



**Report
to
The LEGISLATIVE FINANCE COMMITTEE**



Office of the State Engineer, New Mexico Environment Department
Capital Outlay: Review of Select Water Projects
December 8, 2014

Report #14-12

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December 8, 2014

Tom Blaine, P.E., State Engineer, Designate
Office of the State Engineer
130 South Capitol Street
Santa Fe, New Mexico 87501

Ryan Flynn, Secretary
New Mexico Environment Department
1190 St. Francis Dr. Suite N4050
Santa Fe, New Mexico 87505

Dear State Engineer Blaine and Secretary Flynn,

On behalf of the Legislative Finance Committee (Committee), I am pleased to transmit the evaluation, *Select Water Projects of the Office of the State Engineer and New Mexico Environment Department*. The evaluation assessed project implementation including compliance with applicable laws and regulations, oversight, and outcome.

The report will be presented to the committee on December 8, 2014. Discussions were held with your staff to address any concerns before the exit conference, which was conducted on December 2, 2014. We very much appreciate the cooperation and assistance we received from you and your staff.

The Committee would like a plan to address recommendations in this report within 30 days from the date of the hearing. Staff will continuously monitor your progress.

I believe that this report addresses issues the committee asked us to review and hope the New Mexico Office of the State Engineer and Environment Department will benefit from our efforts. Thank you for your cooperation and assistance.

Sincerely,

A handwritten signature in dark ink that reads "David Abbey".

David Abbey
Director

DA:MA/al

Cc: Representative Luciano "Lucky" Varela, Chairman, Legislative Finance Committee
Senator John Arthur Smith, Vice-Chairman, Legislative Finance Committee
Dr. Tom Clifford, Secretary, DFA Chair, Water Trust Board
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New Mexico communities face an estimated \$1 billion to replace and upgrade aging water infrastructure over the next 20 years, in addition to \$240 million estimated for dam rehabilitation. The state has appropriated \$525 million over the past decade for water projects, including dam repairs. Water is critical to the economic strength and public welfare of New Mexico. While providing adequate and safe drinking water for citizens is primarily the responsibility of local governments, the state supports communities through the efforts of multiple state agencies. Previous Legislative Finance Committee (LFC) analysis and evaluations have found this state-local collaboration has yielded unique challenges, from a fragmented funding process to problematic project oversight and execution.

In 2014, the Legislature appropriated over \$83 million in capital outlay funding for water projects. The New Mexico Environment Department (NMED) and the Office of State Engineer (OSE) will oversee about \$75 million of these appropriations. This evaluation sought to assess how prior local water projects overseen by these agencies fared, including project planning, management, spending and whether a project met its intended purpose. Seven projects were selected to assess a broad array of types of projects, geographic location, appropriation amounts and known progress to date.

Only 10 percent of the nearly \$27 million in state appropriations for the seven selected local water projects has resulted in successful outcomes. From project cost overruns to significant under-utilization, the overall return on this investment remains uncertain. Additional funding in the form of Water Trust Board (WTB) money, federal grants, and other state loans or grants raise the total known resources linked to these projects by \$6 million, yet more funding will be required in some cases for project completion. Despite sufficient funding, some of the selected projects have lingered on for over a decade while others experienced failure or have not been used. The two successful projects differed in complexity but met most evaluation criteria positively, including the key objective of fully meeting their intended use.

The issues underpinning these results appear in line with prior LFC evaluations covering various aspects of capital outlay management reaching back to 1998. Common themes recur, pointing to the need for better planning, coordination, prioritization, and oversight of resources shared with local entities to minimize waste, abuse or mismanagement and effectively attain project goals. New Mexico must address these inefficiencies in the capital outlay process so each dollar is well spent. Progress has been made toward capital outlay reform, such as 2001 legislation forming the WTB. Other key initiatives are underway. Continued advancement is essential to ensuring New Mexico citizens have safe drinking water, economic development needs are met, and people or property are not threatened by failing dams.

Water and Wastewater Appropriations*
(in thousands)

2004	\$45,274
2005	\$51,274
2006	\$94,882
2007	\$103,906
2008	\$35,440
2009	\$27,680
2010	\$7,027
2011	\$7,195
2012	\$12,189
2013	\$26,757
2014	\$70,888
Total	\$482,511

Source: CPMS

*Excluding major water settlements and fish hatcheries.

Dam Appropriations*
(in thousands)

2004	\$40
2005	\$6,055
2006	\$5,380
2007	\$3,535
2008	\$6,448
2009	
2010	\$1,000
2011	
2012	\$511
2013	\$4,790
2014	\$14,255
Total	\$42,014

Source: CPMS

*Includes projects coded as "Dam" in CPMS, all funding sources, all administering agencies.

KEY FINDINGS

Funding and project oversight remain fragmented. This repeat finding has been noted in most briefs relating to capital outlay since 1998. With no less than 11 separate funding programs for water projects, few of the administering agencies share resources or coordinate funding to maximize financing. The root causes are most succinctly delineated in the November 2013 evaluation, *Water Trust Board*:

- "Programs... continue to operate independently of each other;
- programs compete for the same customers;
- funding comes from different sources and have widely different eligibility criteria;
- incentives do not exist for collaboration on projects;
- a long-term statewide capital plan is not centrally coordinated;
- agency and bureau boundaries inhibit communication; and
- no one agency is held accountable for a coordinated and centralized reporting function."

This fragmentation leads to a number of undesired consequences impacting outcomes for projects in this review, beginning with piecemeal funding. One project may receive multiple appropriations within and across years while others stall due to lack of complete funding. Rio Rancho completed construction on nine projects using over \$12 million in special appropriations. Yet Hagerman still needs almost \$300 thousand to bid its public water project. In the meantime, \$336 thousand of prior state appropriations sit idle awaiting the additional funding.

The state still lacks a unified review of capital outlay requests that prioritizes projects through a master planning process. While information is improving to identify local needs, the opportunity to screen all requests for risk, urgency, impact, project readiness and public health or safety concerns remains untapped. A best practice of using risk-based assessment for dams, for example, as the starting point for project selection is not apparent in the appropriation process for dam rehabilitation.

Public funds for local projects continue to be at risk for waste. A key contributor is the lack of local expertise for adequate project management. Project delays, cost over-runs and even the inability to hold contractors accountable appeared to severely impact two of the projects, resulting in a combined waste of over \$1 million for do-overs, incorrect equipment, and equipment obsolesce. The value the public has received in some cases for professional services project oversight or construction is questionable.

A changing environment can derail, delay, or expand projects - or minimize their effectiveness. Regulators seemed slow to process or respond to new technology, such as using treated wastewater in new ways. Projects based on optimistic economic projections that failed to materialize remain underutilized. People moving into the area below one dam raised the potential hazard level, bumping the project cost from \$600 thousand to \$3 million to meet increased engineering specifications.

Location	Rating
Bosque Farms	Y
Project: Radio Meters	

Location	Rating
Cloudcroft	R
Project: Potable Reuse	

Location	Rating
Hagerman	Y
Project: Water Tank	

Rio Rancho Project Ratings

Project: Replacing Water Lines	
Rating	G
Project: Expand Infrastructure	
Rating	Y
Project: Direct Injection Pilot	
Rating	G
Project: Mariposa Pilot	
Rating	R

Full installation of Bosque Farms water meters could take up to two years.

The Village has used \$325 thousand in two special appropriations to purchase radio water meters for increased efficiency. However, the funding was insufficient to have them installed professionally, requiring Village personnel to perform the work. Less than 30 percent of the meters have been mounted due to competing priorities and short staffing. Most are sitting in a warehouse. The project remains incomplete, with benefits limited to the areas where they have been installed.

The Cloudcroft PRe project is over budget and eight years behind the original completion date.

The first New Mexico community to address water shortage through recycling wastewater for potable use, Cloudcroft has seen the cost rise from the preliminary estimate of \$2.3 million to over \$6 million. Fourteen appropriations spanning 2004 to 2013 have contributed \$3.4 million. Partly due to the project's novelty and complexity, primary challenges have ranged from defective workmanship early in the project to litigation. Delays in submitting engineering designs for the final equipment installation have pushed the completion date into summer 2015. Sufficient funding is now in question due to having to replace deteriorated equipment and using new technology that is requiring refitting existing infrastructure.

Hagerman water improvements remain on hold due to insufficient funding.

Piecemeal funding has left the current project to construct a 300 thousand gallon water tank unable to proceed to bid, leaving about \$336 thousand of the \$370 thousand 2012 appropriation sitting idle since New Mexico Environment Department (NMED) approved plans, specifications and bidding documents in March 2014. The town has submitted a Water Trust Board request for \$282 thousand, bringing the estimated project cost for the new water tank and related upgrades up to \$618 thousand for completion.

Rio Rancho projects for expansion remain underutilized due to area growth not meeting expectations.

Rio Rancho used \$12 million in appropriations toward three primary projects: replacing aging water lines, extending infrastructure to meet projected demand, and constructing pilot projects for testing the potential to recharge the city's aquifer using treated wastewater. Half of the expenditures associated with developing the City Center area, also known as the Paseo Gateway Corridor, remain significantly underutilized. The other half, almost \$4 million, is sunk in a non-producing well. The other projects generated mixed results. Two projects, replacing water lines and the direct injection pilot, were successful. The other pilot project failed, most likely due to site selection.

The Office of the State Engineer is revising the methodology used to assess dam risk.

The state does not use a best practice risk assessment to govern dam appropriations. Furthermore, OSE reports the tool developed in 2008-2010 using \$681 thousand in state monies for technical design of spillways "has not been accepted for general use in New Mexico..." because "...problems with it have been identified as significant." Using the storm library that was developed, OSE will customize the tool by adding maximum precipitation models for drainage basins specific to New Mexico.

Location	Rating
Bluewater Dam	R
Project: Repair Valves	

Location	Rating
Cabresto Dam	Y
Project: Dam Safety	

Location	Rating
Hatch #6 Dam	R
Project: Spillway Upgrade	

2007 LFC Hearing Brief:

"The fundamental issue with the water and wastewater programs is fragmentation."

New Mexico must prioritize limited fiscal resources at the state level to meet all the wants and needs of the state's public entities.

-OSE 2013 NM State Water Plan Review

Bluewater Dam still only has one operational valve to release water. Thirteen years and \$184.3 thousand in state funding did not yield a successful outcome as defined by having two operational gate valves. A complex set of circumstances raise questions regarding the value received for engineering services and point to poor oversight, confusion over who was in control of the project, and lack of capacity at the local level.

At a cost of almost \$7 million, the Cabresto Dam project resulted in an upgraded "Satisfactory" safety rating but the dam still seeps water. While the spillway was improved, the dam still seeps at an unanticipated rate. Starting in 2006 with the preliminary investigation and alternative study, the project was not completed until 2014 by moving the earthen dam 160 feet downstream. Dam owners have expressed dissatisfaction with the completed project because they believe modifications to meet dam safety have prevented the dam from holding water levels sufficient for irrigation. OSE is working with the owners to identify possible solutions.

The Hatch Valley Arroyo Dam #6 project was stopped by high cost. Originally built to protect land from floods, the dam must now meet more stringent OSE requirements to also protect people who have moved into the area. Known as "hazard creep," the phenomenon increased the estimated cost from \$600 thousand to \$3 million. The \$150 thousand in state funds allocated to Hatch was redirected to Cabresto and Bluewater Dam projects.

KEY RECOMMENDATIONS

- The Legislature should consider enacting legislation to institutionalize effective capital outlay protocols and develop a statewide master plan for water and wastewater projects. Potential options include centralizing the process for water projects through collaboration of all water funding programs; requiring the use of a single uniform application process for all water infrastructure projects through a uniform application process; establishing an administrative fees fund in the State Treasury to cover agency oversight costs; providing a predictable funding stream for project completion; establishing a commission made of up legislators and executive representation to screen and recommend capital requests for all non-state entities; and establishing basic requirements for local entities receiving funds.
- Both OSE and NMED should provide updated need and cost data for effective decision making.
- OSE should update the State Water Plan.
- OSE should use a risk-based system for evaluating and addressing aging dams.
- State agencies should continue efforts to improve expertise at the local level and expand this education to cover dam owners.

Water is critical to the economic strength and public welfare of New Mexico. While providing adequate and safe drinking water for citizens is primarily the responsibility of local governments, the state supports communities through the efforts of multiple state agencies. This state-local collaboration has yielded unique challenges, from a fragmented funding process to project oversight and execution.

STATUS ON CAPITAL OUTLAY PROCESS

Communities can apply for water project funding through four separate entities: the New Mexico Finance Authority (NMFA), the New Mexico Environment Department (NMED), Department of Finance and Administration/Local Government Division, and the Legislature. The Office of the State Engineer (OSE) has also directly requested funding to rehabilitate publically owned dams. As identified in past Legislative Finance Committee (LFC) briefs and evaluations, New Mexico's process for funding water projects is fragmented and inefficient. With no less than 11 separate funding programs for water projects administered by the state as shown in **Appendix B**, few share resources or coordinate funding to maximize financing. Nor is state funding always leveraged by a systematic application of federal, quasi and local funding. Besides hindering an optimized mix of funding that leverages state grants to loan options and state to non-state money, the process introduces uncertainty for full project funding. One project may receive multiple appropriations within and across years while others stall due to lack of complete funding. The OSE notes in its New Mexico Water Plan 2013 Review, "New Mexico must improve coordination between these programs in terms of timing, eligibility, applications, criteria, vetting and implementation."

Nationally, New Mexico has ranked poorly for capital outlay management and processes, with this fragmented funding approach a core issue. Other concerns consistently noted across a diverse range of organizations—including the LFC, the Legislative Council Services (LCS), the Department of Finance and Administration, and the New Mexico Association of Regional Councils – include the need for better planning, prioritization, co-ordination, and project-to-staff ratios for improved oversight and accountability as well as implementing an appropriation process that is streamlined and predictable.

The state has benefitted from various efforts to upgrade the capital outlay process over the last fifteen years. Particularly important for addressing water issues, key legislation includes the Water Project Finance Act (Chapter 72-4A NMSA 1978) and the State Water Act (Chapter 72-14-3.1 NMSA 1978). Both aimed to improve planning and funding but intended results remain elusive. Perhaps most critical to this evaluation, the directive to provide a basis for coordinating across all funding sources and prioritizing infrastructure investment statewide remains unfulfilled. Yet the concept of regional planning has taken hold as well as more stringent requirements for requesting money, such as using a phased approach meant to produce projects that are "shovel ready." The Water Trust Board is prioritizing requests within categories while more communities are submitting annual Five-Year Infrastructure Capital Improvement Plans (ICIP). Asset management planning is gaining momentum as a best practice, including concepts of life-cycle costs.

In addition, information provided to the governor and legislators for decision making has improved. The LFC introduced the quarterly \$1 million or greater report providing status of projects. The LCS has continued efforts to educate legislators on the sometimes confusing capital outlay process. For the 2014 legislative session, agencies submitted recommendations for water projects to the executive for consideration. This initial effort prompted the NMED to initiate a Water Infrastructure Team (WIT) combining expertise from state agencies, the LFC, the New Mexico Rural Water Association, UNM Environmental Finance Center (EFC), and the Rural Community Assistance Corporation to provide a more rigorous process for delivering better information to decision makers for the 2015 legislative session. WIT spawned two subcommittees aimed at improving asset management and building expertise where needed in smaller communities, called "capacity development." NMED has allocated about \$350,000 from the Drinking Water State Revolving Fund set-asides and \$110,900 from the 2014 legislative

appropriation for the Technical Assistance Planning Fund toward a contract to provide such assistance. **Appendix C** lists potential services to be included.

In 2014, the Legislature appropriated and the governor approved \$83.2 million in capital outlay funding for water projects. Most of this funding, approximately \$75 million, is to be overseen by NMED and OSE. Thus, an underlying objective for this evaluation is to see how prior water projects fared as a possible indicator for the return on this state's most recent investment.

NEW MEXICO ENVIRONMENT DEPARTMENT

NMED's Construction Programs Bureau (CPB) oversees capital outlay funding for water and wastewater projects, and for other environmental infrastructure. Grant agreements are executed between CPB and the recipient communities for expenditure of the funds and monies are disbursed through a reimbursement process.

In FY14, CPB successfully closed 25 projects valued at \$2.4 million. As of June 30, 2014, CPB was performing administration and providing construction oversight for 112 active projects with an outstanding balance of almost \$20 million. The 2014 legislative session added 142 new projects to this inventory, valued at \$55 million. Combined with the outstanding balance at the close of FY13, these new appropriations tripled the amount of spending for NMED to oversee with no corresponding increase in staffing to do so.

In addition to overseeing construction, NMED is also responsible for permitting water projects. The Ground Water Quality Bureau reviews and approves ground water permits for discharges that have the potential to impact ground water quality. The Drinking Water Bureau (DWB) must approve a public water system project, defined as "the construction of a new public water system, modification to an existing public water system, or conversion of a non-public water system to a public water system." Permits are good for one year from issuance. The DWB is looking to provide draft guidance for potable reuse systems, a project initiated by the Cloudcroft potable water reuse project, by March 15, 2015.

OFFICE OF THE STATE ENGINEER AND THE INTERSTATE STREAM COMMISSION

The Office of the State Engineer is charged with administering the state's water resources and has power over the supervision, measurement, appropriation, and distribution of all surface and groundwater in New Mexico, including streams and rivers that cross state boundaries. The Water Resources Allocation Program (WRAP) within the Office of the State Engineer handles all water rights matters, from processing water rights applications to enforcing any conditions or restrictions on water use and monitoring groundwater levels throughout the state. Additional duties are licensing all well drillers and permitting wells, including those covered under NMAC 19-25-8 for underground storage and recovery.

WRAP also ensures dams within New Mexico are designed, constructed, operated and maintained to prevent dam failures. The Dam Safety Bureau regulates 297 jurisdictional dams, not including federal or tribal dams, as shown in **Appendix D**. Of these, 165 are rated High Hazard Potential dams, 46 Significant and 86 Low Hazard Potential dams. The bureau inspects dams on a three-to-five year schedule, classifying the condition of the dam, verifying hazard potential classification, and noting any deficiencies. Hazard and condition classifications are presented in **Appendix E**. The inspection report includes a list of required action items for the owner to remediate. The OSE reports 75 percent of jurisdiction dams have a deficiency of some kind and estimates rehabilitation costs reaching over \$240 million for the 183 dams eligible for state funding.

Table 1. New Mexico Publicly Owned Dams Regulated by OSE

(\$ in thousands)

Type	Total	Satisfactory or Fair Condition	Other Condition (Poor, Poor/Satisfactory, Poor/Fair, Unsatisfactory)	Estimated Cost of Rehabilitation All Public Dams
State owned	14	5	9	\$41,200
Flood Control	128	44	84	\$126,900
Irrigation/Other	12	6	6	\$ 27,700
Recreation	7	1	6	\$ 9,710
Wastewater	3	3	0	\$ 150
Water Supply	19	10	9	\$35,200
Total	183	69 38%	114 62%	\$240,860

Source: OSE/Dam Safety Bureau

In addition to inspecting dams, the Dam Safety Bureau reviews plans and specifications for new dams and modifications and repairs to existing dams to ensure compliance with State Engineer design criteria. Furthermore, the bureau provides oversight of state capital outlay funds for state-owned dams and those owned by political subdivisions of the state. In some cases, the OSE has extended beyond this oversight role to take on direct project management, as evidenced by two of the projects under this review.

