

AURORA STORMWATER MASTER PLAN:
TECHNICAL MEMORANDUM
HIGH LEVEL INDUSTRY SURVEY

MAY 2015

FOR:

City of Aurora
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Aurora, CO

BY:

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1. EXECUTIVE SUMMARY

1.1. Introduction

This portion of the Aurora Stormwater Master Plan (ASWMP) describes organizational issues and practices of stormwater programs within similar municipalities across the United States, including Fort Collins, CO; Raleigh, NC; and Arlington, TX, and compares the issues and practices of the selected municipal programs to those within the City of Aurora. This project task included: (a) developing selection criteria to determine comparable municipalities and their associated programs; (b) locating municipal programs that meet the criteria; (c) building a questionnaire to be completed by the selected municipal agencies; (d) contacting staff at the selected municipalities to complete the questionnaire; and (e) completing this technical memorandum, which reviews the results of the survey.

1.2. Summary of Findings

The industry survey is not intended to be a benchmarking study. Rather, the survey is intended to gather useful information about issues and practices of other strong stormwater programs that are similar to Aurora in order to gain insight into comparable organizations and practices from which Aurora may benefit. *A detailed discussion of the responses is included in Section 4 - Observations of Responses Relative to Aurora's Program.* A review of the responses (copied verbatim if listed by City) resulted in the following items for Aurora's consideration:

1.2.1 General Issues:

1.2.1.1 Green Infrastructure (GI) and Low Impact Development Plans (LID)

Two of the 3 respondent cities (Raleigh and Fort Collins) have completed a Green Infrastructure and/or Low Impact Development plan for their stormwater program. Aurora has not to date built a GI and/or LID plan, and such a plan would benefit the City because Aurora emphasizes environmental stewardship as a core value and because Aurora desires to be a leader in the stormwater field. While some of Aurora's more recent stormwater master plans include aspects of GI or LID planning, GI or LID planning is not included in all recent stormwater master plans. Additionally, older Aurora master plans should be reviewed and updated to include GI and LID planning. Finally, the city may want to consider a city-wide GI and/or LID plan.

1.2.1.2 Goals and Mission Statements

The goals and mission statements of the 3 respondent cities were, in some ways, more detailed and specific than those of Aurora. In fact, respondent goals and mission statements reflect Aurora's objectives for each Program Element. Aurora may want to consider this when they develop goals for the individual Program Elements. To understand the differences between the goals and mission statements of Aurora and of the respondent cities, *please refer to the comparison in Section 4 - Observations of Responses Relative to Aurora's Program.*

1.2.2 Organizational Issues

1.2.2.1 Top suggestions from the respondent cities for minimizing gaps and overlaps:

- a. Arlington - We implemented an RWD (Road-Water-Drainage) group that meets regularly to coordinate and schedule projects. Better cooperation saves money and minimizes disruptions to the public.
- b. Raleigh - Housing the stormwater maintenance crews with other maintenance crews has proven to be efficient, as equipment and knowledge can be easily shared. In the Stormwater Program proper, the most relevant work area to discuss here is the Development Review section. The City has a department of Development Services, which serves the same development review/inspection function for all other trade/site review and inspection services, other than stormwater and water/sewer - the latter two having their own personnel for this work. In Stormwater, our Development Review & Inspections group not only handles actual review and inspections, but also manages the post-construction BMP inspection program and FEMA Hazard Mitigation Grants.
- c. Fort Collins - Cross training. Clarity of responsibilities. Multi-function teams. Continuous coordination meetings. Sufficient funding and resource identification.

1.2.2.2 All three programs have a full-time overall administrative manager who is in charge of all stormwater Program Elements. This is a position that Aurora may want to consider due to the advantages of having a manager to coordinate all stormwater activities.

1.2.3 Program Element Issues

1.2.3.1 The Program Elements that Aurora does not have and two of the other three cities do have are floodplain administration and development review. Arlington had a specific comment on how advantageous it is to include Floodplain Management and Water Quality within stormwater Program Elements.

1.2.3.2 The survey asked respondents to identify which of the Program Elements have dedicated full-time managers. Arlington has 4 full-time managers, and Raleigh has 5 full-time managers. Fort Collins has dedicated program managers for all Program Elements, but it appears that program managers have other responsibilities outside management of their particular Program Element. Aurora may want to consider having more dedicated full-time managers in its stormwater program.

1.2.4 Funding Issues

1.2.4.1 All of the respondents indicated that they are active in reviewing funding levels versus needs (a cost of service analysis). Consequently, Aurora may want to consider completing such a review because the last review was the 2007 StepWise Rate Study, which did not include a cost of service analysis. *NOTE: Aurora is considering performing a rate study that includes a cost of service analysis and should proceed with this study.*

1.2.4.2 All of the cities have impervious area based rate structures. Aurora is investigating options for converting to an impervious area based rate

structure. An impervious area based rate structure would be an important step to a more equitable rate structure.

1.2.5 *General comments and lessons learned.*

1.2.5.1 Arlington - Too many Stormwater Utilities operate separate from the floodplain management staff, yet water quality and quantity have significant overlaps. In a time when resources are limited, integrating stormwater and floodplain management into a singular program is both efficient and cost effective. Flood programs can improve water quality and water quality programs can reduce flood risks.

2. Selection Criteria, Web Survey, and Questionnaire

2.1. Selection Criteria

Selection criteria were developed to enable consultants and City staff to obtain information that will be relevant and helpful to the development of Aurora’s Stormwater Program. To be comparable to Aurora, the surveyed cities were required to have a stormwater utility because (a) Aurora has one and (b) stormwater utilities are usually an indication that a city is committed and dedicated to a robust stormwater program. Cities were selected based on population that was similar to the City of Aurora because population is a strong indication of a similar sized stormwater program in complexity and scale. Cities with growing populations were preferred because of the special challenges such cities face (NOTE: Aurora’s population is growing). Because Aurora will use this survey and its results to obtain ideas for practices and organizational issues, selected cities were required to have high quality programs. For consistency with Aurora’s stormwater organizational structure, selected Cities were preferred to have a stormwater utility located within a larger utility group and/or a stormwater that coordinates with a public works group.

