



# ADAMS COUNTY

## *Colorado*

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*Stormwater Utility Credit Program Analysis*

*Final Report | January 14, 2014*



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# 1. EXECUTIVE SUMMARY

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## 1.1 INTRODUCTION

Unincorporated Adams County is required to have a stormwater quality management program under its Municipal Separate Storm Sewer System (MS4) permit, which is administered by the State of Colorado. This permit requires that the County implement measures to reduce water pollution through public education, increased maintenance of stormwater drainage systems, illicit discharge detection and elimination (IDDE), construction site runoff control, and implementing stormwater best management practices. The County implemented a stormwater utility (the utility) and user fee in 2013 to generate revenue for stormwater services provided to the region.

Developed parcels with up to 1,000 square feet of impervious area are charged a minimum fee of \$1.67 per month. Under the utility's Stormwater Utility Policy Manual, parcels with less than 100 square feet of impervious area are not considered "developed parcels" and are thus not billable.

Based on citizen feedback and demonstration of creditable activities and best management practices (BMPs) throughout the service area, the County engaged Raftelis Financial Consultants, Inc. (RFC) to conduct an assessment of credits that may be available to users or customers of the stormwater utility located in unincorporated Adams County.

This document describes the credits taken under consideration, the site visits conducted to establish creditable circumstances within the County, and RFC's recommendations for a fair credit program to supplement the utility's current user charge structure.

## 1.2 CREDIT TYPES

RFC presented County staff with a wide variety of credits used by other jurisdictions to incentivize or reward activities that have a positive impact on stormwater quality, fulfill permit requirements, or reduce costs for the stormwater program. The following types of credits were presented, and are discussed in greater detail in the body of this report:

- Water Quality Treatment, resulting in less trash and pollution in runoff. Subcategories include:
  - Non-structural Practices, which improve water quality through street sweeping or other methods.
  - Residential treatment methods that can be implemented by a typical homeowner.
- Water Quantity, focused on reducing peak flow or overall volume of runoff after a storm.
- Channel Protection, to minimize erosion and ensure the best water quality in open channels.
- National Pollutant Discharge Elimination System (NPDES) Industrial Stormwater Discharge Permit holders, who are required to fulfill their own permit requirements.
- Large Lot/Low Density, which may correspond to improved water quality or less runoff leaving a property.
- Education, which could help the County fulfill its water quality permit requirements.

- Public participation, which could make credits available to customers with few other resources (land, money, etc.) but are able to participate in organized events such as stream clean-ups, which decrease water pollution
- Self-Maintenance of structural Best Management Practices (BMPs, that is stormwater treatment devices), which can reduce stormwater program costs
- Drainage System Bypass
- Low Impact Development (LID) or Green Infrastructure, which are land development practices that minimize stormwater impacts
- Permeable Surfaces/Green Roofs, designed to reduce runoff
- Metropolitan Districts, where service is being provided by a separate entity, which could reduce stormwater program costs.

### 1.3 SITE VISITS

RFC and utility staff conducted a total of 12 site visits on properties with seven distinct circumstances. In each case, customers believed their property should be eligible for a reduced stormwater fee due to lot size, drainage patterns, the existence of BMPs, or other characteristics of the property. These site visits allowed RFC to assess the properties, and in some cases their BMPs, to determine the potential applicability of a credit. The site visits served two primary purposes. First, the visits established a sense of the variety of circumstances around the County. Second, the assessment of these properties became the baseline for RFC's credit program recommendation.

### 1.4 RECOMMENDATION

RFC recommends that the utility implement a limited credit program, focused primarily on incentivizing treatment practices that result in improved water quality or reduced peak flow or runoff volume. These two outcomes can reduce demand placed on the drainage infrastructure and can help the County meet its regulatory obligations, so they are most closely related to available cost savings to the utility. Another credit type, self-maintenance of BMPs, is also recommended as it corresponds to a lower service obligation for the utility. In addition, RFC recommends that NPDES Industrial Stormwater Discharge permittees and those entities enacting pollution prevention measures be eligible for credit. Some other creditable conditions common in other stormwater utilities, such as green infrastructure or green roofs, are not expected to be present within unincorporated Adams County so these have been excluded.

RFC further recommends that the maximum available credit is 60%, comprises water quality credits (25%) and quantity credits (35%). Customers who are eligible for the self-maintenance credit may be able to receive a credit that exceeds this amount. This recommendation is based on RFC's analyses of the utility's costs and a determination of which costs have the potential to be reduced through customers' stormwater treatment or activities, and which costs cannot be further reduced through these means.

RFC estimates that based on these recommended credits and estimated participation rates, the revenue impact may be between three and seven percent of utility fee revenues.

## 2. INTRODUCTION

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### 2.1 BACKGROUND

Unincorporated Adams County is required to have a stormwater quality management program under its Municipal Separate Storm Sewer System (MS4) permit, which is administered by the State of Colorado. This permit includes requirements to decrease water pollution through public education, increased maintenance of stormwater drainage systems, illicit discharge detection and elimination (IDDE), construction site runoff control, and implementing best management practices for stormwater management. The County implemented a stormwater utility in early 2013 to generate revenue for stormwater services provided to the western portion of the County (see Figure 1).<sup>1</sup>

For utilities that choose to offer them, a credit is a reduction in the stormwater fee that may be granted to a customer for measures that reduce demand upon the utility's drainage system, thereby reducing the cost for stormwater management. A credit system is designed to:

- protect water quality;
- create equity in the rate structure through appropriate fee reduction opportunities;
- reduce public expenditures on stormwater management by fulfilling permit requirements and meeting other program goals indirectly; and
- decentralize stormwater management by promoting private sector implementation.