Between 2005 and 2013, \$28 million in all funding sources, including \$16 million in Severance Tax Bonds (STB) funding, was appropriated to dam projects overseen by OSE. In 2014, an additional \$12 million was appropriated. As a result, there is currently almost \$19 million in outstanding appropriations, including reauthorized funding for Springer Dams, for dam projects being overseen by OSE. This does not include \$1 million for dam rehabilitation statewide appropriated to New Mexico State University in 2014, which will require some OSE oversight if modifications for a jurisdictional dam are involved. OSE is currently adding one FTE to its Dam Safety Bureau out of the 11 FTE the agency received as an expansion for FY15. This will bring the bureau's cadre of engineers to 6 FTE, including the Bureau Chief, with one assistant to handle all administrative work.

Table 2. New Appropriations to OSE for Dam Rehabilitation

Year	Appropriated Amount	Expended	Reverted	Remaining*
2010	\$1,000,000	\$987,044	\$12,956	0
2012	\$200,000	\$200,000		\$0
2013	\$4,650,000	\$1,422,208		\$7,220,862*
2014	\$12,130,000	0		\$12,130,000
Total	\$19,345,000	\$2,609,252	\$12,956	\$19,350,862

Source: CPMS

*Includes \$4 million reauthorized for Springer Dams.

OVERVIEW OF WATER PROJECT TYPES

Replacing Aging Infrastructure and Meeting Drinking Water Standards. The Environmental Protection Agency (EPA) predicts the 88 percent wastewater pipe in the United States rated good or excellent in 1980 will be cut in half by 2020. The agency estimates almost \$300 billion will be needed nationally over the next 20 years to address wastewater and storm water management. An additional \$250 billion over 30 years might be required nationwide for replacing drinking water pipes and related items (valves, fittings, etc.) according to the American Water Works Association report, Dawn of the Replacement Era. Recent news stories of erupting and leaking water mains in larger communities such as Rio Rancho and Albuquerque confirm the national trend of aging water and wastewater infrastructure – needing replacing or upgrading — has hit New Mexico. Prior estimates attributed to the OSE predict the state will spend up to \$2.4 billion toward this effort.

Introducing New Technology for Efficiency Gains. Replacing manual read meters with radio frequency meters is an example of using technology to reduce the resources associated with managing water operations. Benefits in this case include reduced costs associated with less man hours and fuel, improved accuracy, better customer service, reduced water wastage by identifying potential leaks, and better bill collections.

Treating Wastewater for Non-potable Uses. Most commonly known for landscaping uses such as watering golf courses, other applications include snow making, construction, and dust abatement. Using reclaimed wastewater for non-potable use has been around for a number of years and appears well accepted by the public and permitting entities. Wastewater is treated to an acceptable level and “reused,” reducing demand on the original water source whether it is an aquifer or surface water. Thus, this technology is considered a conservation method.

Treating Wastewater for Potable Use. Turning wastewater into drinking water is less common or acceptable to the public, despite the fact that the highly treated water is cleaner than that provided by nature—especially in New Mexico where water can be high in arsenic, uranium and total dissolved solids. The “toilet to tap” phrase conjures immediate distaste for most people. However, the growing demand for water in the face of supply shortfalls is forcing reconsideration of this methodology for augmenting water inventories. Although still expensive, this reuse method is gaining momentum as part of overall water supply strategy.

Treating Wastewater for Aquifer Recharge. As an option to using treated water as part of the drinking supply, the treated water can be reintroduced into the aquifer to be pulled out again as part of the natural supply. In this case, permitting is covered by both the NMED Quality Water Bureau to preserve water quality as well as the OSE to receive the offsets in calculating water rights use. As with potable reuse technologies, being relatively new to the state, this technique for restoring supply has produced some challenges for the permitting process.

PROJECT SELECTION

To represent a variety of types of projects, geographic locations, appropriation amounts, and progress made to date, the following projects were selected for review:

Table 3. Initial Severance Tax Bond (STB) Appropriations for Selected Water Projects*

Project	Agency	FY of Approps	STB Appropriated	Expended	Balance	Reverted to Date
Bosque Farms Water Meters	NMED	2008, 2013	\$325,000	\$323,807	\$1,193	\$0
Cloudcroft Potable Wastewater Project	NMED	2012	\$772,000	\$495,137	\$276,863	\$0
Hagerman Water Storage Tank	NMED	2008, 2012	\$420,000	\$83,798	\$336,202	\$0
Rio Rancho Water System Improvements	NMED & OSE	2006-2009, 2013	\$12,020,000	\$11,187,564	\$557,424	\$275,012
OSE Dam Repairs (Cabresto, Bluewater, and Hatch #6)	OSE	2005, 2006, 2008-2013	\$8,361,330	\$6,286,246	\$372,305	\$1,702,917

Source: LFC

*Additional appropriations were uncovered during the fieldwork. Subsequently, this initial table will not always tie to individual project tables.

Office of the State Engineer, New Mexico Environment Department, Report #14-12
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As the review progressed, the project funding sources expanded. Appropriations were uncovered that represented state grant funding that were not severance tax bonds (STB), such as the water innovation fund or general fund. Other loans and non-state grant sources were also found. Where warranted, all known sources are included to represent a more realistic cost of projects and provide the relative value of the state's contribution. However, file reviews were only performed for appropriations administered by the NMED and OSE Dam Safety Bureau.

Bosque Farms Water Meters. The village used this appropriation to purchase 1,440 radio read water meters with plans to install them with its own personnel. According to the Village, sufficient meters have been purchased to cover the entire population.

Cloudcroft Potable Wastewater Project. Cloudcroft has been prone to water supply shortages and declining water supplies, and at the same time has seen large demand increases during weekends and the tourist season. This project is meant to help address the shortage by installing membrane bioreactor (MBR), reverse osmosis and ultra-filtration technologies to be used in conjunction with each other to highly treat wastewater. Cloudcroft is also utilizing funds from a federal grant, a Rural Infrastructure Revolving Loan Program loan, and Colonias funding toward this project. This was the first potable water reuse project in the state.

Hagerman Water Storage Tank. This project is intended to address limited storage capacity that causes operational issues during peak demand, which has required the town to continuously run well pumps. While the town solicited quotes from nine engineers, it only received a single bid. NMED has approved the plans and specifications in March 2014. The town received an additional \$100 thousand in capital outlay in 2014. The 2012 appropriation was to plan, design, and construct the storage tank.

Rio Rancho Water System Improvements. In addition to the \$12 million in STB revenue appropriated to Rio Rancho for water system improvements, the city received a \$1.8 million grant from the Water Trust Board. These funds are being used to increase treatment capacity and conserve groundwater usage – goals which the city is attempting to accomplish through upgrades to storage and treatment facilities and water lines that have reached end-of-life. The majority of the projects were undertaken in anticipation of economic development in the Paseo Gateway Corridor, also known as the City Center area.

OSE Dam Repairs. This appropriation was intended to perform repairs at three dams: Cabresto (Taos County); Bluewater (Cibola County); and Hatch #6 (Doña Ana County). Collectively, OSE estimated the cost of rehabilitating these dams at \$9.15 million in October 2013.

FINDINGS AND RECOMMENDATIONS

WATER AND DAM PROJECTS HAD LIMITED SUCCESS, DEFINED BY PROJECT COMPLETION WITH CITIZENS RECEIVING 100 PERCENT INTENDED BENEFICIAL USE.

Only 10 percent of the nearly \$27 million in state appropriations for the selected local projects has resulted in successful outcomes. Appropriations for the funded projects ranged from traditional water line replacement and simple dam repairs to the more novel experiments in water reuse. However, complexity by itself did not always determine success or failure. Several weaknesses, common to the local capital outlay projects reviewed in prior evaluations, minimized effectiveness. From fragmentation of funding to lack of local expertise, these themes are further explored throughout the evaluation.

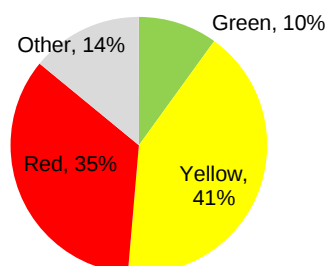
Although projects were diverse, the same rating criteria were applied to assess effectiveness. Based on the evaluation objectives, five criteria yielded a rating based on the familiar red, yellow or green scoring used in Legislative Finance Committee (LFC) performance reports for agencies. The sixth was informational. A simple “yes,” “no,” or “partially” answer to each question, based on the project’s review, is followed by summary comments to explain the rating. A preponderance of “no’s formed a red rating. Conversely, a majority of the questions answered as a “yes” produced a green rating, reflecting the project was cost-effective, well managed, on time, complied with applicable rules, laws and regulations, and—most importantly—whether the results met intended purpose.

Table 4. Project Rating Criteria

	Review Criteria
1	Project on time?
2	Project on budget?
3	Results meet intended purpose?
4	100% compliance with applicable laws, rules and regulations?
5	Effective planning, management and oversight?
6	Will project require additional funding to meet objectives?

Only two of the selected projects in this review were successful. Of the remaining, how well the project met its intended purpose decided the final score. If a project was completed on time, on budget, with great management and no compliance issues but wasn’t meeting its full intent, the investment could not be considered a success. The most common detractor was under-utilization. Project incompleteness also lowered an overall rating. However, if the project had no current use with limited probability to be put into production soon, the overall score was red, reflecting a zero current return on the public’s dollar. Including the one project that scored red based on composite answers to all criteria, 35 percent of total appropriations fall in the red zone. The other category includes funding that had reverted, used in another project outside this evaluation, or has a remaining balance.

Chart 1. Select Water and Dam Project Overall Ratings



Source: CPMS and LFC Analysis

Table 5 provides a summary rating for six broad water project categories while Table 6 presents scoring for the three dams. The dollars allocated represent state money, either through direct appropriations specifically identified in law or from an allocation the local entity made from a larger appropriation with broad language allowing such discretion. Each project is further reviewed in more detail in subsequent sections.

Table 5. Status of State Grant Funding for Water Projects

Project	\$ Allocated	\$ Spent	Project Status	Rating
Bosque Farms Radio Water Meters	\$325,000	\$323,807	Project incomplete: Meters purchased; 27% installed.	Y
Cloudcroft Potable Reuse Project	\$4,213,000	\$3,911,744	Project incomplete: Over-budget, significantly delayed, pending final equipment design/installation for water treatment.	R
Hagerman Drinking Water System	\$420,000	\$83,798	Project incomplete: insufficient funding to complete project; requires an additional \$200+ thousand.	Y
Rio Rancho – Line Replacement	\$1,075,000	\$1,022,246	One project complete; 2 nd in process. Replacing leaking water lines that were originally installed using inferior materials; replace water meters.	G
Rio Rancho – Paseo Gateway Development (Various projects)	\$8,051,890*	\$7,737,753	Projects completed but improvements remain underutilized pending development. Well #23 capped pending \$15 million for water treatment facility.	Y
Rio Rancho-Reuse Demonstration Projects for Aquifer Recharge	\$2,893,110	\$2,893,110	Direct injection demonstration project for aquifer recharge completed and is pending permitting to move to full production.	G
			The other demonstration project for aquifer recharge (Mariposa) is not producing results.	R
Total \$	\$16,978,000	\$15,972,459		

Source: LFC Analysis

*Includes \$50,000 SAP 08-3813 administered by OSE/ISC and not in OSE Dam Safety or NMED files

Table 6. Status of State Grant Funding for Dam Projects

Dam Name	\$ Allocated	\$ Spent	Rehabilitation Project Status	Rating
Hatch #6 Flood Control	\$150,000	\$0	Project costs escalated from \$600 thousand to \$3 million and was suspended. Funding reallocated to Cabresto Dam project .	R
Bluewater Irrigation	\$481,843	\$238,849	Project incomplete: both valves still not operational. Operation & Maintenance Manual and Emergency Action Plan completed.	R
Cabresto Irrigation	\$9,050,000	\$6,716,603	Project completed but does not yield intended outcome; new dam still seeping at an unanticipated rate. New spillway improved condition rating.	Y
Total \$	\$9,681,843	\$6,955,452		
One project was canceled and two were completed without desired results.				

Source: LFC Analysis

Piecemeal and fragmented funding resulted in challenges for effective implementation of reviewed projects.

The projects reviewed received funding from several grant and loan programs: appropriations made through the legislative process (also known as special appropriation program or SAPs); the rural infrastructure loan program administered by NMED; water project funding administered through the Water Trust Board; the federal Community Development Block Grant program administered by the Department of Finance and Administration (DFA); federal grants; NMED Clean Water Revolving loan fund; Colonias funding (loan and grant) administered through the New Mexico Finance Authority; and local money in some cases. All known sources are included as part of a project's discussion to represent a more realistic cost of projects and to provide the relative value of the state's contribution. However, the evaluation is based solely on file reviews and fieldwork performed for appropriations administered by the NMED and OSE Dam Safety Bureau.

Office of the State Engineer, New Mexico Environment Department, Report #14-12

Capital Outlay: Review of Select Water Projects

December 8, 2014

The recession starting in 2008 revealed the susceptibility of projects using Special Appropriation Program (SAP) funding, or legislative capital outlay appropriations, to economic conditions. Special appropriations for dam, water and wastewater projects spiraled down from about \$100 million appropriated in both the 2006 and 2007 legislative sessions to less than \$95 million spread over the next four years. Some communities, like Cloudcroft, turned to other funding sources to continue construction.

**Table 7. Water and Wastewater Appropriations
2006 - 2012**
(in thousands)

2006	\$100,262
2007	\$107,291
2008	\$41,888
2009	\$34,765
2010	\$8,242
2011	\$7,570
2012	\$12,700

Source: CPMS

In general, appropriations were not optimized using a full funding concept according to any master plan that prioritizes limited resources across the state. Rio Rancho completed construction on 10 projects using over \$12 million in special appropriations. Yet Hagerman still needs almost \$300 thousand to bid its public water project. In the meantime, \$336 thousand of state money is tied up in prior funds set aside toward the project. Bosque Farms requested \$675 thousand for buying and installing radio meters and received \$300 thousand, enough to buy the meters with the understanding the village would use personnel to install them. However, about 75 percent of the meters remain in storage due to short staffing and competing priorities.

Given this fragmentation, the opportunity to leverage federal and other funding was minimized to coordinate and complete projects. Hagerman received a federal earmark to construct a well on the south side of town. The well has been sitting unused for about eight years because the state did not fund the estimated \$1.3 million to tie it into the current system. However, the state did fund over \$600 thousand for other system improvements, the latest being a water tank for the main well located on the north side of town. This project still needs up to \$300 thousand. Combining the funding on one or the other project might have yielded at least one completed project rather than two incomplete ones, both requiring additional money.

Projects had fragmented oversight across years and funding sources, leaving no one agency with a complete picture. During the project fieldwork, projects with more than one funding source invariably led the investigation beyond the original scope limited to NMED and OSE. One agency might have control of a project one year and then another agency has the project another year, with limited interaction. The Department of Finance and Administration (DFA) handled the first radio meter purchase for Bosque Farms; NMED had no record of it. Hagerman funding was also split between DFA and NMED. OSE was unaware of \$300 thousand appropriated to New Mexico State University the last two years for Hatch #6.

No single database contains all project funding in a coordinated effort to track investments made in local infrastructure to determine need, outcome, and the appropriate level of state contribution. The Capital Outlay Management System (CPMS) provides data related to legislative appropriations. To the extent reporting entities input information, it is useful. NMED implemented the Loan Grant Tracking System to follow appropriations under its direct purview about seven years ago. However, like CPMS, this database is limited in its range of appropriations and is used primarily by financial personnel.

To track projects with multiple funding sources, NMED and OSE project managers use spreadsheets. When known, NMED project managers incorporated other funding sources outside their direct purview, such as Water Trust Board grants, into a spreadsheet for tracking expenditures. Spreadsheets were also used to allocate a single appropriation across multiple projects. These spreadsheets were vital to the investigation but can be unwieldy and subject to error. They also represent an inefficient use of staff resources to manually input duplicate information.

NMED project oversight ends with the appropriation, whether the project is completed or not, and no other agency appears to be tracking local projects from conception to post-construction to identify outcomes. NMED's involvement ended when the funding source was expended or reverted – regardless of project status. No one had checked up on the progress of meter installation at Bosque Farms. No one from the construction end of NMED tracked further progress on Rio Rancho aquifer recharge projects nor attended the site visit. Nor are such follow up activities required.

Rather, the emphasis is placed on the appropriate expenditure of the funds in accordance with language, regulatory compliance and technical adequacy. These activities were performed well. Both NMED and OSE staff were meticulous in reviewing design plans, for example, often producing multi-page responses noting varied deficiencies from specifications to syntax. The OSE statutory mandate to regulate dam safety provides some continuity for dams after a specific appropriation expires. But projects monitored by NMED lose visibility once the last appropriation is done.

Projects receiving Colonias funding might not be receiving adequate technical review. NMED and the New Mexico Finance Authority (NMFA) have executed Memorandum of Understanding (MOU)s for NMED to support three of NMFA's programs – those administered through the Water Trust Board, Local Government Planning Fund, and Drinking Water State Revolving Loan Fund. NMED charges \$74.76 per hour, and the MOUs allow up to various aggregate thresholds ranging from \$40 thousand for LGP and \$250 thousand for WTB over four years. When reached, services are suspended. There is no MOU between NMED and the Colonias program administered through NMFA. Since NMFA does not have technical staff on board, a follow up evaluation of any gaps in technical or other reviews might be warranted.

NMED has exceptional project management with standardized processes for key oversight steps and records management. As shown in **Appendix F**, a master records system standardizes placement of documents into six distinct sections, with financial folders maintained by finance personnel in addition to those preserved by project engineers. Checklists provide effective internal controls, from the initial tracking sheet included as **Appendix G** to those used to assess designs, construction progress and financial compliance.

However, OSE could improve. Incomplete records made it difficult in some cases to assess proper internal controls and processes were followed to ensure compliance with OSE rules and regulations. OSE did not use the broad range of checklists and rigorous file management system employed by NMED and executed by the engineers and finance personnel in separate folders. The files reviewed often were missing important documents, such as tabulation matrices for procurement. Documents were piled on top of the other, not always in chronological order. OSE notes it has begun adopting best practice methods for tracking project compliance but an extensive three-page checklist provided as a sample was not in use for the projects in question.

A changing environment added to project complexity, impeded progress, or stopped a project altogether. Projects can be based on optimistic assumptions that do not materialize, resulting in uncertain value to taxpayers or citizens. Rio Rancho projects geared to meet development, almost a third of all expenditures, remain underutilized. One well hit extraordinarily bad water and remains capped, awaiting future funding for water treatment. Project risk is not considered in the appropriation process. Some, like replacing water lines, bare minimal risk while most of this capital outlay portfolio fell on the high end due to increased uncertainties. How much risk the public should assume for local projects is not considered.

Changing environments have placed people downstream of dams that were built to protect only land, called "hazard creep," adding to the complexity of the assessing, rehabbing, and prioritizing New Mexico dams. OSE specifications rise accordingly, as do costs, to meet more stringent rules to protect people and not just crops. As an example, the preliminary estimate for Hatch #6 Dam rehabilitation, based on original plans for flood control, soared from \$600 thousand to \$3 million as OSE added consideration for developments now at risk. In addition, this issue

of a changing environment complicates design efforts. For Hatch, discussions between OSE and the organization developing the project design continued for over seven years without resolution.