The criteria used to select a “long list” of cities is summarized below:

1. The city has a stormwater utility
2. The city’s population is between 250,000 and 500,000 (cities with less or more population were included if other criteria scored well)
3. The city has a high quality stormwater program
4. The city has a growing population
5. The stormwater group is located within a utility that has water, wastewater, and/or other utilities
6. The stormwater group shares responsibilities with the public works department (optional)
7. City has a semi-arid climate (desirable but not necessary)
8. Select one city that has a standalone stormwater utility (if possible)

2.2. Web Survey

A web survey identified 11 stormwater utilities in the United States that met varied criteria or were deemed desirable for inclusion based on other elements. Results of the web survey are included in Appendix A – Web Survey Spreadsheet. Of the 11 noted above, 7 cities were chosen

because they had programs that substantially met the criteria. The 7 final cities included the following:

(NOTE: the 3 cities that responded to the questionnaire are identified in **bold red text**)

1. **Arlington, Texas**
2. Fort Wayne, Indiana
3. Orlando, Florida
4. **Raleigh, North Carolina**
5. Salt Lake City, Utah
6. Stockton, California
7. **Fort Collins, Colorado**

2.3. Questionnaire

To garner information about the processes and issues faced by the selected cities, a questionnaire was developed, reviewed by City of Aurora staff, and placed on the Google Forms website for ease of use. *The questionnaire is included in Appendix C – Google Form Questionnaire.* Phone calls were made to the stormwater managers for the above 7 cities requesting their participation in the survey. All of the 7 city representatives responded to the phone calls, with the exception of Fort Wayne, Indiana and Orlando, Florida. The five (5) responsive cities were emailed a letter thanking them for their willingness to participate, explaining the survey, and providing the web address of the survey. *The letter that was sent to the five (5) cities is included in Appendix B – Letter Emailed to Staff at Cities.* NOTE: Survey questions and responses are copied verbatim.

3. Questions and Responses

3.1. General Questions

- 3.1.1 *Have you completed an organization review/gap analysis of your stormwater utility in the last 5 years?*
 - 3.1.1.1 No - Arlington
 - 3.1.1.2 No - Fort Collins
 - 3.1.1.3 Yes - Raleigh

- 3.1.2 *Do you have a city-wide stormwater infrastructure master plan?*
 - 3.1.2.1 No - Arlington
 - 3.1.2.2 Yes - Fort Collins
 - 3.1.2.3 No - Raleigh

- 3.1.3 *Have you completed a green infrastructure and/or low impact development plan for your stormwater program?*
 - 3.1.3.1 No - Arlington
 - 3.1.3.2 Yes - Fort Collins
 - 3.1.3.3 Yes - Raleigh

- 3.1.4 *What is the goal or mission statement for your stormwater program?*
 - 3.1.4.1 Arlington

The goal of the stormwater management program is to provide the City of Arlington the basis for establishing effective rules, regulations, and projects that will reduce the potential for stormwater damage to life, public health, safety, property, and the environment. Seven stormwater management goals have been developed by the City. The goals extend from protecting new and existing development from flooding to preventing the loss of water quality and habitat.

Arlington's Stormwater Management Goals:

1. Reduce the existing potential for stormwater damage to public health, safety, life, property, and the environment.
2. Control future increase in stormwater damage within the City of Arlington and in adjacent jurisdictions affected by City of Arlington drainage.
3. Protect and enhance the quality, quantity, and availability of surface and groundwater resources.
4. Preserve and enhance existing aquatic and riparian environments and encourage restoration of degraded areas.
5. Control sediment and erosion in and from drainageways, developments, and construction sites.
6. Establish comprehensive basin plans within each watershed that quantify, plan for, and manage stormwater flows within and among the jurisdictions in those watersheds.
7. Promote equitable, acceptable, and authorized measures for stormwater management.

3.1.4.2 Fort Collins

The City Council hereby finds, determines and declares the City's integrated stormwater management program is for the mutual economic, social and environmental benefits of public safety, flood mitigation, water quality and public welfare while protecting natural areas and their features, protecting and restoring the City's watersheds, its tributaries and the Cache la Poudre River.

3.1.4.3 Raleigh

The Stormwater Management Division's focus is to partner with the citizens of Raleigh to effectively manage flood control and environmental protection in our water bodies, ultimately the Neuse River by using proactive management techniques to plan, identify, maintain, monitor, design, inspect and construct drainage systems to alleviate structural flooding and preserve water quality. Protecting our waterways provides for the future well being of our environment.

3.2. Organizational Questions

3.2.1 *Is your stormwater utility program a standalone organization or is it within the utilities, public works, environmental or other group?*

3.2.1.1 Arlington - within public works

3.2.1.2 Fort Collins - within utilities

3.2.1.3 Raleigh - within public works

3.2.2 *If it is within another group, do managers have duties with programs other than stormwater?*

3.2.2.1 No - Arlington

3.2.2.2 Yes - Fort Collins

3.2.2.3 No - Raleigh

3.2.3 *What are the pros and cons for the way management responsibility is divided in your stormwater organization?*

3.2.3.1 Arlington

a. Pros - Ability to coordinate infrastructure concerns and installations with the other right of way users.

b. Cons - No dedicated resource create prioritization conflicts

3.2.3.2 Fort Collins

a. Pros - Ability to coordinate infrastructure concerns and installations with the other right of way users.

b. Cons - Not dedicated resource create prioritization conflicts

3.2.3.3 Raleigh

The Stormwater Program is a division of the City's Public Works Department (though we are independently funded via a stormwater utility). As Division Head/Program Manager, I report to the Director of Public Works, though in practice, I often times interact directly with the City Manager's Office on issues. The Stormwater Program has five functional areas ("Sections") with a total of 54 employees: Development Review & Inspections, Water Quality, Capital Infrastructure Projects, Drainage Complaints/Drainage Petition Program, and Business Services. Not included in the program directly are our stormwater maintenance crews - we fund them, but they are housed in the Streets Division (Transportation Field Services) of the Public Works Department. This structure allows for specialization of employees to manage a relatively narrow range of issues, and allows for more efficient delivery of services.

