taken place.

The AWSA

The AWSA was signed into federal law in December 2004. The AWSA allocates to New Mexico up to an annual average of 14,000 acre-feet of additional water from the Gila Basin and up to \$128 million in non-reimbursable federal funding. The additional 14,000 acre-feet of water represents a 47% increase over New Mexico’s current allotment of water from the Gila Basin. Sixty-six million dollars of the funding can be used “for the purpose of paying costs of the New Mexico Unit or other water utilization alternatives to meet water supply demands in the Southwest Water Planning Region of New Mexico, as determined by the New Mexico Interstate Stream Commission in consultation with the Southwest New Mexico Water Study Group or its successor, including costs associated with planning and environmental compliance activities and environmental mitigation and restoration.”¹ The remainder of the federal funding, up to \$62 million, would be disbursed on a construction cost-schedule basis only for construction of a New Mexico Unit of the CAP. The AWSA requires that the 14,000 acre-feet of new Gila Basin water be consumed in New Mexico (see AWSA Section 212(d) attached).

History of the Planning Process

The NMISC began a planning process many years ago. The first public meeting regarding the AWSA was held in Silver City in the late spring of 2001, almost four years before the AWSA was signed into law in December 2004. To date, there have been over 200 public meetings on the AWSA, conducted in various venues throughout the region.

In 2005, the Gila San Francisco Coordinating Committee (GSFCC) was formed. The GSFCC was composed of representatives of the Office of the Governor, the Bureau of Reclamation, the Gila San Francisco Water Commission, the US Fish and Wildlife Service, the NMISC, and later the New Mexico Department of Game and Fish. The purpose of the GSFCC was to develop baseline information, especially as to any impacts on endangered species that might occur as a result of development of the additional AWSA water. The GSFCC held a number of meetings and science forums open to the public, and began creating a decision support model to aid building consensus.

¹ The successor to the Southwest New Mexico Water Study Group is the Gila San Francisco Water Commission. A “New Mexico Unit” is any facility that develops any of the additional water. The “Southwest Planning Region” is composed of Luna, Grant, Hidalgo, and Catron counties.

In late 2005 the Technical Subcommittee of the GSFCC, composed of state and federal agencies, environmental NGO's, and stakeholders, crafted a plan of integrated basic scientific studies. In September 2007, the Southwest New Mexico Stakeholders Group (SWNMSG) was formed. The SWNMSG's purpose was to reach a consensus on a small set of projects for use of the 14,000 acre-feet of water and federal funding allocated to New Mexico in the AWSA. In November 2010, the SWNMSG suggested fifty-five projects to the NMISC. The NMISC asked it to reduce the number of projects to a workable size. The SWNMSG was not able to find consensus on a smaller set of projects.

The NMISC consequently began its own two-tiered evaluation process in the spring of 2011. Stakeholders, federal and state agencies, and local governments were encouraged to submit proposals. The NMISC crafted the evaluation process and criteria for the evaluation process with input from stakeholders and local governments in the region. Forty-one project proposals were submitted for Tier-1 consideration during the period May 2011 to June 2011. To evaluate and rank the 41 proposals submitted, the NMISC established an Evaluation Panel with one representative each from the New Mexico Environment Department; the Energy, Minerals and Natural Resources Department; the Office of the State Engineer; NMISC; and the Department of Game and Fish. Twenty proposals met the Tier-1 criteria and passed to the Tier-2 ranking process.

The NMISC staff, considering the ranking and comments of the Evaluation Panel, the rankings of the Gila San Francisco Water Commission, the results of the New Mexico First Gila Town Hall, and hundreds of hours of public comment before the Commission and in public meetings, recommended sixteen proposals for further assessment, refinement, or combination. On February 29, 2012, the NMISC approved the sixteen proposals for further assessment, refinement, or combination. The sixteen projects are grouped in five categories: municipal conservation (1 project), diversion and storage (3 projects), effluent re-use and municipal infrastructure (4 projects), watershed restoration (5 projects), and agricultural infrastructure improvements for conservation (3 projects). Figure 1 presents the categories and general locations of the selected projects. The Commission also approved additional study of wetlands restoration and agricultural conservation. In 2013, the City of Bayard removed its effluent reuse proposal from consideration. Therefore, the NMISC is currently evaluating only 15 proposals.

Next steps

To aid the Commission in making an informed and considered decision, a large amount of work has taken place. Each of the remaining fifteen proposals required assessments of technical feasibility, cultural impacts, economic costs and benefits, water supply, and ecologic impacts (protection of the environment, endangered species impacts, watershed health, etc.). Should the Commission select proposals to develop the additional water or some portion thereof through a New Mexico Unit of CAP, the AWSA requires compliance with all federal environmental mandates.