Local capacity in terms of financial, technical, financial, and legal expertise is lacking in some instances, adding to risks associated with project completion or project success. The capital outlay process itself appeared confusing to the smaller utility districts. For example, Bosque Farms personnel understood the grant could only be used to purchase the meters although the language specified “purchase and install.” Compliance with the procurement code also presented problems. NMED did not fully approve a Hagerman reimbursement for tank rehabilitation because the town did not use the appropriate procurement process for projects over \$20,000, the threshold at the time. Cloudcroft has two instances of allowing a professional services contract to lapse.

From procurement irregularities to project mismanagement, failure of dam owners to meet OSE requirements threatens successful completion of projects and efficient use of state funds. Bluewater dam owners purchased equipment that did not fit and did not monitor for receipt of materials prior to payment. Cabresto dam owners simply did not respond to OSE memos ordering repairs to address concerns regarding a potential breach and flooding in Questa, and the OSE took over.

In some instances, neither the local entity nor the agency appeared successful in holding engineering or construction firms accountable. Related to the lack of technical expertise at the local level, those onsite either lacked the technical expertise to question performance or the will to do so, possibly out of fear of litigation. Technical inexperience, especially with new technologies, might have contributed to Cloudcroft’s extensive project delays and cost overruns due to various sources: vague project scope, poor planning or design, deficient construction, litigation, and questionable oversight. Bluewater-Toltec Irrigation District hired a third-party observer to watch construction, a job the general engineer was supposed to do but didn’t show on the last day. Statutory requirements such as those specified under 72-5-9 NMSA 1978, requiring registered professional engineers to monitor construction on dams, attempt to leverage the state’s eye on projects. Yet, in key instances this reliance on law to produce satisfactory results or statutory compliance met with limited success.

Non-responsiveness of dam owners for two of the three dam projects might indicate investments made now won’t be maintained. The future of New Mexico dams might become a serious issue as their current dam tenders age and are not replaced by the next generation. Based on this small sample, these dam owners have limited resources to address dam deficiencies, leaving the problem of public safety in the state’s hands.

OSE did not submit any dam capital outlay requests for the 2015 legislative session, leaving the responsibility to the dam owners. While this policy decision re-prioritizes the limited OSE staff resources back toward its mandated function of inspecting dams and regulatory oversight, uncertainty now increases for dam restoration statewide. Whether dam owners will effectively use OSE inspection reports to develop master plans for dam rehabilitation and request state assistance, if needed, remains to be seen. OSE plans on increasing efforts to educate dam owners on their responsibility to properly operate and maintain their dams, including providing contacts and information on potential funding sources.

Limited state staff resources and administrative actions delayed projects. As OSE assumed responsibility for projects when dam owners did not take action in response to inspections, scarce staff resources had to absorb duties beyond statutory or administrative mandates. With about 300 dams to inspect for safety as a first priority, the OSE had limited staff of five engineers to provide project management, from developing the scope the project, procuring engineering services, tracking investigation and design progress, coordinating design services, contracting for construction, and tracking construction progress. Performing these functions diverted time away from normal duties. At times NMED also saw high vacancies or high workloads that slowed responses, adding to project delays.

State administrative actions slowed or stopped projects. In 2010, Senate Bill 182 pulled uncommitted capital funds for solvency. Rio Rancho was able to retain its appropriations although Hagerman did not, even though funds were

obligated to purchase water meters. The funds were restored but the process delayed this part of the project for over six months. The Bluewater dam project found its money pulled and sat at a standstill for another year, leaving the district without any functional water gates to release water for that period.

Later in 2012, Executive Order 2012-06 put projects on hold while financial competency and compliance with the Audit Act were ascertained. More recently, the Southeastern Council of Governments reported smaller communities in their region were having difficulties with the dissimilar application of Executive Order 2012-06 by state agencies. In the example given, the Department of Transportation did not require the town to have a fiscal agent while the NMED did, even though both agencies used the same audit. Complicating the process further, agencies had varied reporting processes, forms and reporting schedules.

The state regulatory process can be complicated to navigate, slowing project completion. Most notable in the water reuse projects, permitting or approval can be a lengthy process to ensure water quality. NMED has up to 120 days to comment on these more complicated projects versus the normal 30 days. In addition, the approval is good for only one year. Cloudcroft received NMED approval for its potable reuse in 2008 and now has to resubmit its plans. Completing a direct well injection project for aquifer recharging is even more time consuming. The state requires a two-step process that starts with a pilot or demonstration project to provide necessary data before progressing to a full scale version. No less than five state agency bureaus are involved: the Water Rights Administration (OSE), the Hydrology Bureau (OSE), Legal (OSE), Water Use and Conservation Bureau (OSE), and the Ground Water Quality Bureau and (NMED). OSE reports it just permitted the first aquifer recharge project in New Mexico for Albuquerque after eight years.

RECOMMENDATIONS

Legislature:

- Enact legislation to address the fragmented process for water projects:
 - o Require a statewide, comprehensive, multi-year capital plan for water and wastewater infrastructure that includes agency recommendations for current year appropriations;
 - o Require the use of a single uniform application process for all water infrastructure projects through a uniform application process to serve all applicants as well as funding agencies for water and wastewater programs;
 - o Establish a single, interagency committee responsible for coordinating all funding programs for water infrastructure projects and require a centralized reporting process to measure effectiveness;
 - o Develop a process for prioritizing limited state dollars, such as establishing a commission made of up legislators and executive representation to screen agency annual recommendations and recommend capital requests for local entities;
 - o Consider project risk as part of the evaluation process;
 - o Require all non-state entities submit annual five-year capital improvement plans to be considered for grant funding;
 - o Require an optimum mix of local funding, loans and other funding sources as a requirement for grant funding;
 - o Require asset management plans as a criteria for grant funding;
 - o Establish an administrative fees fund in the State Treasury to cover agency project oversight costs or, alternatively, increase staff funding to ensure projects receive adequate technical and financial review;
 - o Set aside a small percent of funding to cover the cost of post-completion audit of projects over a certain threshold, such as \$1 million; and
 - o Encourage standardization across all agencies for project oversight, from using the uniform application to reporting requirements.

The OSE and NMED should:

- Engage in business process re-engineering to identify where activities could be streamlined and automation introduced;
- Look for opportunities to streamline and coordinate processes among administering agencies;
- Investigate means for improving project tracking, including transitioning to electronic records storage for capital outlay projects and creating a centralizing a database for all funding sources;
- Help local entities inventory all local water and dam needs and provide updated cost estimates to the legislature and executive for prioritizing;
- Continue working on capacity development at the local level, including dam owners; and
- Improve staff-to-project ratios so staff engineers can make more site visits, as appropriate.

The OSE should:

- Adopt risk analysis methodology and risk assessment procedures to support dam safety decision making;
- Proceed with contracting a study to update the PMP modeling methodology for the state for more accurate modeling spillway requirements and cost estimates;
- Complete the State Water Plan update by the December 2015 target date;
- Provide a recommended list to address dam priorities for the upcoming legislative session;
- Review all dams subject to “hazard creep” using new PMP tool for risk assessment that might reduce the spillway specifications and cost;
- Use risk assessments to identify highest risk dams that require remediation for safety and recommend either breach (destroy the dam) or a consensus resolution with federal and dam stakeholders with a multi-year plan for overhauling remaining dams;
- Establish procedures for project intervention that comply with statute, rules and regulations and do not introduce liability to the state for publically-owned dams;
- Initiate an outreach program to dam owners, possibly in conjunction with the Water Infrastructure Team, to improve local capacity (expertise), educate dam owners on critical responsibilities that will not be provided by the OSE (such as capital outlay requests), and help establish succession plans for newer generations to take over operations;
- Undertake discussions with the Department of Game and Fish for possible participation in Bluewater Dam maintenance and improvements, either by taking over ownership or contributing through an MOU with the Bluewater-Toltec Irrigation District; and
- Adopt rigorous file policies and procedures, including using best practice checklists to ensure compliance.

NMED should:

- Continue leading the Water Infrastructure Team initiative, comprised of multiple state agencies and non-profit groups involved in water issues, to improve water and wastewater management at the local level;
- Work with stakeholders to devise funding mechanism to cover NMED fees for technical review and oversight of water and wastewater projects; and
- Drinking Water Bureau should complete the new water regulations related to reuse technologies.

FULL INSTALLATION OF BOSQUE FARMS WATER METERS COULD TAKE UP TO TWO YEARS.

Of the 1,440 various sized meters purchased with a \$300 thousand appropriation, the village has 1,051 left to install. Bosque Farms is a village located in Valencia County with a population of about 4,000 people. As with most communities, the Water and Sewer Department is grappling with aging infrastructure and has various capital outlay requests and projects on file since 2000 addressing water and wastewater needs. The village has also been seeking means of increasing efficiency by adopting new technology, such as replacing manual read water meters with radio read water meters that reduce man hours while improving accuracy and bill collections. However, village personnel are installing the meters and a limited number have been mounted. The project remains incomplete and the Village has yet to see full benefits.

Table 8. Bosque Farms Project Rating

Review Criteria	Rating	Comments
Project on time?	No	50 meters purchased with 2008 SAP installed but project postponed due to lack of funding. Of the 1,440 meters purchased with the 2013 SAP, only about 390 have been installed.
Project on budget?	Yes	
Results meet intended purpose?	Partially	Where installed the Village reports anticipated benefits: reduced staff time to read meters, freeing up personnel to perform other tasks; improved meter reading safety; increased accuracy; ability to diagnose high water bills and provide 3-month history; allow bills to be mailed on time; and improved collections.
100% compliance with applicable laws, rules and regulations?	Yes	Meters purchased off State Price Agreement. Grant agreements properly executed.
Effective planning, management and oversight?	No	Project curtailed by piecemeal funding. Village requested \$200 thousand in 2008 for purchase and installation; received \$25,000. Village requested \$675 thousand for 2013 and received \$300,000. Insufficient funding for contractual installation, requiring Village personnel to install meters "when they have time." NMED project oversight ended with appropriation closure.
Will project require additional funding to meet objectives?	Unknown	The Village might request funding for meter installation but it seems unlikely.
Overall Rating	Y	

Source: LFC Analysis

Two special appropriations (SAPs) totaling \$325 thousand targeted this effort. The funds were fully expended with slight amounts reverting.

Table 9. Bosque Farms Appropriations

SAP	Amount	Description	Administering Agency
08-4560	\$ 25,000	Bosque Farms Water Meter Purchase	Department of Finance and Administration (File not reviewed.)
13-1521	\$300,000	Bosque Farms Water Meter Purchase	NMED

Source: CPMS

The village does not have a planned installation schedule to complete the project. Rather, the department staff "squeeze them in" between other duties "when they have time." So far about 390 of the 1,440 meters purchased have been installed, or less than 30 percent, since last March. According to village staff, progress has been slowed due short staffing. Of the four filled positions, one person is out on sick leave. Furthermore, the Utility Director asserts "keeping up with the daily tasks and emergencies that arise keep them occupied." While on the site visit to Bosque Farms, this evaluator witnessed one alarm and two emergency calls, supporting this contention. Thus, it seems likely meter installation will continue at its current pace, putting possible completion as far out as 21 months.

Although the staff reports no inventory is performed on the meters, the number of boxes (with 10 per box) would seem to support the remaining 1,000+ count. The devices are being stored in a warehouse near Well #2 on pallets, as shown below. NMED is considering making installation a project requirement for future meter upgrades.



Radio Meters Sitting on Pallets



Ten Meters Per Box

CLOUDCROFT PURe PROJECT IS OVER BUDGET AND EIGHT YEARS BEHIND ORIGINAL COMPLETION DATE.

Initially projected for a June 2006 completion, the project remains unfinished and over budget. Cloudcroft Village's population of 697 soars during peak tourist season. When drought forced the community to haul in 20,000 gallons of water daily to meet demand in 2001, leaders sought other options for a permanent solution. Settling on advanced wastewater treatment technologies, Cloudcroft became the first New Mexico town to consider recycling wastewater for potable use. However, early construction deficiencies and project redesigns have increased costs.

Table 10. Cloudcroft PURe Rating

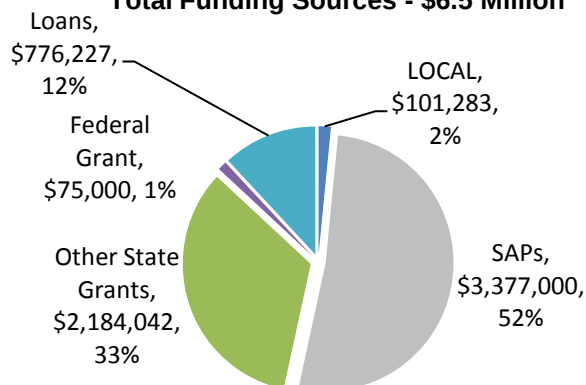
Review Criteria	Rating	Comments
Project on time?	No	Originally scheduled for project completion June 2006.
Project on budget?	No	Preliminary Engineer Report estimated \$2.3 million for construction.
Results meet intended purpose?	No	New completion date: June 2015
100% compliance with applicable laws, rules and regulations?	No	Professional services contract has lapsed twice. Four amendments extended the first contract, terminating on April 2, 2006 after its four-year term, inappropriately through 2009. NMED refused to extend it again and a sole source was executed in 2010. The sole source expired September 2014 and a new small purchase for \$60,000 has not been approved by NMED.
Effective planning, management and oversight?	No	Preliminary Engineering Report vague. Continued project delays due to slow or inadequate response. Major issues with original construction with limited oversight.
Will project require additional funding to meet objectives?	Unknown	Current unexpended funding: \$1,559,642. Current invoices: \$382,887 Available funding: \$1,176,754 Latest cost estimate from General Engineer to complete project: \$1,197,000 Plus \$60,000 per latest contract for professional services
Overall Rating	R	

Source: LFC Analysis

From an initial estimate of \$2.3 million provided by the Preliminary Engineering Report, expenditures have swelled to just under \$5 million. Approximately \$1 million of this cost resulted from early construction that had to be ripped out and redone or replacement of deteriorated equipment. Approximately 17 percent has been paid for general engineering fees. NMED noted a concern regarding "high" engineering service fees in 2010 when reviewing the sole source contract for approval, projecting 19 percent to 20 percent compared with American Council of Engineering Companies cost curves of 8.5 percent for general engineering services and 4.3 percent of construction costs, or around 13 percent for a project of this complexity.

To match the pace of spending, funding increased from just under \$1 million provided by Governor Richardson's Water Innovation Fund in 2004 and 2006 to \$6.5 million. State grants account for 85 percent of this funding with Special Appropriations (SAPs) contributing \$3.4 million. Of these, just over \$300 thousand remains. The village also still has \$942 thousand Colonias loan and grant funding available.

**Chart 2. Cloudcroft PRe Water Project
Total Funding Sources - \$6.5 Million**



Source: NMED Files. CPMS

State oversight of the project is fragmented across three agencies according to funding type. Initiating funding of almost \$1 million from the Water Innovation Fund in 2004 and 2006 was administered by the Department of Finance and Administration, although technical review and payments did flow through NMED. Water Trust Board funding of \$500 thousand, overseen by the New Mexico Finance Authority (NMFA), also received NMED scrutiny through the payment process. However, recently added Colonias funding might not be receiving adequate technical review as the Colonias Infrastructure Board has not executed a Memorandum of Understanding with NMED for such services. The NMED project manager found out about the funding from the Village. The following table was compiled from an NMED spreadsheet, the only place where all funding sources can be found. Information was confirmed with CPMS or documentation where available. Remaining funding totals \$1.6 million; NMED expressed concerns this might not be enough to complete the project.

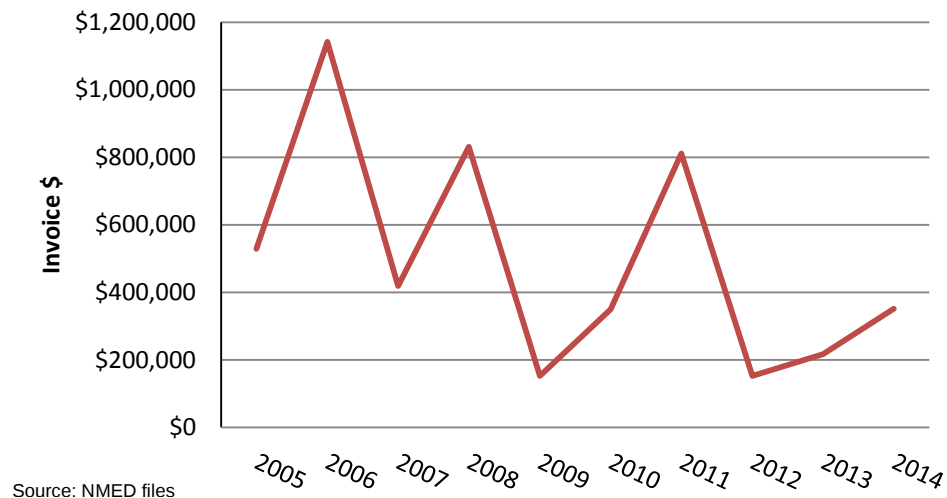
Table 11. Cloudcroft PRe Funding Schedule

Year	Source	Amount	Expended	Remaining
2004	GOV INV 1	\$636,000	\$636,000	0
2006	GOV INV 2	\$200,000	\$200,000	0
2006	WTB	\$500,000	\$500,000	0
2004	SAP 0200 STB	\$100,000	\$100,000	0
2004	SAP 1544 STB	\$200,000	\$200,000	0
2004	SAP 2134 CP	\$200,000	\$200,000	0
2005	SAP 0131 STB	\$100,000	\$100,000	0
2005	SAP 0132 STB	\$100,000	\$100,000	0
2005	SAP 1131 GF	\$100,000	\$100,000	0
2005	SAP 1132 GF	\$100,000	\$100,000	0
2006	SAP 1166 GF	\$150,000	\$150,000	0
2006	SAP 1167 GF	\$150,000	\$150,000	0
2006-2010	Local	\$101,283	\$101,283	0
2011	USFS RAC Grant	\$75,000	\$75,000	0
2007	SAP 4516 GF	\$200,000	\$200,000	0
2007	SAP 4515 GF	\$530,000	\$530,000	0
2008	SAP 3125 STB	\$450,000	\$450,000	0
2009	RIP LOAN	\$682,000	\$365,884	\$316,116
2012	SAP 1360 STB	\$772,000	\$695,744	\$76,256
2013	SAP 1474 STB	\$225,000	0	\$225,000
2013	Colonias Loan/Grant	\$942,269	0	\$942,269
Totals		\$6,513,552	\$4,953,911	\$1,559,641

Source: NMED, CPMS, NMFA

Delays were caused by a number of factors, some common to New Mexico capital projects such as weather and lack of capital outlay funding during 2009-2011. Others were unique. Project activity stalled during the economic downturn in 2009 when SAP money dried up, forcing the village to turn to a Rural Infrastructure Loan administered by NMED to continue. Demonstrating a natural preference for “free” money, the village will use the remainder of this loan last.

Chart 3. Cloudcroft Project Activity by Year



Unproven technology and the novelty of implementing the “toilet to tap” concept challenged both the general engineer and oversight agencies, such as the Drinking Water Bureau, to produce, review and approve construction plans that would ensure compliance with all state and federal water quality regulations and statutes. Over the course of the project the Cloudcroft engineer submitted various documents to the NMED Drinking Water Bureau (DWB) pursuant to the New Mexico Drinking Water Regulations (NMAC 20.7.10), seeking approval for portions of the project. One of the earliest requests, submitted on April 13, 2006, did not receive a response from DWB until October 10, 2006, over five months later. This response noted 11 regulatory deficiencies and five sanitary deficiencies, denying the request for approval. DWB finally granted approval project on July 1, 2008. However, now that the project has reached the stage for final construction on the drinking water equipment installation, the Village must resubmit its request for approval to DWB since the 2008 approval has lapsed.

It will have taken DWB over seven years to develop guidance for potable reuse. Concerns over the Cloudcroft project prompted the bureau to convene a committee to address policy issues starting in 2007. Finally contracting with the National Water Resource Institute (NWRI), recommendations for Cloudcroft and the statewide report are both due by March 2015. The NMED will use the report to create guidance for Cloudcroft by the June projected completion date and all water systems in New Mexico to follow.

Untimely and inadequate submissions from the general engineer have plagued the project from the beginning according to the oversight agency, Construction Program Bureau at NMED. In an email dated July 18, 2006 to the engineer, NMED project manager writes, “Your responses continue to be slow and unsatisfactory and I would hate to see the village suffer because of them.” Gantt charts throughout the years showed completion dates slide. As an example, the latest projection of January 2015 for start-up and acceptance testing has now been revised to the summer.

Construction deficiencies early in the project have led to undesirable consequences including litigation, additional engineering costs for inspections and construction costs for remediation, and deterioration of equipment requiring replacement. Concrete poured for the basins leaked and substantial honeycombing was found by a later inspection. The same contractor applied the coating incorrectly, blew up the electrical system, and damaged much of the stainless steel piping. Supplied by Sanitaire already fabricated, it did not fit. Yet while all this was going on, from early 2007 through April 2008, general engineering reports submitted to NMED approved eight payments totaling \$940 thousand.

An investigation by Larkin Group prompted by the lawsuit concluded:

“In general, we believe there is sufficient information in the plans and specifications to build most of the project....” However, “They do not believe the electrical plans are adequate.”

Issues, concerns and questions noted in the report included the following (Emphasis added):

1. “The Belzone coating was not part of the original design. We find no correspondence on who decided to apply the coating or why. **There is no information regarding any leakage testing following completion of walls.**
2. **There is no record of why construction was allowed to continue without determining whether the walls were acceptable. The honeycomb must have been obvious when the forms were stripped. It would seem prudent to require testing to determine whether the walls were acceptable before continuing construction.** Repair of the walls would have been easier without the metal buildings constructed on top of them. Also, the possibility of the equipment being damaged by sand and blasting dust would have been removed.
3. The MBR equipment is not in the building....Pay request number 13 indicates 95% complete with payment of \$52,250. This item may have been more complete at one time.
4. ...no electrical, piping, pumps or blowers are in place. Pay request number 13 indicates that this item is 100% complete with payment of \$55,000.”

In addition to the original \$940 thousand paid to the contractor and \$137.7 thousand paid to reseal the basins, costs for replacing equipment and finalizing the project according to revised designs and technology total \$913 thousand.

Table 12 . Change Orders for Replacing Equipment

Contract	Amount	NMED Approved?	Paid	Original or Replacement?	Comments
XYLEM			\$266,224.86		Paid to date on Change Orders
C/O 2	\$430,460	Yes		Both	Replacement MBR; Replacement RO/UF membranes; New pump controls due to another supplier (C&E) not able to supply.
C/O 3	\$165,200	Yes		Both	Replacement GAC tanks (instead of using old); New UF pump/control, new blend valve, new Master Control, new tank level control – all new due to adding the 500,000 gallon finished water tank. Not part of original design.
C/O 4	\$212,000	No		Replacement	Replacement screen – for MBR warranty – original not available
C/O 5	\$85,000	No		Replacement	Replace old pumps and mixer
C/O 6	\$20,000	No		Replacement	Chemical feed equipment to match new MBR original is not the correct size for new MBR

Source: NMED, General Engineer Email Responses



New Facility for Wastewater Treatment Plant



Holding basins that had to be restored and recoated. Additional concrete work is needed to raise flooring to fit new specifications. New design includes building a cover over the basins to keep debris out. It is unclear why this obvious enhancement was not part of the original design.



Blowers for Wastewater Treatment Equipment



Drinking Water Ultra Filtration Equipment

HAGERMAN WATER IMPROVEMENTS REMAIN ON HOLD DUE TO INSUFFICIENT FUNDING.

While some upgrades and design work have been completed, piecemeal funding has left the current project unable to proceed to bid, leaving about \$336 thousand state funds sitting idle since NMED approved plans, specifications and bidding documents in March 2014. The town has submitted a Water Trust Board request for \$282 thousand, bringing the estimated project cost for the new water tank and related upgrades to \$618 thousand for completion.

Table 13. Hagerman Project Rating

Review Criteria	Rating	Comments
Project on time?	No	No. Project started in 2005. Piecemeal funding in 2008 and 2014 to bring project to bidding stage for final construction. Waiting for sufficient funding to bid new tank.
Project on budget?	Uncertain	With fragmented funding and various sources over 10 years, the overall cost efficiency is indeterminate.
Results meet intended purpose?	No	Some projects are completed: -New well on south end of town using Bureau of Reclamation monies finished in 2005; capped and not in production. -Sewer improvements and maintenance, some water lines replaced. -Elevated tank painted and rehabbed (\$21,400 from SAP 08-3085 and \$27,546.27 from \$338 thousand CDBG). -Design, bid documents (\$33.8 thousand 13-1339 SAP) for tank. Projects remaining to ensure adequate water supply for the town: 1. Build 300,000 storage tank at north well site; Add booster pumps, appurtenances and piping from well to new tank and from tank to pipeline. 2. Rehab the second standpipe tank in town. 3. Connect new well at south end of town to system needed for water quality and long term supply.
100% compliance with applicable laws, rules and regulations?	No	Did not bid construction project to paint and rehab the elevated tank. Did not obtain NMED approval for contract.
Effective planning, management and oversight?	Partially	The town has moved the project along given funding schedule. No one agency has project oversight: includes federal CDBG funding (DFA), other federal funding and SAPs (NMED).
Will project require additional funding to meet objectives?	Yes	WTB request of \$282 thousand. Town reports it will need \$1.3 million to put new south well into productive use.
Overall Rating	Y	

Source: LFC Analysis

Hagerman is a town of about 1,250 people located in Chavez County. The town began renovating its aging public water supply system in 1995 with a \$185 thousand federal Community Development Block Grant (CDBG) grant, followed by \$200 thousand in Special Appropriations (SAPs) in 1998. Since 2004, the town has received additional CDBG grants totaling \$900 thousand for sewer improvements and \$861 thousand for water/sewer improvements. CDBG grants are managed through the Department of Finance and Administration.

Combined with SAPs, Hagerman has received over \$2.4 million to modernize these public utilities over the last 10 years. Unlike SAPs, CDBG funding requires a 5 percent cash match from the local recipient for a rural location.

Table 14. Hagerman Funding 2004 - 2014

Year	SAP Amount	CDBG Amount	Description
2004	\$50,000	\$ 499,953	Sewer System Improvements
2005	\$75,000		Hagerman Water Well & Pipeline Improvements
2006		\$400,000	Sewer System Improvements
2008		\$361,000	Water/Sewer Improvements
2008	\$50,000		Hagerman Water Tanks & Valves
2010		\$500,000	Water/Sewer Improvements
2012	\$370,000		Hagerman Water Storage Tank
2014	\$100,000		Hagerman Water Storage Tank
Total	\$645,000	\$1,760,953	Water and Sewer Improvements

Source: CPMS, DFA Oracle System

Due to the fragmented method of funding local projects and the lack of a centralized database cataloging all funding, no agency has a master plan for Hagerman on file. Limited information is available on projects completed with the CDBG funding or how or how they might tie into the more recent series starting with a 2005 \$75,000 SAP to “plan, design, and construct water system improvements.” Available NMED files only covered the 2008 and 2012 STB grants while the CPMS provides a brief summary of the 2005 SAP being used for designing a well and well house. It was fully expended.

A phone interview with Hagerman’s mayor clarified the following:

- The CDBG grants through 2008 were used primary for sewer improvements with some small water projects accomplished, such as replacing piping.
- In addition to these grants, a federal earmark constructed a new well south of town using an artisan water source to improve water quality. Lacking the funding to connect the well into the system, it has remained capped for almost 10 years.
- The town has a primary well about six miles north of town and a backup well in town that is used during the summer. Due to the nature of construction, water pressure can be low and the well needs to pump water almost constantly into one of the three tanks in town, one of which is not functional. The current project covered by the 2013 SAP is to build a 300 thousand gallon tank near this well to solve water storage and pressure issues. However, long term supply and quality issues won’t be solved until the south well is connected into the system.

Table 15. Hagerman Special Appropriations Status*

SAP	Amount	Swept SB 182	Expended	Remaining	Description
08-3085	\$50,000	(\$28,600)	(\$21,400)	0	Procurement issue: NMED only allowed \$20,000+GRT for construction of rehabbing an elevated tank. Remainder reverted under SB 182 although the town had valid encumbrance to use \$28,600 disallowed for rehabbing the tank for radio water meters.
Funding restored-new grant agreement	\$28,600		\$28,600	0	Purchased and installed radio water meters.
12-1339 Reversion: 6/30/2016	\$370,000		\$33,798	\$336,202	Occam Engineering: plan, design, bid documents for storage tank at north well. Remainder will be used toward tank construction.
14-1604	\$100,000			\$100,000	Will be used to rehab second standpipe tank and additional water projects.

Source: CPMS, NMED Files, Town 2014/2015 WTB application

*Federal grants have funded water and wastewater improvements. The village is seeking final funding from the Water Trust Board in the 2014/2015 cycle.

A procurement issue resulted in NMED disqualifying \$27.5 thousand reimbursement for the painting and rehabbing one tank. The town clerk was attending a procurement training hosted by the State Purchasing Division when she realized she had improperly obtained three quotes for a construction project valued at just under \$50,000. At the time the threshold for sealed bids was \$20,000. SPD counseled her to continue with the procurement, and the clerk verified this approach was acceptable with the Department of Finance and Administration. However, NMED disagreed, concluding the town should have cancelled the request for quotations and proceeded with correct procurement process. Furthermore, NMED noted “per paragraphs F and G under Article 6-Administrative Procedures of the Town’s grant agreement, the Town should have submitted the specifications to NMED for review and approval...and should not have awarded the contract until NMED had concurred with the award in writing.”



Source: Internet Bing search engine

RIO RANCHO PROJECTS FOR EXPANSION REMAIN UNDERUTILIZED DUE TO AREA GROWTH NOT MEETING EXPECTATIONS.

Rio Rancho used \$12 million Special Appropriations (SAPs) toward three primary projects. The projects included replacing aging water lines, extending infrastructure to meet projected demand in the Paseo Gateway Corridor, and constructing pilot projects for testing the potential to recharge the city's aquifer using treated wastewater. Half of the expenditures associated with developing the City Center area, also known as the Paseo Gateway Corridor, remain significantly underutilized. The other half, almost \$4 million, is sunk in a non-producing well. The other projects generated mixed results. Two projects, replacing water lines and one reuse pilot project, were successful. The other reuse pilot project is not producing sufficient results to proceed to full scale production.

Table 16. Rio Rancho Overall Project Rating

Project	\$ Allocated	\$ Spent		Rating
Rio Rancho – Line Replacement	\$1,075,000	\$1,022,246	Replacing leaking water lines that were originally installed using inferior materials; replace water meters. Project partially funded.	
Rio Rancho – Paseo Gateway Development (Various projects)	\$8,051,890*	\$7,776,877	Projects completed but improvements remain underutilized pending development. Well #23 capped pending \$15 million for water treatment facility -- not in ICIP.	
Rio Rancho-Reuse Demonstration Projects for Aquifer Recharge	\$2,893,110	\$2,893,110	Direct injection demonstration project for aquifer recharge completed and is pending permitting to move to full production. ICIP #7 priority.	
			The other demonstration project for aquifer recharge (Mariposa) is not producing results.	
Total	\$12,020,000	\$11,692,234		

Source: CPMS, LFC Analysis

* Includes \$275 thousand reverted.

Rio Rancho serves an estimated 32,306 residential and non-residential water customers, operates and maintains 17 production wells, 8 booster pump stations, 18 storage tanks, 10 arsenic treatment facilities and 568 miles of water line. The wastewater inventory includes five wastewater treatment plants, 26 lift stations and 368 miles of wastewater lines.

The city maintains an extensive asset management plan to optimize service delivery and life cycle costs, a water model to evaluate service outcomes and system reliability, and a water master plan to project the city's water needs when fully built out. This estimate of 56,000+ acre feet compares to the city's current inventory of 26,420 acre feet of pumping permits from the OSE.

Priorities are established for maintaining, expanding, or improving water infrastructure and assets. The 2015-20120 ICIP lists 19 projects totaling \$68.8 million over the five years. Water utility capital projects are funded through various sources, including utility bond, federal and state grants, water impact fees, Environmental Gross Receipts Tax revenues, Water Rights Acquisition Fees, and general utility net revenues. Warned the utility was not financially sustainable, rates were increased 7.8 percent per year for five years through 2017.

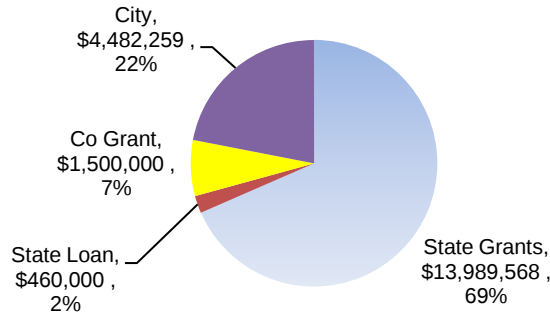
Rio Rancho received between six and twelve times more capital outlay funding for water system improvements than similarly sized cities between 2006 and 2014. During this period, Rio Rancho received approximately \$13 million in capital outlay funding for water system improvements while Las Cruces received \$2,075,000 and Santa Fe received \$1,095,000. Funds were used toward three main efforts: replacing leaking water pipes, expanding infrastructure to meet predicted development in the Paseo Gateway corridor, and begin investing in new technologies to use treated wastewater to recharge the city's water aquifer. Nine special appropriations were awarded for a total of \$12 million. The city has effectively used 97 percent to date.

Table 17. SAPs Rio Rancho Funding 2007-2013

	07-3243-GF	07-3731-STB	07-6095-GF	08-3138-STB	08-5331-GF	09-3813-STB	09-3006-STB	13-1499	OSE 08-3813	Total
	\$50,000	\$6,470,000	\$100,000	\$925,000	\$50,000	\$300,000	\$3,000,000	\$1,075,000	\$50,000	\$12,020,000
Water Line Replacement										
Paseo Gateway Development	(\$50,000)	(\$6,370,365)	(\$100,000)	(\$925,000)	(\$14,320)	(\$171,179)	(\$106,890)	(\$1,022,246)	(\$39,124)	(\$1,022,246)
Aquifer Recharge Demo Projects							(\$2,893,110)			(\$7,776,877)
REVERTED	\$0.00	\$99,635	\$0.00	\$0.00	\$35,680	\$128,821	\$0		\$10,876	\$275,012
Remaining								\$52,754		\$52,754

Source: CPMS, NMED Files

Including Water Innovation Fund and Water Trust Board grants of \$500 thousand and \$1.8 million, respectively, state grant funding accounts for 69 percent of project costs.

Chart 4. Rio Rancho Funding for 10 Projects

Source: CPMS, Rio Rancho

The return on this investment remains uncertain. Overall, the Rio Rancho projects reveal outstanding planning, project management, and extensive expertise do not always translate into stellar outcomes. Environmental risks, from poor water quality to economic assumptions failing to materialize, played a major role in reducing their overall effectiveness. While Rio Rancho undoubtedly sees each project as a success, moving its aggressive water portfolio forward, the ratings reflect the fact that only 22 percent of the \$11.6 million in state funding can be said to be achieving its intended outcome and producing full, immediate benefit. Forty-five percent associated with two projects totaling \$5.3 million have no current use. The remaining 32 percent remains significantly underutilized. These projects, associated with the City Center development area (Paseo Gateway Corridor), were essential for building anchor tenant facilities but await future development for full beneficial use.

Table 18. Rio Rancho Project Current Outcome

Project	State Amount	100% Benefit	Underutilized	Not Used
		G	Y	R
Water Line Replacement	\$1,022,246	X		
Paseo Gateway Development*				
Well 16 Transmission	\$1,803,514		X	
Well 23 DRILL	\$2,839,682.03			X
Well 23 Treatment PER/Design	\$1,025,000.00			X
College Water Line	\$14,319.61		X	
High School Water Line	\$1,373,956.37		X	
Booster	\$403,212.83		X	
College Blvd Sewer Line	\$106,512.18			X
Paseo Gateway Sewer Line	\$171,556.19		X	
Aquifer Recharge Demo Projects				
Direct Well Injection	\$1,573,942.94	X		
Infiltration Gallery-Mariposa	\$1,319,167.50			X

Source: LFC Analysis of NMED files, Interviews and Site Visit

*Does not include \$39 thousand spent from \$50,000 SAP 08-3813 administered by OSE/ISC and not in OSE Dam Safety or NMED files so not evaluated.

A core policy issue is obscured by the current fragmented method for awarding local capital outlay monies to local entities. Without a centralized water master plan for the entire state, projects that meet immediate needs, such as providing potable drinking water, are not weighed any differently than those aimed at long-range goals that have future benefits. Limited funds would seem to favor those addressing public health and safety as the most critical. In addition, the suitable amount of risk to place on taxpayer money is not assessed for projects. Whether demonstration projects, for example, are an appropriate investment for the state has not received extensive legislative debate.

Replacing Water Lines

Table 19. Rio Rancho Water Lines Project Rating

Review Criteria	Rating	Comments
Project on time?	Yes	Within tolerance.
Project on budget?	Yes	Some change orders to accommodate PGE infrastructure and other modifications to meet terrain
Results meet intended purpose?	Yes	1,450 lines replaced
100% compliance with applicable laws, rules and regulations?	Yes	
Effective planning, management and oversight?	Yes	
Will project require additional funding to meet objectives?	Yes	Phase 3: \$1.4 million to replace 1,200 lines
Overall Rating	G	

Source: LFC Analysis

The city has about 14,000 aging water lines about 20-25 years old. Originally installed using an inferior polyethylene material, they are prone to leak. Rio Rancho estimates it's lost more than 14.5 million gallons of water and leaders consider replacing the lines as a high priority to conserve water and maintain customer service. In addition to the \$1 million the state provided, the city used \$3.8 million of utility revenue toward this project replacing 1,250 lines.

Paseo Gateway Corridor Development

Key water infrastructure projects are either on hold or underutilized, awaiting economic recovery and growth. Aggressive plans to develop the Rio Rancho City Center area — also known as the Paseo Gateway Corridor — fueled several water and waste water projects partially funded by almost \$8 million in state appropriations. While key facilities were built requiring the infrastructure — the City Center, HP, UNM Hospital, UNM satellite campus and CNM satellite campus — the corridor remains empty from the hill where these building are located down to Cleveland High School.



