

**Napa County Unincorporated Area Measure “A”
Status of Approved Projects and Funding Allocations
County Agreement A-4202 Amendment No. 26
June 20, 2017**

MST Recycled Water Project (Completed)

The Milliken-Sarco-Tulocay (MST) Recycled Water Project is an effort to provide an alternative source of irrigation water to the MST area to offset local groundwater use and restore the groundwater basin, which should also improve the health of the local streams and ultimately, the Napa River. The County worked with the Napa Sanitation District (NSD) for several years to provide engineering, environmental review and assessment district engineering services for the MST area to benefit from infrastructure improvements to improve the local water supply.

To date, the following has been accomplished: County staff has worked with NSD staff to determine an assessment district boundary and recycled water distribution system layout. NSD had a consultant complete a hydraulic analysis of the system (May 22, 2007) to estimate recycled water demands and verify that they have enough recycled water to meet the needs of the project. As part of this hydraulic analysis, cost estimates were developed for four different water usage scenarios. The County’s assessment district financial consultant, Kristin Lowell, Inc. developed a benefit assessment methodology and assessments per parcel. In December 2007, the County Board of Supervisors voted to support the Napa Sanitation District’s efforts in the North Bay Water Reuse Authority Program (NBWRA - a large regional recycled water project also involving Marin and Sonoma Counties). Participation in the NBWRA has enabled the County/NSD to participate in the environmental document preparation for the overall regional project, which includes a project level review of the MST recycled water project (one of the regional components). The environmental impact report/environmental impact statement (EIR/EIS) was approved by the County and NSD in December 2009. Also in December 2009, the County Board of Supervisors approved continued participation in NBWRA in an effort to secure federal funding assistance, and approved an agreement with NSD reserving up to 1,000 AF per year of recycled water for the area.

Public outreach efforts were conducted at varying levels with community members, including the Napa Valley Country Club and “Groundwater Under Local Protection,” also known as GULP. Based on community feedback, the County developed a revised proposal to address the groundwater problem in MST, including an initial smaller-scale recycled water project with opportunity for expansion in the future, development of a water conservation program for the area, investigation of potable water supply options, and review of existing ordinances and land-use policies in the area. The County worked with NSD and their engineering consultant to evaluate this smaller recycled water project to serve the Napa Valley Country Club and interested vineyards and to complete the design.

A Community Facilities District (CFD) was voted on and approved by participating landowners in 2013. The first phase of construction involving extension of the existing NSD recycled water pipeline from Napa Valley College to Napa State Hospital was completed in summer 2011 funded in part by American Recovery and Reinvestment Act (ARRA) funds. Construction of a half mile extension in Imola Avenue was completed in 2012. The NSD Board approved a construction contract for the MST recycled water project in June 2014. Construction of the project was completed in 2016, supported by grants from the IRWMP and loans that will be repaid from revenues generated through the CFD.

A total of \$5,023,000 of Measure "A" funding was approved by the Board of Supervisors and the Flood Authority in amendments through FY 2016-2017. At the end of FY 2015-2016, \$385,156 of the approved funding remained unspent and is being used to meet ongoing NBWRA dues through FY 2017-2018. No additional funding allocations are proposed.

Angwin Water Supply Reliability (Ongoing)

The County initially worked with area water purveyors to develop a prioritized list of projects that will improve water supply reliability to most, if not all, water users in Angwin/Deer Park. A "test case" project with Howell Mountain Mutual Water Company (HMMWC) was developed beginning in late 2006 to determine the procedures for completing projects with County Measure "A" reimbursement. This effort included researching the legal mechanisms to provide public Measure "A" funding to private mutual water companies, and the development and execution of a Memorandum of Understanding between the County and HMMWC (May 2007). Work on this "test case" project (Lake Henne Intake Pipeline and Orville Pump Station) was completed in September 2008, and final payment for the work was made by the County in October 2008.

After this "test case" project was completed, County staff began working with both HMMWC and St. Helena Hospital to implement significant projects for each entity based on master planning that each entity performed as part of their efforts to obtain Community Development Block Grant funding. Two high priority projects were: HMMWC's Deer Park Supply Pipeline improvements and St. Helena Hospital's Horizontal Well, Manifold and Transmission Line improvements. MOU's were initially entered into with HMMWC and St. Helena Hospital to provide funding for the design phases of each project, both of which were completed by the end of June 2009. Better cost estimates were developed during the design phase of these projects and new MOU's were developed for project construction. HMMWC awarded their construction contract in the spring of 2009 and construction was completed in the summer of 2009. In addition, HMMWC completed emergency waterline replacement work of a similar nature for which they have requested a separate MOU to receive funding for that emergency work.

County staff held meetings with the water companies to gain consensus on an equitable method to provide funds to the individual water purveyors and the Board approved a Memorandum of Agreement (MOA) in October 2011 to formalize the funding sub-allocations for Measure "A" eligible projects. County staff will continue to work with the Angwin/Deer Park water purveyors to prioritize and fund additional projects as Measure "A" funds are available.

A total of \$5,274,000 of Measure “A” funding was approved by the Board of Supervisors and the Flood Authority in amendments through FY 2016-2017 (Amendment No. 24). An additional \$800,000 of budgetary funding is included in Amendment No. 26 to fund projects through FY 2017-2018. Angwin/Deer Park Water purveyors must sign a MOU with the County Board of Supervisors before proceeding with their project.

