



Johns Creek Forms Stormwater Utility

*Pervious Plus Impervious ERU
Funds EOS Expansion*

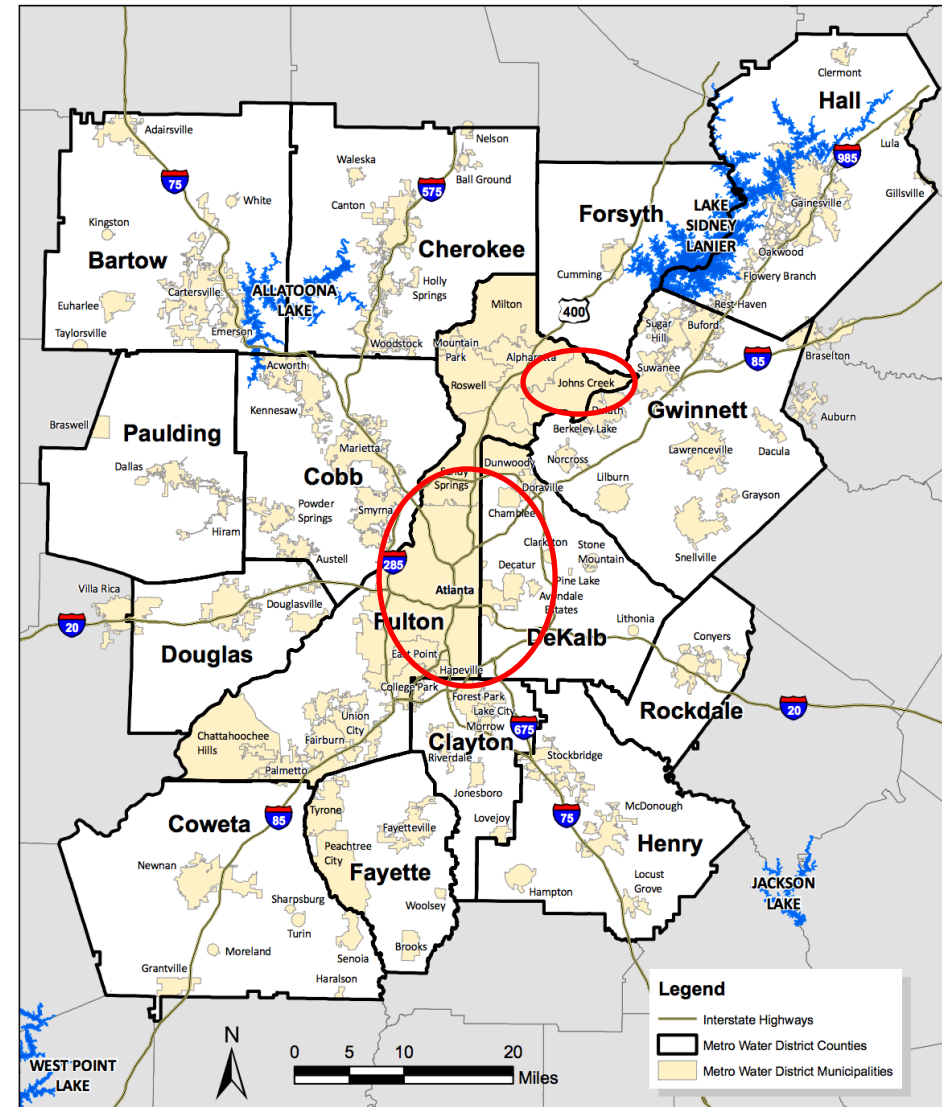
The Stormwater Challenge

1. Why consider a Utility?
2. Key components of a SWU?
3. What's different about this SWU?



Phase II MS4 plus MNGWPD Member

- City formed December 1, 2006
- 31.4 Square Miles
- Population of 85,097, 10th largest city in Georgia
- MNGWPD includes 15 counties and 95 cities



Maintenance Responsibility

STATE OF GEORGIA
COUNTY OF FULTON

RESOLUTION 2007-08-69

A RESOLUTION TO APPROVE AND AUTHORIZE A STORMWATER MAINTENANCE POLICY FOR THE CITY OF JOHNS CREEK

- WHEREAS,** The City of Johns Creek shall provide for the general health, safety and welfare of the inhabitants of the City; and
- WHEREAS,** The City has determined the need to provide for a policy for the maintenance of pipes, open channels, and all other stormwater conveyances in order to provide for abatement of nuisances and properly protect the health, safety and welfare of the citizens of the City; and
- WHEREAS,** The Stormwater Maintenance Policy establishes a level of service and extent of service for the public and private portions of the drainage system in the City; and
- WHEREAS,** The City is authorized to regulate and maintain the public right-of-ways within the geographical boundaries of the City and to provide for abatement of nuisances on public property; and
- WHEREAS,** The Stormwater Maintenance Policy attached hereto and incorporated herein by reference, has been reviewed.

