ORANGE WATER AND SEWER AUTHORITY

A public, non-profit agency providing water, sewer and reclaimed water services to the Carrboro-Chapel Hill community.

MEMORANDUM

TO: **Natural Resources and Technical Systems Committee**

Terri Buckner (Chair)	Will Raymond
Stephen Dear	Amy Witsil
Michael Hughes	John Young
Heather Payne	Alan Rimer (*ex officio*)
Dana Raborn	

THROUGH: Ed Kerwin

FROM: Ruth Rouse

DATE: January 31, 2014

SUBJECT: February 5, 2014 NRTS Committee Meeting

The NRTS Committee will meet on Wednesday, February 5, 2014 from 5:30 to 7:00 PM in the OWASA Boardroom. Ruth Rouse, Planning and Development Manager, will present information on the Long-Range Water Supply Plan (LRWSP). As requested at the January 23, 2014 Board meeting, staff will hear discussion from Committee members on the semi-annual report format for the Capital Improvements Program (CIP).

Agenda

- Update of Long-Range Water Supply Plan (60 min)
  - Inter-relationship between key water supply planning tasks
  - Core questions which will be addressed for each task
  - Subtasks
  - Resource requirements
  - Draft schedule
  - Discussion
- Discussion on Capital Improvements Program Reporting (30 min)
- Next meeting
  - March 5, 2014 – LRWSP Task 1

Attached are more details on the LRWSP and the latest semi-annual CIP report. We look forward to seeing you on February 5.

Ruth C. Rouse

Ruth Rouse, AICP
Planning and Development Manager

c: OWASA Board of Directors
Robert Epting
Ed Kerwin

Attachments

Attachment 1: Potential Process for Key Water Supply Planning Tasks
Attachment 2: LRWSP Update – Core Questions/Issues, Tasks, Resource Requirements
Attachment 3: Draft Schedule to Update Long-Range Water Supply Plan
Attachment 4: Semiannual Status Report for Various Capital Improvement Projects

Attachment 1: POTENTIAL PROCESS FOR KEY WATER SUPPLY PLANNING TASKS

December 6, 2013

LEGEND

DWR: NC Division of Water Resources

EMC: NC Environmental Management Commission

LRWSP: Long-Range Water Supply Plan

JORDAN LAKE ALLOCATION PROCESS (Dates shown are subject to change by DWR)

- **Draft Round 4 applications submitted to State March 1, 2014** (We will use existing projections from current LRWSP)
- **Final Round 4 allocation applications submitted to State August 1, 2014** (We will use existing projections from current LRWSP)
- **EMC approves Cape Fear/Neuse Hydrologic Model August 1, 2014**
- **DWR allocation recommendation to EMC March 11, 2015**
- **EMC issues final Round 4 allocations November 12, 2015**

LONG RANGE WATER SUPPLY PLAN UPDATE PROCESS

- **BOARD ACTION** — **TASK 1.** Establish goals and objectives, evaluation criteria, comment process, etc.
- **TASK 2.** Update water demand projections to reflect current plans, policies, trends, etc.
- **TASK 3.** Update estimates of reliable yield of existing supplies to reflect hydrologic record, potential effects of climate change, etc.
- **TASK 4.** Assess potential for supply shortfalls (magnitude and timetable)
- **TASK 5.** Identify potential water supply and demand management options
- **TASK 6.** Screen options against criteria (develop short-list of potentially feasible options)
- **TASK 7.** Evaluate supply and demand management alternatives
- **BOARD ACTION** — **TASK 8.** Selection of alternatives needed to ensure an adequate, reliable, and high quality water supply
- **BOARD ACTION** — **TASK 9.** Approval of investments and commitments necessary to implement the plan
- **TASK 10.** Implement preferred alternatives

STAFF WILL KEEP BOARD OF DIRECTORS UPDATED THROUGHOUT JORDAN LAKE ALLOCATION PROCESS AND UPDATE OF LONG-RANGE WATER SUPPLY PLAN

Attachment 2

ORANGE WATER AND SEWER AUTHORITY: LONG-RANGE WATER SUPPLY PLAN UPDATE
SOME CORE QUESTIONS/ISSUES, TASKS, RESOURCE REQUIREMENTS

	PROCESS TASK*	CORE QUESTIONS/ISSUES	SUBTASK(S)	RESOURCE REQUIREMENTS
PROCESS	Task 1	**What are the goals/objectives/core values/decision criteria/planning horizon? How do we compare/weight economic and non-economic factors? What level of service is desired (conversely, what level of risk is acceptable)?**	Obtain Board's policy guidance before moving ahead	
		What is the desired process for public participation, review and comment?	Obtain Board's policy guidance before moving ahead	To be determined once guidance is received from Board
PROJECTIONS	Task 2	**What will the community's future water demands be under different growth and climate scenarios?**	Compile and analyze most up-to-date information regarding local population, employment, growth and development Get input from local governments and UNC on boundaries for low and high growth Develop estimates of how climate change may impact demands	May need consulting assistance to estimate how changing climate may impact customer demands
	Task 3	**What is the reliable yield of our local supplies under historic record and with climate change?**	Re-evaluate estimates of reliable yield of our supplies; incorporate climate change into yield estimates	May need consulting assistance to provide guidance to incorporate climate change into yield estimates
	Task 4	**Do we anticipate any projected shortfalls in supply that need to be addressed through increases in supply and/or reductions in future demands? If so, when do we expect those will occur and what is the projected magnitude and duration of the shortfalls?**	Compare projected demands vs. estimated capacity for the various scenarios to be considered	