Completed Projects:

- **Howell Mountain Mutual Water Company: Lake Henne Outlet Repair Project** - Provided funding for Howell Mountain Mutual Water Company to repair the Lake Henne Outlet Pipeline, which had outlived its useful life and was impacting the reliability of the Company’s Friesen Lakes supply. Total cost: \$30,692. The project was completed in 2008.
- **Howell Mountain Mutual Water Company: Deer Park Supply Line Upgrade** - Provided funding for Howell Mountain Mutual Water Company to upgrade the Deer Park supply pipeline, which was undersized and did not conform to current design standards for fire flows, had outlived its useful life, and was impacting the reliability of the Company’s Friesen Lakes supply as a result of significant water loss due to leakage. Total cost: \$463,009. The project was completed in 2010.
- **Howell Mountain Mutual Water Company: White Cottage Road Water Supply Pipeline Project** - Provided funding for Howell Mountain Mutual Water Company to upgrade the White Cottage Road water supply pipeline, which was undersized and did not conform to current design standards for fire flows, had outlived its useful life, and was impacting the reliability of the Company’s Friesen Lakes supply as a result of significant water loss due to leakage. Total cost: \$194,062. The project was completed in 2010.
- **Howell Mountain Mutual Water Company: Well Rehabilitation and Blending Project** - Provided funding to replace a riser and pump with a new and more efficient unit. The Company installed a 20 hp 16-stage pump, with a new motor. A new meter at the wellhead was also installed to monitor the well output. The Company also installed approximately 1,350 linear feet of new 6” PVC C900 pipeline from the well to the water treatment plant. Total cost: \$84,084. The project was completed in 2011.
- **Howell Mountain Mutual Water Company: Standby Power** - Provided funding to troubleshoot electrical issues relating to the inadequacies of the previous back-up generator and obtain temporary back-up capabilities to provide continuous potable water to the Angwin / Deer Park communities as required by the California Division of Drinking Water. This included acquisition and installation of generators, all associated construction costs and troubleshooting of final project. Total cost: \$186,743. The project was completed in 2012.
- **Howell Mountain Mutual Water Company: Filter Upgrades, Dam Stabilization, Water Storage Tank, SCADA Process Control** - Provided funding to rehabilitate granular dual media filters, add surface wash and replace ancillary components per CA Division of Drinking Water mandate to system. Emergency repairs were made to a reservoir dam and spillway compromised by animal burrows. Build-out the Supervisory Control and Data Acquisition computerized system for monitoring / alarming drinking water supply, treatment, pumping and storage. Total cost: \$891,500. The project was completed in 2014.

- **Howell Mountain Mutual Water Company: Well No. 1 Interconnect with Lake Henne PS** - Provided funding to rehabilitate a groundwater source of supply and interconnect the well with Lake Henne Pump Station. Blending the two water supplies improved water quality thereby reducing overall treatment costs. Total cost: \$27,100. The project was completed in 2015.
- **Howell Mountain Mutual Water Company: Sunset, White Cottage Pipe Replacement** - Provided funding to replace a decrepit two-inch galvanized pipeline with a history of leaks and heavily corroded interior reducing the effective diameter to about one inch. Interior corrosion impaired hydraulic capacity and imposed a risk to backflow of harmful contaminants. Replacing the water mains and appurtenances restored water conveyance capabilities and sustained good water quality. Total project cost: \$252,659. The project was completed in 2016.
- **Howell Mountain Mutual Water Company: Deer Lake and Orville Dam Improvements** - Provided funding to engineer and construct spillway modifications that lowered the reservoir elevation by three (3) feet per order by Division of Safety of Dams. The project scope was reduced by DSOD officials in the midst of engineering design. Total cost: \$90,146. The project was completed in 2015.
- **Rancho La Jota: Replacement Well** - Provided funding for Rancho La Jota Mutual Water Company to drill and install a replacement water supply well. Total cost \$63,067. The project was completed in 2011.
- **Linda Falls Terrace Mutual Water Company: Well Head Water Quality and Tank Replacement** - Provided funding for Linda Falls Terrace to stabilize water quality through pH adjustment and replacing the water storage reservoir serving the area to restore Company's ability to provide drinking water of suitable quantity and quality, and to ensure the system's reliability. Total cost: \$36,681. The project was completed in 2010.
- **Linda Vista Mutual Water Company: Connection to Howell Mountain Mutual Water Company** - Provided funding to install a connection to the Howell Mountain Mutual Water Company system to give Linda Vista Mutual Water Company (LVMWC) a reliable backup to the current water system. This connection will be used as an emergency backup and/or temporary source of water in the event that the LVMWC system goes down. Total cost: \$142,549. The project was completed in 2012.
- **Linda Vista Mutual Water Company: New Well Supply** - Provided funding to replace an aging contaminated well supply. Drilled new deep bedrock groundwater supply with sanitary seal, pump motor, level instrument and electrical power. Replaced yard pipe from well to treatment. Total cost: \$103,000. The project was completed in 2014.
- **St. Helena Hospital: Well, Manifold and Transmission Line Upgrade** - Provided funding to drill new horizontal wells, manifold the piping for central treatment and replace approximately 7,500 linear feet of aged water mains with new 10" diameter HDPE pipe and appurtenances. Added instrumentation and controls to monitor key parameters of the operation. Total cost: \$1,650,000. The project was completed in 2015.

Potential New Projects through FY 2017-2018

The following additional projects are being considered by the various water purveyors. Each project will be approved by the Board through the established MOU process.