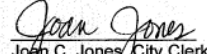
NOW THEREFORE BE IT RESOLVED by the Mayor and Council of the City of Johns Creek and it is resolved by the Authority of said City Council that, by passage of this resolution, the Mayor and Council of the City of Johns Creek approve and authorize the Stormwater Maintenance Policy of the City of Johns Creek.

SO RESOLVED AND EFFECTIVE, this the 13th day of August, 2007.

Approved:


Michael E. Bodker, Mayor

Attest:


Joan C. Jones, City Clerk



RESOLUTION 2007-08-69 - APPROVE AND AUTHORIZE A STORMWATER MAINTENANCE POLICY

PAGE 1 of 1



2. Maintenance Responsibility:

- 2.1. **Public Stormwater Drainage System** - The City shall conduct periodic inspections for maintaining that portion of Stormwater Drainage System for which it is legally responsible as set forth in Section 1.2 above. Information collected during these inspections will be utilized in evaluating the condition of the system and in setting priorities for operational and maintenance work as well as capital improvement projects.
- 2.2. **Private Stormwater Drainage System** - It shall be the responsibility of the property owner to maintain the operational characteristics of the Private Stormwater Drainage System located on their property, including but not limited to all easements, channels, detention basins, retention ponds, and other impoundments, so that they continue to operate as they were originally designed and as more specifically set forth in Sections 2.2.1, 2.2.2, 2.2.3, and 2.2.4 below.

What are the Challenges?

- Development impacts to aquatic wildlife, private property, and public road system
- Lack of maintenance causes water quantity and quality problems
- Meeting State and Federal requirements
- Recent changes to State regulations requiring enhanced management and water quality
- Significant administrative costs



Infographic for Considered Extent of Service

BACKGROUND

The storm drainage system is a network of pipes, open ditches, and other structures that collect and transport stormwater runoff to the nearest stream or lake. Certain elements of the storm drainage system are maintained by the City, while other elements are maintained by the private property owner or Homeowners Association.

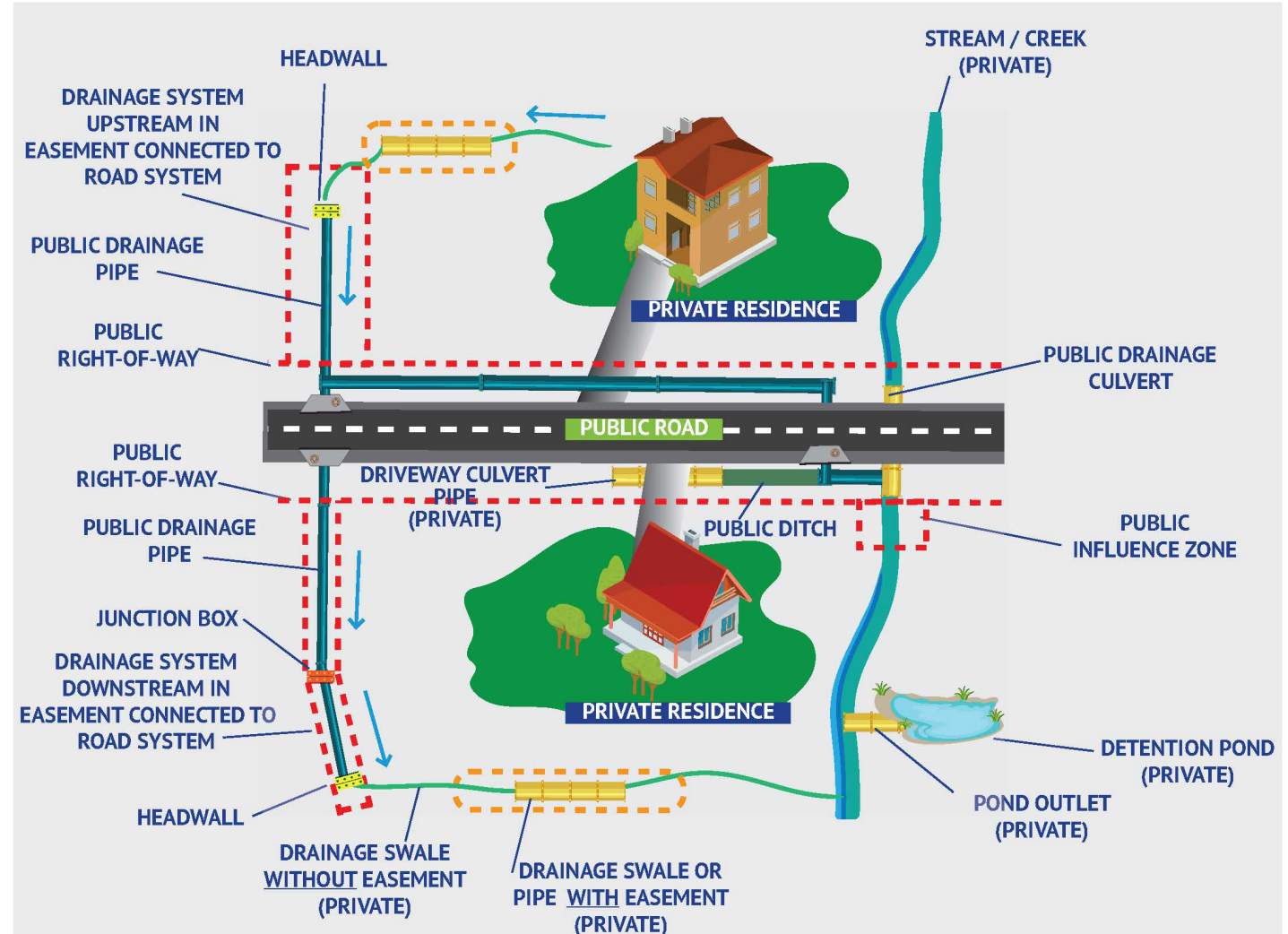
The City of Johns Creek extent of service (EOS) policy refers to the components of the storm drainage system maintained by the City. The level of service (LOS) policy defines the maintenance activities performed by the City.