Attachment 2

ORANGE WATER AND SEWER AUTHORITY: LONG-RANGE WATER SUPPLY PLAN UPDATE
SOME CORE QUESTIONS/ISSUES, TASKS, RESOURCE REQUIREMENTS

	PROCESS TASK*	CORE QUESTIONS/ISSUES	SUBTASK(S)	RESOURCE REQUIREMENTS
IDENTIFICATION AND EVALUATION OF OPTIONS	Task 5	**What potentially viable supply alternatives should we consider?** - Jordan Lake - mutual aid - Jordan Lake - agreement with Cary - Jordan Lake - western intake and treatment - Quarry Reservoir - deep option - Quarry Reservoir - mine longer - Haw River - temporary intake - Expand current reclaimed water system - Indirect potable reuse - Other	Review supply options evaluated in 2010 LRWSP Update; decide if any are to be added or deleted Present supply alternatives to evaluate to Board Evaluate alternatives to determine potential yield and cost	Consulting assistance to update capital, operating and maintenance costs of the alternatives
		What potentially viable demand management alternatives should we consider? - Toilet replacement program - Other incentives such as to xeriscape - WaterSense homes program -Water use efficiency requirements - Greater reliance on mandatory use restrictions - Other	Review demand management options evaluated in 2010 LRWSP Update; decide if any are to be added or deleted Present demand management alternatives to evaluate to Board Evaluate demand management alternatives to determine potential demand reduction and cost	May need consulting assistance in evaluating capital, operating and maintenance costs of the alternatives
		Do we need to modify our pricing structure?	Evaluate pricing with the demand management scenarios to determine impact on revenue Present alternative pricing structures to Board	
	Task 6	**Do the alternatives meet agreed-upon criteria?**	Develop short-list of potentially feasible options to meet water supply needs	
	Task 7	**What are the advantages and disadvantages of the different supply and demand management alternatives which meet the agreed-upon criteria?**	Evaluate and rank the alternatives against the different evaluation criteria and weighting factors established at the outset	Consulting assistance to evaluate the advantages and disadvantages of the alternatives

Attachment 2

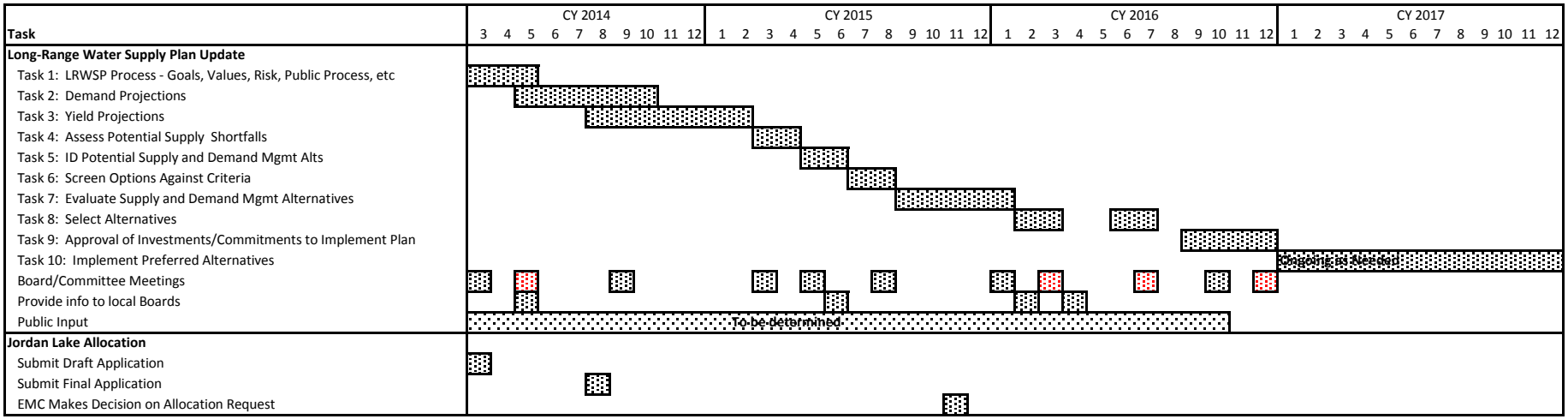
ORANGE WATER AND SEWER AUTHORITY: LONG-RANGE WATER SUPPLY PLAN UPDATE
SOME CORE QUESTIONS/ISSUES, TASKS, RESOURCE REQUIREMENTS

	PROCESS TASK*	CORE QUESTIONS/ISSUES	SUBTASK(S)	RESOURCE REQUIREMENTS
PLAN	Task 8	**What is the preferred mix of supply and demand management alternatives?**	Select the optimium mix of alternatives that are required to meet and/or manage the projected demands	May need consulting assistance to determine the optimum mix of alternatives
		What are the projected capital and operating and maintenance costs for the preferred option(s)?		
		What actions do we and others need to take to implement the plan?		
		What will be the process and timetable for evaluating and updating the plan?		
IMPLEMENTATION	Task 9	**What resources are required to implement the plan and on what timetable?**	Board approval of investments and commitments to implement the preferred alternative and plan Staff bring resource requirements to Board annually as part of budget process	To be determined as update to LRWSP completed in Task 8
	Task 10		Implement the preferred alternative and plan	

* Corresponds to Task Number on Graphic "Potential Process for Key Water Supply Planning Tasks" dated December 6, 2013

Attachment 3

DRAFT Schedule to update Long-Range Water Supply Plan



Board Action Item

Note that two Action Items around Task 8: "Select Alternatives": one for approval for public meeting; one for approval of final alternatives/plan

ORANGE WATER AND SEWER AUTHORITY

A public, non-profit agency providing water, sewer and reclaimed water services to the Carrboro-Chapel Hill community.