The work to assess the technical, ecologic, and economic feasibility of proposed projects are in various stages of completion. Additional information and detail may be found in Appendix 1, FY15 AWSA Workplan for details, beginning page 16.

Budgeting and Fiscal Report

During its 2011 session, the New Mexico Legislature passed H.B. 301, creating the New Mexico Unit Fund (the Fund) in the State Treasury. The 2011 New Mexico Unit Fund Act requires the NMISC to report by November 15th every year to the Interim Committee on Water and Natural Resources and to the Legislative Finance Committee on the following three points:

- (1) The status of the New Mexico Unit Fund;
- (2) The distribution of money from the New Mexico Unit Fund to implement the purpose of the Fund pursuant to the NM Unit Fund Act; and
- (3) Proposed uses and levels of funding projected for the following fiscal year.

NMSA 1978, § 72-14-45 (2011). Included herein is the NMISC report to the Interim Water and Natural Resources Committee for 2014.

1. Status of the New Mexico Unit Fund

In January 2012, in January 2013, and again in January 2014, pursuant to the AWSA, the Bureau of Reclamation disbursed \$9.04 million to the NMISC. The monies were placed in the Fund. An identical sum of monies will be deposited in the Fund in January 2015.

2. Distribution of money from the Fund to implement the purpose of the Fund pursuant to the Act

For FY2015, NMISC budgeted \$403,800 of the \$27.12 million in the Fund into the NMISC operating budget for 3.5 FTEs and supporting costs. For FY12 through FY15, the NMISC has budgeted a cumulative total of \$ 7,460,000 to support contractual services for engineering, hydrologic, geologic, ecologic, and economic assessments of proposals. For the current FY15, the work budgeted totals \$3,310,000. Ecologic studies and assessments account for more than \$1.060 million of that total. Details for First Half FY15 work can be found in Appendix 1, First Half FY15 AWSA Work Plan, beginning page 16. Additional funding may be budgeted if necessary. As of October 3, 2014, the cash balance in the NM Unit Fund is \$23,934,967.45.

Over 50 studies and investigations are nearing completion or have been completed to date. A listing with study goals and results may be found at <http://nmawsa.org/meetings/isc-meeting-august-26-2014/isc-staff-presentation-maps-study-summaries/view>. Please also see First Half FY15 AWSA Work Plan, beginning page 16.

Ongoing work will be completed in October 2014. This includes economic studies of all stakeholder proposals, additional ecologic studies of potential impacts from water diversions and water diversion facilities, reviews of some of the chapters in TNC's Gila Flow Needs Assessment report, and a Value Engineering Workshop.

The Value Engineering Workshop will provide important information for the NMISC's consideration prior to the NMISC Commissioners' decision. A more complete description of the workshop can be found in Appendix 2, Value Engineering Workshop and Engineering Design Flowchart beginning page 22.

3. Uses and levels of funding projected for the following fiscal year

In FY15, engineering, hydrologic, geomorphic, ecologic, wetlands, watershed, economic, and agricultural conservation assessments and work must be completed.

In FY15, the NMISC appropriation request for the operating budget included \$403,800 from the Fund for 3.5 FTEs and supporting costs. Any unexpended balances from either the operating budget or the contractual services budget will revert to the Fund. As evaluation results become available, additional funding may be budgeted if required.

Public Involvement

The NMISC will continue its process of public involvement throughout the completion of the proposal evaluations. To ensure all stakeholders and the public are afforded opportunity for input and comment, the NMISC has been holding and will continue to hold facilitated public meetings throughout the process. Participation at the public meetings has been excellent with 80 to 100 attendees at each meeting. The NMISC has also created a website dedicated to the New Mexico portion of the AWSA (www.nmawsa.org). Scopes of work, reports, and ongoing efforts are posted there as well. The website also accepts comments from the public.

Finally, the NMISC has convened a smaller group composed of fifteen members from local governments and stakeholder interests to provide facilitated input on specific issues as needed. This "Input Group" provides representative, broad-based input to the NMISC, but is not focused on reaching consensus. The composition of the Input Group is as follows: 1 representative each from Luna, Grant, Hidalgo, and Catron Counties, 1 representative from the Town of Silver City, 1 representative from the City of Deming, 2 representatives from the environmental interests, 1 representative from the mining industry, 2 representatives from farming interests, 2 representatives from ranching interests, and 2 representatives from the business community. Each entity or interest chose its own representative(s). The Input Group has met quarterly and, to date, has provided the NMISC with over 150 questions related to the selected projects that the group felt should be asked and answered over the evaluation process.

