

Austin Water Utility

Multi-Family Direct Install Toilet Replacement Program

**Submitted for consideration for the Recover Act of 2009
Challenge Grant Program: Water Marketing and Efficiency
Grants, Funding Opportunity Announcement No. 09SF811499**

**City of Austin / Austin Water Utility
Water Conservation Division
Drema Gross, Program Manager
P.O. Box 1088
Austin, TX 78767
drema.gross@ci.austin.tx.us
(512) 974-2787
(512) 974-6548 FAX**

TABLE OF CONTENTS

| | |
|---|-----------|
| TECHNICAL PROPOSAL | 4 |
| (1) EXECUTIVE SUMMARY | 4 |
| (2) BACKGROUND DATA..... | 5 |
| (3) TECHNICAL PROJECT DESCRIPTION | 7 |
| (A) RECOVERY ACT-SPECIFIC CRITERIA..... | 7 |
| (a.1) <i>Rapid Expenditure of Funds</i> | 7 |
| (a.2) <i>Contract Status</i> | 10 |
| (B) CONSERVATION, EFFICIENCY, MARKETS | 11 |
| (b.1) <i>Water marketing or banking elements</i> | 11 |
| (b.2) <i>Water conservation and efficiency</i> | 11 |
| (b.3) <i>Improved water management</i> | 11 |
| (b.4) <i>Cost-Benefit Analysis</i> | 11 |
| (C) SUSTAINABLE WATER SUPPLIES AND COLLABORATION | 12 |
| (c.1) <i>Sustainable Water Supplies for the 21st Century</i> | 12 |
| (c.2) <i>Collaboration and stakeholder involvement</i> | 12 |
| (c.3) <i>Reclamation Project Connection</i> | 12 |
| (D) DEMONSTRATED RESULTS..... | 13 |
| (d.1) <i>Water Conservation Planning</i> | 13 |
| (d.2) <i>Project Performance Measures</i> | 13 |
| (d.3) <i>Quantification of Project Benefits</i> | 14 |
| (E) PROJECT FINANCING AND COST SHARING..... | 15 |
| (e.1) <i>Financial Ability to Pay</i> | 15 |
| (a) <i>Non-Reclamation Funding</i> | 15 |
| (b) <i>Budget Reports</i> | 15 |
| (c) <i>Cost Increases</i> | 15 |
| (d) <i>Cost-Sharing Partners</i> | 15 |
| (e.2) <i>Reasonable Costs</i> | 15 |
| (e.3) <i>Non-Federal Funding</i> | 15 |
| (F) PERFORMANCE MEASURE FOR QUANTIFYING ACTUAL POST-PROJECT BENEFITS..... | 16 |
| (G) DESCRIPTION OF POTENTIAL ENVIRONMENTAL IMPACTS | 17 |
| (g.1) <i>Impact on Environment</i> | 17 |
| (g.2) <i>Impact on Endangered Species</i> | 17 |
| (g.3) <i>Impact on Wetlands</i> | 17 |
| (g.4) <i>Water Delivery System</i> | 17 |
| (g.5) <i>Modification of Irrigation Systems</i> | 17 |
| (g.6) <i>National Register of Historic Places</i> | 17 |
| (g.7) <i>Water Delivery System</i> | 17 |
| (H) REQUIRED PERMITS OR APPROVALS | 18 |
| (I) FUNDING PLAN AND LETTER OF COMMITMENT | 18 |
| (i.1) <i>Applicant Contribution</i> | 18 |
| (i.2) <i>In-Kind Costs</i> | 18 |
| (i.3) <i>Funding Partners</i> | 18 |
| (i.4) <i>Level of Acceptable Funding</i> | 18 |
| (i.5) <i>Additional Federal Funding</i> | 18 |
| (i.6) <i>Pending Funding Requests</i> | 18 |
| (J) OFFICIAL RESOLUTION | 19 |
| (K) BUDGET PROPOSAL | 20 |
| (k.1) <i>General Requirements</i> | 20 |
| (k.2) <i>Budget Chart</i> | 20 |
| (k.3) <i>Budget Narrative</i> | 21 |

| | |
|--|----|
| <i>(a) Salaries and Wages.</i> | 21 |
| <i>(b) Fringe Benefits.</i> Austin Water Utility uses a fixed fringe benefit rate of 17.65% of salary. | 21 |
| <i>(c) Travel.</i> | 21 |
| <i>(d) Equipment.</i> | 22 |
| <i>(e) Materials and Supplies.</i> | 22 |
| <i>(f) Contractual.</i> | 22 |
| <i>(g) Environmental and Regulatory Compliance Costs.</i> | 22 |
| <i>(h) Reporting.</i> | 22 |
| <i>(i) Other.</i> | 22 |
| <i>(j) Indirect Costs.</i> | 22 |
| <i>(k) Total Cost.</i> | 22 |