These measures may reduce the utility's cost of managing and treating stormwater. The utility can recognize its reduced burden through credits. An important consideration in the development of a credits program is to identify which program costs can be reduced and to what extent. In terms of defining the program, it is important to understand the variety of stormwater management practices, drainage patterns, and other special circumstances within the service area to create an effective and fair credits program. Those two pieces come together with anticipated interest and participation in the credits program, which directly relates to how those saved costs can be shared among the most appropriate customers/stormwater accounts.

Based on citizen feedback and demonstration of creditable activities and BMPs throughout the service area, the County engaged Raftelis Financial Consultants, Inc. (RFC) to conduct an assessment of credits that may be available to utility customers in unincorporated Adams County.

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<sup>1</sup>Resolution establishing rates, fees, and addressing credit and appeal policies and additional details of the stormwater utility Adams County, Colorado acting by and through Adams County water activity enterprise. Adopted by the Adams County Board of Commissioners on September 19, 2012. The resolution text can be accessed at: <http://www.co.adams.co.us/DocumentCenter/View/2640>.

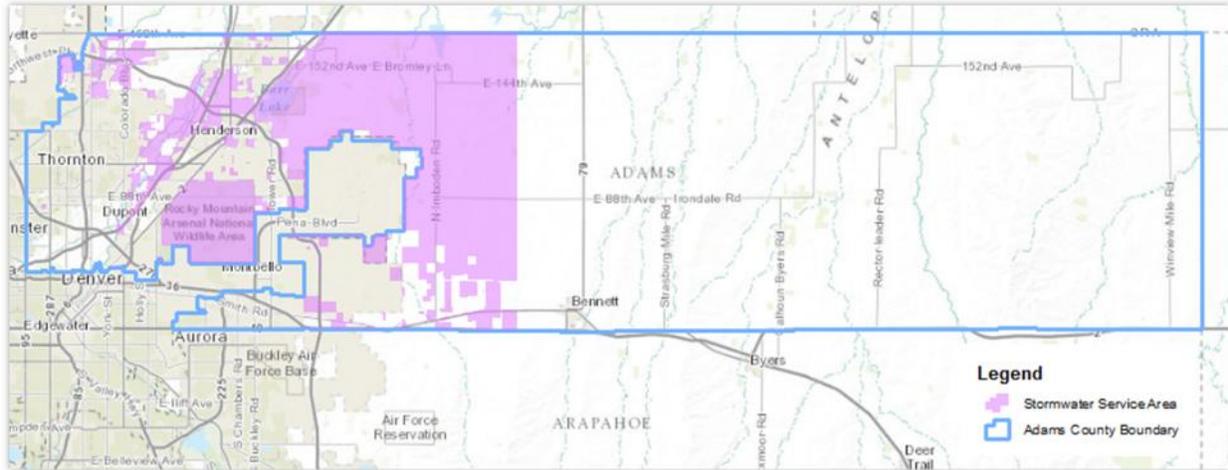


Figure 1. Adams County Stormwater Utility Service Area

## 2.2 APPROACH

RFC and the utility worked closely to devise and execute the approach to credit assessment. First, RFC completed a preliminary review of the stormwater program and utility documentation, financial materials, billing data, and the Stormwater Management Task Force meeting materials and minutes.<sup>2</sup> Following this review, RFC visited sites around the utility service area that were representative of existing stormwater management or special drainage conditions. A summary of these site visits and an overview of available credit types were presented to utility staff along with the preliminary RFC recommended program structure. RFC then used program costs and other data to determine maximum available credits and estimate the revenue impacts of implementing such a program.

<sup>2</sup> The Stormwater Management Task Force was established by resolution of the Adams County Board of Commissioners by resolution on April 1, 2013. The purpose of the task force was to evaluation of the county's current stormwater operations, stormwater infrastructure needs, rate structure associated with the Stormwater Utility and other areas of concern raised by the citizens of Adams County and to provide recommendations to the Board of County Commissioners.

## 3. CREDIT TYPES

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RFC evaluated a number of types of credits for consideration by the utility. Most are offered by stormwater utilities in other jurisdictions. Some are fairly common, reflecting ubiquitous concerns and drivers, while others are more unique to the circumstances of a particular utility and its customers.

### 3.1 WATER QUALITY TREATMENT

A property that reduces stormwater runoff pollution compared with untreated runoff can provide a benefit to the stormwater program by helping it meet stormwater quality goals. Stormwater utilities may offer a credit to recognize this ongoing reduction in water quality pollution for meeting requirements while others offer a credit for exceeding standards. Existing Adams County and Urban Drainage and Flood Control District (UDFCD) drainage design criteria may be used to develop the cases where a quality credit may be applied. Related major costs to the utility (that could be reduced) are water quality permit compliance costs and watershed and channel preservation and restoration costs.

