



BOARD POLICY: WATER CONSERVATION PLAN

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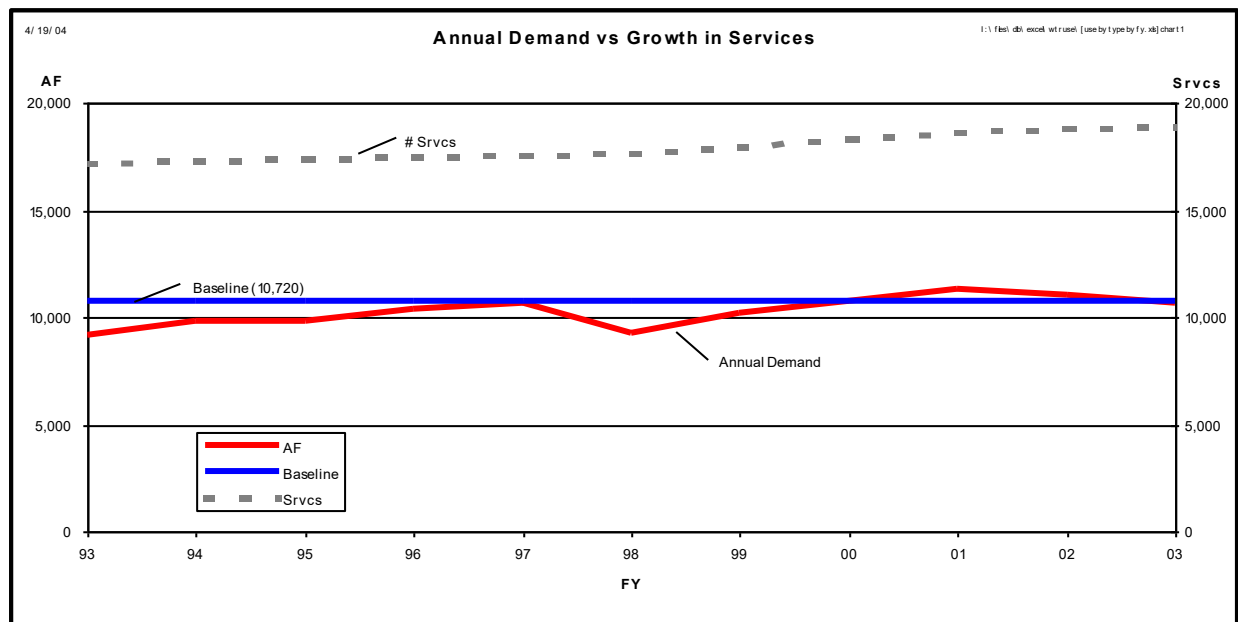
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1.0 INTRODUCTION AND BACKGROUND

The North Marin Water District (District) has implemented a successful Water Conservation Program for many years and most recently in accordance with the 1999 and 2002 draft Water Conservation Plans. Programs have included, the Cash for Grass Turf Rebate Program, Toilet Rebate Program, High Efficiency Washing Machine rebates and installation requirement in new development, Plumbing Retrofit on Resale, Screwdriver Maintenance, and other innovative water conservation measures. Additionally, the District has created innovative water conservation programs and has participated in water conservation legislation since the 1970's. On July 7, 2001 the Board approved signature to the California Urban Water Conservation Council's (CUWCC) Memorandum of Understanding (MOU) containing 14 Best Management Practices (BMP) for water conservation (see Attachment A for list of the 14 BMP's). The District is currently implementing all of the 14 BMP's. This revised draft of the Water Conservation Plan provides additional features for existing programs and new programs, for the District to implement in an effort to increase current program participation and to remain fully compliant with the CUWCC's required BMP's

2.0 WATER CONSUMPTION TRENDS

To measure savings resulting from water conservation there must be a baseline for measurement. The Montgomery Watson study established North Marin's baseline at 10,720 AF. This value was determined from a mathematical model, adjusted to remove deviations due to weather (rainfall and temperature) for 1993 customer mix and use history. The actual water production in 1993 was 9,143 Acre Feet (AF), some 17% below the calculated base demand. District production did not approach the calculated base demand until 1997 when annual production was 10,537 AF.



