MEMORANDUM
To: Ben Wade, Colorado Water Conservation Board

From: Lyle Whitney, Water Conservation Supervisor, Aurora Water

Date: April 8th, 2011

Subject: 75% Progress report for Aurora Water's Water Use Inefficiency Mapping and Identification Integrated with the System Incentive Program (SIP) Project

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The City of Aurora Water Department with the assistance of AMEC Earth and Environmental is developing a Citywide Water Use Inefficiency and Identification Map integrated with a System Incentive Program per the March 2011 grant application to the Water Conservation Board (CWCB). The final goal of project is to create a map of the entire city, grading each tax parcel based on their water use in categories ranging from very high use to very low use. The data generated from the mapping portion of this project will be incorporated into a spatial database linking land cover information to tax parcel, and water bill information. Aurora Water and AMEC Earth and Environmental are currently 75% complete with the specified tasks and activities to be funded by the Grant.

Database Development and Geoprocessing
The timeline presented in the 50% completion report is a few months behind due to manual corrections of the spatial database that links tax parcel information to land cover analysis and water bill consumption history. The bulk of land cover corrections have been made in new development areas where the 2010 imagery wasn't representative of customer's 2012 use. Tax parcels have also been classified by parcel size (small, standard, large, or estate) based on City of Aurora Planning definitions. This change allows Aurora Water Conservation to explain usage by comparing a customer's water use to similar neighbors and to an efficient amount.

Project Implementation
In addition, to finishing the Database Development, Aurora Water Conservation has been working on targeting and contacting the top inefficient users. This will allow Aurora Water Conservation to change our rebate program from a reactive program to a targeted rebate program based on replacing items with the highest return on investment. The return on investment will be the basis of the System Incentive Program (SIP). We are working with the most inefficient over users to help make necessary changes through auditing each customer's system and helping them complete the conservation calculator. The table below shows a return on investment list for a customer who has completed the Calculator and selected changes they wanted to make. SIP customers must have a return on investment of less than 4 years to take advantage additional rebate funds.

Initial Analysis
Aurora Water Conservation has contacted over 150 customers so far. A month after contacting the first customer, over 100 profiles have been created on the Calculator. A few SIP customers have completely finished the Calculator on their own, but most have requested indoor or outdoor audits to assist them. Staff are entering the customers audit results into the calculator and sending the customer a tailored ROI list. The initial indoor audits have resulted in customers receiving aerators and showerheads. Outdoor audits are being scheduled, but will not start until the end of May. The general response to the program is positive.

ProfileID	Item	Cost	Rebate	Water Usage Old	Water Usage New	Water Savings Per Year	Cost Savings	Tier1 Water Rate	ROI without Rebate
129	Primary Shower	30	0	10512	7884	2628	22.338	0.0085	1.343
129	Secondary Shower	30	0	10512	7884	2628	22.338	0.0085	1.343
129	Third Shower	30	0	5256	3942	1314	11.169	0.0085	2.686
129	Primary Bathroom Sink	5	0	6386.04	4257.36	2128.68	18.0938	0.0085	0.2763
129	Secondary Bathroom Sink	5	0	6386.04	4257.36	2128.68	18.0938	0.0085	0.2763
129	Third Bathroom Sink	5	0	6386.04	4257.36	2128.68	18.0938	0.0085	0.2763
129	Fourth Bathroom Sink	5	0	2128.68	1419.12	709.56	6.0313	0.0085	0.829
129	Kitchen Faucet	0	0	14191.2	14191.2	0	0	0.0085	0
129	Washing Machine	800	0	32448	8855.6	23592.4	200.5354	0.0085	3.9893
129	Dishwasher	680	0	6843.2	4888	1955.2	16.6192	0.0085	40.9165

Landcover Maintenance

With the help of AMEC, Aurora Water Conservation is setting up a database maintenance procedure. AMEC is building a program that allows the user to annually update water consumption by parcel. Additionally, we are able to manually add vegetation classifications to new development areas and reclassify areas that were limited by aerial imagery in 2010. With new imagery coming online this summer even greater strides in vegetation classification can be made. Finally, using the Water Budget Tool (developed by AMEC) Aurora Water Conservation can continuously update a parcels water efficiency status to use in a variety of different analysis.