3.2.4 *If your program is within another group, what suggestions do you have for minimizing gaps and overlaps and for increasing efficiency? (please add additional pages if desired to info@calibre-engineering.com)*

3.2.4.1 Arlington

COOPERATION & COMMUNICATION. All Capital Improvement Projects are coordinated between stormwater, streets, water utilities, etc. The biggest issue is insuring that projects are coordinated. Doing a water & sewer upgrade and then 2 years later tearing up the streets again to up-size a storm sewer creates problems. We implemented an RWD (Road-Water-Drainage) group that meets regularly to coordinate and schedule projects. Better cooperation saves money and minimizes disruptions to the public.

3.2.4.2 Fort Collins

a. Cross training.

b. Clarity of responsibilities.

c. Multi-function teams.

d. Continuous coordination meetings.

e. Sufficient funding and resource identification.

3.2.4.3 Raleigh

Housing the stormwater maintenance crews with other maintenance crews has proven to be efficient, as equipment and knowledge can be easily shared. In the Stormwater Program proper, the most relevant work area to discuss here is the Development Review section. The City has a department of Development Services, which serves the same development review/inspection function for all other trade/site review and inspection services, other than stormwater and water/sewer - the latter two having their own personnel for this work. In Stormwater, our Development Review & Inspections group not only handles actual review and inspections, but also manages the post-construction BMP inspection program and FEMA Hazard Mitigation Grants.

3.2.5 *Does your stormwater program have a full-time overall administrative manager in charge of all stormwater Program Elements?*

3.2.5.1 Yes – Arlington

- a. Additional information from Arlington - Currently the Stormwater Management Division is made up of 28 full-time positions. The oversees the administration of the Stormwater Utility, engineering and construction contracts, watershed planning, citizen response to stormwater, flooding, and erosion concerns, Stormwater CIP, field operations and maintenance of the stormwater infrastructure, environmental compliance, and education and outreach.

3.2.5.2 Yes – Fort Collins

3.2.5.3 Yes – Raleigh

3.2.6 *Please provide an organizational chart of your stormwater program.*

Please refer to organizational charts in Appendix D – Organizational Charts.

3.3. Program Element Questions

3.3.1 *What are the major program elements within your stormwater program?*

Program Elements	Aurora	Arlington	Raleigh	Fort Collins
Asset Management	X	X	NO	X
Floodplain Administration	NO	X	NO	X
Master Planning	X	X	X	X
Regulatory (MS4, Wetlands, etc.)	X	X	X	X
Capital Improvements	X	X	X	X
Operations and Maintenance	X	X		X
Data Management	X	X	X	
Education and Outreach	NO	X	NO	NO
Compliance	X	X	NO	NO
Development Review	NO	NO	X	X

3.3.2 *Which of the above programs have a dedicated full-time manager?*

3.3.2.1 Arlington: - See the Organizational Chart in Appendix. Primary Managers are the Stormwater Executive Manager, Engineering Operations Manager, and the Stormwater Permit Supervisor.

3.3.2.2 Fort Collins - Each component has a Program Manager with responsibility for that area.

NOTE: This response may require a follow-up because it does not indicate the managers are dedicated and full-time.

3.3.2.3 Raleigh - See previous answer and org chart submitted. The program areas having dedicated managers are Business Services, CIP, Water Quality, Development Review & Inspections, and Drainage Petitions.

3.3.3 *Describe how you allocate or prioritize money between Program Elements:*

3.3.3.1 Arlington

The fund currently generates \$12M per year. The stormwater fund is broken up into groups: Engineering/Administration, Field Operations, Environmental Compliance, and Education & Outreach.

The total Operating Fund portion for these groups is \$3.7M annually. The remaining balance covers debt service and CIP.

The fund is currently in a several year incremental increase where by 2020, the fund is expected to generate \$18M annually.

3.3.3.2 Fort Collins

Bi-annual budgeting process.

Review of resource needs.

3.3.3.3 Raleigh

This is a difficult question to answer. Our capital expenditures are prioritized based on need and direction from Council. We are currently developing a comprehensive integrated project prioritization model that will allow us to more clearly and transparently articulate our needs related to capital funding.

Other program areas are funded based on level of need. I.e. personnel costs, equipment costs, etc, required to perform their job functions effectively at current levels.

3.4 Funding Questions

3.4.1 *When was the last time you had a rate study and what were the results?*

3.4.1.1 Arlington - An external study was conducted in 2006-2007. The result was the creation of the Stormwater Management Division under the current format in 2008. An internal analysis of revenue versus needs was conducted last year. The result of the analysis demonstrated a need to raise the rate to support the current CIP level and address the long-range backlog.

3.4.1.2 Fort Collins - 2001: Created a schedule of phased rate increases. For a time Fort Collins had one of the highest rates in the nation.

Community pushback delayed later rate increases. Rates have been static since 2004.

City Council has requested we revisit this in the next budget cycle.

- 3.4.1.3 Raleigh - We continuously evaluate our in-house rate/cash flow model. Our utility rate has not changed since program inception in 2003, though our model indicates the need for a modest increase over the next two fiscal years.

3.4.2 *Are funding levels adequate to implement your program goals and objectives?*

- 3.4.2.1 Yes - Arlington
- 3.4.2.2 No - Fort Collins
- 3.4.2.3 Yes - Raleigh

3.4.3 *Which Program Elements are Under-funded?*

- 3.4.3.1 Fort Collins - Capital Infrastructure and inspection of developed installed infrastructure.