In reviewing the District's actual consumption for the last seventeen years the District's total use has grown by 20% to 4,700,000 Ccf compared to the 4,000,000 CCF (9,180 AF) baseline mark set in the 1999 draft Water Conservation Plan. Single-family residential demand is the dominant component making up 59% of the current total demand. Single-family residential demand has increased by 13% during that seventeen-year period even though the number of single-family residential units has increased by approximately 22% over the same period. A history of dwelling units shows a 23% increase over the past seventeen years. Residential unit use for all categories has fallen over this period. Even expecting significant near term residential dwelling unit growth (principally associated with the Hamilton Field Project) new residential unit use is not expected to increase above historic trends. The new dwelling units authorized must comply with District Regulation 15 providing low flow fixtures and ultra low flow toilets. Additionally, the new developments have reduced lot sizes (significantly reduced at Hamilton), which is expected to result in lower outside use. Comparing water use in Novato by basic customer class shows that the majority (78%) is residential use and 48% of residential use is outside use. A four year average of water use by customer class shows government use at 5% (89% outside) and commercial use 18% (58% outside) making up the remainder while average residential unit use has risen over the seventeen year period the peaking ratio (ratio of average day peak month use to average monthly use) has increased meaning that more exterior use is occurring. This trend is also found for government and commercial customer classes.

The customer area where water demand is increasing is primarily commercial and government (inside and outside), which is now 23% of the total demand, up from 17% sixteen

years ago. Commercial demand has increased 66%, including a 1200% increase in commercial irrigation, mainly due to the Stone Tree Golf Course. These trends do not include any raw water (water taken directly from Stafford Lake) irrigation at either the Indian Valley Golf Course or Stafford Lake Park. Lost water over the seventeen year period has averaged 6.3%.

3.0 CONSERVATION OBJECTIVES

To meet our water conservation objectives and the CUWCC BMP's, the District should continue focus on the areas of highest demand and the peak demand area, continue expansion into commercial water conservation, and create other water conservation programs. Residential demand has been the initial focus area, principally for outside use. A 10% savings over the baseline demand amounts to 299,176,200 gallons (400,000 CCF or 918 AF), an average of 29,982,800 gallons (40,000 CCF or 92 AF) per year for ten years, an ambitious goal.

Past water conservation efforts at North Marin have focused principally on reducing peak demand by limiting turf through the Regulation 15 requirements including the Cash for Grass rebate incentives, limits on the amount of turf and prohibition on narrow turf strips. Additionally the District has been a leader in promoting legislation for the low flow and ultra low flow toilets and for installation of low flow showerheads. The District has an aggressive toilet replacement program in the Novato service area, both mandatory (retrofit on resale) and voluntary (toilet rebate), both which include performing residential water use surveys (or audits), and disbursing free low flow showerheads and faucet aerators to participating customers. The District also has large landscape irrigation budget and audit programs resulting in conserved water at commercial and government installations. In West Marin Regulation 17 requires toilets to be replaced upon sale of residences or bathroom alterations and offers a toilet rebate for voluntary replacement of toilets with ultra low flow (ULF) models just as done in Novato.

Continued water conservation efforts for Novato include a focus on outside water use, specifically our Residential Water Use Survey Program, Large Landscape Budget and Audit Programs, and the Large Landscape Water Efficiency Program. . . .

3.1 Residential Water Conservation Programs

3.1.1 Water Conservation Direct Mailer ("*Water Line*")

Outside conservation outreach for residential customers will be addressed by publicizing the water conservation programs available at the District with a direct mailer to all customers. The mailer also explains concerns pertaining to our Russian River and local water supplies and request voluntary reduction in outside water use. For single-family services, a history of the

actual water use for the prior year's service will be included allowing a comparison to the average Novato single-family use.