Water quality credits can increase the equity of the rate structure by recognizing a property's reduced impact upon the stormwater system. Offering this credit can encourage properties to implement stormwater controls which would lead to long-term pollution prevention. However, the costs to customers for designing, constructing and maintaining these facilities are high, as are the administrative costs to the utility.

#### 3.1.1 *Non-Structural Practices*

One subset of water quality treatment practices are non-structural practices, as opposed to constructed stormwater controls, such as independent street/parking lot sweeping. These practices may lead to similar improvements in water quality (especially trash reduction) but are often even more difficult to administer than structural stormwater quality treatment credits, as additional criteria and best practices must be established.

#### 3.1.2 *Residential*

Residential properties, which typically are more space-constrained than non-residential properties, can be offered a separate set of creditable water quality structure. Once rare, these residential credit programs are becoming more common among stormwater utilities. Creditable practices for residential properties are commonly less complex and expensive for the property owner to implement than practices available to non-residential practices. Utilities have adopted sizing, design, and application processes, making residential programs simpler to administer. Residential properties' relative impacts on the system, positive and negative, are also more limited.

### 3.2 WATER QUANTITY

Land development changes a property's hydrologic response during and after precipitation from its pre-developed condition in two ways: the peak flow increases and occurs sooner after the storm event and the total runoff volume increases. Compared to pre-developed conditions, post-

development runoff creates a higher demand on the stormwater system over time. Many stormwater utilities allow for credits to acknowledge properties' reduction in this demand placed upon the systems.

The benefits and challenges presented by a water quantity credit are similar to those for water quality credit: offering a credit increases the equity of the rate structure and can encourage the construction of regional controls, but entry and administration costs can be prohibitively high. It can also be difficult to predict the revenue impacts of decreased demand on the system created by these practices if the implementation of practices has not been closely tracked.

### **3.2.1 Channel Protection**

Channel protection is a subset of practices that may be eligible for water quantity credit. One of the consequences of increased and prolonged peak stormwater flows from developed land is the scouring of natural channels, which degrades channels' natural functions and carries increased sediment and other pollutant loads into the manmade drainage system. These changes increase the maintenance burden for both natural and built stormwater systems. The Adams County stormwater design criteria focus on channel protection criteria as a means of limiting new stormwater maintenance costs resulting from development.<sup>3</sup>

Professional engineering or licensed landscape architectural design is required to effectively implement channel protection in compliance with the regulations. The cost of conducting this activity and receiving credit is high. In some cases, a utility may only be responsible for reviewing plans and determining the appropriate amount of credit. However, in others, a utility may provide technical assistance or guidance that could become costly.

## **3.3 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) INDUSTRIAL**

Some industrial customers of a stormwater utility are required to manage their own industrial stormwater discharge through a separate NPDES permit administered by the state. A credit to these permit holders acknowledges their separate requirement to manage water quality up to an acceptable level. Under this credit, properties that are covered by and compliant with a valid NPDES permit are eligible.

This credit is founded on the idea that those entities subject to an NPDES permit must fulfill above-average requirements with regard to stormwater. Their actions assist the utility in reducing the overall impact of stormwater in the community. Alternatively, the reason these properties must maintain permits is that they have higher levels of pollutants in their runoff than typical properties. Although properties that maintain NPDES permits must expend resources to improve stormwater quality, their runoff may still contain increased pollutants compared with non-industrial parcels, thus credit on the stormwater fee could decrease equity in the rate structure.

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<sup>3</sup> Adams County Development Standards and Regulations Chapter 9 Storm Drainage Design and Water Quality Control Regulations. Accessed on November 25, 2013 at <http://www.co.adams.co.us/DocumentCenter/Home/View/497>

This type of credit is relatively easy to administer, if the standard used for eligibility for the credit is compliance with an active permit. The permitting agency (the state) is responsible for monitoring permit compliance.

### **3.4 LARGE LOT/LOW DENSITY DEVELOPMENT**

The utility's current fee for each single family residential (SFR) property is based on the impervious area of that property, capped at a maximum fee. If the fee for a property, when derived from the impervious area, is above the maximum fee, the property owner is charged the maximum fee. This basic rate structure would charge the same fee for an SFR with 2,000 square feet of impervious area in a densely developed, urban area as it would for an SFR with the same amount of impervious area surrounded by acres of natural grasslands. These two properties would not create the same hydrologic response from the parcel in a storm (the less densely developed property would typically have less runoff because the runoff has the opportunity to infiltrate into the undeveloped portions of the property before entering the storm drainage system). A credit for low density development (or, similarly, for large lots or low ratios of impervious area to total lot size) could help accommodate the difference between these two properties and their respective demands placed on the system.

The advantages of this credit are that it would be straightforward for customers to demonstrate their eligibility, easy for the utility to administer, and predictable in revenue impact. In addition, this credit would satisfy ratepayers with the perception that their lots place lower demand than other residential lots upon the system because of how their lots were developed.

On the other hand, offering this credit only for SFR properties creates dissimilarity between similarly situated non-single family residential and SFR properties. Additionally, the logic behind granting this credit requires that large lot impervious areas be disconnected from impervious areas on adjacent lots; a large lot does not guarantee these conditions. Large lot, low-intensity development credits may also have unintended consequences, such as rewarding sprawled development ultimately resulting in more watershed impairments from development.

