

M.L. 2015 Project Abstract

For the Period Ending June 30, 2018

PROJECT TITLE: Shoreview Water Consumption and Groundwater Awareness Project

PROJECT MANAGER: Mark Maloney

AFFILIATION: City of Shoreview

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FUNDING SOURCE: Environment and Natural Resources Trust Fund

LEGAL CITATION: M.L. 2015, Chp. 76, Sec. 2, Subd. 04i

APPROPRIATION AMOUNT: \$54,000

AMOUNT SPENT: \$54,000

AMOUNT REMAINING: \$0

Overall Project Outcome and Results

The City of Shoreview is a suburb of approximately 26,000 people in the northeast metro area of the Twin Cities. Like many metropolitan municipalities, Shoreview supplies drinking water to residents and businesses via groundwater wells instead of surface water resources. Recent attention concerning the sustainability of groundwater resources in Minnesota is well documented and could pose a serious threat to future availability. Because of this threat, Shoreview decided to implement new initiatives to encourage water conservation in an attempt to conserve water resources. In 2015 the City applied for an LCCMR grant. Originally, Shoreview intended to use the grant to start reading water meters monthly, as opposed to quarterly, while also implementing a program called Know-Your-Flow that would provide a group of 400 resident volunteers with an at-home wireless Badger meter reader that displayed water use instantly inside the home. The goal of the increased meter reading frequency paired with the instant meter readers was to increase resident awareness of how much water was being used in their homes on a more frequent basis. The hope was that if water use were brought to the attention of residents more often, it could encourage conservation behaviors.

In March of 2016, city staff amended the grant to add an additional water conservation program, the behavioral water efficiency software company WaterSmart Software (WaterSmart), to the project. WaterSmart is a software platform that gathers publicly available data on water consumption, property and home metrics such as lot size and number of bedrooms, as well as climate data in order to provide individualized mailed "water reports" that compare each participant's use to average and reduced water users within Shoreview. Sample email and print water reports are included with the supplemental attachments to this report. WaterSmart also provides residents with an online portal through which to view and update their property information in order to get a more accurate comparison. Shoreview continues to bill for water service on a quarterly basis. But, with now reading all water meters monthly, access to the online portal allows residents to keep up to date on their water use patterns between billings. The City added the WaterSmart program with the same hypothesis that increased water use awareness could lead to water conservation practices.

In order to test the hypothesis, the City and WaterSmart began a study that examined the effects of resident access to the WaterSmart online portal and mailed water reports on their water usage. A

sample of single family residences in Shoreview were excluded from the program and labeled the “control group”. All other single family residences, including the 400 Know-Your-Flow volunteers, were given access to WaterSmart’s online portal and started receiving mailed water reports on their individual use. Over the course of 18 months, data on water use for both the control group and the group with WaterSmart access has been collected. Figures showing the difference in water use between the two groups are available in the supplemental attachment to this report. Based on the study, the City saved 4.1 million gallons of treated groundwater between January 2017 and June 2018. Four million gallons translates to an approximate 1% savings in total water use across Shoreview. The savings can be attributed to access to the WaterSmart program. This was determined by evaluating the amount of water used by the control group residents compared to residents who were given access to WaterSmart tools and outreach.

The initial results are encouraging because they suggest that increasing the amount and frequency of access to a resident’s water usage can lead them to conserve more water. Because of current conversations surrounding groundwater resource availability and conservation, and the fact that many Minnesotans are serviced by groundwater, the results of this project could be significant. If providing residents with more frequent access to their water use data can encourage conservation, other water suppliers could use similar techniques to achieve similar results. This would benefit Minnesota and Minnesotans by helping to preserve valuable groundwater resources while also helping shape environmental stewardship behavior in both children and adults.

Project Results Use and Dissemination

Outreach on Shoreview’s water conservation programs funded through this grant included press releases at the start of the project announcing both the Know-Your-Flow program and then the WaterSmart program. It should be noted that the exception to all dissemination activities in this section is the WaterSmart control group. They did not receive any mailings or other outreach described separate from press releases and city-wide newsletter articles. To start the programs, each eligible residence was mailed a welcome letter and instructional materials. The Know-Your-Flow group also received a Badger meter reader device. No other outreach was done for the Know-Your-Flow program as the City changed directions and began focusing on WaterSmart because the program could be offered to more residents. For the WaterSmart program, eligible participants were sent a pre-launch survey along with their welcome letter. A sample of this survey is included in the supplemental materials for this report. The survey asked residents about their thoughts on Shoreview’s water utility as well as their level of satisfaction and understanding. A summary of the pre-launch survey results is also included in the supplemental materials. As the program progressed, all single family residences in Shoreview who were not part of the control group received periodic individualized water reports at a rate of approximately 4 per year. These residents also had access to their online water conservation portal, specific to their residence. Examples showing the interface for the portal on both mobile and desktop devices are included in the supplemental materials. In addition to individual outreach, the City also published articles about the program in two editions of the ShoreViews community newsletter, mailed to all residents. City-wide outreach was limited due to the presence of the control group that excluded some from the program.

After a year’s worth of portal access and water reports, all eligible residences were sent another, this time post-launch, survey. That survey and a presentation of the results are included in the supplemental materials for this report. Based on the surveys, residents in Shoreview had overwhelmingly positive things to say about their levels of satisfaction with their water utility, and they felt as though they understood their water use. In the second survey, a comparison was done between the pre-launch and

post-launch survey results. Changes in results between the two surveys were attributed to WaterSmart access because the program was the only change made between the first and second surveys. Post-launch survey results showed that 88% of residents were satisfied or very satisfied with the value of water services in Shoreview, and 91% felt that the City helped them better understand their water use. These percentages had increased from 79% and 78% respectively since the pre-launch survey, highlighting the value of Shoreview's WaterSmart program for residents.

City staff has given several presentations to other municipalities and natural resource management groups in Minnesota about the WaterSmart program and preliminary results from the efficiency study. Based on these meetings, several other groups have expressed interest in WaterSmart and similar programs. The City has not yet shared the results of the project efficiency study with residents because the control group is still in effect and not all residents can opt-in to the program. Staff currently plans to continue the study through summer of 2019 and then start broader outreach on the value of WaterSmart and increasing knowledge and accountability in residential water use. The City is also currently considering making the online portal available to irrigation and commercial accounts as well as residential. Shoreview finds great value in all water conservation programs implemented through this grant, and has quantified over 4 million gallons saved to date. Staff plans to continue with WaterSmart portal and water report access through summer 2019 for those that are currently eligible. After the study is complete, Shoreview hopes to allow portal access to all residents so that outreach on the program can be more uniform.



Environment and Natural Resources Trust Fund (ENRTF)

M.L. 2015 Work Plan Final Report

Date of Report: August 17, 2018

Final Report

Date of Work Plan Approval: March 24, 2016

Project Completion Date: August 17, 2018

PROJECT TITLE: Shoreview Water Consumption and Groundwater Awareness Project

Project Manager: Mark Maloney

Organization: City of Shoreview

Mailing Address: 4600 Victoria Street N

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Location: Ramsey County

Total ENRTF Project Budget:	ENRTF Appropriation:	\$54,000
	Amount Spent:	\$54,000
	Balance:	\$0

Legal Citation: M.L. 2015, Chp. 76, Sec. 2, Subd. 04i

Appropriation Language:

\$54,000 the first year is from the trust fund to the commissioner of natural resources for an agreement with the City of Shoreview to provide biweekly water consumption data to at least 400 residential households for a two year period to determine if additional groundwater can be conserved due to a greater awareness of consumption data. This appropriation is available until June 30, 2018, by which time the project must be completed and final products delivered.

I. PROJECT TITLE: Shoreview Water Consumption and Groundwater Awareness Project

II. PROJECT STATEMENT: Provide bi-weekly water consumption data to 400 residential households for a two year period to determine if additional groundwater can be conserved due to a greater awareness of consumption data.

Like many metropolitan municipalities, Shoreview supplies drinking water to residents and businesses via groundwater wells instead of surface water resources. Recent attention concerning the sustainability of our groundwater resources in Minnesota is well documented and could pose a serious threat to future availability. Creating a community conservation ethic should lead to reduced groundwater use. This is needed for long-term aquifer sustainability, especially during the growing season. The City of Shoreview has encouraged and incentivized water conservation for decades, and this proposal will take our efforts one step further. We will determine if access to information and comparisons to neighbors and citywide averages (similar to energy bill comparisons) results in groundwater conservation. We will also determine if there are differences in conservation outcomes between lot sizes and soil types given that irrigation habits vary.

Currently in Shoreview, water users are billed quarterly for their consumption quarterly. With quarterly billing, by the time residents receive their bill, they are likely unaware of where their water was being used collectively in the previous three months. The project will provide monthly meter readings to 400 households by making them available online where each resident will have access to their water usage data. This website will combine a resident's usage data with external data including property data from the Ramsey County Assessor's office and climate data to provide a "Utility Dashboard" where residents can engage with their water usage information on a customer portal. The customer portal will also include suggestions for each participating home based on their usage data and the property data. In addition, this portal will track and report the results of participants' engagement on suggested conservation practices and show the outcomes of which conservation actions are most favored among each group of participants. Participating homes will also receive a wireless Badger meter reader which display water use in a digital format inside their home (wirelessly synced with their water meter, each cost \$125).

Past water use and participant surveys will be analyzed to measure the effects of the project after year one. The program will then be adjusted based on findings prior to year two. If successful, we may consider scaling the project to make the same data available to all households (~10,000) to both increase conscious water use and to further conserve our groundwater resources.

We will provide feedback or comparisons to neighborhood or city averages and hope to convey household water use similar to energy bills, something new in the public water utility realm. We will publish all results and communicate the project's results with the rest of the community and share what we learned with communities interested in pursuing their own awareness projects.

III. OVERALL PROJECT STATUS UPDATES:

Project Status as of September 15th, 2015:

400 Badger Meter readers were ordered and are being shipped. Staff has created messaging and outreach materials for volunteer recruitment efforts and preliminary outreach methods via social media and utility bill inserts are being used to recruit volunteers. Staff determined most effective outreach method was to first open the program to all residents interested (not just select neighborhoods), and identify volunteers by characteristics to group together. As of September 15th, 12 residents have signed up to participate.

Project Status as of March 15th 2016:

All 400 volunteers have been recruited for the program and devices have been distributed to participating volunteers. Staff is weighing options for technical assistance for creating the water usage reports.

Amendment Request (03/21/16):

This request is to utilize the unspent funds from the Budget Item "Equipment/Tools/Supplies" in Activity 2 for Budget Item "Professional/Technical/Service Contracts" in Activity 2 to the sum of \$14,000. The "Equipment/Tools/Supplies" budget item was budgeted for \$50,000 for the purchase of the Badger Water Meters devices. The purchase came in under budget to the sum total of \$36,000, leaving a balance of \$14,000. Staff would like to request utilizing those funds to increase the technical services with an outsourced vendor that specializes in utility data communication/education delivery.

WaterSmart Software is the seminal innovator in Behavioral Water Efficiency technology. Using a unique combination of behavioral psychology, big-data analytics and cloud computing, WaterSmart generates custom Home Water Reports for residential water users, which compares their household consumption to households with similar characteristics (size, irrigable area, occupants, etc.) and makes personalized water savings recommendations. WaterSmart solutions are proven to reduce water consumption by 5% while doubling customer satisfaction and tripling levels of engagement with customer conservation programs.

By working with this vendor, WaterSmart Software, program participants will receive their water usage data in a format that has been professionally developed and refined for optimal water conservation effectiveness. Consultation with our information services staff has concluded that WaterSmart Software and their services are much more sophisticated than what we would be able to develop alone. Through this vendor's programming and technical services, each participant will have a personalized account available through multichannel communications (email, webpage, mobile, etc.) and their usage data will be personalized to the demographics of their residence. The service will also include normative comparisons for residents in the way that our project originally proposed with usage interpreted similar to the energy bills (i.e. "here's your usage compared to your neighbors").

In addition, this service would provide personalized recommendations for water conservation based on a resident's water usage and house features, and automatically track the activities individuals have taken to increase their conservation. This feature in particular would drastically increase the quantification of this projects effectiveness in increasing conservation and water usage awareness, as residents can check off which conservation actions they have taken based off of the recommendations.

Staff would also like to request bypassing the competitive process identified in the original project plan to keep this project on its timeline. The Minnesota DNR approved our request for the Single/Sole Source Grant and Contract Justification Form to utilize WaterSmart's services to provide the Water Usage reports for our participants in this program. WaterSmart has been commercially proven over the past four years and is currently in use by over 50 municipal utilities throughout the United States. This innovative, highly cost effective, and verified efficiency technology perfectly embodies how information can be used to drive rapid and persistent behavior change for improved water utility operations. By going directly with their services, this project can have highly detailed water usage reports going out to residents during this next quarter. The competitive bid process would require much more time and keep program participants waiting for their water reports, potentially deterring continued participation.

By increasing the amount of work by the outsourced vendor as detailed above, we believe the amended work program would make better uses of the allocated resources while still meeting the goals and objectives of the original project statement.

Amendment Approved: 03/24/16

Project Status as of September 15th 2016:

The City has hired WaterSmart Software to provide home water reports for the 400 participants in this program. Staff has worked closely with the software engineers to personalize the software to regional water conservation resources and to establish a control group to analyze post-project results. Participants have personal on-line portals which are updated monthly with their average gallon per day water use and receive a home water report

3-4 times per year. Through their WaterSmart portal, participants also receive personalized water-saving recommendations with monetary savings estimations. There are also tutorials for identifying and fixing leaks.

Project Status as of March 15th 2017:

The WaterSmart Software is up and running with 849 water accounts set up with individual portals, and 1,152 email addresses received from resident participants. Two Water Reports have been sent out so far, with another scheduled to be mailed in April. Additionally, several group messages have been sent to residents who provided their email address. These messages vary in water-focused content, from winterizing irrigation system reminders to notifications about the City's new water treatment plant and water testing schedules. Individual portals are continuously updated with monthly water reads and residents can also quickly find water conservation tips specific to their household.

Project Status as of September 15th 2017:

Shoreview continues to make progress with the WaterSmart program through increased enrollment and awareness. The City now has over 1,000 water accounts set up with individual portals and over 3,000 active email addresses to use when delivering water-related content to residents. Since March, two additional Water Reports have been sent out. One was distributed in early May and the other in late August/early September. Two group messages were also sent to residents during this period. One concerned the City's new watering restrictions and was used to inform as many residents as possible about the changes in regulation, supplementing postcard mailings on the same topic. The second was a targeted message sent only to residents within a specific sub-watershed for whom we had email addresses. This second message was done in conjunction with a Master Water Steward capstone project that was focused specifically on one area of Shoreview.

Project Status as of March 15th 2018:

The WaterSmart program has now become ingrained in many residents' utility management routines. A breakdown of the WaterSmart portal visits over the past 90 days shows that 68% of those visits were residents logging in for at least the 5th time. This means that some residents are checking their portal frequently to track their water use. This is likely due to the fact that the City sends out utility bills on a quarterly basis even though water meters are read monthly. Residents can log on to the portal in the middle of a quarter and see their water use up to that point even though they have yet to receive that quarter's bill. This allows them to adjust use habits or check for a leak if their use is higher than expected. Water Reports are still being sent out at a rate of around 4 a year, and the City has approximately 1,020 participating resident accounts.

Overall Project Outcomes and Results:

The City of Shoreview is a suburb of approximately 26,000 people in the northeast metro area of the Twin Cities. Like many metropolitan municipalities, Shoreview supplies drinking water to residents and businesses via groundwater wells instead of surface water resources. Recent attention concerning the sustainability of groundwater resources in Minnesota is well documented and could pose a serious threat to future availability. Because of this threat, Shoreview decided to implement new initiatives to encourage water conservation in an attempt to conserve water resources. In 2015 the City applied for an LCCMR grant. Originally, Shoreview intended to use the grant to start reading water meters monthly, as opposed to quarterly, while also implementing a program called Know-Your-Flow that would provide a group of 400 resident volunteers with an at-home wireless Badger meter reader that displayed water use instantly inside the home. The goal of the increased meter reading frequency paired with the instant meter readers was to increase resident awareness of how much water was being used in their homes on a more frequent basis. The hope was that if water use were brought to the attention of residents more often, it could encourage conservation behaviors.

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as lot size and number of bedrooms, as well as climate data in order to provide individualized mailed “water reports” that compare each participant’s use to average and reduced water users within Shoreview. Sample email and print water reports are included with the supplemental attachments to this report. WaterSmart also provides residents with an online portal through which to view and update their property information in order to get a more accurate comparison. Shoreview continues to bill for water service on a quarterly basis. But, with now reading all water meters monthly, access to the online portal allows residents to keep up to date on their water use patterns between billings. The City added the WaterSmart program with the same hypothesis that increased water use awareness could lead to water conservation practices.

In order to test the hypothesis, the City and WaterSmart began a study that examined the effects of resident access to the WaterSmart online portal and mailed water reports on their water usage. A sample of single family residences in Shoreview were excluded from the program and labeled the “control group”. All other single family residences, including the 400 Know-Your-Flow volunteers, were given access to WaterSmart’s online portal and started receiving mailed water reports on their individual use. Over the course of 18 months, data on water use for both the control group and the group with WaterSmart access has been collected. Figures showing the difference in water use between the two groups are available in the supplemental attachment to this report. Based on the study, the City saved 4.1 million gallons of treated groundwater between January 2017 and June 2018. Four million gallons translates to an approximate 1% savings in total water use across Shoreview. The savings can be attributed to access to the WaterSmart program. This was determined by evaluating the amount of water used by the control group residents compared to residents who were given access to WaterSmart tools and outreach.

The initial results are encouraging because they suggest that increasing the amount and frequency of access to a resident’s water usage can lead them to conserve more water. Because of current conversations surrounding groundwater resource availability and conservation, and the fact that many Minnesotans are serviced by groundwater, the results of this project could be significant. If providing residents with more frequent access to their water use data can encourage conservation, other water suppliers could use similar techniques to achieve similar results. This would benefit Minnesota and Minnesotans by helping to preserve valuable groundwater resources while also helping shape environmental stewardship behavior in both children and adults.

IV. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1: Identify and locate pilot study areas and promote participation in the project.

Description: To set up the project, we will determine suitable neighborhoods to include in the study area based on different lot sizes and soil types. For instance, we want to compare the household water use in large lots in clay soils to smaller lots in clay soils, against the citywide average or control neighborhoods, and the same for sandy soils. (Shoreview has both sandy and clay areas.) We will use existing soil maps and GIS data to determine 6-10 neighborhood clusters of approximately 40-70 households. We expect to include additional households in each neighborhood cluster on the invite to participate, but know that not every household will participate.

Once the neighborhood clusters are identified, we will assign them a unique name for tracking purposes, create mailing lists, and invite residents in that area to participate via mail. We will also compile the past 3-5 years of water data use for all households in these neighborhood clusters to use as the baseline of information.

Packets mailed to participants will include a kick off open house invitation, individual past water uses, information about the project scope and intentions, what is asked of them, and the schedule for the entire project. It will also include information on how to obtain the Badger Water Meter, which they will have to call

for an appointment to receive (See Activity 2). Fliers and press releases will be created to inform the larger community of our project as well.

We will host an open house at the Shoreview Community Center for a kickoff event. This event will feature signage about the project, possibly a short presentation, and have staff members available to answer questions.

Summary Budget Information for Activity 1:

ENRTF Budget: \$ 0
Amount Spent: \$ 0
Balance: \$ 0

Outcome	Completion Date
1. Select study areas and review past water use	August 1, 2015
2. Mail flier to ~400 households in study area introducing project, invite to public meeting, share past data and conservation tips	Sept 1, 2015
3. Host open house style public meeting to kick off project	Nov 15 th , 2015

Activity Status as of September 15th 2015:

In general, all households that participate will be categorized and grouped based on similar characteristics. Staff decided to first offer participation to all single family residents. Depending on participation rates, staff may continue to target specific neighborhoods for intensive recruitment efforts. GIS analysis has been completed identifying some of the characteristics that could be used to determine target neighborhoods. Kickoff open house is planned for early December.

Activity Status as of March 15th 2016:

Three evening sessions for volunteers to pick up devices and learn more about the program were held and all devices were distributed to participants. GIS staff is categorizing participants based on geographical features to create sub-groups within the participants.

Activity Status as of September 15th 2016:

All participants have been recruited and public meetings have concluded. Participants can log into their personal portal and view their water use data back to 2012. All work for this activity is completed.

Activity Status as of March 15th 2017:

Residents continue to sign up for individualized WaterSmart portals. On these portals they can monitor their household water use and receive tips about further increasing their conservation. Personalized Water Reports are being mailed out at a rate of 3-4 a year, as well as emailed group messages sent more frequently in order to keep residents thinking about their water use.

Activity Status as of September 15th 2017:

Residents continue to visit, update, and review their individual account portals in order to get more accurate comparison data on their Water Reports. With 1,008 single family resident accounts now set up in the system, approximately 21% of eligible water accounts in Shoreview are updating their WaterSmart portal. Water Reports and group messages are still being sent out at a rate of 4-5 a year.

Activity Status as of March 15th 2018:

Over the past six months Shoreview’s WaterSmart program has mailed out two Water Reports to participating residents. These reports featured messaging relevant to the season they were mailed. For example, the October report noted that residents should winterize their irrigation systems and other outdoor faucets. That report also highlighted the fact that outdoor plants need less water in the fall. This message was selected in order to encourage outdoor water conservation after irrigation season. A targeted winter message informs residents that their annual sewer charge is based off of winter water usage. This encourages water conservation in the fourth

quarter of the year. A group message was also sent out via WaterSmart that directed resident's attention to the City's updated Surface Water Management Plan (SWMP) draft and informed them of the date and time of the open house event being held for that Plan. At the time, the City was collecting resident comments on the Plan. Attendance at the 2017 SWMP open house was 6 to 7 times higher than previous open houses for similar Plan updates, and City staff attributes that to the WaterSmart group message outreach on the event.

Final Report Summary: When the grant was first received in 2015, Shoreview's project was focused on identifying and locating pilot study areas and promoting participation in the Know-Your-Flow program. In order to accomplish this, GIS analysis was run to identify areas in the city where higher water users were likely to live. Soil type, lot size, and property value were some of the metrics taken into account during this analysis. Neighborhoods that met criteria were targeted for outreach. Additionally, three evening open house events were held about the program in an attempt to increase awareness and help get people familiar with their in-home Badger meter reader devices. Once 400 people had volunteered and been set up in the Know-Your-Flow program, outreach events concluded.

After the City decided to change directions and add another water conservation program to the overall project, outreach began again. The City began communicating to residents about WaterSmart in spring of 2016. The goal of this outreach was to get residents to register with WaterSmart so they had access to their personalized online portal. (Even those single family accounts who elected not to register for the online portal received mailed water reports.) From there, residents could edit any data that was incorrect and otherwise tailor their profile so as to get the most accurate water use comparison possible on their mailed water reports. Currently, 25% of eligible water accounts in Shoreview have registered with their online portal. This equates to nearly 1,100 residential water accounts. In addition to mailed water reports, city staff sends out periodic email reminder messages about the WaterSmart program. These emails occur at a rate of approximately 10 a year and encourage residents to check their portal for updated water use information. The messages can also include seasonal information on water use such as winterizing irrigation systems. Because the City has nearly 3,000 email addresses for residents, these email messages also encourage those that haven't yet registered with WaterSmart to register. For example, the last emailed message was sent out in mid-June. After that email, portal registrations increased by 193 accounts.

The City plans to continue sending periodic emailed messages to eligible residents in an attempt to increase registration in the WaterSmart program. Once the efficiency study is complete and the control group can be dissolved, city-wide communications can also be done on the website and on all social media accounts. Staff hopes this will help to increase participation further. Increasing the amount of residents who participate in the WaterSmart program is important because it strengthens the program overall. Because WaterSmart is continuously collecting and analyzing data on Shoreview resident water usage, having more registered participants will yield a higher sample size and therefore more reliable data.

ACTIVITY 2: Create methods to conduct additional readings and make data available

Description:

Prepare the back end of the program with changes to our utility billing system and purchase the Badger water meters (\$50,000) to have available to promote at the kick off meeting.

Seek outside assistance to website programming and the online component of the program in coordination with relevant city staff to create the program attributes. Outside assistance will be provided by an outsourced vendor with established software designed to provide water utility reports and educate customers (program participants) of most effective water conservation methods tailored specifically to their usage and their property data. The coding would include compiling a template to display past water use, comparables to other neighbors, and/or a citywide average for household water consumption. This would be in graphical form and available in an online, email, or hard copy format to the resident. The online component would be interactive and allow

residents to engage with their usage by exploring their water usage and the best conservation practices for their home. Each participant will have a Badger water meter in their household, but the overall tracking of consumption will be analyzed by the City in Activity 3 below.

Summary Budget Information for Activity 2:

ENRTF Budget: \$ 54,000
Amount Spent: \$ 54,000
Balance: \$ 0

Outcome	Completion Date
1. Create method to host additional information (standard template to compare household use to past data and other households) on City utility billing website	Sept 1, 2015
2. Purchase 400 Badger Orion CE In Home Display meter readers (\$125 each)	Sept 1, 2015

Activity Status as of September 15th 2015:

400 Badger water meters were ordered and are being shipped to the City. The invoice has not arrived yet.

Activity Status as of March 15th 2016:

City paid invoice for badger water meter reading devices. City staff are considering options for the ‘water usage reports’ for participants. Outside technical services are being considered.

Activity Status as of September 15th 2016:

The City has hired WaterSmart Software to create the water report and host the data and web portals. The City has worked with WaterSmart Software to load utility data from 2012 and set up individual portals for participants to access their data and compare their use to similar households with similar yard size.

Activity Status as of March 15th 2017:

Shoreview’s WaterSmart Software has been launched and the number of individual resident accounts is nearing 900. City staff has been working with WaterSmart to develop regionally specific and relevant water conservation techniques and messaging to be included with the 3 to 4 Water Reports mailed annually. City staff has also developed content for the emailed group messages that are dispersed to residents who have provided their email addresses via their WaterSmart portal. Many residents have been curious about the program and are asking questions and personalizing their portal with updated information, for example: concerning number of occupants in a home, and/or yard size.

Activity Status as of September 15th 2017:

Shoreview residents continue to sign up for individual account portals and update them to more accurately reflect their water usage as compared to similar households. The city currently has 1,008 single family accounts that have logged in and updated their portal information, representing an increase of approximately 150 accounts over the last 6 months. City staff has been working with WaterSmart team members to develop Minnesota-specific water conservation messaging to be included in the mailed Water Reports, emailed group messages, and on individual portals. Two Water Reports and two group messages have been sent out since March 2016.

Activity Status as of March 15th 2018:

The City continues to develop and assist in selecting correct targeted messages to include on each Water Report. Messages are selected to be relevant for both the time of year and also the individual resident. For example, WaterSmart has an algorithm that, based on water use patterns and available public data, determines the properties most likely using in-ground irrigation systems. Those residents receive Water Reports with messaging on ways to irrigate smarter or install soil moisture sensors in order to conserve. Residents in multi-unit complexes do not receive Water Reports, but their portals are tailored the same way single family resident portals are, and that allows them to see information on water conservation most relevant to their situation. In

addition to sending out Water Reports, staff also composes and sends periodic emailed group messages to all residents who have provided email addresses. The City currently has nearly 3,000 resident email addresses.

Final Report Summary:

Originally, the City was planning to develop an online portal where residents could monitor their water usage through the work of city staff. After encountering WaterSmart Software and their online portal services, Shoreview decided to alter the project minimally and enter into a contract with WaterSmart as opposed to building the software in-house. The goal of the online component was to allow residents to view their water usage on a more regular basis. Because of this, the City began reading water meters monthly as opposed to quarterly at the start of this project. Meters read more frequently, paired with WaterSmart's online portal allows residents to stay on top of their water usage and make behavioral changes quickly if their use is higher than expected.

Once the online portal had been created and implemented, the City needed to do outreach in order to increase participation and registration rates. Outreach was done through mailed welcome letters and surveys, mailed water reports, and emailed group messages. An article on the program also appeared in two ShoreViews citywide newsletters and a press release was issued. All forms of outreach encouraged recipients to register their account with WaterSmart's online portal so they could see more up-to date water usage and receive tips on conservation, if desired. The 400 Know-Your-Flow volunteer participants were enrolled first and then registration was opened up to all single family residences in Shoreview, with the exception of the randomly selected control group.

At the completion of the grant period, 25% of eligible water accounts in Shoreview had registered for portal usage as a way to view their usage data. All eligible single family water accounts have been receiving mailed water reports, but not all have registered for the online portal. Approximately 1,100 accounts currently use the WaterSmart online portal to receive information on their water usage. Additionally, the City has nearly 3,000 email addresses for residents and can use WaterSmart to send out periodic email messages encouraging enrollment to those that have yet to do so. Increasing portal registration is important because it allows residents to be more aware of their water usage on a more frequent basis. The portal also offers many tips and ideas for conservation specific to the Minnesota geographic area. Shoreview hopes that access to this information will lead to an increase in conservation behaviors among its residents. Based on current efficiency study results, that appears to be the case, as 4.1 million gallons of water have been conserved between June 2016 and June 2018. These results are attributed to access to WaterSmart materials as part of the project's efficiency study. Staff plans to continue with outreach on the program in an attempt to increase portal participation higher than 25%. Upon the completion of the efficiency study and dissolution of the control group, broader outreach will be done.

ACTIVITY 3: Conduct bi-weekly water use readings and set up Badger readers in 400 households and then analyze data.

Description: The 400 participants will receive a Badger water meter with programming to be completed by utility crew members. The same staff will conduct bi-weekly meter readings for the entire study area which participants will receive via email, mail, or online.

Staff will tabulate results every 6 months to track trends and compare overall water use to past data and see if there are differences in lot sizes or soil types. After two years of data collection we will evaluate participation, estimate groundwater resources conserved, and publish findings.

Staff will develop a survey for participants to self-report on impacts of the additional information on their household water habits.

Data collected from WaterSmart Software will be compiled into a report that will explain most popular conservation methods and participants rate of interaction with the software. The software will be able to estimate the amount of water conserved from the participants engaging with the conservation tips, which will also provide a quantifiable data point in answering what impact providing more information to water users has on their conservation methods. The summary of these findings will be included in the final report.

Summary Budget Information for Activity 3:

ENRTF Budget: \$ 0
Amount Spent: \$ 0
Balance: \$ 0

Outcome	Completion Date
1. Utility crew member program Badger reader with resident and obtain water use bi-weekly by driving by to collect wireless water meter readings	Bi-weekly 2016-2017
2. Utility Accountant to publish readings using template	Bi-weekly 2016-2017
4. Conduct survey of participants and tabulate perceived impacts of project. Return meters to City for future participants. Compare overall use, and gallons conserved, normalize for weather.	Jan-March 2018
5. Report findings in City newsletter, press release, online	Summer 2018

Activity Status as of September 15th 2015: No Action

Activity Status as of March 15th 2016:

Two readings have been collected in bi-weekly intervals to date. Staff is developing method to distribute this information to residents. Regular updates and reports are being distributed to participants primarily through email, but also through regular mail for residents without email communication.

Activity Status as of September 15th 2016

City Staff have begun to read the meters monthly and have uploaded all readings into WaterSmart portal for participants to access. Utility staff send meter reading data to WaterSmart monthly and the portal is updated monthly. A control group was set up at random to establish statistical significance. Participants completed a Pre-Launch survey evaluating their satisfaction with city utility service and the software will calculate changes over time. The Pre-Launch survey included the following survey questions: Satisfaction with services provided by utility, Utility makes it easy to understand water use, Utility makes it easy to save money on bill, Utility makes it easy to take steps to use water efficiently, Utility makes it easy to communicate with them.

Activity Status as of March 15th 2017:

Water meters are still read monthly and data is incorporated into Shoreview’s WaterSmart software. Two Water Reports have been mailed to participants since the website’s launch. The third Water Report will be sent in April. After the third Water Report is mailed, WaterSmart and the City will send out another customer survey to assess how well WaterSmart is working for Shoreview residents. City staff is currently working on drafting questions for that survey to help acquire useful information on water conservation perceptions within Shoreview as well as perceptions of WaterSmart Software and its uses. Once surveys have been sent out and responses are received, WaterSmart and the City will work to analyze the data and determine if any alterations to the program or water management would be helpful.

Activity Status as of September 15th 2017:

A total of four Water Reports have been mailed to residents so far as part of the program. Approximately 4,500 reports are sent in each batch. Additionally, a number of group messages have been sent over the WaterSmart email system. The Water Reports communicate to residents how much water they’ve used, in gallons per day, over a certain period of time (usually about a month). The reports also provide a comparison for that account’s

specific use as compared to similar households in Shoreview. A “Top 20%” comparison is also provided, showing how the individual account compares to top water savers. The Water Reports also contain personalized and localized suggestions for conserving more water.

Group messages have been sent out on a variety of water topics including the water treatment plant, water testing, rain barrel sales, watering restriction updates, irrigation tune ups recommendations, and others. After the third Water Report was mailed out, WaterSmart and City staff developed and conducted a post-program launch customer satisfaction survey to measure resident’s response to WaterSmart and Shoreview’s water services. The survey was sent to approximately 1,100 accounts and over 450 responses were received (42% response rate). Based on this survey, 88% of residents were satisfied or very satisfied with the value of water services in Shoreview, and 91% felt that the City helped them better understand their water use. These percentages increased from 79% and 78%, respectively, since the pre-program launch survey, showing that residents find value Shoreview’s WaterSmart program.

Activity Status as of March 15th 2018:

The WaterSmart program now has enough resident data to determine a water savings amount for Shoreview attributed to their portal. The company calls this their efficiency study. Currently, WaterSmart attributes a 1% reduction in water use across Shoreview residents to their program. That percentage equates to over 3.2 million gallons saved since program launch in mid-2016. These numbers are based on WaterSmart’s proprietary algorithms that allow the company to determine how much customers are using the portal, conserving water, and engaging in conservation technology upgrades. As the program progresses, the efficiency study will become more robust and hopefully Shoreview residents will continue to increase their amount of water saved.

Final Report Summary:

Originally, the project planned to have a 400 household sample size of Know-Your-Flow participants whose meters were read every two weeks as opposed to quarterly. In an attempt to both simplify the project and to allow for higher levels of resident participation, the City decided to read all its water meters monthly and to enlist the help of WaterSmart Software as a way to disseminate the more frequent read information to residents. Because of this, Utility crews did not continue reading the Know-Your-Flow participant meters every other week over the course of the project. This city-wide change allows all Shoreview water account holders to have monthly reads and assists the City with its leak card program.

Along with the implementation of WaterSmart and monthly meter reads, pre- and post-launch surveys were administered to residents. Both surveys asked questions on the satisfaction and understanding levels of residents surrounding their water utility. The pre-launch survey was administered at the start of the program and the post-launch survey was administered after WaterSmart services had been available to residents for a year. Survey results show an increase in both satisfaction and understanding among respondents. These changes can be attributed to WaterSmart access as that was the only change made in the City’s water utility in that year’s time. In addition to the satisfaction level surveys, WaterSmart also completed an efficiency study that took a random sample of single family residences and placed them in a control group. This group did not receive access to WaterSmart mailed water reports or the online portal. Water usage for accounts in this group was compared to water usage for accounts that did have access to the WaterSmart portal and who were receiving water reports. The results of that study found that the City saved 4.1 million gallons of treated water to date, attributed to WaterSmart access or a more frequent exposure to their water usage, along with tools and tips for conservation.

Part of the features offered on WaterSmart’s online portal includes “quick links” to pages with more information on water conservation ideas. For example, one quick link leads to an instructional video for how to properly install a faucet aerator. As part of this project, WaterSmart gathered data on the most popular conservation techniques used by Shoreview residents between summer 2016 and summer 2018. Based on their data, the

most used quick links over that time period were residents looking for information on how to check if they have a leak, how to read their water meter, how to sign up for unusual use alerts, and how to learn where on the property they use the most water. These findings echo what staff experienced while taking phone calls from water report recipients over the course of the program: people generally think they're using less water than they are, but they are concerned about that and would like to use less. The fact that the most popular quick links used generally revolved around leaks, reading meters, and learning where the most water is used for an account shows that Shoreview residents are attempting to find the cause of their water usage through various means; and that they may find that usage to be higher than expected.

This level of involvement is encouraging because it highlights the fact that residents appear to be willing to put forth extra effort in order to better understand their water usage. If they are willing to exhibit effort in that instance, it is likely that people may also be willing to change their behavior in order to use less water. The level of interaction residents have with WaterSmart software is also encouraging. In the past 90 days (between mid-May and mid-August 2018), approximately 600 residents visited their WaterSmart portal. Thirty six percent of those visits, the highest percentage, were from first-time visitors to the portal. This means that they were newly registered residents logging in for the first time. Twenty six percent of those visits, the second highest percentage, were by residents logging in to WaterSmart for the 5th or more time. These statistics show that there are still new residents registering for the portal, and also that those that are already registered continue to log back in to edit their profile, get conservation tips, or simply monitor their water usage on a fairly regular basis. The fact that the WaterSmart part of Shoreview's water conservation program caught on so well has broad implications for water utilities across the metro. The efficiency study showed that access to WaterSmart, and through it more frequent information on water use, led Shoreview to conserve 4.1 million gallons of potable water over a 2 year period. That, combined with the fact that portal user numbers continue to climb while those that area already registered continue to return to the platform for more information, means that the program is both successful at conservation and also has longevity. This information could encourage other water utility managers interested in conservation to adopt a platform similar to WaterSmart for their users.

V. DISSEMINATION:

Description: A final report of all data, survey responses, and conservation outcomes will be distributed to the City Council, published in a City newsletter, and be shared with local newspapers. Information about the project, as well as conclusions will be posted on the City's website at www.shoreviewmn.gov.

Status as of September 15th 2015:

City has created informational project webpage: <http://www.shoreviewmn.gov/services/shoreview-water-conservation-program>

Status as of March 15th 2016:

Regular staff updates on the project have been provided in the monthly City Council reports regarding progress of volunteer recruitment and project development.

Status as of September 15th 2016:

The City has done press releases announcing the partnership with WaterSmart and encouraging residents to participate. City Council voted to expand the original "Know Your Flow" group city-wide, so every resident can log into their portal. The control group does not receive any material from the program, however if they hear about it and want to participate city staff can open their portal so they can log in and see their data.

<http://shoreviewmn.gov/Home/Components/News/News/308/17>

<http://www.watersmart.com/press-release/city-shoreview-partners-watersmart-launch-water-analytics-engagement-program/>

<http://www.lillienews.com/articles/2016/06/22/new-access-data-could-help-shoreview-conserve-more-water>

Status as of March 15th 2017:

Project manager Mark Maloney has been giving presentations on Shoreview's water conservation programs, focusing on the Know Your Flow and WaterSmart initiatives, across the state since the projects launched. These presentations were for audiences such as the Minnesota Department of Natural Resources, the Legislative Water Commission for the state, and the Metropolitan Council Metro Area Water Supply Advisory Committee, as well as other local groups and Shoreview residents. The WaterSmart Software company has also been in the area marketing and promoting their work. Additionally, the mailed Water Reports and group messages help increase participation in the Shoreview program, with several new users signing up for portal access every time a new correspondence is sent out by City staff.

Status as of September 15th 2017:

Results of the post-program launch survey have been presented to the Mayor and City Council, as well as to the Metropolitan Council Metro Area Water Supply Advisory Committee, at a public meeting, over the last 6 months. Outreach for the program also continues at City Hall and through the City's Environmental Quality Citizen Committee, as well as through the continued mailing and emailing of Water Reports and group messages to residents.

Status as of March 15th 2018:

City staff continues to keep the Mayor and City Council informed on the progress of the WaterSmart program. Additionally, in late 2017 several other metro municipalities came to Shoreview to learn about the program and hear thoughts on the pros and cons of the WaterSmart. The cities of Apple Valley, St Louis Park, and Roseville sent delegates to Shoreview for a meeting where the program was discussed. Shoreview shared our success with the efficiency study as well as the positive results of our resident survey highlighting the fact that residents see the WaterSmart program as a service. As the program wraps up, the City will compose the final report and disseminate relevant findings and information via our newsletter, website, social media, and City Council meetings.

Final Report Summary:

Outreach on Shoreview's water conservation programs funded through this grant included press releases at the start of the project announcing both the Know-Your-Flow program and then the WaterSmart program. It should be noted that the exception to all dissemination activities in this section is the WaterSmart control group. They did not receive any mailings or other outreach described separate from press releases and city-wide newsletter articles. To start the programs, each eligible residence was mailed a welcome letter and instructional materials. The Know-Your-Flow group also received a Badger meter reader device. No other outreach was done for the Know-Your-Flow program as the City changed directions and began focusing on WaterSmart because the program could be offered to more residents. For the WaterSmart program, eligible participants were sent a pre-launch survey along with their welcome letter. A sample of this survey is included in the supplemental materials for this report. The survey asked residents about their thoughts on Shoreview's water utility as well as their level of satisfaction and understanding. A summary of the pre-launch survey results is also included in the supplemental materials. As the program progressed, all single family residences in Shoreview who were not part of the control group received periodic individualized water reports at a rate of approximately 4 per year. These residents also had access to their online water conservation portal, specific to their residence. Examples showing the interface for the portal on both mobile and desktop devices are included in the supplemental materials. In addition to individual outreach, the City also published articles about the program in two editions of the ShoreViews community newsletter, mailed to all residents. City-wide outreach was limited due to the presence of the control group that excluded some from the program.

After a year's worth of portal access and water reports, all eligible residences were sent another, this time post-launch, survey. That survey and a presentation of the results are included in the supplemental materials for this report. Based on the surveys, residents in Shoreview had overwhelmingly positive things to say about their levels of satisfaction with their water utility, and they felt as though they understood their water use. In the second survey, a comparison was done between the pre-launch and post-launch survey results. Changes in

results between the two surveys were attributed to WaterSmart access because the program was the only change made between the first and second surveys. Post-launch survey results showed that 88% of residents were satisfied or very satisfied with the value of water services in Shoreview, and 91% felt that the City helped them better understand their water use. These percentages had increased from 79% and 78% respectively since the pre-launch survey, highlighting the value of Shoreview’s WaterSmart program for residents.

City staff has given several presentations to other municipalities and natural resource management groups in Minnesota about the WaterSmart program and preliminary results from the efficiency study. Based on these meetings, several other groups have expressed interest in WaterSmart and similar programs. The City has not yet shared the results of the project efficiency study with residents because the control group is still in effect and not all residents can opt-in to the program. Staff currently plans to continue the study through summer of 2019 and then start broader outreach on the value of WaterSmart and increasing knowledge and accountability in residential water use. The City is also currently considering making the online portal available to irrigation and commercial accounts as well as residential. Shoreview finds great value in all water conservation programs implemented through this grant, and has quantified over 4 million gallons saved to date. Staff plans to continue with WaterSmart portal and water report access through summer 2019 for those that are currently eligible. After the study is complete, Shoreview hopes to allow portal access to all residents so that outreach on the program can be more uniform.

VI. PROJECT BUDGET SUMMARY:

A. ENRTF Budget Overview:

Budget Category	\$ Amount	Overview Explanation
Personnel:	\$	
Professional/Technical/Service Contracts:	\$ 17,000	Utility billing website programming, coding, updates
Equipment/Tools/Supplies:	\$ 36,000	Purchase of 400 Badger water meter readers
Printing/Other:	\$ 1,000	Printing and postage for ~500 invitations, bi-weekly updates, surveys at end of project
TOTAL ENRTF BUDGET:	\$ 54,000	

Explanation of Use of Classified Staff: N/A

Explanation of Capital Expenditures Greater Than \$5,000: N/A

Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation: N/A

Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation: N/A

B. Other Funds: All support provided by existing City staff members as in kind support, funding secured.

VII. PROJECT STRATEGY:

A. Project Partners: All project team members are current full time City staff receiving salary and benefits, which is considered in kind funding to this project, other than the website programmer detailed below.

Mark Maloney, Project Manager will coordinate all activities relating to managing the project.

Ellen Brenna, Natural Resources Coordinator will coordinate all day to day activities relating to the project, resident outreach, and reporting. She will be the main contact for WaterSmart.

Terese Roesler, Utility Accounting will tabulate past data and household comparisons for the study area.

Our Utility crew will be responsible for the additional meter reads as well as programming the Badger water readers for residents with an appointment.

WaterSmart Software will provide software for residents to log on and interact with their water use that is user-friendly. This new programming will have the ability to send out automated monthly updates with minimal staff time.

B. Project Impact and Long-term Strategy:

The City of Shoreview has encouraged and incentivized water conservation for decades. The City implemented a tiered water conservation rate structure before the MN DNR required them, has an odd/even sprinkling ban, and promotes additional conservation measures in multiple ways to both residents and businesses.

Additional background on our water system and conservation efforts include: The City’s water system includes 100 miles of water main pipe, 6 wells, and 1,200 hydrants. There is a million gallon underground storage reservoir which holds water that is pumped to the two water towers and into the system. During the winter months, one well produces about 1.5 million gallons of water per day. During peak demand periods, mainly summer months, it may be necessary to run all six wells to meet water requirements. When necessary, the wells can produce up to 11 million gallons a day. The water is chlorinated and fluoridated to meet Minnesota Department of Health standards. The water utility is not funded through taxes. Operating costs are covered by billing for metered water use. All of Shoreview’s water comes from an aquifer, not surface water. Our wells have sensors that detect drops, and none have been reported to date.

Other Steps the City has taken towards water conservation:

- * Odd/even watering ban helps to level out high peak days, which reduces need for additional wells and storage infrastructure to be built
- * In 2013 transitioned from a 3 tier to a 4 tier conservation rate structure for water billing. Users using the most water will pay a higher rate as follows:

<p>Tier 1: The first 5 thousand gallons per unit is billed at \$1.08 per thousand gallons (about 9.3 gallons for each penny).</p> <p>Tier 2: The second 5 thousand gallons per unit is billed at \$1.74 per thousand gallons (about 5.7 gallons for each penny).</p> <p>Tier 3: The next 20 thousand gallons per unit is billed \$2.41 per thousand gallons (about 4.1 gallons for each penny).</p> <p>Tier 4: Remaining water is billed at the highest rate of \$3.96 per thousand gallons (about 2.5 gallons for a penny).</p>
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Compared to bottled water, tap water is remarkably inexpensive. For instance, a gallon of self-serve spring water costs about 30-cents while 30-cents buys 279 gallons of Shoreview tap water at the lowest tier, and buys 75 gallons at the highest tier.

- * Variable frequency drive wells – dials up the well pump slowly and saves energy
- * Meter install program – accounting for all but about 8% of water (2009)
- * Leak postcards – sent to properties with a detected leak so it can be remedied
- * Water emergency conservation plan in place
- * 2017 ordinance prohibiting the drilling of new private wells
- * 2017 ordinance initiating a mid-day watering ban between the hours of 11am and 5pm
- * 2017 ordinance that makes all watering restrictions apply to all residents regardless of water source
- * Wellhead protection plan – involves planning to manage land use within our aquifer’s drainage area

- * The Maintenance Center captures rainwater from the roof and is used to wash the City's trucks in our LEED Gold Maintenance Center
- * Participates in both the Regional Indicators Initiative and the Minnesota GreenStep Cities programs to track and analyze water use and identify additional conservation opportunities
- * Ongoing education efforts by the City's Environmental Quality Committee (ShoreViews newsletters, tips, Speaker Series presentations, Green Community Awards program, etc.)

Given these efforts we believe the time gap from our current quarterly water billing schedule doesn't provide an adequate picture of gallons of water consumed to the average resident. The proposal allows for a bi-weekly update and in home access to household water consumption for one year, which may alter behaviors and show support for conservation. Again we feel that this project will take our efforts above and beyond our current operations and educational programs.

If water use is decreased due to a greater awareness, the City may make the data available in real time to others in the future. There is also a possibility that other entities using groundwater may offer similar data to their users to further encourage awareness and conservation.

C. Funding History: N/A

VIII. FEE TITLE ACQUISITION/CONSERVATION EASEMENT/RESTORATION REQUIREMENTS:

A. Parcel List: N/A

B. Acquisition/Restoration Information: N/A

IX. VISUAL COMPONENT or MAP(S): See attached table

X. RESEARCH ADDENDUM: N/A

XI. REPORTING REQUIREMENTS:

Periodic work plan status update reports will be submitted no later than September 15th and March 15th of each year of the three year project.

Specific dates include:

- September 15th, 2015
- March 15th 2016
- September 15th 2016
- March 15th 2017
- September 15th 2017
- March 15th 2018

A final report and associated products will be submitted between June 30 and August 17, 2018.

Final Attachment A (Budget Sheet): Budget Detail for M.L. 2015 Environment and Natural Resources Trust Fund Projects
Environment and Natural Resources Trust Fund
M.L. 2015 Project Budget



Project Title: Shoreview Water Consumption and Groundwater Awareness Project
Legal Citation: M.L. 2015, Chp. 76, Sec. 2, Subd. 04i
Project Manager: Mark Maloney
Organization: City of Shoreview
M.L. 2015 ENRTF Appropriation: \$ 54,000
Project Length and Completion Date: 3 years, Aug 2018
Date of Report: 8-17-18

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Activity 1 Budget	Amount Spent	Activity 1 Balance	Activity 2 Budget	Amount Spent	Activity 2 Balance	Activity 3 Budget	Amount Spent	Activity 3 Balance	TOTAL BUDGET	TOTAL BALANCE	
BUDGET ITEM	Identify and locate pilot study areas and promote participation in the project.			Create methods to conduct additional readings and make data available		Create methods to conduct additional readings and make data available		Conduct bi-weekly water use readings and set up Badger readers in 400 households and analyze data.				
Personnel (Wages and Benefits)												
Existing city staff (all in kind contributions)												
Professional/Technical/Service Contracts												
Website programmer- WaterSmart Software				\$17,000	\$17,000	\$0				\$17,000	\$0	
Equipment/Tools/Supplies												
Purchase 400 individual Badger Water Meters for residential use (each is \$125)				\$36,000	\$36,000	\$0				\$36,000	\$0	
Printing/Other												
Publication and printing off invitation packets, postage for invitation packets, monthly summaries, and the publication and posting for mailed surveys at end of project				\$1,000	\$1,000	\$0				\$1,000	\$0	
COLUMN TOTAL	\$0	\$0	\$0	\$54,000	\$54,000	\$0	\$0	\$0	\$0	\$54,000	\$0	