3.4.4 *Do you have stormwater development impact fees?*

- 3.4.4.1 No - Arlington
- 3.4.4.2 Yes - Fort Collins
- 3.4.4.3 No - Raleigh

3.4.5 *If you have stormwater impact fees, how do you charge? Gross Acre, Impervious Area, Other?*

- 3.4.5.1 Fort Collins - Residential

Rates pay for construction and maintenance of Fort Collins' stormwater system, which helps protect residents and businesses during storms and floods. All developed properties within city limits pay stormwater rates, which are based on:

Lot Size - lot area in square feet, plus the customer's share of open space in the development, if applicable

Base Rate - \$0.0041454

Rate Factor - based on the percentage of impervious area (surfaces that do not absorb water) such as buildings, parking lots and concrete

- 3.4.5.2 Raleigh - Not impact fees, as such, but we do charge for grading and land disturbance permits. Fees are charged based on land-area disturbed.

3.4.6 *What is your user fee rate structure for single family residential and all other properties? Do you charge according to impervious area or use another method?*

- 3.4.6.1 Arlington:

Currently the rate is \$4.75/ERU. A residential structure is assumed to equal 1 ERU and are billed monthly in the water bill.

Commercial properties are evaluated based upon the area of impervious area. 1 ERU=2,800 sq. ft. of impervious area. The number of ERUs is multiplied by the rate to establish the monthly fee.

The fee is scheduled to increase annually on October 1st by \$0.50 until it reaches \$7.50/ERU.

- 3.4.6.2 Fort Collins:

Residential

Formula for Estimated Monthly Rates:

Single-family Lots Under 12,000 Square Feet

Monthly Rate = Lot Size x \$0.0041454 x Rate Factor

Single-family Lots Over 12,000 Square Feet*

Monthly Rate = 12,000 x \$0.0041454 x Rate Factor plus (Lot Size - 12,000) x \$0.0041454 x Rate Factor x 0.25

*These lots receive a reduction in fees on that portion of the lot greater than 12,000 feet.

Duplex and Multi-Family Lots

Monthly Rate = Lot Size x \$0.0041454 x Rate Factor

Rate Factor Percent of
Impervious Area Rate Factor Category
(based on land use)

.25 0 - .30 Very Light

.4 .31 - .50 Light**

.6 .51 - .70 Moderate

.8 .71 - .90 Heavy

.95 .91-1.0 Very Heavy

**typical for residential

Commercial

Rates pay for construction and maintenance of our stormwater system, which helps protect residents and businesses during storms and floods. All developed properties within city limits pay stormwater rates, based on:

Lot Size - lot area in square feet, plus the customer's share of open space in the development, if applicable

Base Rate - \$0.0041454

Rate Factor - based on the percentage of impervious area (surfaces that do not absorb water) such as buildings, parking lots and concrete

Rate Factor Percent of
Impervious Area Rate Factor Category
(based on land use)

.25 0 - .30 Very Light

.4 .31 - .50 Light

.6 .51 - .70 Moderate

.8 .71 - .90 Heavy*

.95 .91-1.00 Very Heavy

Effective on or after Jan. 1, 2004 (no changes in 2014).

*typical for commercial

Estimated Monthly Rate Formula:

Monthly Rate = Lot Size x \$0.0041454 x Rate Factor

3.4.6.3 Raleigh:

Residential

Our rate is impervious area based. One Single Family Equivalent Unit (SFEU) is 2,260 sf of impervious area.

Commercial

For commercial properties, impervious area is determined and owners are charged \$4.00/SFEU, rounded to the nearest tenth.

For residential properties, a tiered rate structure is in place, based on impervious area.

3.5. General comments and lessons learned:

3.5.1 Arlington

Too many Stormwater Utilities operate separate from the floodplain management staff, yet water quality and quantity have significant overlaps. In a time when resources are limited, integrating stormwater and floodplain management into a singular program is both efficient and cost effective. Flood programs can improve water quality and water quality programs can reduce flood risks.

4. Observations of Responses Relative to Aurora's Program

4.1. General Issues

4.1.1 Most recent organizational review

Only one out of the three respondent Cities (Raleigh) completed an organizational review/gap analysis within the last 5 years. As such, this question did not provide much information and may have been more effective if worded: "When did you last complete an organizational review/gap analysis?"

4.1.2 Citywide Stormwater Master Plans

Only one out of the three respondent cities (Fort Collins) has completed a city-wide stormwater master plan. This may indicate Aurora's superiority with regard to their organizational stormwater planning, but the limited pool (three respondents) makes this unsure.

4.1.3 Green Infrastructure (GI) and Low Impact Development Plans (LID)

Two of the 3 respondent cities (Raleigh and Fort Collins) have completed a Green Infrastructure and/or Low Impact Development plan for their stormwater program. Aurora has not to date built a GI and/or LID plan, and such a plan would benefit the City because Aurora emphasizes environmental stewardship as a core value and because Aurora desires to be a leader in the stormwater field. While some of Aurora's more recent stormwater master plans include aspects of GI or LID planning, GI or LID planning is not included in all recent stormwater master plans. Additionally, older Aurora master plans should be reviewed and updated to include GI and LID planning. Finally, the city may want to consider a city-wide GI and/or LID plan.

4.1.4 Goals and Mission Statements

The goals and mission statements of the respondent cities were, in some ways, more detailed and specific than those of Aurora. In fact, the respondent goals and missions resemble the objectives for Aurora’s individual Program Elements. The City of Aurora may want to consider this when developing goals for the individual Program Elements and when reflecting upon their organizational goals and mission statements. To understand the differences between the goals and mission statements of Aurora and of the 3 cities, they are all listed below. The table lists Aurora’s goals and mission statements and the most similar ones of the three cities.