### **3.5 EDUCATION**

Some stormwater utilities offer a credit to schools or other organizations that teach stormwater or water quality curricula. The rationale is that an institution may have the ability to educate a large segment of the public that would be more difficult and costly for the stormwater program to reach, so the efficiency in utilizing these avenues creates cost savings for the utility.

The long-term benefits from an education program are widely recognized. However, the benefits of a specific program are difficult to assess. One option is to structure an education credit so that it can be shown to reduce stormwater program costs by directly meeting the public education requirements of the program's NPDES permit. This structure would require the institution/customer requesting credit to submit documentation of its program, and for the utility to devote staff time to reviewing, reporting, and possibly overseeing/enforcing the activities.

### **3.6 PARTICIPATION**

In the case of some stormwater utilities, participation credits are made available to property owners who may not have an opportunity for other credit types (for example, in highly urbanized areas with

small lots). Participation in larger, organized events that have some beneficial impact on stormwater quality can be rewarded with credit on the fee. Eligible events could be stream clean-ups, de-pavings, or tree plantings.

The events themselves have clear benefits to water quality, but it is harder to connect those events to the individual(s) participating and, even further, to the properties they represent. Administration of this credit type could be burdensome as utility staff may need to provide guidelines, oversight, materials, and a method of tracking results for events, in addition to monitoring participation and processing credit applications for customers.

### **3.7 SELF-MAINTENANCE**

A self-maintenance credit can be made available to property owners who maintain their own (extensive) stormwater systems that provide regional stormwater benefits. This credit acknowledges that by maintaining stormwater facilities, a property owner has reduced the utility's responsibility to do so, and to spend public resources. Still, the utility will have to monitor the property to ensure maintenance is completed so the system performs as it would under the utility's maintenance program. Like a large lot credit, the advantages of this credit are that it would be relatively easy for customers to demonstrate eligibility, easy for the utility to administer, and predictable in revenue impact.

### **3.8 DRAINAGE SYSTEM BYPASS**

A drainage system bypass credit would reduce fees for customers whose runoff entirely bypasses the stormwater drainage system operated by the stormwater utility. Typical examples of this situation are ones where a part of the service area discharges into a large body of water such as a very large river (or a harbor or ocean) or into a different utility's service area or another jurisdiction. The justification for such a credit would be that the properties place no demand on the system. In some areas, properties discharge stormwater runoff directly to a water body, without it ever entering the stormwater drainage system constructed and maintained by the utility.

Though it is true that some properties might not convey water within the public system, and so would appear to be creditworthy, these same properties in many cases benefit *most* from the utility's management of the system. This is due to the fact that flooding and pollution is mitigated upstream and causes fewer problems downstream.

### **3.9 LID/GREEN INFRASTRUCTURE**

Low-impact design (LID), also termed green infrastructure, is a group of practices that reduce the impact of a developed site on stormwater systems by causing smaller or no change in the runoff patterns when compared with typical developments. Thus a credit can be offered to properties employing LID.

Because LID structures are decentralized and because some practices are not structural but rather concern site layout and preservation of natural elements of water filtration, LID runoff savings can be challenging to quantify. In a sense, LID can cause the same improved stormwater conditions as some water quantity or water quality practices. Thus, if this type of credit is appropriate for a jurisdiction, quantifying allowable credit may be related to the level stormwater is 'treated,' rather than to the LID standards met or exceeded.

### **3.10 PERMEABLE SURFACES/GREEN ROOFS**

Green roofs, permeable surfaces, or other unusual site conditions on a property may cause a particular area deemed to be impervious (and therefore counted toward the stormwater fee) to actually act like a pervious area. Stormwater utilities may offer a credit for these conditions rather than adjusting the base impervious area to exclude them. This provides a means for the utility to ensure that the property owner maintains the proper function of the stormwater treatment area.

Establishing a credit of this type allows for fee reductions for pervious surfaces, consistent with the impervious area rate structure, while providing for the utility to monitor the performance of these surfaces, which require regular maintenance to function properly. It may be highly labor-intensive to administer this credit as customers will require assistance in determining which portions of their properties were considered impervious and pervious, and inspections or site visits should be anticipated.

### **3.11 METROPOLITAN DISTRICTS**

Throughout the utility service area, a number of Metropolitan (Metro) Districts provide stormwater services to specific areas. A subset of these Metro Districts provides drainage maintenance or other stormwater management within the utility's service area. In developing the credits program, it is important that the utility understand which customers are already paying (via tax or fee) for these services to be provided through a Metro District, as well as the scope of the services the Metro District is actually providing to the customers. If an area is already being adequately managed/served by another entity, the utility may consider exempting those properties from a portion of the stormwater fee, or crediting the fee based on the redundant service provided by the Metro District or the reduced cost of providing its own stormwater services to that area.

Likely, this would be more fairly administered as a calculated fee reduction for all customers in the applicable Metro District service areas and customers would not be required to apply for a credit in this case.

## 4. SITE VISITS

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RFC and utility staff conducted a total of 12 site visits on properties with seven distinct circumstances. Each was a situation for which a number of property owners had previously contacted the County because they believed their property to be eligible for a reduced stormwater fee due to lot size, drainage patterns, the existence of BMPs, or other characteristics of the property.