The direct mailer also offers an opportunity to explain the need for reduction in peak demand and publicize the water conservation programs including: Toilet Rebate, Fixture Replacement Upon Change of Ownership, Front Loading Horizontal Axis Washing Machines, the District's "Cash for Grass" program, and other water conservation measures including low flow showerheads and faucet aerators, screwdriver maintenance tips and hints for landscape mulching to conserve water. This mailer will be published two to three times per year to update customers on their individual water use and District water supply/conservation issues. This program exceeds CUWCC BMP requirements

The District has currently disbursed 10 issues of "Water Line", the direct mail news letter, and has received the Theodore Roosevelt award from the Association of California Water Agencies (ACWA) for "Water Line's" innovation in water conservation

3.1.2 Cash for Grass

The District's "Cash for Grass" program for residential customers will be publicized via our direct mailer and other advertising methods, informing customers of the available rebate for replacing regularly mowed and irrigated, well taken care of turf, with water conserving plant material with drip system and mulch in accordance with Regulation 15. District staff will target customers through a special bill insert, targeted letters, door hangers, news stories and banners or other advertising at local nurseries and get landscape planners and installers into the loop. New customers who are in the re-landscape mode but have not made up their minds yet and perhaps can be persuaded to go with low water use landscapes and less turf will be a main target. The District shall also offer a flat rate rebate for customers who have already removed their lawn area before an inspection has been completed, and increase the rebate for participants installing California Native landscapes. Rebate amounts are set and adjusted by Board from time to time

Since FY 1999/2000, the District has rebated 151 Cash for Grass projects. This program exceeds CUWCC BMP requirements.

3.1.3 New Residential Construction Landscape Requirements

Landscape criteria for new development can be found in Regulation 15. Customers are required to install regulation conforming landscapes, which are limited to 800 square feet for single-family dwellings and have drip irrigation in all non-turf plant material areas. This program

exceeds CUWCC BMP requirements.

3.1.4 Mulch and Other Incentives

This program provides rebate incentives for “Cash for Grass” participants in amounts set and adjusted by Board from time to time. Currently, participants may receive 25% of their mulch costs or 50% of their drip irrigation costs up to \$100. This program exceeds CUWCC BMP requirements.

3.1.5 Toilet Rebates

The District currently has approximately 20,500 residential dwelling units (includes single family and multi-family accounts). Assuming that there are 2.0 toilets per residence and that 50% of these will be replaced over a ten-year period 20,500 new ultra low flow residential toilets would be installed. Currently, the District has replaced 2,821 toilets through the existing rebate program. Realistically, the District’s goal should be set at 13,000 toilet replacements for this ten-year period based on past participation and future projection.

For the District to be successful in replacing 13,000 toilets over a ten-year period starting in 1999, a sound strategy significant marketing program and an attractive and aggressive customer financial incentive is required. Calculated water savings for toilet replacement with 1.6 gpf models based on American Water Works Research Foundation (AWWARF) Residential End Use Study is 10.5 gallons per capita per day or annual savings of 5.98 CCF/toilet.

Aggressive toilet replacement options to achieve this ten-year goal could include one or more of the below listed options. Funds derived from the conservation surcharge can be used to offset the cost of the options.

- 1) Increase toilet rebate amount to \$100 per toilet. This option is recommended for a trial period of at least one to two years.
- 2) Initiate a toilet giveaway through mail order. Customer receives a brief pre-inspection and District creates a weekly list based on the pre-inspections. The weekly list is sent to a consultant who then ships the toilet directly to the customer. Customer would then install the toilet and recycle old toilet at a pre-determined District site. Customer would receive toilet, seat, wax ring, water supply line, and showerheads and aerators for each bathroom.
- 3) Initiate a toilet giveaway through Pini Ace Hardware. This program would allow the customer to go into Pini Ace Hardware, and receive a free toilet selected by the District. Alternatively, the customer would receive a \$100 credit, or other Board approved

amount, towards the purchase of an upgraded toilet if customer so chooses. This program would require full and very flexible cooperation from Pini, which has not yet been determined.

- 4) Implement a special event giveaway in which the District would give away up to 1,000 toilets on a selected day. Customer would then bring the old toilets back on another selected day (usually 3 weeks later) to be recycled, or pay the amount for the toilet on their next water bill. A consultant/contractor who would advertise the giveaway, supply the toilets and staff the events, would be the preferred option for implementation of this program.
- 5) Special emphasis on multi-family toilet replacements may be necessary to increase participation in that sector of residential toilet replacement. Efforts could include extensive marketing to apartment owners/property managers regarding the available toilet replacement programs, including options 1-4 above, and/or offering a direct install option for a plumber to replace all toilets in the building free of charge to the customer.

