

MEMORANDUM

WATER CONSERVATION IMPLEMENTATION PLAN LOS OSOS WASTEWATER PROJECT



Date: December 2, 2016
To: Basin Management Committee
From: Rob Miller, PE
Wallace Group
Subject: Addendum 1 – BMC Water Conservation Measures

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WATER RESOURCES

The following memorandum is an addendum to the current Water Conservation Implementation Plan for the Los Osos Wastewater Project (WCIP), adopted by the County of San Luis Obispo (County) on October 23, 2012. The WCIP was prepared by Wallace Group, in coordination with the development of the Los Osos Groundwater Basin Management Plan (BMP), which was adopted by the County in January 2015. Both plans share a common goal: to protect the sustainability of the Los Osos Groundwater Basin (Basin) as a source of potable water supply for the Los Osos community.

The BMC began monthly meetings on December 14, 2015. Of the items discussed in the meetings, focus initiated on existing and proposed conservation measures for the Basin. Several measures identified by the BMC were proposed as additional or supplemental measures to the ones outlined in the 2012 WCIP. The BMC recognized that further water savings could be seen with newer technology with lower flow values than were available at the time the original WCIP was prepared. In addition, the BMC wanted to add new measures to the plan, as they could provide for additional water savings not recognized in the initial WCIP report. This addendum provides a description of the modified or additional measures proposed by the BMC. It is desired that these measures be included in the program currently being implemented by the County. Table 1, located at the end of this memo, outlines the eight proposed BMC conservation measures.

The BMC conservation measures are separated into two categories: indoor and outdoor. Indoor conservation measures are supplemental programs to the Category 1 Residential measures discussed in the WCIP. The proposed outdoor conservation measures are new, as there were no comparable measures included in the WCIP.

BMC Indoor-1: Hot Water Recirculation System

This conservation measure would provide for a \$350 rebate for installing a hot water recirculation system inside the home. The water recirculation system is designed to minimize water waste while residents wait for tap water to heat up. Annual savings estimates vary, but using EPA Water Sense estimates, it is assumed that approximately 7,000 gallons per year per unit could be conserved, resulting in an overall Basin water savings of 50 to 100 acre-feet/year if full implementation is

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achieved. The plan is assumed to have a 10 year life span, which would cost approximately \$1,600/acre-ft saved.

BMC Indoor-2: High Efficiency Clothes Washer

This measure would provide for a \$350 rebate to residents who replace their existing clothes washer with a new high-efficiency clothes washer. The current WCIP Measure 1B includes a clothes washer rebate program which offers \$150 per eligible washer. This measure would increase the washer rebate by \$200.

Estimates assume that approximately 400 washers per year would be replaced and that 3,300 gallons per year per unit in potential savings could be realized, assuming 20 to 30 gallons per washing load. With full implementation of this program, total Basin water savings are estimated to reach 40 to 60 acre-ft/year. Rebate costs are estimated to be close to \$7,000/acre-ft saved.

BMC Indoor-3: Replace 1.6 GPF Toilets

The current WCIP Measure 1A provides property owners with a rebate for replacing inefficient toilets. The current program goal is to replace all toilets flushing more than 1.6 gallons per flush with ones that use 1.28 gpf or less, with a rebate amount of \$160 per unit. The proposed modification would provide a rebate of \$250 for homes that replace a 1.6 gpf toilet with a toilet that flushes 1.28 gpf or less, or install a dual flush model.

The water savings for this measure is estimated to be 1,500 gallons per year per unit, corresponding to a 30 to 50 ac-ft/year Basin water savings, at a cost of approximately \$2,500/acre-ft saved.

BMC Indoor 4: Replace 2.0 GPM Showerheads

Similar to BMC Indoor-3, this measure would be a supplement to the current WCIP Measure 1A for the replacement of showerheads. The current program provides a \$30 rebate for replacement of showerheads that use more than 2.0 gpm with fixtures that use no more than 1.5 gpm.

The proposed BMC Indoor 4 program would provide a rebate for all showerheads flowing 1.5 gpm or more to be replaced with ones that flow less than 1.5 gpm. The proposed program would be voluntary and provide a rebate of \$40 per unit. The estimated average savings water savings is 1,500 gallons/year per unit, which would equate to approximately 30 to 50 ac-ft/year in total Basin savings. The program is estimated to cost approximately \$900/acre-ft saved.

BMC Outdoor 1: Septic Tank Repurpose

This measure includes a rebate of \$500 per household for the conversion of an existing septic tank (assumed abandoned as part of the wastewater project) into a rain water capture basin for roof runoff or for recycled water storage. Water would either be captured through gutters on the roof and piped to the septic tank for storage and re-use as irrigation supply, or recycled water could be pumped into the tank from a recycle water fill station. It is envisioned that a simple access riser and mobile pump assembly would provide for easy application of re-used water, making the rebate attractive.



Since some residents have already backfilled their septic tanks as part of the wastewater project, this measure would offer a \$500 rebate to anyone who implements more than 1,000 gallons of capacity for rainwater catchment/recycled water storage on the property, and a \$400 rebate to anyone who implements storage of 500 gallons up to 1,000 gallons.

This measure is to coincide with the County's wastewater program, which includes a recycled water fill station at a location on 10th Street in Los Osos, to be monitored by Los Osos CSD or County staff during designated periods. The recycled water from the fill station is proposed to be used for dust abatement, construction activity, or irrigation, so long as the beneficial use is in conformance with California Title 22 regulations. It is suggested that local hauling programs be developed to minimize hauling costs.