Table 20. Paseo Gateway Core Projects

Project	SAP \$	Status
Water line: Well 16 to 28 th St	\$1.8 million	Underutilized but required for existing development
Well 24: drill and treatment design/plans	\$3.9 million	Capped and inactive-waiting for increased demand and \$15 million
Water line: High School to 30 th St	\$1.4 million	Underutilized: Used by about 3,000 students
College Ave sewer line	\$106.5 thousand	Stubbed-not in use

Source: CPMS, NMED Files, Rio Rancho

Looking from UNM Hospital East to High School

Water projects in Rio Rancho are subject to unusual environmental conditions that increase project risk. Water quality is poor. The city has spent an estimated \$45.4 million between 2005 and 2011 to design, construct and equip 10 arsenic treatment facilities at various wells to meet the 2003 Environmental Protection Agency rules for drinking water.

A new well drilled in 2007 remains capped and non-operational today because of water quality issues. A pilot well was drilled, indicating the water was high in arsenic, uranium and total dissolved solids to the point it was not economical to pursue water treatment below 2,100 feet. Six change orders were executed to seal the bottom to prevent seepage, redesign the production well from 3,000 feet to 2,100 feet and eventually add 206 days for additional testing as the water quality was poorer than anticipated. Subsequently, Rio Rancho requested and received \$100 thousand for a Preliminary Engineering Report (PER) to estimate the cost to treat the water. All three options ranged around \$15 million. Rio Rancho then requested and received another \$925 thousand to plan and design the treatment facility, even though the city had not identified the funding source to move forward nor was it likely to do so in the immediate future.

The State's emphasis on funding projects that are "shovel ready" might unintentionally encourage premature planning and design phase execution. The city maintains water demands will continue to grow substantially in the City Center area and the well will still provide "an importance source of supply." In the meantime this investment literally remains a hole in the ground. Moreover, by the time the project is ready to move forward, inflation might escalate costs or technology might have advanced to the point to render the design obsolete.

Table 21. Rio Rancho Well #23 Project Rating

Project	SAP	Description
Well 23 DRILL	07-3731	\$2,839,682.03
Well 23 PER	07-6095	\$100,000
Well 23 Design	08-3138	\$925,000
Total Investment		\$3,864,682
Project on time?	No	206 days added due to meet environmental risks
Project on budget?	No	Additional costs due to water quality.
Results meet intended purpose?	No	Well is currently capped.
100% compliance with applicable laws, rules and regulations?	Yes	
Effective planning, management and oversight?	Partially	Using \$1 million of state money for design when the project funding to move forward was not identified is questionable.
Will project require additional funding to meet objectives?	Yes	\$15 million to treat water and put well into production.
Overall Rating	R	Return on investment limited to date.

Source: CPMS, Rio Rancho

Aquifer Recharge Projects

Based on a 2000 study indicating Rio Rancho's aquifer was essentially a closed basin, meaning it was receiving very little recharge from the Rio Grande, the city initiated a two-pronged water reuse (reusing wastewater) program to mitigate the eventual aquifer depletion and for conjunctive management of its water rights. The first phase, achieved relatively easily, was using treated wastewater for non-potable uses, such as irrigation. The point is to reduce the demand on the well water by supplanting it with recycled water already on the surface. None of the appropriations in this review were used toward this endeavor, which continues to expand.

The second phase, introducing treated water back into the aquifer as an artificial recharge method, has been a more prolonged effort with mixed results to date. Applying two distinct techniques, the city used almost \$3 million of state money toward establishing two demonstration stations required by the Office of the State Engineer and Environment Department to show feasibility and water quality impacts before moving to the full scale

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Capital Outlay: Review of Select Water Projects

December 8, 2014

production phase. One method – directly injecting the treated water into the aquifer – appears successful, with permitting imminent to move to full production. The city includes equipping the already-built treatment facility in the city’s 2015-2020 Infrastructure Capital Improvement Plan (ICIP) as priority #7 for wastewater projects at a projected cost of \$3 million.

Table 22. Rio Rancho Direct Injection Project Rating

Review Criteria	Rating	Comments
Project on time?	No	Original funding supplied in 2003; reauthorized as STB in 2009. City points to extended discussions with NMED and OSE due to new technologies, and compliance with NEPA, delaying the project.
Project on budget?	Yes	
Results meet intended purpose?	Yes	Completed water quality and water recharge data.
100% compliance with applicable laws, rules and regulations?	Yes	
Effective planning, management and oversight?	Yes	
Will project require additional funding to meet objectives?	Yes	Equip treatment facility: \$3 million. City plans to apply for \$6.8 million Water Trust Board grant for equipment and (\$3 million) and 3 million gallon reuse water storage tank (\$3.8 million) to complete this project; also allocates \$350 thousand Utility Funds Operating Revenue.
Overall Rating	G	

Source: LFC Analysis



Project Name Plate



Direct Injection Well



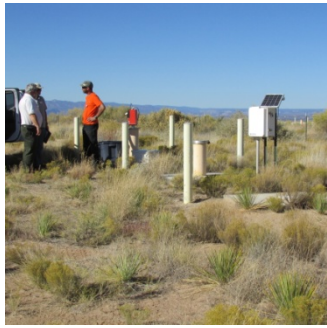
Facility for Treatment Equipment

The second method has not proven successful. This process uses an “infiltration gallery” that emits treated effluent to the vadose zone, allowing it to gradually permeate back to the aquifer. It’s essentially a big leach field. However, according to the Utility Division Manager, the system lacks sufficient water emission (pressure to push water down) due to scarce development in the Mariposa area where it is located. The city has abandoned this technique for future recharge projects in favor of the direct well injection method. Staff indicates the site will be productive at some point when demand for water in the area has grown sufficiently to yield adequate supply to the infiltration gallery. However, the project failed its demonstration objective.

Table 23. Rio Rancho Mariposa Pilot Project Rating

Review Criteria	Rating	Comments
Project on time?	No	Original funding supplied in 2003; reauthorized as STB in 2009. City points to extended discussions with NMED and OSE due to new technologies, delaying the project.
Project on budget?	Yes	
Results meet intended purpose?	No	Completed water quality and water recharge data.
100% compliance with applicable laws, rules and regulations?	Yes	
Effective planning, management and oversight?	Partially	Site selection added risk due to location in a undeveloped area. The project depended on economic development that did not occur..
Will project require additional funding to meet objectives?	No	Will not be used for full scale aquifer recharge.
Overall Rating	R	

Source: LFC Analysis



Infiltration Gallery Test Station

Sampling and data downloads are performed twice a year.

Regulatory agencies seemed slow to respond to reuse technologies, delaying projects. Rio Rancho initiated this project in 2006 with a \$3 million appropriation. Unspent three years later, the city points to complicated and extensive conversations with both the Office of the State Engineer, which would govern wells and water right credits, and NMED, which would monitor water quality. The general fund appropriation was one of the few reauthorized in 2009 as a STB grant to allow the project to move forward.

The permitting process itself is complicated and long for reuse aquifer recharge projects. Governed by the Underground Storage and Recovery Act, NMAC 19.25.8 requires a two-step process that starts with a pilot or demonstration project to provide necessary data before progressing to a full scale version. No less than five state agency bureaus are involved: the Water Rights Administration (OSE), the Hydrology Bureau (OSE), Legal (OSE), Water Use and Conservation Bureau (OSE), and the Ground Water Quality Bureau (NMED). OSE reports it just permitted the first aquifer recharge project in New Mexico for Albuquerque after an eight year process. While at the permitting stage for its direct well injection pilot project, Rio Rancho still has to prove project capability and negotiate the percent of return to the aquifer to be credited by the OSE.

THE OFFICE OF THE STATE ENGINEER IS REVISING THE METHODOLOGY USED TO ASSESS DAM RISK.

The state does not use a best practice risk assessment to govern dam appropriations. While OSE did leverage available funding according to the LFC 2012-01 Select Projects Evaluation, the piecemeal funding and staffing resources were not sufficient to address three other dams in serious condition. Assessing the net cost of dam safety and targeting limited dollars to mitigate hazards prioritized by severity of consequences and probability of occurrence has become an essential consideration. Of the three dams, only Cabresto appeared urgent.

Table 24- Dam Ratings

Dam	Potential Hazard Classification	Dam Condition Rating – Before Project	Dam Condition Rating – After Project
Hatch #6	High	Poor/Satisfactory*	N/A
Bluewater	High	Fair	Fair
Cabresto	High	Poor (June 14, 2006 Report)	Satisfactory

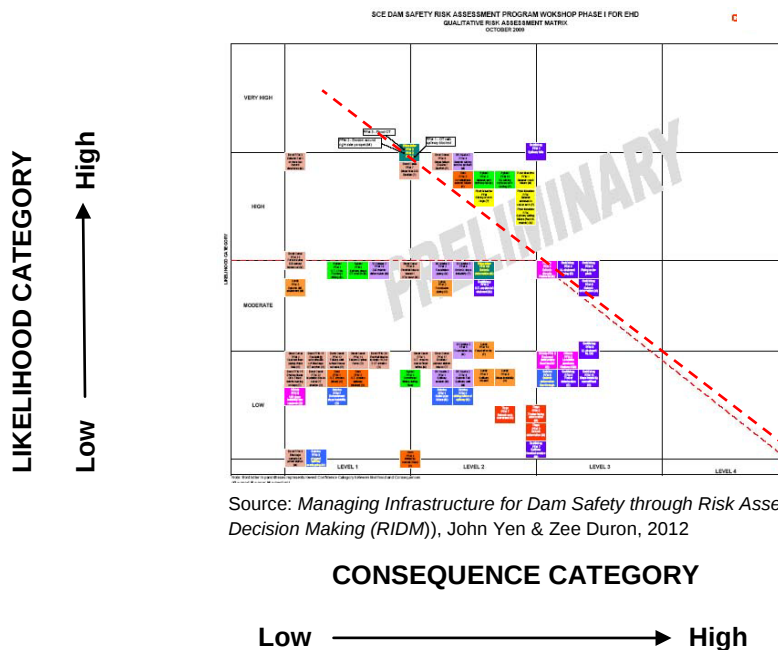
Source: OSE Dam Safety Bureau

*The rating would be Satisfactory except certain “as is” drawings had not been submitted.

One possible method, a Risk Assessment Program (RAP), assembles information into a Risk Matrix that quickly identifies where critical needs might be located, which can then be used to develop a priority list of dams for more advanced engineering studies. RAPs are considered a best practice and have been used by the U.S. Army Corps of Engineers since Katrina in 2005 and by the U.S. Department of Interior, Bureau of Reclamation, since the mid 1990’s.

Likelihood of failure is plotted along the Y axis against the predicted consequences along the X axis, ranging from Level 0 (No impact) to Level 4 (Extensive, with potential for direct loss of life). Dams falling in the upper right half of the matrix above the red dotted line shown in Figure 1 below would be of highest interest.

Figure 1. Sample RAP Matrix for Dams



Source: *Managing Infrastructure for Dam Safety through Risk Assessment Programs (RAP and Risk Informed Decision Making (RIDM))*, John Yen & Zee Duron, 2012

Ultimately the information would yield a final list of recommended capital improvements that address the Category I dams, those with the highest potential for occurrence and magnitude of adverse consequences. Providing this scientifically-based inventory might advance state decision making.

Table 25. Potential Failure Mode Analysis (PFMA) Category

Category	Description
I	Highlighted – These potential failure modes have the greatest significance, considering: need for awareness, potential for occurrence, and magnitude of adverse consequences (physical possibility is evident, fundamental flaw or weakness is identified, and condition or events leading to failure are in progress or seem reasonable and credible).
II	Considered but not Highlighted – These potential failure modes are less significant than Category I. They are judged to be possible but do not need to be highlighted to the owner for various reasons. For example, the PFM does not result in a significant downstream hazard; it has a low probability of occurrence; or there is an existing monitoring or maintenance program that makes the probability of occurrence unlikely. However, conditions are such that they are physically plausible and continued awareness is important.
III	More Information or Analysis Needed – A potential failure mode in this category requires additional information and/or analysis to allow proper classification.
IV	Ruled Out – There is not a physical possibility that these potential failure modes could occur, the concern is eliminated by considered information, and/or the possibility that the failure mode could occur is so remote as to be non-credible.

Source: *Managing Infrastructure for Dam Safety through Risk Assessment Programs (RAP) and Risk Informed Decision Making (RIDM)*, John Yen & Zee Duran, 2012

The OSE did present a list of the “most pressing” capital outlay projects for the 2014 legislative session, listing 19 projects totaling \$87.2 million for full rehabilitation. However, a more rigorous analysis of essential repairs with updated costs is warranted. The most recent report listing dam conditions and estimated rehabilitation expenditures is over a year old.

OSE reports the tool developed in 2008-2010 using \$681 thousand STB funds for technical design of spillways “has not been accepted for general use in New Mexico.” This Extreme Precipitation Analysis Tool (EPAT) was intended to update the Hydro-meteorological Reports (HMR) prepared by the National Weather Service for probable maximum precipitation (PMP) estimation to design spillways on High Hazard Potential dams and Significant Hazard Potential dams. Instead, the current practice continues use of the HMR. According to OSE, both Colorado—where the tool originated—and New Mexico “were never comfortable with use of EPAT because of some uncertainties with the results...” and continues to explain that a technical analysis was performed recently “to look at EPAT and the problems with it have been identified as significant.”

OSE plans to update the PMP modeling methodology for the state using tools similar to those developed by surrounding western states. Using the storm library that was developed in the EPAT effort, OSE will customize the tool by adding PMP for drainage basins specific to New Mexico. Full funding for the project is uncertain, although OSE identifies potential partners for a public-private effort to get started. A small amount of Federal Emergency Management Act (FEMA) National Dam Safety Grant funds is also available for a first phase.

OSE notes reductions in PMP have ranged from 10 percent to 40 percent in some locations when a site-specific analysis is performed, which has significant cost implications when building a new spillway. It is possible that the current modeling methodology over-predicts the design flood. This might be the case for Hatch, for example. It is also possible it under-predicts for a region. The uncertainty supports the decision to revisit the method used, especially if cost savings for dam rehabilitation could potentially more than cover the cost of the study.

BLUEWATER DAM STILL HAS ONLY ONE OPERATIONAL VALVE FOR RELEASING WATER.

Thirteen years and \$184 thousand did not yield a successful outcome as defined by having two operational gate valves. The Operations and Maintenance (O&M) Manual and Emergency Action Plan (EAP) were completed in 2011; however, they have not been updated as requested by the OSE. A complex set of circumstances raise questions regarding the value received for engineering services and point to poor oversight, confusion over who was in control of the project, and lack of capacity at the local level.

Table 26. Bluewater Dam Rating

Review Criteria	Rating	Comments
Project on time?	No	Originally detected in 2001, OSE initiated the valve project in 2008 due to lack of dam owner response. Engineer design delays. State administrative delays. Project incomplete. See Timeline.
Project on budget?	No	Change orders totaling \$42.5 thousand added after RFP issued and contract awarded.. Engineering contract with BTID increased by \$30 thousand over original contract with OSE. Project waste of \$3.7 thousand due to wrong part.
Results meet intended purpose?	Partially	Operation and Maintenance Manual and Emergency Action Plan completed but have not been updated per OSE. Additional work via change orders completed. The main valve issue is unresolved.
100% compliance with applicable laws, rules and regulations?	No	Materials not monitored for receipt; General Engineer not on site during final work as required by NMAC 19.25.12.13; possible procurement deficiencies. The final 2012 construction documents are missing for the CW Divers. Over \$20,000, it seems the BTID used 3 quotes and determined it was a sole source. No contract was found although OSE requested a copy.
Effective planning, management and oversight?	No	Incomplete records; insufficient design based solely on prior 2002 Engineering report that proved incorrect; general engineer relied on 3 rd -party observation during final construction.
Will project require additional funding to meet objectives?	Yes	To replace or rebuild the 18" valve and ensure 24" valve is seating properly. Update O&M and EAP as required.
Overall Rating	R	

Source: LFC Analysis

Built in 1927, Bluewater dam is a concrete arched structure 90-feet high and 500-feet long, capable of storing up to roughly 38,500 acre-feet of water. Owned by the Bluewater-Toltec Irrigation District (BTID), the original purpose was to provide irrigation to area farmers. According to BTID, early in the dam's history, the irrigation district sold the first (bottom) 20 feet of water to the New Mexico Department of Game and Fish to pay off the mortgage associated with its construction. The dam is now site to a state park.



Bluewater Dam photo shows water being released downstream from gates.

Source: Internet: <http://www.rvecafe.com/Assets4/nmex17b.jpg>

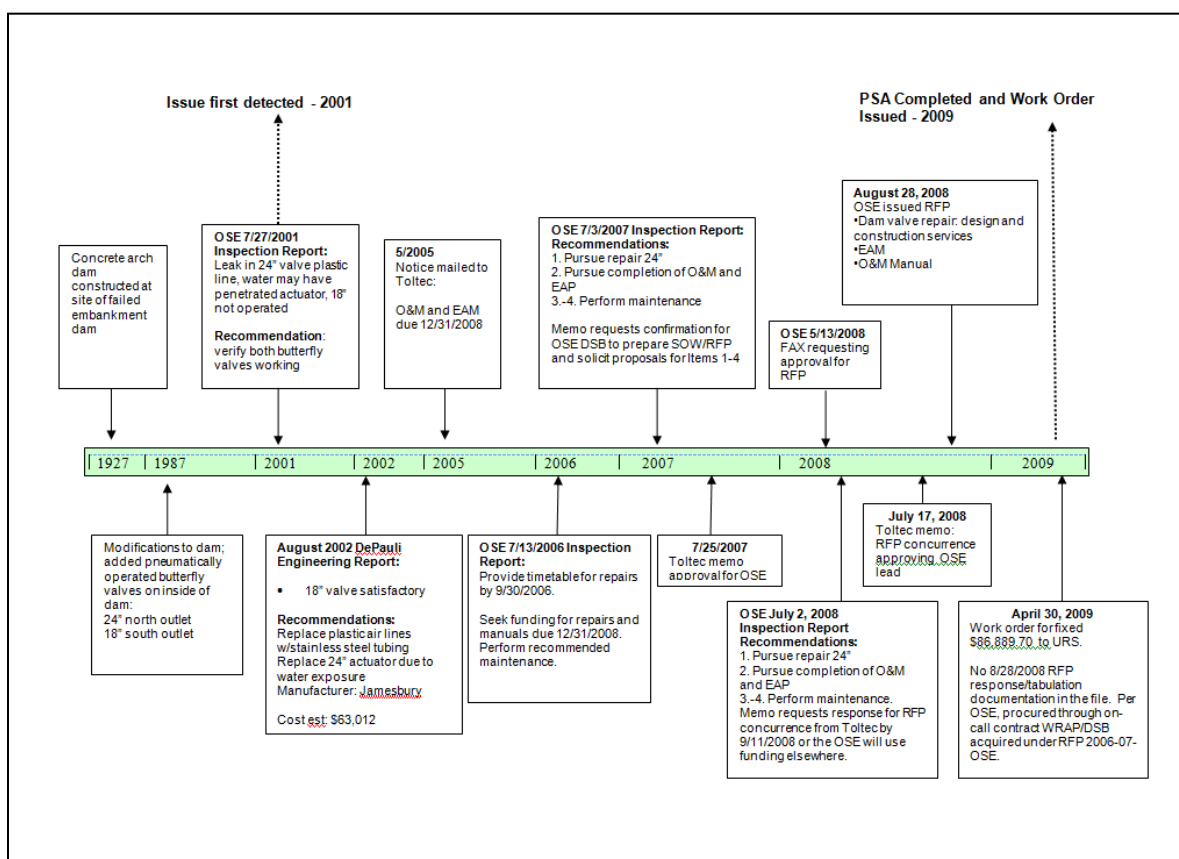
Eight years passed between the initial detection of the problem and the professional service contract awarded to start the process, and three SAPs worth \$150 thousand sat unused for several years. The potential issue detected during the July 2001 OSE dam inspection was confirmed by an engineering report issued August 2002 (DePauli). Subsequent OSE inspections reiterated the need to repair the valve system and perform other maintenance work. However, it wasn't until April 2009 that a work order was issued for the design phase of the valve repair, almost eight years after the initial inspection indicating the problem.

Table 27. Bluewater Special Appropriations Status

SAP	Amount	Swept SB 182	Expended	Remaining	Description
05-0051	\$45,000		\$45,000	0	Phase 1: Investigation and Preparation of Design/Bid Docs: \$18.3 thousand Phase 2: EAP and O&M Manual: \$26.6 thousand
05-1069	\$45,000	(\$17,142)	\$27,858	0	Phase 2: EAP and O&M Manual: \$27.9 thousand Due to delay in producing design/bid docs, funds were not committed and were swept per SB 182
06-1015	\$60,000	(\$60,000)		0	Due to delay in producing design/bid docs, funds were not committed and were swept per SB 182
02-1410 Reauthoriz ed 07- 6437	\$350 thousand out of \$5 million		\$137,104 Remaining disencumbered	0	Construction 1 in 2011: Equipment Purchase- 24" valve \$3.7 thousand \$45.9 thousand Engineering Services: \$45.9 thousand Construction: \$87.5 thousand
10-1282	\$41,843 out of \$1 million		\$28,887 Remaining disencumbered	0	Construction 2 in 2012: Engineering Services: \$4,150 Construction: \$24.7 thousand

Source: CPMS, OSE Files

Figure 2 - Bluewater Timeline 1927-2009



Source: OSE Files

Dam owners did not respond to inspection reports. By July 2007, with no action taken by the dam owners, the OSE assumed lead for the project. OSE requested approval to issue the RFP in May 2008. Apparently not receiving an answer, the following July inspection memo indicates the money would be allocated to another dam if a response is not received by September. BTID responds at that point and OSE issues the RFP in August 2008.

Lack of complete documentation in the OSE hard files made it difficult to track events, particularly related to procurement. The Request for Proposal (RFP) was issued for valve dam repair design and construction oversight services (Phase 1) as well as developing the required O&M and EAP documents (Phase 2). However, the OSE file did not have the RFP evaluation, including the scoring tabulations of the review committee. Obtained subsequently from OSE as an excel file, the final matrix did support the award, although the financial records show the contract was based on an on-call contract with the same firm and not the RFP. In addition, the individual scoring sheet obtained from BTID found the BTID representative on the evaluation committee had scored the finalist last. There was no evaluation report to reconcile the final scoring that moved URS to the top spot.

Delays in completing engineering services deliverables pushed the project out nine months, lapsing over the 2010 legislative session and jeopardizing project funding. The notice to proceed was issued 5/11/2009 with anticipated completion date for construction Phase 1 documents by August 2009. However, the final cost estimate was not submitted until June 2010. Because funds were not committed for construction, the unspent SAPs were pulled in Senate Bill 182. The notice to proceed for Task 1.4 and 1.5 was rescinded April 2010.

Table 28. Bluewater Planning and Design Delays

Task	Valve System Repair	Contract Deliverable Date	Actual Date
Task 1.1	Data Review Report	5/29/2009	OSE acceptance/approval to invoice: 5/21/2010
Task 1.2	Drawings	8/3/2009	OSE acceptance/approval to invoice: 5/21/2010
Task 1.3	Cost Estimate	8/3/2009	Final cost estimate: June 11, 2010
Task 1.4	Bidding	9/14/2009	Notice to Proceed to construction pulled April 12, 2010
Task 1.5	Construction Oversight	10/26/2009	Notice to Proceed to construction pulled April 12, 2010
Task 2.1	Review existing info	7/9/2009	OSE acceptance/approval to invoice: 5/21/2010
Task 2.2	Dam Breach	8/18/2009	OSE acceptance/approval to invoice: 5/21/2010
Task 2.3	EAP	11/18/2009	Final payment: 7/7/2010
Task 2.4	O&M	11/18/2009	Final payment: 7/7/2010

Source: OSE Files

State administrative actions further delayed the project. OSE restored funding through a different appropriation with a reversion date of June 30, 2011. Due to the limited time remaining for the funds, OSE suggested BTID take over the project and executed a capital outlay agreement. However, an October 2010 email notifies BTID that the Department of Finance and Administration was requiring a new format, which was not provided to BTID until the following January. With only a few months prior to the expiration of the funding, to save time OSE approved the direct purchase of the 24 inch valve while the procurement for construction services took place.

Construction started in May 2011 but immediately ran into troubles. As related in the Construction Summary Report, conditions did not match expectations:

“Based on the valve inspection performed by DePauli Engineering ..., the 24-inch valve was determined to be inoperable due to a broken pneumatic line that had potentially filled the valve actuator with water and had rendered it inoperable. As such, the project was intended to remove and replace the inoperable 24-inch valve actuator. The contractor tried to operate the 18-inch valve actuator to verify that it was operational prior to attempting to remove it. It was then discovered that the 18-inch valve actuator was inoperable. During a discussion held with URS, OSE, RMCI and the Owner, it was revealed by the Owner’s dam operator that the 18-inch valve actuator had not been operable for some time and the 24-inch valve actuator was being used through Fall 2010.”

It is unclear why this information, in direct opposition to the Depauli report, had not been determined during the design phase. State funds were used to purchase a 24-inch actuator (\$3,728.55), which was basically useless from another standpoint—it didn’t fit. The reported manufacturer was incorrect.

Unable to come to terms with the contractor (RMCI) to complete the job given the change in circumstances, work was suspended. Although none of the original items to fix the valves were 100 percent completed, RMCI still was paid \$87,500, including three change orders. Almost \$1,000 was improperly paid for materials that were not delivered to the site to BTID custody, according to the site manager, and had to be repurchased to compete the job later. OSE denied that reimbursement.

Table 29 - RMCI Payments

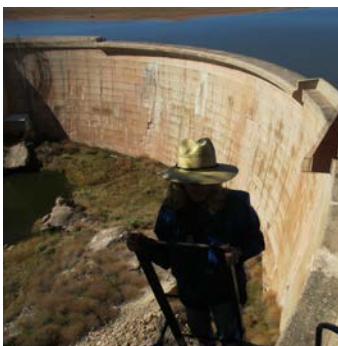
ITB Bid Item	Bid Total	Pay Request	Comment
1. Mobilization and Demobilization	\$34,000	\$34,000	According to BTID rep, RMCI did not always have a supervisor present and workmen spent time fishing.
2. Removal of existing valve system	\$5,000	\$3,000	40% for removing 24" actuator; 20% for working on removing 18" before work stopped.
3. New valve system	\$10,000	\$2,475.02	Materials. According to CSR*, stainless steel tubing was not delivered to the site, although the BTID rep indicated the tubing was received. Materials not received per BTID rep and repurchased in 2012 construction: \$852.24 OSE refused reimbursement.
4. Valve enclosures	\$8,000	\$5,558.42	Materials.
Total bid	\$57,000		Bids ranged from \$57,000 to \$212,000, most likely due to the vague scope in the ITB.
Change Orders			
C/O #1 (Ladder, gate, roof, vegetation)	\$30,070.00	\$30,070.00	URS CSR* indicates items completed.
C/O #2 (redesign of valve enclosures)	2,792.19	\$2,792.19	Required to modify the valve enclosures because the shelf above the valves was sloped—not flat as depicted in the 1987 plans.
C/O #3 (removal of trashrack cone)	\$13,613.18	\$9,604.37	Cone left at bottom of lake.
Total paid		\$87,500.00	

Source: OSE Files, Interviews, Site Visit, Construction Summary Report (URS June 30, 2011)

The project remains incomplete. Bluewater Dam was left without an operating gate valve for about a year. Construction resumed in May 2012 when a refurbished actuator was re-installed for the 24-inch valve. The 18" valve remains inoperable.

The site visit to the Bluewater Dam revealed potential safety concerns. First, the visit was delayed for two weeks until the dam tender was available as he had the only key. Easy access to the dam is limited by rugged terrain and water on the park side of the dam and tribal ownership of land on the down-river side. Thus, to access the dam control valves, the BTID dam tender must carry a wieldy 60 pound pressurized air tank over a treacherous 1/3-mile, loose shale-covered trail around several large boulders, scale a 25 foot vertical ladder down to the top of the dam, and then traverse almost the entire length of the dam that lacks any railings to the box where the pneumatic controls are located.

BTID has interpreted prior communication with the State Engineer as requiring staff to operate the release valves every two weeks—entailing the dam tender to make this trek on a regular basis—despite the water remaining below the 20 foot level that would allow irrigation. Furthermore, the checklist reports are sent to the BTID office without being forwarded to the OSE; the BTID understood they needed “to be on file.” Remote monitoring of the lake level is available via the Internet but the current dam tender prefers to lower a “plump bob” manually on site.



Looking From Top of Ladder



Ladder Down to Dam



Control Box to Operate Pneumatic Valves
Only one is operating.

New Mexico dams may represent public safety risks if not properly maintained. The primitive access conditions may explain why only one person has a key to access and operate the dam controls. Apparently, the task has been handed from father to son in the same family for at least 50 years although succession to the next generation appears uncertain. The OSE staff confirmed this situation is becoming more common across New Mexico with the dams and irrigation districts, as recent generations seem less willing to perform dangerous or time-consuming tasks as volunteers. Deferred or neglected maintenance, therefore, of these valuable assets that can pose a significant hazard is a growing concern.

In addition to the obvious risks posed for the dam tender, evidence of lock tampering confirmed staff reports of kids playing on top of the dam, despite the added safety barriers installed at both ends of the dam as part of the 2011 rehabilitation project. While BTID staff knows of no injuries being reported, the potential risks for public health and safety seems worth investigating and remedying.



Barriers were installed on each end of the dam during 2011 renovations. The door, open in this photo, is closed and locked but people still gain access by climbing around the barricade.



To access the manual valves on the down-stream side requires the dam tender to climb down another ladder that at least is caged. Pneumatic butterfly valves were added in 1987 on the water side, presumably to release pressure on the manual valves for easier operation. It is these newer valves that remain problematic.



Dam tender is locking the box. One side had a tampered lock and will need replacement.

AT A COST OF ALMOST \$7 MILLION, THE CABRESTO DAM PROJECT RESULTED IN AN UPGRADED “SATISFACTORY” SAFETY RATING BUT THE DAM STILL SEEPS WATER.

While the condition rating has improved from “Poor” to “Satisfactory” due to an improved spillway, the dam still seeps. Originally intending to cut a channel or “breach” the dam to relieve pressure, community outcry forced the OSE to consider alternatives. Starting in 2006 with the preliminary investigation and alternative study, the project was not completed until 2014 by moving the earthen dam 160 feet downstream at a cost of almost \$7 million. Dam owners expressed dissatisfaction with the completed project, believing the drains installed in construction of the new dam – to relieve the pressure caused by seepage – have prevented the dam from holding sufficient water for the acequias to use for irrigation. OSE expressed concerns regarding the unanticipated rate of seepage. OSE is working with the owners to identify possible solutions.

Table 30. Cabresto Dam Project Rating

Review Criteria	Rating	Comments
Project on time?	No	Primary construction project Change Orders added a total of 516 days, from 1/15/2013 to 6/15/2014.
Project on budget?	No	Change orders added \$354 thousand to \$5.4 million original contract. Still, OSE maintains this was a good value for this type of project.
Results meet intended purpose?	Partially	Dam is still seeping at an unanticipated rate. Primary enhancement to improve spillway was achieved.
100% compliance with applicable laws, rules and regulations?	Potential violations	Missing procurement documents. OSE submitted documents to NMFA on owner's behalf indicating project readiness for bonds when the project was not ready.
Effective planning, management and oversight?	No	Premature funding left \$1.7 million sitting idle until it reverted.
Will project require additional funding to meet objectives?	Unknown	SAP 09-3791 notes in CPMS lists \$359.3 thousand is available to be used for Morphy Lake and geological analysis at Cabresto Dam. Construction costs likely will be additional.
Overall Rating	Y	

Source: LFC Analysis

Two acequias, the Cabresto Lake Community Ditch Association (Cabresto) and the Llano Ditch Association (Llano), own Cabresto Dam and the storage rights to the water in the reservoir for irrigation. Cabresto's rights are senior to Llano's.

The reservoir has always seeped through the dam's west side, which lies on a porous landslide. However, in May 2005, heavy rain threatened the Town of Questa with flooding and the director of the State Emergency Operations Center called an OSE dam safety engineer regarding a “potential situation” at Cabresto Dam. Forest Service officials noted that seepage had greatly increased after the heavy rains. While a dam failure was not found to be imminent, the OSE issued an order on June 2, 2005, requiring the owners to monitor the seepage. This order also notified the owners that the spillway was deficient and out of compliance with dam safety regulations, and recommended construction to address the seepage, erosion and the deficient spillway.

Dam owners did not take action and OSE took over the project. On July 11, 2006, the OSE modified its order to reflect its findings that the dam, even if empty, was in “poor” condition and not capable of withstanding the probable maximum precipitation (PMP) as required by rule. Still, OSE allowed limited storage by the owners. In this modified order, OSE notified the owners that they had failed to obtain engineering services or to request an extension of time to do so. Because of this inaction, OSE would issue a Request for Proposal (RFP) and manage the scope of work on the owners' behalf. Taking over the project, OSE had more control over subsequent contracting and project management. However, assuming responsibility for the construction has put the agency in an awkward position, introducing an element of liability for any subsequent actions required to correct dam deficiencies.

Initial appropriations were not matched appropriately to project readiness and the project then became subject to piecemeal funding over the next six years. The project was not ready to proceed to construction when the original \$2.3 million was requested. Legal issues over storage rights, compliance with the federal National Environmental Policy Act (NEPA), and lengthy design phases were main contributors. Construction did not start until 2011 and almost \$1.7 million sat idle until reverting June 30, 2010.

Table 31. Cabresto Special Appropriations Status

SAP	Amount	Expended	Reverted	Remaining	Description
06-1029	\$1,800,000	\$294,161	\$1,500,322	0	Phase 1- Preliminary Investigation and Alternative study (2007-2009): \$152,219 Phase 2- Environmental Assessment (2009-2010): \$141,942
06-0142	\$500,000	\$320,064	\$179,936	0	Phase 3 – Detailed Design and EAP (2010-2011) USFS Cost Recover for NEPA/Special Use Permit: \$47,540
			\$1,680,258		Reverted June 30, 2010
09-3002	\$1,000,000	\$1,000,000		0	Phase 4-Wrap up EAP, FONSI, and O&M Manual (2011): \$26,290 Phase 5-Bidding services (2011): \$29,752 Advertising \$137 Construction: ASI \$ 943,959
08-3081 11-1216	\$3,200,000	\$3,200,000		0	Phase 6-Construction Engineering Services \$525,000 Construction ASI: \$2,674,863
12-1335	\$200,000	\$200,000		0	Phase 6-Construction Engineering Services: \$133,872 Construction- ASI \$66,128
09-3790* 13-1145	\$850,000	\$278,532*		\$359,349*	Phase 6 – Construction Engineering Services: \$140,552 Phase 7-Seepage Study/Mitigation Design (2014): \$26,565 ASI Construction-\$111,415 *OSE notes in CPMS for 09-3790 relate to Cabresto \$571.5 thousand reauthorized as 13-1145 for acequia projects. \$359 remaining. OSE notes indicate \$212 thousand spent from 13-1145 likely were used for Morphy Lake. *Numbers do not tie to OSE spreadsheet of \$531 thousand \$289 thousand , respectively.
07-3221 09-3791	\$500,000	\$465,689		0	Construction ASI: \$465,680 Remainder used on other dams
10-1282	\$1,000,000	\$958,157		0	Construction ASI: \$958,157 Remainder used on Bluewater Dam
Total	\$9,050,000	\$6,716,603	\$1,680,258	\$359,349	

Source: CPMS, OSE Files

To preserve the initial funding, OSE staff directed Cabresto Dam owners to submit certification to the State Board of Finance indicating readiness to proceed. In a 4/30/09 email noting the two-year expiration period for severance tax bond authorization was approaching, OSE staff directs the owners to complete the paperwork “to ensure that the bonds are sold.” This led to a reported construction start date of fall 2009 for a project still awaiting NEPA approval from the Forest Service, approval from the Environment Department’s Drinking Water Bureau, and OSE recognition of the owners’ storage rights in the reservoir. Moreover, this project was located in mountainous terrain over 9,000 above sea level where OSE and its contract engineers had identified the summer as the only feasible season for construction. Project construction was not put out to bid until January 2011, and did not begin until the summer of the same year. While engineering costs expended against the \$2.3 million STB appropriation exceeded the 5 percent requirement, the bulk of the appropriation reverted.

Procurement records are missing from OSE files. Bid proposals, scoring sheets and evaluation report for selecting RJH Consultants for the engineering services contract were not available to review for procurement compliance.



Site of Old Dam



Site of New Dam



Suspected Seepage Hole

THE HATCH VALLEY ARROYO DAM #6 PROJECT WAS STOPPED BY HIGH COST.

Based on a 2010 Natural Resources Conservation Service (NRCS) memo, the proposed rehabilitation project involved the following: remove about 34 acre-feet of sediment from the reservoir for increased water storage, raise the auxiliary spillway crest and existing dam embankment to control extreme flood events, and install a plunge pool. The project was to be funded from 65 percent NRCS federal grant and a 35 percent state match, made up of a collective 10 percent from three local districts (Elephant Butte Irrigation District, Doan Ana County Flood Commission Office and the Caballo SWCD), and 25 percent state appropriation. The project was suspended due to a combination of factors.

Table 32. Hatch #6 Project Rating

Review Criteria	Rating	Comments
Project on time?	No	The project was suspended.
Project on budget?	N/A	
Results meet intended purpose?	No	No progress was reported.
100% compliance with applicable laws, rules and regulations?	N/A	
Effective planning, management and oversight?	No	Complicated by a changing environment that raised OSE standards, the OSE indicates the documentation NRCS submitted in 2005, 2006, 2007, 2009 and 2010 was fragmented and piecemeal.
Will project require additional funding to meet objectives?	Yes	Whether the project to improve dam safety will eventually be undertaken is uncertain. District staff indicates current appropriations totaling \$300 thousand will be used to clear the sediment. To address the full project would require \$3 million.
Overall Rating	R	

Source: LFC Analysis

Built in 1957, Hatch #6 is one of 17 flood control dams owned by the Caballo Soil and Water Conservation District (Caballo SWCD) regulated by OSE. OSE has rated the condition of all but two of these dams as “poor,” based primarily on the lack of comprehensive and accurate documentation on file with the OSE to adequately assess the dams’ spillway capacity. OSE inspection reports for Hatch #6 also note the need to submit the required Operation and Maintenance Manual and Emergency Action Plan.

A prolonged permitting process led to the evaporation of the federal funds committed to fund 65 percent of the project so the state match of \$150 thousand allocated to Hatch was redirected to Cabresto and Bluewater Dam projects. Protracted discussions dating from 2005 between Office of the State Engineer (OSE) and the Natural Resources Conservation Service (NRCS), the federal program assisting the Caballo Soil and Water Conservation District with both funding and engineering design services, were complicated by the dam’s changing environment. The flood control dam, one of a many built in the 1950’s through 1970’s to protect farm land, has been subjected to “hazard creep” as developments were built in the protected region below the dam. This now places more stringent criteria on these dams for meeting OSE requirements to protect people as well as fields.

According to District staff, by the time the Preliminary Engineering Report was completed to meet OSE standards, the cost soared from \$600 thousand to \$3 million. While the OSE files contained an NRCS estimate of \$600 thousand, documentation confirming the final projected cost of \$3 million reported by the Caballo District is missing. However, entries made for a subsequent appropriation (Appropriation 13-1900) in the Capital Project Management System (CPMS) supports the \$3 million revised projected construction cost.

The project status to bring the dam to OSE standards is uncertain. Current appropriations associated with the Caballo SWCD total \$300 thousand. OSE was not aware of these appropriations and notes it did not receive notification from the fiscal agent, in this case, New Mexico State University.

Table 33. Recent Appropriations for Caballo SWCD

Appropriation ID	Amount	Administering Agency	Description
13-1900	\$175,000	New Mexico State University	Caballo SWCD Garfield Watershed Structure Rehab
14-2126	\$125,000	New Mexico State University	Caballo SWCD Garfield Watershed Structure Rehab

Source: CPMS

Using the original NRCS funding formula would require a state contribution of \$750 thousand, with a \$300 thousand contribution from the local districts. According to the CPMS notation, *“the Caballo SWCD and the two other sponsors on this project have determined the updated projected costs...are excessive and that the project would focus on basic rehabilitation.”* Caballo staff confirms the current appropriations will most likely be used to remove the sediment from the reservoir for future water storage.



View of Upstream Dam Face with People Walking on the Dam Crest



View of Outlet Gate Operator and Dry Reservoir



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OFFICE OF THE STATE ENGINEER

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December 4, 2014

Charles Sallee
Deputy Director for Program Evaluation
Legislative Finance Committee
325 Don Gaspar
Santa Fe, NM 87501
[Email Delivery]

RE: Office of the State Engineer/ New Mexico Environment Department, Review of Select Water Projects – Report #14-05

Dear Mr. Sallee:

I would like to thank you and your staff for the review of practices at the Dam Safety Bureau, within the Office of the State Engineer (OSE). We agree with many of your conclusions regarding the limitation of local technical, managerial, and financial capacity; piecemeal funding; and lack of a uniform funding application and review process to maximum the effect of limited State resources. These conclusions have been drawn in other LFC reviews and we support actions on them.

Regarding the recommendations for OSE, we have provided comments for each item below. The complete LFC report has not yet been received, so our comments are based on the draft report we received on December 1st and the exit interview that was held on December 2nd.

The OSE and NMED should:

☐ *Engage in business process re-engineering to identify where activities could be streamlined and automation introduced;* The OSE recently hired a person to map our business processes with the intent of identifying opportunities for improvement and automating processes through the Appian Software BPMS project.

☐ *Look for opportunities to streamline and coordinate processes among administering agencies;* Efforts to streamline and coordinate processes have been pursued at the staff level for over ten years. OSE is currently participating in such an effort with NMED, but experience shows something much stronger and permanent is needed, such as SB198 that was introduced in the 2014 legislative session and would have created a single funding list for all state agencies involved in water and wastewater funding as well as a uniform application and review process.

☐ *Investigate means for improving project tracking, including transitioning to electronic records storage for capital outlay projects and creating a centralizing a database for all funding sources;* OSE agrees a statewide, central tracking system would be valuable. Because OSE traditionally receives only a handful of capital outlay projects to administer, development of a separate database just for the agency has not been previously considered.

☐ *Help local entities inventory all local water and dam needs and provide updated cost estimates to the legislature and executive for prioritizing;* The Dam Safety Bureau (DSB) maintains a list of jurisdictional dams, their hazard classification, and condition. Updating our old cost estimates for needed repairs would involve considerable staff time that is currently devoted to inspections and review of plans and specifications and emergency action plans (EAPs).

☐ *Continue working on capacity development at the local level, including dam owners;* Over the past year the DSB has been working closely with the New Mexico Watershed and Dam Owners Coalition to develop a training program on the preparation of Operations and Maintenance Manuals and looks to expand this effort in the coming year.

☐ *Improve staff-to-project ratios so staff engineers can make more site visits.* The OSE pursued an expansion request in the last legislative session that resulted in one new engineering position for DSB. That position starts work on December 8th.

The OSE should:

☐ *Adopt risk analysis methodology and risk assessment procedures to support dam safety decision making;* The DSB has considered other decision making methods for design of dams and consulted with other experts on the subject. Implementation of risk-based decision making methodology for design of dams would likely involve a change in current regulations. The application of risk-based decision making for prioritization of capital projects has also been explored and it is a favored approach for implementation at some point in the future. Currently, the DSB does not have the staff or the budget to pursue this recommendation.

☐ *Proceed with contracting a study to update the PMP modeling methodology for the state for more accurate modeling spillway requirements and cost estimates;* The DSB is working with stakeholders to form a public/private partnership to jointly fund such a study. The DSB has some FEMA money to start the process in calendar year 2015 and expects to include a request for contract funds in its FY17 budget, once a better cost estimate and a well-defined project scope is developed.

☐ *Complete the State Water Plan update by the December 2015 target date;* The Interstate Stream Commission (ISC) is tasked with development and maintenance of the State Water Plan. ISC is currently working with local workgroups in the 16 regions to update the regional water plans by the end of 2015.

☐ *Provide a recommended list to address dam priorities for the upcoming legislative session;* OSE has been cooperating with NMED to develop a list of water and wastewater funding needs for presentation before the start of the 2015 legislative session. A number of appropriations were made in 2014 for dam rehabilitation that were intended to provide the owners of priority project dams with funding to develop rehabilitation alternatives and cost estimates. The appropriations did not provide sufficient funding to complete the work. The DSB does not have staff to actively assist these owners to develop their plans. However, when these rehabilitation plans are developed by the owners, the OSE can support them in making capital outlay funding requests.

☐ *Review all dams subject to “hazard creep” using new PMP tool for risk assessment that might reduce the spillway specifications and cost;* The DSB has started review of some dams with a public software that provides a rough estimate of the flood potential. They have also been working with the Department of Agriculture to use Ag money to evaluate some of these rural dams. In the southern part of the state, there are over 75 such dams and the DSB does not have the staff or budget to evaluate all these dams at once.

☐ *Use risk assessments to identify highest risk dams that require remediation for safety and recommend either breach (destroy the dam) or a consensus resolution with federal and dam stakeholders with a multi-year plan for overhauling remaining dams.* The DSB has been exploring the application of risk-based prioritization of remediation projects and supports the idea of improved long-term planning for effective use of rehabilitation funds. The DSB currently does not have the staff or budget to undertake an effective prioritization effort within a reasonable time. The removal of a deficient dam can be a solution in some cases, but the removal of a dam requires flood reduction measures that create different problems that must also be overcome.

☐ *Establish procedures for project intervention that comply with statute, rules and regulations and do not introduce liability to the state for publicly-owned dams;* Since the Cabresto Dam project, OSE has established a working guide not to assume the role of the owner, to ensure the owner stays involved, not only for construction, but for the continuing obligation to properly operate and maintain the facility into the future. OSE will continue to provide technical support to the owners of Cabresto Dam to help them successfully complete their project. The DSB is currently assisting the owners with development of a solution to the foundation seepage problem that was identified during first filling.

☐ *Initiate an outreach program to dam owners, possibly in conjunction with the Water Infrastructure Team, to improve local capacity (expertise), educate dam owners on critical responsibilities that will not be provided by the OSE (such as capital outlay requests), and help establish succession plans for newer generations to take over operations;* OSE would love to see the generation gap in the governing bodies closed, but it faces the same issues NMED does with rural mutual domestic water systems. Because this is a statewide issue, we look forward to working with the legislature and others to address it.

☐ *Undertake discussions with the Department of Game and Fish for possible participation in Bluewater Dam maintenance and improvements, either by taking over ownership or contributing through an MOU*

with the Bluewater-Toltec Irrigation District; OSE is not in a position to assume ownership of Bluewater or any other dam with its current staff and budget levels. As a regulatory agency, ownership of a dam presents certain conflicts of interest that would be best to avoid.

☐ *Adopt rigorous file policies and procedures, including using best practice checklists to ensure compliance.* The DSB has consulted with NMED to learn their “best practices” and has begun to institute the recommended changes in the DSB filing system. One of the first actions is to separate the capital outlay files from the State Engineer record files for the dams.

Because we did not have much time to review the draft LFC report, we reserve the option to provide further comment on the final report when it is released.

Best Regards

A handwritten signature in blue ink that reads "Richard P. Rose". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Richard P. Rose, PhD, P.E., BCEE
Director, Water Resource Allocation Program
Office of the State Engineer

cc: Chuck Thompson, DSB
Tom Blaine, State Engineer



NEW MEXICO
ENVIRONMENT DEPARTMENT



SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lieutenant Governor

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RYAN FLYNN
Cabinet Secretary
BUTCH TONGAT
Deputy Secretary

December 4, 2014

Michelle Aubel
Program Evaluator II
Legislative Finance Committee
State Capitol North
325 Don Gaspar, Suite 101
Santa Fe, NM 87501

**Re: Capital Outlay Report
Select Water Projects
New Mexico Environment Department Response**

Dear Ms. Aubel,

Thank you for the opportunity to provide comments to your report dated December 8, 2014 evaluating Capital Outlay projects for selected water projects. The New Mexico Environment Department Construction Programs Bureau has the following comments on the report.

1. On page four there is a statement in the first paragraph under Status on Capital Outlay Process that "state funding is not leveraged by a systematic application of federal and local funding." This is not entirely correct. Both the Clean Water State Revolving Fund (CWSRF), administered by the Construction Programs Bureau (CPB), and the Drinking Water State Revolving Fund (DWSRF), administered by the New Mexico Finance Authority, leverage state funding because they have a state funding match requirement and are in many cases combined with state funding in order to fund a complete project or phase.
2. On page five the report alludes to the approved, appropriated amount of water project capital outlay funding as \$83.2M. Our records show that amount to be \$86M?
3. On page seven, in the Treating Wastewater for Non-potable Uses section, the report states that wastewater is used in snow making. There are currently no resorts in New Mexico that use effluent for snow making. Also on this page and throughout the report, the NMED Ground Water Bureau is mentioned. The correct Bureau name is the Ground Water Quality Bureau.

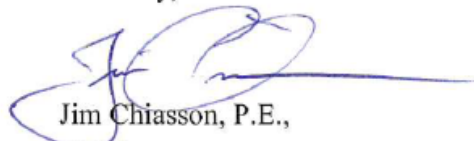
4. The description of the Cloudcroft Potable Wastewater Project on page eight of the report includes a statement says that membrane bioreactor (MBR) technology combines reverse osmosis and ultrafiltration. This statement is incorrect. The project includes MBR technology, reverse osmosis technology, and ultrafiltration technology. These are three separate technologies that are used in conjunction with one another within the project.
5. Page twelve states *"In general, appropriations were not optimized using a full funding concept according to any master plan that prioritizes limited resources across the state."* CPB did identify during our review of capital outlay requests that Hagerman required additional funding to complete a tank project. However, the appropriation that was submitted and subsequently approved was less than the recommended amount to complete the project.
6. Page thirteen should include a discussion of the Loan Grant Tracking System (LGTS), the database that the CPB uses to track all the projects that we oversee. However, tracking multiple funding sources has always required spreadsheets. CPMS has a similar deficiency in that CPMS tracks grants (funding source) but not projects, and there is nothing within CPMS that associates multiple grants that have been appropriated for the same project.
7. Page thirteen states, *"NMED project oversight ends with the appropriation, whether the project is completed or not...projects monitored by NMED lose visibility once the appropriation is done."* NMED could not possibly continue to monitor every capital outlay project beyond completion of the project or expiration of the grant. The owners should be expected to have some responsibility to report and keep LFC updated after receiving funds from the state. In addition, a majority of the projects monitored by CPB involve facilities such as public drinking water systems and wastewater systems that are regulated by other NMED bureaus. Any operational issues caused by failure to complete the capital outlay project would likely be identified during compliance inspections.
8. Page fourteen states, *"In some instances, neither the local entity nor the agency appeared successful in holding engineering or construction firms accountable."* NMED CPB does hold the contractor and engineer accountable as much as possible. However because NMED is not a party to the contract, our ability to affect change is limited to making recommendations to the local entity and, under extreme circumstances, denying pay requests. In many cases, denying a pay request would put the local entity in the difficult position of contractually owing funds that they do not have without the use of the grant funds.
9. Page eighteen, the first paragraph alludes to the local capacity adding to risks associated with project completion, specifically the meter project with the Town of Hagerman. In future capital outlay projects that include the purchase of meters, NMED will consider making installation of the meters a required phase of the project.
10. The report should also acknowledge that CPB does oversee federal earmarks that come to EPA for water and wastewater projects, and add that projects are monitored by NMED after completion if they are for regulated systems such as public drinking water systems

and permitted wastewater systems which discharge to either groundwater or surface water.

11. Page 20, last sentence, CPB believes that the Village of Cloudcroft still has the full \$942,000 available from their 2013 Colonias Infrastructure Fund grant .
12. Page 21, it is stated that the Colonias Infrastructure Board has not renewed a Memorandum of Understanding with NMED for such services. Unlike the other NMFA programs (i.e., Water Trust Board, Local Government Planning Fund, and Drinking Water State Revolving Loan Fund), there has never been an MOU between NMFA and NMED to provide technical review of Colonias Infrastructure Fund projects.
13. Page 21, line 3 of the paragraph is missing the words "Finance and" in the Department of Finance and Administration.
14. Page 22, last paragraph, the referenced email is dated July 18, 2006 and the latest projection for start-up and acceptance is summer. Also, it is unknown which required documents due to DWB last April are being referenced. DWB provided a review letter for the resubmitted plans in August and received a response from the engineer in November.
15. Page 23, Table 12, \$266,224.86 is the amount paid to Xylem to date for the replacement equipment and is part of the change orders, not the original contract.
16. Page 24, the bottom photo shows the blowers for the wastewater treatment equipment.
17. Page 30, second paragraph is missing the word "feet" after 14,000.
18. Page 30 the Town of Hagerman never provided any determination to CPB from the State Purchasing Division (SPD). Hagerman did, however, claim that the Southeast Council of Governments told them that they should move forward with the tank rehab.
19. Page 33, first paragraph is missing the word "State" in the Office of the State Engineer.
20. Page 39, last sentence, it is an OSE project but it says that NMED denied that reimbursement. This may be correct but it is confusing because the discussion is about the OSE.

We would be happy to discuss any of these comments with you or answer any questions you might have. Please contact me at jim.chiasson@state.nm.us or 827-9691 or 470-6385.

Sincerely,



Jim Chiasson, P.E.,
Chief

NMED, Construction Programs Bureau

APPENDIX A: EVALUATION SCOPE, OBJECTIVES AND METHODOLOGY

Evaluation Objectives.

1. Assess the cost-effectiveness of project planning, management, and oversight, and whether the results met the intended purpose.
2. As appropriate, assess the implementation status of incomplete projects and whether they are on-time and on-budget.
3. Verify compliance with applicable laws, rules, and regulations.

Scope and Methodology.

1. To represent a variety of types of projects, geographic locations, appropriation amounts, and progress made to date, four water projects and three dam projects were selected for review.
2. The evaluation procedures included the following items:
 - Review statutes and regulations regarding procurement
 - Review prior evaluations and relevant briefs by analysts
 - Review agency policies & procedures
 - Identify all funding awarded for selected projects
 - Request and review asset management plans for selected projects
 - Review compliance of project prior to funding
 - Review quarterly project reports
 - Interview agency and local government staff regarding project status and use of funds
 - Request and review current financial data for projects
 - Request and review a list of contract files
 - Review account and spending information
 - Evaluate project planning and management

Evaluation Team.

Michelle Aubel, Program Evaluator (Completing Evaluator)

Jonas Armstrong, Program Evaluator (Initial Evaluator)

Authority for Evaluation. LFC is authorized under the provisions of Section 2-5-3 NMSA 1978 to examine laws governing the finances and operations of departments, agencies, and institutions of New Mexico and all of its political subdivisions; the effects of laws on the proper functioning of these governmental units; and the policies and costs. LFC is also authorized to make recommendations for change to the Legislature. In furtherance of its statutory responsibility, LFC may conduct inquiries into specific transactions affecting the operating policies and cost of governmental units and their compliance with state laws.

Exit Conference. The contents of this report were discussed with Dr. Richard Rose and Charles Thompson of the Office of the State Engineer and with Jim Chiasson and Judi Kahl of the New Mexico Environment Department on December 2, 2014.

Report Distribution. This report is intended for the information of the Office of the Governor; Office of the State Engineer; New Mexico Environment Department; Office of the State Auditor; and the Legislative Finance Committee. This restriction is not intended to limit distribution of this report, which is a matter of public record.



Charles Sallee

Deputy Director for Program Evaluation

Office of the State Engineer, New Mexico Environment Department, Report #14-12
Capital Outlay: Review of Select Water Projects
December 8, 2014

APPENDIX B: NEW MEXICO FUNDING SOURCES FOR WATER PROJECTS

Funding Program	Administering Organization	Authorizing Legislation	Program Goal	Eligible Entities & Eligibility Criteria	Source of Funding
Drinking Water State Revolving Loan Fund (DWSRLF)	NMFA NMED	6-21A-1 through 6-21A-9	Funding for Drinking Water projects: To improve drinking water systems & drinking water quality.	<i>Entities include:</i> municipality, county, incorporated county, water and or sanitation dist., private or public water cooperative or association or any similar organization, private or public water system or nonprofit non-community water system or any other agency created pursuant to a joint powers agreement acting on behalf of any entity with a publicly owned drinking water system or water supply system that qualifies as a community water system or non-community system as defined by the SDWA. <i>Entities must:</i> appear on the State's Priority List for the proposed project as determined by the New Mexico Environment Department's Drinking Water Bureau. Public environmental review required.	EPA capitalization grants with 20% state match
Local Government Planning Fund (LGPF)	NMFA	6-21-6.4	Funding for Drinking Water and Wastewater projects: To assist communities by funding studies & analysis to determine alternatives and costs associated with infrastructure and economic development projects.	<i>Entities include:</i> state agency or institution, municipality, school district, community water association or an Indian nation, tribe or pueblo. <i>Entities must:</i> submit application to NMFA, match grant based on sliding scale. Requires legislative authorization.	Legislative appropriations & NMFA Bonds backed by loan proceeds
Water / Wastewater (Project) Grant Fund (W/WWPGF)	NMFA	6-21-6.3	Funding for Drinking Water and Wastewater projects: To assist communities with critical needs that cannot be entirely resolved with loan funds. To help those entities least able to help themselves	<i>Entities include:</i> state agency or institution, municipality, school district, community water association or an Indian nation, tribe or pueblo. <i>Entities must:</i> submit application to NMFA, match grant based on sliding scale	Legislative appropriations or public or private money dedicated to the fund & NMFA Bonds backed by loan proceeds
Public Project Revolving Fund Loan (PPRF)	NMFA	6-21-1.0	Funding for Drinking Water and Wastewater projects: To provide a reliable source of capital funds to local entities at affordable interest rates. To offer to borrowers a low AAA-insured fixed interest rate. To provide for financing of emergency drought projects.	<i>Entities include:</i> state agency or institution, county, municipality, school district, land grant corporation, inter-community water and natural gas supply association or corporation, special district, community water association or an Indian nation, tribe or pueblo. <i>Entities must:</i> submit application to NMFA. Requires legislative authorization for projects.	NMFA Bonds backed by loan proceeds & GGRT funds
Water Project Fund Loan & Grant Program (WPF)	NMFA for Water Trust Board	72-4A-9	Funding for Drinking Water and Wastewater projects: To provide funding for water use efficiency, resource conservation and protection and fair distribution of scarce resources. To provide loans for water projects where there are sufficient funds to repay loan. To provide grants for projects that demonstrate economic need & inability to afford debt financing.	<i>Entities include:</i> municipalities, counties, irrigation districts, conservancy districts, associations organized and existing pursuant to Sanitary Projects Act, recognized Indian nations, tribes and pueblos <i>Entities must:</i> submit applications for projects related to urgently needed storage, conveyance & water delivery, ESA implementation, watershed management and restoration, flood prevention and conservation measures and must have project approved by legislature, have been identified for implementation of a regional water plan that is accepted by the ISC and that have matching contributions from federal or local funding sources.	4% Severance Tax per year Legislative Appropriations Water Trust Fund (WTF)

Funding Program	Administering Organization	Authorizing Legislation	Program Goal	Eligible Entities & Eligibility Criteria	Source of Funding
Colonias Infrastructure Project Fund	NMFA for Colonias Infrastructure Board	6-30 through 6-30-8	Funding for basic infrastructure: water and wastewater systems, solid waste disposal facilities, flood and drainage control, road and housing	<i>Entities include:</i> rural community with a population of 25,000 or less located within one hundred fifty miles of the U.S.-Mexican border that has been designated as a colonia by a municipality or country because of a) lack of potable water supply b) Lack of adequate sewage systems c) lack of decent, safe and sanitary housing	Colonias Trust Fund Varies: 4.7% ave 5 year-end market value
Rural Infrastructure Program (RIP)	NMED Construction Programs Bureau	75-1-2.1	Funding for Drinking Water and Wastewater projects: To provide loan and grant funds for rural water supply and wastewater infrastructure and facilities.	<i>Entities include:</i> Any incorporated city, town, village, county, mutual domestic association, or water and sanitation district whose water supply facility serves a population of less than ten thousand persons.	NMED loan fund is revolving, gaining money from repayments and investment earning
Clean Water State Revolving Loan Fund (CWSRF)	NMED Construction Programs Bureau	74-6A-4	Funding for Drinking Water and Wastewater projects: To provide local authorities with low-cost assistance to construct and rehabilitate wastewater facilities to improve and protect drinking water quality and public health.	<i>Entities include:</i> municipalities, counties, water & sanitation districts, and tribes. <i>Entities must:</i> meet NMED financial capability requirements, agree to operate and maintain the wastewater facility, agree to maintain separate project accounts, provide written assurance that local authority has proper title, require contractor to post performance and payment bond, provide notice of completion and start of wastewater facility.	EPA capitalization grants under the Clean Water Act 20% Match from State is required
Capital Outlay Also known as Special Appropriation Program (SAP)	NMED Construction Programs Bureau	Capital Outlay Bill	Funding for Drinking Water and Wastewater projects: To enhance the health, safety and welfare of NM residents and to improve public facilities and infrastructures in local communities	<i>Entities include:</i> State agencies, political subdivisions of the State and Indian Tribes and pueblos.	State Legislature Governor Approval
Community Development Block Grant Program (CDBG)	DFA Local Govt. Division	Title I of the Housing and Community Development Act of 1974 as amended	Funding for Drinking Water and Wastewater projects: To provide assistance to counties and smaller municipalities to provide a suitable living environment and expanded economic opportunities.	<i>Entities include:</i> Counties and Small Municipalities (under 50,000 population) <i>Entities must:</i> Apply through a municipality or county if it is a special district or non-profit. Rural applicants must provide 5% cash match during the project period. Non-rural applicants must provide 10% cash match during the project period.	Federal funds from U.S. Department of Housing and Urban Development
Tribal Infrastructure Fund (TIF)	Bureau of Indian Affairs for Tribal Infrastructure Board	6-28-1 to 6-28-8	Funding for Drinking Water and Wastewater projects: Funding for tribal infrastructure projects related to water, wastewater, electrical, communications, roads, health, emergency facilities and economic development statewide.	<i>Entities include:</i> Tribes and Pueblos	New Mexico Legislative Appropriations 5% of the Severance Tax Bonding Capacity

Source: 2005 Water and Wastewater Funding Matrix, Dr. Richard Rose, Updated by LFC 2014

APPENDIX C: NMED CAPACITY DEVELOPMENT CONTRACTS

Capacity Development Assistance Menu of Services			
Item	Deliverable Description	Deliverable Criteria	Deliverable Quantity
1	Comprehensive System Technical, Managerial and Financial Capacity Assessment	NMED Capacity Assessment Templates	Each assessment: Deliverable based Individual On-Site Assistance; paid upon completion

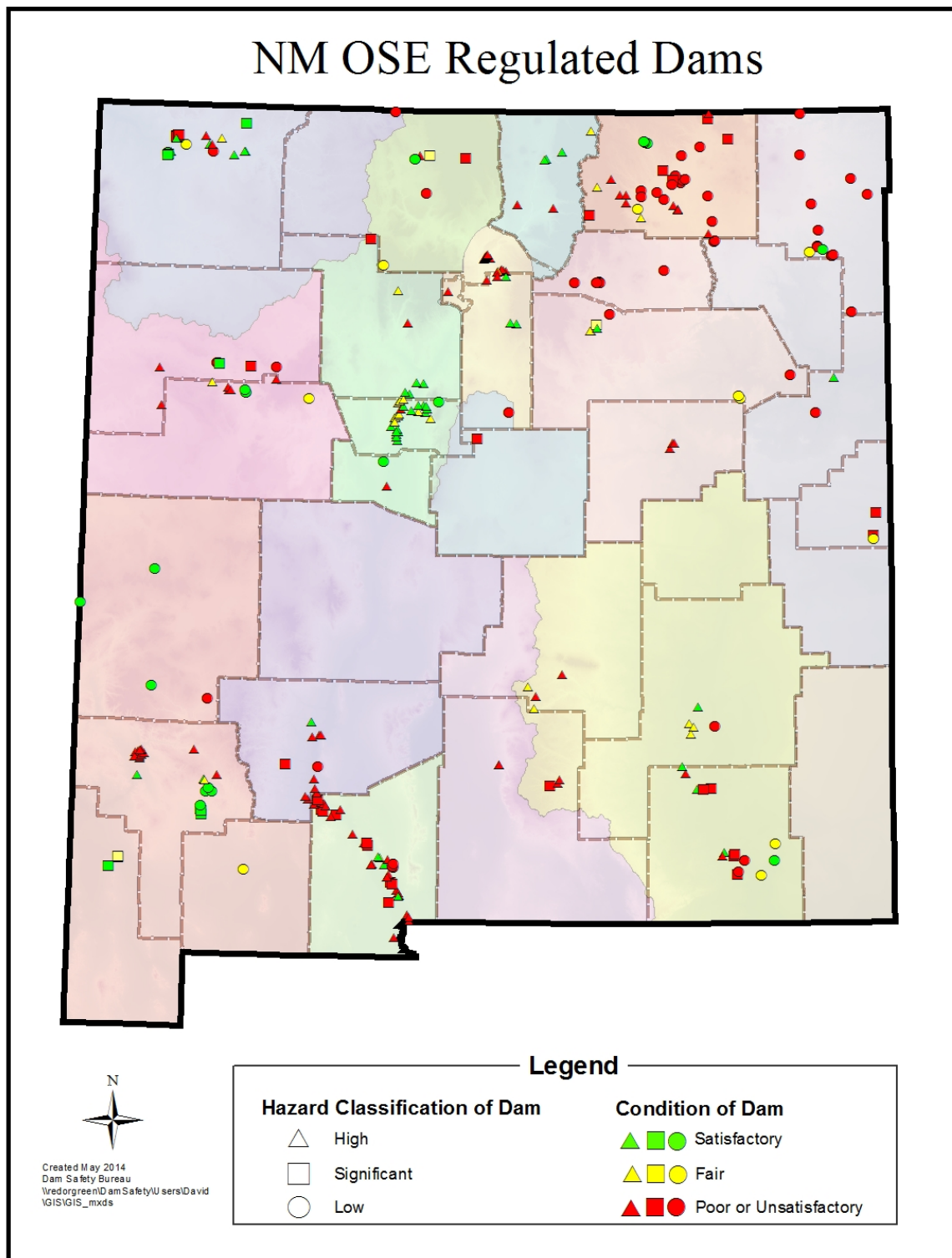
Technical Assistance Deliverables			
2	SDWA compliance monitoring sample plan development	NMED sample plan templates	Each Plan: Deliverable based Individual On-Site Assistance; paid upon completion
3	Establish Comprehensive Contract with Certified Operator	NMED certified operator contract services template; NMED 20.7.2	Each Contract: Deliverable based Individual On-Site Assistance; paid upon completion
4	Development of an Operations and Maintenance Plan	NMED O&M Manual Template	Each Plan: Deliverable based Individual On-Site Assistance; paid upon completion
5	Development of a system map: all facilities and service area; electronic and hard copy deliverable	NMED System Map Description	Each Map: Deliverable based Individual On-Site Assistance; paid upon completion
6	Development and implementation of a Cross Connection Control Program	EPA Cross Connection Control Manual	Each Plan: Deliverable based Individual On-Site Assistance; paid upon completion
7	Achieve compliance with the SDWA - Correction of Sanitary Survey Deficiencies & Violations	40 CFR 141; NMED 20.7.10	hourly rate
8	Correctional Certified Operator services for one month	NMED certified operator contract services template; NMED 20.7.2	monthly rate for providing list of services in contract template as needed
9	Revised Total Coliform Rule Level 2 Assessment	NMED RTRC Assessment Procedures	Each assessment: Deliverable based Individual On-Site Assistance
10	Classroom Technical Training; 3 hour course; topic requested by DWB; CEUs awarded	NMED Course Approval	Each 3 hour course; paid upon completion
11	Initial Water Loss Audit and identification of leak location	EPA & AWWA guidance	Each initial audit: Deliverable based Individual On-Site Assistance; paid upon completion
12	WATER LOSS CONTROL PROGRAM DELIVERABLES: water audit/leak data; condition assessment; solution action plan; benchmark evaluations	EPA & AWWA guidance	hourly rate
13	Energy Efficiency Initial Audit	EPA energy efficiency guide	Each initial audit: Deliverable based Individual On-Site Assistance; paid upon completion
14	Energy Efficiency Program Development	EPA energy efficiency guide	hourly rate

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Sustainable Water Infrastructure Project Readiness Assistance			
Item	Deliverable Description	Deliverable Criteria	Deliverable Quantity
29	Development of an Infrastructure Capital Improvement Plan	DFA guidelines	Each Plan: Deliverable based Individual On-Site Assistance; paid upon completion
30	PROJECT FINANCIAL PLAN: Determine project match requirements, 3 years of financials, i.e. profit- loss or bank audited statements, list all debt and holders	Funding Agency Specific Requirements	Each Plan: Deliverable based Individual On-Site Assistance; paid upon completion
31	COMPLETE A FUNDING APPLICATION: may include at a minimum assistance to prepare required documentation;	Agency Specific Requirements	Each Plan: Deliverable based Individual On-Site Assistance; paid upon completion
32	Training course on infrastructure project management and planning such as how to RFP/hire and engineer; 2-3 hour course	NMED Course Approval	each course paid upon completion
Asset Management Program Development			
Item	Deliverable Description	Deliverable Criteria	Deliverable Quantity
33	Classroom training on Principles of Asset Management; 6 hour course	NMED Course Approval	each 6 hour course; paid upon completion
34	Classroom training on Principles of Asset Management; 3 hour course	NMED Course Approval	each 3 hour course; paid upon completion
35	AM Part 1: ASSET INVENTORY DELIVERABLES including a list of assets; asset condition assessment; remaining life of useful assets; asset replacement value; map of assets	NMED & State guidance	hourly rate
36	AM Part 2: LEVEL OF SERVICE DELIVERABLES including Level of Service Agreement; Performance Measures	NMED & State guidance	hourly rate
37	AM Part 3: CRITICAL ASSET & PRIORITIZATION DELIVERABLES including Criticality Analysis; Priority List	NMED & State guidance	hourly rate
38	AM Part 4: LIFE CYCLE COSTING DELIVERABLES including O&M program; Repair/Replacement schedule; Capital Improvement Plan (CIP)	NMED & State guidance	hourly rate
39	AM Part 5: LONG TERM FUNDING STRATEGY 5 Year Financial Plan; Funding Strategy for Repair and Replacement Schedule; Funding Strategy for CIP	NMED & State guidance	hourly rate
40	AM Project Financial Plan: Determine project based Increases in Annual Operating Costs	NMED & State guidance	Each Plan: Deliverable based Individual On-Site Assistance; paid upon completion
41	AM Project Phasing Plan: Determine detailed Project Phase Schedules	NMED & State guidance	Each Plan: Deliverable based Individual On-Site Assistance; paid upon completion

Source: NMED Drinking Water Bureau

APPENDIX D: MAP OF OSE REGULATED DAMS



Source: OSE/Dam Safety Bureau

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APPENDIX E: OSE HAZARD AND CONDITION CLASSIFICATIONS

TABLE 1
HAZARD POTENTIAL CLASSIFICATION

Hazard Potential	Definition
High	Dams where failure or mis-operation would likely result in loss of human life.
Significant	Dams where failure or mis-operation would likely not result in loss of human life but could cause economic loss, environmental damage, disruption of lifeline facilities, or could impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but may be located in populated areas with significant infrastructure.
Low	Dams where failure or mis-operation would likely not result in loss of life but may result in minimal economic or environmental losses. Losses would be principally limited to the dam owner's property

TABLE 2
CONDITION ASSESSMENT CRITERIA

Condition Assessment	2008 US Army Corps of Engineers Criteria Adopted by NM OSE in FY09	NMOSE Spillway Risk Guidelines
Satisfactory	No existing or potential dam safety deficiencies are recognized. Acceptable performance is expected under all loading conditions in accordance with State Engineer rules and regulations for dams or tolerable risk guidelines.	Spillway capacity $\geq$ 70% of the spillway design flood (SDF).
Fair	No existing dam safety deficiencies are recognized for <u>normal</u> loading conditions. Rare or extreme hydrologic and/or seismic events may result in a dam safety deficiency. Risk may be in the range [for the owner] to take further action.	Spillway capacity < 70% but $\geq$ 25% of the SDF.
Poor	A dam safety deficiency is recognized for loading conditions, which may realistically occur. Remedial action is necessary. A poor condition is also used when uncertainties exist as to critical analysis parameters, which identify a potential dam safety deficiency. Further investigations and studies are necessary.	Spillway capacity < 25% of the SDF.
Unsatisfactory	A dam safety deficiency is recognized that requires immediate or emergency remedial action for problem resolution.	

Source: OSE/Dam Safety Bureau

APPENDIX F: NMED PROJECT ENGINEER RECORDS SYSTEM

Federal

I. Part 1 – Miscellaneous Check List, General Correspondence	II. Part 4 – Design Documents RFP, A/E Agreement, Plans & Specifications, Addenda, Site Certificate, Wage Rates
III. Part 2 – Agreements Agreement, Amendment(s), Project Description, Schedule, Budget	IV. Part 5 – Construction Documents Bid Tab, NTP, Schedule, Pre-Con notice, agenda and minutes, Change Orders, Inspections, Closeout Docs
V. Part 3 - Feasibility Check List, PER, EID, "NEPA" Documents	VI. Part 6 – Financial Reimbursement Requests, Budget

State

VII. Part 1 – Miscellaneous Check List, General Correspondence	VIII. Part 4 – Engineering Documents RFP, A/E Agreement, PER
IX. Part 2 – Grant Agreement Agreement, Amendment(s), Project Description, Schedule, Budget	X. Part 5 – Design / Bid Documents Plans & Specifications, Addenda, Site Certificate or Easement/ROW/Title, Wage Rates, Bid Tab, NTP, Schedule
XI. Part 3 - Financial Reimbursement Requests, Budget	XII. Part 6 – Construction Documents Pre-Con notice, agenda and minutes, Change Orders, Inspections, Closeout Docs

Source: NMED

APPENDIX G: NMED PROJECT MANAGEMENT FILE CHECKLIST

PROJECT NAME:	NUMBER:			
ADMINISTRATIVE PROCEDURES CHECKLIST				
ITEM	DATE RECEIVED	PM	DATE APPROVED	PM
Grant/Loan Agreement (Date Executed: _____)				
Engineering RFP and Ranking (Engineer: _____)				
Signed Engineering Contract (Eligible: \$ _____)				
<i>Federal Only: Model Contract Clause, Debarment, EEOC, MBE/WBE</i>				
Preliminary Engineering Report				
<i>Environmental Information Document</i>				
<i>FNSI/EA (By Technical Section Manager)</i>				
Plans and Specifications				
Site Certificate (required for federal) or easement, ROW, land title				
Bid tabs, Recommendation letter, Bid Bond (Contractor: _____) (Eligible: \$ _____)				
<i>Federal Only: Model Contract Clause/Pink Sheets, EEOC, Labor Standards, MBE/WBE, Letter of Intent, Debarment</i>				
Inspector's Resume				
Executed Contract Docs (NOA, Agreement, Payment & Performance Bonds)				
Notice to Proceed (Date Issued: _____)				
Pre-Con notice, agenda and minutes (including site visit schedule) (Pre Con Date: _____)				
Change Order(s)				
1. (Eligible: \$ _____)				
2. (Eligible: \$ _____)				
3. (Eligible: \$ _____)				
4. (Eligible: \$ _____)				
CLOSEOUT PROCEDURES CHECKLIST				
ITEM	DATE RECEIVED	PM	DATE APPROVED	PM
Certificate of Substantial Completion (including punch list items) (Date Issued: _____)				
Engineer and Owner Acceptance Letter				
Certification of Labor Standards Compliance				
Release of Liens				
Written Consent of Surety				
O&M Manual(s) (required for federal) or Letter from Owner accepting Manuals				
Record Drawings or letter from Owner accepting Record Drawings				
Final Pay Request and Final Adjusting Change Order (Date Issued: _____)				

Source: NMED

