Preliminary Report

Stormwater Utility Study

January 22, 2016

Contents

Section 1 - Introduction
1.1 Purpose……2
1.2 Goals and Objectives……2
Section 2 - Stormwater Utility Background
2.1 Data Collection……2
2.2 Stormwater Utility Basis……3
2.3 Stormwater ERU Approach ……4
2.4 Property Assessment Approach……5
Section 3 - Rate Structure Alternative Evaluations
3.1 Alternative Rate Structures Summary……8
3.2 Mitigation Credits and Adjustments……10
3.3 Resulting ERUs and Revenue Distribution……11
3.4 Pros and Cons of Rate Structure Alternatives……14
Section 4 - Potential Billing Methodologies Evaluation
4.1 Utility Bill Collection Method……16
4.2 Tax Bill Collection Method for Special Assessments……17
4.3 Summary of Billing Methodologies……19
Section 5 - Potential Revenue and Funding Requirements Evaluation
Section 5 ……20
Section 6 - Summary of Recommendations
6.1 Recommended Rate Structure and Billing Methodology……22
6.2 Administrative and Programmatic Recommendations……23
References
References……23

Figures

Figure 1 – Land Area Distribution within City Limits
Figure 2- Impervious Area Distribution within City Limits
Figure 3- Estimate of Initial Credits and Adjustments
Figure 4- Projected ERU Distribution for Alternatives 1A and 1B
Figure 5- Projected ERU Distribution for Alternatives 2A and 2B

Tables

Table 1- Rate Structure Alternatives Summary
Table 2- Billable ERUs Summary
Table 3- Billing Methodology Pros and Cons
Table 4- Billing Implementation Steps
Table 5- Projected Funding Summary

Appendices

Appendix A- Data Collection and Review Summary Memorandum
Appendix B- Rate Structure Evaluation Methodology
Appendix C- Preliminary Evaluation Geodatabase
Appendix D- Additional Background on Billing Methodologies

Section 1
Introduction

The City of Vero Beach (City) was largely built out during the mid-1900's, before modern stormwater management practices were required for stormwater pollution control in land development. City stormwater infrastructure is aging, requiring repair or replacement. The City provides water quality and flood control stormwater service to private and public properties within the City limits to address local water quality and flooding concerns.

The City is seeking to diversify its revenue stream and identify a sustainable funding source for repair and replacement of stormwater infrastructure to continue providing flood relief and to attain water quality goals. The City selected and has retained the Collective Water Resources (CW) Team to conduct a Stormwater Utility Study Project, including professional engineering analyses and financial evaluations to support development of the City Stormwater Utility. The Stormwater Utility Study Project is to conduct preliminary analyses and subsequent specific activities in preparation for implementing a stormwater utility. Project Tasks include:

- Preliminary evaluation including analysis of potential rate structure alternatives (including mitigation credits and adjustments), billing methodologies, revenue requirements and estimating potential revenue from alternatives. Includes this Preliminary Report.
- Utility rate structure task to refine the preliminary estimate based on selected rate structure and assess each property to assign ERUs, credits and adjustments to be implemented. Includes revenue projections and processes for credits and appeals.
- Utility billing task to connect property assessments by rate structure to the City's chosen billing methodology (likely non-ad valorem assessment or utility billing).
- Project Outreach (as requested by the City)
- Preparation of draft stormwater ordinance as required to implement the Stormwater Utility.
- Presentation meetings to present the final Stormwater Utility developed by this project.

CW Team Introduction

As the stormwater utility development includes several specific engineering and financial applications, this project team provides high-level oversight and expertise in specific areas by including specialized firms in each area. The CW Team includes four Florida-based firms: Collective Water Resources, LLC, Jones Edmunds and Associates, Inc, Public Resources Management Group (PRMG), Inc., and Government Services Group (GSG), Inc. Collective Water is an engineering firm with local staff managing the project, Jones Edmunds is a Florida-based

engineering firm with specific GIS and stormwater utility expertise, PRMG is the rate consultant with specific knowledge of the City's utilities and financial systems and GSG is an expert with special assessment programs and databases.

1.1 Purpose

This report is to present preliminary evaluation results and recommendations for the City's consideration in implementation of a stormwater utility.

Prior to development of the utility, the CW Team has prepared this report to summarize potential aspects of the stormwater utility framework and recommendations/ considerations so that the City can decide on the specific rate structure and billing methodologies as well as other financial considerations required to implement the utility. Following decision by the City on the stormwater utility framework alternatives described in this report, the CW Team will move forward with the City's chosen framework aspects and develop the Stormwater Utility to prepare the City for implementation of the utility.

1.2 Goals and Objectives

Public concerns and widespread focus on the Indian River Lagoon make this an important time for the City to implement a stormwater utility. Runoff from residences and other individual properties put burden on the City's stormwater infrastructure as well as water quality of the Indian River Lagoon. As such, neighboring utilities that also impact the Indian River Lagoon have been able to receive matching grants and low interest loans from agencies such as the Florida Department of Environmental Protection (FDEP) for stormwater projects that address water quality issues. Development of a stormwater utility and the resulting dedicated revenues will facilitate the City's application for certain loans and grant funding that is typically available to municipalities for stormwater projects. The stormwater infrastructure updates and other projects funded though low interest loans and grant matching supported by stormwater utility revenues can expedite the City's Stormwater Capital Improvement Plans (CIP) and free up general funds for other aspects of the City CIP, such as roadway resurfacing and other work throughout the City.

Section 2
Stormwater Utility Background

2.1 Data Collection

The City GIS Division and Utility Billing/ Information Technology (IT) Divisions maintain several datasets that are pertinent to this project. Data from City staff and other sources were obtained and reviewed as part of the Stormwater Utility Study project. The CW team submitted a memorandum summarizing the data that was provided to the team at the start of the project. A copy of this memo is included as **Appendix A - Data Collection and Review Summary Memorandum**.

2.2 Stormwater Utility Basis

The City's stormwater utility would establish stable funding for the stormwater operations and capital projects that are critical for addressing flooding and stormwater quality and meeting the desired level of service for the City. The stormwater utility would provide a significant portion of the stormwater funding, thereby offsetting the need for other funding sources.

In addition to the statutory authority to establish a utility, the finding from City of Gainesville v. State of Florida Dep't of Transp., 778 So. 2d 519 (Fla. 1st DCA, 2001) was that cities are authorized by statute to create stormwater utilities. The Appellate Court also found that the City of Gainesville stormwater utility charges could be considered fees – not a special assessment because of a reasonable relationship between the amount of the fee and the cost or burden of the service. Based on this finding, all users of the proposed City stormwater utility (including the State) could be considered compelled to pay the user fee.

As noted in Establishing a Stormwater Utility in Florida (Florida Stormwater Association [FSA], 2013), for a stormwater utility to charge a user fee the amount of the fee must be commensurate with the burden that the user of the stormwater system places on the stormwater system. The City maintains an extensive stormwater system. This stormwater system drains runoff from the City, improves the quality of stormwater draining to the Indian River Lagoon, and significantly reduces the likelihood and extent of flooding within the City. If the City's stormwater system did not function as designed, many properties within the City would be in a higher-risk flood zone and/or would have smaller percentages of the parcel that could adequately serve its designated land use. All the properties that drain into this stormwater system place a burden on the system since the City is required to size and maintain the system to adequately convey the runoff from all these properties. The burden or impact that each property has on the City's stormwater system is typically related to factors such as the following:

- The peak rate of runoff from the property.
- The volume of runoff from the property.
- The pollutants in the runoff from the property.

The City cannot feasibly quantify the exact burden that each property places on the stormwater system. However, we recommend that the City differentiate fees between various categories and sizes of properties − along with mitigating factors such as stormwater attenuation and treatment facilities − based on an estimate of the burden that these properties place on the City-maintained stormwater system. Evaluation summary of alternative estimates and recommendations for how these fees should be determined is provided within this report. Supporting information documenting Jones Edmunds calculations and engineering basis of analysis for the alternative rate structures is provided in the document **Rate Structure Evaluation Methodology** which is included as **Appendix B** to this report**.**

2.3 Stormwater ERU Approach

An Equivalent Residential Unit (ERU) is typically the basic unit for computing stormwater service charges or rates and represents the hydrologic burden placed on the City's stormwater system by the median single-family residential property in the City.

The following two approaches can be used as the basis for an ERU:

- *Impervious Area.* The hydrologic burden placed on the City stormwater system is assumed to be primarily related to the impervious area on a parcel; thus, the impervious area serves as a suitable surrogate for hydrologic burden. Based on this assumption, an ERU could be defined as the average imperviousness on a single-family residential parcel. This approach is the most commonly used for establishing ERUs in Florida.
- *Equivalent Impervious Area (EIA).* The hydrologic burden from a property is calculated as a function of both the impervious area and pervious area. Since calculating the runoff generated from every property within the City is not feasible, an assumption is made on the ratio of runoff generated from a pervious area versus an impervious area. An ERU is then defined based on a combination of the average impervious area and average pervious area for all single-family residential properties in the City. This method may be considered to be fairer if a wide range of impervious-to-pervious ratios are present throughout the City.

Although the second method could arguably be described as being more accurate, it is also more cumbersome to implement. Further, the second method can help to address 'fairness' issues when a jurisdiction has a significant number of large properties with little to no imperviousness.

2.3.1 Defining Impervious Area

The City maintains a database of building rooflines across the City limits. The CW Team developed an estimate of non-building impervious areas for each land use category by digitizing the non-building imperviousness for a select number of properties in each category. The CW Team then summed the roofline-based area and estimated non-building impervious area on each site to arrive at estimates of total imperviousness on each parcel across the City. See Appendix B for more detailed description of methodology used to define impervious area on each parcel.

2.3.1 Defining an ERU

Since the distribution of impervious areas on properties in the City is skewed by some of the larger houses in the City (See Appendix B for histogram), the CW Team recommends that median impervious area be used to develop the ERU rather than the average impervious area. The median area would be a better estimate of the impervious area on a typical single-family

residential property in the City. Median EIA is proposed for the rate structure alternatives that include impervious and pervious area.

2.4 Property Assessment Approach

Each parcel's gross area was calculated from the property boundary provided by the Indian River County Property Appraiser. Each parcel was then assigned an estimated impervious area using a combination of building area and estimated non-building impervious area. The ERU for each property were then calculated. Rate structures based on ERUs defined in terms of impervious area or EIA were both evaluated. The ERUs were applied to single family residences based on a tiered structure that is described in more detail in Appendix B.

2.4.1 Detached Single Family Residential Tiers

The range in imperviousness varies significantly for single-family residential properties in the City, with some properties having as little as 1,500 square feet of imperviousness and others having more than 8,000 square feet of imperviousness. This range in imperviousness corresponds to a large range in the burden that these properties place on the City's stormwater infrastructure. It is recommended that the City implement a tiered rate structure to help account for the variation in imperviousness. Data distribution of property sizes warrants at least three (3) tiers, and a fourth (4th) tier for the largest properties should be considered to account for residential properties with very highest imperviousness to be calculated on a property by property basis depending on the impervious area on each property.

When impervious and pervious area is considered in ERU basis, EIA varies for single-family residential properties in the City. The data distribution of EIA warrants three (3) tiers or four (4) tiers for single-family residential properties. See Appendix B for specific statistical analyses used to determine the ERUs based on EIA.

2.4.2 Detached Single Family Residential Tiers

The number of ERUs for most other property types (Commercial, Industrial) are calculated on a property-by-property basis depending on the impervious area on each property. Some property types such as multi-family residential are assigned a fraction of an ERU.

Figure 1 shows the distribution and percentages of land area for each property type across the City limits. **Figure 2** shows the distribution and percentages of impervious area for each property type across the City limits. **Appendix C –Preliminary Evaluation Geodatabase** includes the ArcGIS information shown in Figure 1 as well as the estimated assessments for each parcel for each of the four (4) evaluation assessments summarized in Section 3 below.