Goals and Mission Statements of Aurora and The 3 Surveyed Cities			
Aurora	Arlington	Fort Collins	Raleigh
Core Values	Stormwater Management Goals	Council Finding	Stormwater Management Focus
We Value Public Safety	1) Reduce the existing potential for stormwater damage to public health, safety, life, property and the environment. 2) Control future increase in stormwater damage within the City of Arlington and in adjacent jurisdictions affected by City of Arlington drainage.	The City Council hereby finds, determines and declares the City’s integrated stormwater management program is for the mutual economic, social and environmental benefits of public safety, flood mitigation, water quality and public welfare while protecting natural areas and their features, protecting and restoring the City’s watersheds, its tributaries and the Cache la Poudre River.	The Stormwater Management Division's focus is to partner with the citizens of Raleigh to effectively manage flood control and environmental protection in our water bodies, ultimately the Neuse River by using proactive management techniques to plan, identify, maintain, monitor, design, inspect and construct drainage systems to alleviate structural flooding and preserve water quality. Protecting our waterways provides for the future well-being of our environment.
We Value Quality of Life			
We Value Regulatory & Legal compliance			
We Value Environmental Stewardship	3) Protect and enhance the quality, quantity, and availability of surface and groundwater resources. 4) Preserve and enhance existing aquatic and riparian environments and encourage restoration of degraded areas. 5) Control sediment and erosion in and from drainageways, developments, and construction sites.		
Primary Goals			
Customer Service	7) Promote equitable, acceptable, and		

	authorized measures for stormwater management.		
Organizational Leadership			
Staff Leadership			
Program and Infrastructure Planning	6) Establish comprehensive basin plans within each watershed that quantify, plan for and manage stormwater flows within and among the jurisdictions in those watershed.		
Quality Resources			
Quality Infrastructure & Data			
Financial Efficiency			

4.2. Organizational Issues

4.2.1 *Integrated Stormwater Programs*

All three of the respondent cities have stormwater programs that are integrated with either Public Works (Arlington and Raleigh) or Utilities (Fort Collins). Although the intent of the survey was to obtain insight about programs that are integrated with Utilities, the relatively few respondents (3) meant that more respondents were located within Public Works. Raleigh was selected because a web survey indicated that the Raleigh stormwater program was a standalone project, but the stormwater program turned out to be within the Public Works group.

4.2.2 *Stormwater Management*

Only Fort Collins, whose program is integrated with all utilities, had managers with duties and responsibilities within programs other than stormwater (a similar organizational structure to Aurora’s). Arlington and Raleigh managers did not have duties outside the stormwater program.

4.2.3 *Pros and Cons*

The pros and cons of the programs within Public Works and within Utilities were similar. However, Raleigh’s structure within Public Works “allows for specialization of employees to manage a relatively narrow range of issues, and allows for more efficient delivery of services.” And Fort Collins noted that a con of their standalone organization was a lack of dedicated resources that created prioritization conflicts, but Arlington, whose program is under Public Works, reported the same “con.”

4.2.4 *Top suggestions from the three cities for minimizing gaps and overlaps.*

4.2.4.1 Arlington - We implemented an RWD (Road-Water-Drainage) group that meets regularly to coordinate and schedule projects. Better cooperation saves money and minimizes disruptions to the public.

4.2.4.2 Fort Collins - Cross training. Clarity of responsibilities. Multi-function teams. Continuous coordination meetings. Sufficient funding and resource identification.

4.2.4.3 Raleigh - Housing the stormwater maintenance crews with other maintenance crews has proven to be efficient, as equipment and knowledge can be easily shared. In the Stormwater Program proper, the most relevant work area to discuss here is the Development Review section. The City has a department of Development Services, which serves the same development review/inspection function for all other trade/site review and inspection services, other than stormwater and water/sewer - the latter two having their own personnel for this work. In Stormwater, our Development Review & Inspections group not only handles actual review and inspections, but also manages the post-construction BMP inspection program and FEMA Hazard Mitigation Grants.

4.2.5 *Administrative Management*

All three respondent cities have a full-time overall administrative manager in charge of all stormwater Program Elements. This is a position that Aurora may want to consider due to the advantages of having a manager to coordinate all stormwater activities.

4.3. Program Element Issues

4.3.1 *Consistency Compared to Other Cities*

The Program Elements that Aurora does not have and two of the other three cities do have are floodplain administration and development review. Arlington had a specific comment on this as follows: "Too many Stormwater Utilities operate separate from the floodplain management staff, yet water quality and quantity have significant overlaps. In a time when resources are limited, integrating stormwater and floodplain management into a singular program is both efficient and cost effective. Flood programs can improve water quality and water quality programs can reduce flood risks." This arrangement may be something that Aurora should consider.

4.3.2 *Full Time Managers*

The survey asked respondent cities to identify Program Elements that have dedicated full-time managers. Arlington has 4 full-time managers and Raleigh has 5. The response from Fort Collins response is unclear. Aurora may want to consider having more full time managers in its stormwater program.

4.3.3 *Allocation of Funds*

The survey asked how each respondent City allocates money between Program Elements. Arlington and Fort Collins appear to use a more traditional allocation approach (annual budgeting), although Fort Collins does so on a bi-annual basis. Raleigh is working on a capital prioritization model. Raleigh also said: "Other program areas are funded based on level of need, i.e. personnel costs, equipment costs, etc., required to perform their job functions effectively at current levels. It would appear that annual planning is the standard approach to determine appropriate funding allocation.

4.4. Funding Issues

4.4.1 *Funding Study Resumes*

The survey asked respondents to identify the last time that their respective organization performed a funding study and also requested information regarding the results of said funding study. All of the respondents were active in reviewing funding levels versus needs. Aurora should consider completing a funding study because they have not completed a funding study since the 2007 StepWise Rate Study, which did not include a cost of service analysis.

4.4.2 *Adequacy of Funding Levels*

The survey asked if funding levels were adequate to implement program goals and objectives. Arlington and Raleigh both answered "yes," although Arlington has scheduled a rate increase by \$0.50 per year until it reaches \$7.50 per equivalent residential unit. Fort Collins reported that capital infrastructure and inspection of developed infrastructure were underfunded and that City Council has asked for a review of needs and rates. Aurora may want to complete a cost of service and rate analysis.