TO: Board of Directors

THROUGH: Ed Kerwin

FROM: F. Stuart Carson, P.E.

DATE: January 16, 2014

SUBJECT: Semiannual Status Report for Various Capital Improvement Projects including the Semiannual Report on Communications Plans for Capital Projects

SUMMARY

This semiannual status report provides information on active or recently completed capital improvement projects. It includes:

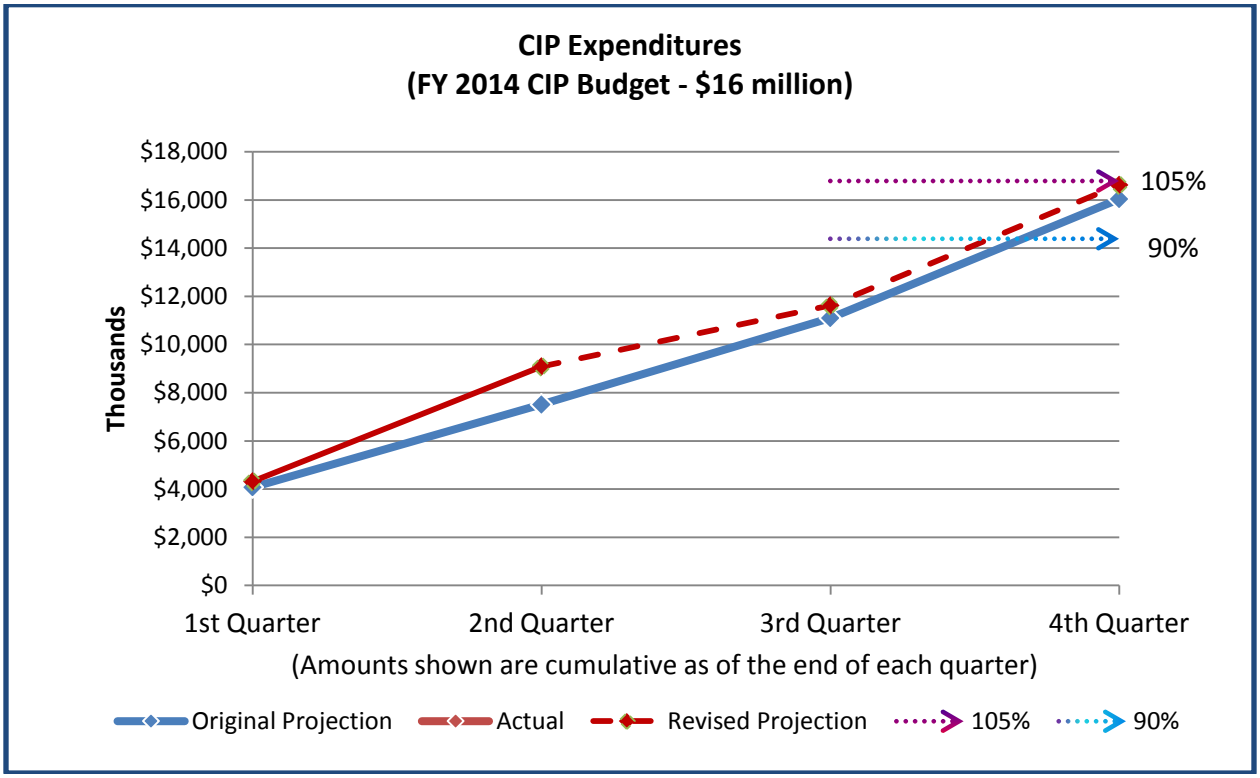
- Attachment A - a graph showing the original budget and actual spent amounts through the 2nd Quarter of Fiscal Year (FY) 2014 and the projected total year-end expenditure.
- Attachment B – a worksheet showing the currently active (e.g. study, design, construction) projects reflecting current milestone and entire project schedules' and budgets' statuses using a green/yellow/red "stoplight" format.
- Attachment C – additional information "by exception" for larger or high customer impact projects that have a red "stoplight" shown on the worksheet.
- Attachment D – an OWASA Service Area Map depicting the project locations.

Customers may visit our web site (www.owasa.org) for information about our current major CIP projects.

If you have any questions regarding these projects please contact me at (919) 537-4247.

F. Stuart Carson, P.E.
Engineering Manager - Capital Improvement Projects

Attachments



The CIP budget for FY 2014 was increased from the $14,785,000 shown in the FY 2013 – 2018 CIP book to $15,990,000. The increases were to cover project "carryover" expenses from FY 2013 to FY 2014 and for additional projects added to FY 2014 that were not in the FY 2013 – 2018 CIP book. There were two CIP projects with large budget impacts across these two fiscal years:

- The Friday Center Sewer Interceptor Replacement Project was completed on time (even though the contractor started later than expected) and slightly under budget. We spent $1,806,000 less on the Friday Center Sewer Interceptor Replacement Project in FY 2013 than was budgeted. The contractor began work later than originally planned because their workforce was tied up on a large project in Raleigh. The overall FY 2014 project expenditures were within its FY 2014 budget.

- The Heritage Hills Force Main Replacement Project is complete and, since its FY 2014 budget was exceeded, more information about this project is included in *Attachment C: "By Exception" Project Narratives*.