Technical Proposal

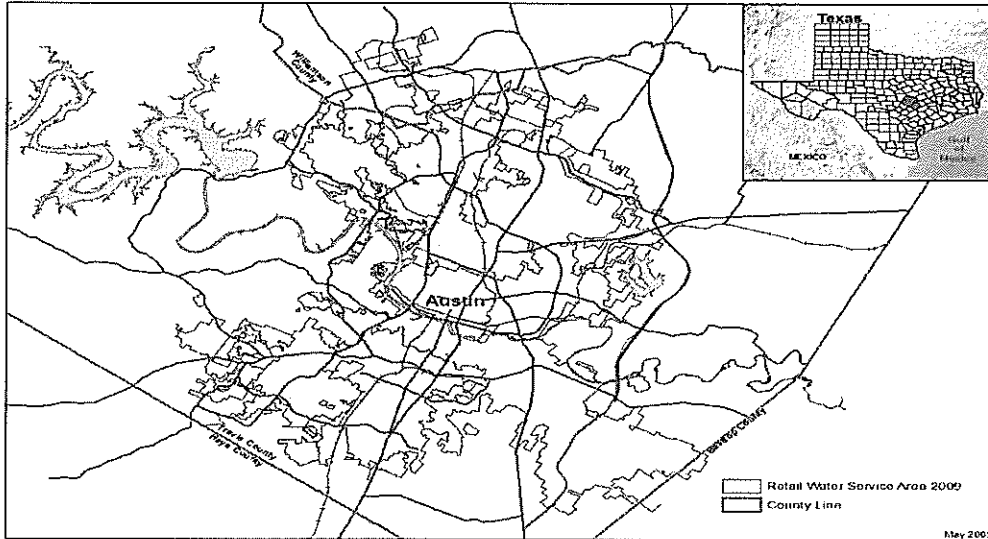
(1) Executive Summary

The Multifamily Direct Install Program is a new conservation program offered by Austin Water Utility (AWU). This program will address Task B of the Funding Opportunity Announcement, New Technologies for Improved Water Management, by retrofitting existing facilities with new high-efficiency toilet (HET) technology. One of the most cost-effective, lasting strategies to reduce water consumption is to replace high-volume toilets with efficient models. This program will remove barriers to toilet replacement by providing high-quality, high-efficiency EPA WaterSense-certified toilets and qualified installation at no cost to multifamily customers, which have had historically low participation in other AWU toilet replacement programs. Toilets and installation will be provided by a qualified contractor to multifamily customers with 5 or more units per property and existing toilets with flush volumes greater than 1.6 gallons per flush. The selected contractor will also market program services directly to customers, and screen for potential eligibility. AWU will provide contract management and oversight services.