4.4.3 *Development Impact Fees*

The survey asked if the cities had development impact fees. This is an important question because all of the cities are growing, as is Aurora. However, only Fort Collins has development impact fees. Although it is typical for the eastern and southeastern cities not to have impact fees, most elected officials in Colorado think that development should pay its way.

4.4.4 *Rate Structures for Single Family Properties*

The survey asked about the rate structures within respondent organizations and what the rates are for single family properties. All of the cities have impervious area based rate structures. The single family rate for Arlington is \$4.75, which will increase to \$7.50, and the rate for Raleigh is \$4.00. Fort Collins did not report an average rate. This information is valuable, although it is difficult to compare rates because it is unknown what other sources of funding the cities receive and what the rates pay for. Therefore, not conclusions can be made relative to Aurora.

4.5. General comments and lessons learned.

4.5.1 *Arlington:*

Too many Stormwater Utilities operate separate from the floodplain management staff, yet water quality and quantity have significant overlaps. In a time when resources are limited, integrating stormwater and floodplain management into a singular program is both efficient and cost effective. Flood programs can improve water quality and water quality programs can reduce flood risks.

5. Appendices

Appendix A - Web Survey Spreadsheet

Appendix B - Letter emailed to staff at cities willing to participate in survey

Appendix C - Survey Monkey Questionnaire

Have you completed an organizational review/gap analysis of your stormwater utility in the last 5 years?	Do you have a city-wide stormwater infrastructure master plan?	Have you completed a green infrastructure and/or low impact development plan or assessment for your stormwater program?	What is the stated goal or mission statement for your stormwater program?	Is your stormwater utility program a standalone organization or is it within the utilities, public works, environmental, or other group?	If it is within another group, do managers have duties with programs other than stormwater?
Yes	Yes	No	To provide the best, most cost-efficient stormwater service to our community.	Within Utilities	Yes
Yes	Yes	No	...I'd have to go look it up :)	Within Utilities, Within Public Works, Within Environmental	Yes
Yes	Yes	No	<p>XXXXXXXXX</p> <p>The goal of the stormwater management program is to provide the City of Arlington the basis for establishing effective rules, regulations, and projects that will reduce the potential for stormwater damage to life, public health, safety, property, and the environment. Seven stormwater management goals have been developed by the City. The goals extend from protecting new and existing stormwater management.</p> <p>Division's focus is to partner with the citizens of Raleigh to effectively manage flood control and environmental protection in our water bodies, ultimately the Neuse River by using proactive management techniques to plan, identify, maintain, monitor, design, inspect and construct drainage systems to alleviate structural flooding and preserve water</p>	Within Public Works	No
No	No	No			
Yes	No	Yes		Within Public Works	No

What are the pros and cons for the way management responsibility is divided in your stormwater organization?	If your program is within another group, what suggestions do you have for minimizing gaps and overlaps and for increasing efficiency? (please add additional pages if desired to info@calibre-engineering.com)	Does your stormwater program have a full-time overall administrative manager in charge of all stormwater Program Elements?	If not, who is ultimately responsible for management of the stormwater program and what else do they manage?	Please provide an organizational chart of your stormwater program
Managers have a better view of the big picture of how SW fits in with other services.	The main thing is to have clear lines of responsibility and clear job descriptions for each employee whether they be staff or managers.	Yes	The director of Water Operations is responsible for x, y, and z program elements, the Capital Program Manager is responsible for all capital programs, and	No, I will not send an organizational chart
Yes, there is a wide diversity of knowledge, support, and experience, but centralized decision-making can be difficult and imprecise.	We've found that clearly defining roles and responsibilities and communicating openly is most helpful.	No	Technically only the City Manager is supervisory to all aspects of the program, and they are not involved with its operation or planning.	No, I will not send an organizational chart
Because of the Stormwater Utility Fund (SWUF) legislated requirements, the SWUF staff and activities must be segregated from other funds. While many of our projects are in conjunction with Public Works or Water Utilities projects and our dominant work volume is associated with Public Works. Keeping stormwater segregated from potable and waste water in this setting appears to be the most efficient setup. It helps drive the point to the public that the two shouldn't mix. The Stormwater Program is a division of the City of Public Works Department (though we are independently funded via a stormwater utility). As Division Head/Program Manager, I report to the Director of Public Works, though in practice, I often times interact directly with the City Manager's Office on issues.	COOPERATION & COMMUNICATION. All Capital Improvement Projects are coordinated between stormwater, streets, water utilities, etc. The biggest issue is insuring that projects are coordinated. Doing a water & sewer upgrade and then 2 years later tearing up the streets again to up-size a storm sewer creates problems. We gave implemented an RWD (Road-Water-Drainage) group that meets regularly to coordinate and schedule projects. Better cooperation saves money and minimizes disruptions to the public. Integrating the stormwater maintenance crews with other maintenance crews has proven to be efficient, as equipment and knowledge can be easily shared.	Yes	Currently the Stormwater Management Division is made up of 28 full-time positions. The oversees the administration of the Stormwater Utility, engineering and construction contracts, watershed planning, citizen response to stormwater, flooding, and erosion concerns, Stormwater CIP, field operations and maintenance of the stormwater infrastructure, environmental compliance, and education and outreach.	Yes, I will send an organizational chart to info@calibre-engineering.com
The Stormwater Program has five functional areas ("Sections") with a total of 54 employees: Development Review & Inspections, Water Quality, Capital Infrastructure Projects, Drainage Complaints/Drainage	In the Stormwater Program proper, the most relevant work area to discuss here is the Development Review section. The City has a department of Development Services, which serves the same development review/inspection function for all other trade/site review and inspection services, other than stormwater and water/sewer - the latter two having their own personnel for this work. In Stormwater, our Development Review & Inspections group not only handles actual review and inspections, but also manages the post-construction bmp inspection program and FEMA Hazard	Yes		Yes, I will send an organizational chart to info@calibre-engineering.com