OWASA began FY 2014 well postured to meets its CIP execution goal for FY 2014 with approximately 65% of the total amount budgeted being dedicated to projects that are already awarded. As shown in the graph above, actual expenditures at the end of the 2nd Quarter of FY 2014 were approximately 20% higher than budgeted. We project that FY 2014 CIP expenditures will be 4% over budget and within our target range of 90% to 105% of budget.

CIP Project Updates

CIP No.	Project Name	Status Update (1/15/14)				
		Current Milestone	Schedule Status		Budget Status	
			Current Milestone	Entire Project	Current Milestone	Entire Project
270-20	Cane Creek Reservoir Dock Replacement	Design/bid	🟢	🟢	🟢	🟢
270-21	Cane Creek Reservoir Dam Repairs (concrete joints caulking)	Design/bid	🟢	🟢	🟢	🟢
270-26	Cane Creek Reservoir and University Lake Permanganate Feed Systems Evaluation	Study	🟡	🟡	🔴	🔴
272-10	Water Treatment Plant Recapitalization/Rehabilitation Projects					
272-10	*Water Treatment Plant Recapitalization/Rehabilitation Projects - Flocculator Controls*	Construction	🟢	🟢	🟢	🟢
272-10	*Water Treatment Plant Recapitalization/Rehabilitation Projects - HVAC (Chemical Feed Room)*	Project Inititiation	🟢	🟢	🟢	🟢
272-10	*Water Treatment Plant Recapitalization/Rehabilitation Projects - MCC (solids facility - old side)*	Project Inititiation	🟢	🟢	🟢	🟢
272-10	*Water Treatment Plant Recapitalization/Rehabilitation Projects - Chlorine Analyzers*	Project Inititiation	🟢	🟢	🟢	🟢
272-21	Water Treament Plant Main Switchgear Study	Study	🟢	🟢	🟢	🟢
272-24	Water Treatment Plant Generator Installation	Construction	🟢	🔴	🟢	🔴
272-26	Water Treatment Plant Storm Drain Containment Evaluation	Study	🟢	🟡	🟢	🟢
272-29	Water Treatment Plant SuperPulsator Upgrades/Rehabilitation	Construction	🟢	🟢	🔴	🔴
273-02	Calvander Pump Station Improvements	Substantial Completion	🟡	🔴	🔴	🔴
275-20	Water Main Rehabilitation/Replacement Program					
275-20	*Buttons Lane and Iris Lane (crew project)*	Substantial completion	🔴	🔴	🟢	🟢
275-20	*Foxcroft Drive*	Design/bid	🟢	🟢	🟢	🟢
275-20	*Hillview Drive (alley)*	Design/bid	🟢	🟢	🟢	🟢
275-20	*Valley Park Drive*	Design/bid	🟢	🟢	🟢	🟢
275-20	*Ridgewood Lane*	Design/bid	🟢	🟢	🟢	🟢
275-20	*Fordham Blvd Service Rd*	Design/bid	🟢	🟢	🟢	🟢
275-20	*The Glen*	Design/bid	🔴	🔴	🟢	🟢
275-20	*Porthole Alley (crew project)*	Substantial completion	🟢	🟢	🟢	🟢
275-20	*Merritt Drive (crew project)*	Substantial completion	🟢	🟢	🟢	🟢
275-20	*Ridge Road - Manning to Stadium Drive*	Design/bid	🟢	🟢	🔴	🔴
275-20	*Holloway Lane WM*	Design/bid	🔴	🔴	🟢	🟢
275-20	*Sunrise Lane WM*	Design/bid	🔴	🔴	🟢	🟢
275-20	*Grey Bluff Trail (crew project)*	Construction	🟢	🟢	🟢	🟢
275-20	*Kenmore Road (crew project)*	Construction	🟢	🟢	🟢	🟢
275-20	*Brookside Drive (crew project)*	Design/bid	🟢	🟢	🟢	🟢
275-20	*James Street (crew project)*	Substantial completion	🟢	🟢	🟢	🟢
275-52	Cameron Avenue					
275-52	*Cameron Avenue - East*	Construction	🟡	🟡	🟡	🟡
275-52	*Cameron Avenue - West*	Design/bid	🟢	🟢	🟢	🟢
275-52	*Cameron Avenue - RCW*	Design/bid	🟡	🟡	🟢	🟢
275-70	Estes Dr water main replacement	Construction	🟢	🟢	🟢	🟢
275-73	Distribution System Pressure Monitors	Construction	🟢	🟢	🟢	🟢
276-17	Sanitary Sewer Condition Evaluation	Design	🟡	🟡	🟢	🟢
276-18	Sanitary Sewer Service Area Rehab	Design/bid	🟢	🟢	🟡	🟡
276-44	Friday Center Interceptor	Final completion	🟢	🟢	🟢	🟢
276-45	Bolinwood Drive Interceptor	Design	🟢	🟢	🟢	🟢
276-47	Little Creek Interceptor	Design/bid	🟡	🟡	🟢	🟢
276-51	Tom's Creek and Morgan Creek Aerial Crossings Replacements	Design/bid	🟡	🔴	🟢	🔴
277-03	Heritage Hills Force Main Rehabilitation	Final completion	🟡	🟡	🔴	🟢
277-21	Force Main Condition Evaluation					
277-21	*Force Main Condition Evaluation (FY '13)*	Design/bid	🟡	🟡	🟢	🟢
277-21	*Force Main Condition Evaluation (FY '14 - '16)*	Design	🟢	🟢	🟢	🟢
277-28	Oaks 3 - Tinkerbell Pump Station Improvements	Complete	🟡	🟡	🟢	🟢
278-10	Mason Farm WWTP Flood Protection Enhancement - Sheet Pile Wall Rehab	Final completion	🟡	🟡	🔴	🟢
278-11	Mason Farm WWTP Hypochlorite Facility Rehabilitation Study	Design/bid	🔴	🔴	🔴	🔴
278-40	Mason Farm WWTP Aeration and Odor Improvements	Construction	🟡	🟡	🟢	🟢
278-46	Comprehensive Coatings Program	Project Inititiation	🟢	🟢	🟢	🟢
278-47	WWTP Digester No. 2 to Digester No. 1 Transfer Pump	Construction	🟢	🟢	🟢	🟢
278-48	WWTP Biosolids Facilities and Recycling Study/Rehabilitation	Study	🟡	🟡	🟢	🟢
278-51	WWTP Polymer Feed & Replacement Gravity Belt Thickeners	Design/bid	🟢	🟢	🟢	🟢
279-11	Admistration Building HVAC Controls	Study	🟢	🟢	🟢	🟢