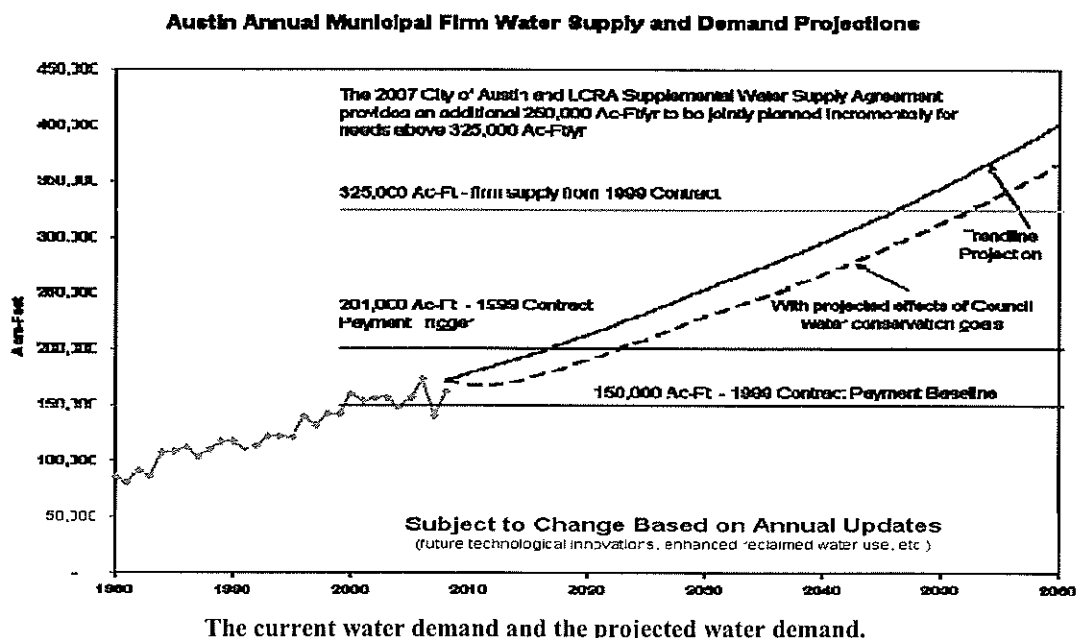
| | |
|---|---|
| Average annual acre-feet of water supply: | 156,747 acre-feet/year (pumped and treated) |
| Estimated water saved: | 2,873 acre-feet (15-year equipment life) |
| Estimated water better managed: | N/A |
| Estimated and current water marketed: | N/A |
| Length of project: | 17 months |
| Estimated completion date: | 09/30/2010 |
| Applicant is in Reclamation District: | No |

(2) Background Data.

The City of Austin retail water service area is within the State of Texas. The service area includes portions of Travis, Williamson and Bastrop Counties. The City's municipally-owned water utility, Austin Water, supplies water to customers within and outside the corporate city limits of Austin, as well as the communities of Rollingwood, Sunset Valley, Pflugerville and Round Rock, one water control and improvement district, five water supply corporations, seven municipal utility districts, and three private utilities.



The source of water supply for the Austin Water Utility is the Colorado River. The City of Austin holds permitted municipal water rights granted by the State of Texas to divert a maximum of 292,703 acre-feet per year (AF/yr) from the Colorado River for municipal use.



These water rights are run-of-river rights in the State's priority water rights system. This means that the City of Austin is permitted to divert water under these rights if the water is available for diversion after other more senior water rights are first fulfilled. The City of Austin currently serves 853,844 water users. There are no anticipated shortfalls in the City water supply. The City of Austin has secured water rights through the end of the century and will continue to work with the Lower Colorado River Authority to insure a constant water supply. Austin Water Utility currently has 200,000 service connections, 3,594 miles of City maintained water lines, 611 miles of transmission lines (16" or greater), 2,983 miles of distribution lines (16" or less), 37 City maintained reservoirs, 45 City maintained pump stations and local boosters and 167 million gallons of effective storage capacity. The City of Austin has not had any past working relationships with the Bureau of Reclamation.