Drought Concerns

The NMISC contracted with Dr. David Gutzler, a climatologist at the University of New Mexico, to perform a study regarding climate change. His study, posted on the New Mexico AWSA website at <http://nmawsa.org/ongoing-work/draft-stream-flow-projections-for-the-upper-gila-river/view>, used both dynamic models and a statistical empirical model to estimate stream flow reductions in the Upper Gila River due to projected climate change. The study concluded that the best estimate of the effect of projected climate change on average peak season flow in the Upper Gila River is a reduction of approximately 8% by 2050, relative to a baseline period of 1951--2012. Dr. Gutzler's study also concluded that climate change would mean that spring runoff would occur earlier in the year and at lower volumes, and that natural variability will continue to overwhelm flow reduction. TNC commissioned a climate change model by researchers at the University of Arizona.

The TNC climate study is a chapter in the TNC Gila River Flow Needs Assessment report (<http://nmconservation.org/Gila/GilaFlowNeedsAssessment.pdf>). That study estimated a 6% reduction in mean flow on the Upper Gila River and a 15% reduction in median flows. Incorporating the TNC parameters resulted in an approximate reduction of 3% in average annual diversions under the AWSA. Incorporating a 10% decrease in every daily flow results in an approximately 2% decrease in average annual flow volumes. Results under all three projections indicate that flow reductions under climate change scenarios appear to pose no problem in harvesting the additional water allocated to New Mexico in the AWSA.

Operation and Ownership of a New Mexico Unit

Concerns have been raised concerning a "federalization" of the Gila River should a New Mexico Unit of CAP be constructed. The AWSA provides that, contrary to most large water projects, the State of New Mexico may elect to design, construct, operate, and own the New Mexico Unit. The AWSA requires the Secretary of the Interior to implement an exchange, through the Central Arizona Project, of an amount of mainstem Colorado River water equal to the additional Gila Basin water depleted in New Mexico.

Concerns have been raised that drought shortages could prevent that exchange. One provision in the 1968 Colorado River Basin Project Act (Section 304 (e)) sets the priority of that exchange water. The provision states that in case of a shortage of water on the Colorado River, users who have yielded water from other sources in exchange for mainstem Colorado River water shall have the first priority on the Central Arizona Project (CAP). The seniority of the exchange water is not modified by the 2004 AWSA. If shortages on the Colorado River do occur, the 14,000 acre-feet of water necessary to effect New Mexico's exchange will have the first priority. By way of scale, the annual average of 14,000 acre-feet of exchange water represents less than 0.8% of the almost two million acre-feet of water currently delivered every year through the CAP.

Section 212 (d) of the Arizona Water Settlements Act

(d) Amendment to Section 304- Section 304(f) of the Colorado River Basin Project Act (43 U.S.C. 1524(f)) is amended--

(1) by striking paragraph (1) and inserting the following: `(1) In the operation of the Central Arizona Project, the Secretary shall offer to contract with water users in the State of New Mexico, with the approval of its Interstate Stream Commission, or with the State of New Mexico, through its Interstate Stream Commission, for water from the Gila River, its tributaries and underground water sources in amounts that **will permit consumptive use of water in New Mexico [emphasis added]** of not to exceed an annual average in any period of 10 consecutive years of 14,000 acre-feet, including reservoir evaporation, over and above the consumptive uses provided for by article IV of the decree of the Supreme Court of the United States in Arizona v. California (376 U.S. 340). Such increased consumptive uses shall continue only so long as delivery of Colorado River water to downstream Gila River users in Arizona is being accomplished in accordance with this Act, in quantities sufficient to replace any diminution of their supply resulting from such diversion from the Gila River, its tributaries and underground water sources. In determining the amount required for this purpose, full consideration shall be given to any differences in the quality of the water involved.

(2) by striking paragraph (2); and

(3) by redesignating paragraph (3) as paragraph (2).