What are the major Program Elements within your stormwater program?	Which of the above Program Elements have a dedicated full-time manager?	Describe how you allocate or prioritize money between Program Elements:	When was the last time you had a stormwater rate study, and what were the results?	Are funding levels adequate to implement your program goals and objectives?	If you answered no to the question above, which programs are underfunded?	Do you have stormwater development impact fees?
Asset Management, Floodplain Administration, Master Planning, Regulatory (MS4, Wetlands, etc.), Capital Improvements, Operations and Maintenance, Data Management, Development Review	Capital and Maintenance.	We do this when we prepare the budget for each year by having the person in charge of each program element request a budget. Then we reduce/adjust the budgets according to our program priorities.	2012, we needed more money for capital and maintenance.	No	Capital and maintenance	No
Asset Management, Floodplain Administration, Master Planning, Regulatory (MS4, Wetlands, etc.), Capital Improvements, Operations and Maintenance, Data Management, Development Review	All	Individual program budgeting, first-come first-served?	not recently	Yes		Yes
Asset Management, Floodplain Administration, Master Planning, Regulatory (MS4, Wetlands, etc.), Capital Improvements, Operations and Maintenance, Data Management, Education & Outreach, Compliance	See the Organizational Chart. Primary Managers are the Stormwater Executive Manager, Engineering Operations Manager, and the Stormwater Permit Supervisor.	The total Operating Fund portion for these groups is \$3.7M annually. The remaining balance covers debt service. This is a difficult question to answer. Our capital expenditures are prioritized based on need and direction from Council. We are currently developing a comprehensive integrated project prioritization model that will allow us to more clearly and transparently articulate our needs related to capital funding.	An external study was conducted in 2006-2007. The result was the creation of the Stormwater Management Division under the current format in 2008. An internal analysis of revenue versus needs was conducted last year. The result of the analysis demonstrated a need to raise the rate to support the current CIP level and address the long range backlog.	Yes		No
Master Planning, Regulatory (MS4, Wetlands, etc.), Capital Improvements, Data Management, Development Review	See previous answer and org chart submitted. The program areas having dedicated managers are Business Services, CIP, Water Quality, Development Review & Inspections, and Drainage Petitions.	We continuously evaluate our in-house rate/cash flow model. Our utility rate has not changed since program inception in 2003, though our model indicates the need for a modest increase over the next two fiscal years.		Yes	While I answered yes, the community's needs - and their level of service expectations - continue to grow rapidly. While our current revenues are sufficient to provide our current level of service, they do not provide for any growth in our level of service.	No

If you have stormwater impact fees, how do you charge (gross acre, impervious area, etc.)?

What is your user fee rate structure for single-family residential and all other properties?

What are your major stormwater budget categories and expenditures in each?

What is your total annual revenues from user fees?

What is your total of other revenues?

gross acre

based on ERU's which are equivalent to a specific amount of impervious area.

Capital, Maintenance, Operations, Administration

\$7,000,000

\$500,000

gross acre

building and hard-surface square footages

operations, maintenance, and capital - would have to research specific numbers. (30 minutes for an average employee to accurately answer this question?) I don't know that we need to be asking about their expenditures actually now that I think about it.

not relevant?

not relevant?

Currently the rate is \$4.75/ERU. A residential structure is assumed to equal 1 ERU and are billed monthly in the water bill. Commercial properties are evaluated based upon the area of impervious area. 1 ERU=2,800 sq. ft. of impervious area. The number of ERUs is multiplied by the rate to establish the monthly fee. The fee is scheduled to increase annually on October 1st by \$0.50 until it reaches \$7.50/ERU.

Not impact fees, as such, but we do charge for grading and land disturbance permits. Fees are charged based on land-area disturbed.

Our rate is impervious area based. One Single Family Equivalent Unit (SFEU) is 2,260 sf of impervious area. For commercial properties, impervious area is determined and owners are charged \$4.00/SFEU, rounded to the nearest tenth. For residential properties, a tiered rate structure is in place, based on impervious area.

General Comments and lessons learned

Please provide your name, title, and contact information (phone and email): What organization/agency are you representing?

Emily-
this looks fantastic,
Good Work,
Jon

Jon Villines, Design Engineer,
jvilline@auroragov.org Aurora Water

xxxxxxxxx
xxxxxxx
xxxx City of Sorensen SWU

Too many Stormwater Utilities operate separate from the floodplain management staff, yet water quality and quantity have significant overlaps. In a time when resources are limited, integrating stormwater and floodplain management into a singular program is both efficient and cost effective. Flood programs can improve water quality and water quality programs can reduce flood risks.

J. William Brown, P.E.
(817) 459-6567
Bill.Brown@arlingtontx.gov City of Arlington Texas
Department of Public Works &
Transportation
Stormwater Management
Division

R. Blair Hinkle, PE
Stormwater Program Manager
919-996-4011
blair.hinkle@raleighnc.gov The City of Raleigh, NC



▼ Form Settings

- Show progress bar at the bottom of form pages
- Only allow one response per person (requires login) ?
- Shuffle question order ?

Page 1 of 5

Stormwater Utility Organization and Funding Survey

DO NOT use your browser's back button as this will delete the information that you have input. INSTEAD, use the back and continue options at the bottom of each survey page.

WARNING: The survey does not save responses if you close your browser window in the middle of responding. Be careful not to close your browser window before you have completed the entire survey and clicked SUBMIT at the end of the survey.

For questions or concerns, please contact our Project Manager Jon Sorensen at (303) 378-3774 or Calibre's Main Office at (303) 730-0434. You may email questions to info@calibre-engineering.com.

GENERAL QUESTIONS

What organization/agency are you representing?

Please provide your name, title, and contact information (phone and email):

Have you completed an organizational review/gap analysis of your stormwater utility in the last 5 years?