Budget Summary

The modified budget as of June 2013

Task	AMEC ($)	AMEC Hours	Grant ($)	Aurora ($)	Aurora Water-Hours	Aurora Water In-Kind	Total Cost
Project Setup	$7,096	60	$5,401	$1,500	8	$296	$7,197
Land Cover Analysis	$70,627	793	$57,813	$13,000	13	$481	$71,294
Database Dev/Geoproc.	$35,802	384	$35,802	$2,750	79	$2,923	$41,475
Project Implementation	$0	0	$0	$0	620	$23,940	$23,940
Land Cover Maintenance	$9,969	133	$9,969	$0	0	$0	$9,969
Project Administration	$8,756	72	$8,756	$0	0	$0	$8,756
Reporting and Analysis	$0	0	$0	$0	120	$4,440	$4,440
TOTAL	**$132,250**	**1,442**	**$117,741**	**$17,250**	**840**	**$32,080**	**$167,071**

Cash	$17,250
In-Kind	$32,080
CWCB Grant Monies Requested	$117,741
TOTAL	**$167,071**

Money used to date

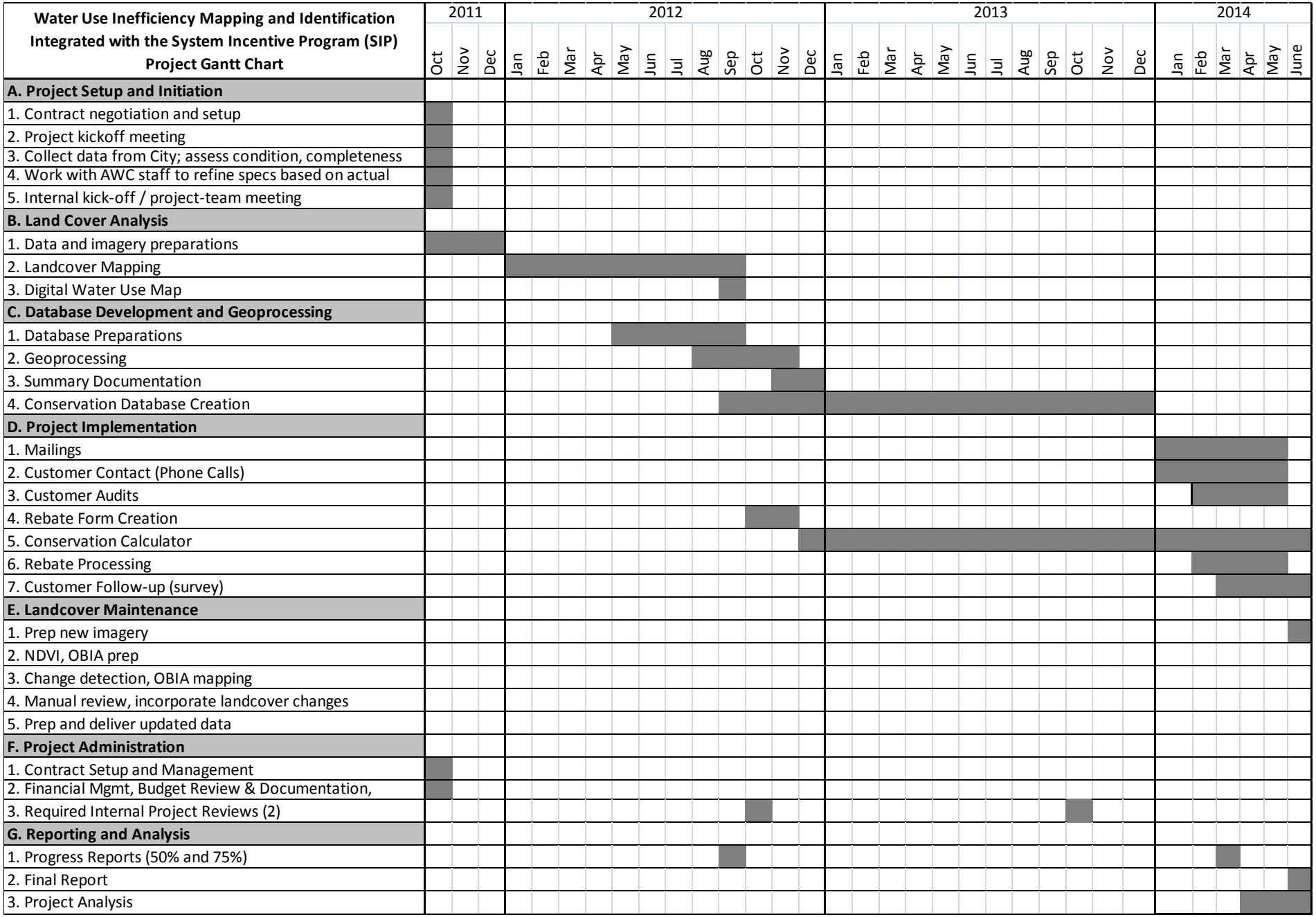
Task	AMEC ($)	AMEC Hours	Grant ($)	Aurora ($)	Aurora Water-Hours	Aurora Water In-Kind	Total Cost
Project Setup	$7,096	63	$4,991	$2,104	31.00	$1,147	$8,243
Land Cover Analysis	$69,105	956	$57,813	$11,292	148.5	$5,495	$74,600
Database Dev/Geoproc.	$44,026	513	$33,961	$10,065	83	$3,071	$47,097
Project Implementation	$0	0	$0	$0	165	$6,105	$6,105
Land Cover Maintenance	$0	0	$0	$0	0	$0	$0
Project Administration	$14,849	221	$8,875	$14,849	33	$1,221	$24,945
Reporting and Analysis	$0	0	$0	$0	10	$0	$0
TOTAL	**$135,076**	**1,753**	**$105,641**	**$38,309**	**471**	**$17,039**	**$160,989**

Cash	$40,176
In-Kind	$16,484
CWCB Grant Monies Used	$95,019
TOTAL	**$151,679**

Money remaining *($red) denotes amount over budget.

Task	AMEC ($)	AMEC Hours	Grant ($)	Aurora ($)	Aurora Water-Hours	Aurora Water In-Kind	Total ($) Left
Project Setup	0	3	410	604	23	851	**1,046**
Land Cover Analysis	1,522	163	0	1,708	136	5,014	**3,306**
Database Dev/Geoproc.	8,224	129	1,841	7,315	4	148	**5,622**
Project Implementation	0	0	0	0	455	17,835	**17,835**
Land Cover Maintenance	9,969	133	9,969	0	0	0	**9,969**
Project Administration	6,093	149	119	14,849	33	1,221	**16,189**
Reporting and Analysis	0	0	0	0	110	4,440	**4,440**
TOTAL	**2,826**	**311**	**12,100**	**21,059**	**370**	**15,042**	**6,082**

Cash Remaining	$21,059
In-Kind Remaining	$15,041
CWCB Grant Monies Remaining	$12,099


Water Use Inefficiency Mapping and Identification Integrated with the System Incentive Program (SIP) Project Gantt Chart
2011
2012
2013
2014
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May June
A. Project Setup and Initiation
1. Contract negotiation and setup
2. Project kickoff meeting
3. Collect data from City; assess condition, completeness
4. Work with AWC staff to refine specs based on actual
5. Internal kick-off / project-team meeting
B. Land Cover Analysis
1. Data and imagery preparations
2. Landcover Mapping
3. Digital Water Use Map
C. Database Development and Geoprocessing
1. Database Preparations
2. Geoprocessing
3. Summary Documentation
4. Conservation Database Creation
D. Project Implementation
1. Mailings
2. Customer Contact (Phone Calls)
3. Customer Audits
4. Rebate Form Creation
5. Conservation Calculator
6. Rebate Processing
7. Customer Follow-up (survey)
E. Landcover Maintenance
1. Prep new imagery
2. NDVI, OBIA prep
3. Change detection, OBIA mapping
4. Manual review, incorporate landcover changes
5. Prep and deliver updated data
F. Project Administration
1. Contract Setup and Management
2. Financial Mgmt, Budget Review & Documentation,
3. Required Internal Project Reviews (2)
G. Reporting and Analysis
1. Progress Reports (50% and 75%)
2. Final Report
3. Project Analysis