- **Howell Mountain Mutual Water Company: Water Main Replacement Project** - The water company proposes the replacement of 2,640 feet 6" asbestos cement pipe on White Cottage Road North that has inadequate hydraulic capacity for fire protection and at risk of main breaks impacting water quality. The project specifications calls for the installation of 8" C900 PVC pipe, one (1) hydrant and nine (9) water service transfers onto the new water main. Total budget construction cost is estimated at \$345,000.
- **Howell Mountain Mutual Water Company: Water Main Replacement Project** - The water company proposes the replacement of 1,200 feet 4" asbestos cement pipe on White Cottage Road North of Shy Oaks that has inadequate hydraulic capacity for fire protection and at risk of main breaks impacting water quality. Installation of 8" C900 PVC pipe, one (1) wet barrel fire hydrant and the relocation of 10 services with water meters are included in the project. Total budget construction cost is estimated at \$156,000.
- **Howell Mountain Mutual Water Company: Water Main Replacement Project** - The water company proposes the replacement of 575 feet 2 ½" galvanized steel pipe on Buckeye Lane. The old pipe has numerous leaks and heavily corroded interiors reducing the interior diameter to unusable dimensions. The project specifications calls for the installation of 4" C900 PVC pipe. Total budget construction cost is estimated at \$74,750.
- **Howell Mountain Mutual Water Company: Bulk Chemical Storage Project** - The water company proposes the replacement of: 1) One (1) 1,000 gallon polyethylene tank for bulk caustic soda chemical storage, 2) One (1) 1,600 gallon polyethylene tank for liquid coagulant bulk chemical storage, and 3) Two (2) 160 gallon polyethylene tanks to store zinc orthophosphate and sodium hypochlorite. Older chemical storage tanks are deteriorating in their condition. Chemical resistance properties of the tank materials have improved since the original installation. A catastrophic leak or rupture of the tanks will compromise water quality, plant operations and health / safety of employees. Total budget construction cost is estimated at \$19,000.
- **La Tierra Water Company: Water Main Replacement & Electrical Upgrades Project** - The water company proposes the replacement of: 1) 1 1/4" galvanized steel pipe with 4" C900 PVC pipe that transfers water from Well No. 2 to a storage tank adjacent to Well No. 1, 2) 4" asbestos cement pipe with 6" C900 PVC pipe, and 3) electrical outdated power cables and conduit for standby power to the well supplies. Total budget construction cost is estimated at \$130,000.
- **Linda Falls Terrace Mutual Water Company: Water Main Replacement Project** - The water company proposes the replacement of degraded existing 4" steel pipeline within the distribution system with NSF rated High Density Polyethylene (HDPE) SDR 11 pipe. Installation will include 12 gauge trace wire, two (2) 4" x 2 ½" wharf hydrant, eight (8) 1" water meters and check valves with meter boxes, 1" polyethylene service lines and brass fittings. Two (2) sampling

stations will be installed and all necessary connections as per code. Total budget construction cost is estimated at \$63,250.

- **Linda Vista Mutual Water Company: Water Main Replacement Project** - The water company proposes the replacement of existing 60 year old 2" pipe that interconnects the distribution system with Howell Mountain Mutual Water Company. Several leaks have occurred in the old pipeline in recent years. New 4" HDPE pipe, two (2) 3" wharf hydrants and appurtenances will be installed to renew the infrastructure. Total Measure A funding towards construction costs is estimated at \$60,000.
- **Pacific Union College: Water Storage Tank Replacement** - Certified professional inspections were performed on all four (4) 400,000 gallon water storage tanks for the college's water distribution system. The exterior coatings of all tanks were found to be in poor to fair condition. Interior roof dome coatings and supporting steel members were stated to be in poor condition in a previous 2012 dive inspection report. Existing tank foundations are not adequately designed to modern CBC seismic standards. Bottom shell panels are exhibiting the effects of lateral seismic forces. An engineering study report recommended Pacific Union College replace the water storage tanks having same 400,000 gallon capacity per structure. Each tank would be constructed of bolted steel painted panels, painted steel dome and properly anchored foundations. Total Measure A funding towards construction costs is estimated at \$1,500,000.

These additional projects are all consistent with the MOA between the County and the water purveyors. In accordance with the MOA, the actual reimbursement for approved projects is limited annually to the proportionate share of revenues that have been realized to date for the Angwin/Deer Park area of the County.

Napa River Restoration - Rutherford Reach (Completed)

The Board of Supervisors approved funding the Rutherford Reach project (aka Rutherford Dust Project) in 2004. This project is a public-private partnership where 27 riverfront landowners have entered into agreements with the County for restoration in the riparian areas of their property. In the case of agricultural parcels, which is the principal land use in this reach of the river, landowners involved in the project are volunteering to setback their existing agricultural uses to increase the riparian areas along the river. The project is also setting back agricultural berms, stabilizing eroding riverbanks, constructing bench cuts in some areas and constructing in-stream habitat enhancements. These improvements benefit the riverine environment and reduce flood damage potential throughout the reach. The project preliminary design was completed in 2008, an Initial Study/Mitigated Negative Declaration (IS/MND) was prepared and circulated for public comment, and project permits have been obtained with resource agencies. The entire project encompasses 9 linear areas (aka "reaches") of the river spanning 4.5 miles from Zinfandel Lane to Oakville Cross Road. The County retained consultants to prepare construction drawings for construction in phases. Construction began in summer 2009 on the east bank of Reaches 1 and 2 (Phase 1A). In 2010, construction was completed on the west bank of Reaches 1 and 2 (Phase 1B) as well as both banks of Reach 3 (Phase 2). The design and construction of Reaches 1 through 3 was funded partially by grants from the State and Federal ARRA funds. The final design of Reach 4 was completed and construction on the east bank was completed in summer 2011.

and the west bank was completed in summer 2012. Two additional grants from the State and one from the Federal Environmental Protection Agency (EPA) funded approximately half of the cost of Reach 4 construction, with the remaining funds coming from Measure "A".

Construction of Reach 8A was completed in summer 2012 and the remainder of Reach 8 (Reach 8 B&C) was completed in summer 2013. Reach 8A construction was supported by two grants; a \$400,000 grant from the State Department of Parks and Recreation Habitat Conservation Fund and a \$1,000,000 grant from the California Coastal Conservancy. \$1,600,000 of funding was approved in Amendment No. 17 to match grants and cover staff and landowner liaison support services through FY 2012-2013. An additional grant for Reach 8B&C construction was awarded from the State Water Resources Control Board (SWRCB) for \$750,000 and grant match funds of \$505,000 approved as part of Amendment No. 18. Amendment No. 19 included additional Measure "A" funding of \$150,000 for construction oversight for Reach 8 B&C (\$80,000) and surveying for Reaches 5,6,7 and 9 (\$70,000) during summer 2013.