LEVEL OF SERVICE

In the public drainage system the City provides inspections and prioritizes and makes necessary repairs. In private drainage systems, the City provides regulatory enforcement and may provide emergency response in isolated instances. All stormwater concerns will be reviewed by the City to determine whether the system is public or private.

PUBLIC DRAINAGE SYSTEMS

- Public streets and rights-of-way
- Public property (city-owned)
- Piped drainage system (easement) in residential areas connected to the public road system



System Maintenance, Repair & Replacement

- System assessment in 2019 of 34,000 assets
- July 2020 – Desire to expand Extent of Service
- Expands system from 11,000 to 34,000 assets
- Estimate C&M costs ~\$16,000,000 over 10 years
- Existing replacement list – 155 projects totaling \$3.4 million



Why a Stormwater Utility?

- Desire to not impact existing program funding
- Investigated funding sources -August 2020
- Stormwater Utility Fee:
 - Fee directly related to runoff
 - Stormwater runoff is a measure of system usage
 - Runoff determined by pervious and impervious area
 - Most equitable
 - Dedicated Fund



Steps to Implement a Stormwater Utility

1 Education and Outreach

2 Program Organization

3 Impervious Surface Layer

4 Rate Structure

5 Billing Process

6 Stormwater Utility Ordinance

	Component	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
1	Education and Outreach	█	█	█	█	█	█	█	█	█
2	Organizational Structure	█	█	█	█	█				
3	Impervious Surface Layer	█	█	█	█	█				
4	Rate Structure			█	█	█				
5	Billing Process					█	█	█		
6	Stormwater Utility Ordinance						█	█	█	█

Four Basic Fee Structures Generally Used

- 1) Impervious surface;
- 2) A combination of impervious surface and gross area;
- 3) Impervious area and the percentage of impervious surface;
- 4) Gross property area and the intensity of development.

Volume or Peak Flow?

1) Volume or Peak Flow?

1. Studies - 30%:90%; 33:100

2) $Q_p = CIA$;

1. C- (Woods) 15:95; 16:100
2. C- (Lawn) 22:95; 23:100

3) $Q_v = (P - 0.1a)^2 / (P - 0.2 * I_a + S)$;

1. CN (Forest) 55:98; 56:100
2. CN (Lawns) 61:98; 62:100

4) Other Potential Factors

1. Time of Concentration,
 1. C/ CN – Soils. Vegetation/condition. slope
 2. Roughness
 3. Slope parcel and channel
 4. Distance
2. Connected impervious areas