### 4.1 OIL & GAS STRUCTURES

After initial billing of the utility user fee, some property owners with oil and gas structures on their land appealed the fee, stating either that (1) their property was leased for drilling so they shouldn't be responsible for the fee, or that (2) the structures have little to no impact on stormwater runoff and should not be billable. While neither of these scenarios constituted credits, they did represent a potential change in billing policy.

Site visits included two properties with oil & gas structures upon them. Typically there was one or more pump jack(s) and one above-ground storage tank for crude oil located on the site, (the latter surrounded by bermed gravel – see Figure 2). Some properties had originally been billed for some or all of these areas as part of the stormwater billing for the property. After bills were corrected, the only billable features were storage tanks which complies with the existing billing policy.



**Figure 2. Above-Ground Crude Oil Storage Tank**

Under the utility's stormwater user fee ordinance, parcels with less than 100 square feet of impervious area are not considered "developed parcels" and are thus not billable. Developed parcels with up to 1,000 square feet of impervious area are charged a minimum fee of \$1.67 per month. In some other jurisdictions, a larger minimum charge per parcel (200, 300 or 400 square feet) is used, so that parcels with a few very small impervious features are excluded from the rate base. Utilities

may use a larger minimum threshold for a combination of reasons: data resolution or quality do not support capture of very small features, the cost involved in creating and maintaining the data is judged to be prohibitive and the small features are judged to have a negligible impact upon the stormwater program costs such that the cost of capturing the features does not outweigh their impact. In the case of Adams County, the impervious feature data to support a minimum impervious area per parcel have already been captured, and so the savings involved in raising the minimum mapping unit would be realized on the data maintenance side. A slightly higher minimum impervious area per parcel threshold could effectively exclude these tanks and other structures in the utility service area.

## 4.2 GREENHOUSES

RFC visited two greenhouses (see Figure 3 for photograph of outdoor growing area) in the western portion of the utility service area. Both property owners were concerned about two different elements of their fees. Since aerial imagery was flown during the winter months, much of the greenhouse property was covered in temporary structures that are generally tarped from about November to February of each year (even then the roof tarps are intermittently drawn). These customers did not believe they should be charged as if they were permanent impervious areas. RFC agrees with this analysis. In many cases, utility staff has already worked with the property owners to correctly define their billable impervious areas.



**Figure 3. Outdoor Growing Area (uncovered in early fall)**

The second contention of greenhouse owners was that their runoff characteristics should qualify them for a credit. On the one hand, they pointed out that waters essentially bypassed the system by flowing in drainage pipes (see Figure 4) directly to a nearby creek. On the other hand, they felt that since the greenhouses themselves employ complex internal drainage systems, their runoff differed

from other properties. The greenhouses were equipped with drainage tiles under the plant beds and an outdoor reservoir for ditch water (for irrigation, not stormwater collection). Drainage pipes were present under each of the permanent structures, and in many cases gutters were also tied into the system. The drainage tiles primarily serve to move water away from plant roots and drain the plant-growing areas speedily, rather than to provide filtration or water quality treatment. The receiving creek is part of the utility stormwater drainage system. Thus, although these properties and others like them do not necessarily drain through built infrastructure, they do not bypass the storm drainage system. The water that enters the receiving stream is a combination of precipitation runoff and irrigation runoff (from indoor greenhouses). This means that a greater volume of runoff reaches the stream than from a non-irrigated property and that the property arguably places a greater demand upon the system than some other types. Furthermore, it is likely the water leaving the property has higher levels of nutrients than some other properties because of the fact the runoff contains fertilizers that are applied to and then runoff the plants.



**Figure 4. Gutters tied into Underground Drainage System**

### **4.3 LARGE LOT RESIDENTIAL PROPERTIES**

The County received requests for fee reductions from residents primarily from two large-lot subdivisions: Wadley Farms and Todd Creek Farms. Though assumed to be of fairly similar stormwater circumstances, the properties within these subdivisions differed greatly, suggesting that a single credit program or alternative would not be applicable to both.

Todd Creek Farms, a residential subdivision with many further divisions, is generally made up of large lots with large amounts of on-site impervious area. Infrastructure within the development is limited to culverts and a large retention pond. It is unclear at the time of this report whether a Metropolitan District (discussed in more detail below) is responsible for maintaining this infrastructure. Site visits occurred just weeks after the region's major September 2013 storm, and the infrastructure in this subdivision was badly in need of repair (see Figure 5)..



**Figure 5. Retention Pond at Todd Creek Farms (see broken levee at left)**

Wadley Farms (see Figure 6) is a much more rural residential subdivision, with large lots but with structures and driveways that look, via aerial photos, typical of other single family properties. The area has two ponds, one that existed before development and one added to comply with the County's development rules. Properties in this subdivision seem to have a stronger claim for a large lot/low development type of credit. Still, their initial stormwater bills were lower due to the fact they have smaller amounts of impervious area on each property.



**Figure 6. Low Density Lots at Wadley Farms Subdivision**

RFC does not recommend implementing a large lot or low development credit in response to the conditions found within these subdivisions. If the County elected to provide a credit to homeowners associations or individual properties in subdivisions for stormwater treatment practices, both subdivisions could be eligible for stormwater treatment credits.