The last reaches of the Rutherford project to be constructed were Reaches 5, 6, 7 and 9. In August 2012, EPA awarded a second grant of \$1,400,000 towards construction of these final reaches of the project in FY 2014-2015. Grant match funds of \$1,400,000 were also approved as part of Amendment No. 18. Funding for the design of these reaches in the amount of \$300,000 was also as part of Amendment No. 18 and included in the FY 2012-2013 Public Works budget. Reaches 5, 6, 7 and 9 were constructed in summer 2014 and revegetation work occurred in the winter of 2014-2015. A total of \$1,280,000 was added in Amendment No. 20 including \$450,000 to cover the completion of construction and revegetation work in Reach 8 in FY 2013-2014, \$300,000 to cover landowner liaison, monitoring and as-built surveys of completed construction in Reaches 1 through 4, and \$530,000 for staff labor and consultant support to complete plans and specifications through the end of the project in Reaches 5, 6, 7 and 9.

Amendment No 22 included \$200,000 to cover staff labor and landowner liaison costs through the end of the project. A total of \$13,942,000 of Measure "A" funding had been approved by the Board of Supervisors and the Flood Authority in amendments though FY 2015-2016. Due to lower than expected construction costs for Reaches 5,6,7 and 9, \$560,000 of unspent Measure A funds and an equal amount of unused EPA Grant Funds were transferred to the downstream Oakville Crossroad to Oak Knoll Reach Restoration Project. At the end of FY 2015-2017, \$350,147 of Measure A funds remained in the project budget to be used to complete awarded revegetation establishment contracts in Reaches 5,6,7 and 9 (through FY 2017-2018). No additional Measure A or grant funding is expected to be needed for the Rutherford Project. Future maintenance costs are being funded through landowner assessments and a special benefit zone created by the Flood Control District.

Napa River Restoration - Oakville to Oak Knoll Reach (Ongoing)

The Oakville to Oak Knoll (OVOK) Reach project is modeled after the Rutherford Reach project and aims to restore the 10 miles downstream of Oakville Cross Road. The Board of Supervisors and Flood Authority approved the use of Measure "A" funds for the project on October 24, 2006 (Amendment No.

8). The project conceptual design was completed in 2011 funded by a \$500,000 grant from the State obtained by the California Land Stewardship Institute (CLSI). The Board initially approved \$215,000 of Measure "A" funds as a match for this grant. An additional \$25,000 was approved in Amendment No. 10 for County staffing and oversight of this contract and to support the project moving forward once the conceptual design was completed.

Environmental review required under CEQA was completed in 2013 and landowner outreach activities to secure agreements to move forward with the detailed design of the project has also been completed. \$250,000 in budgetary funding was approved as part of Amendment No. 13 for these activities. Project implementation has been segregated into 4 construction groups A, B, C and D. Amendment No. 15 added \$400,000 of budgetary funding which matches a grant of \$395,000 from EPA that is funding Arundo removal and final design of Groups A and C. To continue design through FY 2012-2013, an additional \$150,000 of budgetary funds were approved as part of Amendment No. 17. The County was also awarded an initial \$100,000 grant as part of the above-mentioned FY 2012 EPA grant for the Rutherford project, with the understanding it would be used towards the first construction phase of the Oakville project in FY 2015-2016. In 2013 and 2014, two additional grants, totaling \$2.2 million, were awarded by EPA for construction of Group A (summer 2015) and a portion of Group C (summer of 2016).

Amendment No. 18 included an additional \$650,000 of Measure "A" funds for the Oakville project; \$100,000 to match the 2012 EPA grant allocation and additional budgetary funds of \$550,000 for the necessary design work and studies to obtain permits and make the project ready for construction in FY 2014-2015. \$100,000 was added as part of Amendment No. 20 to cover staff labor costs for the project through FY 2013-2014.

\$300,000 of budgetary funding was added in Amendment No. 22 for landowner liaison support, staff labor and legal costs to continue the project through FY 2014-2015 and an additional \$1,218,000 was added as match for the 2013 grant from EPA for construction of Group A in the summer of 2015.

\$1,700,000 was added to the project allocation in Amendment No. 23 for the following activities:

Additional Match for EPA 2013 Grant (Group A):	\$53,350
Match for EPA 2014 Grant (Group C):	\$894,324
Construction Support for Group A and Final Design For Group C	\$ 582,000
County Staff labor through FY 2015/2016	\$ 100,000
Landowner Liaison/Grant Support (CLSI) FY 2015/2016	<u>\$ 70,326</u>
	\$1,700,000

The unused balance of \$560,000 from the EPA 2012 grant and an equal amount of Measure A match funds (Amendment No. 25) was transferred to the OVOK project from the Rutherford Project in 2016 and was used to complete construction of Site 14 in Group C.

Amendment No. 26 includes a total of \$2,500,000 to match three 2016 awarded grants totaling \$2,600,000 to complete construction in Group C and cover project costs through FY 2017-2018, as follows:

Match funding for 2016 Coastal Conservancy Grant, 2016 Fish and Wildlife Grant & 2016 SWRCB 319(h) Grant (Group C):	\$1,700,000
Construction Support for Group C and Final Design For Group B&D	\$ 550,000
Project Management/CM and labor through FY 2017/2018	<u>\$ 250,000</u>
	\$2,500,000

Upon approval of Amendment No. 26, the total Measure A funding allocation to this project will be \$8,068,000. Additional funding is anticipated to be required for construction of Groups B and D in future fiscal years. Long term maintenance of the project is being supported by landowners, who approved creation of a Community Facilities District (CFD) in January 2015 under the Flood Control District.

Flood Studies in the Unincorporated Area (Completed)

The storm of December 31, 2005 and other prior storms highlighted several flooding and/or drainage related problems that impact County residents and property. \$450,000 was approved by the Board to conduct multiple special flood studies throughout the unincorporated area. Initially this funding was used as a resource for staff to identify and begin evaluation of multiple problems reported by property owners. Flooding problems range from localized drainage concerns to larger scale issues associated with identified floodplain areas. As a result, the potential solutions to the problems also vary. The studies were conducted according to a prioritization approach (e.g., number of properties/structures affected) that began based on the flood problems that resulted from the December 31, 2005 storm. Four specific projects were supported by the authorized funds as summarized below:

Milliken Creek Hydraulic and Restoration Studies

The County participated in funding a study of the hydrology, geomorphology and restoration opportunities for Milliken Creek between Westgate Drive and Atlas Peak Road. This reach of the creek traverses the residential communities in the Silverado Country Club area which were severely impacted by flooding and flood damages as a result of the December 31, 2005 storm. The study was conducted by Silverado Property owners Association (SPOA) with funding support by the County and the Silverado Country Club. Each entity paid \$25,000 toward the \$75,000 total cost of the study. The hydrologic study evaluated the previous study performed by FEMA as part of the National Flood Insurance Program, which is the basis of the current effective Flood Insurance Rate Map (FIRM) for the area. The December 31, 2005 storm produced more extensive flooding than the FEMA study predicted. The FEMA

study used a particular frequency and duration of storm that was deemed to be statistically valid in making its determinations on flooding risk. However in review of this approach it was determined that a very intense storm of short duration such as was experienced in December 2005, would result in more significant flooding in the Milliken watershed. The results of this study were reviewed by FEMA and they used the results to update the FIRM in the area upstream of Atlas Peak Road.

The restoration opportunities study identified significant degradation in the creek due to the presence of nonnative invasive plants and also less sensitive approaches in dealing with bank erosion, such as significant use of rip rap. While such measures are sought by homeowners to prevent loss of stream bank, they often translate into problems for downstream neighbors. The study concluded that opportunities for properly designed biotechnical bank repairs exist and the replacement of nonnative, invasive vegetation with native species would also enhance the habitat value of the stream. A stewardship approach is being pursued by the various homeowners associations and the country club in coordination with the Flood Control District to address restoration of the creek.

The County retained a local consultant to review the recommendations of the 2007 flood study and perform additional analyses and cost benefit evaluations on how to mitigate flooding concerns in the area. This work is complete and the results were communicated to the Silverado community for consideration of possible flood reduction projects. Staff has also been working with a consultant to evaluate the FEMA flood map in the area downstream of the Silverado reach of the creek to the Napa River, which also experienced significant flooding in 2005/2006. This work is ongoing. In late 2012, letters of support were received from affected property owners and the Silverado Resort regarding their interest in pursuing mitigation recommendations. Additionally the identified flood reduction and fish passage improvements received \$500,000 of grant funding through the Bay Area Integrated Regional Water Management Plan (Bay Area IRWMP) implementation grant round number two of Proposition 84 funding through the State Department of Water Resources. These recent developments prompted staff to request formal approval of the Milliken Project to the Board of Supervisors on January 29, 2013 (*see additional project details below under Milliken Project description*).

Sunnyside and Deer Park Flood Study

Due to localized flooding in the area of Deer Park Road and Sunnyside Road that impacts both County roads and private properties in this area, the County retained an engineer to conduct a flood study to evaluate possible solutions. The study focused on the unnamed tributary to Canon Creek along Deer Park Road extending about 3,500 feet upstream of the intersection of Sunnyside Road. In this area there are 6 culverted locations to allow crossing of the creek. Three of these culverted locations are owned and maintained by the County and the rest are privately owned. The study was needed to evaluate if there would be a benefit to upsize the culverts owned by the County at Deer Park Road and at Sunnyside Road, possibly to reduce the amount of roadway flooding and also to reduce flooding on private property. The study showed that the stream leaves its banks in several locations in larger storms. At the first (upstream) County culvert at Deer Park Road, the culvert size cannot pass the 100-year discharge without roadway flooding. However, the study showed that if the Deer Park Road culvert were to be upsized to allow passage of the 100-year discharge, it would have a negative impact on

downstream properties, particularly along Lilac Lane where private culverts exist that are also significantly undersized. Therefore the Deer Park culvert should not be upsized without the private culverts being upsized. At the downstream Sunnyside Road culvert, the study showed that upsizing the culvert would not provide significant improvement in the extent of private property flooding immediately upstream because the size of the channel is limited and has been encroached upon by property owner actions over time. Staff sent a letter presenting the results of the study to the affected property owners and offering guidance for property owners regarding private culvert improvements and/or channel improvements. However, some minor improvements at the Sunnyside and Deer Park Road culvert location were completed by the County Roads Department.

House Elevations in Flood Prone Areas

Many of the homes in the unincorporated area that flood when larger storms occur are a result of the fact that the structures are located within identified special flood hazard areas (FEMA mapped flood zones). Generally the best approach to address this type of structural flooding is to elevate the structure such that the finished floor is above the 100-year (base flood) water surface elevation. For all new construction, or where substantial improvement of a structure is planned, County code requires that finished floors be constructed a minimum of 1-foot above the base flood elevation.

Grant programs are available to help homeowners with the cost of elevating existing homes. In 2006, in support of development of a grant proposal, County staff conducted outreach to homeowners that had reported flooding and also surveyed several structures to determine accurate floor surface elevations. The focus of this grant program was on homes within the unincorporated area that were identified by FEMA as having been flooded multiple times. After conducting FEMA-required cost benefit analyses, there were 8 structures where the benefits of elevation outweighed the cost of the project. The County applied for a grant to elevate these 8 houses. The total grant request was \$1.1 Million; however, in 2007 FEMA only obligated \$375,000 to the Flood Control District for this grant. Environmental clearance was completed by FEMA for all 8 structures. Unfortunately, likely due in part to economic conditions in 2008-2009, none of the FEMA-approved homeowners elected to move forward with house elevations under the grant program before the funds expired.