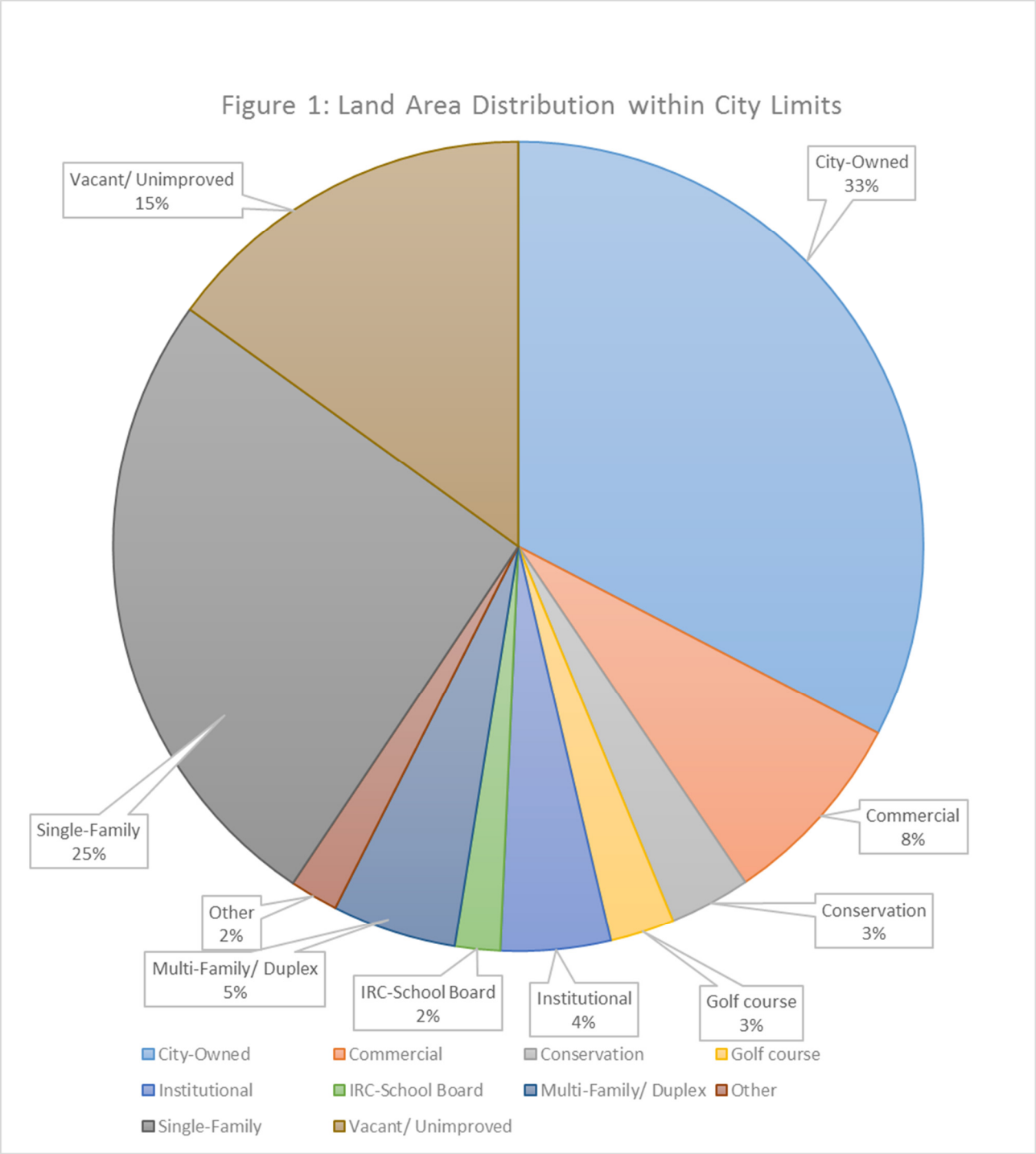
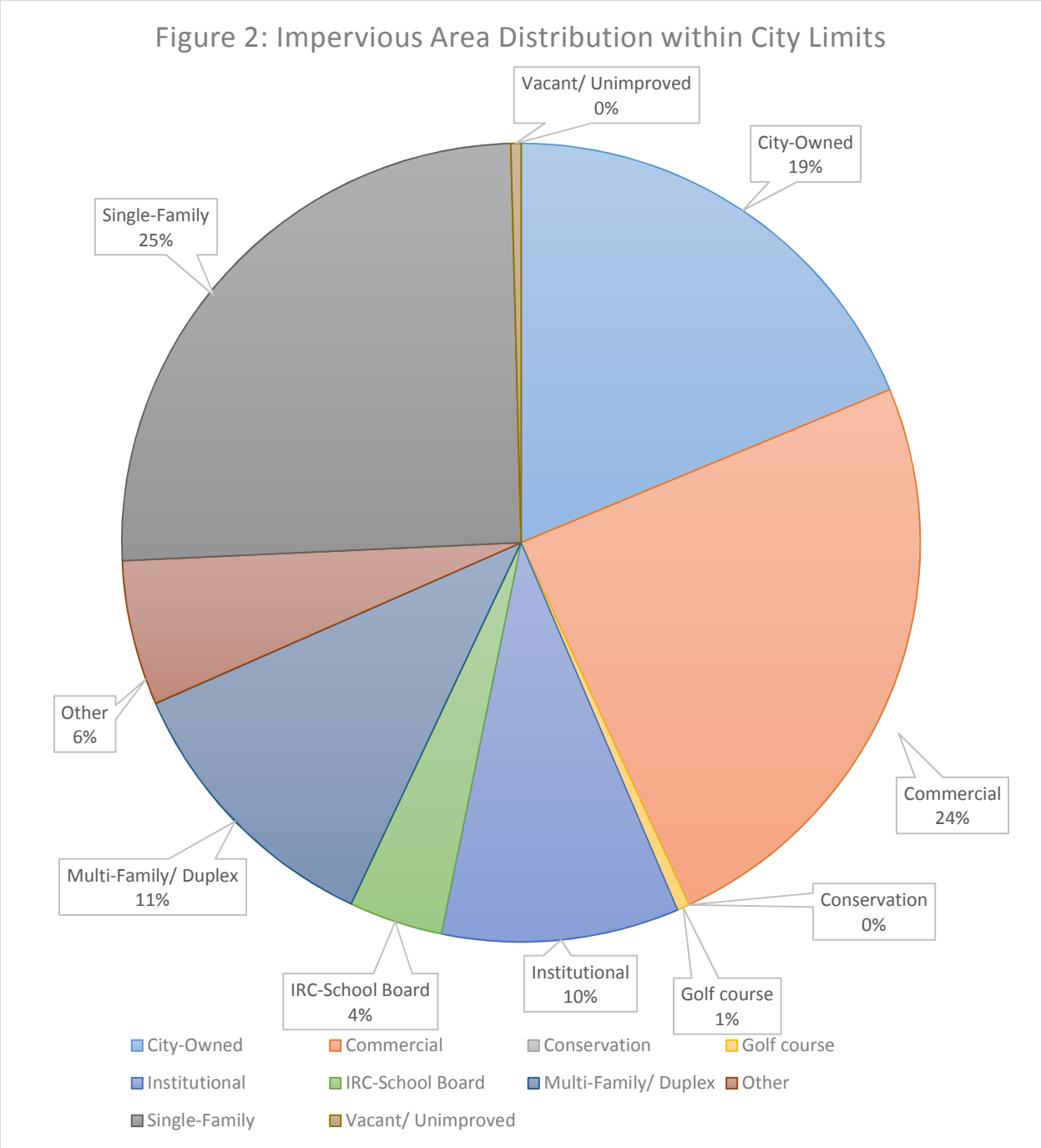


Figure 1: Land Area Distribution within City Limits
City-Owned 33%
Commercial 8%
Conservation 3%
Golf course 3%
Institutional 4%
IRC-School Board 2%
Multi-Family/ Duplex 5%
Other 2%
Single-Family 25%
Vacant/ Unimproved 15%
City-Owned
Commercial
Conservation
Golf course
Institutional
IRC-School Board
Multi-Family/ Duplex
Other
Single-Family
Vacant/ Unimproved



Also see Appendix B- Rate Structure Evaluation Methodology for more detailed information on the property assessment methods used in evaluating rate structure alternatives.

Section 3
Rate Structure Alternative Evaluations

This section summarizes the four (4) rate structure alternatives that have been calculated by this preliminary evaluation and summarizes results of the evaluation, using the methodology as described in Section 2 and engineering analysis estimates as described in Appendix B. Assumptions and estimates as applied for each alternative on a parcel by parcel basis can be accessed within the ArcGIS geodatabase files provided in Appendix C.

3.1 Alternative Rate Structures Summary

The CW Team developed four (4) rate structures to compare potential revenue distribution. Each rate structure includes tiering based on a range of square feet (SF) of impervious or EIA for detached single-family residential properties.

Alternative 1A is based on impervious area only with a tiered rate structure broken into three (3) categories. Alternative 2A is based on impervious and pervious area (EIA) with a tiered rate structure broken into three (3) categories.

Alternative rate structure element to help account for the variation in imperviousness (Alt 1B) or equivalent impervious (Alt 2B) among single-family residential properties is to add additional tier for the highest 10% of properties. **Table 1** provides a summary of the rate structure alternative approaches analyzed during the preliminary evaluation.

Table 1: Rate Structure Alternatives Summary

Alternative	1A	1B	2A	2B
Single-Family Residential Properties				
Number of Tiers	3	4	3	4
ERU Basis	Impervious Area (1 ERU=3,357 SF)	Impervious Area (1 ERU=3,357 SF)	Impervious & Pervious Area (1 ERU= 6,475 SF of EIA)	Impervious & Pervious Area (1 ERU= 6,475 SF of EIA)
Tier 1- ERUs	0.66 ERU	0.66 ERU	0.65 ERU	0.65 ERU
Tier 1- Impervious Area Range	Less than 2,622 SF	Less than 2,622 SF	Less than 5,008 SF EIA	Less than 5,008 SF EIA
Tier 2- ERUs	1 ERU	1 ERU	1 ERU	1 ERU
Tier 2- Impervious Area Range	2,622 to 4,290 SF	2,622 to 4,290 SF	EIA - 5,008 to 8,023 SF	EIA - 5,008 to 8,023 SF
Tier 3- ERUs	1.53 ERUs	1.42 ERUs	1.52 ERUs	1.40
Tier 3- Impervious Area Range	More than 4,290 SF	4,290 to 5,389 SF	More than 8,023 SF EIA	4,290 to 10,351 SF EIA
Tier 4- ERUs	---	Varies- Divide Imp. Area by 3,357 SF (1 ERU)	---	Varies- Divide EIA by 6,475 SF (1 ERU)
Tier 4- Impervious Area Range	---	More than 5,389 SF	---	More than 10,357 SF EIA
Other Residential				
Attached Single-Family Residential ERUs	0.31 ERU	0.31 ERU	0.19 ERU	0.19 ERU
Multi-Family Residential	Varies- Divide Imp. Area by 3,357 SF (1 ERU)	Varies- Divide Imp. Area by 3,357 SF (1 ERU)	Varies- Divide EIA by 6,475 SF (1 ERU)	Varies- Divide EIA by 6,475 SF (1 ERU)
Commercial, Institutional and Other Properties				
Commercial, Institutional	Varies- Divide Imp. Area by 3,357 SF (1 ERU)	Varies- Divide Imp. Area by 3,357 SF (1 ERU)	Varies- Divide EIA by 6,475 SF (1 ERU)	Varies- Divide EIA by 6,475 SF (1 ERU)

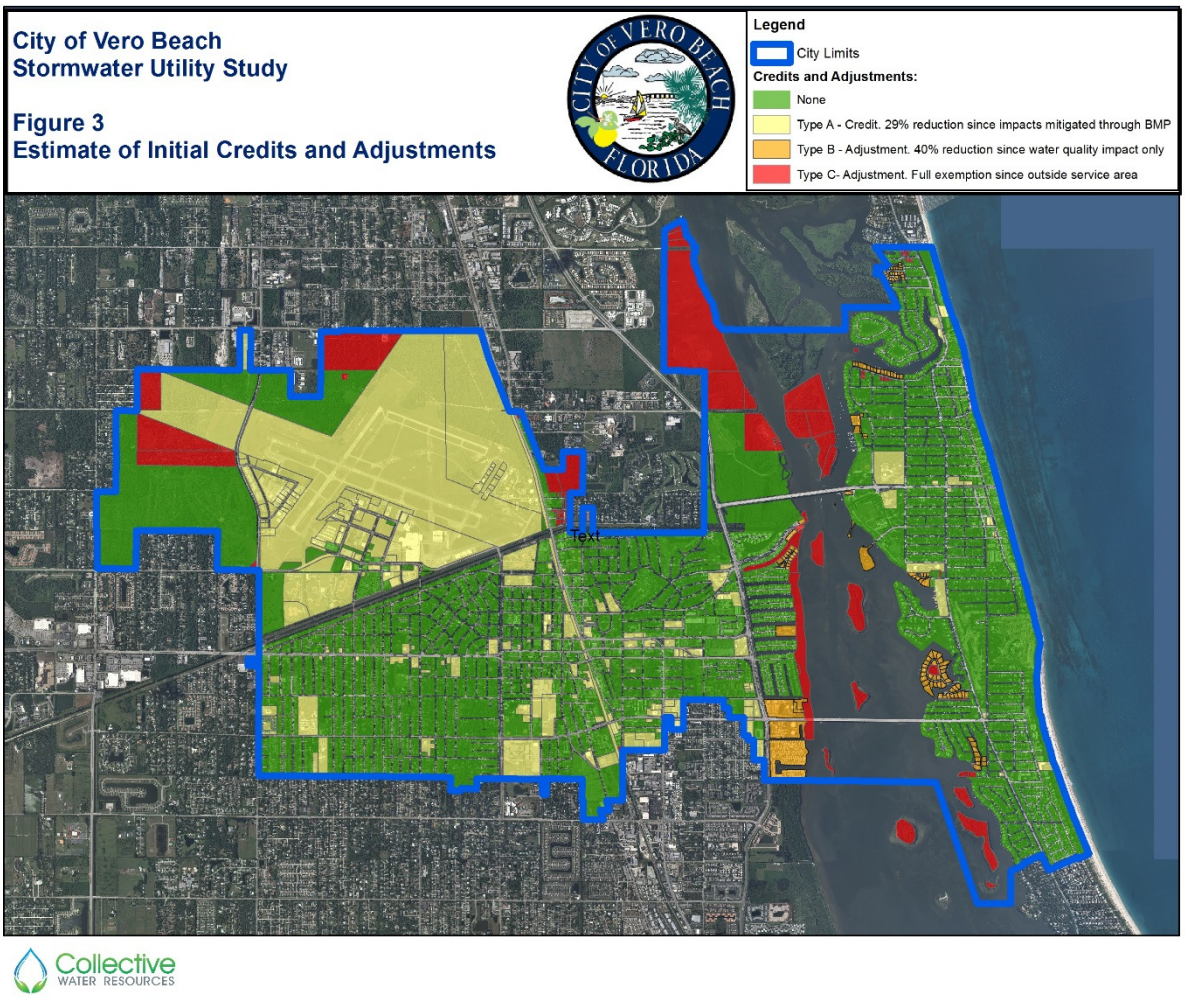
Table 1 above provides the methodology for calculating initial ERUs for each rate structure. Initial ERUs are then adjusted by the mitigation credit and adjustment approaches described in the next section.

3.2 Mitigation Credits and Adjustments

The CW Team reviewed City data, aerial imagery and Environmental Resources Permit (ERP) spatial data available from the St. Johns River Water Management District (SJRWMD) to determine the approximate number and location of the permitted stormwater treatment systems, or stormwater Best Management Practice (BMP), in the City's stormwater service area. Three (3) types of adjustments were applied to parcels:

- Type A – Credit: 29 percent reduction since impacts mitigated through BMP.
- Type B – Adjustment: 40 percent reduction since water quality impact only.
- Type C- Adjustment: Full exemption since outside service area.

Figure 3 shows the spatial location of anticipated initial credits and adjustments across the City.



Collective WATER RESOURCES

This adjustments estimate was made only to approximate the impacts of the mitigation credits and adjustments on the stormwater utility revenue. The actual mitigation credits will only be applied to a property once the SJRWMD or FDEP permit has been reviewed by the CW Team during the rate structure task.

Initial credits and adjustments will be refined by the CW Team during the rate structure development task by using publicly available information and information provided by City staff.

3.3 Resulting ERUs and Revenue Distribution

Resulting billable ERU estimates are substantially the same across the four (4) alternatives, but the distribution of revenue from property types varies by alternative. See **Table 2** below for summary information (final ERU values include all credit and adjustment estimates).

Table 2: Billable ERUs Summary

Alternative	**1A**		**1B**		**2A**		**2B**	
By Property Type	Credits (by (-) ERU)	Final ERUs	Credits (by (-) ERU)	Final ERU	Credits (by (-) ERU)	Final ERU	Credits (by (-) ERU)	Final ERU
City-Owned	-1,212	2,699	-1,212	2,699	-1,747	4,149	-1,747	4,149
Commercial	-619	4,443	-619	4,443	-279	2,548	-279	2,548
Conservation	0	0	0	0	-169	282	-169	282
Golf course	0	105	0	105	0	395	0	395
Institutional	-529	1,478	-529	1,478	-259	1,038	-259	1,038
IRC-School Board	-298	494	-298	494	-148	374	-148	374
Multi-Family/ Duplex	-58	2,311	-58	2,311	-32	1,466	-32	1,466
Other	-460	766	-460	766	-194	493	-194	493
Single-Family	-95	5,061	-104	5,127	-96	5,036	-108	5,301
Vacant/ Unimproved	0	85	0	85	-748	1,387	-748	1,387
Total Credits/ Adjustments	*-3,272*		*-3,281*		*-3,673*		*-3,685*	
Total Billable ERUs Estimate		17,443		17,509		17,168		17,433

Additionally, Figure 4 and Figure 5 show the difference in ERUs/ revenue stream distribution between Alternatives 1A/1B and Alternative 2A/2B by property type.

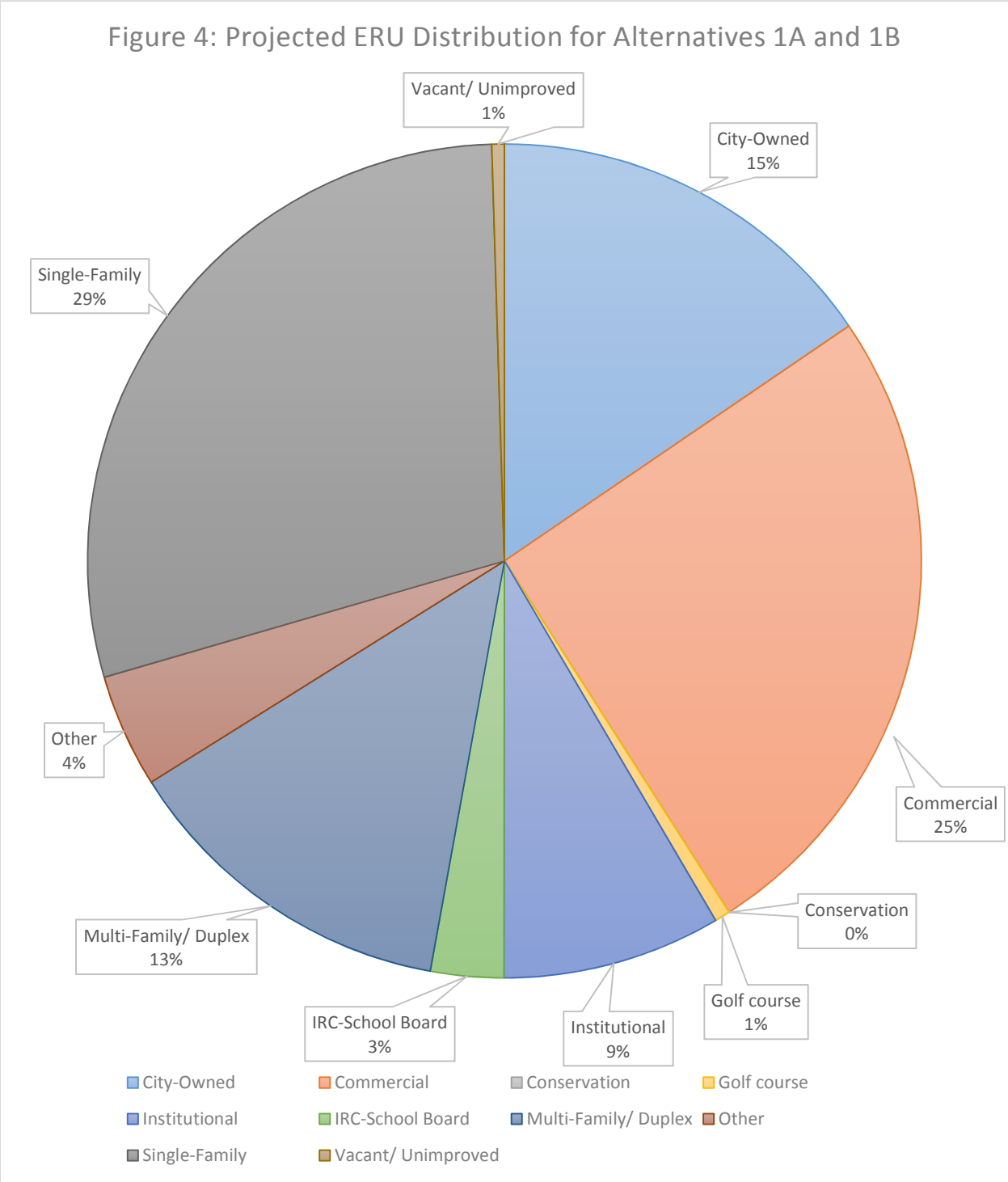


Figure 4: Projected ERU Distribution for Alternatives 1A and 1B
Vacant/ Unimproved 1%
City-Owned 15%
Single-Family 29%
Other 4%
Commercial 25%
Conservation 0%
Multi-Family/ Duplex 13%
Golf course 1%
IRC-School Board 3%
Institutional 9%
City-Owned
Commercial
Conservation
Golf course
Institutional
IRC-School Board
Multi-Family/ Duplex
Other
Single-Family
Vacant/ Unimproved

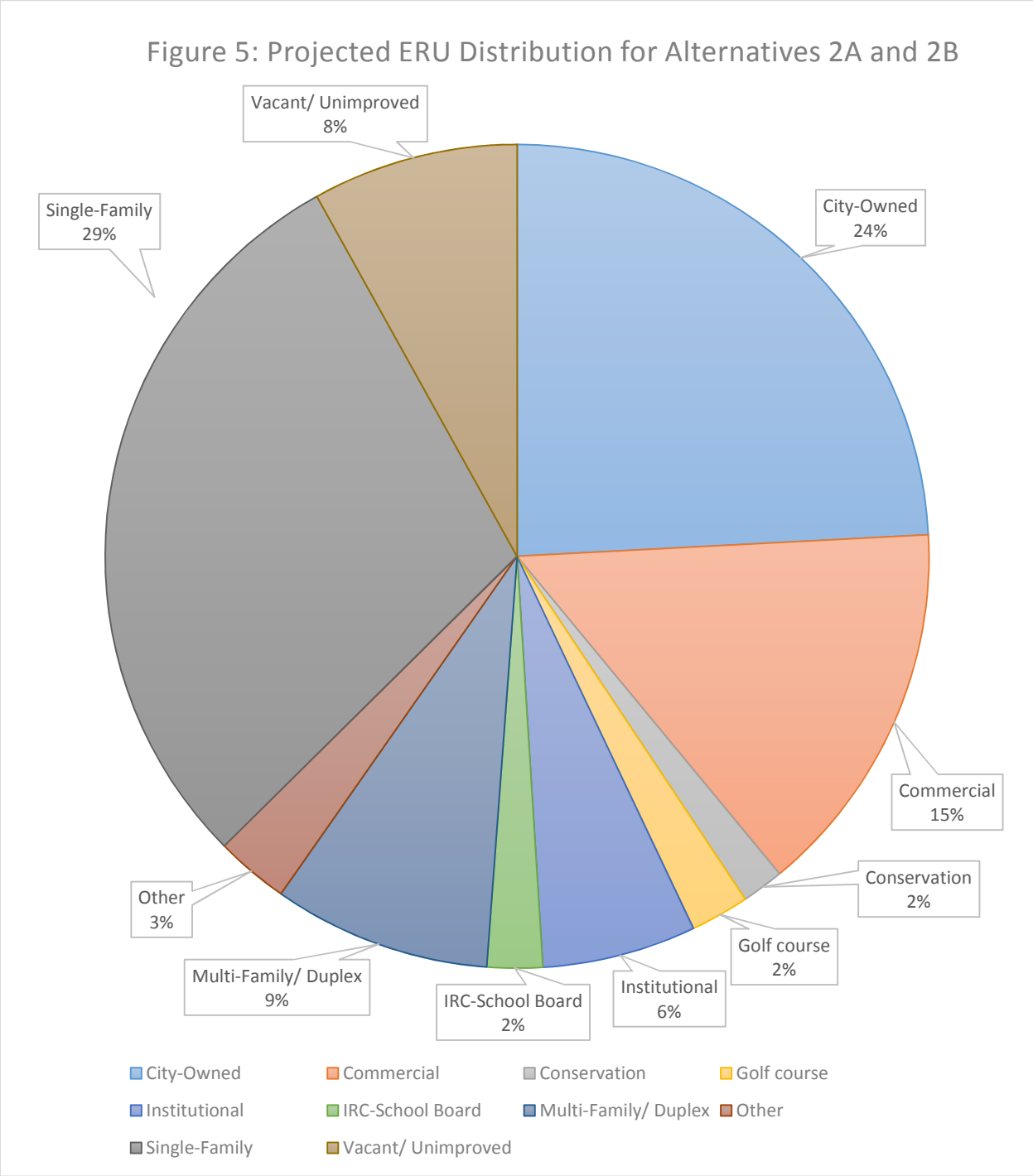


Figure 5: Projected ERU Distribution for Alternatives 2A and 2B
Vacant/ Unimproved 8%
City-Owned 24%
Single-Family 29%
Commercial 15%
Conservation 2%
Golf course 2%
Institutional 6%
IRC-School Board 2%
Multi-Family/ Duplex 9%
Other 3%
City-Owned
Commercial
Conservation
Golf course
Institutional
IRC-School Board
Multi-Family/ Duplex
Other
Single-Family
Vacant/ Unimproved

3.4 Pros and Cons of Rate Structure Alternatives

The City has asked the CW Team to include pros and cons of each rate structure. An appropriate rate structure is key to providing a solid legal foundation for assessment of burden on the stormwater system and obtaining community support. Ideally, the rate structure would have enough detail to be accurate, equitable and legally defensible, but simple enough for the City to easily develop, implement and maintain.