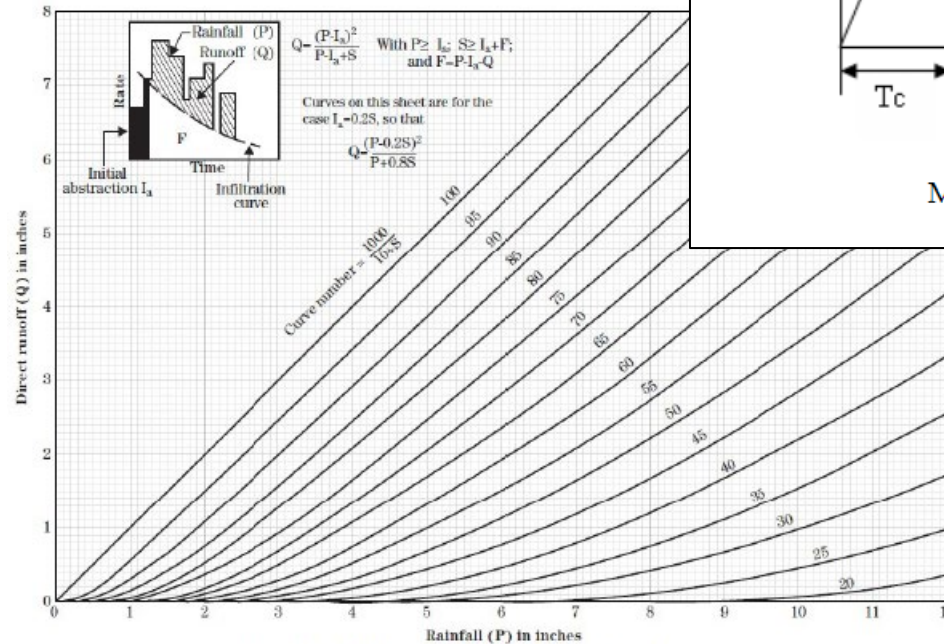
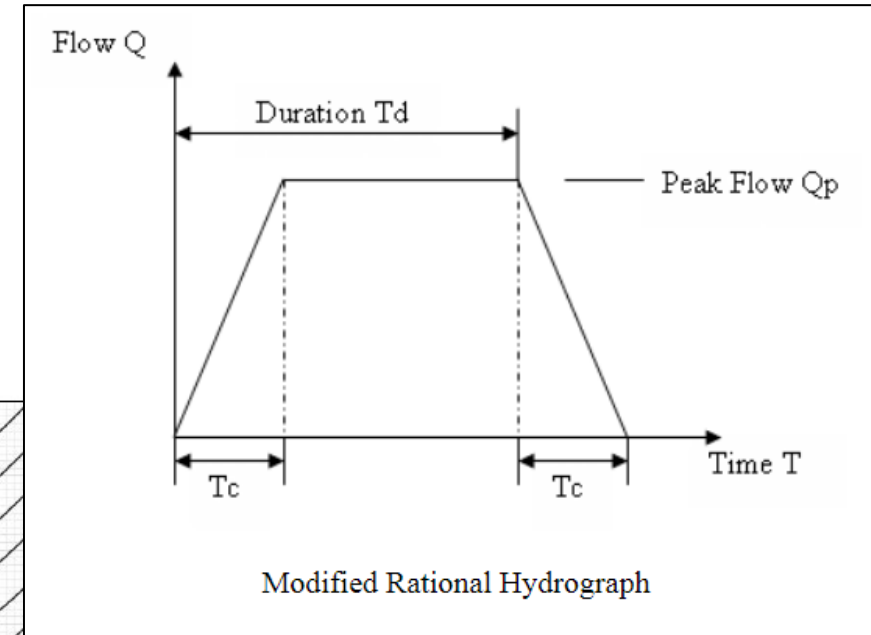
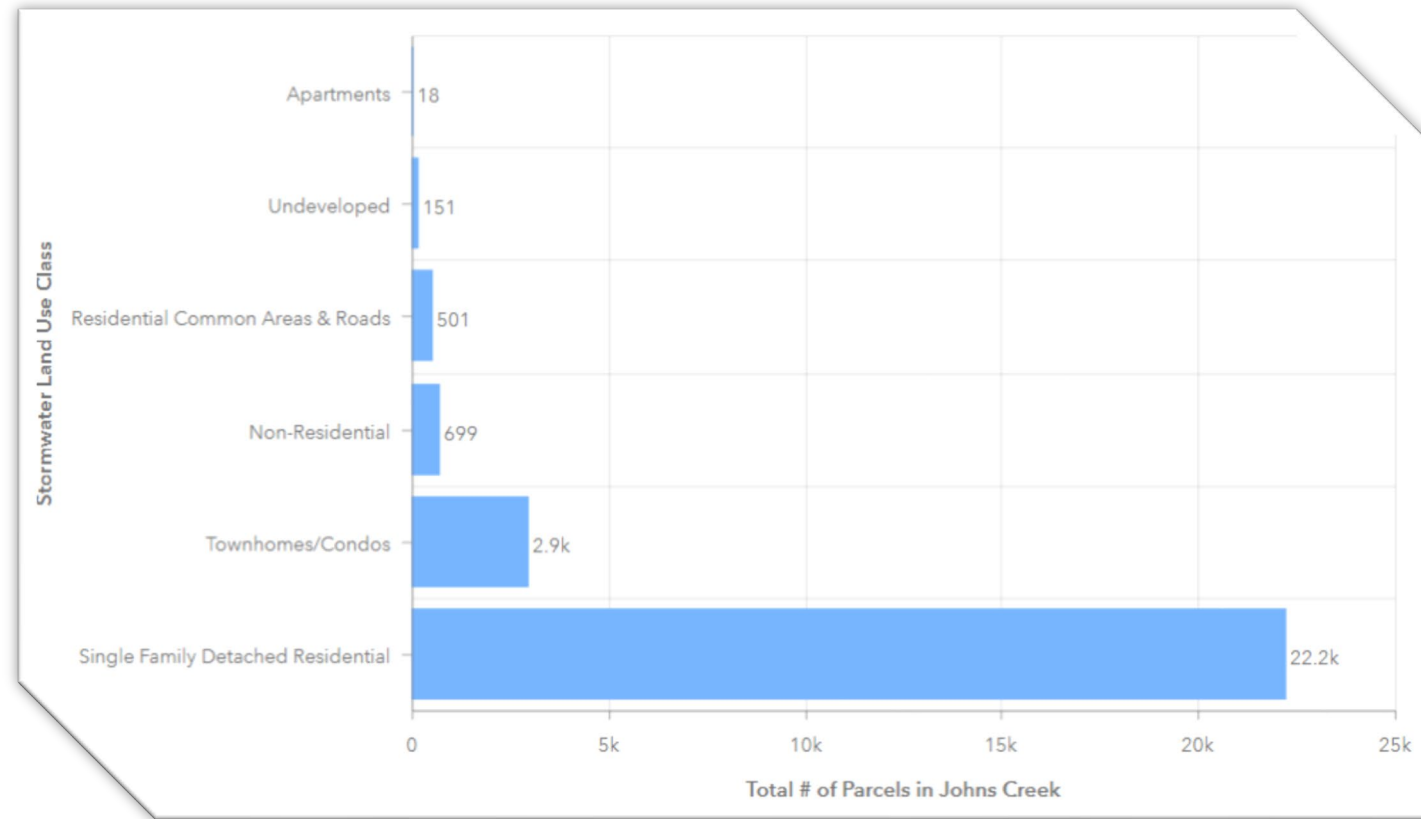


Figure 3.1.5-2 NRCS TR-55 Solution of the Runoff Equation
(Source: NRCS TR-55, NEH630, 2004)

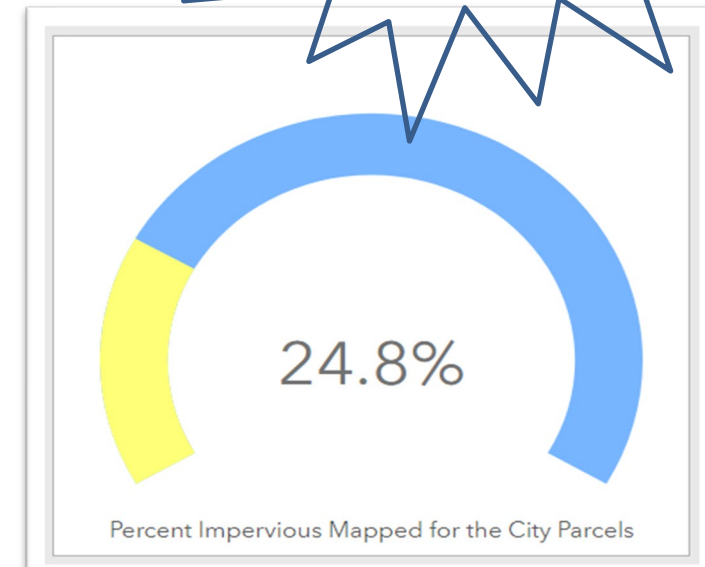
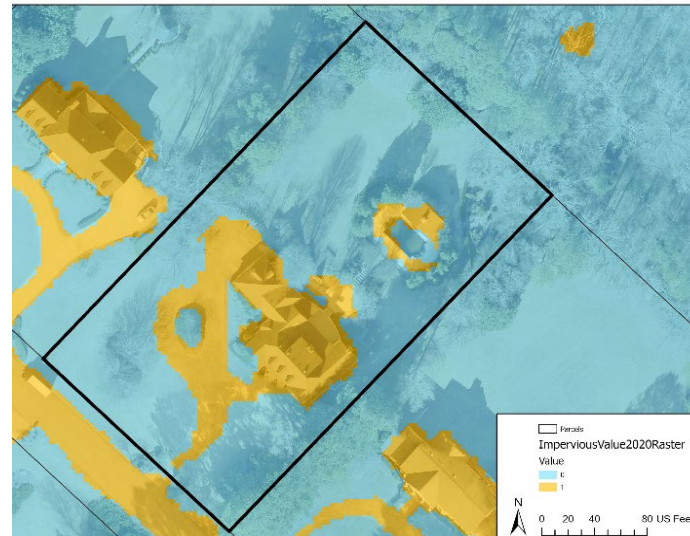
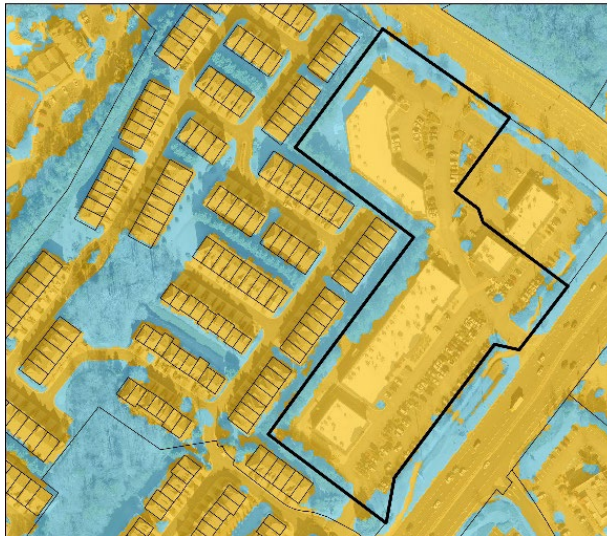
Stormwater Utility Rate Classifications

- Residential
 - Single Family Residential - Detached (SFRD)
 - Single Family Residential - Attached (SFRA) such as townhomes and condominiums
- Non-Residential
 - Apartments
 - Office/Shopping
 - Recreation: Private and Public
 - Schools, Religious, Municipal
 - Res Common Areas and Roads
 - Undeveloped



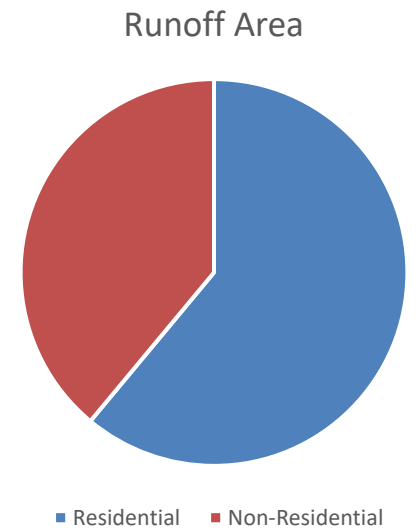
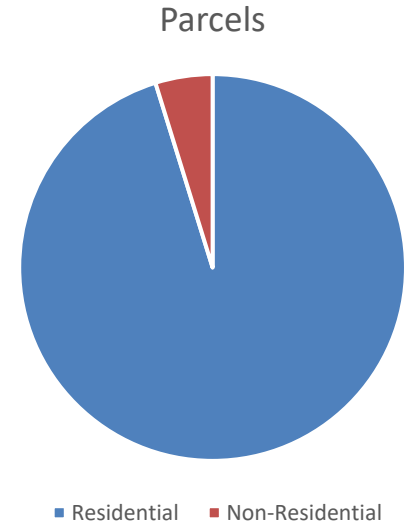
Impervious Surface Determination

- Artificial Intelligence and imagery
- United States Department of Agriculture's (USDA's) National Agriculture Imagery Program (NAIP).
 - Traditional 3 bands of color ("true-color imagery")
 - 4th band where near infrared data is stored
- Train a machine learning model: [maximum likelihood model](#)