Annual water savings for this program are estimated to be 4,500 gallons per year per unit, depending on the number of participants and irrigation events. The cost of this measure is estimated to be approximately \$1,800/ac-ft for a Basin savings of approximately 100 to 140 ac-ft/year if widely implemented.

BMC Outdoor 2: Gray Water System

BMC Outdoor 2 measure involves a \$500 rebate for the installation of a gray water recycling system on the property. Gray water is the combination of waste water from showers, baths, sinks, and washing machines. Gray water is typically all the wastewater from the home with the exception of toilets and kitchen sinks. It is envisioned that graywater from the home would be diverted to an on-site pre-treatment and storage unit, or to be directly plumbed to a below-ground watering station, such as a flowerbed or near trees, to be used as irrigation or for other beneficial reuse purposes. Installation of a graywater system would be subject to code and permit requirements, and would require homeowners make sure the system meets those requirements. Gravity flow systems will be eligible for this rebate. Proposed Basin savings, with full implementation, could reach 70 – 90 ac-ft/year with a rebate cost of around \$1,400/ac-ft.

BMC Outdoor 3 – Laundry to Landscape Program

This measure, similar to BMC Outdoor 2, would provide residents with a \$50 rebate for installation and implementation of a laundry-only gray water system. As described above, gray water is the combination of wastewater from house drains, with the exception of toilets and kitchen sinks. This measure would be for systems that are installed to reuse water from the washing machine only. Diverting the drain line from a washing machine is substantially easier than re-routing all of the drains from inside the home, therefore the rebate amount is less than BMC Outdoor 2. Recipients who receive a rebate for the BMC Outdoor 2 measure would not qualify for this laundry-only program. Current code allows for permit exemption for gravity discharge of laundry water to landscape area with a minimum of 2 inches of mulch provided at the discharge location. Diaper washing or pumped flow from the washing machine are not allowed. Proposed Basin water savings are estimated to be 10 – 20 ac-ft/year, with an estimated rebate cost of \$2,600/ac-ft.



BMC Outdoor 4 – LID Landscape

This measure would provide a rebate of up to \$400 for the installation of low water-use landscaping, especially landscaping that includes Low Impact Development (LID) measures, which capture and infiltrate storm water runoff.

Similar to BMC Outdoor 1, it is estimated that approximately 3,000 gallons per year per unit, where approximately 50 – 70 ac-ft/year of water might be saved. The rebate cost is estimated to be approximately \$1,358/ac-ft saved.

TABLE 1. BMC CONSERVATION MEASURES

Item No.	Conservation Measure Name	Draft Rebate Amount	Water Savings Potential and Assumptions (ac-ft/year)	Estimated Savings per Unit (gal/yr)	Fixture or Program Estimated Lifespan	Cost of rebate per acre-ft saved	Approximate Savings Potential (AFY) ⁴
Indoor-1	Hot water recirculation system	\$350	EPA Water Sense estimates > 10,000 gal/year, assume 5,000 to 10,000 gal/year	7,000	10	\$1,629	50 to 100
Indoor -2	High efficiency clothes washer	\$450	3,000 to 5,000 gal/year, depending on household size	3,300	5	\$6,911	40 to 60
Indoor - 3	Replace 1.6 gpf toilets with 1.28gpf or less	\$250	1,000 to 2,000 gal/year, depending on use	1,500	20	\$2,545	30 to 50 (See Note 5)
Indoor - 4	Replace 2.0 gpm showerheads with 1.5 gpm	\$40	1,000 to 2,000 gal/year, depending on use	1,500	10	\$869	30 to 50 (See Note 5)
Outdoor - 1	Septic tank repurpose	\$500 (see Note 3)	Assume 3 to 4 tank volumes, at 1,000 gallons each	3,500	20	\$2,327	110 to 150 (See Note 1)
Outdoor - 2	Gray water system	\$500 (see Note 3)	Potentially eliminate outdoor potable usage	6,000	20	\$1,358	70 to 90 (See Note 1)
Outdoor - 3	Laundry to landscape program	\$50 (see Note 3)	1,000 to 1,500 gallons per year, depending on use	1,250	5	\$2,606	10 to 20 (see Note 1)
Outdoor – 4	Low Water Use Landscape	\$100 - \$400	1,000 to 3,500 gallons per year, depending on use.	3,000	20	\$1,358	50 – 70 (see Note 6)
Notes:	<p>1. Total savings for outdoor programs are not additive. For example, outdoor use can be addressed through gray water or hauled recycled water.</p> <p>2. All estimates depend on use patterns and other factors. Values are stated for comparison.</p> <p>3. Only one \$500 rebate will be provided per property under programs Outdoor -1, 2, and 3. Participants in these programs are not eligible for program Outdoor - 4. Property owners who have already backfilled their septic tank will receive a rebate of \$500 for implementation of an alternative storage tank/basin with a minimum of 500 gallons of capacity.</p> <p>4. Approximate Savings Potential assumes total 4,500 unit participation.</p> <p>5. Assumes 2 replacement fixtures per household unit.</p> <p>6. Rebate amount to vary between \$100 - \$400, depending on landscape area. Savings value calculated assuming average of \$250/unit.</p>						