All four structures are expected to be acceptably fair and legally defensible. As shown in Table 2, all four (4) structures have the same number of estimated billable ERUs. However, the assessment of system impact from property types is distributed differently with each. As evident from Figure 4 and Figure 5, there are pros for revenue distribution between property types based on Alternatives 1A/1B and Alternative 2A/2B.

The sections below summarize more positive and negative factors for each of the proposed rate structures.

3.4.1 Alternative 1A

Rate Structure Alternative 1A is simple in that it is based on parcel imperviousness only and has Three (3) single-family residential tiers, which is the minimum number of tiers recommended based on City parcel statistics.

- Pro: Simple and defensible.
- Pro: Impervious area only is most commonly used for establishing ERUs in Florida.
- Con: Does not substantively account for runoff from large parcels with little imperviousness.
- Other Factor: Does not include or bill undeveloped or vacant property. Consider the associated public acceptance as a factor.
- Other Factor: More ERUs are billed to Commercial and Institutional and other properties with large impervious area and relatively low gross parcel area. Consider the associated public acceptance as a factor.
- Other Factor: Less ERUs billed to City owned properties, golf courses and other large area properties. Consider the associated public acceptance as a factor.

3.4.2 Alternative 1B

This alternative has the pros and cons of Alternative 1A. In addition, with an added residential tier, ERUs are calculated explicitly for the top 10% of parcel impervious areas for single family residential properties. The additional pro to this is that the assessment of residential properties is more fairly distributed by burden of imperviousness on the City system. There are several residential lots with high impervious area across the City. The additional con is added complexity to the rate structure.

3.4.3 Alternative 2A

Alternative 2A includes pervious and impervious areas in the rate structure. Inclusion of pervious area in the rate structure could be considered more critical in cities with higher runoff potential. Although there is variation in the water table across the City of Vero Beach, most of the soils are considered well drained with a fairly low runoff potential.

- Pro. Could be considered more hydrologically accurate.
- Pro. Assesses properties for runoff from pervious areas. This is fairer in that vacant properties or large properties with low imperviousness are assessed for runoff from these areas to the City's stormwater system. The City does have a wide range of properties including these. Golf courses are a good example.
- Con. Complexity in including pervious areas.
- Con. More likely for appeals to get credit for onsite storage.
- Con. Most stormwater utilities in Florida use impervious area only to calculate stormwater impact on the system.
- Other Factor. Vacant, unimproved properties are included in billable ERUs. Consider the associated public acceptance as a factor. Charging these properties can be a negative from the public acceptance perspective.
- Other Factor. Less ERUs billed to Commercial and Institutional and other properties with large impervious area and relatively low gross parcel area. Consider the associated public acceptance as a factor.
- Other Factor More ERUs are billed to City owned properties, golf courses and other large area properties. Consider the associated public acceptance as a factor.

3.4.4 Alternative 2B

This alternative has the pros and cons of Alternative 2A. In addition, with an added residential tier, ERUs are calculated explicitly for the top 10% of parcel EIAs for single family residential properties. The additional pro to this is that the assessment of residential properties is more fairly distributed by burden on the City system. There are several large residential lots across the City. The additional con is added complexity to the rate structure.

Section 4
Potential Billing Methodologies Evaluation

One of the decisions in structuring and implementing a funding program is to determine a method of collection. Two fundamental methods of collecting stormwater service charges are available:

- A monthly utility bill; or
- The uniform method of collection using the tax bill.

The collection method chosen by a local government depends on the type of program to be funded, service or capital, and the funding mechanism selected, a fee or special assessment. In the City, all of the residents and businesses receive some type of City utility bill, making this an attractive collection mechanism.

Whether a local government uses its monthly utility bill or the tax bill collection method, the local government should create a funding program that is compatible with the tax bill collection method authorized by section 197.3632, Florida Statutes (the Uniform Method). This compatibility requires an approach that piggy backs the electronic information and format used by county property appraisers in developing the ad valorem tax roll. When compatibility exists, the funding program often meets the highest legal standards because the charge is structured to meet the special benefit and fair apportionment tests for a valid special assessment and therefore may be collected by both collection mechanisms.

Successful funding programs are those programs developed and designed to employ, to the maximum extent possible, the information maintained by the property appraiser on the ad valorem tax roll. In addition, the charges imposed should be developed and designed in a manner that maximizes the local government's ability to electronically maintain the database on an annual basis, while minimizing the amount of manual manipulation to the roll.

4.1 Utility Bill Collection Method

One method of collection available to local governments is to use an existing utility bill. Within the City, most of the parcels receive some form of City utilities, which can include electricity, water, sewer, solid waste or some combination thereof. The utility bill in the City has traditionally been an instrument used to collect a variety of charges, so the residents are accustomed to paying charges in this manner. This history should foster a low delinquency rate on the collection of the stormwater fee.

The greatest challenge with using the utility bill is to correlate the parcel in the City utility account with the parcel number maintained by the Property Appraiser. This process is detailed and time-consuming because utilities are not billed according to parcel identification numbers – they are billed according to account numbers which may or may not correlate to a single parcel number. Also, addresses within each database may be incompatible and may need to be joined one by one. Spatial joins between the parcel locations and the meters often do not align, which is the case in many locations across the City.

Using the utility billing system requires a customer level analysis of stormwater burden rather than a parcel level analysis. Often, one parcel may have multiple utility accounts based on the number of businesses or residents. This result is not always the case, however, because parcels with multiple dwellings or multiple business types may share the same utility account.

Billing Properties with Multiple Meters. Stormwater utility methodology determines the assessment rate per tax parcel (as described in Section 3). However, for some non-residential properties and multi-family properties, there may be many utility accounts assigned to a building. When utilizing the utility bill to collect the stormwater utility fee, a considerable amount of data collection will be necessary to pro-rate the assessment amount per parcel to each utility account assigned to the parcel.

Billing Properties with Master Meter. Most utility billing accounts have a single meter. However, there may be master meter accounts also, these accounts are one meter serving multiple customers. For purposes of collecting the stormwater utility fee, if the master meter belongs to the property owner, the master meter can be charged for the entire stormwater utility fee. However, you must be careful not to charge a tenant for another tenant's stormwater burden. There may also be occasion when a master meter is assigned to and serves more than one parcel of property. For purposes of the stormwater utility fee, it is important to keep each parcel's information separate.

The final billing system must correlate each utility bill to a parcel number based on the benefit that the parcel receives.

In addition to the challenges related to correlating the utility billing accounts to tax parcels, there are additional issues related to enforcement of the collection of delinquent stormwater fees. A utility may not refuse to provide one type of utility service for nonpayment of another service unless the services are "so interlocked that neither can be effective without the other." For more information, see **Appendix D- Additional Background on Billing Methodologies**.

4.2 Tax Bill Collection Method for Special Assessments

For the tax bill collection method, a local government must initiate the process almost a full year before it intends to use it to collect the special assessments. The process begins with the passage of a resolution prior to January 1 or, if the property appraiser, tax collector, and local government agree, March 1. The adoption of a resolution of intent does not obligate the local government to use the method or to impose a special assessment, but it is required as a prerequisite to using the tax bill collection method.

The local government must also publish notice of its intent to use the uniform method weekly for 4 consecutive weeks prior to the public hearing on the resolution of intent. If the resolution is adopted, the governing board must send a copy of it to the property appraiser, the tax collector, and the Department of Revenue by January 10 or, if the property appraiser, tax collector, and local government agree, March 10. § 197.3632(3)(a), Fla. Stat.

After adopting the necessary implementing documentation, the local government then develops a computerized roll that contains the base and rate of the special assessment and electronically applies it to each parcel subject to the special assessment. From a logistical standpoint, the roll must reference the property use code classifications maintained by the property appraiser and be compatible with the ad valorem tax bills.

The roll must be adopted at a public hearing between June 1 and September 15 so the tax collector can merge it with the ad valorem tax roll and mail out a single bill for the combined collection of special assessments and ad valorem taxes. At least 20 days prior to the public hearing, a local government is required to notice the hearing by advertisement in a newspaper of general circulation within the local government and by individual first class United States mailed notice to persons owning property subject to the special assessment. The individualized notice can, in itself, be a monumental undertaking for local governments which are unfamiliar with the process. The strict timeframe for notice, the specific requirements of the notice format, and the volume of notices to be mailed is often recognized as a difficult task by local government when little or inadequate time to perform remains. Once the notices are mailed, the volume of citizen inquiries based on the information within the notice requires experienced management.

If the special assessment is to be collected for a period of more than one year or is to be amortized over a number of years, the local government is required to so specify in the notice and is not required to annually adopt the special roll. However, for special assessments whose rates vary among types of property, the property owners must be notified annually if their special assessments increases beyond the noticed amount and the local government must annually adopt a roll.

Collection of the special assessments and taxes begins in November when the uniform method of collection is employed. A taxpayer is not allowed to pay the taxes due without also paying the special assessment. Failure to pay the special assessments and taxes will result in the issuance of a tax certificate and may result in the sale of a tax deed, no earlier than two years after initial failure to pay.

The statutes relating to the enforcement of ad valorem taxes provide that taxes become due and payable on November 1 of the year when assessed or as soon thereafter as the tax roll is received by the Tax Collector, and constitute a lien upon the land from January 1 of the year of assessment until barred by the operation of law. The Tax Collector bills taxes and special assessments together with all other taxes and property owners are required to pay all such taxes and assessments without preference in payment. The Tax Collector then remits the revenue back to the City. Section 197.383, Florida Statutes provides that the Tax Collector should distribute revenues collected at least four times during the first 2 months after the tax

roll is provided to his or her possession and at least one time per month for all other months. A different schedule may be used if the Tax Collector and the City mutually agree.

If a taxpayer does not make a complete payment, specific line items on a tax bill cannot be designated by the taxpayer as paid in full. In such case, the Tax Collector does not accept a partial payment and the partial payment is returned to the taxpayer. For more information on the timeline, see Appendix D- Additional Background on Billing Methodologies.

4.3 Summary of Billing Methodologies

This section summarized the pros and cons of each billing method, as well as the steps required to implement each.

Table 3 below provides a comparison of the advantages and disadvantages of the tax bill collection method versus the utility bill collection method.

Table 3- Billing Methodology Pros and Cons

	Tax Bill	**Utility Bill**
Pros	• Highest collection rate (95 – 98%) • One bill with all charges • Use tax roll data from PA • Revenue received within 6 months of start of fiscal year	• Deadlines set by local government • Timeframe set by local government • Easier to charge exempt property • May be able to use for government property
Cons	• Strict statutory requirements regarding public notice • Strict statutory timeframes • Cannot use for government property	• Difficult to correlate utility accounts to property uses (methodology issues) • Collection issues regarding non-payment • Utility bill gets crowded • May miss vacant, unoccupied property or those without utility account • Revenue received on monthly basis

Table 4 below shows the implementation steps for the tax bill collection method and the utility bill collection method:

Table 4- Billing Implementation Steps

Tax Bill	**Utility Bill**
Resolution of Intent	--
Assessment Report with Rates	Assessment Report with Rates
Home Rule Ordinance	Home Rule Ordinance
Initial Assessment Resolution	--
Public Notice (mailed and newspaper)	Public Notice (as determined)
Final Resolution to Adopt Rates	Final Resolution to Adopt Rates
Certify Assessment Roll to Tax Collector	--
Collected on Tax Bill	Collected on Utility Bill

Section 5
Potential Revenue and Funding Requirements Evaluation

In conjunction with City staff, the CW Team has confirmed the costs of stormwater capital investments to be recovered through stormwater fees. In the City's Five Year Stormwater Capital Program for Fiscal Years (FY) 2016 through 2020, total expenditures of $5,756,288 have been identified to be funded from stormwater utility rates. The $5.7 million includes an allowance of $983,144 for vehicle purchases and capital lease payments associated with vehicles. The capital investment in stormwater infrastructure projects is $4,773,144 of which $438,000 is anticipated to be funded from grants. The investment in stormwater infrastructure includes stormwater outfalls, stormwater BMP implementation and annual funding for stormwater system rehabilitation projects. Based on the recurring nature of the City's stormwater system capital requirements, funding the projects on a pay-as-you-go basis out of the annual system revenues will produce the lowest rates over time. Generally, one –time major improvements and system expansion are typically funded through long-term debt while recurring projects, such as system rehabilitation, are pay-as-you-go funded in order to maintain rates as low as possible over time. The City's stormwater vehicle replacements and purchases are funded through a combination of capital leases and vehicle purchases, depending on the expected life and type of vehicle. The following schedule summarizes the stormwater system's

capital requirements for the FY2016 through FY2020 period. Based on the estimated ERU's of 17,400 (the alternative methods results in ERU estimates ranging from 17,157 to 17,424), the City would need to adopt a rate of $5.00 per month to fund stormwater system capital needs. The projected reserves and cash flow are also shown in **Table 5**.

Table 5- Projected Funding Summary

City of Vero Beach
Estimated Stormwater Rate per Equivalent Residential Unit
Fiscal Year Ending September 30,

	2016	2017	2018	2019	2020
Capital Projects					
Stormwater Rate Study					
Outfalls/BMP Implementation	$ 450,000	$ 400,000	$ 400,000	$ 200,000	$ 300,000
Vero Isles Outfall	$ -	$ 165,786	$ 165,786	$ 110,786	$ 110,786
20th Ave Outfall Repairs	$ -	$ -	$ 161,500	$ 200,000	$ -
Stormwater Rehabilitation	$ 270,000	$ 500,000	$ 338,500	$ 500,000	$ 500,000
Total Capital Projects	$ 720,000	$ 1,065,786	$ 1,065,786	$ 1,010,786	$ 910,786
Vehicles					
Lease Purchase Acquistion	$ -	$ 180,000	$ -	$ -	$ -
Lease Purchase Debt Service	$ -	$ 110,786	$ 110,786	$ 110,786	$ 110,786
Replacement Purchase	$ -	$ -	$ 55,000	$ 55,000	$ 250,000
Total Vehicle Expenditures	$ -	$ 290,786	$ 165,786	$ 165,786	$ 360,786
Less:					
DEP Grant Funding	$ -	$ 178,000	$ 178,000	$ 82,000	$ -
Capital Lease Proceeds	$ -	$ 180,000	$ -	$ -	$ -
Net Revenue Requirements	$ 720,000	$ 998,572	$ 1,053,572	$ 1,094,572	$ 1,271,572
Estimated ERUs	17400	17400	17400	17400	17400
Monthly Rate	$ 5.00	$ 5.00	$ 5.00	$ 5.00	$ 5.00
Revenue	$ 1,044,000	$ 1,044,000	$ 1,044,000	$ 1,044,000	$ 1,044,000
Net Cash Flow	$ 324,000	$ 45,428	$ (9,572)	$ (50,572)	$ (227,572)
Fund Balance	$ 324,000	$ 369,428	$ 359,856	$ 309,284	$ 81,712

Section 6
Summary of Recommendations

The following section provides stormwater utility framework recommendations as well as funding and programmatic recommendations for the City. The recommendations are intended to assist the City with critical decisions that need to occur prior to the Stormwater Utility being developed during upcoming Stormwater Utility Study tasks. In addition, general recommendations for public outreach approaches in preparation for implementation of the utility are provided.

6.1. Recommended Rate Structure and Billing Methodology

Based on the pros and cons presented in Section 3.4, the CW Team recommends that the City choose Alternative 1B as the stormwater rate structure. However, any of the other three (3) alternatives are fine choices.

6.1.1 Recommended Adjustment System

There needs to be a system for new private stormwater BMPs to attain credit and other adjustments to be made following application by residents. The CW Team recommends an appeals and adjustments system for credit and adjustment of the stormwater systems as described in Section 3.2.

We also recommend that the appeals and adjustments system include an appeals policy to allow property owners to apply for a reduction in the stormwater utility fee based on site-specific or unique information that may not be considered within the appeals and adjustments system. We recommend that an appeal for a mitigation credit for a permitted non-City stormwater facility should require an applicant to provide a copy of the applicable SJRWMD or FDEP permit. The appeals process would similar to application for a simple permit, with a form and basic information submittal process.

In conjunction with City staff, the CW Team will assist the City with setting up an appropriate appeals process during the rate structure task.

6.1.2 Recommended Billing Methodology

To be discussed and determined based on consideration presented in this report. One major consideration is that government properties cannot be assessed under the tax bill method. Government properties represent a large portion of potential ERUs in the City.

Another consideration is that the utility bill methodology will require significant up-front database work prior to implementation.

6.1.3 Recommended Development Preparation

The CW Team recommends that the City (or task consultant) complete non-building impervious area coverage, as soon as possible (hopefully by SWU rate apportionment task, implementation). This is especially recommended to increase accuracy of assessment for commercial, industrial, institutional properties which typically have high imperviousness and number of ERUs directly proportional to defined imperviousness.

6.1.4 Maintenance

The CW Team recommends that the following maintenance be considered for the stormwater utility billing system:

- On an annual basis the City should identify properties where the ERUs should be recalculated to capture changes in impervious area. These properties could likely be identified by the Indian River County property appraiser.
- Credits should be updated to include any new privately maintained stormwater facilities constructed within the City
- The assumptions for the ERU characteristics should be reevaluated if a significant number of new single family residential properties are constructed in the City.
- On an annual basis stormwater expenses should be compared to revenue to determine if the stormwater utility is generating too much or too little revenue. The split between water quality and water quantity expenses should also be reviewed.

6.2 Administrative and Programmatic Recommendations

6.2.1 Recommended Program Funding

Program funding is discussed in Section 5.

6.2.2 Recommended Outreach

It is recommended that the City prepare and activate an informational website for residents. The City advertising the stormwater utility to residents can have powerful effects on perception and acceptance of the utility.

We recommend that staff coordinate directly with the Indian River County School Board, and potentially other entities, to gain acceptance and provide notification or negotiation for the stormwater utility assessment.

References

Florida Stormwater Association. Establishing a Stormwater Utility in Florida. 2013 Florida

Stormwater Association. Stormwater Utility Survey Report. 2014

Appendix A
Data Collection and Review Summary Memorandum

Technical Memorandum
Stormwater Utility Study

Collective Water Team
Data Collection and Review Summary Memo

Subject:	**Data Collection and Review Summary**
Date:	January 4, 2016
To:	Bill Messersmith (City)
From:	Amelia Fontaine (*Collective Water Resources)*
Copy to:	Collective Water Team
	Monte Falls (City)
	Elizabeth Perez *(Collective Water Resources)*
	Project File

The memo summarizes the data collected and reviewed in preparation for the Preliminary Analysis Evaluation and subsequent Preliminary Report.

The Collective Water (CW) Team was selected by the City of Vero Beach (City) to conduct a Stormwater Utility Study. As part of the project, the CW Team has conducted substantial review and analyses of existing data that will be used to support development of a stormwater utility for the City.

The CW team has collected existing data from the City and other applicable publically available Geographic Information System (GIS) data including aerial imagery, topographic data, land use coverage, and has conducted baseline review of the data. This memorandum summarizes the review and initial comments on the data.

City of Vero Beach Asset Databases

The City provided Collective Water and Jones Edmunds with the July 21, 2015 version of the City's Stormwater Asset database. The database included the following pertinent feature classes:

- *CurrentLandUse* – polygon feature class showing the existing land uses within the City. Land use descriptions include residential categories such as Single-Family or Multi-Family, developed categories such as Commercial or Industrial, and undeveloped categories such as Conservation or Vacant. The feature class contains a total of 7,339 polygon features. Approximately 7,300 features are within the City limits.
- *DrainagePonds* – polygon feature class showing waterbodies and ponds within the City. There are 92 features identified within the City limits.
- *ImperviousCover* – polygon feature class showing areas of impervious cover within the City. A total of 340 polygon features delineate sidewalks, parking lots, or other impervious areas. The feature class does not include buildings or roadways within the City limits.
- *ParcelsCityProperties* – polygon feature class showing properties owned by the City. The feature class contains 230 parcels.
- *ParcelsIRC* – polygon feature class showing all parcels within Indian River County. There are approximately 7,400 parcels within the City. Approximately 5,000 parcels within the City are classified as Single Family.
- *Rooflines*– polygon feature class showing the building footprint of residential, commercial, or industrial properties. The feature class contains approximately 42,300 polygon features. Approximately 12,200 roofline features are within the City limits.
- *WaterMeters* – point feature class showing water meters located within the water service area. The feature class contains approximately 12,100 point features. Approximately 7,900 features are within the City limits. Each feature includes an address, meter number, and location ID.

The City also provided a stormwater drainage database. The feature dataset *StormwaterCOVB* contains the following feature classes:

- *BaffleBoxConnections*
- *DrainageBasins*

- *DrainageCurbs*
- *DrainageExfiltrationTrenches*
- *DrainageNetwork_Junctions*
- *DrainagePermeablePavement*
- *DrainagePipes*
- *DrainageStructures*
- *DrainageUplandChannels*

In addition to the *StormwaterCOVB* dataset, the stormwater drainage database also contains two drainage canal feature classes. The feature class *DrainageCanalIR_Farms* shows the major canals that drain toward Indian River Lagoon. Jones Edmunds noted that the feature designated as "Main Canal" drains through the City.

Digital Terrain Model (DTM)

Jones Edmunds obtained a DTM derived from auto-filtered Light Detection and Ranging (LiDAR) data and associated breaklines. The LiDAR data were collected and processed by Woolpert, Inc. in 2007 as part of the Florida Division of Emergency Management's Coastal LiDAR Project.

Florida Department of Transportation (FDOT) 2015 Aerial Imagery

FDOT collected aerial imagery for Indian River County from May 7, 2015 to June 17, 2015. The imagery dataset has a 1-foot resolution.

Indian River Property Appraiser CAMA database

Jones Edmunds obtained the Indian River Property Appraiser CAMA database on November 13, 2015.

Jones Edmunds reviewed the CAMA data which provides building areas for a majority of the parcels within the City. We compared the CAMA building areas to the City's Rooflines dataset. There were six parcels within the City that had CAMA data but not have roofline features. We confirmed that parcels without CAMA data did not have roofline features. Based on our review, the roofline feature class was an accurate representation of building impervious area. We recommend using the City's roofline dataset to estimate building impervious for each parcel.

We also reviewed the CAMA database for non-building impervious data, but were unable to locate any data records for non-building impervious features such as driveways, patios, and walkways. Based on the scope and discussions with the City, Jones Edmunds will estimate non-building impervious area based on a limited review of representative parcels.

St. Johns River Water Management District (SJRWMD) Datasets

- SJRWMD 2009 Land Use – a polygon feature class showing different land uses throughout the District. Land uses are assigned to each polygon based on the Florida Land Use/Land Cover and Forms Classification System (FLUCCS).

- SJRWMD Environmental Resource Permit (ERP) – a polygon feature class showing ERP locations throughout the District. There are approximately 350 ERP features within the City limits. Jones Edmunds obtained the layer from the SJRWMD website on November 20, 2015.

Jones Edmunds reviewed the City's *CurrentLandUse* feature class by comparing it to the SJRWMD 2009 land use dataset. The two datasets typically designate the equivalent land uses throughout the City. In cases where the land uses are different, one dataset has more detailed delineations for a given area. For example, the SJRWMD dataset categorizes the commercial building, parking lots, and the associated open grass area all as one commercial polygon, while the *CurrentLandUse* dataset delineates two polygons – one for the developed portion of land and one for the open portion.

City Utility Billing Datasets

The City provided Government Services Group (GSG) and Collective Water with output files from the City's billing system to show the information available through the billing system. Billing frequency analysis report (excel format), mailing address files (excel format), and a mailing address PDF file were provided. The billing system does not include a tax parcel identification component. Data fields include unique location identification number and meter identification number.

The data listed above is used for the various utility rate and billing methodology study tasks. Results of analysis will be presented in the preliminary rate study report.

Should you require any further detail or have any questions on our comments, please do not hesitate to contact Amelia Fontaine at 772-584-3573.

Appendix B
Rate Structure Evaluation Methodology

Appendix B
Rate Structure Evaluation Methodology

The Collective Water (CW) Team was selected by the City of Vero Beach (City) to conduct a Stormwater Utility Study. As part of the project, the CW Team has conducted a preliminary evaluation of rate structures.

The purpose of this Appendix is to summarize the data and procedure for establishing four alternative stormwater utility rate structures for the City of Vero Beach. This document was drafted by Jones Edmunds during the engineering and statistical analysis performed to support the rate structure approaches presented in the Preliminary Report. The first section of the document describes the methodology and assumptions used to assign impervious area to parcels within the City. The remaining sections describe Stormwater Utility Rate Structure Options 1 and 2. Each option contains two alternatives.

SECTION 1- Defining impervious area within the City

Jones Edmunds estimated impervious areas for parcels within the City in order to develop possible stormwater utility rate structures. The impervious area of a parcel was typically defined by two categories: impervious area of a building and the non-building impervious area. Impervious areas of buildings were obtained by using the building footprint dataset provided by the City. Non-building impervious areas were estimated by sampling representative parcels for major land use categories. Land Use categories were obtained from the property appraiser database and further refined using the *CurrentLandUse* feature class that was provided by the City. The *CurrentLandUse* designation was applied to “other” and “mobile home” categories from the property appraiser database.

1.1 Single Family Residential

- Jones Edmunds used 2015 aerial imagery to digitize non-building imperviousness for 20 improved single-family residential properties within the City to determine what relationship may serve as the best estimator for non-building impervious area. The sampled single family residential properties had a median parcel area of 11,969 square feet. We did not observe significant trends between non-building impervious area and variables such as parcel area, building footprint, and non-building parcel area (Figures 1 -3). The 20 single family parcels had a median non-building impervious area of 513 square feet. **Figure 1** shows the relationship between non-building impervious area and parcel area. **Figure 2** shows the relationship between non-building impervious area and building footprint. **Figure 3** shows the relationship between non-building impervious area and the non-building area of the parcel.
- For the purposes of estimating the total number of equivalent residential units (ERUs) and potential revenue, Jones Edmunds used the median non-building impervious area of 513 square feet for impervious areas for all single–family residential parcels in the City.

- The median parcel area for improved single-family residential parcels in the City is 12,067 square feet with a median total impervious area of 3,357 square feet, including the 513 square feet value. The distribution of total imperviousness across all improved single-family residential parcels is shown in Figure 4.

Figure 1 Sampled Single-Family Residential Non-Building Impervious Area and Parcel Area

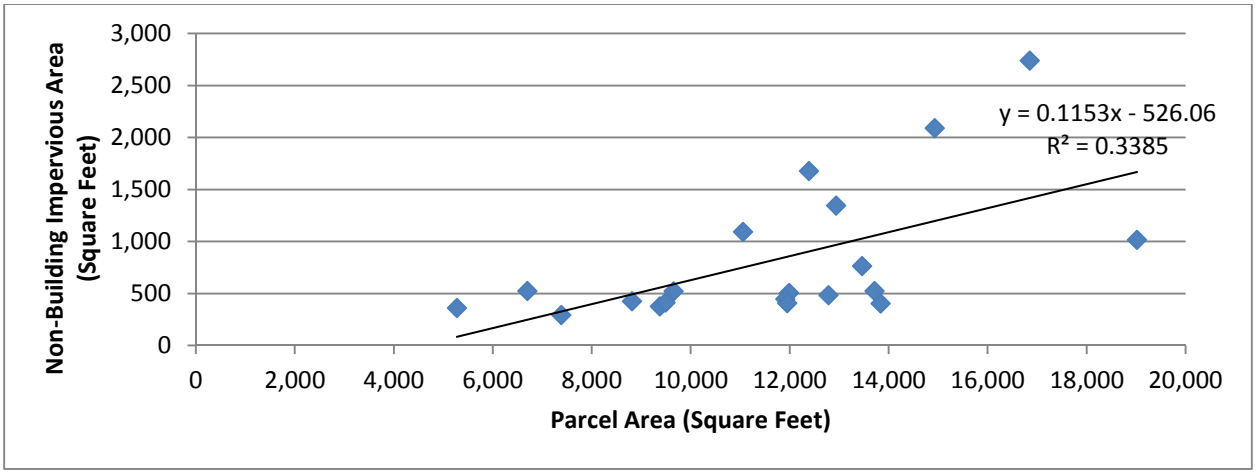


Figure 2 Sampled Single-Family Residential Non-Building Impervious Area and Building Footprint

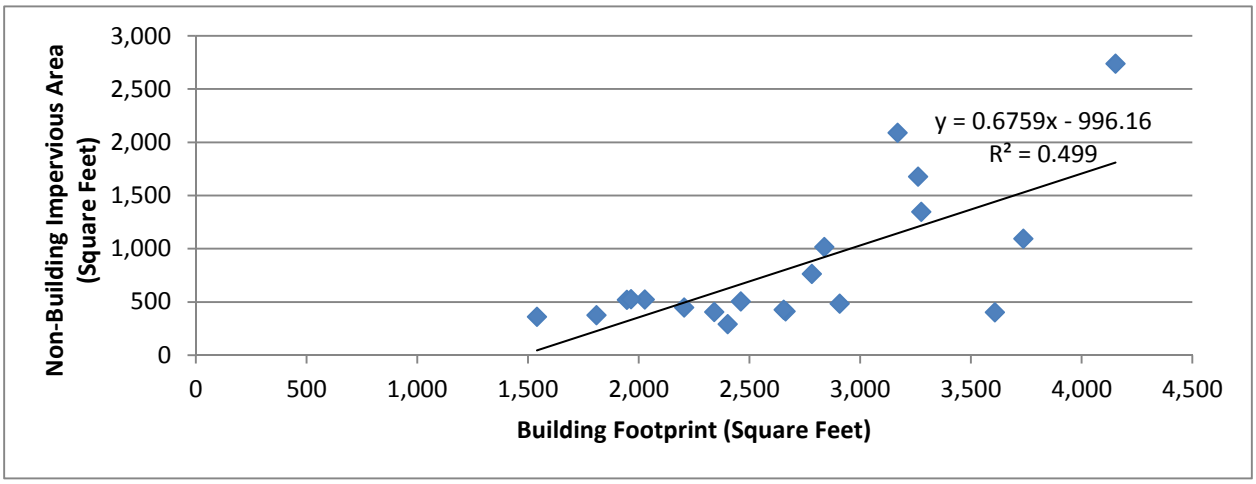


Figure 3 Sampled Single-Family Residential Non-Building Impervious Area and Non-Building Parcel Area

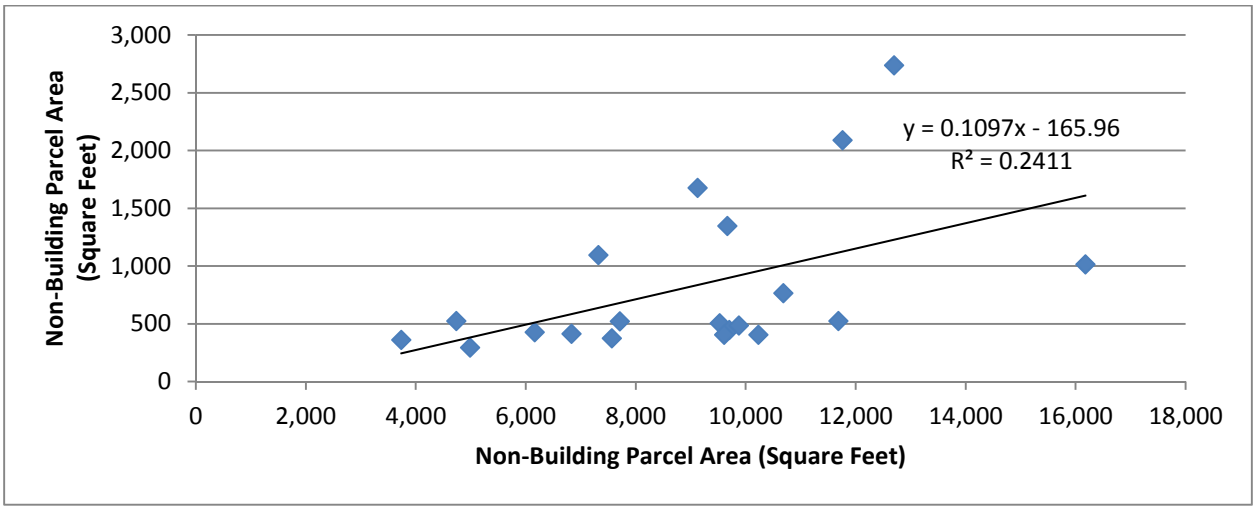
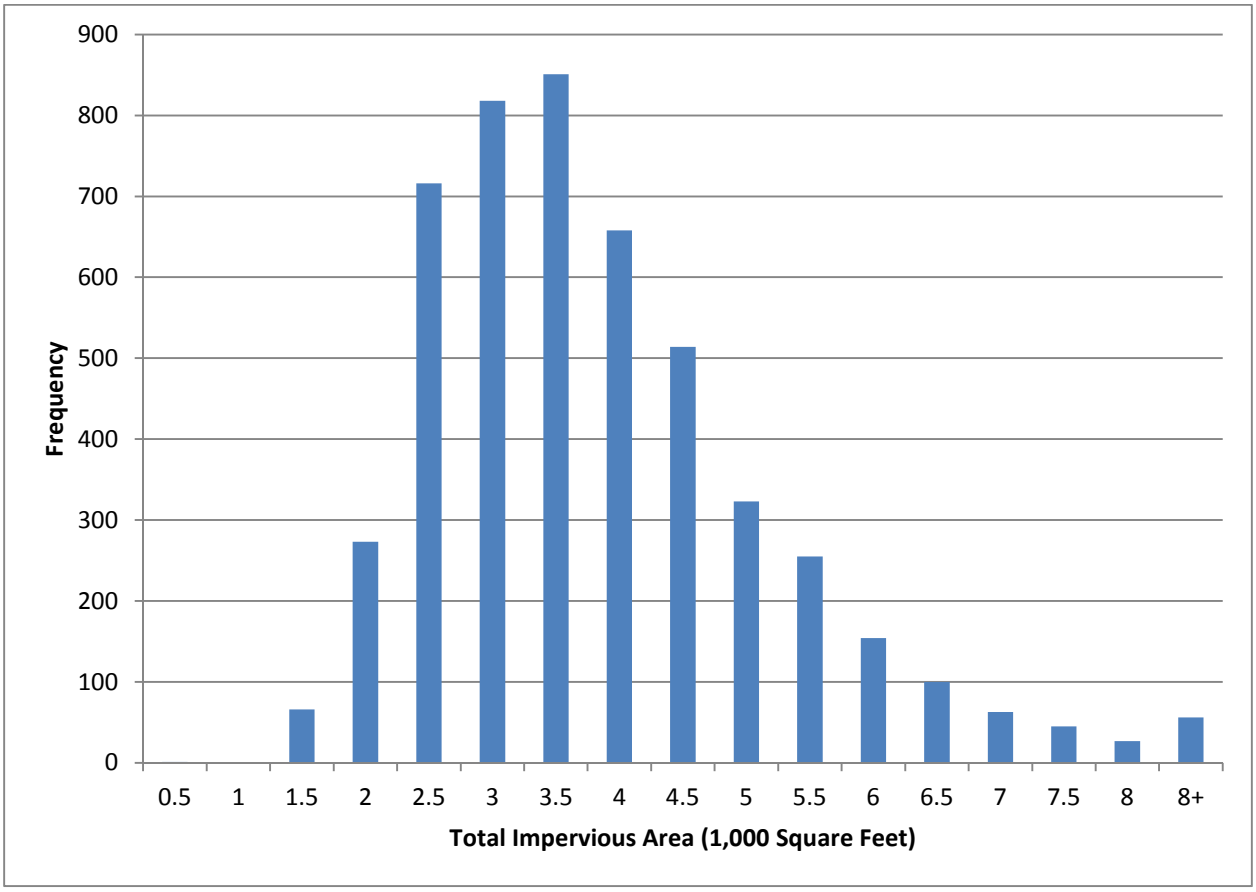


Figure 4 Impervious Area for All Improved Single-Family Residential Properties



1.2 Non-Single-Family Residential

- Jones Edmunds measured imperviousness for 20 improved non-single-family residential parcels to evaluate non-building impervious area estimates for multiple land use categories. The following assumptions for imperviousness across major land uses were made:
    - Commercial – Total impervious area is approximately 80% of the total parcel area. The 80% impervious area value was the average percentage of impervious area of 7 sampled commercial properties. Building footprints were not used to calculate individual property impervious area. We recommend that commercial property impervious areas be digitized before final ERUs are calculated.
    - Institutional – Non-building area impervious is 50%. The 50% impervious value was the average percentage of non-building impervious area of the 6 sampled institutional properties.
    - Multi-Family residential properties – Total impervious area was equal to the building footprint and a constant non-building impervious area of 2,950 square feet. The constant non-building impervious area was the median value for the 7 sampled multi-family residential properties.
- Other less common land uses included mobile homes, attached single-family.
- Approximately 500 parcels had a land use designation of vacant residential, vacant commercial, or vacant institutional. Jones Edmunds did a visual review at a scale of 1:10,000 to confirm these properties were unimproved.
- Approximately 240 parcels did not have a land use designation in the property appraiser database. Jones Edmunds did a visual review at a scale of 1:10,000 to evaluate impervious area. These lots were typically unimproved, but also included various multi-family residential or improved land uses. Jones Edmunds manually assigned imperviousness by assigning a percentage of the parcel area as impervious.

SECTION 2- Rate Structure Alternatives

2.1 Tiered Rate Structure Option 1: Impervious Area Only

This proposed stormwater utility rate structure is based on the assumption that the impervious area of a parcel is a reasonable proxy for the hydrologic burden placed on the City stormwater system. Based on this assumption, an ERU could be defined as the median imperviousness of a single-family residential parcel.

2.1.1 Single-Family Residential Properties

2.1.1.1 Alternative 1A

We recommend a tiered rate structure to help account for the variation in imperviousness among single-family residential properties (Figure 1, in Section 1 of this Appendix). The tiered rate structure for Alternative 1A could be broken into 3 categories based on a statistical analysis of the distribution of imperviousness on single-family residential properties. The median impervious area was 3,357 square feet, which was considered 1 ERU. The 1st and 3rd quartiles were also calculated to be 2,622 square feet and 4,290 square feet. The following is a description of the proposed rate structure:

- All improved single-family residential properties with a total impervious area between 1st and 3rd quartiles (2,622 square feet or more and 4,290 square feet or less) – These properties would be charged 1 ERU.

- All improved single-family residential properties with a total impervious area less than the 1st quartile (less than 2,622 square feet) – This tier has a median imperviousness of 2,221 square feet, which is approximately 66 percent of the overall median impervious area. These properties would be charged 0.66 ERU.

- All improved single-family residential properties with a total impervious area greater than the 3rd quartile (more than 4,290 square feet) – This tier has a median imperviousness of 5,152 square feet, which is approximately 153 percent of the overall median impervious area. These properties would be charged 1.53 ERUs.

There is another category of single-family residential properties called attached single-family residential (ASFR). The approximate impact of ASFR properties within the City would be calculated by comparing the median impervious area to the median ERU impervious area. Based on our review, we found the stormwater utility fee for ASFR properties to be 0.31 ERU per property.

2.1.1.2 Alternative 1B

An alternative rate structure to help account for the variation in imperviousness among single-family residential properties is to add an additional tier for properties with impervious areas that exceed the 90% percentile. The tiered rate structure for Alternative 1B could be broken into 4 categories based on 1 ERU = 3,357 square feet of impervious area:

- All improved single-family residential properties with a total impervious area between 1st and 3rd quartiles (2,622 square feet or more and 4,290 square feet or less) – These properties would be charged 1 ERU.

- All improved single-family residential properties with a total impervious area less than the 1st quartile (less than 2,622 square feet) – This tier has a median imperviousness of 2,221 square feet, which is approximately 66 percent of the overall median impervious area. These properties would be charged 0.66 ERU.

- All improved single-family residential properties with a total impervious area between the 75th and 90th percentiles (more than 4,290 square feet and less than 5,389 square feet) – This tier has a median imperviousness of 4,760 square feet, which is approximately 142 percent of the overall median impervious area. These properties would be charged 1.42 ERUs.

- All improved single-family residential properties with a total impervious area greater than the 90th percentile (more than 5,389 square feet) – this tier has a high variability in impervious area. We recommend the stormwater utility fee be calculated by dividing the impervious area on each property by 3,357 square feet to determine the number of ERUs billed for the property.

2.1.2 Commercial, Institutional, Multi-Family Residential, and Other Non-Residential Properties

The stormwater utility fee for all other improved properties within the City would be calculated by dividing the impervious area on each property by 3,357 square feet to determine the number of ERUs billed for the property.

We included properties of Sunfield Homes Inc. and City-Owned properties in the billing structures per City input.

2.1.3 Mitigation Credits and Stormwater Utility Adjustments

We recommend making adjustments to the billed stormwater utility for parcels that are not within the stormwater service area. These properties are not impacting the City's stormwater drainage system in terms of stormwater volume and discharge rate. However, some of these properties still drain directly into the Indian River Lagoon. These properties are placing a water quality burden on the Lagoon that has to be mitigated by the City. Assuming the City is spending approximately 60 percent of their stormwater budget to address water quality issues, we recommend a 40 percent reduction adjustment to the

stormwater utility fee for parcels that only drain to the IRL. We gave a full exemption to all other properties outside of the stormwater service and that do not drain into the Indian River Lagoon.

We recommend giving mitigation credits to parcels that reduce their impact on the City stormwater system through a privately maintained and St. Johns River Water Management District (SJRWMD) Environmental Resources Permitted (ERP) stormwater treatment system. SJRWMD typically requires the post-development peak discharge rate leaving a site not exceed the pre-development peak discharge rate. Jones Edmunds reviewed the SJRWMD ERP polygon layer at a 1:10,000 scale to determine if a parcel had stormwater treatment facility. We also used the drainage ponds feature class provided by the City to identify properties with stormwater treatment facilities.

Jones Edmunds developed a hydrologic model to quantify the benefit that a SJRWMD –permitted non-City-maintained stormwater facility provides to the City:

- We developed a hydrologic model representing typical runoff response of a 3,357-square-foot pervious area in the City. We reviewed the NRCS SSURGO soil information for the City and found that the average depth to the seasonal high water table across the City was 2.3 feet. Using this soil storage and an effective porosity of 39 percent, we calculated the average NRCS Curve Number (CN) to be 48 for open land.
- We also developed a hydrologic model representing the typical hydrologic response of a 3,357-square-foot impervious area in the City, which was assigned an NRCS CN of 98.
- Permitted stormwater systems cannot increase peak discharge beyond the predevelopment peak discharge. We are also assuming that the stormwater burden placed on the City's system is primarily a function of the impervious area. Therefore, we compared the peak discharge for between the two models described above for the 5-, 10-, and 25-year 24-hour design storms and found the pre-development peak discharge rates were lower by 86 percent, 79 percent, and 67 percent , respectively, than the impervious condition. We recommend using the average of a permitted system having 77% lower peak discharge than the same site without a permitted system.

Based on our review, the majority of the permitted facilities are stormwater detention facilities. Stormwater detention facilities are designed primarily to reduce peak discharge rates, but not runoff volume. Assuming half the impact to the City stormwater system is due to discharge rate and half is due to runoff volume, then we can assume that the impervious area treated by a permitted stormwater system has approximately 38.5 percent of the impact of an impervious area not treated by a stormwater system. Therefore, we recommend that properties served by a permitted stormwater system receive a 38.5 percent credit.

All properties served by a permitted stormwater system were assumed to be stormwater detention facilities. We can expand the stormwater system types to include exfiltration trenches and other BMPs, and modify the billing calculations if desired.

2.2 Tiered Rate Structure Option 2: Impervious Area and Pervious Area

This proposed stormwater utility rate structure is based the assumption that the hydrologic burden placed on the City stormwater system is a function of both the impervious area and pervious area on a parcel.

2.2.1 Defining Equivalent Imperviousness

In order to include pervious area in the rate structure alternative, equivalent impervious area must be defined. Jones Edmunds evaluated the relative impacts of unimproved (or vacant) land versus impervious area in order to define ERU values for equivalent impervious area. Unimproved or vacant land means any land that is in a naturally vegetated state or land that has been cleared of such vegetation with no impervious area.

2.2.1.1 Hydrologic Analyses

The following hydrologic factors and analyses were considered in defining equivalent imperviousness in the City:

- Average depth to water table is 2.3 feet. The majority of soils in the City are within the NRCS hydrologic soil groups A/D or A. We calculated the average CN value of 48 for open land within the City based on the 2.3 feet of storage and an effective porosity of 39 percent. This calculated CN is a little less than the NRCS TR-55 CN value for 1-acre residential lots on an A type soil.
- We modeled the 100-year/24-hour storm event to compare runoff impacts of the ERU against the unimproved lot.
    - Model results showed the peak rate of discharge from the unimproved land was approximately 58% of the peak rate of discharge from the land with impervious area.
    - Model results showed the total runoff volume from the unimproved land was approximately 71% of the total runoff volume from the land with impervious area.
- Equally weighting the reduction in peak flow rate and the reduction in the total volume would result in unimproved land having approximately 65% of the impact on the stormwater channel as that of land with impervious area.

We found that unimproved land has 65% of the impact of land with impervious area on the stormwater system.

2.2.1.2 Relative Impact

The following calculations demonstrate relative impact of impervious and pervious area, leading to definition of the equivalent impervious area ERU comprised of burden from both pervious and impervious areas (defined in Section 2.2.2).

Let Y = impact from ¼-acre of pervious area

Therefore:

(1) Y = 0.65 ERU

We know that a 0.28-acre of land with impervious area (an ERU) is approximately 28% impervious and 72% pervious.

Let X = impact from 0.28-acre of impervious area

Therefore:

(2) 1 ERU = 0.72 Y + 0.28 X

Solving Equations (1) and (2):

1 ERU = 0.72 (0.65 ERU) + 0.28 X

0.28 X = 0.53 ERU

X = 1.89 ERU

Therefore for a pervious area:

12,067 square feet (0.28-acre) = 0.65 ERU

Or 18,010 square feet = 1 ERU

Or 1 acre = 2.32 ERUs

Similarly for an impervious area:

12,067 square feet (0.28-acre) = 1.89 ERU

Or 6,385 square feet = 1 ERU

Or 1 acre = 6.75 ERUs

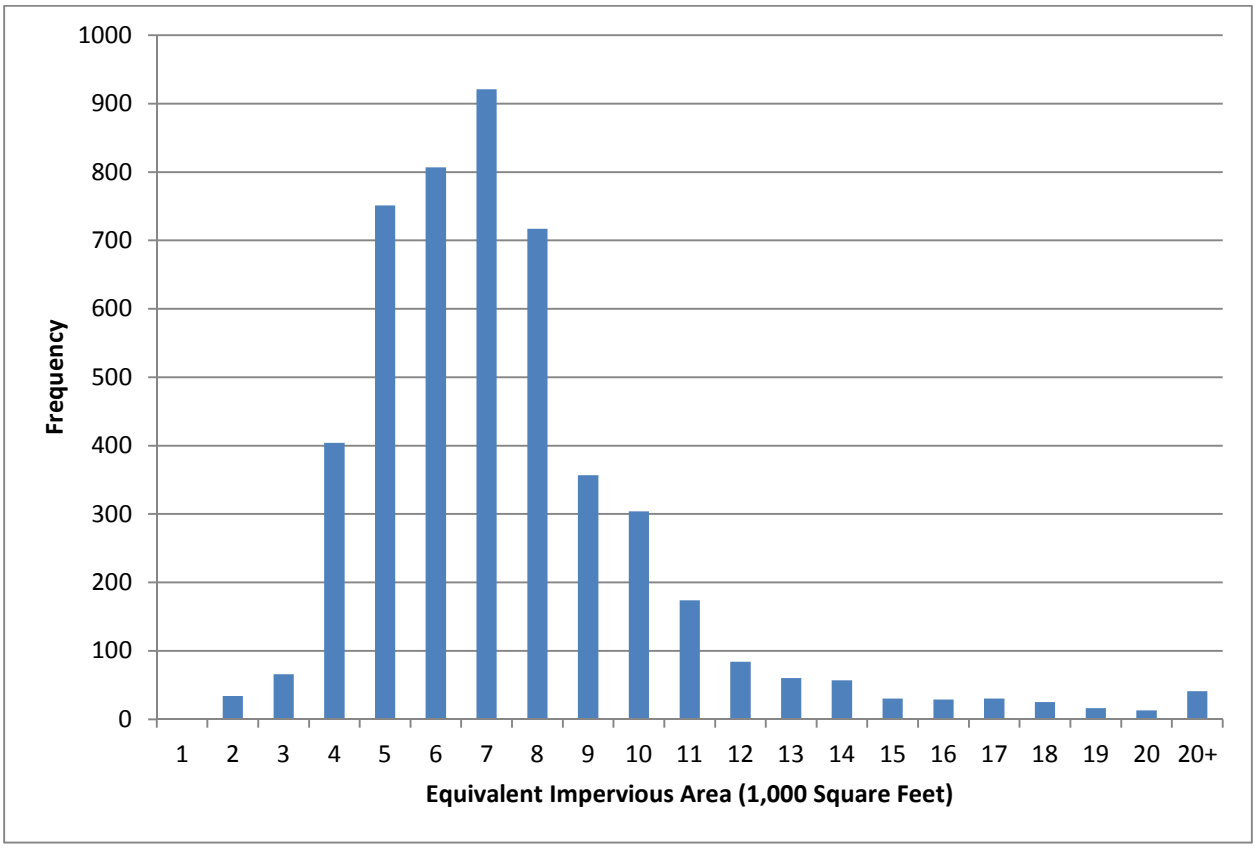
2.2.2 Single-Family Residential Properties

2.2.2.1 Alternative 2A

We recommend a tiered rate structure to help account for the variation in imperviousness and size among single-family residential properties. For assessing the stormwater impacts of a parcel, the pervious and impervious portions of a parcel were combined into an equivalent impervious area using the calculated ratio of their impacts (impact of impervious/impact of pervious = 6.75 ERUs/2.32 ERUs =2.91). The median equivalent impervious area across all single-family properties was calculated be 6,475 square feet. In addition the 1st quartile and 3rd quartile were found to be 5,008 square feet and 8,023 square feet if equivalent impervious area respectively.