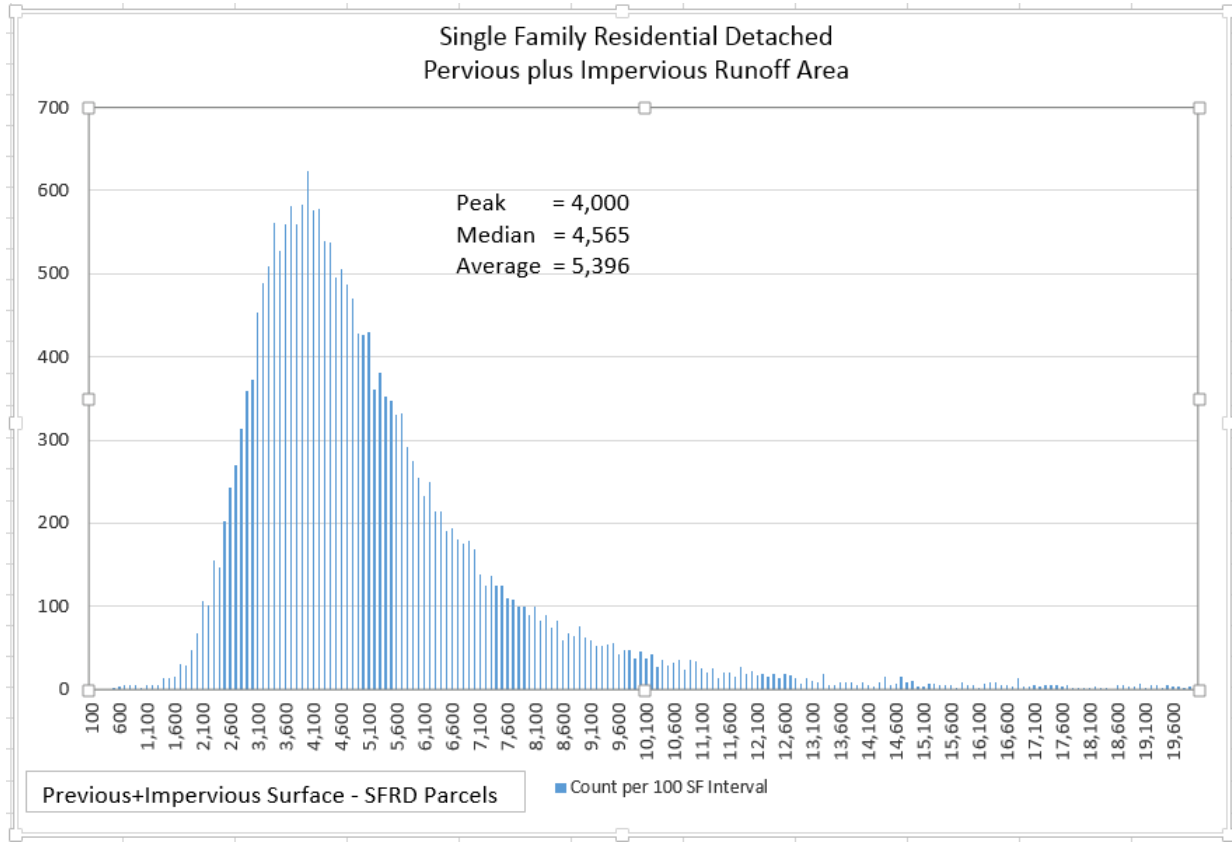


Area Comparison

	Percentage			
	Parcels	Gross Area	Impervious Area	Runoff Area
Residential	95%	59%	62%	61%
Non-Residential	5%	41%	38%	39%

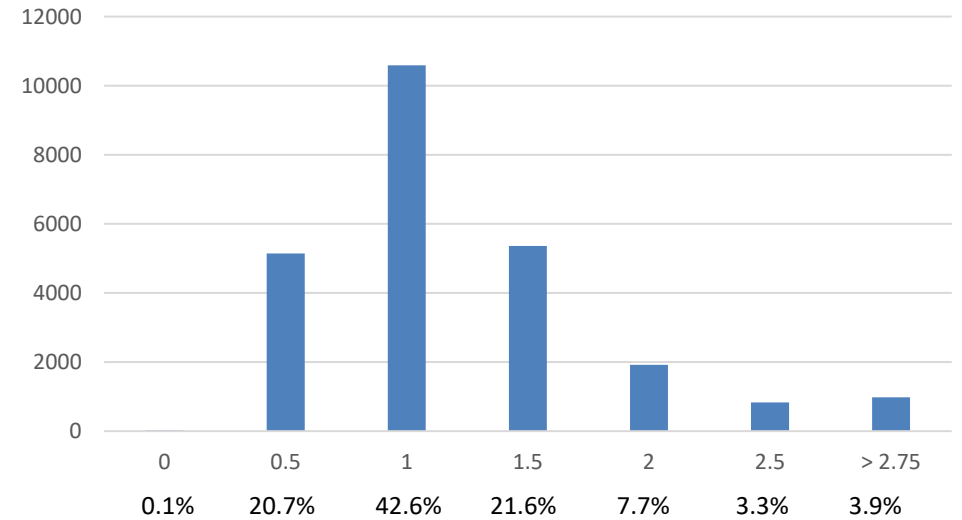


Rate Structure: Residential

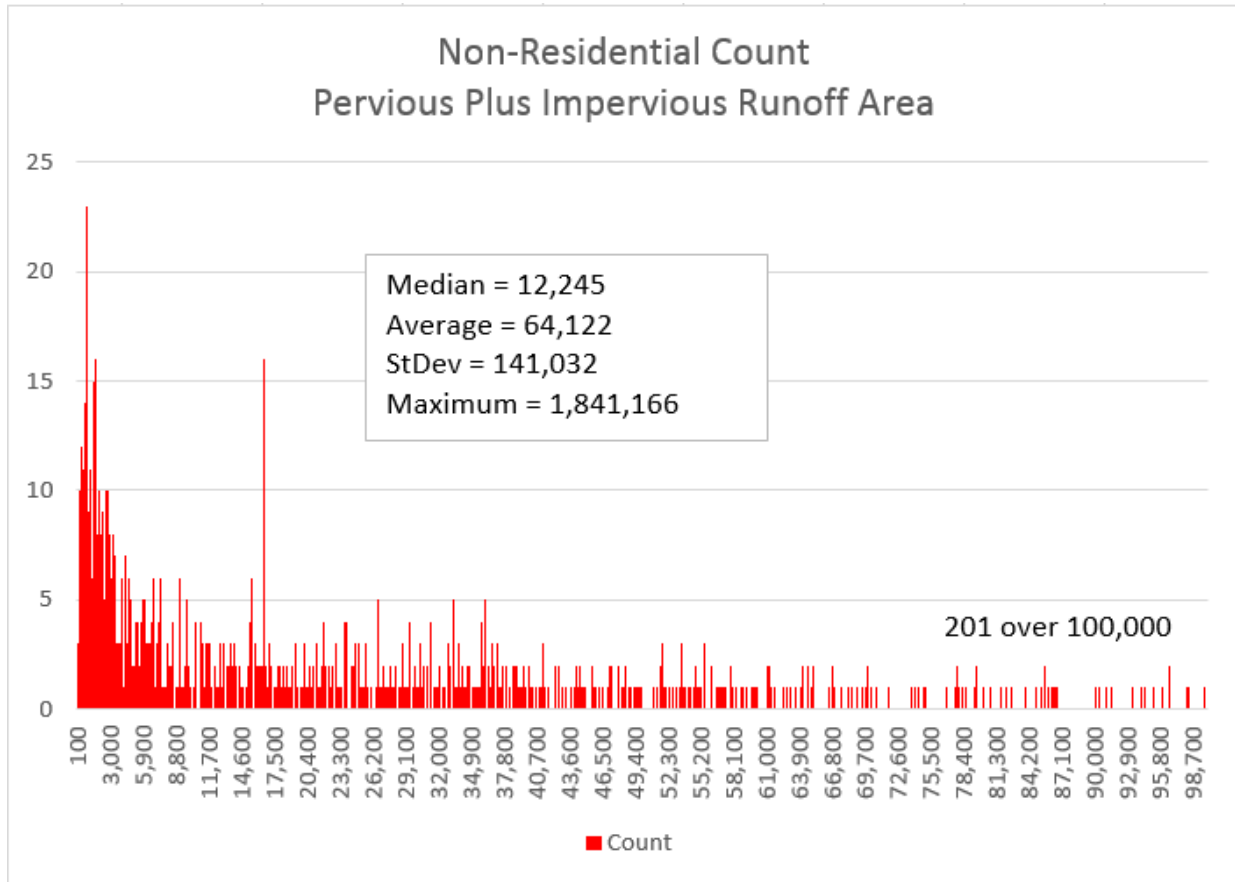


Rate Structure	Fee	Per + Imp RA ERU = 4,000		
		Value	Lower	Upper
SFR - 0.5 ERU	0.5 ERU	2,000	401	3,000
SFR - 1 ERU	1 ERU	4,000	3,001	5,000
SFR - 1.5 ERUs	1.5 ERU	6,000	5,001	7,000
SFR - 2 ERUs	2 ERU	8,000	7,001	9,000
SFR - 2.5 ERUs	2.5 ERU	10,000	9,001	11,000
Large SFR	Area / ERU	> 11,000	11,001	
Non-SFR	Area / ERU	> 400	401	

Residential Tier Count



Rate Structure: Non-Residential



Rate Structure	Fee	Per + Imp RA ERU = 4,000		
		Value	Lower	Upper
SFR - 0.5 ERU	0.5 ERU	2,000	401	3,000
SFR - 1 ERU	1 ERU	4,000	3,001	5,000
SFR - 1.5 ERUs	1.5 ERU	6,000	5,001	7,000
SFR - 2 ERUs	2 ERU	8,000	7,001	9,000
SFR - 2.5 ERUs	2.5 ERU	10,000	9,001	11,000
Large SFR	Area / ERU	> 11,000	11,001	
Non-SFR	Area / ERU	> 400	401	

Stormwater Utility Credits

Credit Description	Credit Term in Year(s)	Residential	Non-Residential	Maximum Prorated User Fee Credit	Annual Report Required
GSMM Unified Stormwater Criteria					
· Water Quality	5	X	X	10%	Yes
· Channel Protection	5	X	X	10%	Yes
· Overbank Flood Protection	5	X	X	10%	Yes
· Extreme Flood Protection	5	X	X	10%	Yes
No Direct Discharge	5	X	X	40%	No
Watershed Stewardship	1	X	X	10%	Yes
Septic Tank Maintenance	5	X	X	10%	No
Watershed Improvement Project	5	X	X	10%	No
Water Resources Education Program	1		X	10%	Yes
NPDES Industrial Stormwater General Permit Compliance	1		X	10%	Yes
Hot Spot BMP Implementation	5		X	10%	Yes

- Reduce Impact on System
- Encourage Mission Goal – Clean Water

Stormwater Utility - Benefits

- Shift to proactive maintenance
 - mitigate and minimize infrastructure failure
 - focus on customer service
- Improvement to quality of life and provision of clean water
- Better organize and improve efficiency
- Consolidate required reporting efforts

Questions?



For more information visit www.JohnsCreekGa.gov
Type “Stormwater” in search box

Send questions or comments to:
StormwaterUtility@JohnsCreekga.gov
David.Chastant@JohnsCreekga.gov

Quiz?



How does the City of Johns Creek Stormwater Utility differ from most Utilities?

- A. The City's ERU is based on impervious area only.
- B. The City's ERU is based on pervious and impervious area.
- C. The utility's revenue will fund State and Federal compliance as well as system maintenance and operation.
- D. The City plans to expand the MS4 EOS and improving customer service.