Notes:

Schedule - Green: Ahead or on schedule Yellow: Behind schedule (not urgent) Red: Behind schedule (urgent)	Budget - Green: w/in 5% of budget 🟢 Yellow: w/in 5-10% of budget 🟡 Red: not w/in 10% of budget 🔴

"BY EXCEPTION" PROJECT NARRATIVES

1. Cane Creek Reservoir and University Lake Permanganate Feed Systems Evaluation (CIP# 270-26, *not included in the FY 2014 CIP*)

Background: This project was initiated during the latter half of FY 2013 to evaluate the suitability of dry potassium permanganate and liquid sodium permanganate (used for preoxidation of drinking water) at Cane Creek and University Lake Reservoirs; to recommend design criteria for storage and feed systems for both; and to develop conceptual layouts and prepare budgetary construction cost estimates for each system. The need for permanent permanganate storage and feed systems at the reservoirs is being driven by other process changes under consideration.

Study: Hazen and Sawyer

Project Budget: FY 2014 approved budget - $0; actual cost - $10,000

Project Update: The study was initially planned for completion within FY 2013, but based on the initial findings staff requested additions to the evaluation scope. Therefore, no funds were budgeted for FY 2014. The final report for the study was completed in November 2013.

Public Communication: This project involved no impacts to the public.

2. Water Treatment Plant (WTP) Generator Installation (CIP# 272-24, *not included in the FY 2014 CIP*)

Background: This project was for installation of a 1,000 kilowatt generator that OWASA purchased (separately) in the Spring of 2012. The project included making several modifications to the existing generator building so that it could accommodate the new generator.

Design:	Hazen and Sawyer
Construction:	Via Electric Company
Inspection:	Hazen and Sawyer, OWASA

Project Budget: FY 2014 approved budget - $0; actual cost - $10,000

Project Update: The FY 2013 budget included a total of $59,000 for all costs associated with this project. The actual total cost of this project was $222,066 and reflective of the higher level of engineering involvement and higher installation costs than was originally envisioned by staff. The scheduled completion date was June 22, 2013 and, so, this project was not included in the FY 2014 CIP budget. The majority of the project was completed in FY 2013, but did not finish until August 2013 due to additional safety protection measures requested by OWASA.

Public Communication: This project involved no impacts to the public.

3. WTP SuperPulsator Upgrades/Rehabilitation (CIP# 272-29, CIP Page 17)

Background: This project is for the rehabilitation of both SuperPulsators including replacement of the plate settlers, rehabilitation of the solids collection bins, and replacement of the existing electric valve actuators with pneumatic actuators.

Design:	Marziano and McGougan
Construction:	Turner Murphy Company
Inspection:	Marziano and McGougan

Project Budget: FY 2014 approved budget - $487,000; current projection - $686,000

Project Update: This work is scheduled to be complete by May 2014. The contractor, Turner Murphy Company (Turner Murphy) began work in early January 2014. The FY 2014 budget includes $379,000 for construction, $38,000 for Construction Inspection/Contract Administration (CA/CI), and $44,000 for overall project contingency. The construction budget was based on Marziano and McGougan's (M&M's) May 2012 engineer's preliminary opinion of construction cost.

Final design was completed in June 2013 (instead of early FY 2014 as budgeted) and included additional repair, efficiency, and safety improvements (beyond what was included in the May 2012 estimate) such as solids blowdown bin modifications, installation of additional access ladders, and additional ventilation features in the valve vaults. M&M's final construction cost estimate was $541,025 and included these additional items, anticipated cost increases for concrete repairs, inclined plates, and additional mobilization required for the increased scope.

The current projection includes the Turner Murphy Company (Turner Murphy) construction contract amount of $665,000 as well as $21,000 for CA/CI by M&M. As noted in the October 10, 2013 memorandum to the Board recommending award of the project to Turner Murphy, the difference between M&M's final cost estimate and Turner Murphy's bid primarily was due to differences in the original equipment pricing provided to M&M by the supplier of the SuperPulsator equipment, which M&M did not anticipate being substantially different when preparing the final cost estimate.

Public Communication: This project involves no impacts to the public.

4. <u>Calvander Pump Station Improvements (CIP# 273-02, CIP Page 21)</u>

Background: This project was originally identified in our Hydraulic Model Update report in order to postpone the construction of a new 740-foot pressure zone elevated storage tank until after 2030. The study determined that the new elevatated tank's construction delay would be possible by upgrading the existing Calvander Pump Station pumps' motor controls prior to 2020. Subsequenty, the work on this project was expedited because the planned pump motor control improvements would also allow, with some additonal modifications, Calvander Pump Station to provide service to the 740-foot pressure zone so the Nunn Mountain Elevated Storage and the Ground Storage Tanks could be removed from service for needed maintenance without adverse pressure fluctuation impacts to OWASA customers.

Design:	AECOM
Construction:	Turner Murphy Co., Inc.
Inspection:	AECOM

Project Budget: FY 2014 approved budget - $60,000; actual cost - $186,000

Project Update: Construction of the existing pumps' upgraded motor controls is complete. The engineer's final cost estimate for this project was approximately $106,000 and the actual final construction cost for the project was $232,738. The engineer's final cost estimate substantually

underestimated the construction costs associated with the electrical portion of the project, especially the pumps' VFDs (variable frequency drives). The total project cost (including design, construction administration, construction inspection, construction, and temporary fire pump rental) for this project was approximately $433,000.

The construction project was completed 68 days behind schedule, though only about two weeks of that time is directly attributable to delays under the contractor's control. The rest of the extra time was associated with completing the existing pumps' motor controls upgrades and with coordination of the installation and operational control of temporary rental fire flow pumps that were needed before the Nunn Mountain tanks could be taken off-line for maintainance.

The expenses associated with the installation, rental, and control of the temporary fire flow pumps were not included in this project's CIP budget. Those expenditures were paid to Xylem (a pump rental company) and CITI (a contractor that provides supervisory control and data acquisition [SCADA] services to OWASA) for the installation of the temporary fire flow pumps and their first three months' rental so the pumps and the SCADA system could be calibrated and validated. The total cost of the additional work (including engineering, temporary fire flow pumps, and SCADA) in order to ensure that Calvander Pump Station reliably substitutes flows in the 740-foot pressure zone while the Nunn Mountain tanks are off line was approximately $90,000.

The system has been calibrated and validated and has been in service since early November 2013. The post-CIP project expenses for the temporary fire flow pump rentals and SCADA system refinements are being paid out of OWASA's Operating & Maintenance budget. The Nunn Mountain Elevated Storage tank has been removed from service for maintenance. The work is expected to be completed by March 2014, at which time the tank will be returned to service and the temporary fire flow pumps will be removed from the Calvander Pump Station site.

Public Communication: A public notice about this project was posted on the OWASA web site and provided to customers and property owners in the vicinity of the pump station several weeks prior to work beginning. Periodic updates during construction have been provided. A customer survey will be distributed in March 2014 once the tank maintenance work is complete.

5. Water Line Rehabilitation and Replacement Program (CIP# 275-20, CIP Page 31)

Background: This project represents OWASA's ongoing water main replacement and rehabilitation program and consists of various water main replacement projects throughout the service area. Projects are prioritized by a water main prioritization model that is updated every several years.

Design:	Hazen and Sawyer, McKim & Creed, Phil Post and Associates, OWASA, Lamm Engineering Associates, McGill Associates
Construction:	OWASA, various contractors
Inspection:	Design Consultants, OWASA

Project Budget: FY 2014 approved budget - $802,000; current projection - $853,000

Project Update: Staff is working with several engineering firms to complete designs of water main replacement projects to be constructed either by contractors or OWASA's construction crew. To date in FY 2014, construction has been completed at four sites and construction is underway at two other locations. Design work is underway or completed for 14 other project locations slated for construction

in FY 2014 and beyond. Two FY 2013 projects were completed behind schedule and three FY 2013 projects currently are behind schedule, as follows:

- The Glen, Holloway Lane, and Sunrise Lane – These projects have been delayed beyond their original completion dates (all were initially expected to be completed in FY 2013) due to schedule extensions related to easement acquisition.

At present, CIP# 275-20 is projected to be over budget for FY 2014 primarily due to two projects:

- Ridge Road Water Main Replacement was expedited into the CIP following approval of the FY 2014 CIP budget due to a roadway restoration project initiated by the Town of Chapel Hill.
- The construction delay on the Buttons Road project, along with the unusually extensive sampling and testing effort, caused additional funds to be expended in FY 2014.

In the second half of FY 2014, staff may elect to slow down or defer design work on some lower priority water main replacement projects should CIP expense projections dictate.

Public Communication: Public notices are sent out prior to design, prior to and periodically during construction, and a customer survey is sent following completion of each project. Updates about projects with significant customer impact or interest are also posted on the OWASA website. The survey conducted on the Arboretum Drive project yielded an average response of 3.4 out of 5.0. Of the three other projects already completed in FY 2014, surveys are pending on one project (Grey Bluff Trail), survey was not warranted for one project (Merritt Drive), and no survey results were received for one project (Buttons Road). Additionally, a survey was inadvertently sent out prior to project completion on James Street.

6. <u>Tom's Creek and Morgan Creek Aerial Crossings Replacements (CIP# 276-51, CIP Page 54)</u>

Background: Staff identified these two aerial crossings in FY 2013 and recommended evaluation of the structural supports to the crossings due to visual indications of deteriorations. Kimley Horn completed the study in the 4th Quarter of FY 2013 and recommended replacement of both aerial crossings. The new crossings will include pipe casings which will be of adequate strength to span the creeks without the need for support piers.

Design:	Kimley Horn
Construction:	TBD
Inspection:	Kimley Horn

Project Budget: FY 2014 approved budget - $579,000; current projection - $379,000

Project Update: 90% plans were completed in October 2013. OWASA planed to advertise for contractor prequalifications in late December 2013 pending final permit approvals, however delays in permitting have delayed advertisement for bids, which is now planned for early February 2014. Currently, we expect to spend approximately $379,000 on engineering, permitting, bidding, and construction in FY 2014. However, most of the construction will occur in FY 2015. The estimated total project cost will be updated following receipt of the engineer's final opinion of construction cost before the project is bid in February. Once the construction contract is awarded, the projected cost will be adjusted a final time.

Public Communication: Public notifications will be sent prior to, and during, the construction phase. Customer surveys will be distributed upon final construction completion.

7. Heritage Hills Force Main Replacement (CIP# 277-03, CIP Page 62)

Background: This project replaced almost 12,000 linear feet (LF) feet of 8-inch diameter force main that runs from the Heritage Hills Pump Station along Brandywine and Princeton Roads to Smith Level Road where it discharges into a manhole in the vicinity of Ray Road in Carrboro.

Design:	Black & Veatch
Construction:	Pipeline Utilities, Inc.
Inspection:	Black & Veatch

Project Budget: FY 2014 approved budget - $100,000; current projection - $374,000

Project Update: The construction contract was awarded to Pipeline Utilities on December 13, 2012. The Notice to Proceed was issued in February 2013 with final completion scheduled for September 2013. Despite several weather related delays resulting from the unusually rainy summer, the new force main was placed in service and substantial completion achieved on schedule in August 2013. However, the contractor ran into unexpected difficulty with a punchlist task of filling the old force main along Smith Level Road with flowable fill; this was not complete until late October 2013. Final completion was achieved in December 2013.

The FY 2014 CIP funded this project based on initial billing assumptions done early in the construction contract. Actual sequencing and progress of construction resulted in more construction expenditures occurring in FY 2014 (and less in FY 2013) than assumed. Additional construction budget overrun is due to subsurface conditions (i.e., existing buried utilities) encountered during construction which varied from design assumptions. Budget variance listed for "Current Milestone" in the “stoplight” worksheet is referenced to the construction contract amount, which - as noted earlier in this report - was significantly less than the budgeted amount for the project (and over $300,000 less than the next lowest bid received).

Public Communication: A public notice about the field work associated with the preliminary design was mailed and posted on the OWASA web site in March 2011. Advance notification of upcoming construction was mailed, emailed, and posted in August 2012. Additional advance notification was provided in March 2013 once the construction contract was awarded and contractor's initial schedule was known. Advance notice of work within an existing utility easement was mailed to approximately 25 property owners and tenants in early May 2013, followed by in-person visits by staff. The website was periodically updated throughout the construction period. A customer survey was distributed in early November 2013. 14 responses were received with an average rating of 4 on a scale from 1 to 5 (with 5 being the highest rating). A staff-level review of the public communication efforts for this project was conducted in December 2013.

8. Wastewater Treatment Plant (WWTP) Flood Protection (CIP# 278-10, Page 76)

Background: This project rehabilitated/reinforced a section of the sheet pile perimeter wall identified as a “high priority” item in a study of the flood protection system performed by Hazen and Sawyer in the Summer of 2011. The project included construction of an earth berm on the inside of the wall and placement of rip-rap scour protection on the stream bank (outside of the perimeter wall).

Design: Moffat and Nichol
Construction: T2 Contracting Inc.
Inspection: Moffat and Nichol

Project Budget: FY 2014 approved budget - $135,000; actual cost - $258,000

Project Update: The project was completed in October 2013, later than scheduled. The late finish was due to a late start by the contractor, and rain delays throughout the summer and early fall which postponed work adjacent to the creek. Final costs were within budget for the overall project, however, the delayed start resulted in expenditures planned for FY 2013 to be carried over into FY 2014.

Public Communication: This project involved no impact to the public.

9. <u>WWTP Replacement Projects – Hypochlorite Facility Rehabilitation (CIP# 278-11, Page 77)</u>

Background: This project will be completely contained in the interior of an existing building at the WWTP and will replace equipment that has exceeded its service life and repair secondary containment facilities around the existing Sodium Hypochlorite tanks inside the building. Staff identified the project in FY 2013 and received approval to transfer unspent funds from other FY 2013 CIP projects to complete an evaluation and design in FY 2013. The evaluation was completed by Hazen and Sawyer in the 4th Quarter of FY 2013, but design was not started until FY 2014.

Design: Hazen and Sawyer
Construction: TBD
Inspection: Hazen and Sawyer, OWASA

Project Budget: FY 2014 approved budget - $400,000; current projection - $241,000