FIGURE 1. Categories and locations of projects selected for assessment, integration, and/or refinement

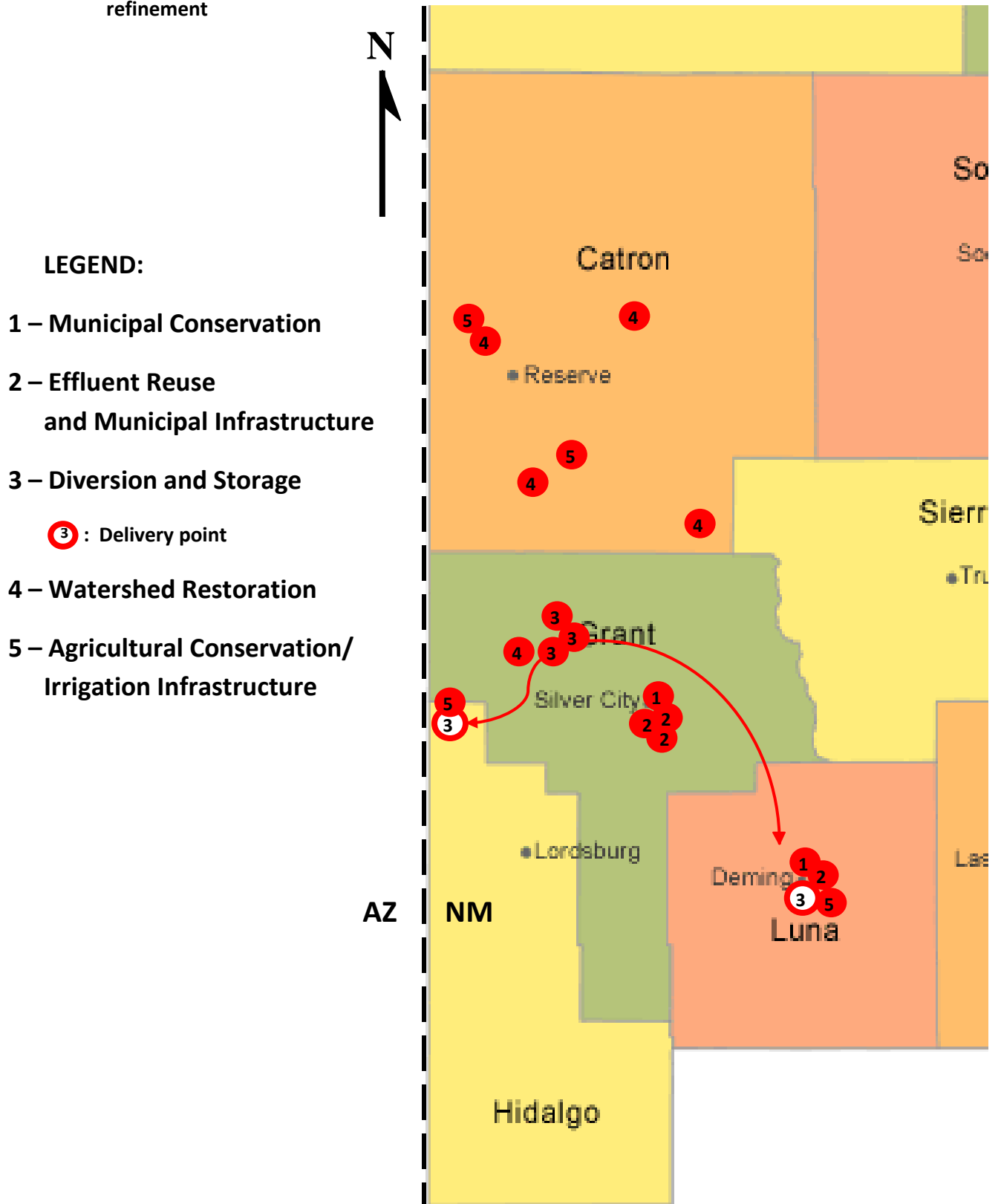
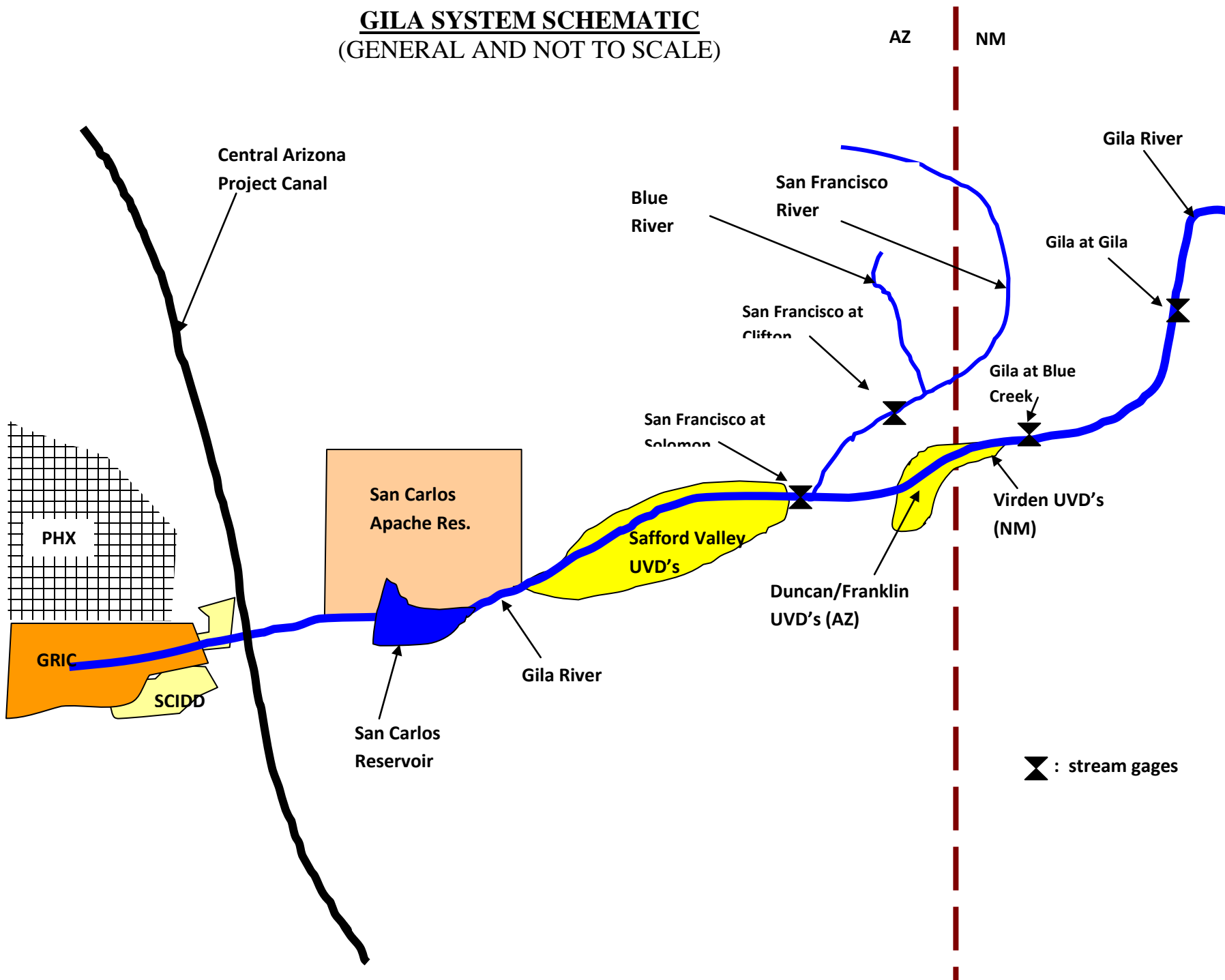