St. Helena Area Flood Damage Reduction and Restoration Opportunities

County residents along the eastern bank of the Napa River in the reach adjacent to the recently completed St Helena Flood Protection Project expressed concerns to County staff regarding the potential effect of this project on their properties. The City of St. Helena has conducted studies that demonstrate no negative impacts will result from their proposed project as compared to the existing condition. However, the project does not offer improved flood protection for the residents in the County unincorporated area. During large storms, the river floods a large area on the eastern bank, which is included in the floodway. Failure of the agricultural levee on the Napa Reserve property is common, leading to erosion and debris-related damages to the adjacent vineyard. Floodwaters cross Silverado Trail in two locations often scouring the shoulder on both sides of the roadbed and causing erosion in locations due to fast moving waters. Streambank erosion where the river leaves and reenters the channel is common. A prior feasibility study to evaluate roadway elevations was conducted;

however this option was deemed financially infeasible. In addition, reductions in the scope of the St. Helena project made a roadway elevation project technically infeasible because of floodway restrictions. Local unincorporated area residents formed a neighborhood group to work with the County on possible solutions to reduce flood damage and improve safety in this area during floods. Staff surveyed the finished floor elevations of several homes to evaluate flood risk. St. Helena has finished their project and a FEMA flood hazard zone map revision became effective in September 2012.

This project was completed with \$13,150 of the allocated funds remaining unspent. Amendment No. 26 proposes to transfer \$7,000 of the unspent funds to the Napa River Watershed Sediment TMDL Implementation Project to cover the costs required to complete that project.

Zinfandel Lane Bridge Scour Protection and Fish Passage Design (Completed)

The Napa County Resource Conservation District (RCD) completed a geotechnical study using grant funds from the Corps of Engineers to address erosion in the Napa River channel at the Zinfandel Lane bridge. The river bed at this location was severely downcut immediately downstream of the bridge, which was constructed in 1913. Efforts over the years to address downcutting and protect the bridge piers included placement of concrete on the channel bottom. However, a 7.5 foot drop in the channel bottom was scoured out immediately downstream and underseepage of the concrete was occurring. This situation represented both a barrier to fish passage and a longer term concern for stability of the bridge. The study included a recommended conceptual design to protect the bridge and provide for fish passage. During FY 2010-2011, a grant was applied for and awarded to the County by the State Coastal Conservancy in the amount of \$400,000 to partially fund project implementation. The FY 2010-2011 budget and prior Amendment No. 13 included \$835,000 of Measure A funds to match grant funding based on the engineers estimate of construction costs. Environmental review under CEQA was completed in 2010 and final design was completed and all project permits obtained in spring 2011, enabling construction to occur during the 2011 in-water work season. A construction contract was awarded to the low bidder and construction was completed as of the end of October 2011.

Due to several unforeseen conditions that were discovered during construction, additional construction costs were experienced. Amendment No. 16 included additional budgetary funding of \$300,000 to cover the expected increased costs associated with the unforeseen conditions; however, the final cost of construction was lower than anticipated resulting in \$100,000 of excess budgetary funds for this project. Amendment No. 17 included the transfer of excess funds from this project to offset FY2012-2013 additional funds needed for the below-described Napa River TMDL Implementation Project.

Following construction, monitoring of the project performance was performed by RCD through fiscal year 2015-2016. The project is complete. No additional funds are needed.

County-wide Water Conservation Program (Ongoing)

For many years Napa County has been committed to the conservation of sensitive resources, has been at the forefront of protecting agricultural land, and has encouraged the conservation of natural resources including surface and ground water, soils, fisheries, wildlife, important plant species, and habitats. The County had not previously developed a formal water conservation program for the unincorporated areas, even though groundwater and privately developed surface water impoundments provide the water supply for the majority of Napa County's rural residential and agricultural water users.

In April 2009, the Board of Supervisors requested that County staff develop a multi-year voluntary water conservation program for their consideration. Initially, staff was asked to look into the viability of a water conservation program for the MST area of the County, which is experiencing declining groundwater conditions, but because countywide sales generate the revenues for Measure A funding, and because the funds proposed to fund the proposed water conservation program will come from the unincorporated area of Napa County allocation, it makes sense to have a water conservation program that all County unincorporated area residents can benefit from. Staff reviewed standard water conservation industry practices, the programs of local cities and neighboring areas, and also consulted with the agricultural community, Napa County Resource Conservation District and the California Department of Fish and Game in formulating a water conservation program for the County unincorporated area.

The water conservation program was formally approved in the fall of 2009. Accomplishments to date include the distribution of water conservation devices, which are available to all County unincorporated area residents, both at the Flood Control District office and various community events. Water conservation signage has been developed for the MST area of the County. Staff organized an agricultural water efficiency workshop, a frost protection workshop, a water conservation workshop for winery workers and growers, and three Bay Friendly Landscaping certification workshops for local landscapers. Water conservation newsletters has been developed for distribution at various events and for mailing to the MST, Carneros and Lake Berryessa areas. A County water conservation web page has been established.

Three years of funding (a total of \$420,000 through FY 2011-2012) was authorized when the County Unincorporated Area Water Conservation Program was approved. As a result of securing various water conservation grants, approved funds have been sufficient to continue water conservation efforts beyond the original planned three year timeframe. At the end of FY 2015-2016, \$54,892 of the originally allocated funding remained unspent and was carried forward into the current fiscal year. No additional funding is requested to continue the program into FY 2017-2018.

Coordination of Napa River Restoration Projects (Completed)

The Board approved Measure "A" funding for staff to seek facilitation support for overall coordination of the ongoing large-scale restoration efforts on the Napa River. Staff completed a Request for Proposals (RFP) process and selected the Napa County RCD and New Level Group team. The RCD-New Level Group team has assisted staff to increase inter-project collaboration for both landowners and technical project teams working on the Rutherford and Oakville restoration projects. Efforts to date have helped improve collaboration on these important projects, increase landowner awareness, develop improved grant funding strategies and align technical approaches and project goals. The project was completed in FY 2012-2013. A total of \$39,775 was spent on this effort.