(3) Technical Project Description

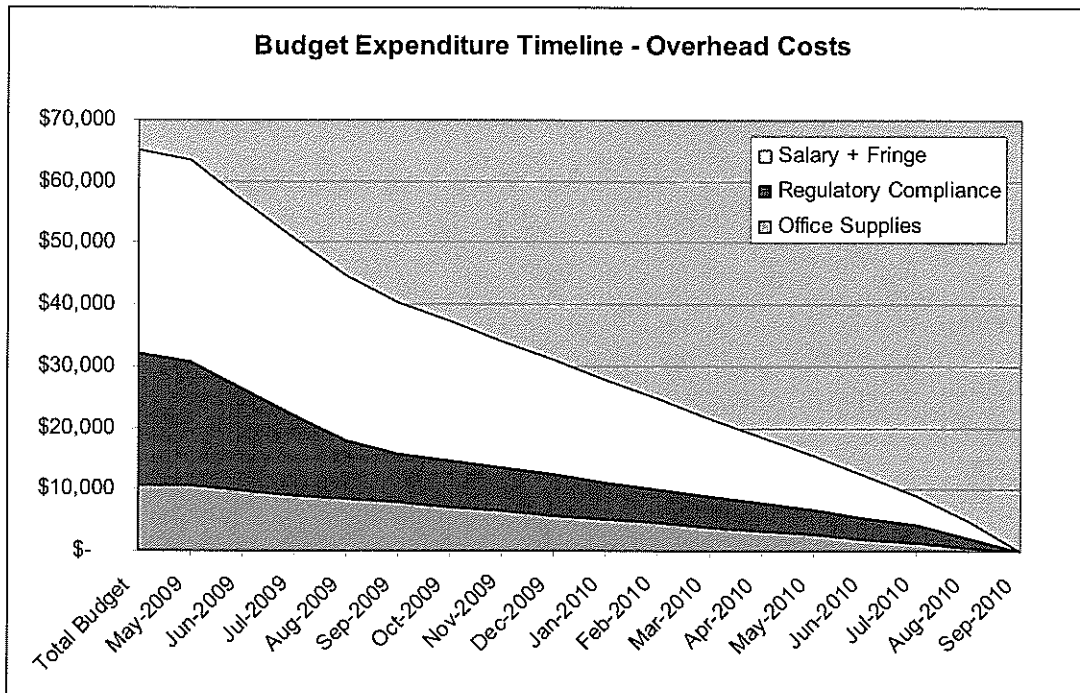
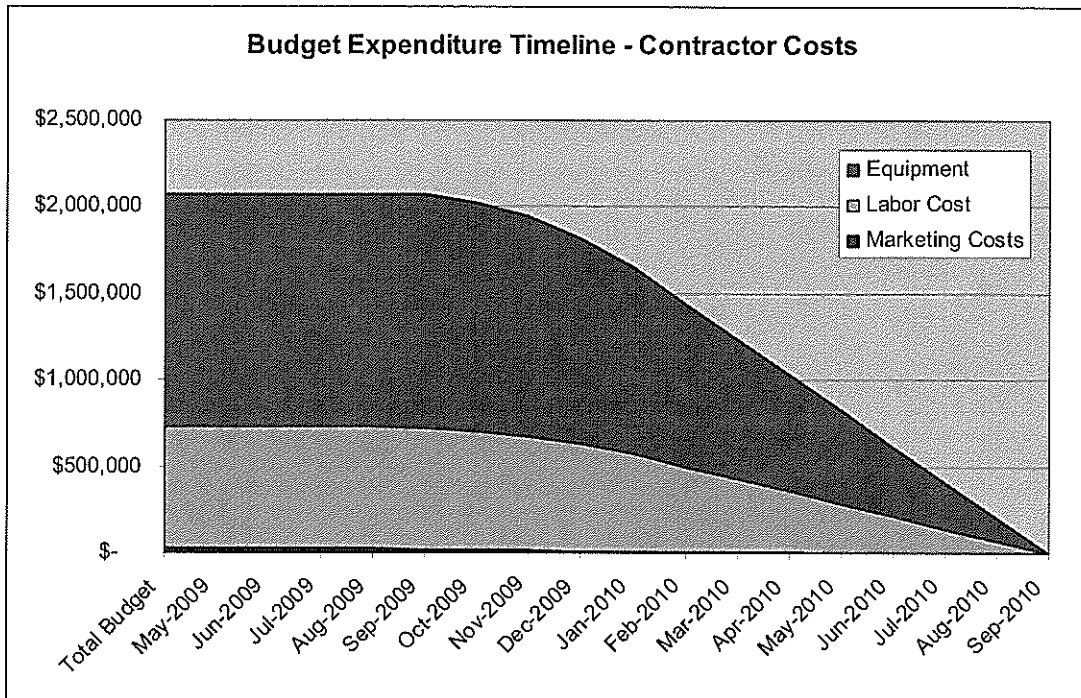
(a) Recovery Act-Specific Criteria

(a.1) Rapid Expenditure of Funds

The project assumes an average of 69 units per complex based on 96,000 occupied multifamily housing units in the 2000 Census and approximately 1,400 customers billed for water under the multifamily rate code. The project assumes 1.5 baths on average per unit, for an estimated 104 toilets per complex. Of the 1,400 multifamily customers in Austin, 200 have previously participated in City of Austin toilet replacement programs, and would be ineligible for replacement. Assuming a steady rate of growth in multifamily housing between the 1990 and 2000 in the Census data, another 180 properties would have been built after 1996 and therefore ineligible for toilet replacement through this program.