TABLE 1. MINIMUM BYPASS FLOWS BY MONTH

<u>Month</u>	<u>Bypass</u>
January	82.5 (cfs)
February 1-13	137.5
February 14-28/29	215
March	292.5
April	432.5
May	437.5
June	442.5
July	442.5
August	442.5
September	442.5
October	267.5
November	152.5
December	75.5

GILA SYSTEM SCHEMATIC
(GENERAL AND NOT TO SCALE)



Appendix 1. July-December FY 15 AWSA Workplan

Executive Summary

If the New Mexico Interstate Stream Commission (“NMISC” or “Commission”) decides to develop the annual average of up to 14,000 acre-feet of water per annum from the Gila and San Francisco River Basins pursuant to the 2004 Arizona Water Settlements Act (“AWSA”), the Commission must inform the Secretary of the Interior (“Secretary”) of the State of New Mexico’s intent no later than December 31, 2014.

This work plan supports the continuing efforts in the first half of FY 2015 (July 1, 2014-December 31, 2014) to provide the best information and science available to allow the Commission to make an informed and considered decision before December 2014 whether or not to fund current stakeholder proposals. The work plan for the second half of FY2015 will be provided to the Commission after December 31, 2014 and will reflect the Commission’s decisions relative to those proposals.

For this work plan, the staff requests approval of a budget in the amount of \$3,310,000 for continued technical evaluation of diversion and storage proposals, additional ecological evaluations, economic analyses, legal advice, and a meeting moderator.

All work has the goal of meeting present and future water needs in southwestern New Mexico.

Background

If the State of New Mexico intends to develop the annual average of up to 14,000 acre-feet of water per annum pursuant to the AWSA, the NMISC must inform the Secretary of the Interior (“Secretary”) of such intent no later than December 31, 2014.