The District continues to offer a rebate for those customers voluntarily changing all older toilets in the household, and continued implementation of the replacement upon change of ownership requirement initiated on January 1, 2000. The rebate is offered only after a brief survey is conducted at the customer property identifying applicable water conservation measures and available rebates. The survey includes an offer of free low flow showerheads, faucet aerators, and hose nozzles with automatic shut-off, all packaged in an attractive District bucket. This program satisfies BMP NO. 2 and 14.

3.1.6 Water Conservation Plumbing Fixture Replacement Upon Change of Ownership

The District revised Regulation 15, in September 1999, requiring installation of water conserving plumbing fixtures upon change of property similar to the current West Marin Regulation 17 requirement.

Average number of residential property sales in the District's Novato service territory has been 775 from 1991 to present. Assuming 50%, of these sales, fall into categories requiring water conserving fixture replacement, the District could see a yearly incremental savings of up to 3.2 million gallons per year (4,278 CCF or 9.8 AF) . If available toilet rebates sunset, cost of this program would be borne by the property seller. The District currently requires all homes sold in Novato, built before 1992, to have all toilets to 1.6 gallons per flush or less, showerheads to be 2.5 gallons per minute or less, and bathroom sink aerators to be 2.2 gallons per minute or

less. This program meets and exceeds CUWCC BMP No. 2 and 14.

3.1.7 Residential Water Use Survey Program (Single Family and Multi-family)

A Water Use Survey Program for single-family and multi-family residential customers is required pursuant to CUWCC BMP No. 1. The BMP requires the District to complete free voluntary water use surveys for 15% of single-family customers and 15% of multi-family customers, within 10 years of the program initiation (2001). The District's current pre-inspection, required for participation in the Toilet Rebate Program or the Cash for Grass Program, can be considered a residential water use survey. Thus the 1461 pre-inspections completed since 1999, can be credited at 100% because they were all completed after 1997 (per BMP 1, section E.c).

In 2003, the District initiated a Residential Water Use Survey Program in an effort to help large residential water users reduce their water consumption to avoid a conservation incentive surcharge on their water bill. The enhanced survey program now includes an in-depth analysis of both indoor and outdoor components of residential water use. Indoor water use is surveyed with the following tasks: 1) checking leaks at the meter, toilets, showerheads, and sinks; 2) determining showerhead and sink flow rates and offer to replace or recommend upgrades, as necessary; and 3) determining toilet flow rates and offer free toilet flapper coupon if necessary or make recommendation for upgrade. Outdoor water use is surveyed by checking the irrigation system and timers, and review and/or develop a customer specific irrigation schedule. The enhanced program will be marketed to all District customers, and satisfies CUWCC BMP No. 1.

3.1.8 Screwdriver Maintenance

The District will continue to provide the screwdriver maintenance service now offered by our Field Service Representatives for leak control and make available leak detection tablets, low flow showerheads, faucet aerators, and toilet flappers either free of charge or with discount coupons for purchase. This program exceeds CUWCC BMP requirements.

3.1.9 Front Load Horizontal Axis Washing Machines

The District water demand forecast projects an additional 4,281 residential units to be constructed at buildout conditions in Novato. The District water conservation plan and Regulation 15 requires installation of frontloading/horizontal axis clothes washers in all new residential developments. Annual water savings are calculated to be 5,100 gallons (6.8 CCF) per dwelling unit or washing machine assuming one washing machine per dwelling unit. Ultimate savings will approach 17,260,100 gallons (23,075 CCF or 53 AF) at buildout

considering new development only.

The District also offers rebates to existing customers for energy star rated washing machines currently in the amount of \$150. Washing machines required in new development are ineligible for a District rebate. This program satisfies CUWCC BMP No. 6.

3.2 Large Landscape Water Conservation Program

3.2.1 Large Landscape Water Budget Program

The Large Landscape Water Budget Program includes development of water budgets for all dedicated irrigation meters using local evapotranspiration data. The District tracks the water budget compared to the actual water use on the billing system, and will provide a bi-monthly report/letter shortly after each bill during the watering season. Multi-use metered accounts will be included for large irrigators, with estimated indoor water use subtracted from the budget. Specifically, the Novato Unified School District, the City of Novato, Fireman's Fund, and Valley Memorial Cemetery will be targeted. This program satisfies CUWCC BMP No. 5.