Figure 5 shows the distribution of equivalent impervious area for improved single-family residential properties.

Figure 5 Equivalent Impervious Area for Improved Single-Family Residential Properties



The tiered rate structure for Alternative 2A could be broken into 3 categories based on total equivalent impervious area:

- All improved single-family residential properties with a total equivalent impervious area between 1st and 3rd quartiles (5,008 square feet or more and 8,023 square feet or less) – These properties would be charged 1 ERU.

- All improved single-family residential properties with a total equivalent impervious area less than the 1st quartile (less than 5,008 square feet) – This tier has a median equivalent imperviousness of 4,195 square feet, which is approximately 65 percent of the overall median equivalent impervious area. These properties would be charged 0.65 ERU.

- All improved single-family residential properties with a total impervious area greater than the 3rd quartile (more than 8,023 square feet) – This tier has a median equivalent imperviousness of 9,835 square feet, which is approximately 152 percent of the overall median equivalent impervious area. These properties would be charged 1.52 ERUs.

There is another category of single-family residential properties called Attached single-family residential (ASFR). The approximate impact of ASFR properties within the City would be calculated by comparing

the median equivalent impervious area to the median ERU equivalent impervious area. Based on our review, we found the stormwater utility fee for ASFR properties to be 0.19 ERU per property.

2.2.2.2 Alternative 2B

Alternative 2B includes an additional tier for improved single-family residential properties for the top 10 percent of equivalent impervious areas.

The tiered rate structure for Alternative 2B could be broken into 4 categories based on total equivalent impervious area:

- All improved single-family residential properties with a total equivalent impervious area between 1st and 3rd quartiles (5,008 square feet or more and 8,023 square feet or less) – These properties would be charged 1 ERU.

- All improved single-family residential properties with a total equivalent impervious area less than the 1st quartile (less than 5,008 square feet) – This tier has a median equivalent imperviousness of 4,195 square feet, which is approximately 65 percent of the overall median equivalent impervious area. These properties would be charged 0.65 ERU.

- All improved single-family residential properties with a total equivalent impervious area greater between the 75th and 90th percentiles (more than 8,023 square feet and less than 10,351 square feet) – This tier has a median equivalent imperviousness of 9,053 square feet, which is approximately 140 percent of the overall median equivalent impervious area. These properties would be charged 1.40 ERUs.

- All improved single-family residential properties with a total equivalent impervious area greater than the 90th percentile (more than 10,351 square feet) – this tier has variability of impervious area. We recommend the stormwater utility fee be calculated by dividing the equivalent impervious area on each property by 6,475 square feet to determine the number of ERUs billed for the property.

2.2.3 Commercial, Institutional, Multi-Family Residential, and Other Non-Residential Properties

The stormwater utility fee for all other improved properties within the City would be calculated by dividing the equivalent impervious area on each property by 6,475 square feet to determine the number of ERUs billed for the property.

We included properties of Sunfield Homes Inc. and City-Owned properties in the billing structures per City input.

2.2.4 Mitigation Credits and Stormwater Utility Adjustments

We recommend giving mitigation credits to parcels that reduce their impact on the City stormwater system. SJRWMD typically requires the post-development peak discharge rate leaving a site not exceed

the pre-development peak discharge rate. Jones Edmunds reviewed the SJRWMD ERP polygon layer at a 1:10,000 scale to determine if a parcel had stormwater treatment facility. We also used the drainage ponds feature class provided by the City to identify properties with stormwater treatment facilities.

Based on our review, the majority of the permitted facilities are stormwater detention facilities. Stormwater detention facilities are design primarily to reduce peak discharge rates, but not runoff volume. As described previously, the 100-year 24-hour model results show the peak rate of discharge in the channel from the vacant land was approximately 58% of the peak rate of discharge in the channel from the land with impervious area. Assuming half the impact to the City stormwater system is due to discharge rate and half is due to runoff volume, then we can assume that the impervious area treated by a permitted stormwater system has approximately 29 percent lower impact of an impervious area not treated by a stormwater system. Therefore, we recommend that properties served by a permitted stormwater system receive a 29 percent credit.

All properties served by a permitted stormwater system were assumed to be stormwater detention facilities. We can expand the stormwater system types to include exfiltration trenches and other BMPs, and modify the billing calculations if desired.

Appendix C
Preliminary Evaluation Geodatabase

Appendix C- Additional Background on Billing Methodologies

ADDITIONAL COURT CASE INFO: UTILITY BILL COLLECTION METHOD FOR SPECIAL ASSESSMENTS OR FEES

The courts have addressed the interlocking utility concept in three cases. In the first case, State v. City of Miami, 27 So.2d 118 (Fla. 1946), the Supreme Court considered whether a charge for sewer services may be enforced by ceasing water service. The Supreme Court upheld the enforcement mechanism against a due process challenge, ruling:

> It appears to us that if no constitutional rights of the owner or occupant of premises are violated by shutting off the water for nonpayment of the water bill, no such right will be violated by shutting off the water for nonpayment of the bill for use of the sewage disposal system, the two services being so interlocked that neither can be effective without the other.

27 So.2d at 126.

In contrast, the court in Edris v. Sebring Utilities Commission, 237 So.2d 585 (Fla. 2d DCA 1970). cert. denied, 240 So.2d 643 (Fla. 1970), found no such interdependence between electric services and water services. The court in Edris considered the lawfulness of a local utility commission regulation that required all water customers located outside the city to also hook up to electric services provided by the local utility commission. The court distinguished City of Miami and held that the Edris regulation was illegal and imposed unjustly discriminatory requirements, ruling:

> Water and electrical services are not complementary or "so interlocked that neither can be effective without the other." Sebring Utilities Commission's rule which requires water customers outside the municipal boundaries to purchase a collateral utility from the City as a condition precedent to obtaining water is illegal, unjustly discriminatory, and invalid.

237 So.2d at 587.

The third case on the nature of interlocking utilities is Sebring Utilities Comm. V. Home Savings Assoc. of Florida, 508 So.2d 26 (Fla. 2d DCA 1987) in which the Court considered a similar regulation by the same utility, the Sebring Utilities Commission, which also required customers of its water services to use its electricity. Unlike City of Miami, this case did not specifically address the issue of whether the utility may cut-off water services for failure to pay electric charges. Instead Sebring Utilities involved an anti-trust challenge to the regulation, which the court characterized as a “tie-in” regulation, tying water and electrical services together. The court distinguished Edris, and ruled that the tie-in regulation did not violate anti-trust principles. The court held, on the facts of the case as presented by the utility, that a financial connection between the two utilities was justified:

> In this situation, we cannot say the Commission's refusal to provide water only to… [the customer] was discriminatory because such a policy was applied to all potential customers within the municipal limits. The financial difficulties experienced by the Commission and its need to increase revenues presented a reasonable economic justification for the tie-in policy.

508 So.2d at 28.

In light of these cases, the City will need to ensure that there are no issues with how it chooses to enforce the collection of the stormwater fee, if the utility bill collection method is utilized.

ADDITIONAL TIMELINE INFO: TAX BILL COLLECTION METHOD FOR SPECIAL ASSESSMENTS

If a tax bill is paid in November when due or during the following three months, the property owner is granted a discount equal to four-percent in November and decreasing one-percent per month to one-percent in February. All unpaid taxes become delinquent on April 1 of the year following the assessment, or immediately after 60 days have expired from the mailing of the original tax notice, whichever is later. The Tax Collector is required to collect taxes prior to the date of delinquency and to institute statutory procedures upon delinquency to collect taxes.

Collection of taxes and assessments is based upon the sale by the Tax Collector of "tax certificates" and the issuance of tax deeds. The proceeds of the sale of the tax certificates are remitted to the City for payment of taxes and special assessments due. In the event of a delinquency in the payment of taxes, the property owner may, prior to the sale of a tax certificate, pay the delinquent taxes together with a maximum interest charge of 18 percent per year from the date of delinquency, and all costs and charges, except that there is a minimum interest charge of three-percent (3%) on the amount of delinquent taxes.

If a property owner does not act, the Tax Collector sells a tax certificate to a person who pays the taxes, interest, costs and charges and who accepts the lowest interest rate to be borne by the certificates (not to exceed 18 percent). If there are no bidders for the tax certificate, the County holds the tax certificates at the maximum interest rate allowed. The County may sell the certificate to the public at any time at the principal amount plus interest at a rate not to exceed 18 percent per year and a fee.

Any tax certificates in the hands of the private holders may be redeemed and canceled by anyone prior to the time a tax deed is issued or the property is placed on the list of lands available for sale. The person affecting such redemption must pay the face amount of the certificate plus costs and charges. Regardless of the interest rate actually borne by the certificate, persons redeeming tax sale certificates must pay a minimum interest rate of five-percent. The proceeds of such redemptions are paid to the Tax Collector who transmits to the holder of the tax certificate, such proceeds less service charges, and the tax certificate is canceled. Redemption of tax certificates held by the County are effected by purchase of such tax certificates from the County, as described in the previous paragraph.

The private holder of a tax certificate that has not been redeemed has seven years from the date of issuance of the tax certificate to act against the property. After an initial period of two years from April 1 of the year of issuance of the tax certificate has passed, during which time action against the land is held in abeyance to allow for sales and redemptions of tax sales certificates, such holders may apply for a tax deed. The applicant is required to pay the Tax Collector all amounts required to redeem all other outstanding tax certificates covering the land, any omitted taxes or delinquent taxes, current taxes and interest. Thereafter, the property is advertised for public sale.

In any such public sale, the private holder of a tax certificate who is seeking a tax deed for non-homestead property must submit a minimum bid equal to the amount required to redeem the tax certificate and charges for the cost of sales, redemption of other tax sales certificates on the property and the amounts paid by such holder in applying for the tax deed, plus interest.

In the case of homestead property, the minimum bid must include, in addition to the amount of money required for the opening bid on non-homestead property, an amount equal to one-half of the assessed value of the homestead. If there are no higher bids, the holder receives the title to the land, and the amounts paid for the tax certificate and in applying for a tax deed are credited toward the purchase price. If there are other bidders, the holder may enter the bidding. The highest bidder is awarded title to the land. The portions of the proceeds of such sale needed to redeem the tax sale certificate are forwarded to the holder or credited to the holder if he is the successful bidder. Excess proceeds are distributed first to satisfy the governmental liens against the property and then to the former titleholder of the property, lien holders of record, mortgagees of record and other lien holders and persons as their interest may appear.

If the County holds a tax certificate and has not succeeded in selling it, the County must apply for a tax deed after the County's ownership of the certificate for two years. The County pays the costs and fees to the Tax Collector, but not any amount to redeem other outstanding certificates covering the property. The public bidding on non-homestead property must start at a minimum bid equal to the value of all outstanding certificates plus previously unpaid and delinquent taxes, interest and all costs and fees paid by the County. The minimum bid on homestead properties must also include an amount equal to one-half of the latest assessed value of the homestead. If there are no bidders, the County may purchase the land for the opening bid. After 90 days, any person or governmental unit may purchase the land without further notice or advertising by paying the opening bid to the County. Seven years after the date of public sale, unsold lands revert to the County in which they are located and all tax certificates and liens against the property are canceled and a tax deed is titled to the County.