The AWSA provides \$66,000,000 (2004 dollars) in non-reimbursable funds for any project or projects that meet water demand in southwestern New Mexico. It provides for an additional non-reimbursable \$34,000,000 to \$62,000,000 for construction of a diversion and storage project only in the event that the Commission timely provides the aforementioned notice to the Secretary. These monies are deposited into the New Mexico Unit Fund, a fund created in State statute. Regional stakeholders have proposed various projects to use the water and/or funds.

In FY2012, the Commission accepted sixteen stakeholder proposals for further assessment, integration, and/or refinement. One proposal was withdrawn, and fifteen remain for consideration.

In FY2013, the Commission approved an expenditure of \$100,000 from the New Mexico Unit Fund in order to fund pilot municipal conservation projects in Silver City and Deming. The Commission also accepted amendments to four stakeholder project proposals.

In FY2014, the Commission approved a Work Plan with a \$2,847,000 budget. Staff managed projects to assess each of the stakeholder proposals' technical and fiscal feasibility. These evaluations have been completed. Approximately, \$2,480,776 has been expended or encumbered from this budget. The difference in budget and expenditures is attributed to time delays in contracting for services, difficulty in obtaining requisite professional services, and the lack of need for some anticipated legal services.

Before December 31, 2014, the Commission must determine which project proposals, to fund. The necessary work and resultant expenditures for the second half of FY2015 will be dictated by that determination.

To assist with its decision, Staff members will summarize all work completed in a report to the Commission. This report will discuss the engineering and fiscal evaluations of each of the project proposals as well as environmental and/or ecological implications of proposed projects.

The staff anticipates receipt and review of the Nature Conservancy's ("TNC") independent report, funded by a Desert Landscape Conservation Cooperative ("Desert LCC") grant, on environmental effects from a diversion and storage project. The report may identify additional research needs, and the NMISC staff may implement additional studies, if the Commission's decision schedule permits.

Description

In FY2015, staff members anticipate continued work to support the Commission's decision(s) regarding the AWSA water and funding.

1. Continued technical evaluation and further engineering assessment of diversion and storage proposals and optimizations. Assessments of proposals by the City of Deming, Gila Basin Irrigation Commission, and Hidalgo County began in FY2013. In FY2014, the Commission approved staff's request to consider and study certain optimizations that could meet the needs of all three proponents. In the meantime, the United States Bureau of Reclamation ("Reclamation") has continued to evaluate the proposals as originally submitted.

In FY2014, Bohannon Huston, Inc. ("BHI") completed an appraisal level, or ten percent level, Preliminary Engineering Report ("PER") containing conceptual alternatives for diversion sites and methods, conveyances, and storage locations. RJH Consultants, Inc., conducted an independent review of the BHI study and confirmed it was adequate for conceptual level project planning. The RJH evaluation recommended additional geotechnical studies at diversion and storage sites. The NMISC has entered into another work order with BHI, which includes a geomorphologic study of proposed diversion locations and a geotechnical study of alternative storage sites.

These additional engineering studies may lead to other configurations that should be considered in order to give the Commission the best information and alternatives. Therefore, this work plan will allow staff to conduct additional evaluations in the first half of the fiscal year, if necessary.

- 2. Ecological evaluations.** If the Commission chooses to develop the AWSA water, Reclamation will be required to conduct an analysis pursuant to the National Environmental Policy Act (“NEPA”). The AWSA provides that the NMISC may elect to be joint lead agency for the NEPA process. This work plan will provide useful information for the Commission’s decision and will allow staff to continue to provide the best available science for the “ecological processes and impacts” portion of such an analysis if such becomes necessary.

One focus of study has been on the potential effects of diversion and storage on federally listed endangered species. While some fish habitat modeling and population viability analyses have been completed, additional modeling needs were identified. This work plan will support additional studies to be completed in the early part of FY2015. Depending on the results of that work and the Commission’s decision on whether or not to develop AWSA water, additional ecological evaluation may be required in later FY15 and in subsequent fiscal years.

Another area of study has been the correlation between riparian vegetative health and Gila River flow in the Cliff-Gila Valley, Grant County. The correlation was weak in the agriculturally dominant reach. However, the staff observed large die-offs of Fremont cottonwoods below two agricultural diversions, and it appears from the study results that agricultural return flows support riparian vegetation along field margins. Additional study of agricultural water operations’ effects on aquatic habitat and riparian vegetation using surface water-groundwater modeling would be valuable in consideration of possible uses of AWSA water.

NMISC has previously contracted for a 3-dimensional hydrologic model of the Gila River and shallow aquifer. This work has taken several years. In FY2014, several scenarios of AWSA diversions were modeled to predict their effects on groundwater and surface water elevations. In early FY2015, the staff intends to integrate the results of the ecological studies with potential AWSA diversions, and this model will be a key component of such integration.