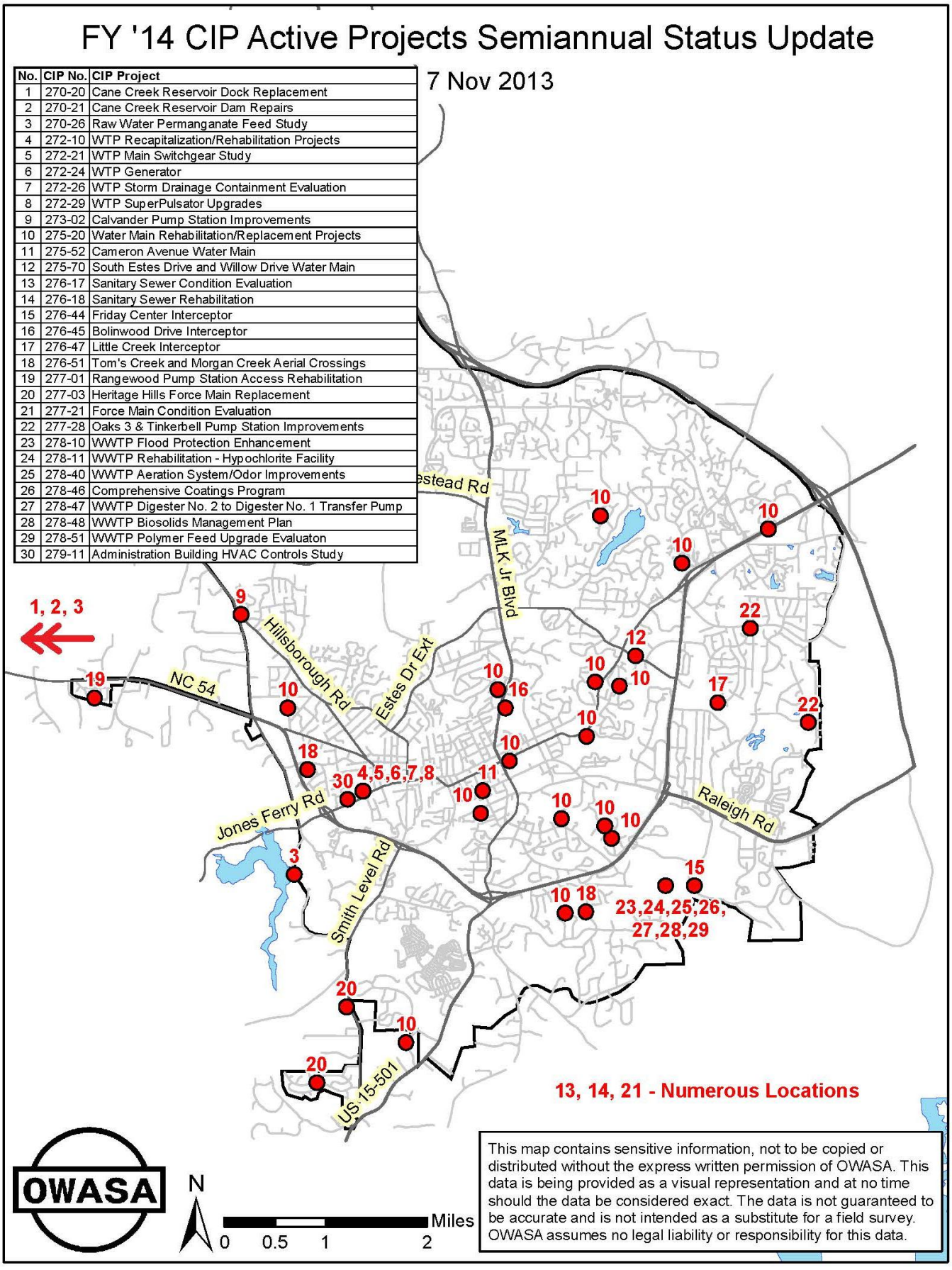
Project Update: At the time the FY 2014 CIP budget was set, staff expected the design for this project to occur in FY 2014 and, so, the approved budget amount does not include design. A Purchase Order in the amount of $91,000 for the design, pemitting, and limited construction observation and management services was issued to Hazen and Sawyer in October 2013. The 90% plans were scheduled to be completed in December 2013, however questions related to exploration of a design alternative raised by WWTP staff in November 2013 delayed their completion by two months. A final engineer's estimate of construction cost will be provided before the project is bid. The project will be bid according to informal bidding procedures in the 3rd Quarter of FY 2014. Construction is planned to begin in the 4th Quarter of FY 2014 and to be substantially complete in early FY 2015, so funds will be budgeted in FY 2015 for completion of this project.

Public Communication: This project involves no impacts to the public.

FY '14 CIP Active Projects Semiannual Status Update

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No.	CIP No.	CIP Project
1	270-20	Cane Creek Reservoir Dock Replacement
2	270-21	Cane Creek Reservoir Dam Repairs
3	270-26	Raw Water Permanganate Feed Study
4	272-10	WTP Recapitalization/Rehabilitation Projects
5	272-21	WTP Main Switchgear Study
6	272-24	WTP Generator
7	272-26	WTP Storm Drainage Containment Evaluation
8	272-29	WTP SuperPulsator Upgrades
9	273-02	Calvander Pump Station Improvements
10	275-20	Water Main Rehabilitation/Replacement Projects
11	275-52	Cameron Avenue Water Main
12	275-70	South Estes Drive and Willow Drive Water Main
13	276-17	Sanitary Sewer Condition Evaluation
14	276-18	Sanitary Sewer Rehabilitation
15	276-44	Friday Center Interceptor
16	276-45	Bolinwood Drive Interceptor
17	276-47	Little Creek Interceptor
18	276-51	Tom's Creek and Morgan Creek Aerial Crossings
19	277-01	Rangewood Pump Station Access Rehabilitation
20	277-03	Heritage Hills Force Main Replacement
21	277-21	Force Main Condition Evaluation
22	277-28	Oaks 3 & Tinkerbell Pump Station Improvements
23	278-10	WWTP Flood Protection Enhancement
24	278-11	WWTP Rehabilitation - Hypochlorite Facility
25	278-40	WWTP Aeration System/Odor Improvements
26	278-46	Comprehensive Coatings Program
27	278-47	WWTP Digester No. 2 to Digester No. 1 Transfer Pump
28	278-48	WWTP Biosolids Management Plan
29	278-51	WWTP Polymer Feed Upgrade Evaluaton
30	279-11	Administration Building HVAC Controls Study



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