The Multifamily Direct Install Program therefore anticipates an eligible population of 1,020 apartment complexes with approximately 106,000 toilets that could be potentially replaced for water savings. This program aims to replace 9.4%, or 10,000, of those toilets.

It is anticipated that the contractor will begin marketing efforts in September 2009, with more properties agreeing to participate each month. The project timeline allows for an increase in participation during the summer months of 2010, as multifamily properties catering to students conduct renovation projects in preparation for the fall semester. Equipment and labor costs follow this projected installation curve, slightly lagging marketing costs. Staff costs for program management and contract compliance are relatively consistent, with more managerial oversight required at the beginning and end of the project. Costs for regulatory compliance are expected to be highest at the beginning and end of the project, as more documentation is required.



(a.2) Contract Status

Bids for the contract have been solicited and received, with the Bid Opening completed on May 19, 2009. Austin Water Utility is currently reviewing proposals to confirm that materials and services meet the technical specifications of the project, and to verify contractor references. Austin Water Utility will make a recommendation to award the bid, which will be reviewed through the City's Boards and Commissions process prior to City Council approval. Following the City Council vote, which could take place as early as July 2009, the contract will be awarded and the contractor will be granted up to 30 days to begin work. It is anticipated that marketing efforts for the project will begin in September, 2009.

(b) Conservation, Efficiency, Markets

(b.1) Water marketing or banking elements

This project does not involve water marketing or banking efforts. The water saved by the program will be available in the Austin Water Utility distribution system to all existing and new customers.

(b.2) Water conservation and efficiency

Austin Water Utility treats and pumps approximately 156,747.33 acre-feet per year (based on a five-year average). The Multifamily Direct Install program will save approximately 191.55 acre-feet per year, based on a projected savings of 17.1 gallons per toilet, per day.

As of Fiscal Year 2007, the last for which an analysis is available, Austin Water Utility lost an estimated 5,328,259,000 gallons of water (11.38% of total system input), 3,595,219,000 of which was “real loss” due to leaks and breaks (7.68% of system input). This translates to a total loss of 16,352.55 acre-feet per year, or real losses of 11,033.67 acre-feet per year.

(b.3) Improved water management

This project has a direct, quantifiable impact on water savings.

(b.4) Cost-Benefit Analysis

This project is expected to conserve 191.55 acre-feet per year, with an anticipated equipment lifespan of 15 years and a total project budget of \$2,138,834.

$$\frac{\$2,138,834}{191.55 \text{ acre-feet/year} \times 15 \text{ years}} = \$744.40 \text{ per acre-foot}$$

(c) Sustainable Water Supplies and Collaboration

(c.1) Sustainable Water Supplies for the 21st Century

This project will address water supply needs by reducing average water demand within the Austin Water Utility service area. Water conservation is an issue of increasing importance to our community and plays an escalating role in future water supply due to the region's climate variability.

This project will conserve water from the Lower Colorado River by reducing the amount drawn by Austin Water Utility for pumping and treatment. This leaves more water in the river for downstream uses and for fish and wildlife habitats.

The Central Texas region is currently in an exceptional drought and experiencing continued population growth. Any reduction in the water used by household fixtures will contribute to an overall reduction in per capita water demand.

(c.2) Collaboration and stakeholder involvement

The Multifamily Direct Install Program will benefit owners and tenants of older multifamily housing in the Austin Water Service area. The project will reduce maintenance costs and lower water bills for these customers, many of which may have incomes below median for the area.

(c.3) Reclamation Project Connection

This project is not connected to Reclamation project activities.

(d) Demonstrated Results

(d.1) Water Conservation Planning

The proposed project is in conformance with the City of Austin's 2005 Water Conservation Plan. Page 15 of this Plan describes the Multi-family Free Toilet Program and states that "Managers and owners of multi-family complexes can receive free water-efficient toilets for each apartment unit through the City's Water Conservation Program." This project does not require engineering or design work. This project conforms to the goals set forth in the 2005 Water Conservation Plan by conserving 0.52 acre-feet of water per day, or 19.8% of the estimated 2.65 million gallons of water per average day projected to be saved by the 2005 Water Conservation Plan.