#### **4.4 AGRICULTURAL ZONED DEVELOPED PROPERTIES**

RFC visited one large farm, Petrocco Farms, and surveyed several others from their perimeters. Petrocco Farms had one large pond for irrigation purposes and irrigation ditches located throughout. The property visited had, in addition to irrigation ditches, some ditch lines that convey runoff from other areas of the property to the public drainage system. These ditches were not vegetated, providing little protection to the public drainage system from off-site sedimentation. At the visited site, it was noted that Petrocco Farm might have some opportunities to reduce stormwater impacts through stormwater pollution prevention practices (see Figure 7) such as shoring up secondary containment structures for above ground storage tanks, ensuring that pollutants from equipment washing do not enter the storm drainage system, and vegetating drainage channels and protecting them from excessive sedimentation. RFC and utility staff determined that simply having an agricultural operation was not a creditable activity, but that if the utility adopted a credit for pollution prevention activities, farming operations could be candidates for such a credit.



**Figure 7. Opportunity for Pollution Prevention Measures at Petrocco Farms**

#### **4.5 COMMERCIAL PROPERTIES WITH BMPS**

RFC visited and assessed three commercial properties with BMPs that were required at the time of construction: Spurgeon Enterprises, JATC, and Jim Paris Tires. The BMPs were designed to meet standards set forth in the County’s development regulations. One of the BMPs had an outflow structure near its base, serving only to limit runoff’s peak flow (see Figure 8), while the others were designed to control volume as well. These sites would be candidates for stormwater fee credits, as they effectively managed both water quantity and quality.



**Figure 8. BMP at Spurgeon Enterprises**

#### **4.6 METROPOLITAN DISTRICTS AND OWNER ASSOCIATIONS**

In Colorado, there are many Metropolitan Districts to provide services that supplement city or county services. Within the utility’s stormwater utility service area, there may be several Metropolitan Districts that provide some level of drainage infrastructure investment and maintenance. Similarly, some home or commercial owners associations may also include drainage maintenance in their bylaws and have an existing fee that supports those activities. The utility has an interest in identifying those regions and entities, and allowing for credit (or a reduced rate) for properties whose infrastructure or adjacent infrastructure is maintained by another entity, as this may reduce the demand on utility maintenance resources.

The enabling legislation for Metropolitan Districts states the goal of preventing “unnecessary proliferation and fragmentation of local government and to avoid excessive diffusion of local tax sources” (Title 32-1-102). The County’s attorney is assisting in defining the parameters of a Metropolitan District credit or reduced fee.

Aloha Beach, a private neighborhood with a home owners association (HOA), is an excellent example of an HOA owning and maintaining stormwater BMPs (see Figure 9). The neighborhood is located on a strip of land between several interconnected ponds that serve as regional flood control for downstream regions and for which the HOA provides maintenance activities such as picking up trash and cleaning out grates on a regular basis. Organizations in this situation would likely be eligible for water quality treatment and water quantity credits. Given that the HOA maintains the BMP, which are regional, without County assistance, RFC recommends a self-maintenance credit be available as well.



**Figure 9. Aloha Beach Drainage to BMP**

## 5. RECOMMENDATIONS

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RFC recommends a fairly simple credit structure that accommodates the existing stormwater management practices throughout the utility service area. A water quality credit should be made available to stormwater utility customers that maintain BMPs to treat stormwater runoff. Many customers already have BMPs in place as they have been required for new development in the County since 2007. RFC recommends that, in addition to being made available for BMPs, water quality treatment credit should be made available to customers with non-structural stormwater management practices in compliance with NPDES Industrial Stormwater Discharge permits and Stormwater Pollution Prevention Plans (SWPPPs). This set of credits would allow commercial properties, farms, and greenhouses the opportunity for a user fee credit if they exhibit stormwater best management practices. In addition, the utility could create a credit for HOAs that maintain structural BMPs for the neighborhood. The County could allow the credit to be applied to each of the residential properties that are associated with the HOA and drain to the BMP. Another approach would be to apply the credit only to impervious area that is held in common and is owned by the association. While the former approach produces a greater administrative burden on the utility, it seems to fit the circumstances of the residential areas that were observed.

Structural BMPs will have an additional benefit of reducing peak flow and runoff volume (water quantity credit components). This is distinguished from water quality in the recommendation as not all activities (especially non-structural BMPs) will result in both benefits. A water quantity credit is recommended for structural BMPs.

Those customers that conduct maintenance on components of the stormwater system should be eligible for an additional credit as those activities may actually reduce the utility costs that are otherwise not reducible.

RFC does not recommend implementing a large lot or low density development credit, and the utility staff has expressed agreement with this policy. In Adams County, property size itself is not particularly relevant to the utility's costs, so it would be a tenuous modification to the rate structure (and may call into question the impervious area basis for the structure). From a public perception standpoint, neither credit for large lots nor credit for low density development addresses all of the concerns brought forth by single family property owners. Finally, establishing either of these credits for only residential customers would be unfair to non-residential customers. Establishing these credits for all properties would greatly expand the customer base eligible for credit of some type thereby increasing the uncertainty of revenue from the stormwater user fee; a concern secondary to the primary point that there is not a sound basis for a credit based on property size.

There are several credit types that are not relevant to Adams County, including education, participation, low impact development, and credits for permeable surfaces. These options have been excluded from RFC's recommendation.

## 6. FINANCIAL CONSIDERATIONS

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Beyond identification of property conditions and activities that coincide with the County's goals or permit requirements, a credit program should have a solid foundation rooted in an understanding of the relationship between the credits, program costs, and revenue. The credit types detailed in the previous section were used in the following financial considerations.

### 6.1 MAXIMUM CREDIT AVAILABLE

Under its MS4 permit, the County is held responsible for stormwater quality throughout the entire jurisdiction, including the drainage system associated with its roads. The County is also responsible for ensuring the maintenance and operation of the drainage system, much of which is associated with roadway drainage. RFC estimates that County roads account for approximately 40% of the impervious area in the stormwater utility service area. At a fundamental level, since stormwater quality and quantity management costs are tied to impervious area, 40% of program costs will remain static regardless of the existence of creditable conditions. This makes 60% of the fee a practical maximum for any property that manages all of its own stormwater runoff. The remaining fee paid would go to fulfilling County stormwater management obligations outside the property boundary.

RFC completed a thorough review of present and planned stormwater program costs. All program costs were categorized between operations and maintenance (O&M) expenses and capital expenditures, and further divided among the following subcategories: O&M (abbreviated OM in Table 1); Administration Billing, and Enforcement (ABE), Water Quality (WQ), and Flood Control (FC). Table 1 summarizes these costs and their categorizations.

**Table 1. Stormwater Utility Costs and Categorizations**

<b>Cost Category</b>	<b>Capital/ Operations</b>	<b>Cost Type</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
<b>WQ</b>	Capital	UDFCD Master Planned & Emergency Projects - 30%	\$ 1,335,000	\$ 1,143,000	\$ 1,120,500	\$ 2,815,500	\$ 2,473,500
<b>FC</b>	Capital	UDFCD Master Planned & Emergency Projects - 70%	3,115,000	2,667,000	2,614,500	6,569,500	5,771,500
<b>WQ</b>	Operations	10% of Street Sweeping Costs	19,410	19,886	20,373	20,872	21,383
<b>WQ</b>	Operations	10% of Street Sweeping Waste Disposal Fees	5,964	6,110	6,260	6,413	6,570
<b>WQ</b>	Operations	Illicit Discharge Disposal Fees	25,000	25,613	26,240	26,883	27,542
<b>WQ</b>	Operations	Emergency Costs	25,000	25,613	26,240	26,883	27,542
<b>OM</b>	Operations	Stormwater System Inventory, Mapping and Condition Assessment	200,000	200,000	100,000	25,000	25,000
<b>OM</b>	Operations	Inlet Cleaning	50,000	51,225	52,480	53,766	55,083
<b>OM</b>	Operations	Storm Sewer Pipe Cleaning	-	35,000	35,858	36,736	37,636
<b>OM</b>	Operations	Storm Sewer Locating and Cleaning	-	65,000	66,593	68,224	69,896
<b>OM</b>	Operations	Maintenance Crew	-	107,660	110,298	113,000	115,768
<b>OM</b>	Operations	Equipment Costs for New Maintenance Crews	-	160,000	163,920	167,936	172,050
<b>OM</b>	Operations	Materials and Supplies for Maintenance Crews	-	75,000	76,838	78,720	80,649
<b>WQ</b>	Operations	Staff Cost for MS4 Compliance	391,052	402,784	414,867	427,313	440,132
<b>ABE</b>	Operations	Staff General Operations	310,153	203,373	193,820	181,860	199,978
<b>FC</b>	Operations	Staff	2,000	2,060	2,122	2,185	2,251
		<b>Totals</b>	<b>\$ 5,478,579</b>	<b>\$ 5,189,322</b>	<b>\$ 5,030,907</b>	<b>\$ 10,620,791</b>	<b>\$ 9,526,480</b>

Some costs types can be reduced if entities other than the County take on service provision (such as providing infrastructure maintenance). A term for this is “compressible”. Other costs cannot be reduced appreciably, in other words they are non-compressible: these cost types are assumed to be included in the 40% of costs associated with road impervious area. Also included in this portion are operation and maintenance costs that might be reduced if organizations external to the utility provided some O&M services. The remaining 60% can be divided between water quality treatment and water quantity in the proportions they are present in the above table.

Using this categorization scheme, different types of credits can be associated with appropriate credit amounts. Figure 10 summarizes these proposed maximum credit amounts:

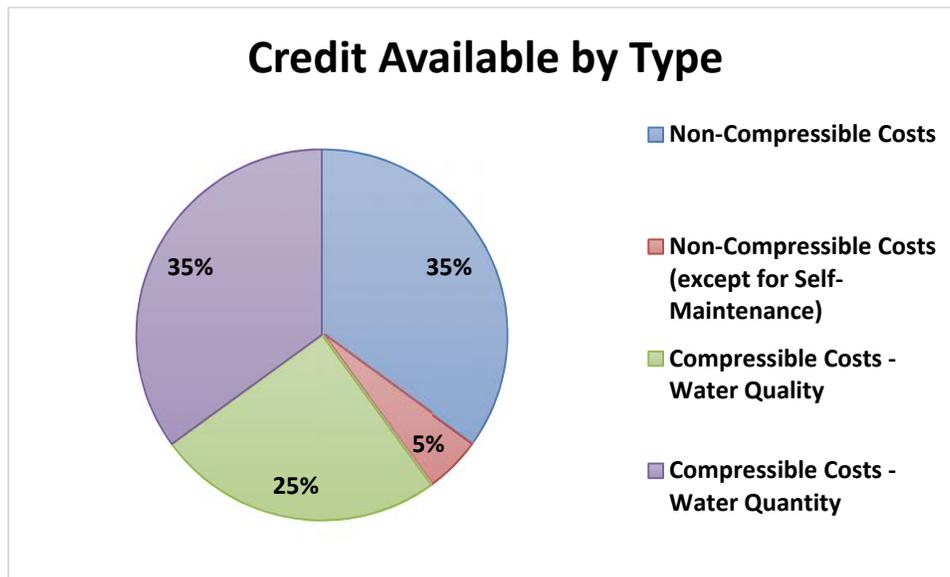


Figure 10. Credit Available by Type, Based on Utility Costs

## 6.2 ANTICIPATED LEVEL OF PARTICIPATION

Participation in the credit program is, influenced by a number of factors such as the number, type, complexity, and cost of compliance for credit options available to customers. The site visits completed during this project established a sense of the number and variety of creditable circumstances around the utility service area. The assessment of these properties, along with extensive experience with other utility programs, became the baseline for RFC’s credit program recommendation. County population growth figures can be used as one variable in estimating credit program participation, since newer commercial properties and residential developments are required to construct and maintain stormwater BMPs. The anticipated level of successful participation in the credit program is about 5% of non-single family residential customers/properties, based on estimated growth since the County Development Regulations were put into effect in 2007 (averaging over 2% per year according to US Census data). Together, SWPPP and NPDES permit holders may comprise an additional 3% of water quantity and water quality credit recipients. This estimate is based on information regarding known NPDES permit holders as well as the amount of impervious area on properties used for agricultural and industrial purposes, SWPPP

credit represents the greatest amount of uncertainty in this estimate as it is difficult to know how many opportunities for SWPPP implementation exist and of those, how many property owners will pursue that as a means to lower their stormwater fees. A smaller number of properties (2%) are likely to be eligible for the self-maintenance credit. This figure represents those properties geographically situated to perform self-maintenance on utility infrastructure and organizationally inclined to do so (for example, community associations). RFC's experience indicates that most utilities experience a relatively low level of participation and attendant revenue reduction, although there are a few exceptions; as such, a reasonable range of revenue reduction of between 3% and 7% can be expected based on the recommended credit program.

### 6.3 REVENUE IMPACTS

With this conservative anticipated level of participation, revenue would be expected to decrease proportionately. The Table 2 summarizes the calculation of these potential impacts based on the percentage of fee available for credit, anticipated participation, and utility fee revenues.

**Table 2. Non-Residential Credit Revenue Impact Calculation**

Line Number	Factor	Proportion
	<b><i>Percentage of fee available for credit</i></b>	
1	Maximum Credit (Water quality and quantity credits))	60%
2	Maximum Credit (Self-Maintenance)	5%
	<b><i>Percentage of properties participating</i></b>	
3	Anticipated Participation (Water quality and quantity credits)	8%
4	Anticipated Participation (Self-Maintenance)	2%
	<b><i>Percentage of total rate base involved</i></b>	
5	Non-Single Family Proportion of Rate Base	62%
	<b><i>Percentage of revenue impacted</i></b>	
6	Revenue Impact for WQ & WQ (Product of lines 1, 3,&5)	3.0%
7	Revenue Impact for Self-Maintenance (Product of lines 2,4, &5)	0.1%
8	<b>Total Estimated Revenue Impact for Non-Residential Credits (Sum of lines 6 &amp; 7)</b>	<b>3.1%</b>

The utility's annual billed user charge revenue was originally anticipated to be about \$5.1 million. This figure is lower than the utility's costs (shown in table 1) because the actual rate base was much smaller than first anticipated, when poorer quality impervious area data was used to set the rate. On April 1, 2013, the County's Board of Commissioners amended the original rates to cap the fee per parcel. The utility fee caps were set for each of the seven parcel classifications in the utility service area (residential, commercial, industrial, exempt, agricultural, state assessed and mining).<sup>4</sup> Thus the utility's capped user fee revenue was, in fact, approximately \$2.1 million in fiscal year 2013-2014. The

<sup>4</sup> Resolution revising 2013 stormwater utility fees associated with the Stormwater utility program. Adopted by the Adams County Board of Commissioners on April 1, 2013. Accessed November 25, 2013 at [http://adams.granicus.com/MetaViewer.php?view\\_id=6&clip\\_id=1232&meta\\_id=61161](http://adams.granicus.com/MetaViewer.php?view_id=6&clip_id=1232&meta_id=61161)

collection rate has been between 98 and 99%. If the cap remained, the revenue loss might be about \$64,000 based on the recommended credit programs and estimated participation. Under the original, uncapped rates, this utility would expect to see about a \$125,500 revenue loss. The number of credits would likely increase slowly over time, and likely would eventually exceed 3% (as illustrated in Table 2). However, the County is also experiencing growth and an expanding rate base. So, while new developments would likely be eligible for credit, the credits would simply offset the expected rate base increases rather than negatively increase total revenue.