If the Commission chooses to develop any of the AWSA water, this work plan will allow staff to negotiate and implement mitigation of potential impacts.

- 3. Economic analyses.** Economic analyses of project proposals were begun in FY2014. However, due to contracting delays and unavailability of the initially selected qualified professionals, not all of the necessary work was contracted before the end of the fiscal year. The staff is presently contracting with an economist, New Mexico State University, and an economic consulting firm to complete the economic and financial analyses of the proposals. Additional economic analyses may be required in FY15.
- 4. Environmental services.** The staff will contract for environmental legal services, as necessary, to advise staff on Endangered Species Act (“ESA”) issues, NEPA issues and other environmental issues.
- 5. Moderator.** The staff will contract with one or more professional moderators to preside over public meetings.

This First Half FY 2015 work plan and the large associated budget provides for work efforts necessary to support a full range of possibilities the Commission will consider in reaching its decision(s) to utilize the water and funding provided New Mexico in the AWSA. After the Commission decision, staff will present a Second Half FY2015 work plan reflecting work that is necessary to implement the decision(s) of the Commission.

Work Plan Budget, Funding Source & Time Frame

All work described in this Work Plan will be funded from the New Mexico Unit Fund that is a fund that was established in State statute to receive the annual payment of \$6.6 million (in 2004 \$) indexed to \$9.04 million under the AWSA. To date this fund has received approximately \$27 million and has an approximate fund balance of \$22,104,858. This First Half FY 2015 work plan will allow staff to provide the best information, studies, and data to inform the Commission’s decision(s) on project selection and funding. The work will be conducted in FY2015.

The total budget for this First Half FY 2015 work plan is \$3,310,000, and may change significantly depending on the Commission’s December 31, 2014 decision regarding the AWSA. Staff will provide a Second Half FY2015 work plan in January 2015 with adjustments to reflect the Commission’s decision.

Work Plan Impact & Risks

The impacts and risks associated with this work plan depend upon whether or not the Commission chooses to develop the AWSA water and whether the Commission decides to fund the stakeholders' project proposals.

Most expenditures are associated with the ecological and engineering evaluations of diversion and storage project proposals. The large expenditures are necessary to investigate engineering options within difficult legal, geographical, environmental, and economic constraints.

Other alternatives to development of the AWSA water before the Commission will extend the existing water supply in southwestern New Mexico through conservation measures, and they also require thorough technical and scientific evaluations.

Work Plan Managers

The Work Plan Managers are Craig Roepke (Bureau Chief), David Anderson, Ali Effati, and Helen Sobien.

APPENDIX 2. VALUE ENGINEERING WORKSHOP AND ENGINEERING DESIGN FLOWCHART

INITIAL VALUE ENGINEERING WORKSHOP

The initial engineering workshop will provide important information to the NMISC prior to making a decision whether or not to proceed with a New Mexico Unit. An independent technical review by RJH Engineering of the Phase I Preliminary Engineering Report by Bohannon Huston, Inc. noted that “an appropriate level of investigation, data collection, and analyses was used in the PER to develop conceptual-level project planning and costs...for development and selection of a recommended alternative.” The independent review also noted potential problems and recommended additional work to include:

- Dams Site Geology
- Water yield
- Sedimentation
- River crossings
- Irrigation diversion structures
- Proposed new diversion structures
- Cost estimates
- Stormwater detention facilities

In addition to consideration of these specific topics, the goals of the initial value engineering workshop will be to

- Review the ISC diversion model with TNC drought parameters incorporated,
- Review current BHI and Reclamation conceptual designs,
- Suggest additional approaches or concepts,
- Recommend improvements to current concepts or alternative concepts, and
- Recommend further studies and investigations.

The participants in the workshop are independent professionals with no connection to the current BHI or Reclamation designs. Their expertise and experience includes:

- Reservoir/Dam Design/Geology
- Tunneling
- Diversion, Pumping, and Conveyance
- Solar/Electrical
- Geomorphology
- Construction Cost Estimation
- Hydrology/Safe Yield

- Environmental and Permitting

The workshop is coordinated and hosted by a Certified Value Engineering Facilitator, also a registered Professional Engineer.

The BHI Phase I report can be found at : <http://nmawsa.org/ongoing-work/diversion-and-storage-proposals/bhi-final-preliminary-engineering-report-4-11-2014>

The RJH technical review can be found at: <http://nmawsa.org/ongoing-work/diversion-and-storage-proposals/rjh-technical-review-of-engineering-report/technical-review-of-bhi-draft-final-preliminary-engineering-report-gila-river-diversion-conveyance-and-storage-alternatives-report-may-30-2014/view>

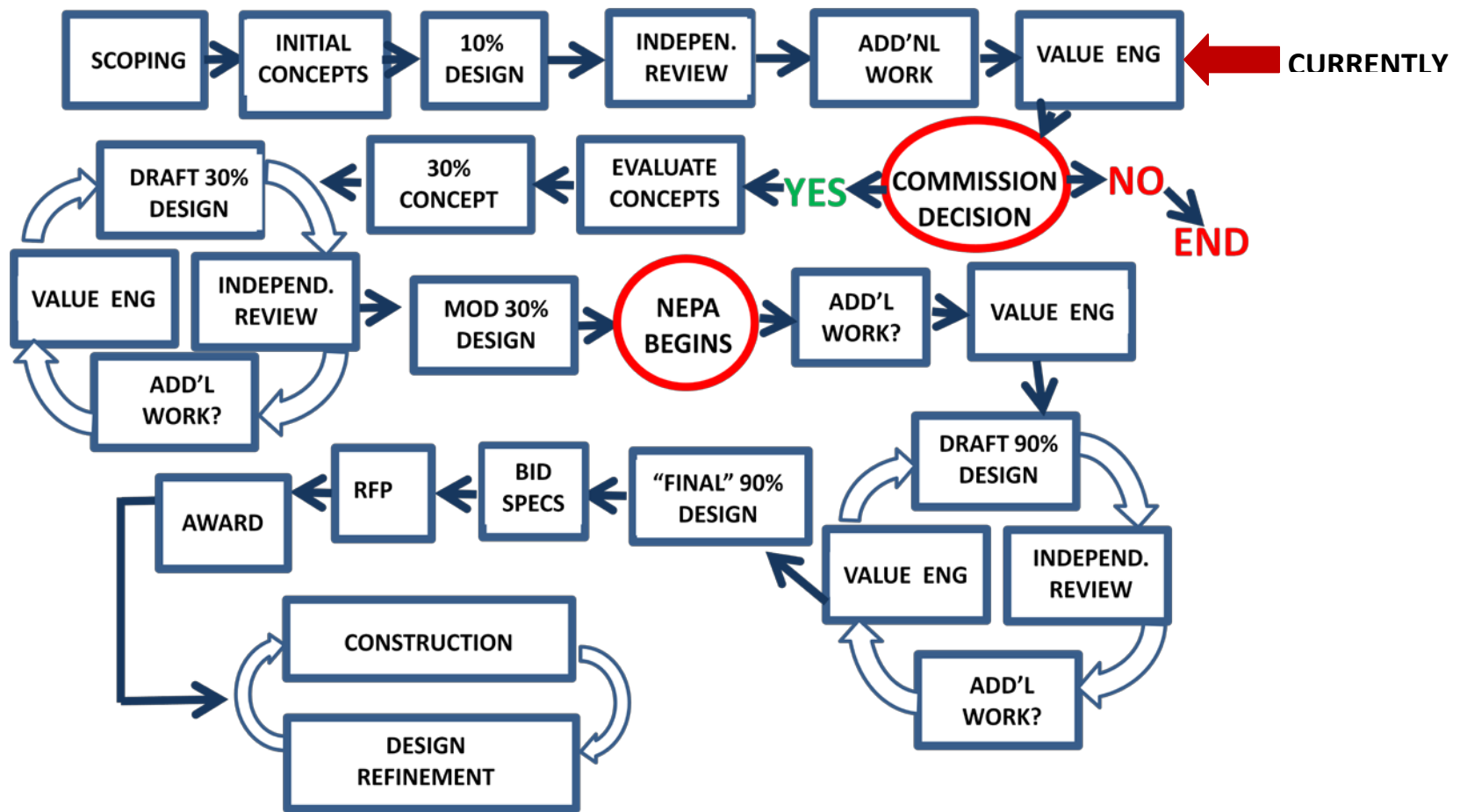


Figure 1. Engineering design flow chart. A reliable, comprehensive engineering design is properly an iterative, evolving process. In the chart above, the design and/or construction process could stop at any block if costs become too high or fatal flaws discovered. Some important mileposts are in red above. If the NMISC does not decide to fund a New Mexico Unit (red oval above), all work stops. The initial value engineering workshop (red arrow) will begin on October 6, 2014. The 2004 Arizona Water settlements Act provides that New Mexico may design, construct, operate, and own the New Mexico Unit of the CAP. If the NMISC decides to fund a NM Unit, a group of water users comprised as the “New Mexico Cap Entity” would assume those responsibilities at some point after the NMISC decision