(d.2) Project Performance Measures

As part of the project bid, the project Contractor is required to submit monthly and annual reports detailing the numbers and types of toilets replaced. These performance measures will be used to quantify benefits using water savings projections for toilet replacement.

The project will further verify those savings by analyzing actual water use for each property retrofitted. Properties participating in the survey will be asked for average occupancy information for a several-year period, and an irrigation audit will be conducted on the property to determine the water used for irrigation. This information will be compared with their billed water usage pre- and post-installation to estimate the actual realized savings for the project. Costs for this secondary analysis will take place 12 to 18 months following project completion to allow for the accumulation of billing data, and are therefore not included in the project proposal. However, it is anticipated that the study will be submitted for publication through an industry conference or journal, such as the American Water Works Association's Annual Conference and Exposition or Journal AWWA.

(d.3) Quantification of Project Benefits

Projected water savings for the project are based on the following formula for toilet retrofit savings in residential properties:

$$\frac{\text{flushes per person per day } \times \text{ reduction in gallons per flush } \times \text{ persons per household}}{\text{toilets per household}}$$

Where:

Flushes per person per day is **5.05**, based on the 1999 AWWA Residential End Uses of Water Study and used in the EPA WaterSense calculator;

Existing toilet flush volume is **3.48 gpf**, based on the reported mean of the 1999 AWWA Residential End Uses of Water Study;

New toilet flush volume is **1.28 gpf**, based on EPA WaterSense specifications used in project bid specifications;

Average persons per household is **1.85** for multifamily properties based on the 2000 Census; and

The average multifamily property has **1.2** toilets per unit.

$$\frac{5.05 \times (3.48 - 1.28) \times 1.85}{1.2} = 17.1 \text{ gallons per day saved per toilet}$$

(e) Project Financing and Cost Sharing

(e.1) Financial Ability to Pay

(a) Non-Reclamation Funding. All non-Reclamation funding for this project is available in the Austin Water Utility budget for the Water Conservation division. Funds budgeted for conservation rebates will be diverted for costs incurred in the remainder of FY09 (through September 30, 2009), and funds are being requested in the FY10 budget, which has yet to be approved by City Council.

(b) Budget Reports. Budget reports are attached showing available funding in the current fiscal year (FY09) for the Water Conservation Division of Austin Water Utility. Contractual costs will be diverted from remaining funds in object 6805 (Appliance Efficiency Rebate), with \$1,400,440 currently available. Staff costs will be paid from the available Personnel budget, and office supplies from the remaining Commodities funds. The Utility's FY10 budget has yet to be approved by Council and is not attached, though funds have been budgeted for Personnel costs for both AWU staff positions, with an \$1,899,275 requested for Contractual Services.

(c) Cost Increases. This project contract was bid with firm, fixed prices for a 24-month period; equipment and labor costs will therefore remain constant throughout the award term. No increase in staff or supply costs is projected, but if such increase were to occur, it would be funded from the Austin Water Utility budget. Any decrease in costs will be shared proportionately between grant funds and Austin Water Utility funding.

(d) Cost-Sharing Partners. No cost-sharing partners exist for this project.

(e.2) Reasonable Costs

The budget is predominantly allocated to the direct costs of equipment and installation labor, with 96% of costs going directly to toilet purchase and installation. Marketing costs make up 1% of the proposed budget, with staff oversight and overhead costs at 2%. Regulatory compliance for environmental concerns is estimated at 1% of the total budget.

(e.3) Non-Federal Funding

Austin Water Utility will provide 51% of project costs.

(f) Performance Measure for Quantifying Actual Post-Project Benefits

The performance measure for this project is the total number of toilets retrofitted.

As part of the project bid, the project Contractor is required to submit monthly and annual reports detailing the number of toilets replaced. This performance measure and the estimated per-toilet water savings will be used to complete the Challenge Grant Final Report for the project.

(g) Description of Potential Environmental Impacts

(g.1) Impact on Environment

(1) Replacement of toilets will take place inside existing buildings. No earth disturbing work is anticipated for this project, nor is the project anticipated to affect the air, water or animal habitat in the project area.

(g.2) Impact on Endangered Species

Project areas will vary by participating property; however, since the work will take place indoors, there is no anticipated adverse effect on any of the endangered or threatened species in the Central Texas region.

(g.3) Impact on Wetlands

There is no anticipated adverse effect on any wetlands.

(g.4) Water Delivery System

Austin's first organized water system began in 1871, when a private company began pumping water from the Colorado River to citizens' homes under a franchise granted by the City of Austin. By May of 1893, Austin Dam spanned the Colorado River, and the newly formed Lake Austin provided the City with its first reliable water and power source. In 1923, Dr. E.P. Schoch, a chemical engineering professor at the University of Texas at Austin, created a simple chemical treatment that used lime to treat river water. Austin included this treatment method in the design of a new facility that came on line in 1925. The facility, now named the Thomas C. Green Water Treatment Plant, consisted of a chemical building, mixing baffles, a sedimentation basin, filters and a clearwell for water storage. Green Water Treatment Plant was decommissioned in September of 2008. Davis Water Treatment plant is AWU's oldest operational facility, constructed in 1954.

(g.5) Modification of Irrigation Systems

The project will not result in the modification of any features of an irrigation system.

(g.6) National Register of Historic Places

It is not anticipated that any of the buildings participating in the program will be eligible for listing in the National Register of Historic Places.

(g.7) Water Delivery System

There are no known archeological sites in the proposed project area.

(h) Required Permits or Approvals

No permits are required for replacing toilets. Approval for each property participating in the program will be determined by the Austin Water Utility Contract Compliance Specialist assigned to the program, who will determine that the property a) receives water from Austin Water Utility, b) was built before 1996 and c) has not already replaced toilets with models using 1.6 gallons per flush or less. The Compliance Specialist will confirm this information from customer billing records, property tax records, records of past participation in toilet replacement programs, and physical pre-installation site inspections as needed.

(i) Funding Plan and Letter of Commitment

(i.1) Applicant Contribution

Austin Water Utility's contribution to the cost-share requirement will come from budgeted funds for staff costs, office supplies and rebate programs. These funds are budgeted annually for the Water Utility from rates paid by customers.

(i.2) In-Kind Costs

In-kind costs that are incurred before the anticipated project start date would be limited to staff time for the Environmental Program Manager and/or Contract Compliance Specialist in meeting with the successful bidder for the Multifamily Direct Install contract, and any invoices from the Contractor paid prior to the grant award date.

(i.3) Funding Partners

There are no partners providing funding for this project.

(i.4) Level of Acceptable Funding

The Federal funding requested for this project is less than \$5,000,000.

(i.5) Additional Federal Funding

There is no additional Federal funding requested or received for this project.

(i.6) Pending Funding Requests

There are no pending funding requests for this project.

(j) Official Resolution

The timing of meetings for the Water and Wastewater Commission and the Austin City Council prevent the inclusion of an official resolution with the grant application. However, it is the applicant's intent to provide an official resolution within 30 days of the application deadline.

(k) Budget Proposal

(k.1) General Requirements

The following project budget shows the annual estimated project costs. There are no estimated increases or decreases in O&M costs resulting from the project. Reclamation and applicant contributions are outlined for each category.

(k.2) Budget Chart

Multifamily Direct Install Program Budget

| BUDGET ITEM DESCRIPTION | COMPUTATION | | RECIPIENT FUNDING | RECLAMATION FUNDING | TOTAL COST |
|---|------------------|----------|-------------------|---------------------|--------------|
| | \$/Unit and Unit | Quantity | | | |
| SALARIES AND WAGES | | | | | |
| Contract Compliance Specialist | \$20.00/hr | 1300 | \$ 26,000 | \$ - | \$ 26,000 |
| Environmental Program Manager | \$31.56/hr | 65 | \$ 2,051 | \$ - | \$ 2,051 |
| FRINGE BENEFITS | | | | | |
| Contract Compliance Specialist, (full-time) | \$3.53/hr | 1300 | \$ 4,589 | \$ - | \$ 4,589 |
| Environmental Program Manager (full-time) | \$5.57/hr | 65 | \$ 362 | \$ - | \$ 362 |
| Part-time employees | n/a | n/a | n/a | n/a | n/a |
| TRAVEL | | | | | |
| Trip 1 | n/a | n/a | n/a | n/a | n/a |
| Trip 2 | n/a | n/a | n/a | n/a | n/a |
| EQUIPMENT | | | | | |
| Item A: | n/a | n/a | n/a | n/a | n/a |
| Item B | n/a | n/a | n/a | n/a | n/a |
| Item C | n/a | n/a | n/a | n/a | n/a |
| SUPPLIES/MATERIALS | | | | | |
| Office supplies | .5% of Program | 0.5% | \$ 10,694 | \$ - | \$ 10,694 |
| Construction | | | | | |
| CONTRACTUAL/ CONSTRUCTION | | | | | |
| Item 1: Standard-height, WaterSense labeled HET with 12" rough in | \$130 each | 8,000 | \$ 520,000 | \$ 520,000 | \$ 1,040,000 |