3.2.2 Large Landscape Audit Program

The District offers audits to sites with multi-use meters and to sites that are using the highest amount of water compared to their calculated ET budget. Audits entail an in-depth analysis of the selected site's irrigation system including; distribution uniformity (coverage of sprinklers, usually measured in inches per hour), irrigation scheduling, broken and or malfunctioning equipment, and pressure. This program satisfies CUWCC BMP No. 5.

3.2.3 Large Landscape Water Efficiency Rebate Program

Customers participating in the Large Landscape Audit Program could be eligible for rebates and or cost sharing subsidies for implementing irrigation upgrades recommended by the audit report. Participating customers may also be eligible for an expanded Cash for Grass Program aimed at non-residential customers. Other opportunities such as participating in joint community projects to install synthetic turf at playing fields now regularly irrigated will be considered on a case by case basis. This program satisfies CUWCC BMP No. 5.

3.2.4 Large Landscape Pilot Program with Novato Unified School District (NUSD)

District staff has recommended development and implementation of a Landscape Irrigation Efficiency Pilot Program in cooperation with NUSD. The pilot program would allow the District to hire a qualified water management landscape contractor to manage the entire landscape maintenance at a selected NUSD site for a summer watering season, including irrigation scheduling. After the summer watering season, site water use would be compared to past

water use to see if cost-effective water savings occurred. If NUSD is not interested in full compliance, the District at a minimum would recommend an ET Irrigation Controller system to be installed at multiple NUSD sites.

3.2.5 Raw Water Large Landscape Water Use Efficiency Program

The District will request that Indian Valley Golf Course and Stafford Lake Park conduct in-house audits on their irrigation systems to improve irrigation efficiency.

3.3 Commercial, Industrial, Institutional Water Conservation Program

The District shall offer toilet rebates for Commercial, Industrial, or Institutional (CII) customers for gravity flush toilets and pressure assist/pressure valve assisted toilets after a brief pre-inspection is completed on the building in amounts set and adjusted by the Board from time to time. Rebates will be eligible only for those CII customers, which replace all toilets at their service address.

The District has also implemented a CII Water Use Survey Program, similar to the Residential Water Use Survey Program, in which District staff or consultant, survey CII establishments and make recommendations for more effective use of water. Currently, the District conducts this program in conjunction with the Marin Green Business Program. Over a ten year period, 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts, must be surveyed to comply with CUWCC BMP No. 9.

3.4 Public Information

The District shall continue to actively promote water conservation and water conservation benefits. Activities currently include: 1) providing speakers to community groups and media; 2) using paid and public service advertising; 3) using bill inserts and bill text; 4) sending out direct mail newsletters two to three times per year; and 5) targeting specific customers with door hangers and individual letters (i.e. new landscapes and turf strips). Current public information outreach efforts satisfy CUWCC BMP No. 7 requirements.

3.5 School Education Program

The District shall continue to utilize the Sonoma County Water Agency's Water Education Program to implement this program. Students participate in classroom lessons and/or field trips to the Russian River (River) to learn about the ecosystem of the River and watershed, water conservation, and other environmental issues associated with the River. Current school education efforts satisfy CUWCC BMP No. 8 requirements.

3.6 Water Waste Prohibition

The District shall continue to enforce Regulation 15, section b, "Prohibiting Water Waste", which satisfies CUWCC BMP NO. 13 requirements.

3.7 System Water Audits and Leak Detection

The District is responsive to repair main pipeline and service line leaks and assist customers to identify leaks requiring repair. Annually, the District completes a prescreening system audit to confirm that unaccounted water is less than 10% of the produced supply (currently at 1.0% for FY 2003). If the prescreening audit were to identify unaccounted for water greater than 10%, a water audit consistent with AWWA guidelines will be performed. The District's current practice satisfies CUWCC BMP No. 3.

3.8 Conservation Pricing

The District currently meters all services and bills customers for water use based on a conservation pricing format. Pursuant to the Execution of the Memorandum of Understanding Regarding Water Transmission System Capacity Allocation During Temporary Impairment, in March 2004, the District implemented a conservation incentive rate, applying to customers who use over three times that of a normal customer in summer month billing periods (over 1800 gallons per day or over 150 Ccf per billing period). The rate, an additional \$3 per Ccf (or \$4 per 1,000 gallons), is intended to signal to customers who use a substantial amount of water to reduce consumption.