- Yes
- No

Do you have a city-wide stormwater infrastructure master plan?

- Yes
- No

Have you completed a green infrastructure and/or low impact development plan or assessment for your stormwater program?

- Yes
- No

What is the stated goal or mission statement for your stormwater program?

Add item ▼



Stormwater Utility Organization and Funding Survey

ORGANIZATIONAL QUESTIONS

Is your stormwater utility program a standalone organization or is it within the utilities, public works, environmental, or other group?

- Standalone
- Within Utilities
- Within Public Works
- Within Environmental
- Other:

If it is within another group, do managers have duties with programs other than stormwater?

- Yes
- No

What are the pros and cons for the way management responsibility is divided in your stormwater organization?

If your program is within another group, what suggestions do you have for minimizing gaps and overlaps and for increasing efficiency? (please add additional pages if desired to info@calibre-engineering.com)

Does your stormwater program have a full-time overall administrative manager in charge of all stormwater Program Elements?

- Yes
- No

If not, who is ultimately responsible for management of the stormwater program and what else do they manage?

Please provide an organizational chart of your stormwater program to info@calibre-engineering.com

- Yes, I will send an organizational chart to info@calibre-engineering.com
- No, I will not send an organizational chart
- We do not have an organizational chart

Add item

Stormwater Utility Organization and Funding Survey

PROGRAM ELEMENT QUESTIONS

What are the major Program Elements within your stormwater program?

- Asset Management
- Floodplain Administration
- Master Planning
- Regulatory (MS4, Wetlands, etc.)
- Capital Improvements
- Operations and Maintenance
- Data Management
- Development Review
- Other:

Which of the above Program Elements have a dedicated full-time manager?

Asset Management, Floodplain Administration, Master Planning, Regulatory (MS4, Wetlands, etc.), Capital Improvements, Operations and Maintenance, Data Management, Development Review, Other.

Describe how you allocate or prioritize money between Program Elements:

Add item



Stormwater Utility Organization and Funding Survey

FUNDING QUESTIONS

When was the last time you had a stormwater rate study, and what were the results?

Are funding levels adequate to implement your program goals and objectives?

- Yes
- No

If you answered no to the question above, which programs are underfunded?

Do you have stormwater development impact fees?

- Yes
- No

If you have stormwater impact fees, how do you charge (gross acre, impervious area, etc.)?
(gross acre, impervious area, etc.)

What is your user fee rate structure for single-family residential and all other properties?
(i.e. according to impervious area or other)

Add item

Page 5 of 5

Stormwater Utility Organization and Funding Survey

GENERAL COMMENTS

General Comments and lessons learned

Add item

Confirmation Page

Thank you for participating! Your feedback is critical to the development of a successful stormwater program for the City of Aurora. Results from this survey will be shared via email after the survey has been completed and evaluated.

If you have additional pages and/or an organizational chart, please submit to info@calibre-engineering.com.

If you have questions or concerns, please call our Project Manager Jon Sorensen at (303) 378-3774 or Calibre's Main Office at (303) 730-0434.

- Show link to submit another response
- Publish and show a public link to form results ?
- Allow responders to edit responses after submitting

Send form



April 21, 2015

AGENCY ADDRESS

RE: Stormwater Utility Organization and Funding Survey
City of Aurora, Colorado

Dear NAME;

Thank you for agreeing to be part of our survey as a representative of CITY, STATE. We included CITY in our survey because of your strong stormwater program. We would appreciate it if you could complete the survey by Friday, April 24th.

As part of its ongoing Stormwater Program Master Plan project, the City of Aurora Water Department is surveying several select stormwater organizations to learn how Aurora may be able to improve their organizational efficiency and learn how other stormwater utilities are functioning.

The City of Aurora is the third largest city in Colorado with a population of about 346,000. The City has significant new development, which is an important consideration regarding Aurora's Stormwater Master Plan project.

Aurora's stormwater utility "Program Elements" (primary functions such as planning, operations, and capital) are largely housed within the Water Department, which also includes the water and wastewater utilities. While most of their stormwater utility staff is fully dedicated to stormwater, the administrative managers usually have additional responsibilities in the water and wastewater utilities. For example, a) the Manager of Planning manages planning for all 3 utilities, and there is one person in charge of stormwater planning, b) the Manager of Operations manages the operations of all 3 utilities, and there is one person in charge of stormwater operations, and c) the Manager of Capital Projects manages capital projects for all 3 utilities, etc. Significant stormwater planning and floodplain management functions are housed within the Public Works Department.

One of the tasks of the current study is a Gap Analysis, which includes identifying major Program Elements and the major tasks and activities under each Program Element. The Gap Analysis will identify areas where improvement is needed and where gaps exist. In addition to the Gap Analysis, work products will include a web-based work product titled *Aurora's Stormwater Master Plan*. Aurora's Stormwater Master Plan will be a roadmap for the stormwater capital investment program for the next 10 to 20 years.



A primary aspect of the web-based Aurora Stormwater Master Plan will be a description of all the capital projects, city-wide, as recommended in the numerous master drainage plans. The descriptions of the projects will be used to develop a city-wide prioritization of the projects, based on consistent criteria and evaluations entered into decision support software. The results of the software will be used as a guide in selecting projects for each year and for 5-year, 10-year, and 20-year time frames.

Existing and needed expenditures will also be studied to determine if the program is adequately funded to meet objectives identified in the Master Plan for all Program Elements. Balancing expenditures between each Program Element, such as how much to spend on maintenance, versus capital, and versus asset management, etc., will also be studied.

We would appreciate your help in completing the survey and will provide your organization a copy of the findings of the report for your efforts. The survey should take about 10 minutes and is located at <http://goo.gl/forms/u8rF9Khtmu>. If you have any questions please call me at 303-378-3774.

Thank you,

Jon Sorensen
Project Manager
Calibre Engineering

On behalf of
Sarah Young
Aurora Water Planning Services Manager
City of Aurora