| | | | | | |
|--|-------------------------|--------|--------------|--------------|--------------|
| Item 2: Standard-height, WaterSense labeled HET with 10" rough in | \$130 each | 50 | \$ 3,250 | \$ 3,250 | \$ 6,500 |
| Item 3: ADA-Height (17") and elongated-front white WaterSense labeled HET with 10" rough in | \$155 each | 50 | \$ 3,875 | \$ 3,875 | \$ 7,750 |
| Item 4: ADA-Height (17") and elongated-front white WaterSense labeled HET with 12" rough in | \$155 each | 1,900 | \$ 147,250 | \$ 147,250 | \$ 294,500 |
| Item 5: Plumber installation for Items 1-4 -includes all materials, labor, removal and disposal of exiting toilet | \$70 each | 10,000 | \$ 350,000 | \$ 350,000 | \$ 700,000 |
| Item 6: Marketing efforts, including development of plan and materials as well as oroduction, placement and mailing costs for term of contract | \$25,000 contract price | 1 | \$ 12,500 | \$ 12,500 | \$25,000 |
| ENVIRONMENTAL AND REGULATORY COMPLIANCE | 1% of Program | 1% | \$ 10,694 | \$ 10,694 | \$ 21,388 |
| OTHER | | | | | |
| Reporting | | | | | |
| | | | | | |
| TOTAL DIRECT COSTS | | | \$ 1,091,265 | \$ 1,047,569 | \$ 2,138,834 |
| | | | | | |
| INDIRECT COSTS - 0 % | | | \$0 | \$0 | \$0 |
| | | | | | |
| TOTAL PROJECT COSTS | | | \$ 1,091,265 | \$ 1,047,569 | \$ 2,138,834 |

(k.3) Budget Narrative

(a) *Salaries and Wages.* Environmental Program Manager Drema Gross will be responsible for project oversight, estimated at an average of one hour per week for the duration of the contract, at a rate of \$31.56/hr. A Contract Compliance Specialist, Senior will be assigned to routine project coordination and grant documentation for approximately 20 hours per week at a rate up to \$20.00/hr. No salary increases are proposed for this project.

(b) *Fringe Benefits.* Austin Water Utility uses a fixed fringe benefit rate of 17.65% of salary.

(c) *Travel.* No travel is included in the project budget.

(d) Equipment. No equipment costs are included in the project budget.

(e) Materials and Supplies. General office supplies, including but not limited to paper, pens, ink and envelopes, are budgeted at 0.5% of total project costs. No other materials or construction costs are anticipated for this project.

(f) Contractual. One contractor will be responsible for marketing the program to solicit program participation, screening potential participants for eligibility, providing toilets and required installation materials, and installing toilets. Bids for the contract are inclusive of all tasks, equipment, materials and labor costs and are projected at \$2,048,750 for the duration of the contract.

Upon being awarded grant funding, Austin Water Utility will provide the specific staff positions and labor rates for the selected contractor, along with Wage Determination General Decision Number(s) and Date(s) used to determine wages for the project.

(g) Environmental and Regulatory Compliance Costs. Environmental and regulatory compliance costs have been budgeted at 1% of total project costs.

(h) Reporting. Project reporting will be done by the Contract Compliance Specialist assigned to the project; costs are included in the Salaries and Wages section of the budget. No additional reporting costs are projected.

(i) Other. No funds are requested for expenses not included in the above categories.

(j) Indirect Costs. No indirect costs are requested for this project.

(k) Total Cost. Total project costs are budgeted at \$2,138,834. Federal funding is requested in the amount of \$1,047,569 (49%) and non-Federal funding will be provided by Austin Water Utility in the amount of \$1,091,265 (51%).