Lake Berryessa Watershed Improvement Projects (Ongoing)

In accordance with the JPA, a portion of the unincorporated area's Measure "A" revenue is to be dedicated to the Lake Berryessa/Putah Creek watershed area. Specific projects in the Lake Berryessa area were not identified in the original Measure A language, and projects in this portion of the County will not provide flood control benefits to the Napa River. Approved projects in the Lake Berryessa area are based on the priorities set forth on January 13, 2009 by the Board for evaluating Measure "A" projects.

Project activities approved by the Board to date are directly related to improving and protecting water quality in Lake Berryessa and the Putah Creek watershed. Such projects are considered to be "high priority" according to the approved Measure A Project Benefits and Priorities for Napa County Unincorporated Area Matrix (dated 1/13/08). Amendment No. 13 included an initial funding allocation of \$600,000.

The lake is used as a water supply source primarily by Solano County agencies, but also by the Lake Berryessa Resort Improvement District and the Napa Berryessa Resort Improvement District, as well as other smaller water systems located adjacent to the Lake. The Board approved a budgetary level of funding of \$50,000 for preparation of the Lake Berryessa Watershed Sanitary Survey focusing on the portion of the watershed above the Monticello Dam. Solano County Water Agency (SCWA) provided 25% of the funding. SCWA is providing 100% funding for the sanitary survey below the dam. The study was completed using \$29,600.

Another important water quality related activity is the evaluation of the wastewater treatment and disposal practices of the two Resort Improvement Districts and other small wastewater generators around the Lake in relation to current Regional Water Quality Control Board permit requirements. Treated wastewater overflow and/or controlled discharge events have occurred at both Districts in the past few years due in large part to excessive inflow and infiltration of storm water and shallow groundwater into the collection system and a consultant was retained to evaluate several

alternatives related to reducing the amount of storm water entering the collection system and/or the long-term disposal requirements of these waters. \$434,176 of the allocated funds was spent to fund these activities.

Based on recommendations from the County Groundwater Study, the siting, design and installation of three stream flow and rainfall gages to expand the Countywide Alert system into this portion of the County was approved by the Board. Approximately \$60,140 was spent to install these gages.

As part of Amendment No. 16, \$50,000 was approved to fund the County's share of a \$1,000,000 Integrated Regional Water Management Plan (IRWMP) planning grant that was awarded to the Westside Sacramento Valley Subregion, of which the County is a member along with portions of Lake, Solano, Yolo and Colusa counties. These funds supported the County's staff participation in the development of the IRWMP for the subregion as well as funding the required cash contribution for the grant, which funded the work of a consultant to prepare the planning document.

Approximately \$189,000 of previously allocated funding remained at the end of FY 2015-2016. As part of Amendment No. 25, staff proposed to use a portion of the remaining approved funding to continue outreach to local interests for watershed projects in the Lake Berryessa watershed with focus on the recommendations of the completed IRWMP and to develop a watershed improvement grant program. This program was developed in 2016 and the first call for project proposals was issued in the fall of 2016. A project review committee was formed including two staff members, one member from each of the Measure A Technical Advisory Panel and the Financial Oversight Committee and a member of the public residing in the Lake Berryessa watershed. The committee recommended three projects for funding in FY 2017-2018, which were approved by the Board of Supervisors on June 6, 2017. These subproject awards are included as part of Amendment No. 26:

2017 Grant Round Awards

Upper Hunting Creek Watershed Restoration (UC Davis)	\$111,000
Pope Creek Weed Management (Napa County RCD)	\$121,000
Oat Hill Mine Road Erosion Control (Tuleyome)	<u>\$230,500</u>
Total Approved Funds in from 2017 Grant Round	\$462,500

In addition to the above projects being funded during FY 2017-2018, the remaining balance of previously approved funds at the end of FY 2016-2017 (approximately \$150,000) will carry forward and be used to complete RWQCB permit related activities for Lake Berryessa, including completion of planting, irrigation and establishment of 500 oak trees for oak woodland restoration.

Total funding allocations for the Lake Berryessa Watershed Improvement Program through Amendment No. 26 total \$1,292,500.

Napa River Watershed Sediment TMDL Implementation Program (Completed)

The Napa County Resource Conservation District (RCD), in partnership with Pacific Watershed Associates (PWA) and private landowners embarked on implementing a large-scale sediment reduction and storm water runoff management project in the Carneros Creek, Sulphur Creek and Heath Canyon Creek watersheds in the unincorporated area of Napa County. In its entirety, the project protects water quality in the Napa River watershed by improving and otherwise upgrading priority rural road erosion sites which are contributing fine sediment to the Napa River and by preventing excessive fine sediment from entering Carneros Creek from a series of failed earthen dams on a tributary to Carneros Creek. After receiving required permits, RCD implemented the project in three phases. The first phase was completed in 2009 in the Carneros Creek watershed. The second phase, in the Sulphur Creek watershed, was implemented in 2010 and the third phase in the Heath Canyon Creek watershed was implemented in 2011. Funding for project implementation came from a number of sources. The Board approved \$200,000 from Measure "A", matching over \$700,000 from the State Water Resources Control Board, the Department of Fish and Game, EPA, Scannell Properties, and participating property owners for implementation in all three watersheds. In addition, these funds match significant financial contributions, in excess of \$300,000, from the California Department of Conservation Watershed Coordinator Program and the Bay-Delta authority that supported the landowner coordination, watershed assessment, and watershed management planning tasks that made this large-scale water quality protection project possible. Without funding from Measure A, the work in the Sulphur Creek watershed would have been significantly reduced and an opportunity to implement projects that will significantly reduce the amount of fine sediment entering the Napa River from a major tributary would have been lost. Detailed "road-logs" for each of the sites in the Sulphur Creek watershed were completed and it is estimated that the treatments will prevent over 6,000 cubic yards of sediment from entering Sulphur Creek. The project treated 9.5 miles of rural road, upgraded 31 stream crossings, replaced 14 culverts, treated 1 landslide, and installed 75 rolling dips and 14 critical dips. The scope of work is consistent with the adopted sediment TMDL for the Napa River and the sites can and will be used for demonstrations and workshops. The project is consistent with the types of projects that were specified in Measure "A" for the County unincorporated area. Specifically, this project is an "agricultural watershed and storm water runoff management improvement project," planned by the RCD in collaboration with agricultural interests, Napa County and the California Department of Fish and Game, that will "reduce the amount of storm water runoff and sediment in the Napa River system from agricultural lands." This type of water quality protection project is considered a "high priority" according to the Measure A Project Benefits and Priorities for Napa County Unincorporated Area Matrix.

The Board approved an additional \$20,000 of funding in Amendment No. 15 to provide staffing and match funds for the County's overall Sediment TMDL implementation program, which was selected to receive EPA grant funds under the San Francisco Bay Water Quality Improvement Fund in 2011. This is the same grant that funded the above-stated grant amounts for the Rutherford and Oakville projects,

and additionally funded three additional activities: development of Ranch Water Quality Plans in partnership with University of California Cooperative Extension, assessment of the County's rural roads and stream crossings, and development of a TMDL implementation tracking and accounting system. All of these projects support the County's goals and objectives and regulatory obligations under the Sediment TMDL. A total of \$120,000 in additional budget funding was needed to match the awarded EPA grant. As described above, \$100,000 of unspent and unencumbered funds remaining in the Zinfandel Lane Fish Passage Improvement Project and \$20,000 of new Measure "A" funds were allocated to this project as part of Amendment No. 17.

In 2013, staff completed a competitive RFP process to select a consultant to work on the TMDL tracking and accounting system that is being funded by the EPA grant. As part of this process, an additional task was identified that would further the grant-funded work, allowing development of additional decision-making tools to help prioritize future TMDL monitoring and implementation actions and \$48,000 of additional funds for this task was approved in Amendment No. 18. \$50,000 was added as part of Amendment No. 20 to cover costs associated with design, permitting and staff labor for grant-funded road improvement projects. Grant and match funds were used by the County to support design of a replacement for the Greenwood Avenue culvert crossing the Napa River, improving fish passage and reducing erosion, which was identified as a TMDL priority project. The Greenwood Avenue project was completed in 2015, using the allocated Measure A funding, \$100,000 from the 2011 EPA grant and a \$400,000 grant from the Coastal Conservancy. Construction was completed in 2016, but the final project costs exceeded the originally approved allocation. Therefore, Amendment No. 26 proposes to transfer \$7,000 of unspent funds from the completed Countywide Flood Studies Project to this project, bringing the total Measure A funding allocation to \$455,000. No additional funding is needed and the project is now complete.

Milliken Creek Flood Damage Reduction and Fish Passage Barrier Removal Project (Ongoing)

This project is being designed for implementation based on hydraulic and feasibility studies conducted as part of the Countywide Flood Studies Project, written letters of support from the affected property owners and the Silverado resort, and to take advantage of a grant opportunity related to the Bay Area IRWMP through Proposition 84.

A 2011 completed feasibility study identified the following three improvements that will result in a lowering of water surface elevations and therefore flood damage reduction to homes in the Kaanapali Drive subdivision:

1. Removal of summer impoundment dam to eliminate a hydraulic jump in creek,
2. Construct a flood bypass storm drain for golf course detention area, and
3. Strategic grading or other improvements as determined through final design which help to prevent water from entering certain (lower lying) properties

Following completion of the feasibility study and presentation to affected landowners, letters were received from private property owners and the Silverado Resort supporting implementation of these

improvements. Property owners have agreed to cost share the improvements. The Silverado resort was willing to allow the project to take place on their property assuming issues regarding access across the creek and their ability to protect their existing water rights can be addressed as part of the project. The resort has designed and is constructing a replacement bridge for the removed dam at their cost. A grant through Proposition 84 and the Bay Area Integrated Water Management Plan (IRWMP) was approved to be included in the Bay Area's grant application that was submitted to DWR in 2013. The grant will provide \$500,000 towards project implementation and required a match of at least 25%, which was satisfied with the County's project design costs. In order to complete the grant application requirements, develop and execute agreements with project proponents, and conduct environmental review and design work, a budgetary allocation of \$300,000 of Measure "A" funding was approved as part of this Amendment No. 19. Staff selected a design consultant using an RFP process and design is underway. Amendment No. 23 included an additional \$200,000 to complete the design and support staff labor costs for this project through FY 2016-2017 and acquire necessary property rights for the storm drain. Design was completed and the project advertised for construction in 2017. Amendment No. 26 includes \$1,120,000 to cover the costs (in addition to the grant) for construction and revegetation in FY 2017-2018.

Los Carneros Water District Recycled Water Project (Completed)

The Los Carneros Water District (LCWD) Recycled Water Project is providing recycled water to Carneros area agricultural properties. Landowners involved with the project approved an assessment, which funded the project design. LCWD asked for supporting funds to complete the design in FY 14/15 to enable the project to be put to bid. The District Engineer found that the project met the requirements for Measure A funding as it is an agricultural watershed improvement, consistent with Section 8.E.2 of the ordinance. The Board of Supervisors approved funding support for the project and \$100,000 was approved as part of Amendment No. 22.

An additional assessment was developed by LCWD and approved by project beneficiaries to fund the project construction. In December 2015, LCWD asked for \$50,000 of additional funding to offset their final design costs that exceeded \$400,000. These additional funds were approved as part of Amendment No. 25. The project is completed. No additional funding is anticipated.