3.9 New Development Water Conservation Program

The District has implemented an intensive water conservation program aimed at reducing consumption from new development. Current measures include limits on turf (800 square feet for a single family residence and no turf for CII development), a drip irrigation and mulch requirement for all non-turf landscape areas, and a requirement for all new homes to be equipped with a front loading, Energy Star rated washing machine with a modified water factor of 8.5 or less. Future requirements could include requiring installation of an Evapo-transpiration (ET) irrigation controllers in all new landscape areas and also requiring model homes in residential development to install low water use landscapes, equipped with a drip system and suitably mulched.

3.10 Other Measures

Other measures identified by a consultant review, performed in 1999, and District staff, that may be added to future revisions of the Water Conservation Plan include:

1. Identify and then target high outside water users with direct mail information on

how irrigate efficiently, information on plants, Cash for Grass offer, et cetera. Water use surveys (audits) shall be offered to these customers

2. Sponsor Master Gardner sessions focusing on Xeriscapes and efficient irrigation.
3. Identify high water using commercial, institutional and industrial (CII) customers and look into tailored audits.
4. The Novato Sanitary District could be involved financially with any toilet replacement programs, CII programs and other inside water savings efforts. Consider approaching with cost sharing proposals.
5. Research into the feasibility of doing a pilot program on selected number of homes looking at an ET controlled irrigation control service. We now know that homes with an in-ground irrigation system use more water than homes using "hose and drag," and homes with an in-ground system with a time clock use the most of all. This new service has the potential of reducing irrigation by 30% to 40%. A new controller is installed which can accept a broadcast, which will periodically reset the valve run times as a function of ET. The service would be provided only to customers opting for it. The service fee, collected by the utility, might run \$3 per billing period, and the utility gets paid for the collection service. The District is currently participating in a ET controller grant that will allow the District to install 75 ET controllers at various single family homes and commercial landscapes at half the cost
6. Additionally, there should be annual reports to measure the effectiveness of certain measures and make adjustments to the plan to reflect performance and increase the plan's effectiveness.
7. A demonstration garden has been installed to 1) increase participation in District residential outdoor water conservation programs, and 2) increase customer knowledge on low water use plant material. The Demonstration Garden shall be expanded in the future.
8. Offer customers a water wise seminar once a year to residential customers. This could include a seminar on low water use plant material or drip irrigation. This program could also be completed in conjunction with local nurseries or hardware stores.
9. Offer food service facilities a free pre-rinse dishwashing nozzle and install. The District has completed 52 installations to date through a CUWCC grant. An

additional 25-50 are eligible for grant funding for Fiscal Year 2004/2005.

10. Elimination of turf from all new CII development.

4.0 PROJECT FUNDING

The SCWA Water Conservation Plan calls for each contractor to determine their individual agency's water conservation goals and measures to implement and provides for individual funding agreements between SCWA and each agency for said implementation plan. Initially SCWA funded 10% of the individual program cost. Currently SCWA is funding 100% of the program costs via cooperative agreements for specific components of each agency's conservation plan.

The District will enter into annual agreements with SCWA to fund each of the programs conducted each year. In the first year these would include agreements for the Residential Toilet Rebate Program, Residential Cash for Grass Program, mulch and other incentive vouchers and our water conservation direct mailers. In subsequent years additional agreements will be added to address ongoing costs of these programs and added programs such as a large landscape audit program, commercial toilet replacement programs, residential water use surveys, and Washing machine rebate programs.

5.0 PROJECT STAFFING AND SCHEDULE

5.1 Staffing

Currently, the District utilizes SCWA water conservation staff to manage the Water Conservation Program and part time District staff to assist in program implementation. Additional staff may be necessary to implement additional programs designed in this plan. The District could hire a permanent Water Conservation Coordinator to meet the CUWCC BMP No. 12. A Conservation Coordinator provides oversight on conservation programs and BMP Implementation, preparation and submittal of the CUWCC's BMP Implementation Report, and coordination of water conservation programs to senior management/staff and elected officials. The District may also continue to utilize SCWA staff provided SCWA has available staff time.

5.2. Schedule

Per the CUWCC MOU, new and expanded programs shall commence no later than July 1 of the first year following the year the District signed or became subject to the CUWCC's MOU.

Revised: