

## ENVIRONMENT COMMITTEE AGENDA

Thursday, February 14, 2013 – North Conference Room

5:45 PM – 6:45PM

1. Approval of January 10, 2013 minutes
2. Draft 2013 Work Plan
3. SWM Rate Structure Study Update- Issue Papers 1-5

## MINUTES - ENVIRONMENTAL COUNCIL COMMITTEE MEETING 01/10/2013

The meeting was called to order @ 5:30 PM, Thursday, January 10, 2013, in the North Conference Room @ 21630 11<sup>th</sup> Avenue South, Des Moines with the following in attendance:

### Council Members

Dave Kaplan, Chair  
Melissa Musser  
Dan Caldwell

### Guests

Kevin Kiernan, Asst Director  
King County Solid Waste Division  
Diane Yates, Intergovernmental & Legislative  
Liaison, King County Solid Waste Division

### City Staff

Tony Piasecki, City Manager  
Lorri Erickson, Asst City Manager  
Dan Brewer, Acting PW Director  
Denise Lathrop, Acting Com Dev Director  
Loren Reinhold, Environment/Utilities  
Engineer  
Peggy Volin, Admin Asst  
Laura Techico, Planner

### AGENDA:

1. Approve minutes of August 9, 2012
2. ILA Regarding King County Landfills
3. SWM Rate Structure Study Update

### MEETING:

Dave Kaplan was elected chair for the Environmental Committee to take over for Bob Sheckler, who resigned from the Committee in August 2012.

2013 Environmental Committee Work Program was handed out for review only as this will be put on the agenda for the February 14<sup>th</sup> Committee meeting as an item for discussion.

1. Minutes of August 9, 2012, were unanimously approved.
2. ILA Regarding King County Landfills: Laura handed out copies of the Amended and Restated Solid Waste Interlocal Agreement between King County and Cities. She introduced Kevin Kiernan, Assistant Director King County Solid Waste Division, who went over a power point presentation that gave the background/history of the agreement; talked about environmental liability; covered the key improvements over the current ILA; the transfer system and outlined the benefits of the new ILA. He wound up the presentation with the next steps in the process and discussed an interim timeline of January 31, 2013 for the cities to sign a Non-Binding Statement of Intent to signing the ILA and also gave the committee a suggested time line of April 30, 2013 to act upon the ILA to allow sufficient time to develop financial policies that will affect the next rate study. Tony suggested that the ILA be brought forward to the Council for approval on January 24<sup>th</sup> –

substantially in the form as submitted. The Committee members concurred with the understanding that if there are any substantial changes it would be brought back to the Council for further discussion.

3. SWM Rate Structure Study Update: Loren updated the committee on the status of the Rate Structure Study. He stated the consultant (FCS Group) has completed their review of the City's rate ordinances and is presently reviewing the billing system for inconsistencies. They have also prepared three issue papers that will be available for committee review at the February 14, 2013 committee meeting. The issue papers concern the rate structure, private streets, and stormwater rate credits. After some discussion, the committee directed staff to add fourth and fifth issue papers addressing multifamily properties and SWM rates as they apply to public institutions.

Per the schedule discussed, the Committee will review the issue papers at the February 14<sup>th</sup> meeting. Comments from that meeting will be incorporated and the papers would be distributed to the rest of the Council. The rate report and final draft issue papers along with a draft ordinance is scheduled for review at the April Committee meeting. Pending the outcome of the April meeting, the rate study and an ordinance would go to Council in May or June to allow sufficient time for King County to alter the billing system for next year.

Adjourned @ 6:24 PM

Submitted by: Peggy Volin, Administrative Assistant

**2013 Environment Committee  
Work Program  
(December 12, 2012)**

**January 10, 2013**

Draft 2013 Work Program  
ILA regarding King County Landfills  
SWM Rate Structure Study Update

**February 14, 2013**

SWM Rate Structure Study Consultant Briefing

**March 14, 2013**

*Southwest Suburban Sewer District Comprehensive Sewer System Plan – Tentative  
City Works Program – SWM Maintenance Update/Demonstration*

**April 11, 2013**

SWM Rate Structure Study Consultant Briefing

**May 9, 2013**

Project Updates  
NPDES Program Update

**June 13, 2013**

*Lakehaven Utility District Comprehensive Water System Plan - Tentative  
Greenroads Certification Process: Discussion of Environmental Stewardship on S. 216<sup>th</sup>  
Street – Segment 2 (18<sup>th</sup> Ave. S. to 24<sup>th</sup> Ave. S.)*

**July 11, 2013**

No meeting scheduled.

**August 8, 2013**

*Pipe Replacement Program: video survey results - Tentative*

**September 12, 2013**

SWM Capital Improvement Budget  
Project Updates

**October 10, 2013**

Budget Discussions

**November 14, 2013**

Comprehensive SWM Plan

**December 12, 2013**

No meeting scheduled.



## City of Des Moines

### Stormwater Rate Study February 14, 2013

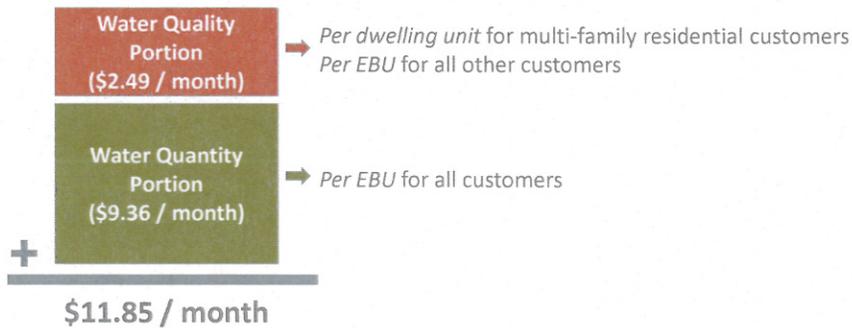
 **FCS GROUP** 7525 – 166<sup>th</sup> Ave. NE, Suite D-215, Redmond, WA 98052 ■ 425-867-1802

### Work Plan

- ❖ Develop Rate Structure Policy Framework
  - Rate structure alternatives
  - Private streets and public right-of-way
  - Rate credits
  - Multi-family rates
  - Rates to public entities
- ❖ Revenue Neutral Rate Analysis
  - Recalculate equivalent billing unit (EBU) value and resulting total EBUs
  - Develop rate structure alternatives incorporating outcomes of the policy discussion

## Existing Rate Structure

- ❖ Existing rate structure consists of two components:



- ❖ One equivalent billing unit (EBU) is equal to one single family residential dwelling; 2,400 sq. ft. of impervious surface area for non-single family residential customers.

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## Other Rate Structure Alternatives

- ❖ **Density of development**
  - Measure of development intensity (% coverage) applied to parcel size.
  - Acknowledges that, for example, 3,000 sq. ft. developed area on a 5,000 sq. ft. lot more directly impacts the stormwater system than 3,000 sq. ft. developed area on a one acre lot, *if not directly connected to the public system.*
- ❖ **Runoff coefficients**
  - Measure of property runoff characteristics associated with physical characteristics such as slope, soil type, lot size, etc.
- ❖ **Land use**
  - Runoff characteristics are linked to types of land use.
- ❖ **Trip generation**
  - Relates non-point source pollution to automobile traffic generated by properties.

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## Rate Structure Recommendations

- ❖ Maintain the existing rate structure
  - Impervious surface area is widely used and accepted as an appropriate measure of a property's contribution of runoff, providing a clear relationship, or "rational nexus", to service received from a stormwater program.
- ❖ Update the EBU definition to reflect the current average impervious surface area of single family residential customers.
- ❖ Recalculate the water quality and water quantity rate components based on the utility's current program costs.
- ❖ Charge multi-family residential customers based on impervious surface area for both the water quality and water quantity components – similar to commercial customers. Eliminate per dwelling unit approach for multi-family customers.

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## Private Streets and Public Right-of-Ways

- ❖ Existing Policy
  - Public streets are exempt from stormwater fees.
  - Private streets are charged, but receive a 30% rate credit.
- ❖ Recommendation
  - Continue to exempt public streets because they are part of the stormwater conveyance system.
  - Recalculate the rate credit amount for private streets based on "*benefits or cost savings*" provided to the utility.

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## Stormwater Rate Credits / Discounts

- ❖ Existing Policy
  - Low-income elderly or disabled customers receive a 30% rate discount.
  - Private streets receive a 30% rate discount.
  - There are no other rate credits or discounts offered to customers.

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## Stormwater Rate Credit Alternatives

- ❖ On-site retention / detention
  - Performance against current standards
  - Current vs. older standards for quality and quantity management
- ❖ Customers covered by NPDES stormwater permits
- ❖ Infiltration
- ❖ Low-impact development, green building, and rainwater harvesting
- ❖ Dedicated open space

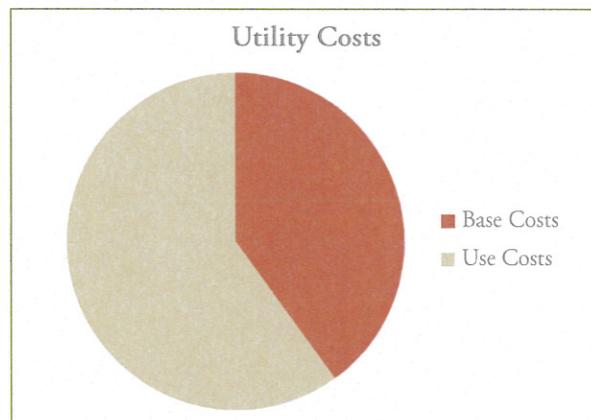
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## Stormwater Rate Credits Recommendations

- ❖ Continue providing low-income senior or disabled rate discounts.
- ❖ Continue providing rate discounts to private streets (recalculated)
- ❖ Institute a rate credit policy for qualifying on-site mitigation facilities, and individual NPDES stormwater permit holders
- ❖ Determine rate credit amounts based on utility's cost structure, cost savings provided by rate credit beneficiaries.
- ❖ Regularly inspect for proper maintenance of on-site facilities, and require periodic renewal / application process for rate credits.

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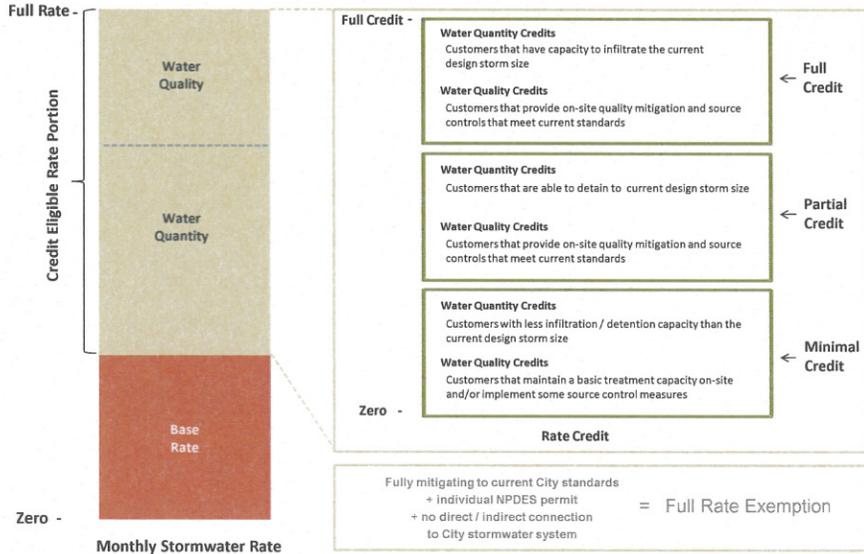
## Stormwater Rate Credit Approach



- ❖ **Base costs** are essentially fixed costs, and do not decrease no matter what services customers provide on-site.
- ❖ **Use costs** are those that are affected (reduced) by on-site mitigation, and become the basis for cost-based credit

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## Application of Credit Approach



## Other Issues / Questions

**To:** Loren Reinhold, City of Des Moines

**Date:** February 6, 2013

**From:** John Ghilarducci, FCS GROUP

**RE:** Summary of Policy Recommendations

In October 2012, the City of Des Moines (City) engaged FCS GROUP to perform a comprehensive stormwater rate structure study. To establish a policy framework for the technical analysis, FCS GROUP prepared five (5) issue papers on specific stormwater rate related topics for discussion with the City. The following topics are addressed:

1. Stormwater Rate Structure
2. Stormwater Fees for Private Streets
3. Stormwater Rate Credits
4. Stormwater Multi-family Rates
5. Stormwater Public Institution Rates

Each issue paper defines and analyzes the specific issue being considered, presents alternative solutions (including industry standards and comparable utility practices, if applicable), and recommends (for discussion) a course of action. The recommendations presented in these issue papers are summarized below.

## STORMWATER RATES & TREATMENT OF SPECIFIC CUSTOMER CLASSES

Regarding the stormwater rates and treatment of specific customer classes such as multifamily residential customers, private streets, and public institutions, we recommend that the City

- ◆ maintain its current stormwater rate structure basis of impervious surface area, with single family residential customers defined as one EBU and non-SFR customer charges based on the actual measured impervious surface area per parcel,
- ◆ measure the impervious surface area of a sample of single family residential homes, and update equivalent billing unit value,
- ◆ charge its multifamily residential customers similar to commercial customers -- based on a impervious surface area both for water quality and water quantity rate components, and eliminate the current per dwelling unit water quality rates,
- ◆ charge public property the same as any other customers. (Credits, as we have laid out in Issue Paper #3 and summarized below, would also apply to all customer types, including schools).
- ◆ continue exempting public streets from the stormwater rates as they are considered a key part of the stormwater conveyance system, and
- ◆ continue charging private streets as non-residential property, but at a discounted stormwater fee to recognize the offsetting benefit of streets to the stormwater system. The calculation of a cost based discount factor may be addressed more equitably by quantifying the offsetting contribution and benefit to determine a more exact portion of the rate to be charged to private streets.

## STORMWATER RATE CREDITS

The following recommendations assume that properties subject to stormwater rate credits would be meeting or exceeding the City's development requirements, hence allowing the City to delay capital projects. As a result, the utility would be able to reduce its capital as well as operating costs by as a result of qualifying on-site mitigation.

### Quantity Credits

- ◆ Infiltration:
  - A full credit for the quantity-related portion of the utility should bill be granted to customers that have capacity to infiltrate the current design storm size.
  - A minimal quantity credit should be offered to customers with less infiltration capacity than for the design storm size.
- ◆ Detention facilities:
  - Customers that are able to detain to current standards should receive a quantity-related credit that is less than a full credit for this portion of the bill.
  - Customers with less detention capacity than for the design storm size should receive a minimal credit for the quantity component of the bill.
- ◆ Development methods which incorporate features that mitigate stormwater runoff such as low impact development, green building, rainwater harvesting:
  - Quantity-related mitigation should be eligible for a minimal credit against the quantity rate component.
  - When paired with detention facilities sized for the design storm, customers should receive a full credit against the quantity rate component.

No credit or adjustment should be granted to customers without meaningful quantity mitigation capability.

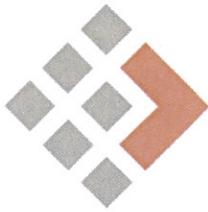
### Quality Credits

- ◆ A full credit for the quality-related portion of the utility bill should only be granted to customers that provide on-site quality mitigation and source controls that meet current standards.
- ◆ A minimal credit to the quality portion of the stormwater utility bill should be provided to customers that, while not meeting current requirements, do maintain a basic treatment capacity on-site and/or implement some source control measures.

No credit should be granted to customers that have no on-site quality controls or provide only nominal quality mitigation

### Other Credits

Customers with individual NPDES stormwater permits should be eligible for the same rate credits as any other non-residential customer. No dedicated credit for simply possessing a permit should be established.



## Issue Paper #1: Stormwater Rate Structure February 1, 2013

### Issue:

The City of Des Moines stormwater utility rate is currently based on impervious surface area with two rate components: water quantity and water quality. Single family homes are charged a flat rate for both components based on an assumed average of 2,400 square feet of impervious surface area, commercial properties are charged a variable rate for both components based on actual impervious square footage divided by one Equivalent Billing Unit (EBU; equal to 2,400 square feet of impervious surface area), and multi-family customers are charged a flat rate for water quality on a per dwelling unit basis and a variable rate for water quantity based on actual impervious area that is calculated the same as the commercial rate.

The City has requested an evaluation to determine if the current rate structure continues to be the most appropriate for purposes of rate equity and administration. City staff indicated that newer single family homes are much larger now, and it might be reasonable to reevaluate the EBU size to ensure it remains accurate.

### Alternatives:

There are a number of rate structures which can fulfill the need for an appropriate and equitable stormwater rate.

- ◆ **Impervious surface area.** The most common basis for charging stormwater fees is impervious surface area (ISA). The term refers to hard surface area that prevents or slows water permeation into the ground. Impervious surface area is widely accepted as an appropriate measure of a property's contribution of runoff, providing a clear relationship, or "rational nexus," to service received from a stormwater program. This has been the basis of charging since the inception of the City's stormwater utility.

Rate structures based on impervious surface area require per-parcel data quantifying the applicable impervious surface area. Similar to the approach adopted by the City, stormwater utilities typically develop a uniform rate for single family residential (SFR) customers based on an estimated average amount of ISA per residential parcel to minimize administrative and data collection costs. The charge basis for all other customer types (non-SFR) is generally actual measured impervious surface area by parcel. The charge itself is most commonly calculated as a dollar amount per unit of impervious surface area, or EBU in the City's case. For the City, one impervious unit is 2,400 square feet of

ISA, with all single family residences charged for one EBU.

Note that, under this structure, while all non-SFR impervious surface area is accounted for in the monthly rate, all single family residential developments are typically assessed the same monthly fee. In so doing, in essence, some (smaller) homes are charged for impervious area that they do not have, and other (larger) homes are not charged for impervious area that they do have. This has been thought to be a worthwhile tradeoff for the added administrative burden of distinguishing among single family residences.

- ◆ **Density of development.** An alternative measurement of runoff contribution, known as density of development, can also be used. The term refers to density factors that can be applied to parcel size. Density factors may also be used in combination with actual ISA measurements to adjust charges depending on the percentage of the parcel covered by hard surface. As an adjusting factor, it is used to acknowledge that, for example, 3,000 square feet of impervious surface on a 5,000 square foot lot more directly impacts the public system than 3,000 square feet of hard surface on a one-acre lot. As with impervious surface area, density of development is an appropriate charge basis because it adequately quantifies the relationship between the rate paid and the amount of service received.
- ◆ **Runoff coefficients.** Yet another measurement of a property's contribution to stormwater impacts is the runoff coefficient. The factor is similar to density of development, but it is more closely associated with the physical characteristics of properties. When applied to lot size, runoff coefficients are generally accepted as a measure of stormwater contribution and hence, service received. Information required to charge under this basis includes basic physical characteristics of land (such as slope and soil type), land use, and lot size. Under this approach, undeveloped parcels may also be charged depending upon slope variables and soil characteristics. Runoff coefficients are typically charged either as a fee per unit of area or as an adjustment factor to impervious surface area to modify the final charge based on a parcel's runoff characteristics. In measuring contribution to stormwater runoff by evaluating property-specific characteristics that cause impacts, this approach rationally recovers the costs of several aspects of the stormwater program.
- ◆ **Land use.** Another basis that can be used to develop rates is land use. Using this fee approach, runoff characteristics are linked to types of land use. For example, empirical analysis may find that industrial land use has a more significant contribution to water quality problems from stormwater runoff than undeveloped land and therefore, should be charged a proportionately higher rate for its share of program costs.
- ◆ **Trip generation.** While the fee structures discussed above focus on

runoff contribution, trip generation as a fee basis attempts to relate automobile traffic to non-point source pollution contributed by properties. Data used to measure traffic is available from the Institute of Transportation Engineers' Trip Generation manual, which assigns a number of daily trips generated by specific categories of land use. In addition to this information, customer land uses and lot size would be required to accurately calculate rates. This fee approach would be best used to recover the costs of water quality activities within the stormwater program.

**Analysis:**

A rate may be found legally valid if the funded services generally benefit those who pay the fee. There need not be a property-specific link between the fee paid and level of service delivered. In fact, case law (*Teter v. Clark County*) has supported that a reasonable effort must be made to link services delivered to fees charged, but that the linkage need only be indirect.

Throughout the United States, impervious surface area is a widely accepted measure of contribution of runoff, providing the basis for stormwater rates in most utilities. Additionally, the "functional" nexus between impervious surface area, contribution of runoff, and increased flooding, water quality degradation, and damage to habitat is "scientifically" strong and supportable.

The following selection from *Stormwater Strategies: Community Responses to Runoff Pollution* describes this nexus clearly:

"The problem of polluted stormwater runoff has two main components: the increased volume and rate of runoff from impervious surfaces and the concentration of pollutants in the runoff. Both components are highly related to development in urban and urbanizing areas. When impervious cover (roads, highways, parking lots, and rooftops) reaches 10 and 20 percent of the area of a watershed, ecological stress becomes clearly apparent. Everyday activities, including driving and maintaining vehicles, maintaining lawns and parks, disposing of waste, and even walking pets, often cover these impervious surfaces with a coating of various harmful materials. Construction sites, power plants, failed septic systems, illegal discharges, and improper sewer connections also contribute substantial amounts of pollutants to runoff. Sediments, toxic metal particles, pesticides and fertilizers, oil and grease, pathogens, excess nutrients, and trash are common stormwater pollutants. Many of these constituents end up on roads and parking lots during dry weather only to be washed into waterbodies when it rains or when snow melts.

Together, these pollutants and the increased velocity and volume of runoff cause dramatic changes in hydrology and water quality that result in a variety of problems. These include increased flooding, stream channel degradation, habitat loss, changes in water temperature, contamination of water resources, and increased erosion and sedimentation. These changes affect ecosystem functions, biological diversity, public health, recreation, economic activity, and general community well-being. Urban stormwater is not alone in causing these impacts. Industrial and agricultural runoff are equal or greater contributors. But the environmental, aesthetic, and public health impacts of diffuse pollution will not be eliminated until urban stormwater pollution is controlled."<sup>1</sup>

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<sup>1</sup> Peter H. Lehner, George P. Aponte Clarke, Diane M. Cameron, and Andrew G. Frank, *Stormwater Strategies Community Responses to Runoff Pollution (Natural Resources Defense Council, May 1999)*, xi.

In addition to increasing the deposition of pollutants, supporting scientific research shows that the impervious surface area in even moderately developed areas greatly increases peak flows to streams, while decreasing base flows. The higher peak flows cause flooding and erosion, increasing sediment deposition and damage to aquatic habitat. The lower base flows can also damage habitat.

So, the impervious surface area rate basis is widely supported and accepted. That is not to say, however, that the method with which it has been typically applied does not warrant examination.

For example, it may be beneficial to create individual distinctions or size classes for single family residential customers in those cases where there is a wide range in the amount of ISA on single family parcels.

Additionally, an ISA-based rate structure can also be enhanced by incorporating density of development – as the City does for non-SFR customers – based on the fact that more intense development more directly impacts the public stormwater system.

The runoff coefficient approach is more difficult to administer than an ISA-based charge, would require a relatively extensive data collection effort on the part of the City, and is less defensible as a fee basis, because it incorporates physical land characteristics over which the property owner has little or no control.

A land use based approach, while administratively simple compared to an ISA-based approach, is typically used only when property-specific ISA information is unavailable. Finally, trip generation, while supportable for water quality-related functions, provides little if any advantage over impervious surface area at greater administrative effort and associated cost.

**Recommendation:** We recommend that the City maintain its current stormwater rate structure that is based on impervious surface area, with single family residential customers defined as one EBU and non-SFR customer charges based on the actual measured impervious surface area per parcel. We also recommend that the City charge its multifamily residential customers - similar to commercial customers - based on a impervious surface area both for water quality and water quantity rate components, and eliminate the current per dwelling unit water quality rates. Please note that, at the request of City staff, a separate issue paper has been prepared discussing multifamily residential rates and recommended charges in more detail. An impervious-based rate structure defines a linkage between a parcel's contribution of runoff impacting the system infrastructure and the fee that parcel pays. The fee basis creates a standard of charging that quantifies how different amounts of impervious surface area cause proportionately different impacts on the environment in terms of flooding, water quality, and habitat degradation. By recognizing that relationship, the fee structure basis proportionately charges different customers their share of the system's cost burden and provides an equitable, defensible means of cost

recovery for stormwater management. This proportionality is strengthened with the addition of a tiered residential rate, however preliminary data suggests that the impact to the stormwater rate may not be sufficient to justify the expense of generating home-by-home ISA data.

Finally, we recommend that the City account for the updated average ISA per SFR home since utility inception. This could be accomplished either through an updated equivalent billing unit value or by increasing the assumed number of EBUs for single family residences. We have attached directions for sampling and measuring the average impervious surface area of single family residences that we would recommend.

# CITY OF DES MOINES

## COMPREHENSIVE STORMWATER RATE STRUCTURE STUDY

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### MEASURING THE AVERAGE IMPERVIOUS SURFACE AREA OF SINGLE FAMILY RESIDENCES

By employing GIS analysis techniques, the City can determine the average impervious surface area for single family residences and establish its equivalent service unit (EBU) definition. Based on the new EBU definition, the number of EBUs for each non-single family residential customer could be subsequently calculated.

To assist the City in determining the average impervious surface area for single family residences, FCS GROUP has developed the following preliminary work plan.

#### Proposed Approach

1. Segregate single-family residential (SFR) and non-SFR (all other) accounts in the selected billing list.
2. Number single-family residential accounts sequentially in an unused field, starting with the number 1. For example, assuming there are 7,000 single family parcels, number these parcels 1 through 7,000 in their existing order, *regardless of any other recorded numbering system*, e.g., assessor parcels number or location identification number. These numbered parcels will make up the population from which the sample will be taken.
3. Using random numbers generated in Excel<sup>2</sup> to identify parcels to be sampled, extract the following information from each sampled parcel and record it on the worksheet provided:
  - Sample number
  - Property address
  - Other common identifier (if applicable)
  - Utility billing account number
4. Continue sampling and recording data until a sample of 126 parcels has been compiled. *Note: Appendix A details the methodology used to determine the recommended sample size.*
5. Using the common parcel identifier and corresponding maps, identify each sampled parcel on the system.
6. Measure impervious surface area on each of the sampled parcels using AutoCAD or ArcView. Record measured impervious surface area on worksheet. Note any anomalies or irregularities on the worksheet, identifying the parcel(s) concerned by the sample number or common identifier.
7. Deliver completed worksheets to FCS GROUP for statistical analysis.

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<sup>2</sup> FCS GROUP can provide the random numbers if desired.

# APPENDIX A

## SAMPLE SIZE DETERMINATION

Recommended sample sizes were determined in the following manner.

For residential parcels, the sampling program is intended to verify the *average amount of impervious area per dwelling unit* in order to determine the value of an equivalent dwelling unit. In order to state with confidence that the sample is representative of the entire customer class, the sample size is determined by using a standard estimating technique.<sup>3</sup> This technique is based on: (1) the maximum probable error  $B$  we are willing to tolerate, (2) the expected range of responses to the sample, and (3) a desired level of confidence.

A sampling error  $B$  of 100 square feet was chosen for all residential customer classes because this value yields a manageable sample size, while still providing a reasonably accurate point estimate for the mean.

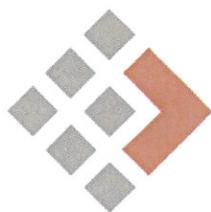
Assuming we wish to be 90% confident that the sample mean represents the population mean  $\pm 100$  square feet, the following formula may be used to determine sample size.

$$n = \frac{1.645 (s)^2}{B^2} ; \text{ where } B = 100, \text{ and } s = \frac{(\text{expected high} - \text{expected low})}{4}$$

If we assume that responses for single-family residences will range between 5,000 and 1,500 square feet of impervious area per unit, this formula yields a sample size of 126 developed single-family parcels.

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<sup>3</sup> Statistics for Business and Economics; S. Christian Albright; 1987.



## Issue Paper #2: Stormwater Fees for Private Streets February 1, 2013

**Issue:** The City's current practice is to charge private streets for their impervious surface area at 30 percent of the base rate, to recognize their offsetting role in stormwater conveyance. The City currently exempts publicly owned streets from the stormwater fee. The main issue in question - Should the City charge private streets a stormwater fee?

**Analysis:** Applicable statute (RCW 35.67.020 and RCW 35.92.020) grants discretion to city legislative bodies in the setting of rates and allowing for the consideration of such factors as differences in the cost and/or character of service provided and capital contributions made to the system.

When considering how to charge different types of customers, it is important to remember that a stormwater rate is a fee for service, not a tax. As such, the level of a customer's charge must substantially relate to that customer's proportionate share of the utility's costs. In terms of equity and legal defensibility, it is important to recognize the significance of that type of relationship when defining exemption because such policies could potentially move a utility away from the rational linkage between service delivered and the amount of the fee.

When a cost of service approach is used as the basis for fee evaluation, exemptions and credits should only be granted when the characteristics of a parcel or improvements to that property cause runoff to differ when compared to similar parcels.

The City's Right-of-Way Construction Standards and Requirements apply to both private and public streets. In comparing the characteristics of the private and public streets it does not appear that the characteristics for stormwater contribution would differ in a significant way. This would indicate they should both be treated in a similar manner.

However, the similar treatment of public streets and private streets diverges when considering the following regarding public streets: first, costs and revenues are coming from comparable "public" sources and, second, public streets can be considered part of the stormwater conveyance system. The conveyance system is a network of pipes primarily designed to intercept drainage from paved streets and transport it underground (generally under a roadway) to an open drainage way. Cities often choose to exempt their streets in recognition of the key role they play in this system.

It is commonly thought that charging public streets simply transfers money from one City fund to another. Administratively, this may be a valid perception. However, by not charging public property, the City may

not accurately and equitably allocate what can be viewed as an overhead cost borne to support the departments that use stormwater services because of their land holdings. Effectively, utility ratepayers bear the costs of stormwater management provided to other user-supported services or the general public. This is not an issue for private streets.

Private streets do not provide such a system-wide benefit. The streets are owned by private owners, homeowners associations, or management groups that are responsible only for stormwater related to the specific development.

The stormwater fee is collected for the purpose of maintaining the City's public stormwater system. The City's stormwater conveyance system includes much more than storm drains. Ditches, curbs, gutters, culverts and open stream channels all make up the citywide drainage system that conveys stormwater runoff away from structures and sites in a manner that minimizes the potential for flooding and erosion to ALL properties. Customers always benefit from adequate, properly functioning drainage and flood control systems that decrease the likelihood of flooding, erosion, and unlimited pollutants from surface and stormwater runoff. Customers also benefit from the regulation and monitoring of the properties above and around the property. Although, the property may have its own stormwater system that complies with best management practices, these devices are not absolute and pollutants generally still exit a property depending on a number of factors such as the intensity and duration of rainfall. The stormwater runoff is still conveyed to the public drainage system.

It is more common than not that each unit of a development with common property (private streets, common driveways and parking areas) such as townhouse developments, cluster unit developments or condominiums is responsible for the pro rata share of the total impervious surfaces of the common areas of the development.

**Alternatives:**

Arguably, there might be some alternative ways to address the issue of stormwater fees for private streets, among them, (1) condominiums could be charged on a per dwelling unit basis and (2) both private streets and sidewalks could be exempted.

First, charging condominiums as residential property would require a change to all multi-family properties. The stormwater rates currently charged to multi-family properties in the City are based mainly on impervious surface area, a common industry practice. Most instances where the rate per multi-family dwelling unit is higher than the single-family residential rate are when properties have a large amount of private streets and roadways.

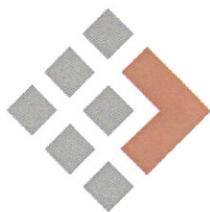
Charging each multi-family unit the same rate as a single-family residential customer would penalize those many multi-family units who have less impervious surface area per unit. This approach would also move away from the relationship of impervious area as an equitable basis for stormwater contribution and instead be a per unit charge for multi-family that is less related to runoff contribution.

Exempting private streets and sidewalks, is perhaps a more problematic approach. The City would require public ownership or access to the private streets and sidewalks; otherwise the exemption could be considered a gifting of public funds – prohibited by law. Any change would have to be offered to all other private streets and sidewalks for consistency. This would result in a loss of revenue for the City that would need to be met through an increase in the rate to other customers.

On the contrary, the City has full access to public streets. Transportation improvement projects on these streets also address storm related elements and issues. The City maintains public streets to their required standards including the street sweeping program, which is not a requirement for private streets. This maintenance can also be considered stormwater conveyance system maintenance that is paid for by City streets.

**Recommendation:** Public streets should continue to be exempted from the stormwater rates as they are considered a key part of the stormwater conveyance system. Private streets should continue to be charged as non-residential property and charged a discounted stormwater fee to recognize the contribution of runoff generated by City streets, but at the same time acknowledge the benefit of City streets to the stormwater system, which is the standard approach in the industry.

The issue of charges to private streets may be addressed more equitably by quantifying the offsetting contribution and benefit to determine a more exact portion of the rate to be charged to private streets.



## Issue Paper #3: Stormwater Rate Credits February 1, 2013

### Issue:

City of Des Moines Municipal Code Section 11.12.080 provides for rate adjustments when the amount charged “was not calculated in accordance with the terms of this chapter.” When is it reasonable (or required) to provide additional rate credits / adjustments for stormwater customers who mitigate their stormwater impacts and what is a rational basis for such credits?

RCW 90.03.510 authorizes such credits, stating that:

“Whenever a county, city, town, water-sewer district, or flood control zone district imposes rates or charges to fund storm water control facilities or improvements and the operation and maintenance of such facilities or improvements under RCW [35.67.020](#), [35.92.020](#), [36.89.080](#), [36.94.140](#), [57.08.005](#), or [57.08.081](#), it may provide a credit for the value of storm water control facilities or improvements that a person or entity has installed or located that mitigate or lessen the impact of storm water which otherwise would occur.”

### Alternatives:

A review of potential credit bases / approaches reveals a number of alternatives.

- ◆ **On-site retention / detention.** Many residential subdivisions and commercial developments provide on-site retention / detention facilities as a condition of development, often maintaining such facilities as well. There are several ways to structure a potential rate credit for on-site retention / detention, the following among them:
  - ◆ **Performance against current standards.** Rate credits may be structured to reward customers who provide mitigation to current development standards, while offering lesser or no credits for mitigation that does not meet current development standards.
  - ◆ **Current vs. older standards for quantity and quality management.** Quantity and quality standards have increased greatly over the years. The City could offer credits by time of development, in order to reflect the benefit received from customers who help meet this historical change in stormwater management standards.
- ◆ **Customers covered by NPDES stormwater permits.** In order to protect the quality of receiving waters, the federal Clean Water Act requires a National Pollutant Discharge Elimination System (NPDES) permit for stormwater generated by specific industrial activities. The NPDES permit typically requires performance standards, monitoring,

and additional treatment of runoff generated by permitted industrial activities.

Under the NPDES permitting program, the specific stormwater detention and treatment measures that are required vary from permittee to permittee. Furthermore, industrial sites, which typically are subject to NPDES permitting requirements, are exempt from the program if 100% of their stormwater runoff is detained and treated.

As a result, the fact that a development is subject to NPDES permitting requirements may not tell the whole story regarding the stormwater mitigation measures it must incorporate. In the consideration of granting credits for individual permittees, it is important to remember that the City could instead provide credits for customers providing qualifying on-site mitigation including detention, treatment, and infiltration.

- ◆ **Infiltration.** Impervious surfaces, among other development features, prevent water from infiltrating the soil and replenishing the groundwater supply (if any). Customers that infiltrate their runoff may benefit both the City's drinking water system, by recharging the aquifer, and the City's stormwater system and receiving waters, by reducing the required size of system facilities. However, allowing infiltration also requires that the City work with owners to reduce contamination risks from such systems. Another factor to consider is the fact that not all stormwater is actually infiltrated; instead, infiltration systems are still connected to the public system via overflow piping.
- ◆ **Low-impact development, green building, and rainwater harvesting.** Low-impact development (LID) techniques, such as rainwater harvesting, permeable pavement, open space retention, bio-retention swales and rain gardens could also be worthy of credits. Other aspects of LID – such as green “vegetated” roofs – may affect the “effective” impervious area of a development or home if properly maintained.

Green building techniques include site planning to take greater advantage of natural site features, achieving LEED or Built Green certification, planting drought-resistant native landscaping, amending soils with compost, reducing impervious surface area, minimizing site disturbance during development, and previously noted low-impact development features. Implementing these techniques will result in increased natural resource conservation, lower home operating costs, and better stewardship of the City's drinking water aquifer. Other than its LID aspects, green building techniques are not strongly linked to a reduction in stormwater utility costs. The one aspect that is directly related to smaller service requirements is the minimization of impervious surface area.

A credit for low-impact development would recognize the fact that effective impervious area can be much smaller than the impervious surface area that is measured from aerial photographs (due to roof rainwater collection systems, permeable paving, vegetated roofs, etc.). An LID credit may be further supported by the fact that even when the effective impervious area of such a development is the same as other, conventional residential developments, other LID practices such as vegetation replacement typically result in reduced runoff from the property.

- ◆ **Dedicated open space.** Developments incorporate design techniques that concentrate residences or other buildings in a compact area of the development site (lot clustering) and provide open space and natural areas elsewhere, protected by an easement. Such techniques can reduce runoff, mitigate stormwater quality, and help maintain the amount of water recharging the City's aquifer.

Open space developments have many benefits in comparison to the conventional subdivisions that they replace: they can reduce impervious surface area (ISA), stormwater pollutants, construction costs, grading, and the loss of natural areas. In addition to the minimization of ISA, the preserved natural areas and tree canopy can significantly mitigate the stormwater runoff created by the buildings on site. Therefore, although affected by the slope characteristics of the property, the preserved portion of the site acts to reduce the effective impervious area of the development and provides a meaningful benefit to the public system when runoff is adequately dispersed.

**Analysis:**

When considering how to charge, or credit, different types of customers, it is important to remember that a stormwater rate is a fee for service, not a tax. As such, the level of a customer's charge must somewhat relate to that customer's proportionate share of the utility's costs. In terms of equity and legal defensibility, it is important to recognize the significance of that type of relationship when defining exemption or credit policies because such policies could potentially move a utility away from the rational linkage between service delivered and the amount of the fee.

A stormwater utility's service to its customers and the community it serves can be analyzed in two functional categories: controlling and reducing stormwater runoff (i.e. water quantity), and controlling and managing pollutants (i.e. water quality). The broader questions to address in establishing credits are (1) whether a rate payer help the utility reduce its costs (or not to incur additional costs) by providing certain mitigation measures in these two functional areas or not, and (2) if yes, how much of a cost savings is provided.

Comparatively, properties with on-site mitigation have a reduced effect on the public system than similar property lacking this mitigation. Therefore, it might be argued that to the extent that such facilities reduce costs to the City utility, they may warrant a rate credit.

However, it is also debatable that meeting the City's development standards reduces costs for the utility. Instead, it may simply keep the utility whole. As a result, granting a rate credit for such activities could actually reduce the amount of resources available for basic services to the remainder of the customer base. In fact, it may be argued that the cost of meeting City standards and constructing on-site mitigation should be considered a "cost of doing business," since on-site mitigation only partially neutralizes the impact of developing the property in the first place.

On the other hand, exceeding standards – that is, providing capacity in addition to that needed by developing (or developed) property – in theory does reduce cost to the utility by, in effect, reducing the net utility service area. How much of a credit to grant can then be sized according to the extent to which on-site controls exceed the standards.

Therefore, the two criteria to check for may be (1) effectiveness in reducing stormwater runoff and (2) whether these on-site systems are designed to handle greater amount stormwater than would be required as a condition of development approval. The additional capacity provided by the new development then may become the basis for the service charge credit amount.

It is true that property lines do not follow stormwater basin boundaries. Net impacts and/or benefits of a parcel align better with basin boundaries than property lines. However, estimating net impacts/benefits of each parcel, and developing a rate structure and credit policy around these estimates would be extremely difficult and very costly to administer. Additionally, it would be open to challenge since these estimates would be considered somewhat subjective, and difficult to explain to ratepayers.

**Recommendation:** Many of the stormwater program's costs are essentially "fixed" and do not decrease no matter what services customers provide on-site. As a first step, we recommend that the City determine the portion of program costs which can be reduced by the on-site activities of the customer base. We further recommend that the City classify the portion of those variable or use related costs as either attributable to managing water quantity or to managing water quality.

Once an allocation of program revenue requirements among fixed or base program costs, water quantity costs, and water quality costs has been made, their component shares of the stormwater utility charge can be determined. All customers would pay the base rate component. However, credits would be made available for the water quantity and quality components depending on on-site activities. (Customers with on-site features that result in reduced runoff – such as those that infiltrate or practice low-impact development – would be eligible for a rate credit that would vary in size based on the level of mitigation, not to exceed the sum of the quantity and quality components of the charge.)

The following recommendations assume that properties subject to stormwater rate credits would be meeting or exceeding the City's development requirements, and hence allowing the City to delay capital projects. As a result, the utility would be able to reduce its capital as well as operating costs by implementing the recommended credit policies.

### *Quantity Credits*

Customers with on-site quantity controls, such as detention or infiltration facilities, provide a direct benefit to the utility by reducing peak flow and thereby reducing the necessary size of system pipes downstream.

In the case of customers that infiltrate their runoff, not only is peak flow reduced, but their total runoff is reduced or eliminated (to the extent there is capacity). Given this, we recommend that a full credit for the quantity-related portion of the utility bill be granted to customers that have capacity to infiltrate the current design storm size. Customers with less infiltration capacity than for the design storm size should receive a minimal quantity credit.

Detention facilities, on the other hand, do not prevent runoff from entering the public system. Instead, peak stormwater flows are simply reduced and extended over a longer duration. For that reason, customers that are able to detain to current standards should receive a quantity-related credit that is less than a full credit for this portion of the bill. Customers with less detention capacity than for the design storm size should receive a minimal credit for the quantity component of the bill.

Additionally, there are several development methods which incorporate features that mitigate stormwater runoff. Such features that reduce peak flows or prevent stormwater runoff from entering the public system include aspects of low impact developments, green building methods, and rainwater harvesting. On their own, such development features provide a quantity mitigation benefit that is typically less than dedicated detention facilities sized for the design storm. Accordingly, quantity-related mitigation should be eligible for a minimal credit against the quantity rate component. However, when paired with detention facilities sized for the design storm, customers should receive a full credit against the quantity rate component.

**Note:** For crediting purposes, we recommend that the eligibility of rainwater harvesting systems for credit be conditioned upon inspections to ensure regular use of the harvested water (due to the fact that, once collection cisterns are full, they no longer reduce runoff). Also, the system benefit provided by customers with quantity-mitigating development features is dependent upon proper maintenance of the on-site features, so we further recommend that they be subject to regular inspection in order to renew the credit every two years.

Customers that discharge their runoff directly into flow-exempt receiving waters where detention is not required (in Des Moines, these include Puget

Sound and Green/Duwamish River below RM 6 and above SR 18) perform another type of quantity mitigation. There are two types of such customers: those that utilize private systems to convey their runoff to receiving waters, and those that utilize the City's stormwater system, in whole or in part, to convey runoff to receiving waters. As customers of the first type are equivalent to customers with on-site detention facilities sized for the design storm, we recommend that they be granted the maximum detention credit for the quantity component of the utility fee. For customers of the second type, we recommend that a minimal credit for the quantity component be granted, to account for the use of and cost of maintaining the City infrastructure relied upon by the customer.

No credit or adjustment should be granted to customers without meaningful quantity mitigation capability.

### *Quality Credits*

There are a number of factors, in addition to the installation of on-site quality controls, which relate to a customer's ability to manage the quality of their stormwater runoff. The most important of these are controls for on-site sources of pollution. Examples of source controls would be roofs and coverings for pollution-generating surfaces, equipment, and materials.

To meet the City's stormwater quality mitigation requirements, a customer must have on-site quality controls as well as source controls. Accordingly, a full credit for the quality-related portion of the utility bill should only be granted to customers that provide on-site quality mitigation and source controls that meet current standards.

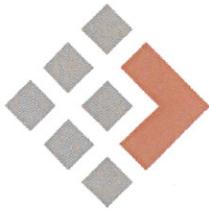
Even in those cases where full mitigation capability is not present, on-site quality control facilities and source control measures can still provide a benefit to the City's stormwater system. Accordingly, we recommend that a minimal credit to the quality portion of the stormwater utility bill be provided to customers that, while not meeting current requirements, do maintain a basic treatment capacity on-site and/or implement some source control measures.

No credit should be granted to customers that have no on-site quality controls or provide only nominal quality mitigation (such as a downturned elbow to control floatables).

### *Other Credits*

Customers with individual NPDES stormwater permits should be eligible for the same rate credits as any other non-residential customer. No dedicated credit for simply possessing a permit should be established.

Please note that the percentage or number of impervious units that will obtain quantity, quality, and/or runoff reduction credits will be forecasted and incorporated into the current rate analysis to ensure adequate revenue generation under the proposed program.



## Issue Paper #4: Stormwater Multifamily Rates February 1, 2013

- Issue:** The City of Des Moines Stormwater Utility currently charges its multifamily customers a water quality charge on a per dwelling unit basis and a water quantity charge on a per equivalent billing unit (EBU) basis. This is a mix between single family residential customers, which are charged both quality and quantity per dwelling unit, and commercial customers, which are charged both quality and quantity per EBU.
- The City is seeking feedback as to how other jurisdictions charge multifamily customers, if the current method is equitable, and what other methods are available.
- Alternatives:** There are two other rate structures that can fulfill the need for an appropriate and equitable multifamily stormwater rate.
- ◆ **Per Dwelling Unit.** One common basis for charging stormwater rates to multifamily customers is per dwelling unit. To account for the fact that condos and apartments are smaller than single family homes, multifamily dwelling units are charged a fraction of a full EBU.
  - ◆ **By Impervious Area.** Another common basis for charging stormwater rates to multifamily customers is by impervious area, which is reflected in the EBU calculation. Like for any other developed commercial parcel, multifamily dwelling units would only be charged for the actual amount of area that generates runoff into the stormwater system.
- Analysis:** The City's statutory authority for setting rates is found in RCW 36.89.080 and states:
- (1) Subject to subsections (2) and (3) of this section, any county legislative authority may provide by resolution for revenues by fixing rates and charges for the furnishing of service to those served or receiving benefits or to be served or to receive benefits from any storm water control facility or contributing to an increase of surface water runoff. In fixing rates and charges, the county legislative authority may in its discretion consider:
- (a) Services furnished or to be furnished;
  - (b) Benefits received or to be received;
  - (c) The character and use of land or its water runoff characteristics;
  - (d) The nonprofit public benefit status, as defined in RCW [24.03.490](#), of the land user;
  - (e) Income level of persons served or provided benefits under this chapter, including senior citizens and disabled persons; or

(f) Any other matters which present a reasonable difference as a ground for distinction.

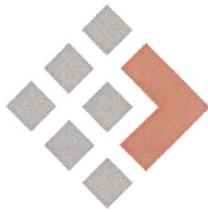
Impervious surface area is now widely accepted as a measure of contribution of runoff, and as such, serves as the basis for stormwater rates in the vast majority of stormwater utilities in the region. Most of those programs charge multi-family residential developed property based on the amount of impervious surface area, rather than the number of dwelling units for the simple fact that the number of dwelling units does not necessarily relate to the impervious footprint of the complex.

Depending on the configuration, multi-story multi-family residential complexes may generate no more runoff than large single story houses with comparable footprints, bringing the equity of a per dwelling unit approach into question for multi-family residential customers. Treating such customers as “commercial” for rate purposes will result in rate changes that could simplify the rate approach and be accounted for in the current rate study.

It is also worth noting that multi-family residential development is defined as commercial for other purposes.

In Washington Administrative Code WAC 458-20-250 addressing refuse-solid waste collection business taxes, paragraph (4)(ii) states, in part, “in the case of multiple housing units in a single structure such as apartments, condominiums, or duplexes, ..., the service is deemed commercial unless each occupier of a housing unit is individually provided can service and is individually billed for such service”.

**Recommendation:** We recommend that that City change their current multifamily rates to mirror the commercial rates and charge by EBU, calculated based on impervious area. If the City were to treat multifamily as commercial customers, the water quality rate would need to be increased in order to collect the same amount of revenue due to the fact that there are less EBUs than dwelling units in the current multifamily customer class. This could be easily accounted for in the current rate design study.



## Issue Paper #5: Stormwater Public Institution Rates February 1, 2013

**Issue:** The City of Des Moines stormwater utility currently charges public institutions, including public schools, government buildings, colleges, parks, and sewer and water facilities, a non-profit or commercial rate per EBU.

The City has requested an evaluation to determine if the current public institution rates are the most appropriate or if they should be discounted or exempted.

**Analysis:** When considering how to charge different types of customers, it is important to remember that a stormwater rate is a fee for service, not a tax. As such, the level of a customer's charge must substantially relate to that customer's proportionate share of the utility's costs. A rate may be found legally valid if the funded services generally benefit those who pay the fee. There need not be a property-specific link between the fee paid and level of service delivered. In fact, case law (*Teter v. Clark County*) has supported that a reasonable effort must be made to link services delivered to fees charged, but that the linkage need only be indirect.

When a cost of service approach is used as the basis for fee evaluation, exemptions, discounts and credits should only be granted when the characteristics of a parcel or improvements to that property cause runoff to differ when compared to similar parcels.

Developed properties that are publicly owned still contribute runoff that places a cost burden on the utility system. If the City wishes to pursue a social policy to grant discounts or exemptions, a utility and its ratepayers should not bear the costs of that policy. To preserve the cost of service approach to rate design and avoid causing stormwater utility customers to subsidize a general City policy, the General Fund could possibly be used to fund the costs of public institution credits or exemptions.

Some jurisdictions do not charge publicly-owned land because there is a general sense that charging simply transfers money from one City fund to another. Administratively, this may be a valid perception; however, by not charging public lands, the City may not accurately and equitably allocate what can be viewed as an overhead cost borne to support the departments that use stormwater services because of their land holdings. Effectively, utility ratepayers would bear the costs of stormwater management utilized by other user-supported services or the general public.

The one common exception to this general approach has to do with

charging city streets. City streets, while impervious and generating runoff, also serve as part of the stormwater conveyance system. Cities often choose to exempt their streets in recognition of this fact.

**Recommendation:** We recommend that the City charge public property the same as any other customers. Credits, as we have laid out in Issue Paper #3, would also apply to all customer types, including schools. The City should, however, exempt or discount City streets because they serve as part of the stormwater conveyance system.